



Spoked handwheels

Technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

BOSS-CAP

Anodised aluminium self-adhesive front plate.

VRTP. 375: cover in polyester based technopolymer (PBT), RAL 7035 grey colour, glossy finish, press-fit assembly.

STANDARD EXECUTIONS

Black-oxide steel boss, H7 reamed hole.

- **VRTP.:** without handle.
- **VRTP+I:** with revolving handle I.621+x (see page 576) in technopolymer.
- **VRTP+IEL:** with revolving handle IEL+x-SOFT (see page 572) in technopolymer coated with "Soft touch" thermoplastic elastomer (TPE).
- **VRTP+IR:** with fold-away handle IR.620 (see page 584) in technopolymer.

SPECIAL EXECUTIONS ON REQUEST

Bosses with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16).

To order the handwheel with keyway add the index -K after the code and the description (i.e. 78411-R-K VRTP.80 A-8-K).

ACCESSORIES ON REQUEST

- Axial retaining washer GN 184 (see page 971).
- Technopolymer boss cap in one of the Ergostyle colours, matte finish, available for VRTP.125, VRTP.160 and VRTP.200 (see ECB table).

Code	Description	Boss cap for
29552-*	ECB.T2-*	VRTP.125
29553-*	ECB.T3-*	VRTP.160
29554-*	ECB.T4-*	VRTP.200

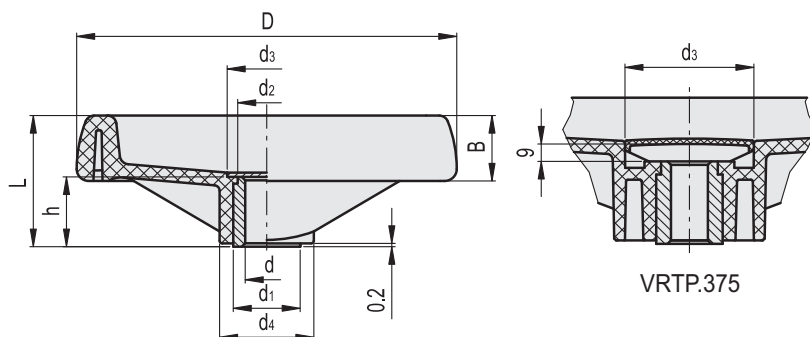
* Complete with colour index (C1, ..., C6).

 C1	 C2	 C3	 C4	 C5	 C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000



ELESA Original design

VRTP.

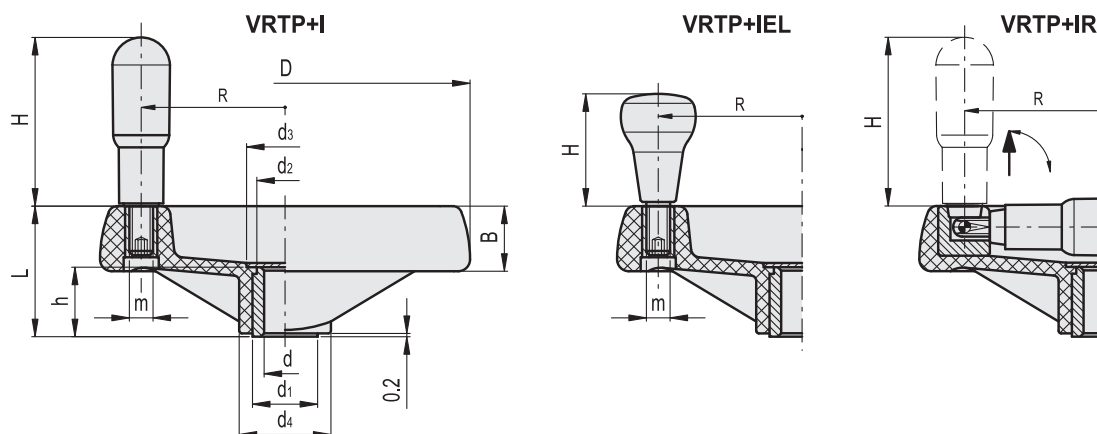


VRTP.375

VRTP.

Code	Description	D	dh7	L	B	d1	d2	d3	d4	h	C# [Nm]	L# [J]	⚖
78411-R	VRTP.80 A-8	80	8	35	18	18	16	20.5	25	17	32	5	74
78412-R	VRTP.80 A-10	80	10	35	18	18	16	20.5	25	17	32	5	70
78510-R	VRTP.100 A-8	99	8	37	20	18	16	20.5	25.5	17	54	7	105
78511-R	VRTP.100 A-10	99	10	37	20	18	16	20.5	25.5	17	54	7	100
78512-R	VRTP.100 A-12	99	12	37	20	18	16	20.5	25.5	17	54	7	95
78610-R	VRTP.125 A-8	125	8	44	22	22	20	26	31	22	94	10	165
78611-R	VRTP.125 A-12	125	12	44	22	22	20	26	31	22	94	10	160
78612-R	VRTP.125 A-14	125	14	44	22	22	20	26	31	22	94	10	155
78710-R	VRTP.160 A-8	160	8	51	25	26	24	32	40	27	185	15	282
78711-R	VRTP.160 A-14	160	14	51	25	26	24	32	40	27	185	15	275
78712-R	VRTP.160 A-16	160	16	51	25	26	24	32	40	27	185	15	263
78810-R	VRTP.200 A-8	200	8	61	28	30	28	36	48.5	34	300	24	490
78811-R	VRTP.200 A-16	200	16	61	28	30	28	36	48.5	34	300	24	460
78813-R	VRTP.200 A-20	200	20	61	28	30	28	36	48.5	34	300	24	430
78911-R	VRTP.250 A-20	250	20	69	32	35	33	45	58	38	420	28	730
78913-R	VRTP.250 A-24	250	24	69	32	35	33	45	58	38	420	28	710
78948-R	VRTP.300 A-20	300	20	78	35.5	40	37	52	66	43	480	36	940
78951-R	VRTP.300 A-26	300	26	78	35.5	40	37	52	66	43	480	36	970
79011-R	VRTP.375 A-26	375	26	87	39	35	33	70	81	43	380	55	1350

For maximum torque (C) and impact strength (L) see Technical Data on page A3.



VRTP+I

Code	Description	D	dh7	L	B	d1	d2	d3	d4	h	H	m	R	C# [Nm]	L# [J]	
78421-R	VRTP.80+I A-8	80	8	35	18	18	16	20.5	25	17	45	M6	29	32	5	104
78422-R	VRTP.80+I A-10	80	10	35	18	18	16	20.5	25	17	45	M6	29	32	5	100
78520-R	VRTP.100+I A-8	99	8	37	20	18	16	20.5	25.5	17	60	M6	37	54	7	150
78521-R	VRTP.100+I A-10	99	10	37	20	18	16	20.5	25.5	17	60	M6	37	54	7	145
78522-R	VRTP.100+I A-12	99	12	37	20	18	16	20.5	25.5	17	60	M6	37	54	7	140
78620-R	VRTP.125+I A-8	125	8	44	22	22	20	26	31	22	65	M8	48	94	10	250
78621-R	VRTP.125+I A-12	125	12	44	22	22	20	26	31	22	65	M8	48	94	10	245
78622-R	VRTP.125+I A-14	125	14	44	22	22	20	26	31	22	65	M8	48	94	10	240
78720-R	VRTP.160+I A-8	160	8	51	25	26	24	32	40	27	73	M8	65	185	15	363
78721-R	VRTP.160+I A-14	160	14	51	25	26	24	32	40	27	73	M8	65	185	15	356
78722-R	VRTP.160+I A-16	160	16	51	25	26	24	32	40	27	73	M8	65	185	15	339
78820-R	VRTP.200+I A-8	200	8	61	28	30	28	36	48.5	34	80	M8	84	300	24	579
78821-R	VRTP.200+I A-16	200	16	61	28	30	28	36	48.5	34	80	M8	84	300	24	552
78823-R	VRTP.200+I A-20	200	20	61	28	30	28	36	48.5	34	80	M8	84	300	24	525
78921-R	VRTP.250+I A-20	250	20	69	32	35	33	45	58	38	90	M10	103	420	28	904
78923-R	VRTP.250+I A-24	250	24	69	32	35	33	45	58	38	90	M10	103	420	28	888
78958-R	VRTP.300+I A-20	300	20	78	35.5	40	37	52	66	43	90	M10	127	480	36	1050
78961-R	VRTP.300+I A-26	300	26	78	35.5	40	37	52	66	43	90	M10	123	480	36	1111
79021-R	VRTP.375+I A-26	375	26	87	39	35	33	70	81	43	90	M10	160	380	55	1240

VRTP+IEL

78926-R	VRTP.250+IEL A-20	250	20	69	32	35	33	45	58	38	65	M10	103	420	28	914
78928-R	VRTP.250+IEL A-24	250	24	69	32	35	33	45	58	38	65	M10	103	420	28	818
78964-R	VRTP.300+IEL A-20	300	20	78	35.5	40	37	52	66	43	65	M10	127	480	36	1060
78966-R	VRTP.300+IEL A-26	300	26	78	35.5	40	37	52	66	43	65	M10	127	480	36	1121
79026-R	VRTP.375+IEL A-26	375	26	87	39	35	33	70	81	43	65	M10	160	380	55	1260

VRTP+IR

Code	Description	D	dh7	L	B	d1	d2	d3	d4	h	H	R	C# [Nm]	L# [J]	
78431-R	VRTP.80+IR A-8	80	8	35	18	18	16	20.5	25	17	45	29	32	5	102
78432-R	VRTP.80+IR A-10	80	10	35	18	18	16	20.5	25	17	45	29	32	5	98
78530-R	VRTP.100+IR A-8	99	8	37	20	18	16	20.5	25.5	17	60	37	54	7	170
78531-R	VRTP.100+IR A-10	99	10	37	20	18	16	20.5	25.5	17	60	37	54	7	163
78532-R	VRTP.100+IR A-12	99	12	37	20	18	16	20.5	25.5	17	60	37	54	7	155
78630-R	VRTP.125+IR A-8	125	8	44	22	22	20	26	31	22	65	48	94	10	235
78631-R	VRTP.125+IR A-12	125	12	44	22	22	20	26	31	22	65	48	94	10	230
78632-R	VRTP.125+IR A-14	125	14	44	22	22	20	26	31	22	65	48	94	10	225
78730-R	VRTP.160+IR A-8	160	8	51	25	26	24	32	40	27	73	65	185	15	395
78731-R	VRTP.160+IR A-14	160	14	51	25	26	24	32	40	27	73	65	185	15	388
78732-R	VRTP.160+IR A-16	160	16	51	25	26	24	32	40	27	73	65	185	15	380
78830-R	VRTP.200+IR A-8	200	8	61	28	30	28	36	48.5	34	80	84	300	24	625
78831-R	VRTP.200+IR A-16	200	16	61	28	30	28	36	48.5	34	80	84	300	24	593
78833-R	VRTP.200+IR A-20	200	20	61	28	30	28	36	48.5	34	80	84	300	24	560
78931-R	VRTP.250+IR A-20	250	20	69	32	35	33	45	58	38	90	105	420	28	932
78933-R	VRTP.250+IR A-24	250	24	69	32	35	33	45	58	38	90	105	420	28	892
78968-R	VRTP.300+IR A-20	300	20	78	35.5	40	37	52	66	43	90	123	480	36	1080
78971-R	VRTP.300+IR A-26	300	26	78	35.5	40	37	52	66	43	90	123	480	36	1210
79031-R	VRTP.375+IR A-26	375	26	87	39	35	33	70	81	43	90	160	380	55	1350

For maximum torque (C) and impact strength (L) see Technical Data on page A3.



Spoked handwheels with solid section

Technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

Certified in compliance with FDA (U.S. Food and Drug Administration).

BOSS-CAP

AISI 304 stainless steel self-adhesive front plate (adhesive certified in compliance with FDA U.S. Food and Drug Administration).

STANDARD EXECUTIONS

AISI 304 stainless steel boss, H7 reamed hole.

- **VRTP-P+I-SST**: with revolving handle type I.621+x-SST in polyamide based (PA) technopolymer, certified in compliance with FDA.

- **VRTP-P+IR-SST**: with fold-away handle type IR.620 in polyamide based (PA) technopolymer, certified in compliance with FDA. AISI 304 stainless steel pin, bushing and internal components, AISI 316L stainless steel support.

SPECIAL EXECUTIONS ON REQUEST

- Bosses with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16).

To order the handwheel with keyway add the index -K after the code and the description (i.e. 79111-K VRTP.80-P+I-SST-8-K).

ACCESSORIES ON REQUEST

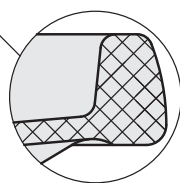
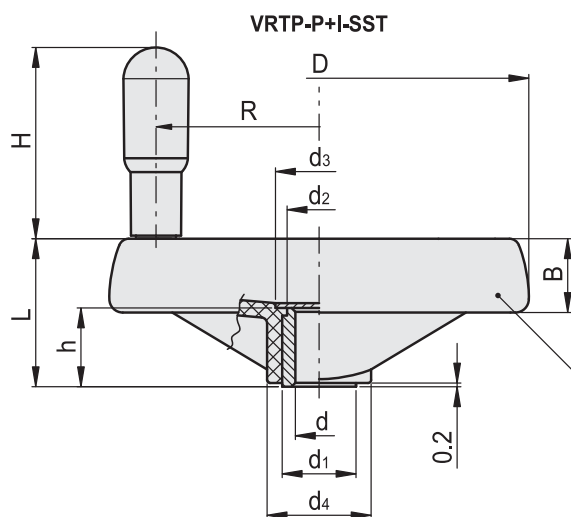
Axial retaining washer GN 184.5 (see page 971).

FEATURES AND APPLICATIONS

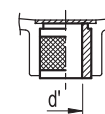
The solid rim of the handwheel allows the maximum cleaning thanks to the absence of rear recesses. For this reason, being the technopolymer polypropylene based and the metal components in AISI 304 stainless steel, this version of VRTP. handwheel is designed for applications in food, pharmaceutical and medical fields.



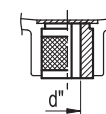
ELESA Original design



Solid rim without recesses maximum cleaning



d' Max diameter permissible



d'' Max diameter for hole with keyway

VRTP-P+I-SST

STAINLESS STEEL

Code	Description	D	dh7	L	B	d1	d2	d3	d4	h	H	R	d'	d''	t	b	C# [Nm]	L# [J]	
79111-R	VRTP.80-P+I-SST-8	80	8	35	18	18	16	20.5	25	17	45	29	14	10	11.4	3	32	5	104
79161-R	VRTP.100-P+I-SST-10	99	10	37	20	18	16	20.5	25.5	17	60	37	14	10	11.4	3	54	7	145
79211-R	VRTP.125-P+I-SST-12	125	12	44	22	22	20	26	31	22	65	48	18	12	13.8	4	94	10	245
79261-R	VRTP.160-P+I-SST-14	160	14	51	25	26	24	32	40	27	73	65	20	16	18.3	5	185	15	356
79311-R	VRTP.200-P+I-SST-16	200	16	61	28	30	28	36	50	34	80	84	24	18	20.8	6	300	24	552

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.



Material suitable for food contact

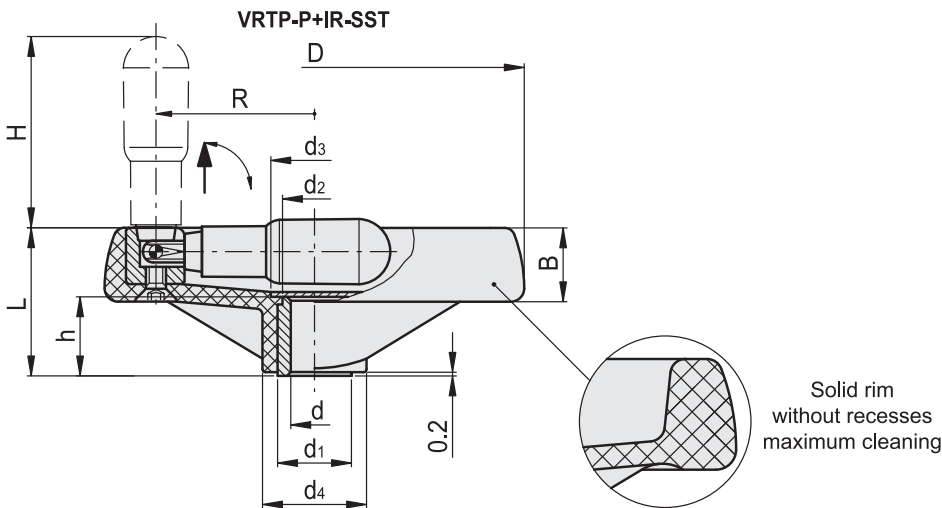
Technopolymer handwheel and handle.
Certified in compliance with FDA (U.S. Food and Drug Administration).

Corrosion resistance

- 1. AISI 304 stainless steel handwheel central boss
- 2. AISI 304 stainless steel revolving handle pin
- 3. AISI 304 stainless steel pin, bushing and internal components, AISI 316L stainless steel support

Easy cleaning

- 4. Solid rim
- 5. Hub without recesses



VRTP-P+IR-SST

STAINLESS STEEL

Code	Description	D	dH7	L	B	d1	d2	d3	d4	h	H	R	d'	d''	t	b	C# [Nm]	L# [J]	
79121-R	VRTP.80-P+IR-SST-8	80	8	35	18	18	16	20.5	25	17	45	29	14	10	11.4	3	32	5	102
79171-R	VRTP.100-P+IR-SST-10	99	10	37	20	18	16	20.5	25.5	17	60	37	14	10	11.4	3	54	7	163
79221-R	VRTP.125-P+IR-SST-12	125	12	44	22	22	20	26	31	22	65	48	18	12	13.8	4	94	10	230
79271-R	VRTP.160-P+IR-SST-14	160	14	51	25	26	24	31	40	27	73	65	20	16	18.3	5	185	15	388
79321-R	VRTP.200-P+IR-SST-16	200	16	61	28	30	28	36	50	34	80	84	24	18	20.8	6	300	24	593

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.



Operating elements 1

Spoked handwheels

Aluminium, plastic coated

SPECIFICATION

Types

- Type **A**: without handle
- Type **R**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium pressure die casting

- Hub machined
- Rim turned
- plastic coated

black, RAL 9005, textured finish **SW**

silver, RAL 9006, textured finish **SR**

Rim concentric and square to bore < 0.4

Cylindrical Revolving handles GN 798.2 (see page 578)

Plastic, Technopolymer
black, matt

INFORMATION

Spoked handwheels GN 924 are distinguished by modern design. The removable plastic cover shrouds the fixing components such as screws, countersunk washers as well as the shaft end.

ACCESSORY

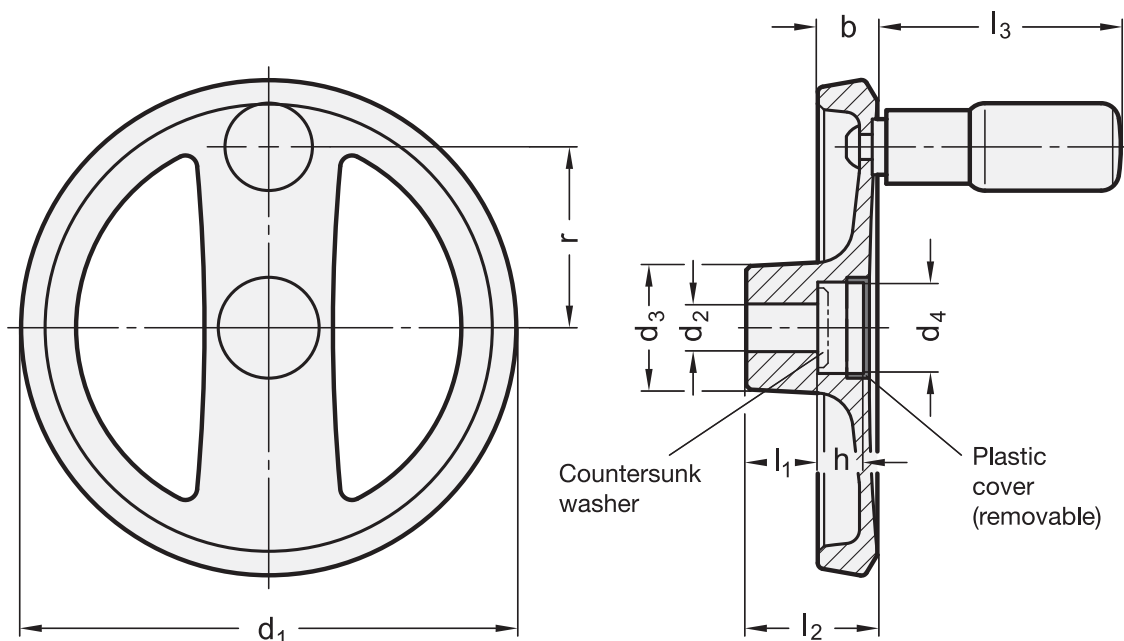
- Countersunk washers GN 184 (see page 971) are to be ordered separately

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



reddot design award



* Complete with colour index of the Handwheels (SW or SR)

 SW  SR
RAL9005 RAL9006

GN 924-A

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	Recommended countersunk washer	
GN 924-125-B12-A-*	125	12	31	23	15	11	18	33.5	GN 184-20	255
GN 924-125-K12-A-*	125	12	31	23	15	11	18	33.5	GN 184-20	255
GN 924-125-B14-A-*	125	14	31	23	15	11	18	33.5	GN 184-20	250
GN 924-125-K14-A-*	125	14	31	23	15	11	18	33.5	GN 184-20	250
GN 924-140-B14-A-*	140	14	36	28.5	16.5	13	19	36.5	GN 184-25	340
GN 924-140-K14-A-*	140	14	36	28.5	16.5	13	19	36.5	GN 184-25	340
GN 924-140-B16-A-*	140	16	36	28.5	16.5	13	19	36.5	GN 184-25	340
GN 924-140-K16-A-*	140	16	36	28.5	16.5	13	19	36.5	GN 184-25	340
GN 924-160-B14-A-*	160	14	36	28.5	18	14.5	20	39.5	GN 184-25	460
GN 924-160-K14-A-*	160	14	36	28.5	18	14.5	20	39.5	GN 184-25	460
GN 924-160-B16-A-*	160	16	36	28.5	18	14.5	20	39.5	GN 184-25	460
GN 924-160-K16-A-*	160	16	36	28.5	18	14.5	20	39.5	GN 184-25	460
GN 924-200-B18-A-*	200	18	42	36	20.5	16	24	45.5	GN 184-32	730
GN 924-200-K18-A-*	200	18	42	36	20.5	16	24	45.5	GN 184-32	730
GN 924-200-B20-A-*	200	20	42	36	20.5	16	24	45.5	GN 184-32	730
GN 924-200-K20-A-*	200	20	42	36	20.5	16	24	45.5	GN 184-32	730

GN 924-R

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	l3 ≈	r	Ø Handle	Recommended countersunk washer	
GN 924-125-B12-R-*	125	12	31	23	15	11	18	33.5	61.5	45.5	22	GN 184-20	340
GN 924-125-K12-R-*	125	12	31	23	15	11	18	33.5	61.5	45.5	22	GN 184-20	340
GN 924-125-B14-R-*	125	14	31	23	15	11	18	33.5	61.5	45.5	22	GN 184-20	340
GN 924-125-K14-R-*	125	14	31	23	15	11	18	33.5	61.5	45.5	22	GN 184-20	340
GN 924-140-B14-R-*	140	14	36	28.5	16.5	13	19	36.5	76.5	52	24	GN 184-25	450
GN 924-140-K14-R-*	140	14	36	28.5	16.5	13	19	36.5	76.5	52	24	GN 184-25	440
GN 924-140-B16-R-*	140	16	36	28.5	16.5	13	19	36.5	76.5	52	24	GN 184-25	450
GN 924-140-K16-R-*	140	16	36	28.5	16.5	13	19	36.5	76.5	52	24	GN 184-25	440
GN 924-160-B14-R-*	160	14	36	28.5	18	14.5	20	39.5	76.5	61	24	GN 184-25	560
GN 924-160-K14-R-*	160	14	36	28.5	18	14.5	20	39.5	76.5	61	24	GN 184-25	560
GN 924-160-B16-R-*	160	16	36	28.5	18	14.5	20	39.5	76.5	61	24	GN 184-25	570
GN 924-160-K16-R-*	160	16	36	28.5	18	14.5	20	39.5	76.5	61	24	GN 184-25	570
GN 924-200-B18-R-*	200	18	42	36	20.5	16	24	45.5	85	77.5	25	GN 184-32	890
GN 924-200-K18-R-*	200	18	42	36	20.5	16	24	45.5	85	77.5	25	GN 184-32	890
GN 924-200-B20-R-*	200	20	42	36	20.5	16	24	45.5	85	77.5	25	GN 184-32	880
GN 924-200-K20-R-*	200	20	42	36	20.5	16	24	45.5	85	77.5	25	GN 184-32	880



Handwheels with retractable handle

Aluminium, Handle locked

SPECIFICATION

Type

- Type **R**: with retractable handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium pressure die casting

- Hub machined
- Rim turned
- plastic coated

black, RAL 9005, textured finish **SW**

silver, RAL 9006, textured finish **SR**

Rim concentric and square to bore < 0.4

Retractable handles GN 798.3 (see page 586)

Plastic, Technopolymer

black, matt

Retracting mechanism

Steel, blackened



reddot design award

INFORMATION

The handle in these handwheels is locked in a conical bore in the operating position.

For reversal, it must first be pulled from the cone in axial direction.

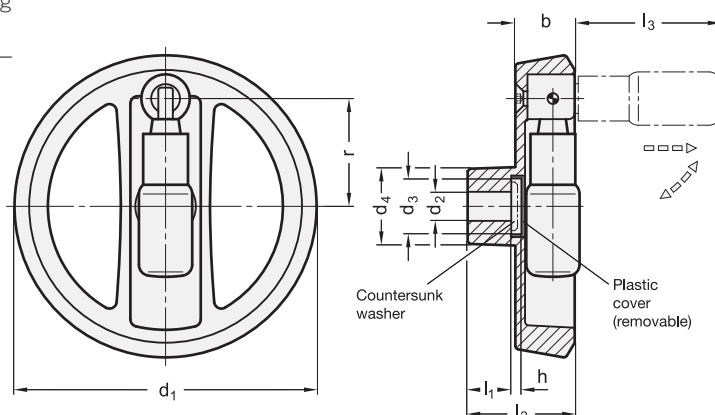
A pressure spring holds the handle in both positions. When swung out, it automatically engages again.

TECHNICAL INFORMATION

- Keyway DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)

* Complete with colour index of the Handwheels (SW or SR)

SW **SR**
RAL9005 RAL9006



GN 924.3

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	l3 ≈	r ≈	Ø Handle	Recommended countersunk washer	⚖
GN 924.3-125-B12-R-*	125	12	23	31	24.5	4	18	45	60.5	45.5	22	GN 184-22	465
GN 924.3-125-K12-R-*	125	12	23	31	24.5	4	18	45	60.5	45.5	22	GN 184-22	465
GN 924.3-125-B14-R-*	125	14	23	31	24.5	4	18	45	60.5	45.5	22	GN 184-22	450
GN 924.3-125-K14-R-*	125	14	23	31	24.5	4	18	45	60.5	45.5	22	GN 184-22	450
GN 924.3-140-B14-R-*	140	14	23	36	26	4	19	47	75.5	52	24	GN 184-22	600
GN 924.3-140-K14-R-*	140	14	23	36	26	4	19	47	75.5	52	24	GN 184-22	590
GN 924.3-160-B14-R-*	160	14	23	36	26	4	20	48	75.5	61	24	GN 184-22	700
GN 924.3-160-K14-R-*	160	14	23	36	26	4	20	48	75.5	61	24	GN 184-22	690
GN 924.3-140-B16-R-*	140	16	23	36	26	4	19	47	75.5	52	24	GN 184-22	600
GN 924.3-140-K16-R-*	140	16	23	36	26	4	19	47	75.5	52	24	GN 184-22	590
GN 924.3-160-B16-R-*	160	16	23	36	26	4	20	48	75.5	61	24	GN 184-22	700
GN 924.3-160-K16-R-*	160	16	23	36	26	4	20	48	75.5	61	24	GN 184-22	690
GN 924.3-200-B18-R-*	200	18	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	900
GN 924.3-200-K18-R-*	200	18	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	890
GN 924.3-200-B20-R-*	200	20	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	1060
GN 924.3-200-K20-R-*	200	20	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	1000

Handwheels with retractable handle

Aluminium, Handle swivelling

SPECIFICATION

Type

- Type **R**: with retractable handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium pressure die casting

- Hub machined
- Rim turned
- plastic coated

black, RAL 9005, textured finish **SW**

silver, RAL 9006, textured finish **SR**

Rim concentric and square to bore < 0.4

Safety retractable handles GN 798.7 (see page 587)

Plastic, Technopolymer
black, matt

Retracting mechanism
Steel, blackened



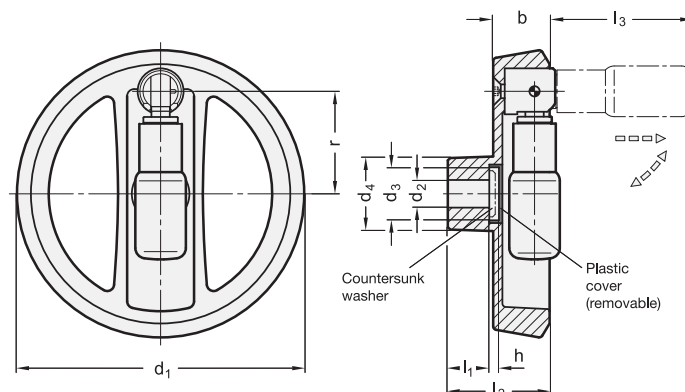
reddot design award

INFORMATION

Retractable handwheels GN 924.7 are distinguished by modern design.

These spoked handwheels are suitable for applications where the handle must not remain in the operating position.

In order to bring the handle into this position it has to be turned first through 90° to a stop against a torsion spring and then it is pushed against spring pressure into its hold position. By maintaining the forward thrust on the handle the handwheel can easily be rotated. When releasing the handle the springs returns it back to the retracted position.



* Complete with colour index of the Handwheels (SW or SR)

SW **SR**
RAL9005 RAL9006

GN 924.7

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	l3 ≈	r ≈	Ø Handle	Recommended countersunk washer	⚖
GN 924.7-125-B12-R-*	125	12	23	31	24.5	4	18	45	62	45.5	22	GN 184-22	460
GN 924.7-125-K12-R-*	125	12	23	31	24.5	4	18	45	62	45.5	22	GN 184-22	460
GN 924.7-125-B14-R-*	125	14	23	31	24.5	4	18	45	62	45.5	22	GN 184-22	450
GN 924.7-125-K14-R-*	125	14	23	31	24.5	4	18	45	62	45.5	22	GN 184-22	450
GN 924.7-140-B14-R-*	140	14	23	36	26	4	19	47	77.5	52	24	GN 184-22	580
GN 924.7-140-K14-R-*	140	14	23	36	26	4	19	47	77.5	52	24	GN 184-22	580
GN 924.7-160-B14-R-*	160	14	23	36	26	4	20	48	77.5	61	24	GN 184-22	700
GN 924.7-160-K14-R-*	160	14	23	36	26	4	20	48	77.5	61	24	GN 184-22	700
GN 924.7-140-B16-R-*	140	16	23	36	26	4	19	47	77.5	52	24	GN 184-22	590
GN 924.7-140-K16-R-*	140	16	23	36	26	4	19	47	77.5	52	24	GN 184-22	590
GN 924.7-160-B16-R-*	160	16	23	36	26	4	20	48	77.5	61	24	GN 184-22	710
GN 924.7-160-K16-R-*	160	16	23	36	26	4	20	48	77.5	61	24	GN 184-22	700
GN 924.7-200-B18-R-*	200	18	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1050
GN 924.7-200-K18-R-*	200	18	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1050
GN 924.7-200-B20-R-*	200	20	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1035
GN 924.7-200-K20-R-*	200	20	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1035



Spoked handwheels

Aluminium, blank, rim polished

SPECIFICATION

Types

- Type **A**: without handle
- Type **R**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body

- Rim high-polished
- unmachined body matt shot-blasted

Cylindrical Revolving handles GN 798 (see page 577)

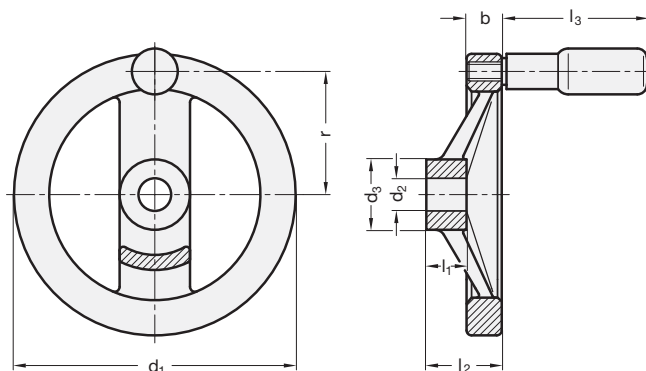
Plastic, Technopolymer
black, matt

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)

* Complete with Bore codes of the Handwheel (B or K)

B without keyway **K** with keyway



GN 322-A

Description	d1	d2 H7	d3	b	l1	l2	⚖
GN 322-125-*12-A	125	12	31	15	18	33	311
GN 322-125-*14-A	125	14	31	15	18	33	308
GN 322-140-*14-A	140	14	36	16.5	19	36	411
GN 322-140-*16-A	140	16	36	16.5	19	36	394
GN 322-160-*14-A	160	14	36	18	20	39	539
GN 322-160-*16-A	160	16	36	18	20	39	530
GN 322-200-*18-A	200	18	42	20.5	24	45	892
GN 322-200-*20-A	200	20	42	20.5	24	45	885
GN 322-250-*22-A	250	22	48	23	28	51	1478
GN 322-250-*26-A	250	26	48	23	28	51	1454

GN 322-R

Description	d1	d2 H7	d3	b	l1	l2	l3	r	Ø Handle	⚖
GN 322-125-*12-R	125	12	31	15	18	33	61.5	54	22	396
GN 322-125-*14-R	125	14	31	15	18	33	61.5	54	22	393
GN 322-140-*14-R	140	14	36	16.5	19	36	76.5	61	24	411
GN 322-140-*16-R	140	16	36	16.5	19	36	76.5	61	24	405
GN 322-160-*14-R	160	14	36	18	20	39	76.5	71	24	613
GN 322-160-*16-R	160	16	36	18	20	39	76.5	71	24	610
GN 322-200-*18-R	200	18	42	20.5	24	45	86.5	89	25	1017
GN 322-200-*20-R	200	20	42	20.5	24	45	86.5	89	25	1010
GN 322-250-*22-R	250	22	48	23	28	51	86.5	113	25	1603
GN 322-250-*26-R	250	26	48	23	28	51	86.5	113	25	1579

Weight type B

Handwheels with retractable handle

Aluminium, Handle locked

SPECIFICATION

Type

- Type **R**: with retractable handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned and polished
- Unmachined body matt shot-blasted

Rim concentric and square to bore < 0.4

Retractable handles GN 798.3 (see page 586)

Plastic, Technopolymer
black, matt

Retracting mechanism

Steel, blackened



INFORMATION

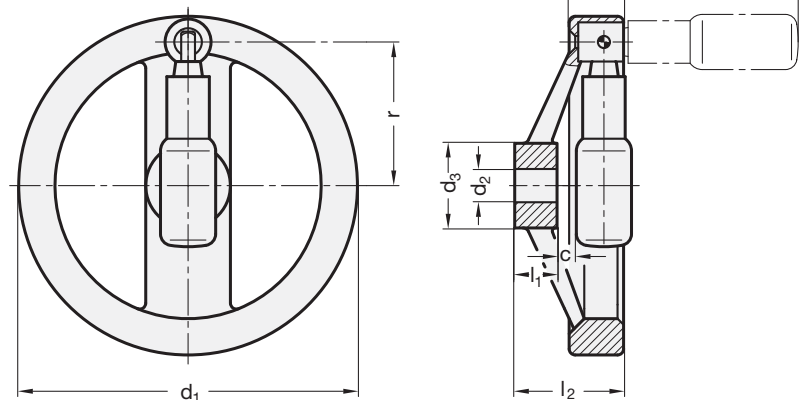
The handle in the handwheels GN 322.3 is locked in a conical bore in the operating position.

For reversal, it must first be pulled from the cone in axial direction.

A pressure spring holds the handle in both positions. When swung out, it automatically engages again.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



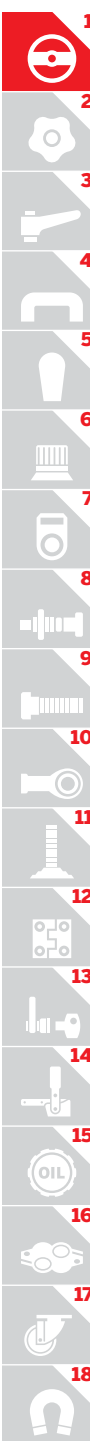
GN 322.3

Description	d1	d2 H7	d3	b	c	l1	l2	l3	r	Ø Handle	⚖
GN 322.3-125-B12-R	125	12	31	24.5	6.5	18	44	60	50	22	390
GN 322.3-125-K12-R	125	12	31	24.5	6.5	18	44	60	50	22	390
GN 322.3-140-B14-R	140	14	36	24.5	6	19	45.5	75	57.5	24	541
GN 322.3-140-K14-R	140	14	36	24.5	6	19	45.5	75	57.5	24	541
GN 322.3-160-B14-R	160	14	36	25	6.5	20	47	75	67.5	24	653
GN 322.3-160-K14-R	160	14	36	25	6.5	20	47	75	67.5	24	653
GN 322.3-160-B16-R	160	16	36	25	6.5	20	47	75	67.5	24	649
GN 322.3-160-K16-R	160	16	36	25	6.5	20	47	75	67.5	24	649
GN 322.3-200-B18-R	200	18	42	25	7.5	24	52.5	85	84	25	954
GN 322.3-200-K18-R	200	18	42	25	7.5	24	52.5	85	84	25	954
GN 322.3-200-B20-R	200	20	42	25	7.5	24	52.5	85	84	25	949
GN 322.3-200-K20-R	200	20	42	25	7.5	24	52.5	85	84	25	949
GN 322.3-250-B22-R	250	22	48	26.5	12	28	61	85	111	25	1364
GN 322.3-250-K22-R	250	22	48	26.5	12	28	61	85	111	25	1364



Safety handwheels

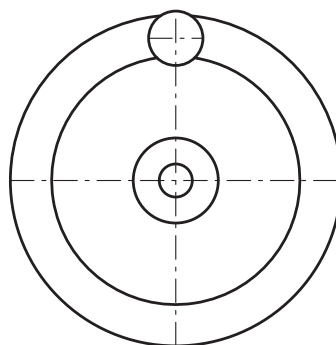
Overview of types



Operating elements

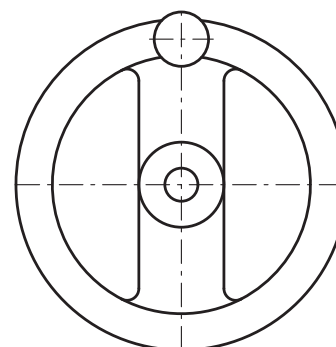
DISC HANDWHEELS GN 321 (see page 172)

Aluminium
Rim polished



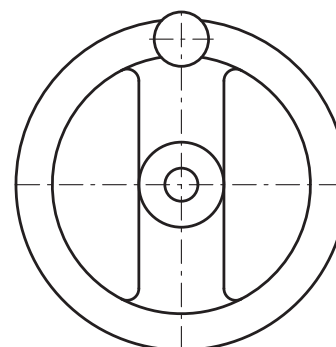
Cylindrical revolving handles GN 598 (see page 573)

Steel
plastic coated
black, textured finish



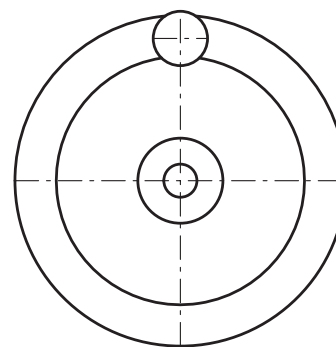
SPOKED HANDWHEELS GN 322 (see page 130)

Aluminium
Rim polished



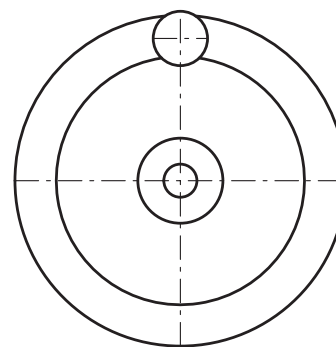
Cylindrical revolving handles GN 598 (see page 573)

Steel
plastic coated
black, textured finish



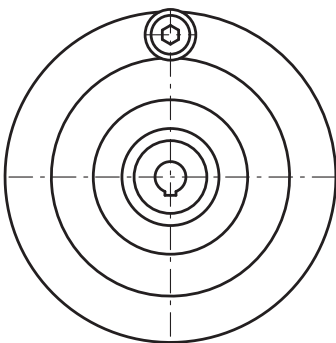
DISC HANDWHEELS GN 323 (see page 174)

Aluminium
plastic coated
black, textured finish



Cylindrical revolving handles GN 598 (see page 573)

Steel
plastic coated
black, textured finish

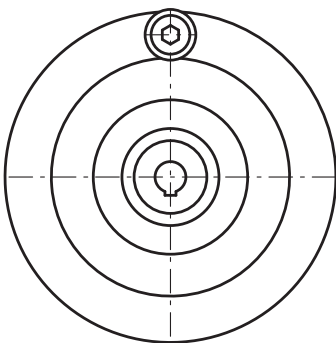


SAFETY SOLID HANDWHEELS VDN.FP+I+ST (see page 166)

Duroplast

Revolving handles I.301+x (see page 574)

Duroplast



Safety handwheels

Instruction - Application guide

The relevant health and safety at work provisions state that handwheels must be attached to spindles such that they are not turned along together with the machine drive assembly. Safety handwheels meet this requirement:

- If not in operation, the wheel is disengaged. Shifting it in axial direction (pushing or pulling) will intermesh two serrated bushings, formlocking the wheel with the shaft.
- After releasing, the wheel will disengage again automatically.

A number of user notices for various design types are listed below. These notices are non-binding and given without liability. They do not constitute a warranty of proper function. The user must in any case determine whether the safety handwheels are suitable for the intended purpose and use.

1. Safety handwheels with coupling attachment GN 000.4 (friction bearing)

All coupling elements are housed in an enclosed component known as coupling attachment. It is designed such that it can be installed in all current types of handwheels and also in other machine elements.

Optionally, the same coupling attachment can be mounted in the handwheel such that the axial movement for dis-engagement is either "pulling" or "pushing" for disengaging. The "pushing" version is safer in terms of health and safety at work because the risk of inadvertent engagement is lower.

Type A (without handle)

As there is no unbalance (handle), this handwheel will also turn along with the drive, but it can be stopped by hand.

With the wheel moving along, the bearing is not put under excessive strain, with the effect that this type is particularly suitable for continuous operation. At higher speeds, the unbalanced handwheel may cause vibrations, however. Also, the friction heat which develops when braking the wheel must be kept in mind.

Type D (with handle)

The handle (unbalance) causes the disengaged handwheel to stop while the shaft is turning. Owing to the type of construction and bearing design of these couplings, the use of these handwheels is usually limited to relatively slow-turning spindle speeds or spindle speeds running at higher speed for short periods. A high risk of dirt deposits (grinding dust) and dry-running can limit the user options even further.

If the handwheel and its handle are deliberately or inadvertently set in (concurrent) motion while the shaft is turning, bearing friction may cause the wheel to turn permanently. At higher speeds, this may cause vibrations and, considering the rotating mass of the handle, can result in injuries also if disengaged. This risk / operating status must therefore be avoided at all cost.

Coupling attachments GN 000.4 (see page 184)

Safety handwheels GN 321.4 (see page 178)

2. Safety handwheels with coupling attachment GN 000.5 (needle bearing)

The details given under 1. above apply in principle also to these safety handwheels.

With their needle bearings, they have the advantage over friction bearings that they can be used for somewhat higher speeds due to their substantially lower friction, lower wear and tear and lower sensitivity to lubrication.

Owing to their larger construction length and lower friction (hardened contact surfaces) and finer intermeshing, these wheels are also easier to engage.

Coupling attachments GN 000.5 (see page 185)

Safety handwheels GN 321.5 (see page 179) and VDN.FP+I+ST (see page 166)

3. Safety handwheels with hub cap GN 321.6

These handwheels are an advance development of the safety handwheels with coupling attachment GN 000.5 (needle bearing).

The coupling elements have been specially developed for this type of handwheel and are therefore not intended for general use. Also, they are only intended for the "pulling" mode of engagement.

The user notices listed under 1. and/or 2. above also apply here. Owing to their type of construction, especially the cap, these handwheels are largely protected from dirt.

Safety handwheels GN 321.6 (see page 180)

4. Safety handwheels with fixed bearing flange GN 327

The safety handwheels described under 1. to 3. above are characterised by the fact that they require no special machine-side measures for attaching. They are simply pushed over the shaft. However, the inevitable bearing friction generates a link between shaft and handwheel which needs to be kept in mind as specified above.

For applications with very high rotary speed, ultimate levels of safety at work and under continuous operation, the safety handwheel with fixed bearing flange is the best possible solution. The separate bearing configuration means that the user notices given for types 1. to 3. do not apply.

However, this safety handwheel is more complex, with a number of requirements to be met at the machine side.

Safety handwheels GN 327 (see page 182)



Safety handwheels

with friction bearing

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving steel handle

Coding

- Version **ZI**: engage by pulling
- Version **DR**: engage by pushing

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body

- Rim high-polished
- unmachined body matt shot-blasted

Cylindrical Revolving handles GN 598 (see page 573)

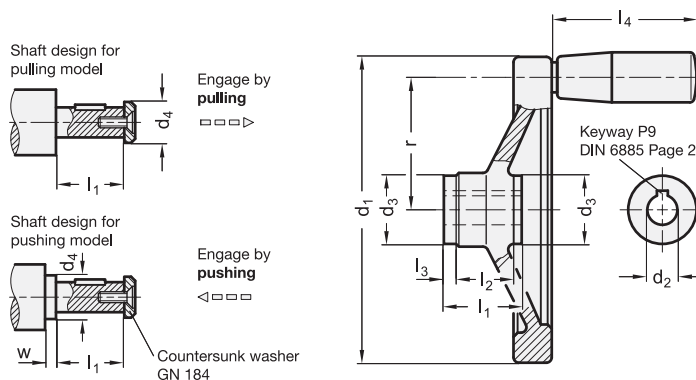
Steel, plastic coated, black, matt



INFORMATION

The use of coupling attachments in handwheels other than specified is also possible.

- Instructions for safety handwheels (see page 133)



* Complete with Coding of the Handwheels (ZI or DR)

ZI Engage by pulling
DR Engage by pushing

GN 322.4-A

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	w min.	Coupling	Weight
GN 322.4-125-K12-A-*	125	K 12	28	17	28.5	18	5	4	GN 000.4-1	368
GN 322.4-140-K12-A-*	140	K 12	28	17	28.5	19	5	4	GN 000.4-1	505
GN 322.4-140-K14-A-*	140	K 14	32	21	32.5	19	6	4	GN 000.4-2	499
GN 322.4-140-K16-A-*	140	K 16	32	21	32.5	19	6	4	GN 000.4-2	486
GN 322.4-160-K14-A-*	160	K 14	32	21	32.5	20	6	4	GN 000.4-2	615
GN 322.4-160-K16-A-*	160	K 16	32	21	32.5	20	6	4	GN 000.4-2	602
GN 322.4-200-K18-A-*	200	K 18	38	26	36.5	24	6	4	GN 000.4-3	1032
GN 322.4-200-K20-A-*	200	K 20	38	26	36.5	24	6	4	GN 000.4-3	1015
GN 322.4-250-K22-A-*	250	K 22	45	30	47.5	28	12	4	GN 000.4-4	1740

GN 322.4-D

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	l4 ≈	r	w min.	Ø Handle	Coupling	Weight
GN 322.4-125-K12-D-*	125	K 12	28	17	28.5	18	5	67.5	54	4	23	GN 000.4-1	552
GN 322.4-140-K12-D-*	140	K 12	28	17	28.5	19	5	67.5	61	4	23	GN 000.4-1	660
GN 322.4-140-K14-D-*	140	K 14	32	21	32.5	19	6	67.5	61	4	23	GN 000.4-2	640
GN 322.4-140-K16-D-*	140	K 16	32	21	32.5	19	6	67.5	61	4	23	GN 000.4-2	620
GN 322.4-160-K14-D-*	160	K 14	32	21	32.5	20	6	82.5	71	4	26	GN 000.4-2	907
GN 322.4-160-K16-D-*	160	K 16	32	21	32.5	20	6	82.5	71	4	26	GN 000.4-2	894
GN 322.4-200-K18-D-*	200	K 18	38	26	36.5	24	6	82.5	89	4	26	GN 000.4-3	1324
GN 322.4-200-K20-D-*	200	K 20	38	26	36.5	24	6	82.5	89	4	26	GN 000.4-3	1307
GN 322.4-250-K22-D-*	250	K 22	45	30	47.5	28	12	82.5	113	4	28	GN 000.4-4	2122

Weight coding ZI

Safety handwheels

with needle bearing

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving steel handle

Coding

- Version **ZI**: engage by pulling
- Version **DR**: engage by pushing

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body

- Rim high-polished
- unmachined body matt shot-blasted

Cylindrical Revolving handles GN 598 (see page 573)

Steel, plastic coated
black, matt

INFORMATION

The use of coupling attachments in handwheels other than specified is also possible.

- Instructions for safety handwheels (see page 133)

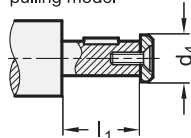
TECHNICAL INFORMATION

- Keyway DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)

* Complete with Coding of the Handwheels (ZI or DR)

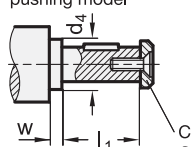
ZI Engage by pulling
DR Engage by pushing

Shaft design for pulling model



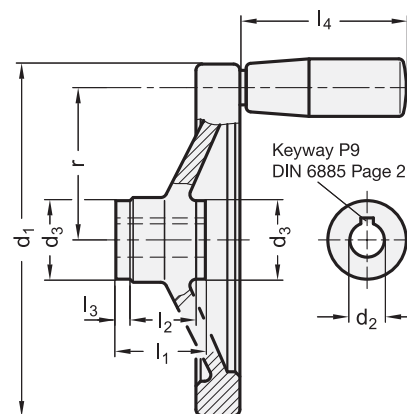
Engage by pulling
□□□▷

Shaft design for pushing model



Engage by pushing
◁□□□

Countersunk washer
GN 184



GN 322.5-A

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	w min.	Coupling	⚖
GN 322.5-125-K12-A-*	125	K 12	29	17	42	18	12	4	GN 000.5-1	414
GN 322.5-140-K12-A-*	140	K 12	29	17	42	19	12	4	GN 000.5-1	522
GN 322.5-140-K14-A-*	140	K 14	33	21	48	19	14	4	GN 000.5-2	515
GN 322.5-160-K14-A-*	160	K 14	33	21	48	20	14	4	GN 000.5-2	686
GN 322.5-200-K18-A-*	200	K 18	39	26	50	24	13	4	GN 000.5-3	1117
GN 322.5-250-K22-A-*	250	K 22	46	30	54	28	13	4	GN 000.5-4	1781

GN 322.5-D

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	l4 ≈	r	w min.	Ø Handle	Coupling	⚖
GN 322.5-125-K12-D-*	125	K 12	29	17	42	18	12	67.5	54	4	23	GN 000.5-1	597
GN 322.5-140-K12-D-*	140	K 12	29	17	42	19	12	67.5	61	4	23	GN 000.5-1	705
GN 322.5-140-K14-D-*	140	K 14	33	21	48	19	14	67.5	61	4	23	GN 000.5-2	690
GN 322.5-160-K14-D-*	160	K 14	33	21	48	20	14	82.5	71	4	26	GN 000.5-2	978
GN 322.5-200-K18-D-*	200	K 18	39	26	50	24	13	82.5	89	4	26	GN 000.5-3	1409
GN 322.5-250-K22-D-*	250	K 22	46	30	54	28	13	82.5	113	4	28	GN 000.5-4	2173

Weight coding ZI



Handwheels with retractable handle

Aluminium, Handle swivelling

SPECIFICATION

Type

- Type **R**: with retractable handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned and polished
- Unmachined body matt shot-blasted

Rim concentric and square to bore < 0.4

Safety retractable handles GN 798.7 (see page 587)

Plastic, Technopolymer
black, matt

Retracting mechanism
Steel, blackened



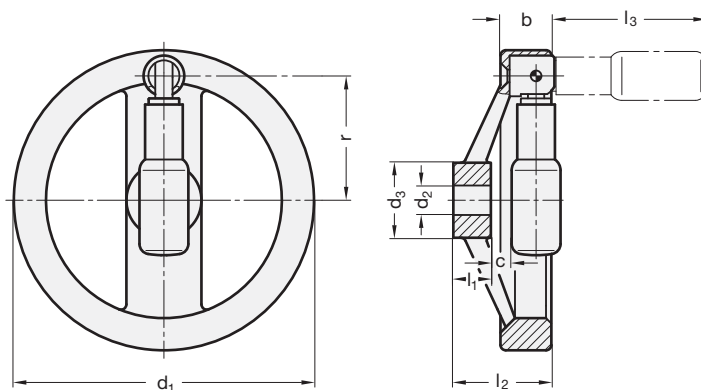
INFORMATION

Spoked handwheels GN 322.7 are suitable for applications where the handle must not remain in the operating position. In order to bring the handle into this position it has to be turned first through 90° to a stop against a torsion spring and then it is pushed against spring pressure into its hold position.

By maintaining the forward thrust on the handle the handwheel can easily be rotated. When releasing the handle the springs returns it back to the retracted position.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



GN 322.7

Description	d1	d2 H7	d3	b	c	l1	l2	l3	r	Ø Handle	⚖
GN 322.7-125-B12-R	125	12	31	24.5	7.5	18	44	61.5	50	22	438
GN 322.7-125-K12-R	125	12	31	24.5	7.5	18	44	61.5	50	22	438
GN 322.7-140-B14-R	140	14	36	24.5	7	19	45.5	76.5	57.5	24	548
GN 322.7-140-K14-R	140	14	36	24.5	7	19	45.5	76.5	57.5	24	530
GN 322.7-160-B14-R	160	14	36	25	7.5	20	47	76.5	67.5	24	660
GN 322.7-160-K14-R	160	14	36	25	7.5	20	47	76.5	67.5	24	640
GN 322.7-160-B16-R	160	16	36	25	7.5	20	47	76.5	67.5	24	560
GN 322.7-160-K16-R	160	16	36	25	7.5	20	47	76.5	67.5	24	550
GN 322.7-200-B18-R	200	18	42	25	8.5	24	52.5	86.5	84	25	970
GN 322.7-200-K18-R	200	18	42	25	8.5	24	52.5	86.5	84	25	960
GN 322.7-200-B20-R	200	20	42	25	8.5	24	52.5	86.5	84	25	945
GN 322.7-200-K20-R	200	20	42	25	8.5	24	52.5	86.5	84	25	935
GN 322.7-250-B22-R	250	22	48	26.5	13	28	61	86.5	111	25	1380
GN 322.7-250-K22-R	250	22	48	26.5	13	28	61	86.5	111	25	1330

Spoked handwheels

Aluminium, black, plastic coated

SPECIFICATION

Types

- Version **A**: without handle
- Version **R**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Body plastic coated
black, textured finish

Cylindrical Revolving handles GN 798 (see page 577)

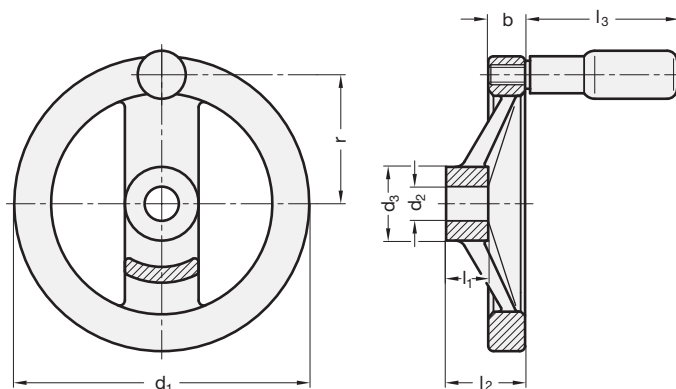
Plastic, Technopolymer
black, matt

TECHNICAL INFORMATION

- Keyway DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)

* Complete with Bore codes of the Handwheel (B or K)

B without keyway **K** with keyway



GN 324-A

Description	d1	d2 H7	d3	b	l1	l2	⚖
GN 324-125-*12-A	125	12	31	15	18	33	316
GN 324-125-*14-A	125	14	31	15	18	33	310
GN 324-140-*14-A	140	14	36	16.5	19	36	408
GN 324-140-*16-A	140	16	36	16.5	19	36	400
GN 324-160-*14-A	160	14	36	18	20	39	540
GN 324-160-*16-A	160	16	36	18	20	39	530
GN 324-200-*18-A	200	18	42	20.5	24	45	911
GN 324-200-*20-A	200	20	42	20.5	24	45	894
GN 324-250-*22-A	250	22	48	23	28	51	1503
GN 324-250-*26-A	250	26	48	23	28	51	1497

GN 324-R

Description	d1	d2 H7	d3	b	l1	l2	l3	r	Ø Handle	⚖
GN 324-125-*12-R	125	12	31	15	18	33	61.5	54	22	390
GN 324-125-*14-R	125	14	31	15	18	33	61.5	54	22	380
GN 324-140-*14-R	140	14	36	16.5	19	36	76.5	61	24	510
GN 324-140-*16-R	140	16	36	16.5	19	36	76.5	61	24	490
GN 324-160-*14-R	160	14	36	18	20	39	76.5	71	24	635
GN 324-160-*16-R	160	16	36	18	20	39	76.5	71	24	620
GN 324-200-*18-R	200	18	42	20.5	24	45	86.5	89	25	1036
GN 324-200-*20-R	200	20	42	20.5	24	45	86.5	89	25	1019
GN 324-250-*22-R	250	22	48	23	28	51	86.5	113	25	1628
GN 324-250-*26-R	250	26	48	23	28	51	86.5	113	25	1600

Weight type B



Spoked handwheels

Duroplast, not drilled hub

MATERIAL

High-strength, reinforced phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS

Black-oxide steel hub, uncovered front end, not drilled. See table for maximum permissible boring diameter d' and d''.

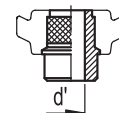
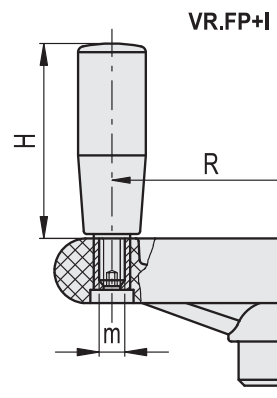
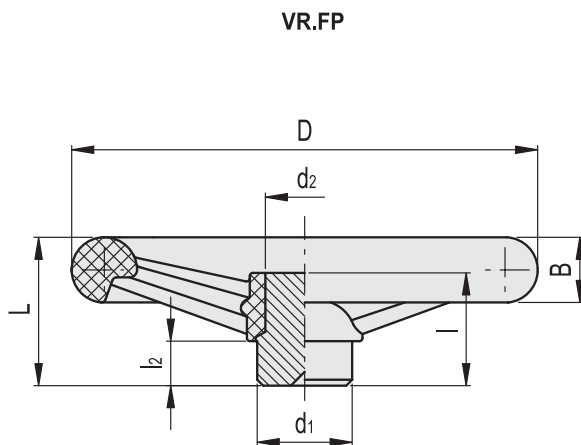
- **VR.FP:** without handle.
- **VR.FP+I:** with revolving handle l.301+x (see page 574) in Duroplast.

ACCESSORIES ON REQUEST

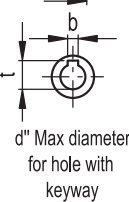
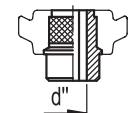
Axial retaining washer GN 184 (see page 971).



ELESA Original design



d' Max diameter permissible



d'' Max diameter for hole with keyway

VR.FP

Code	Description	D	L	B	d1	d2	l	l2	d'	d''	t	b	C# [Nm]	L# [J]	⚖
77111	VR.100 FP	98	40	14	24	20	36	12	16	13	15.3	5	67	5	175
77211	VR.125 FP	124	45	18	24	20	36	12	16	13	15.3	5	120	8	240
77311	VR.140 FP	139	47	20	32	24	38	15	20	16	18.3	5	165	12	390
77411	VR.160 FP	157	50	22	32	24	38	15	20	16	18.3	5	165	12	455
77511	VR.180 FP	180	56	24	40	31	43	15	26	22	24.8	6	280	15	700
77611	VR.200 FP	198	56	24	40	31	43	15	26	22	24.8	6	300	16	750
77711	VR.250 FP	247	66	30	49	38	44	15	34	27	30.3	8	405	19	1235
77811	VR.300 FP	288	78	32	58	47	56	18	42	34	37.3	10	800	33	2060
77901	VR.375 FP	375	108	40	58	58	77	26	45	40	43.3	12	1450	70	3900

VR.FP+I

Code	Description	D	L	B	d1	d2	l	l2	H	m	R	d'	d''	C# [Nm]	L# [J]	⚖
77121	VR.100 FP+I	98	40	14	24	20	36	12	40	M6	37	16	13	67	5	205
77221	VR.125 FP+I	124	45	18	24	20	36	12	50	M8	47	16	13	120	8	300
77321	VR.140 FP+I	139	47	20	32	24	38	15	65	M8	53	20	16	165	12	475
77421	VR.160 FP+I	157	50	22	32	24	38	15	65	M8	59	20	16	165	12	540
77521	VR.180 FP+I	180	56	24	40	31	43	15	80	M10	68	26	22	280	15	830
77621	VR.200 FP+I	198	56	24	40	31	43	15	80	M10	76	26	22	300	16	880
77721	VR.250 FP+I	247	66	30	49	38	44	15	90	M10	98	34	27	405	19	1420
77821	VR.300 FP+I	288	78	32	58	47	56	18	100	M12	113	42	34	800	33	2335
77911	VR.375 FP+I	375	108	40	58	58	77	26	100	M12	160	45	40	1450	70	4170

For maximum torque (C) and impact strength (L) see Technical Data on page A3.

Spoked handwheels

Duroplast, large diameter hub

MATERIAL

High-strength, reinforced phenolic based (PF) Duroplast black colour, glossy finish.

STANDARD EXECUTIONS

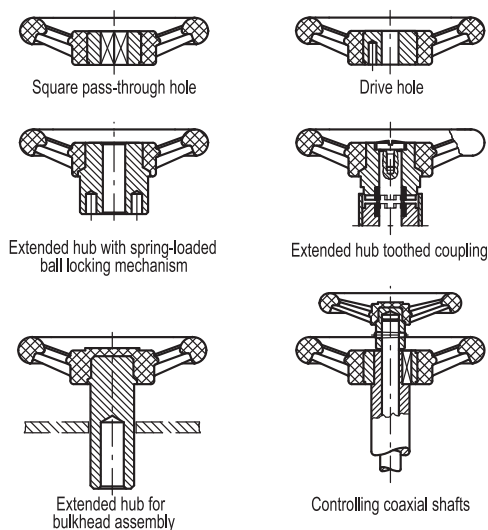
Large diameter black-oxide steel hub, uncovered front end with spot-drilling.

- **VRU.:** without handle.
- **VRU+I:** with revolving handle l.301+x (see page 574) in Duroplast.

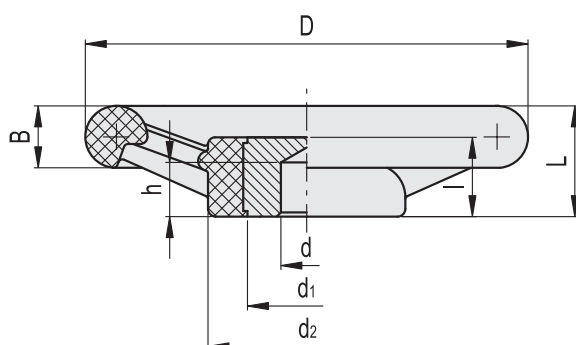
ACCESSORIES ON REQUEST

Axial retaining washer GN 184 (see page 971).

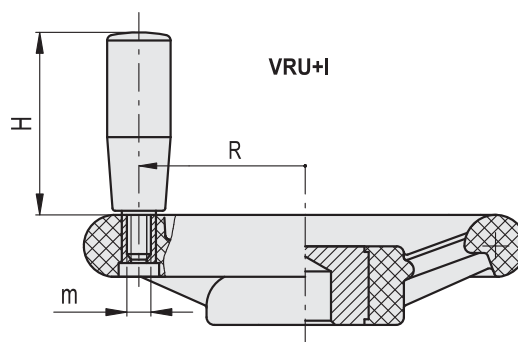
Execution examples for special applications



VRU.



VRU+I



VRU.

Code	Description	D	dH9	L	B	d1	d2	I	h	C# [Nm]	L# [J]	⚖
80001	VRU.125	125	10	28	18	32	55	22	15	220	9	315
80101	VRU.160	160	10	35	22	42	70	26	17	350	13	615
80201	VRU.200	199	12	40	26	53	85	27	20	450	20	990
80301	VRU.250	249	12	49	30	68	105	30	22	650	25	1770

VRU+I

Code	Description	D	dH9	L	B	d1	d2	I	h	H	m	R	C# [Nm]	L# [J]	⚖
80011	VRU.125+I	125	10	28	18	32	55	22	15	65	M8	47	220	9	400
80111	VRU.160+I	160	10	35	22	42	70	26	17	65	M8	60	350	13	700
80211	VRU.200+I	199	12	40	26	53	85	27	20	80	M10	75	450	20	1130
80311	VRU.250+I	249	12	49	30	68	105	30	22	80	M10	99	650	25	1910

For maximum torque (C) and impact strength (L) see Technical Data on page A3.



Spoked handwheels

Cast iron / Aluminium

SPECIFICATION

Types

- Type **A**: without handle
- Type **F**: with fixed handle
- Type **D**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **V**: with square

Cast iron **GG**

- Hub machined
- Rim turned and polished

Aluminium **AL**

- Hub machined
- Rim turned and polished
- unmachined body shot-blasted

Rim concentric and square to bore < 0.4

Fixed handles DIN 39 (see page 565)

Revolving handles DIN 98 (see page 579)

Steel, zinc plated respectively

Plastic, Technopolymer black

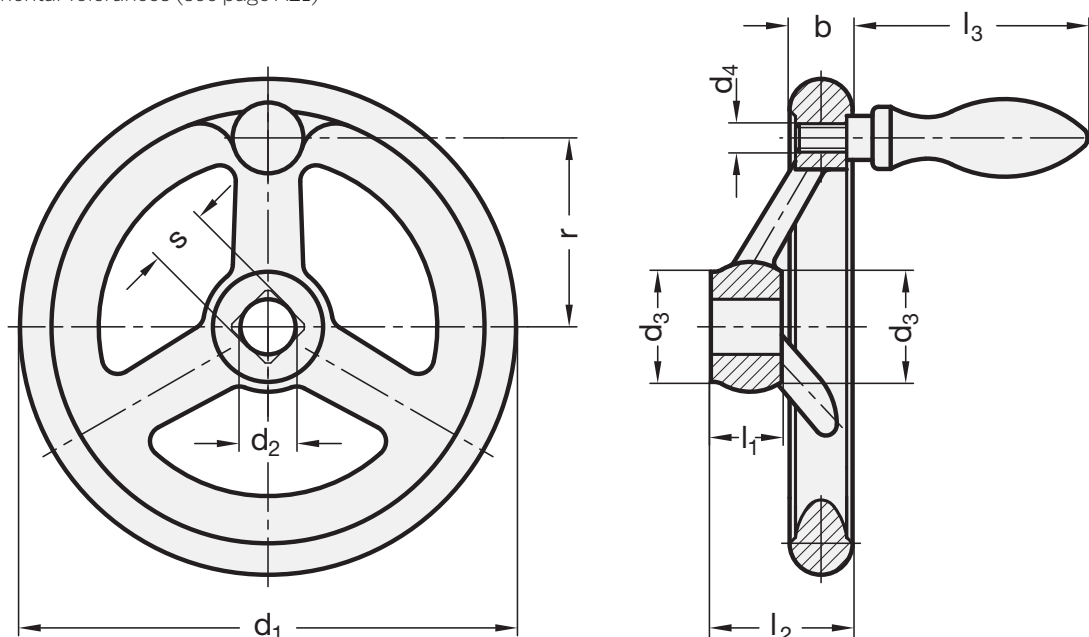
INFORMATION

Handwheels DIN 950 in cast iron are supplied with handles made of zinc plated steel. In aluminum they are supplied with handles made of plastic (Type D) and made of zinc plated steel (Type F).

The official standard sheet only provides for types A (without handle) and G (without handle, but with thread d_4), also without the handwheel diameter $d_1 = 180$.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



* Complete with material of the Spoked handwheels (GG or AL)

GG
Cast ironAL
Aluminium

DIN 950-A

Description	d1	d2 H7	s H11	d3 ≈	b	l1	l2 ≈	No. of spokes	⚖
DIN 950-*-80-V9-A	80	-	V 9	24	14	16	29	3	105
DIN 950-*-80-B10-A	80	10	-	24	14	16	29	3	100
DIN 950-*-80-K10-A	80	10	-	24	14	16	29	3	100
DIN 950-*-80-B12-A	80	12	-	24	14	16	29	3	110
DIN 950-*-80-K12-A	80	12	-	24	14	16	29	3	100
DIN 950-*-100-V9-A	100	-	V 9	26	15	17	33	3	190
DIN 950-*-100-B10-A	100	10	-	26	15	17	33	3	187
DIN 950-*-100-K10-A	100	10	-	26	15	17	33	3	185
DIN 950-*-100-B12-A	100	12	-	26	15	17	33	3	185
DIN 950-*-100-K12-A	100	12	-	26	15	17	33	3	183
DIN 950-*-125-V11-A	125	-	V 11	28	16	18	36	3	265
DIN 950-*-125-B12-A	125	12	-	28	16	18	36	3	240
DIN 950-*-125-K12-A	125	12	-	28	16	18	36	3	230
DIN 950-*-125-B14-A	125	14	-	28	16	18	36	3	259
DIN 950-*-125-K14-A	125	14	-	28	16	18	36	3	257
DIN 950-*-140-B14-A	140	14	-	30	17	19	39	3	339
DIN 950-*-140-K14-A	140	14	-	30	17	19	39	3	337
DIN 950-*-140-B16-A	140	16	-	30	17	19	39	3	327
DIN 950-*-140-K16-A	140	16	-	30	17	19	39	3	325
DIN 950-*-160-V12-A	160	-	V 12	33	18	20	40	3	460
DIN 950-*-160-B14-A	160	14	-	33	18	20	40	3	458
DIN 950-*-160-K14-A	160	14	-	33	18	20	40	3	450
DIN 950-*-160-B15-A	160	15	-	33	18	20	40	3	450
DIN 950-*-160-K15-A	160	15	-	33	18	20	40	3	445
DIN 950-*-160-B16-A	160	16	-	33	18	20	40	3	440
DIN 950-*-160-K16-A	160	16	-	33	18	20	40	3	435
DIN 950-*-180-B16-A	180	16	-	35	20	22	43	3	615
DIN 950-*-180-K16-A	180	16	-	35	20	22	43	3	611
DIN 950-*-180-B18-A	180	18	-	35	20	22	43	3	604
DIN 950-*-180-K18-A	180	18	-	35	20	22	43	3	600
DIN 950-*-200-V14-A	200	-	V 14	38	22	24	45	3	820
DIN 950-*-200-B18-A	200	18	-	38	22	24	45	3	806
DIN 950-*-200-K18-A	200	18	-	38	22	24	45	3	800
DIN 950-*-200-B20-A	200	20	-	38	22	24	45	3	795
DIN 950-*-200-K20-A	200	20	-	38	22	24	45	3	730
DIN 950-*-200-B22-A	200	22	-	38	22	24	45	3	799
DIN 950-*-200-K22-A	200	22	-	38	22	24	45	3	795
DIN 950-*-250-V17-A	250	-	V 17	48	26	28	50	5	1435
DIN 950-*-250-B22-A	250	22	-	48	26	28	50	5	1429
DIN 950-*-250-K22-A	250	22	-	48	26	28	50	5	1424
DIN 950-*-250-B24-A	250	24	-	48	26	28	50	5	1419
DIN 950-*-250-K24-A	250	24	-	48	26	28	50	5	1414
DIN 950-*-250-B26-A	250	26	-	48	26	28	50	5	1398
DIN 950-*-250-K26-A	250	26	-	48	26	28	50	5	1393
DIN 950-*-315-V19-A	315	-	V 19	53	28	33	56	5	2230
DIN 950-*-315-B26-A	315	26	-	53	28	33	56	5	2204
DIN 950-*-315-K26-A	315	26	-	53	28	33	56	5	2200
DIN 950-*-315-B28-A	315	28	-	53	28	33	56	5	2322
DIN 950-*-315-K28-A	315	28	-	53	28	33	56	5	2314
DIN 950-*-315-B30-A	315	30	-	53	28	33	56	5	2000
DIN 950-*-315-K30-A	315	30	-	53	28	33	56	5	1990
DIN 950-*-400-V24-A	400	-	V 24	65	32	38	63	5	4000
DIN 950-*-400-B30-A	400	30	-	65	32	38	63	5	3653
DIN 950-*-400-K30-A	400	30	-	65	32	38	63	5	3644
DIN 950-*-400-B32-A	400	32	-	65	32	38	63	5	3638
DIN 950-*-400-K32-A	400	32	-	65	32	38	63	5	3629



* Complete with material of the Spoked handwheels (GG or AL)

GG **AL**
Cast iron Aluminium

DIN 950-A

Description	d1	d2 H7	s H11	d3 ≈	b	l1	l2 ≈	No. of spokes	⚖
DIN 950-*-400-K32-A	400	32	-	65	32	38	63	5	3629
DIN 950-*-400-B34-A	400	34	-	65	32	38	63	5	3619
DIN 950-*-400-K34-A	400	34	-	65	32	38	63	5	3610
DIN 950-*-500-V27-A	500	-	V 27	78	34	45	72	5	5485
DIN 950-*-500-B34-A	500	34	-	78	34	45	72	5	5470
DIN 950-*-500-K34-A	500	34	-	78	34	45	72	5	5460
DIN 950-*-500-B36-A	500	36	-	78	34	45	72	5	5440
DIN 950-*-500-K36-A	500	36	-	78	34	45	72	5	5430
DIN 950-*-500-B40-A	500	40	-	78	34	45	72	5	5400
DIN 950-*-500-K40-A	500	40	-	78	34	45	72	5	5390

DIN 950-F

Description	d1	d2 H7	s H11	d3 ≈	d4	b	l1	l2 ≈	l3	r	Ø Handle	No. of spokes	⚖
DIN 950-*-80-V9-F	80	-	V 9	24	M 6	14	16	29	48.5	27	16	3	146
DIN 950-*-80-B10-F	80	10	-	24	M 6	14	16	29	48.5	27	16	3	160
DIN 950-*-80-K10-F	80	10	-	24	M 6	14	16	29	48.5	27	16	3	146
DIN 950-*-80-B12-F	80	12	-	24	M 6	14	16	29	48.5	27	16	3	144
DIN 950-*-80-K12-F	80	12	-	24	M 6	14	16	29	48.5	27	16	3	142
DIN 950-*-100-V9-F	100	-	V 9	26	M 6	15	17	33	48.5	36	16	3	227
DIN 950-*-100-B10-F	100	10	-	26	M 6	15	17	33	48.5	36	16	3	228
DIN 950-*-100-K10-F	100	10	-	26	M 6	15	17	33	48.5	36	16	3	226
DIN 950-*-100-B12-F	100	12	-	26	M 6	15	17	33	48.5	36	16	3	224
DIN 950-*-100-K12-F	100	12	-	26	M 6	15	17	33	48.5	36	16	3	222
DIN 950-*-125-V11-F	125	-	V 11	28	M 8	16	18	36	62	47	20	3	349
DIN 950-*-125-B12-F	125	12	-	28	M 8	16	18	36	62	47	20	3	370
DIN 950-*-125-K12-F	125	12	-	28	M 8	16	18	36	62	47	20	3	349
DIN 950-*-125-B14-F	125	14	-	28	M 8	16	18	36	62	47	20	3	324
DIN 950-*-125-K14-F	125	14	-	28	M 8	16	18	36	62	47	20	3	322
DIN 950-*-140-B14-F	140	14	-	30	M 8	17	19	39	62	52	20	3	426
DIN 950-*-140-K14-F	140	14	-	30	M 8	17	19	39	62	52	20	3	424
DIN 950-*-140-B16-F	140	16	-	30	M 8	17	19	39	62	52	20	3	437
DIN 950-*-140-K16-F	140	16	-	30	M 8	17	19	39	62	52	20	3	422
DIN 950-*-160-V12-F	160	-	V 12	33	M 10	18	20	40	77	62	25	3	593
DIN 950-*-160-B14-F	160	14	-	33	M 10	18	20	40	77	62	25	3	593
DIN 950-*-160-K14-F	160	14	-	33	M 10	18	20	40	77	62	25	3	590
DIN 950-*-160-B15-F	160	15	-	33	M 10	18	20	40	77	62	25	3	591
DIN 950-*-160-K15-F	160	15	-	33	M 10	18	20	40	77	62	25	3	588
DIN 950-*-160-B16-F	160	16	-	33	M 10	18	20	40	77	62	25	3	588
DIN 950-*-160-K16-F	160	16	-	33	M 10	18	20	40	77	62	25	3	585
DIN 950-*-180-B16-F	180	16	-	35	M 10	20	22	43	77	72	25	3	750
DIN 950-*-180-K16-F	180	16	-	35	M 10	20	22	43	77	72	25	3	746
DIN 950-*-180-B18-F	180	18	-	35	M 10	20	22	43	77	72	25	3	746
DIN 950-*-180-K18-F	180	18	-	35	M 10	20	22	43	77	72	25	3	742
DIN 950-*-200-V14-F	200	-	V 14	38	M 10	22	24	45	77	80	25	3	961
DIN 950-*-200-B18-F	200	18	-	38	M 10	22	24	45	77	80	25	3	945
DIN 950-*-200-K18-F	200	18	-	38	M 10	22	24	45	77	80	25	3	941
DIN 950-*-200-B20-F	200	20	-	38	M 10	22	24	45	77	80	25	3	925



* Complete with material of the Spoked handwheels (GG or AL)

GG
Cast iron

AL
Aluminium

DIN 950-F

Description	d1	d2 H7	s H11	d3 ≈	d4	b	l1	l2 ≈	l3	r	Ø Handle	No. of spokes	⚖
DIN 950-*-200-K20-F	200	20	-	38	M 10	22	24	45	77	80	25	3	921
DIN 950-*-200-B22-F	200	22	-	38	M 10	22	24	45	77	80	25	3	910
DIN 950-*-200-K22-F	200	22	-	38	M 10	22	24	45	77	80	25	3	906
DIN 950-*-250-V17-F	250	-	V 17	48	M 12	26	28	50	96.5	101	32	5	4800
DIN 950-*-250-B22-F	250	22	-	48	M 12	26	28	50	96.5	101	32	5	1784
DIN 950-*-250-K22-F	250	22	-	48	M 12	26	28	50	96.5	101	32	5	1779
DIN 950-*-250-B24-F	250	24	-	48	M 12	26	28	50	96.5	101	32	5	1774
DIN 950-*-250-K24-F	250	24	-	48	M 12	26	28	50	96.5	101	32	5	1769
DIN 950-*-250-B26-F	250	26	-	48	M 12	26	28	50	96.5	101	32	5	1753
DIN 950-*-250-K26-F	250	26	-	48	M 12	26	28	50	96.5	101	32	5	1748
DIN 950-*-315-V19-F	315	-	V 19	53	M 12	28	33	56	96.5	132	32	5	2695
DIN 950-*-315-B26-F	315	26	-	53	M 12	28	33	56	96.5	132	32	5	2685
DIN 950-*-315-K26-F	315	26	-	53	M 12	28	33	56	96.5	132	32	5	2677
DIN 950-*-315-B28-F	315	28	-	53	M 12	28	33	56	96.5	132	32	5	2677
DIN 950-*-315-K28-F	315	28	-	53	M 12	28	33	56	96.5	132	32	5	2669
DIN 950-*-315-B30-F	315	30	-	53	M 12	28	33	56	96.5	132	32	5	2668
DIN 950-*-315-K30-F	315	30	-	53	M 12	28	33	56	96.5	132	32	5	2660
DIN 950-*-400-V24-F	400	-	V 24	65	M 12	32	38	63	96.5	171	32	5	4190
DIN 950-*-400-B30-F	400	30	-	65	M 12	32	38	63	96.5	171	32	5	4173
DIN 950-*-400-K30-F	400	30	-	65	M 12	32	38	63	96.5	171	32	5	4164
DIN 950-*-400-B32-F	400	32	-	65	M 12	32	38	63	96.5	171	32	5	4158
DIN 950-*-400-K32-F	400	32	-	65	M 12	32	38	63	96.5	171	32	5	4149
DIN 950-*-400-B34-F	400	34	-	65	M 12	32	38	63	96.5	171	32	5	4139
DIN 950-*-400-K34-F	400	34	-	65	M 12	32	38	63	96.5	171	32	5	4130
DIN 950-*-500-V27-F	500	-	V 27	78	M 12	34	45	72	96.5	220	32	5	6009
DIN 950-*-500-B34-F	500	34	-	78	M 12	34	45	72	96.5	220	32	5	5984
DIN 950-*-500-K34-F	500	34	-	78	M 12	34	45	72	96.5	220	32	5	5974
DIN 950-*-500-B36-F	500	36	-	78	M 12	34	45	72	96.5	220	32	5	6050
DIN 950-*-500-K36-F	500	36	-	78	M 12	34	45	72	96.5	220	32	5	5942
DIN 950-*-500-B40-F	500	40	-	78	M 12	34	45	72	96.5	220	32	5	5914
DIN 950-*-500-K40-F	500	40	-	78	M 12	34	45	72	96.5	220	32	5	5904

DIN 950-D

Description	d1	d2 H7	s H11	d3 ≈	d4	b	l1	l2 ≈	l3	r	Ø Handle	No. of spokes	⚖
DIN 950-*-80-V9-D	80	-	V 9	24	M 6	14	16	29	53	27	16	3	156
DIN 950-*-80-B10-D	80	10	-	24	M 6	14	16	29	53	27	16	3	150
DIN 950-*-80-K10-D	80	10	-	24	M 6	14	16	29	53	27	16	3	136
DIN 950-*-80-B12-D	80	12	-	24	M 6	14	16	29	53	27	16	3	134
DIN 950-*-80-K12-D	80	12	-	24	M 6	14	16	29	53	27	16	3	130
DIN 950-*-100-V9-D	100	-	V 9	26	M 6	15	17	33	53	36	16	3	237
DIN 950-*-100-B10-D	100	10	-	26	M 6	15	17	33	53	36	16	3	220
DIN 950-*-100-K10-D	100	10	-	26	M 6	15	17	33	53	36	16	3	215
DIN 950-*-100-B12-D	100	12	-	26	M 6	15	17	33	53	36	16	3	225
DIN 950-*-100-K12-D	100	12	-	26	M 6	15	17	33	53	36	16	3	220
DIN 950-*-125-V11-D	125	-	V 11	28	M 8	16	18	36	65	47	20	3	332
DIN 950-*-125-B12-D	125	12	-	28	M 8	16	18	36	65	47	20	3	330
DIN 950-*-125-K12-D	125	12	-	28	M 8	16	18	36	65	47	20	3	320
DIN 950-*-125-B14-D	125	14	-	28	M 8	16	18	36	65	47	20	3	341
DIN 950-*-125-K14-D	125	14	-	28	M 8	16	18	36	65	47	20	3	339



* Complete with material of the Spoked handwheels (GG or AL)

GG **AL**
Cast iron Aluminium

DIN 950-D

Description	d1	d2 H7	s H11	d3 ≈	d4	b	l1	l2 ≈	l3	r	Ø Handle	No. of spokes	⚖
DIN 950-*-140-B14-D	140	14	-	30	M 8	17	19	39	65	52	20	3	340
DIN 950-*-140-K14-D	140	14	-	30	M 8	17	19	39	65	52	20	3	320
DIN 950-*-140-B16-D	140	16	-	30	M 8	17	19	39	65	52	20	3	378
DIN 950-*-140-K16-D	140	16	-	30	M 8	17	19	39	65	52	20	3	375
DIN 950-*-160-V12-D	160	-	V 12	33	M 10	18	20	40	80	62	25	3	480
DIN 950-*-160-B14-D	160	14	-	33	M 10	18	20	40	80	62	25	3	460
DIN 950-*-160-K14-D	160	14	-	33	M 10	18	20	40	80	62	25	3	440
DIN 950-*-160-B15-D	160	15	-	33	M 10	18	20	40	80	62	25	3	550
DIN 950-*-160-K15-D	160	15	-	33	M 10	18	20	40	80	62	25	3	500
DIN 950-*-160-B16-D	160	16	-	33	M 10	18	20	40	80	62	25	3	500
DIN 950-*-160-K16-D	160	16	-	33	M 10	18	20	40	80	62	25	3	490
DIN 950-*-180-B16-D	180	16	-	35	M 10	20	22	43	80	72	25	3	910
DIN 950-*-180-K16-D	180	16	-	35	M 10	20	22	43	80	72	25	3	890
DIN 950-*-180-B18-D	180	18	-	35	M 10	20	22	43	80	72	25	3	755
DIN 950-*-180-K18-D	180	18	-	35	M 10	20	22	43	80	72	25	3	751
DIN 950-*-200-V14-D	200	-	V 14	38	M 10	22	24	45	80	80	25	3	830
DIN 950-*-200-B18-D	200	18	-	38	M 10	22	24	45	80	80	25	3	800
DIN 950-*-200-K18-D	200	18	-	38	M 10	22	24	45	80	80	25	3	740
DIN 950-*-200-B20-D	200	20	-	38	M 10	22	24	45	80	80	25	3	950
DIN 950-*-200-K20-D	200	20	-	38	M 10	22	24	45	80	80	25	3	932
DIN 950-*-200-B22-D	200	22	-	38	M 10	22	24	45	80	80	25	3	919
DIN 950-*-200-K22-D	200	22	-	38	M 10	22	24	45	80	80	25	3	915
DIN 950-*-250-V17-D	250	-	V 17	48	M 12	26	28	50	102	101	32	5	1630
DIN 950-*-250-B22-D	250	22	-	48	M 12	26	28	50	102	101	32	5	1600
DIN 950-*-250-K22-D	250	22	-	48	M 12	26	28	50	102	101	32	5	1580
DIN 950-*-250-B24-D	250	24	-	48	M 12	26	28	50	102	101	32	5	1450
DIN 950-*-250-K24-D	250	24	-	48	M 12	26	28	50	102	101	32	5	1420
DIN 950-*-250-B26-D	250	26	-	48	M 12	26	28	50	102	101	32	5	1590
DIN 950-*-250-K26-D	250	26	-	48	M 12	26	28	50	102	101	32	5	1550
DIN 950-*-315-V19-D	315	-	V 19	53	M 12	28	33	56	102	132	32	5	2400
DIN 950-*-315-B26-D	315	26	-	53	M 12	28	33	56	102	132	32	5	1700
DIN 950-*-315-K26-D	315	26	-	53	M 12	28	33	56	102	132	32	5	2300
DIN 950-*-315-B28-D	315	28	-	53	M 12	28	33	56	102	132	32	5	2487
DIN 950-*-315-K28-D	315	28	-	53	M 12	28	33	56	102	132	32	5	2300
DIN 950-*-315-B30-D	315	30	-	53	M 12	28	33	56	102	132	32	5	2615
DIN 950-*-315-K30-D	315	30	-	53	M 12	28	33	56	102	132	32	5	2600
DIN 950-*-400-V24-D	400	-	V 24	65	M 12	32	38	63	102	171	32	5	4200
DIN 950-*-400-B30-D	400	30	-	65	M 12	32	38	63	102	171	32	5	4000
DIN 950-*-400-K30-D	400	30	-	65	M 12	32	38	63	102	171	32	5	3800
DIN 950-*-400-B32-D	400	32	-	65	M 12	32	38	63	102	171	32	5	4206
DIN 950-*-400-K32-D	400	32	-	65	M 12	32	38	63	102	171	32	5	4197
DIN 950-*-400-B34-D	400	34	-	65	M 12	32	38	63	102	171	32	5	4000
DIN 950-*-400-K34-D	400	34	-	65	M 12	32	38	63	102	171	32	5	3900
DIN 950-*-500-V27-D	500	-	V 27	78	M 12	34	45	72	102	220	32	5	5600
DIN 950-*-500-B34-D	500	34	-	78	M 12	34	45	72	102	220	32	5	5500
DIN 950-*-500-K34-D	500	34	-	78	M 12	34	45	72	102	220	32	5	5480
DIN 950-*-500-B36-D	500	36	-	78	M 12	34	45	72	102	220	32	5	6002
DIN 950-*-500-K36-D	500	36	-	78	M 12	34	45	72	102	220	32	5	5992
DIN 950-*-500-B40-D	500	40	-	78	M 12	34	45	72	102	220	32	5	5962
DIN 950-*-500-K40-D	500	40	-	78	M 12	34	45	72	102	220	32	5	5900

Spoked handwheels

with large hub

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Cast iron GG

- Hub machined
- Rim turned and polished

Rim concentric and square to bore < 0.4

Revolving handles DIN 98 (see page 579)

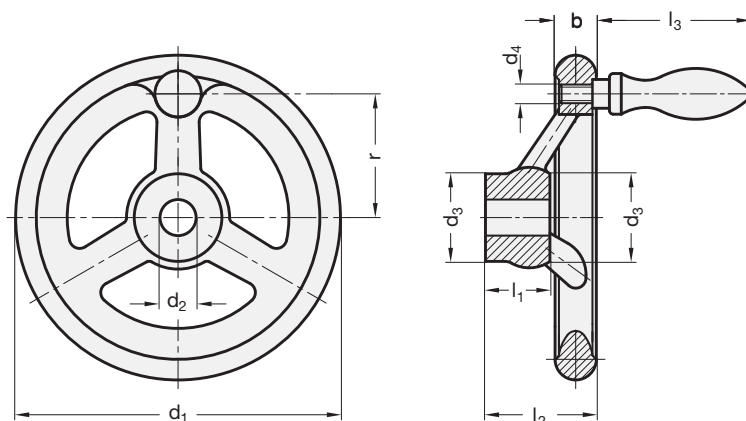
Steel, zinc plated

INFORMATION

Handwheels GN 950.1 differ from normal handwheels DIN 950 (see page 140) only by the larger hub.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO- Fundamental Tolerances (see page A21)



GN 950.1-A

Description	d1	d2 H7	d3	b	l1	l2 ≈	No. of spokes	⚖
GN 950.1-GG-125-B14-A	125	14	34	16	26	45	3	750
GN 950.1-GG-125-K14-A	125	14	34	16	26	45	3	740
GN 950.1-GG-160-B16-A	160	16	45	18	32	52	3	1300
GN 950.1-GG-160-K16-A	160	16	45	18	32	52	3	1280
GN 950.1-GG-200-B20-A	200	20	50	22	38	59	3	2306
GN 950.1-GG-200-K20-A	200	20	50	22	38	59	3	1290
GN 950.1-GG-250-B24-A	250	24	56	26	44	66	3	4108
GN 950.1-GG-250-K24-A	250	24	56	26	44	66	3	4000

GN 950.1-D

Description	d1	d2 H7	d3	b	l1	l2 ≈	l3 ≈	r	Ø Handle	No. of spokes	⚖
GN 950.1-GG-125-B14-D	125	14	34	16	26	45	65	47	20	3	886
GN 950.1-GG-125-K14-D	125	14	34	16	26	45	65	47	20	3	882
GN 950.1-GG-160-B16-D	160	16	45	18	32	52	80	62	25	3	1557
GN 950.1-GG-160-K16-D	160	16	45	18	32	52	80	62	25	3	1551
GN 950.1-GG-200-B20-D	200	20	50	22	38	59	80	80	25	3	2515
GN 950.1-GG-200-K20-D	200	20	50	22	38	59	80	80	25	3	2508
GN 950.1-GG-250-B24-D	250	24	56	26	44	66	102	101	32	3	4410
GN 950.1-GG-250-K24-D	250	24	56	26	44	66	102	101	32	3	4400



GN 950.6

Stainless Steel- Spoked handwheels

SPECIFICATION

Types

- Type **A**: without handle
- Type **F**: with fixed handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Stainless Steel precision casting

- AISI 316
- acid-resistant (A4-Quality)
- Hub machined
- Rim turned and polished
- unmachined surface matt shot-blasted

Stainless Steel-Handle

INFORMATION

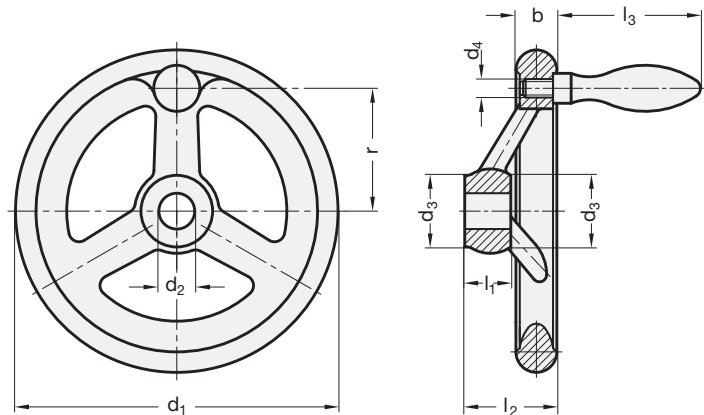
The dimensions of the Stainless Steel-Handwheels GN 950.6 comply extensively with Handwheels DIN 950 (see page 140).

ON REQUEST

- other bore-Ø
- with square

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



* Complete with Bore codes of the Handwheels (B or K)

B without keyway
K with keyway

GN 950.6-A

STAINLESS STEEL

Description	d1	d2 H9	d3 ≈	b	l1	l2 ≈	No. of spokes	⚖
GN 950.6-100-*10-A	100	10	25.5	14.5	17	33	3	433
GN 950.6-125-*12-A	125	12	27	15.8	18	35.5	3	659
GN 950.6-140-*14-A	140	14	29	17	19	38.5	3	865
GN 950.6-160-*14-A	160	14	31	17.5	20	39.5	3	1156
GN 950.6-200-*18-A	200	18	37	20	24	44.5	3	1938

GN 950.6-F

STAINLESS STEEL

Description	d1	d2 H9	d3 ≈	d4	b	l1	l2 ≈	l3	r	Ø Handle	No. of spokes	⚖
GN 950.6-100-*10-F	100	10	25.5	M 6	14.5	17	33	48.5	36	16	3	480
GN 950.6-125-*12-F	125	12	27	M 8	15.8	18	35.5	62	47	20	3	770
GN 950.6-140-*14-F	140	14	29	M 8	17	19	38.5	62	52	20	3	940
GN 950.6-160-*14-F	160	14	31	M 10	17.5	20	39.5	77	62	25	3	1320
GN 950.6-200-*18-F	200	18	37	M 10	20	24	44.5	77	80	25	3	2060

Weight bore code B

Stainless Steel-Handwheels

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Stainless Steel precision casting

- AISI CF-8
- Hub machined
- Rim turned
- matt shot-blasted

Revolving handles

- Plastic Duroplast, black, shiny finish
- Spindle Stainless Steel AISI 304

INFORMATION

The design of Stainless Steel-Handwheels GN 949 complies with the requirements of hygiene standards.

The revolving handles are made of Duroplast which, in general, provides good resistance to the impact of chemical agents.

* Complete with Bore codes of the Handwheels (B or K)

B without keyway
K with keyway



GN 949-A

STAINLESS STEEL

Description	d1	d2 H8	d3	b	l1	l2 ≈	No. of spokes	⚖
GN 949-100-*10-A	100	10	20	7	15	27.5	3	222
GN 949-100-*12-A	100	12	20	7	15	27.5	3	200
GN 949-125-*12-A	125	12	24	9	16	28.5	3	425
GN 949-125-*14-A	125	14	24	9	16	28.5	3	410
GN 949-140-*14-A	140	14	28	10	18	30.5	3	640
GN 949-140-*16-A	140	16	28	10	18	30.5	3	600
GN 949-160-*14-A	160	14	31	11	20	35.5	3	825
GN 949-160-*16-A	160	16	31	11	20	35.5	3	805
GN 949-200-*18-A	200	18	36	14	23	39	3	1442
GN 949-200-*20-A	200	20	36	14	23	39	3	1400

GN 949-D

STAINLESS STEEL

Description	d1	d2 H8	d3	b	l1	l2 ≈	l3 ≈	r	Ø Handle	No. of spokes	⚖
GN 949-100-*10-D	100	10	20	7	15	27.5	45	44	18	3	255
GN 949-100-*12-D	100	12	20	7	15	27.5	45	44	18	3	240
GN 949-125-*12-D	125	12	24	9	16	28.5	55	55	21	3	420
GN 949-125-*14-D	125	14	24	9	16	28.5	55	55	21	3	405
GN 949-140-*14-D	140	14	28	10	18	30.5	70.5	62	23	3	700
GN 949-140-*16-D	140	16	28	10	18	30.5	70.5	62	23	3	680
GN 949-160-*14-D	160	14	31	11	20	35.5	70.5	71	23	3	920
GN 949-160-*16-D	160	16	31	11	20	35.5	70.5	71	23	3	900
GN 949-200-*18-D	200	18	36	14	23	39	70.5	90	23	3	1544
GN 949-200-*20-D	200	20	36	14	23	39	70.5	90	23	3	1495

Weight bore code B



Stainless Steel-Handwheels

AISI 304 (A2)

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **V**: with square

Stainless Steel A2

- AISI 304
- matt shot-blasted
- Wheel body, pressed Stainless Steel
- Hub welded

Revolving handles

- Plastic, Duroplast, black, shiny finish
- Spindle Stainless Steel AISI 304



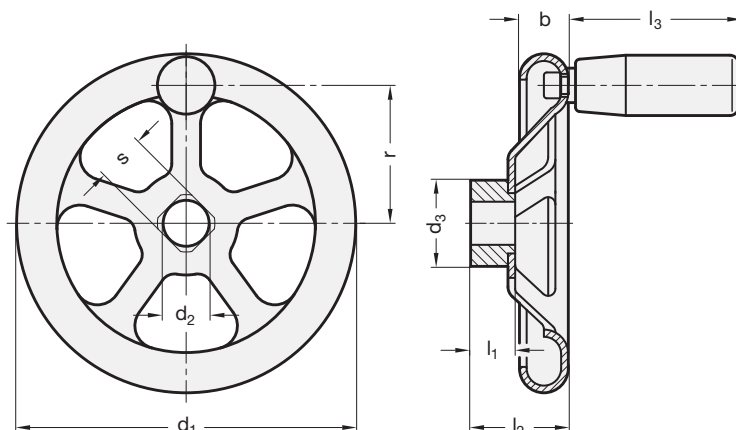
INFORMATION

The hub lengths of the pressed Stainless Steel-Handwheels GN 227.2 conform to DIN 950 (see page 140).

Stainless Steel-Handwheels GN 227.2 are renowned for their high mechanical strength. They are not affected by shock and knocks.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



*Complete with Bore codes of the Handwheel (B, K or V)

B without keyway **K** with keyway **V** with square

GN 227.2-A

STAINLESS STEEL

Description	d1	d2 H9	s H11	b	d3	l1	l2 ≈	No. of spokes	Thickness	⚖
GN 227.2-160-*12-A	160	12	V 12	22	30	20	39	4	2	430
GN 227.2-200-*14-A	200	14	V 14	22	40	24	44	4	2.5	824
GN 227.2-250-*17-A	250	17	V 17	30	45	28	52	5	3	1477
GN 227.2-315-*19-A	315	19	V 19	36	55	33	64	5	3	2330
GN 227.2-400-*24-A	400	24	V 24	43	65	38	81	5	3	4210

GN 227.2-D

STAINLESS STEEL

Description	d1	d2 H9	s H11	b	d3	l1	l2 ≈	l3	r	Ø Handle	No. of spokes	Thickness	⚖
GN 227.2-160-*12-D	160	12	V 12	22	30	20	39	83	68	26	4	2	530
GN 227.2-200-*14-D	200	14	V 14	22	40	24	44	83	88	26	4	2.5	924
GN 227.2-250-*17-D	250	17	V 17	30	45	28	52	93	108	28	5	3	1565
GN 227.2-315-*19-D	315	19	V 19	36	55	33	64	93	138	28	5	3	2400
GN 227.2-400-*24-D	400	24	V 24	43	65	38	81	93	178	28	5	3	4300

Weight type B

Pressed steel handwheels

SPECIFICATION

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **V**: with square

Pressed Steel
plastic coated
black, textured finish **SW**

Hub
Steel, welded

INFORMATION

The hub lengths of the pressed steel handwheels GN 227.1 conform to DIN 950 (see page 140).

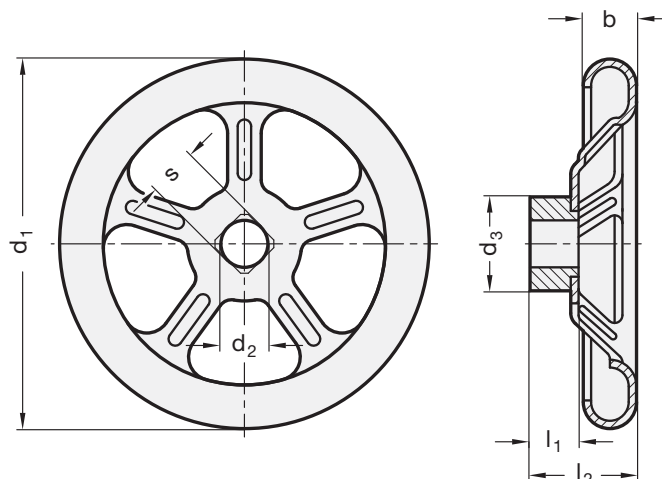
Pressed steel handwheels GN 227.1 are renowned for their high mechanical strength. They are not affected by shock and knocks.

ON REQUEST

- with conical square VK
- with revolving handle

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



GN 227.1

Description	d1	d2 H9	s H11	b	d3	l1	l2 ≈	No. of spokes	Thickness	△
GN 227.1-125-B11-SW	130	11	-	18	30	18	29	3	1.5	300
GN 227.1-125-K11-SW	125	11	-	18	30	18	29	3	1.5	325
GN 227.1-125-V11-SW	125	-	V 11	18	30	18	29	3	1.5	280
GN 227.1-160-B12-SW	160	12	-	22	30	20	37	4	1.5	400
GN 227.1-160-K12-SW	160	12	-	22	30	20	37	4	1.5	380
GN 227.1-160-V12-SW	160	-	V 12	22	30	20	37	4	1.5	360
GN 227.1-200-B14-SW	200	14	-	22	40	24	46	4	2.5	850
GN 227.1-200-K14-SW	200	14	-	22	40	24	46	4	2.5	830
GN 227.1-200-V14-SW	200	-	V 14	22	40	24	46	4	2.5	785
GN 227.1-250-B17-SW	250	17	-	30	45	28	52	5	2.5	1520
GN 227.1-250-K17-SW	250	17	-	30	45	28	52	5	2.5	1470
GN 227.1-250-V17-SW	250	-	V 17	30	45	28	52	5	2.5	1460
GN 227.1-315-B19-SW	315	19	-	35	55	33	64	5	2.5	2350
GN 227.1-315-K19-SW	315	19	-	35	55	33	64	5	2.5	2340
GN 227.1-315-V19-SW	315	-	V 19	35	55	33	64	5	2.5	2280
GN 227.1-400-B24-SW	400	24	-	40	65	38	82	5	3	4140
GN 227.1-400-K24-SW	400	24	-	40	65	38	82	5	3	4100
GN 227.1-400-V24-SW	400	-	V 24	40	65	38	82	5	3	4070



Pressed steel handwheels

for valves

SPECIFICATION

Pressed steel
plastic coated
black, RAL 9005 **SW**
red, RAL 3000 **RT**
uncoated **RH**

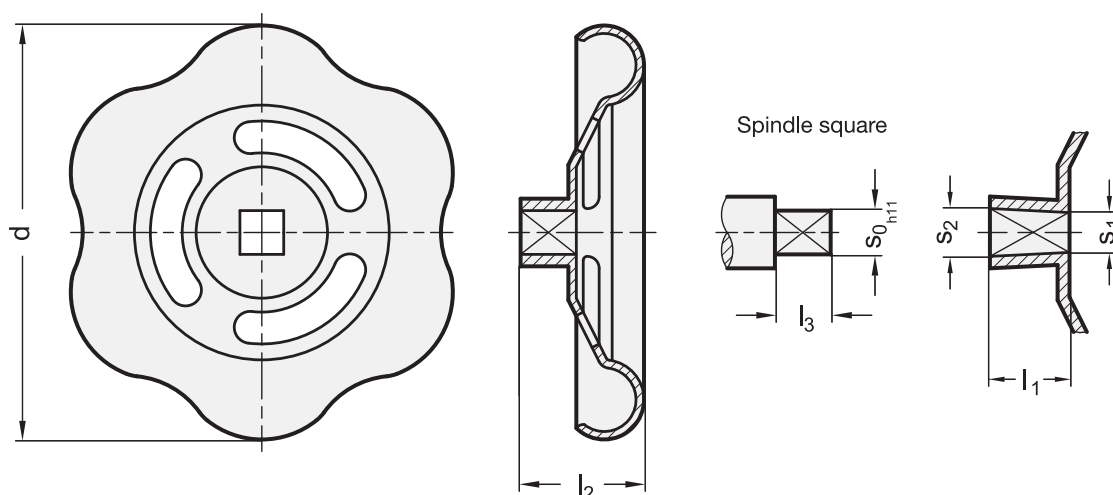
INFORMATION

Pressed steel handwheels GN 227 have been specially developed for valves and they offer definite advantages:

They consist of a single unwelded piece of pressed sheet metal manufactured by a special process to give a reinforced hub. They offer high mechanical strength and are not affected by shocks and knocks.

They are resistant to temperature and fire and not weakened by any ageing process.

The slightly tapered square hole allows easy installation and firm seating on a spindle.



* Complete with colour index of the Handwheels (SW, RT or RH)

SW RAL 9005 **RT** RAL 3000 **RH** uncoated

GN 227

Description	d	s0	s1 -0.1	s2 -0.1	l1 ±0.5	l2	l3 -1	No. of spokes	⚖
GN 227-50-V6-*	50	V 6	5.8	6.15	9	15.5	8	3	20
GN 227-50-V7-*	50	V 7	6.8	7.15	9	15.5	8	3	20
GN 227-60-V6-*	60	V 6	5.8	6.15	9	16.5	8	3	29
GN 227-60-V7-*	60	V 7	6.8	7.15	10	17.5	9	3	29
GN 227-70-V7-*	70	V 7	6.8	7.15	10	19	9	3	39
GN 227-70-V8-*	70	V 8	7.8	8.15	10	19	9	3	37
GN 227-80-V8-*	80	V 8	7.8	8.15	11	20	10	3	59
GN 227-80-V9-*	80	V 9	9	9.15	12	20	11	3	56
GN 227-90-V9-*	90	V 9	8.8	9.15	12	24	11	3	76
GN 227-100-V9-*	100	V 9	9	9.2	13	24	12	4	101
GN 227-100-V10-*	100	V 10	9.8	10.2	13	24	12	4	101
GN 227-120-V11-*	120	V 11	11	11.2	14	31	13	4	165
GN 227-120-V12-*	120	V 12	12	12.25	16	32.5	14	4	165
GN 227-140-V12-*	140	V 12	12	12.25	16	32.5	14	4	215
GN 227-160-V14-*	160	V 14	14	14.25	20	37	18	4	280

Stainless Steel-Handwheels

AISI 316L (A4)

SPECIFICATION

Type

- Type **A**: without handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **V**: with square

Stainless Steel A4

- AISI 316L
- matt shot-blasted
- Wheel body, pressed Stainless Steel
- Hub welded

INFORMATION

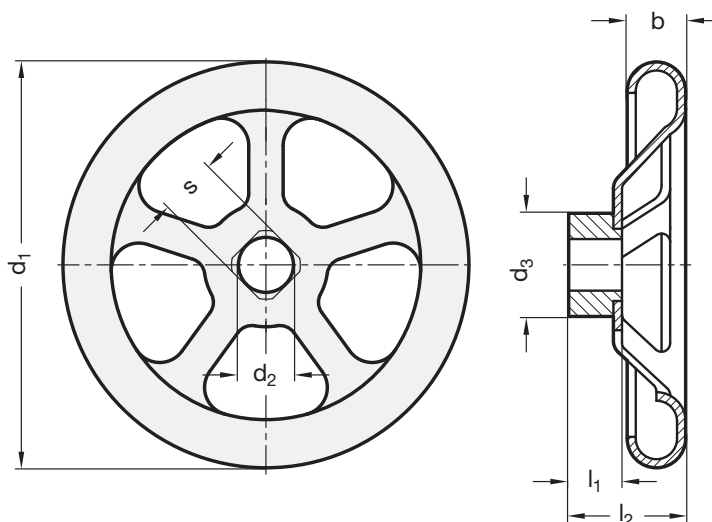
The hub lengths of the pressed Stainless Steel-Handwheels GN 227.4 conform to DIN 950 (see page 140).

Stainless Steel-Handwheels GN 227.4 are renowned for their high mechanical strength. They are not affected by shock and knocks.

Stainless Steel-Handwheels GN 227.4 (A4 quality) are only available in type A (without handle).

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



GN 227.4

STAINLESS STEEL

Description	d1	d2 H9	s H11	b	d3	l1	l2 ≈	No. of spokes	Thickness	⚖
GN 227.4-160-B12-A	160	12	-	22	30	20	39	4	2	431
GN 227.4-160-K12-A	160	12	-	22	30	20	39	4	2	430
GN 227.4-160-V12-A	160	-	V 12	22	30	20	39	4	2	431
GN 227.4-200-B14-A	200	14	-	22	40	24	44	4	2.5	812
GN 227.4-200-K14-A	200	14	-	22	40	24	44	4	2.5	812
GN 227.4-200-V14-A	200	-	V 14	22	40	24	44	4	2.5	800
GN 227.4-250-B17-A	250	17	-	30	45	28	52	5	3	1470
GN 227.4-250-K17-A	250	17	-	30	45	28	52	5	3	1470
GN 227.4-250-V17-A	250	-	V 17	30	45	28	52	5	3	1400
GN 227.4-315-B19-A	315	19	-	36	55	33	64	5	3	2300
GN 227.4-315-K19-A	315	19	-	36	55	33	64	5	3	2300
GN 227.4-315-V19-A	315	-	V 19	36	55	33	64	5	3	2250
GN 227.4-400-B24-A	400	24	-	43	65	38	81	5	3	4300
GN 227.4-400-K24-A	400	24	-	43	65	38	81	5	3	4300
GN 227.4-400-V24-A	400	-	V 24	43	65	38	81	5	3	4250



Monospoke handwheels

Technopolymer

MATERIAL

Glass-fibre reinforced polypropylene based (PP) technopolymer black colour, matte finish.

BOSS CAP

Polyester based technopolymer (PBT) in Ergostyle colours, glossy finish, press-fit mounting.

Available also as accessory sold separately (see table ECB.).

Code	Description	Boss cap for
29451-*	ECB.I3-*	EMW.350

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTIONS

Black-oxide steel boss, H7 reamed hole.

- **EMW+IEL:** with revolving handle IEL+x-SOFT (see page 572) in technopolymer coated with "Soft touch" thermoplastic elastomer (TPE).
- **EMW+IR:** with fold-away handle IR.620 (see page 584) in technopolymer.

ACCESSORIES ON REQUEST

Axial retaining washer GN 184 (see page 971).

SPECIAL EXECUTIONS ON REQUEST

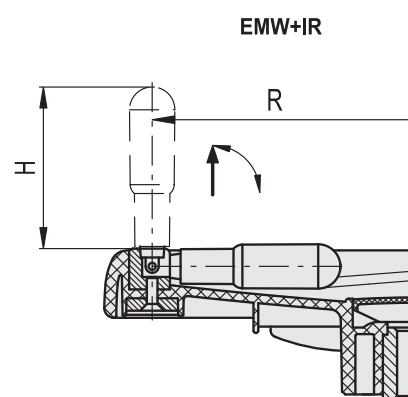
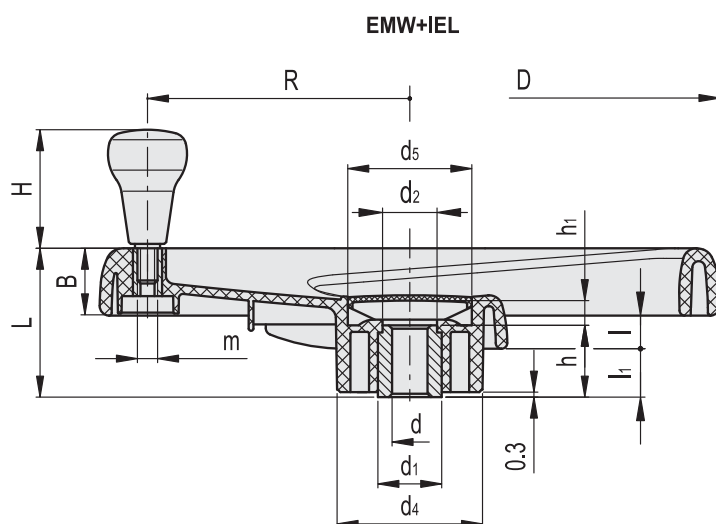
Bosses with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16).

To order the handwheel with keyway complete code and description with the index -K (i.e. 204611-K- EMW.350+IEL A-20-K).

For sufficient quantities: executions with locking device (Elesa patent) (see page 155).



ERGOSTYLE®



* Complete with colour index, example: 204611-C2 EMW.350+IEL A-20-C2

C1 RAL7021 **C2** RAL2004 **C3** RAL7035 **C4** RAL1021 **C5** RAL5024 **C6** RAL3000

EMW+IEL

Code	Description	D	dH7	L	B	d1	d2	d4	d5	I	I1	h	h1	H	m	R	C# [Nm]	L# [J]	
204611-*	EMW.350+IEL-A-20-*	350	20	82	38	35	33	82	70	19	25	38	14	65	M10	148	380	14	1195

EMW+IR

Code	Description	D	dH7	L	B	d1	d2	d4	d5	I	I1	h	h1	H	R	C# [Nm]	L# [J]	
204711-*	EMW.350+IR-A-20-*	350	20	82	38	35	33	82	70	19	25	38	14	90	148	380	14	1240

For maximum torque (C) and impact strength (L) see Technical Data on page A3.

Three-arm handwheels

Technopolymer

MATERIAL

Glass-fibre reinforced polypropylene based (PP) technopolymer, black colour, matte finish.

BOSS CAP

Polyester based technopolymer (PBT) in Ergostyle colours, glossy finish, press-fit mounting.

Available also as accessory sold separately (see table ECB.).

Code	Description	Boss cap for
29451-*	ECB.I3-*	EYK.275/400

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTION

Black-oxide steel boss, H7 reamed hole.

Revolving handle EBS+x (see page 570) in technopolymer, not removable.

ACCESSORIES ON REQUEST

Axial retaining washer GN 184 (see page 971).

SPECIAL EXECUTION ON REQUEST

Black-oxide steel bosses with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16).

To order the handwheel with keyway add the index -K after the code and the description (i.e. 208311-K- EYK.400+I A-20-K-).

For sufficient quantities: executions with locking device (Elesa patent) (see page 155).

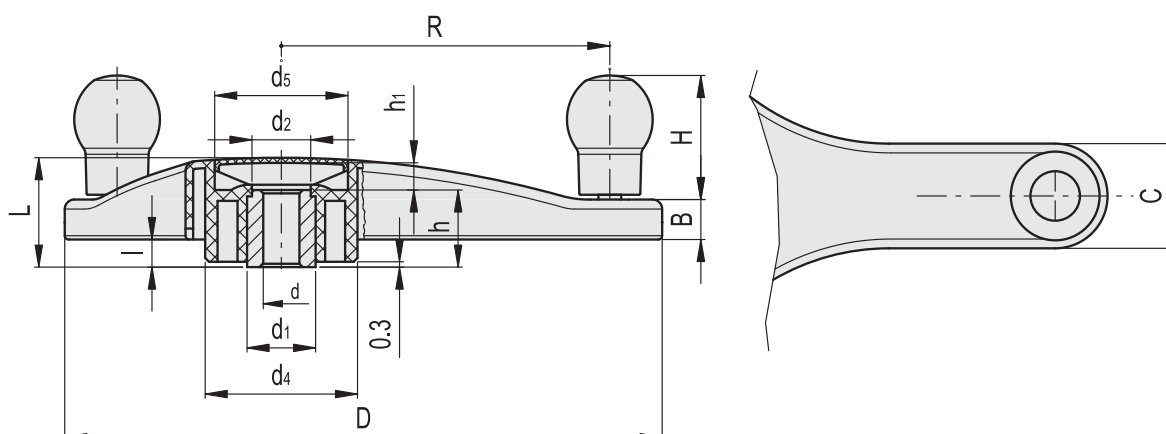
ETK. steering handwheel can be customised with marks, logo or special graphics (tampoprinting). The handwheels or handles can be supplied also in special coloured technopolymer.



ERGOSTYLE®

ERGONOMY AND DESIGN

The three equidistant arms (120°) offer a perfect grip and the greatest operational easiness, also to disable people. The rounded lines, the special compact and ergonomic shape of EYK. handwheel design together with the absence of cavities offer an excellent level of safety for hands during the steering operations.



* Complete with colour index, example: 208111-C2 EYK.275+I A-20-C2

C1 RAL7021
 C2 RAL2004
 C3 RAL7035
 C4 RAL1021
 C5 RAL5024
 C6 RAL3000

Code	Description	D	dh7	L	B	d1	d2	d4	d5	h	h1	I	C	H	R	C# [Nm]	L# [J]	
208111-*	EYK.275+I A-20-*	275	20	54	21	35	33	76	70	38	14	19.5	50	65	112.5	270	12	769
208311-*	EYK.400+I A-20-*	400	20	54	21	35	33	80	70	38	14	12	55	65	172.5	270	16	955

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.



Three-arm handwheel

Technopolymer

MATERIAL

Glass-fibre reinforced polypropylene based (PP) technopolymer, black colour, matte finish.

BOSS CAP

Polyester based technopolymer (PBT) in Ergostyle colours, glossy finish, press-fit mounting.

Available also as accessory sold separately (see table ECB.).

Code	Description	Boss cap for
29451-*	ECB.I3-*	ETK.400

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTION

Black-oxide steel boss, H7 reamed hole.

Revolving handle $l.631+x$ (see page 580) in technopolymer, not removable.

SPECIAL EXECUTIONS ON REQUEST

Bosses with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16).

To order the handwheel with keyway add the index -K after the code and the description (i.e. 207731-K- ETK.400+I A-20-K-).

For sufficient quantities: executions with locking device (Elesa patent), (see page 155).

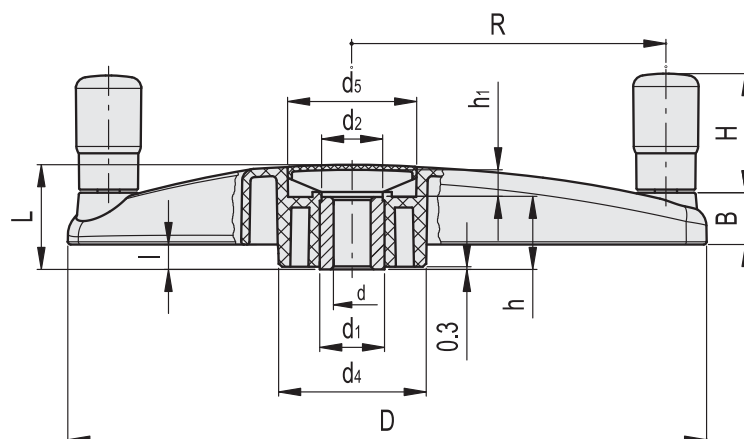
The three-arm handwheels can be customised with marks, logo or special graphics (tampoprinting). The handwheels or handles can be supplied also in special coloured technopolymer.

ACCESSORIES ON REQUEST

Axial retaining washer GN 184 (see page 971).

ERGONOMY AND DESIGN

The three equidistant arms (120°) offer a perfect grip and the greatest operational easiness, also to disabled people. The rounded lines, the special compact and ergonomic shape of ETK. handwheel design together with the absence of cavities offer an excellent level of safety for hands during the steering operations.



* Complete with colour index, example: 207731-C2 ETK.400+I A-20-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

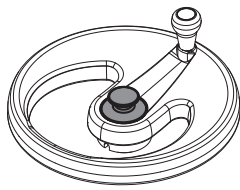
Code	Description	D	dH7	L	B	d1	d2	d4	d5	h	h1	I	H	R	C# [Nm]	L# [J]	
207731-*	ETK.400+I A-20-*	400	20	54	28	35	33	80	70	38	14	12	65	178	320	18	980

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.

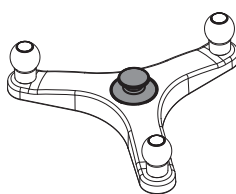
Executions on request with locking and status indicators

Elesa European and US patent

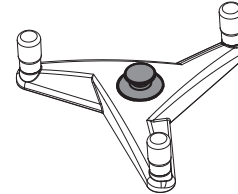
EMW.



EYK.



ETK.



- L Simple actuator

By pressing the actuator the rotation of the handwheel locks. Also available with label customizable with graphic symbols, marks or special graphics.

- LCV Actuator with green collar

The green collar indicates that the handwheel is free and it can be operated. By pressing the actuator the rotation of the handwheel locks (the green collar is no longer visible).

- LCV-K Actuator with green collar and lock

The green collar indicates that the handwheel is free and it can be operated. By pressing the actuator the rotation of the handwheel locks (the green collar is no longer visible). By turning the key by 180° the actuator remains in the locked position.

- PHCV "Push-push" actuator with green collar

The green collar indicates that the handwheel is free and it can be operated. By pressing the actuator the rotation of the handwheel locks or unlocks. It is the ideal solution also for disabled operators according to ADA regulations (Americans with Disability Act).

- L-K Actuator with lock

By pressing the actuator the rotation of the handwheel locks. By turning the key by 180° the actuator remains in the locked position.

- L-R Actuator with red ring

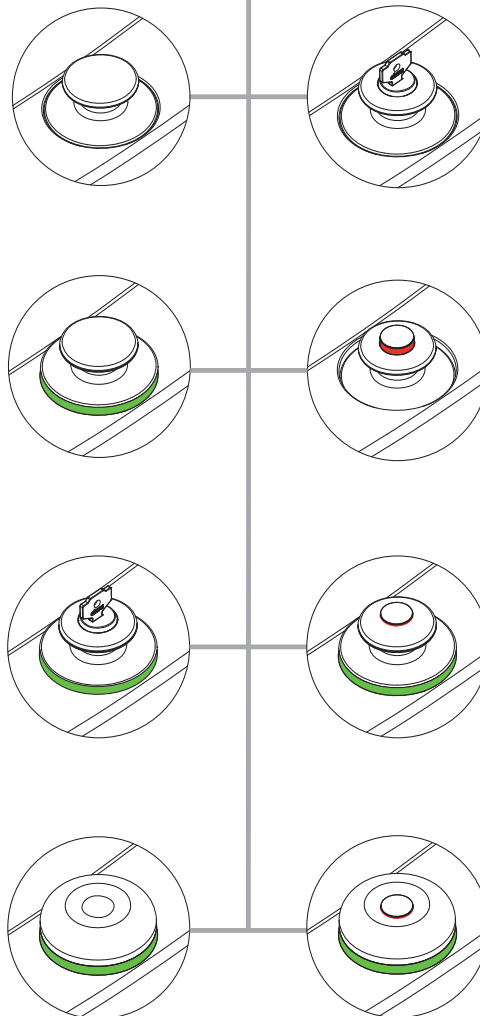
By pressing the actuator the rotation of the handwheel locks. The red ring comes out from the actuator and indicates that the handwheel is locked.

- LCV-R Actuator with green collar and red ring

The green collar indicates that the handwheel is free and it can be operated (the red ring is not visible). By pressing the actuator the rotation of the handwheel locks. The red ring comes out from the actuator and indicates that the handwheel is locked (the green collar is no longer visible).

- PHCV-R "Push-push" actuator with green collar and red ring

The green collar indicates that the handwheel is free and it can be operated (the red ring is not visible). By pressing the actuator the rotation of the handwheel locks or unlocks. The red ring comes out from the actuator and indicates that the handwheel is locked (the green collar is no longer visible). It is the ideal solution also for disabled operators according to ADA regulations (Americans with Disability Act).

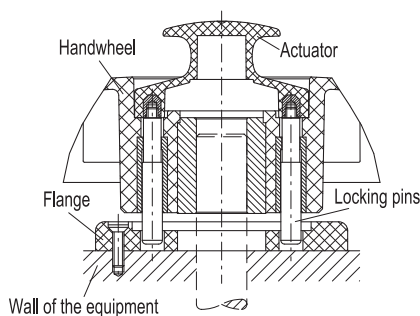


- FF Locking flange (accessory)

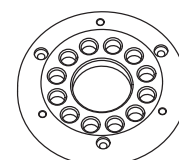
Polyamide-based SUPER-technopolymer (PA), black colour, matte finish. The flange is provided with 12 holes (radially positioned every 30°) for the engagement of the locking pins of the handwheel. Mounting of the flange on the wall of the equipment by means of 3 holes for countersunk head screws. Additional 3 holes to position any reference pin.

- PP Pre-loaded pins

Locking pins with preloading spring for automatic fitting into the locking holes (Applicable to all executions).



Fitting to shaft by means of a transversal screw



Solid handwheels

Technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

BOSS CAP

Acetal resin based (POM) technopolymer, light-grey colour, push-fit assembly.

STANDARD EXECUTIONS

Black-oxide steel boss, H7 reamed hole.

- **VDS.:** without handle.
- **VDS+I:** with revolving handle I.621+x (see page 576) in technopolymer.
- **VDS+IEL:** with revolving handle IEL+x-SOFT (see page 572) in technopolymer coated with "Soft touch" thermoplastic elastomer (TPE).
- **VDS+IR:** with fold-away handle IR.620 (see page 584) in technopolymer.
- **VDS+IRS:** with safety fold-away handle IRS.820 (see page 589) in technopolymer.
- AISI 304 stainless steel boss, H7 reamed hole.
- **VDS-SST:** without handle.
- **VDS+I-SST:** with revolving handle I.621+x-SST (see page 576) in technopolymer.
- **VDS+IR-SST:** with fold-away handle IR.620-SST (see page 584) in technopolymer.
- **VDS+IRS-SST:** with safety fold-away handle IRS.820-SST (see page 589) in technopolymer.

SPECIAL EXECUTIONS ON REQUEST

Bosses with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16).

To order the handwheel with keyway add the index -K after the code and the description (i.e. 72661-R-K VDS.100 A-10-K).

ACCESSORIES ON REQUEST

- Axial retaining washer in black-oxide steel GN 184 (see page 971) or in AISI 303 stainless steel GN 184.5 (see page 971).
- VDS.125, VDS.150 and VDS.175 are available also with technopolymer boss caps in one of the Ergostyle colours (see ECB. table).

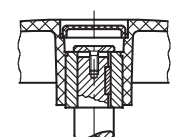


ELESA Original design      

Code	Description	Boss cap for
29582-*	ECB.D2-*	VDS.125
29583-*	ECB.D3-*	VDS.150
29584-*	ECB.D4-*	VDS.175

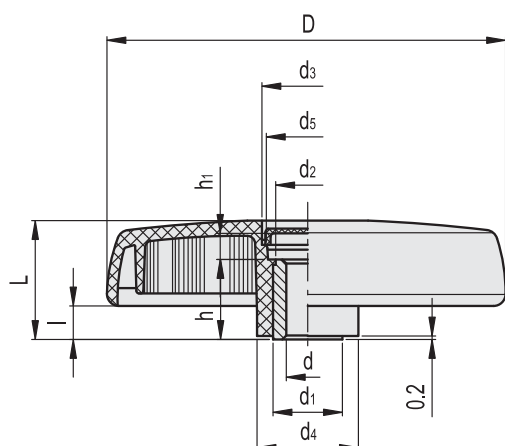
* Complete with colour index (C1, ..., C6).

C1 RAL7021 **C2** RAL2004 **C3** RAL7035 **C4** RAL1021 **C5** RAL5024 **C6** RAL3000

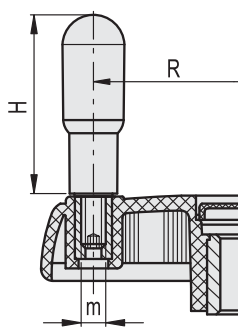


Assembly example with keyway and axial set screw

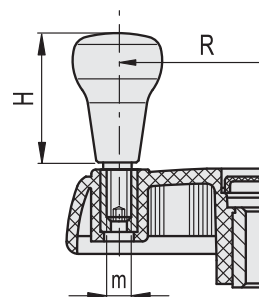
VDS.
VDS-SST



VDS+I
VDS+I-SST



VDS+IEL



VDS.

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	C# [Nm]	L# [J]	
72641-R	VDS.80-A-8	83	8	29	18	16	21	26	19	9	17	8	34	6	84
72642-R	VDS.80-A-10	83	10	29	18	16	21	26	19	9	17	8	34	6	86
72660-R	VDS.100 A-8	102	8	34	22	20	27	30	25	10	22	9	60	13	145
72661-R	VDS.100 A-10	102	10	34	22	20	27	30	25	10	22	9	60	13	140
72662-R	VDS.100 A-12	102	12	34	22	20	27	30	25	10	22	9	60	13	135
72740-R	VDS.150 A-8	150	8	44	26	24	34	38	30	12	30	10	180	26	335
72741-R	VDS.150 A-14	150	14	44	26	24	34	38	30	12	30	10	180	26	315
72840-R	VDS.200 A-8	200	8	53	40	38	44	50	40	14	36	13	320	27	620
72841-R	VDS.200 A-20	200	20	53	40	38	44	50	40	14	36	13	320	27	590

VDS-SST

STAINLESS STEEL

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	C# [Nm]	L# [J]	
72665-R	VDS.100-SST-10	102	10	34	22	20	27	30	25	10	22	9	60	13	141
72745-R	VDS.150-SST-14	150	14	44	26	24	34	38	30	12	30	10	180	26	318
72845-R	VDS.200-SST-20	200	20	53	40	38	44	50	40	14	36	13	320	27	596

VDS+I

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	H	m	R	C# [Nm]	L# [J]	
72651-R	VDS.80+I A-8	83	8	29	18	16	21	26	19	9	17	8	45	M6	30.5	34	6	106
72652-R	VDS.80+I A-10	83	10	29	18	16	21	26	19	9	17	8	45	M6	30.5	34	6	108
72670-R	VDS.100+I A-8	102	8	34	22	20	27	30	25	10	22	9	60	M6	39	60	13	180
72671-R	VDS.100+I A-10	102	10	34	22	20	27	30	25	10	22	9	60	M6	39	60	13	174
72672-R	VDS.100+I A-12	102	12	34	22	20	27	30	25	10	22	9	60	M6	39	60	13	168
72700-R	VDS.125+I A-8	125	8	39.5	26	24	31	35	28	11	27	11	60	M6	49	125	25	282
72701-R	VDS.125+I A-12	125	12	39.5	26	24	31	35	28	11	27	11	60	M6	49	125	25	270
72702-R	VDS.125+I A-14	125	14	39.5	26	24	31	35	28	11	27	11	60	M6	49	125	25	258
72750-R	VDS.150+I A-8	150	8	44	26	24	34	38	30	12	30	10	65	M8	56.5	180	26	399
72751-R	VDS.150+I A-14	150	14	44	26	24	34	38	30	12	30	10	65	M8	56.5	180	26	379
72752-R	VDS.150+I A-16	150	16	44	26	24	34	38	30	12	30	10	65	M8	56.5	180	26	359
72800-R	VDS.175+I A-8	176	8	49	35	33	39	44	35	13	28	16	80	M10	70	195	26	530
72801-R	VDS.175+I A-16	176	16	49	35	33	39	44	35	13	28	16	80	M10	70	195	26	500
72802-R	VDS.175+I A-20	176	20	49	35	33	39	44	35	13	28	16	80	M10	70	195	26	470
72850-R	VDS.200+I A-8	200	8	53	40	38	44	50	40	14	36	13	90	M10	81	320	27	714
72851-R	VDS.200+I A-20	200	20	53	40	38	44	50	40	14	36	13	90	M10	81	320	27	674
72852-R	VDS.200+I A-24	200	24	53	40	38	44	50	40	14	36	13	90	M10	81	320	27	634
72911-R	VDS.250+I A-20	250	20	60	40	38	50	57	48	17	36	19	90	M10	104	500	30	934
72961-R	VDS.300+I A-20	300	20	66	40	36.5	68.5	72	66	20	44	20	90	M10	124	500	30	1260

VDS+I-SST

STAINLESS STEEL

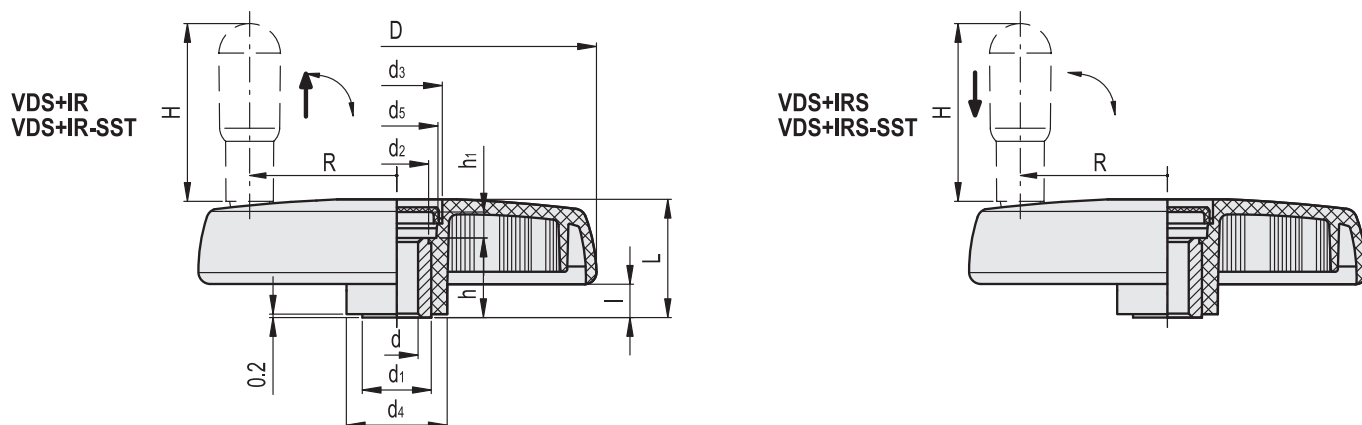
Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	H	m	R	C# [Nm]	L# [J]	
72675-R	VDS.100+I-SST-10	102	10	34	22	20	27	30	25	10	22	9	60	M6	39	60	13	175
72705-R	VDS.125+I-SST-12	125	12	42	26	24	31	35	28	11	27	11	60	M6	49	125	25	273
72755-R	VDS.150+I-SST-14	150	14	44	26	24	34	38	30	12	30	10	65	M8	56.5	180	26	383
72855-R	VDS.200+I-SST-20	200	20	53	40	38	44	50	40	14	36	13	90	M10	81	320	27	681

VDS+IEL

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	H	m	R	C# [Nm]	L# [J]	
72966-R	VDS.300+IEL A-20	300	20	66	40	36.5	68.5	72	66	20	44	20	65	M10	124	500	30	1270

For maximum torque (C) and impact strength (L) see Technical Data on page A3.





VDS+IR

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	I	h	h1	H	R	C# [Nm]	L# [J]	
72656-R	VDS.80+IR A-8	83	8	38	18	16	16.5	25	13.5	18.5	17	3.5	45	28	34	6	133
72657-R	VDS.80+IR A-10	83	10	38	18	16	16.5	25	13.5	18.5	17	3.5	45	28	34	6	129
72680-R	VDS.100+IR A-8	102	8	34	22	20	27	30	25	10	22	9	45	39	60	14	177
72681-R	VDS.100+IR A-10	102	10	34	22	20	27	30	25	10	22	9	45	39	60	14	170
72682-R	VDS.100+IR A-12	102	12	34	22	20	27	30	25	10	22	9	45	39	60	14	163
72710-R	VDS.125+IR A-8	125	8	39.5	26	24	31	35	28	11	27	11	60	49	125	14	311
72711-R	VDS.125+IR A-12	125	12	39.5	26	24	31	35	28	11	27	11	60	49	125	14	307
72712-R	VDS.125+IR A-14	125	14	39.5	26	24	31	35	28	11	27	11	60	49	125	14	303
72760-R	VDS.150+IR A-8	150	8	44	26	24	34	38	30	12	30	10	65	56.5	180	15	450
72761-R	VDS.150+IR A-14	150	14	44	26	24	34	38	30	12	30	10	65	56.5	180	15	432
72762-R	VDS.150+IR A-16	150	16	44	26	24	34	38	30	12	30	10	65	56.5	180	15	415
72810-R	VDS.175+IR A-8	176	8	49	35	33	39	44	35	13	28	16	80	70	195	20	588
72811-R	VDS.175+IR A-16	176	16	49	35	33	39	44	35	13	28	16	80	70	195	20	577
72812-R	VDS.175+IR A-20	176	20	49	35	33	39	44	35	13	28	16	80	70	195	20	565
72860-R	VDS.200+IR A-8	200	8	53	40	38	44	50	40	14	36	13	90	81	320	27	750
72861-R	VDS.200+IR A-20	200	20	53	40	38	44	50	40	14	36	13	90	81	320	27	710
72862-R	VDS.200+IR A-24	200	24	53	40	38	44	50	40	14	36	13	90	81	320	27	670
72921-R	VDS.250+IR A-20	250	20	60	40	38	50	57	48	17	36	19	90	104	500	30	997
72971-R	VDS.300+IR A-20	300	20	66	40	36.5	68.5	72	66	20	44	20	90	124	500	30	1375

VDS+IR-SST

STAINLESS STEEL

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	I	h	h1	H	R	C# [Nm]	L# [J]	
72685-R	VDS.100+IR-SST-10	102	10	34	22	20	27	30	25	10	22	9	45	39	60	14	171
72715-R	VDS.125+IR-SST-12	125	12	42	26	24	31	35	28	11	27	11	60	49	125	14	310
72765-R	VDS.150+IR-SST-14	150	14	44	26	24	34	38	30	12	30	10	65	56.5	180	15	436
72865-R	VDS.200+IR-SST-20	200	20	53	40	38	44	50	40	14	36	13	90	81	320	27	717

VDS+IRS

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	I	h	h1	H	R	C# [Nm]	L# [J]	
72770-R	VDS.150+IRS A-8	150	8	44	26	24	34	38	30	12	30	10	65	56.5	180	15	455
72771-R	VDS.150+IRS A-14	150	14	44	26	24	34	38	30	12	30	10	65	56.5	180	15	445
72772-R	VDS.150+IRS A-16	150	16	44	26	24	34	38	30	12	30	10	65	56.5	180	15	435
72820-R	VDS.175+IRS A-8	176	8	49	35	33	39	44	35	13	28	16	80	70	195	20	590
72821-R	VDS.175+IRS A-16	176	16	49	35	33	39	44	35	13	28	16	80	70	195	20	580
72822-R	VDS.175+IRS A-20	176	20	49	35	33	39	44	35	13	28	16	80	70	195	20	570
72870-R	VDS.200+IRS A-8	200	8	53	40	38	44	50	40	14	36	13	90	81	320	27	770
72871-R	VDS.200+IRS A-20	200	20	53	40	38	44	50	40	14	36	13	90	81	320	27	730
72872-R	VDS.200+IRS A-24	200	24	53	40	38	44	50	40	14	36	13	90	81	320	27	690
72931-R	VDS.250+IRS A-20	250	20	60	40	38	50	57	48	17	36	19	90	104	500	30	955
72981-R	VDS.300+IRS A-20	300	20	66	40	36.5	68.5	72	66	20	44	20	90	124	500	30	1285

VDS+IRS-SST

STAINLESS STEEL

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	I	h	h1	H	R	C# [Nm]	L# [J]	
72775-R	VDS.150+IRS-SST-14	150	14	44	26	24	34	38	30	12	30	10	65	56.5	180	15	450
72875-R	VDS.200+IRS-SST-20	200	20	53	40	38	44	50	40	14	36	13	90	81	320	27	737

For maximum torque (C) and impact strength (L) see Technical Data on page A3.





1
Operating elements

Solid handwheels

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

BOSS CAP

Acetal resin based (POM) technopolymer, black colour, matte finish, push-fit assembly.

RING

Matte anodised aluminium.
(ELESA original design - Reg. U.S. Pat. & TM Off.)

STANDARD EXECUTIONS

Black-oxide steel boss, H7 reamed hole.

- **VDT.:** without handle.
- **VDT+I:** with revolving handle I.621+x (see page 576) in technopolymer.
- **VDT+IR:** with fold-away handle IR.620 (see page 584) in technopolymer.

SPECIAL EXECUTIONS ON REQUEST

Black-oxide steel bosses with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16).

To order the handwheel with keyway complete code and description with the index -K (i.e. 170307-K VDT.100 A-10-K).

ACCESSORIES ON REQUEST

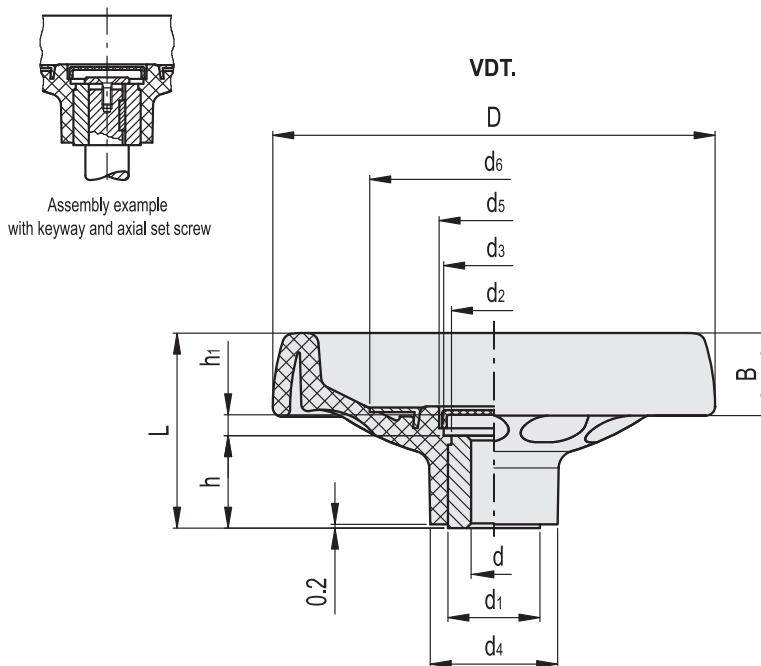
Axial retaining washer type GN 184 (see page 971).

ERGONOMY

The rim with internal rear scallops makes the grip and the manoeuvre of the handwheel easier.



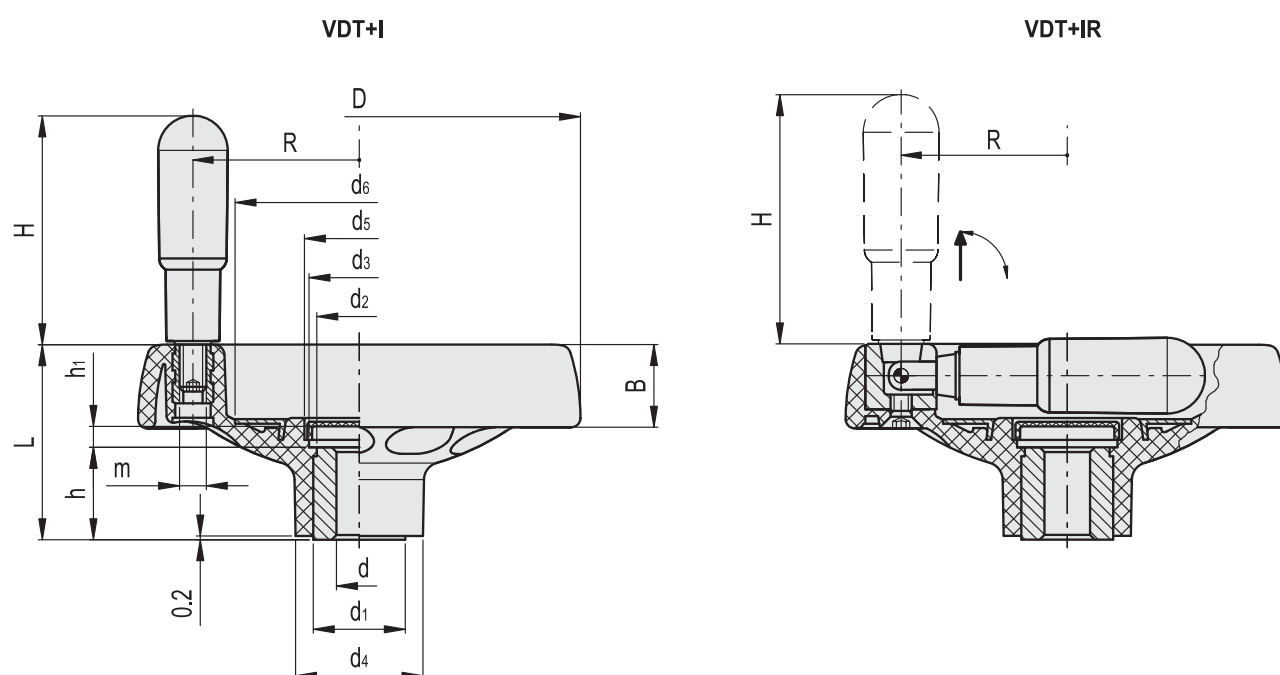
ELESA Original design 2003



VDT.

Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	d6	h	h1	C# [Nm]	L# [J]	⚖
170307	VDT.100 A-10	100	10	49	22	22	20	26	32	28	54	22	5.5	180	21	155
170505	VDT.125 A-12	125	12	57	24	26	24	28	36	31	70	27	7	200	23	285
170707	VDT.160 A-14	160	14	64	27	35	33	38	46	40	90	28	11	400	25	505
170907	VDT.200 A-20	200	20	68	30	40	38	50	51	52	110	31	9	600	35	730

For maximum torque (C) and impact strength (L) see Technical Data on page A3.



VDT+I

Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	d6	h	h1	H	m	R	C# [Nm]	L# [J]	
170317	VDT.100+I A-10	100	10	49	22	22	20	26	32	28	54	22	5.5	60	M6	37	180	21	185
170515	VDT.125+I A-12	125	12	57	24	26	24	28	36	31	70	27	7	65	M8	47	200	23	355
170717	VDT.160+I A-14	160	14	64	27	35	33	38	46	40	90	28	11	80	M8	62	400	25	585
170917	VDT.200+I A-20	200	20	68	30	40	38	50	51	52	110	31	9	90	M10	78	600	35	820

VDT+IR

Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	d6	h	h1	H	R	C# [Nm]	L# [J]	
170327	VDT.100+IR A-10	100	10	49	22	22	20	26	32	28	54	22	5.5	60	37	180	21	195
170525	VDT.125+IR A-12	125	12	57	24	26	24	28	36	31	70	27	7	65	47	200	23	365
170727	VDT.160+IR A-14	160	14	64	27	35	33	38	46	40	90	28	11	80	62	400	25	600
170927	VDT.200+IR A-20	200	20	68	30	40	38	50	51	52	110	31	9	90	78	600	35	875

For maximum torque (C) and impact strength (L) see Technical Data on page A3.



Solid handwheels

Duroplast

MATERIAL

High-strength, reinforced phenolic based (PF) Duroplast, black colour, glossy finish.

RING

Matte anodised aluminium.
(ELESA Original design - Reg. U.S. Pat. & TM Off.)

STANDARD EXECUTIONS

- **VDN.FP-A**: without handle, black-oxide steel hub, H7 reamed hole.
- **VDN.FP+I-A**: with revolving handle I.301+x (see page 574) in Duroplast. Black-oxide steel hub, H7 reamed hole.
- **VDN.FP+IR-A**: with fold-away handle IR.407 in Duroplast. Black-oxide steel hub, H7 reamed hole.
- **VDN.FP+IRS-A**: with automatic fold-away safety handle "Fold-O-matic"® type IRS.820 (see page 589) in technopolymer. Black-oxide steel hub, H7 reamed hole.
- **VDN.FP**: without handle, black-oxide steel hub, not drilled.
- **VDN.FP-SST**: without handle, AISI 303 stainless steel hub, not drilled.
- **VDN.FP+I**: with revolving handle I.301+x (see page 574) in Duroplast. Black-oxide steel hub, not drilled.
- **VDN.FP+I-SST**: with revolving handle I.301+x-SST (see page 574) in Duroplast. AISI 303 stainless steel hub, not drilled.
- **VDN.FP+IR**: with fold-away handle IR.407 in Duroplast. Black-oxide steel hub, not drilled.

SPECIAL EXECUTIONS ON REQUEST

- Hub with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16)
- To order the handwheel with keyway complete code and description with the index -K (i.e. 73710-10-K VDN.100 FP+I-A-10-K).
- Handwheels with incorporated balancing counterweights.

ACCESSORIES ON REQUEST

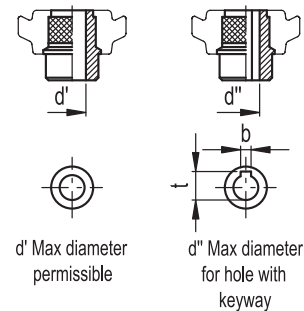
Axial retaining washer in black-oxide steel GN 184 (see page 971) or in AISI 303 stainless steel GN 184.5 (see page 971).

ERGONOMY

The rim with internal rear scallops makes the grip and the manoeuvre of the handwheel easier.



ELESA Original design

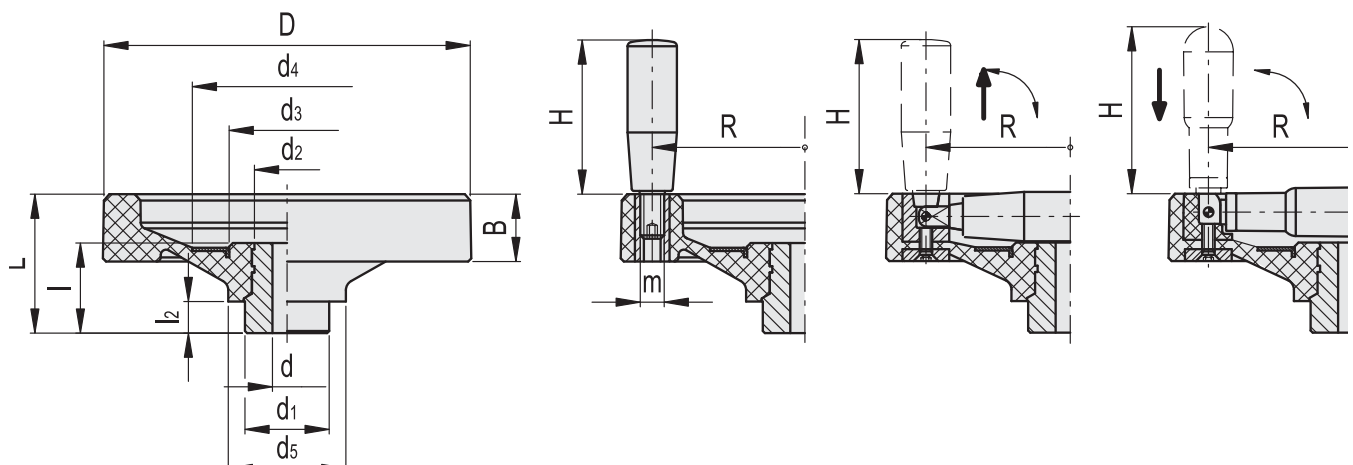


VDN.FP-A

VDN.FP+I-A

VDN.FP+IR-A

VDN.FP+IRS-A



VDN.FP-A

Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	I	I2	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73650-10	VDN.50 FP-A-10	50	10	22	12	16	16	-	25	26	19	9	12	10	11.4	3	55	3	50
73670-10	VDN.63 FP-A-10	63	10	28	13	20	20	-	31	28	24	10	13	11	12.8	4	75	4	100
73690-10	VDN.80 FP-A-10	80	10	31	14	20	18	28	43	30	28	10	13	11	12.8	4	120	5	120
73690-12	VDN.80 FP-A-12	80	12	31	14	20	18	28	43	30	28	10	13	11	12.8	4	120	5	115
73709-10	VDN.100 FP-A-10	100	10	40	15	24	22	35	54	39	36	12	16	13	15.3	5	150	6	324
73709-12	VDN.100 FP-A-12	100	12	40	15	24	22	35	54	39	36	12	16	13	15.3	5	150	6	322
73719-12	VDN.125 FP-A-12	125	12	44	15	32	26.5	44	70	46	38	15	20	16	18.3	5	300	8	493
73719-14	VDN.125 FP-A-14	125	14	44	15	32	26.5	44	70	46	38	15	20	16	18.3	5	300	8	490
73723-14	VDN.140 FP-A-14	140	14	46	19	32	26.5	44	70	48	38	15	20	16	18.3	5	350	10	430
73729-14	VDN.150 FP-A-14	150	14	49	18	32	26.5	44	70	48	38	15	20	16	18.3	5	400	14	662
73729-16	VDN.150 FP-A-16	150	16	49	18	32	26.5	44	70	48	38	15	20	16	18.3	5	400	14	659
73739-16	VDN.175 FP-A-16	175	16	54	19	40	33	55	90	56	43	15	26	22	24.8	6	500	16	991
73739-18	VDN.175 FP-A-18	175	18	54	19	40	33	55	90	56	43	15	26	22	24.8	6	500	16	985
73749-18	VDN.200 FP-A-18	200	18	58	21	40	33	55	90	60	43	15	26	22	24.8	6	600	18	1196
73749-20	VDN.200 FP-A-20	200	20	58	21	40	33	55	90	60	43	15	26	22	24.8	6	600	18	1192
73769-22	VDN.250 FP-A-22	249	22	65	25	49	40	66	110	70	44	15	35	27	30.3	8	1000	28	1982
73780-26	VDN.300 FP-A-26	301	26	75	25	58	58	94	148	82	56	18	42	38	41.3	10	1100	35	2685

VDN.FP+I-A

Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	I	I2	H	m	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73651-10	VDN.50 FP+I-A-10	50	10	22	12	16	16	-	25	26	19	9	28	M6	19	12	10	11.4	3	55	3	63
73671-10	VDN.63 FP+I-A-10	63	10	28	13	20	20	-	31	28	24	10	40	M6	24	13	11	12.8	4	75	4	127
73691-10	VDN.80 FP+I-A-10	80	10	31	14	20	18	28	43	30	28	10	40	M6	32	13	11	12.8	4	120	5	157
73691-12	VDN.80 FP+I-A-12	80	12	31	14	20	18	28	43	30	28	10	40	M6	32	13	11	12.8	4	120	5	147
73710-10	VDN.100 FP+I-A-10	100	10	46	21	24	20	35	54	39	33.5	12	50	M6	39	16	13	15.3	5	150	6	361
73710-12	VDN.100 FP+I-A-12	100	12	46	21	24	20	35	54	39	33.5	12	50	M6	39	16	13	15.3	5	150	6	358
73720-12	VDN.125 FP+I-A-12	125	12	57	28	32	26.5	44	70	46	38	15	65	M8	50	20	16	18.3	5	300	8	568
73720-14	VDN.125 FP+I-A-14	125	14	57	28	32	26.5	44	70	46	38	15	65	M8	50	20	16	18.3	5	300	8	565
73724-14	VDN.140 FP+I-A-14	140	14	55	28	32	26.5	44	70	48	38	15	65	M8	58	20	16	18.3	5	350	10	575
73730-14	VDN.150 FP+I-A-14	150	14	61	30	32	26.5	50	80	48	38	15	65	M8	62	20	16	18.3	5	400	14	737
73730-16	VDN.150 FP+I-A-16	150	16	61	30	32	26.5	50	80	48	38	15	65	M8	62	20	16	18.3	5	400	14	734
73740-16	VDN.175 FP+I-A-16	175	16	66	32	40	33	55	90	56	43	15	80	M10	72.5	26	22	24.8	6	500	16	1089
73740-18	VDN.175 FP+I-A-18	175	18	66	32	40	33	55	90	56	43	15	80	M10	72.5	26	22	24.3	6	500	16	1087
73750-18	VDN.200 FP+I-A-18	200	18	68	32	40	33	55	90	60	43	15	90	M10	82	26	22	24.8	6	600	18	1314
73750-20	VDN.200 FP+I-A-20	200	20	68	32	40	33	55	90	60	43	15	90	M10	82	26	22	24.8	6	600	18	1308
73760-20	VDN.225 FP+I-A-20	225	20	71	33	49	40	66	110	66	44.5	15	90	M10	94	34	27	30.3	8	900	25	1708
73760-22	VDN.225 FP+I-A-22	225	22	71	33	49	40	66	110	66	44.5	15	90	M10	94	34	27	30.3	8	900	25	1702
73770-22	VDN.250 FP+I-A-22	249	22	76	36	49	40	66	110	70	44.5	15	90	M10	106	35	27	30.3	8	1000	28	2100
73770-24	VDN.250 FP+I-A-24	249	24	76	36	49	40	66	110	70	44.5	15	90	M10	106	35	27	30.3	8	1000	28	2097
73781-26	VDN.300 FP+I-A-26	301	26	87	36	58	58	94	148	82	56	18	90	M10	132	42	38	41.3	10	1100	35	2803

VDN.FP+IR-A

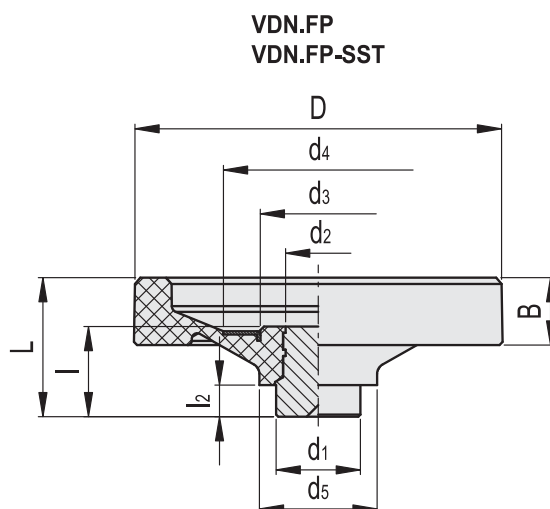
Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	I	I2	H	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73711-10	VDN.100 FP+IR-A-10	100	10	51	26	24	20	35	54	39	33.5	12	56	37	16	13	15.3	5	150	6	427
73721-12	VDN.125 FP+IR-A-12	125	12	57	28	32	26.5	44	70	46	38	15	56	48	20	16	18.3	5	300	8	596
73731-14	VDN.150 FP+IR-A-14	150	14	61	30	32	26.5	50	80	48	38	15	65	57	20	16	18.3	5	400	14	803
73741-16	VDN.175 FP+IR-A-16	175	16	66	32	40	33	55	90	56	43	15	80	68	26	22	24.8	6	500	16	1147
73751-20	VDN.200 FP+IR-A-20	200	20	68	32	40	33	55	90	60	43	15	90	76.5	26	22	24.8	6	600	18	1462
73761-20	VDN.225 FP+IR-A-20	225	20	71	33	49	40	66	110	66	44.5	15	90	88	34	27	30.3	8	900	25	1856
73771-22	VDN.250 FP+IR-A-22	249	22	76	36	49	40	66	110	70	44.5	15	90	100	35	27	30.3	8	1000	28	2248
73782-26	VDN.300 FP+IR-A-26	301	26	87	36	58	58	94	148	82	56	18	90	124	42	38	41.3	10	1100	35	3212

VDN.FP+IRS-A

Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	I	I2	H	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73732-14	VDN.150 FP+IRS-A-14	150	14	61	30	32	26.5	50	80	48	38	15	65	57	20	16	18.3	5	400	14	733
73742-16	VDN.175 FP+IRS-A-16	175	16	66	32	40	33	55	90	56	43	15	80	68	26	22	24.8	6	500	16	1053
73752-20	VDN.200 FP+IRS-A-20	200	20	68	32	40	33	55	90	60	43	15	90	74.5	26	22	24.8	6	600	18	1252
73762-20	VDN.225 FP+IRS-A-20	225	20	71	33	49	40	66	110	66	44.5	15	90	86	34	27	30.3	8	900	25	1646
73772-22	VDN.250 FP+IRS-A-22	249	22	76	36	49	40	66	110	70	44.5	15	90	98	35	27	30.3	8	1000	28	2038

For maximum torque (C) and impact strength (L) see Technical Data on page A3.



**VDN.FP**

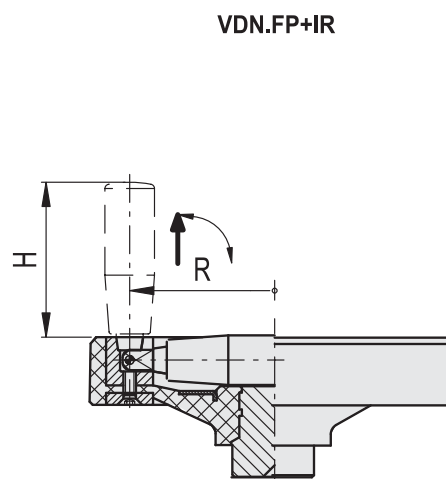
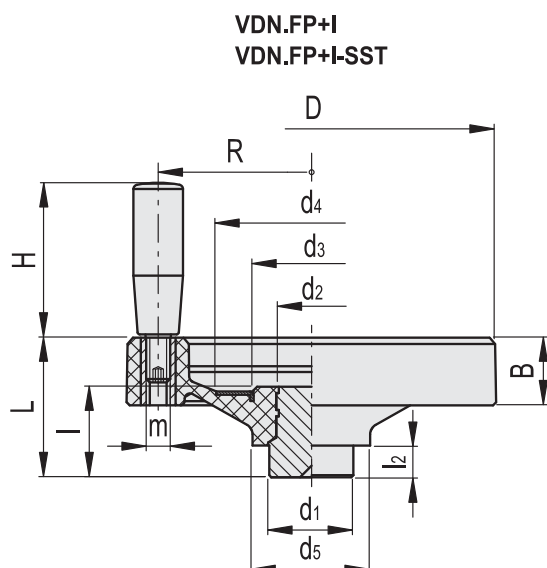
Code	Description	D	L	B	d1	d2	d3	d4	d5	l	l2	d'	d''	t	b	C# [Nm]	L# [J]	
73650	VDN.50 FP	50	22	12	16	16	-	25	26	19	9	12	10	11.4	3	55	3	60
73670	VDN.63 FP	63	28	13	20	20	-	31	28	24	10	13	11	12.8	4	75	4	115
73690	VDN.80 FP	80	31	14	20	18	28	43	30	28	10	13	11	12.8	4	120	5	145
73709	VDN.100 FP	100	40	15	24	22	35	54	39	36	12	16	13	15.3	5	150	6	324
73719	VDN.125 FP	125	44	15	32	26.5	44	70	46	38	15	20	16	18.3	5	300	8	493
73723	VDN.140 FP	140	46	19	32	26.5	44	70	48	38	15	20	16	18.3	5	350	10	465
73729	VDN.150 FP	150	49	18	32	26.5	44	70	48	38	15	20	16	18.3	5	400	14	662
73739	VDN.175 FP	175	54	19	40	33	55	90	56	43	15	26	22	24.8	6	500	16	991
73749	VDN.200 FP	200	58	21	40	33	55	90	60	43	15	26	22	24.8	6	600	18	1196
73759	VDN.225 FP	225	63	23	49	40	66	110	66	44	15	34	27	30.3	8	900	25	1590
73769	VDN.250 FP	249	65	25	49	40	66	110	70	44	15	35	27	30.3	8	1000	28	1982
73780	VDN.300 FP	301	75	25	58	58	94	148	82	56	18	42	38	41.3	10	1100	35	2920
73790	VDN.350 FP	350	92	38	58	58	94	148	90	56	18	42	38	41.3	10	1200	36	3960

VDN.FP-SST**STAINLESS STEEL**

Code	Description	D	L	B	d1	d2	d3	d4	d5	l	l2	d'	d''	t	b	C# [Nm]	L# [J]	
73695	VDN.80 FP-SST	80	31	14	20	18	28	43	30	28	10	13	11	12.8	4	120	5	146
73713	VDN.100 FP-SST	100	40	15	24	22	35	54	39	36	12	16	13	15.3	5	150	6	325
73722	VDN.125 FP-SST	125	44	15	32	26.5	44	70	46	38	15	20	16	18.3	5	300	8	494
73733	VDN.150 FP-SST	150	49	18	32	26.5	44	70	48	38	15	20	16	18.3	5	400	14	663
73753	VDN.200 FP-SST	200	58	21	40	33	55	90	60	43	15	26	22	24.8	6	600	18	1197
73773	VDN.250 FP-SST	249	65	25	49	40	66	110	70	44	15	35	27	30.3	8	1000	28	1982
73785	VDN.300 FP-SST	301	75	25	58	58	94	148	82	56	18	42	38	41.3	10	1100	35	1591

For maximum torque (C) and impact strength (L) see Technical Data on page A3.



**VDN.FP+I**

Code	Description	D	L	B	d1	d2	d3	d4	d5	I	l2	H	m	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73651	VDN.50 FP+I	50	22	12	16	16	-	25	26	19	9	28	M6	19	12	10	11.4	3	55	3	88
73671	VDN.63 FP+I	63	28	13	20	20	-	31	28	24	10	40	M6	24	13	11	12.8	4	75	4	172
73691	VDN.80 FP+I	80	31	14	20	18	28	43	30	28	10	40	M6	32	13	11	12.8	4	120	5	207
73710	VDN.100 FP+I	100	46	21	24	20	35	54	39	33.5	12	50	M6	39	16	13	15.3	5	150	6	361
73720	VDN.125 FP+I	125	57	28	32	26.5	44	70	46	38	15	65	M8	50	20	16	18.3	5	300	8	568
73724	VDN.140 FP+I	140	55	28	32	26.5	44	70	48	38	15	65	M8	58	20	16	18.3	5	300	14	575
73730	VDN.150 FP+I	150	61	30	32	26.5	50	80	48	38	15	65	M8	62	20	16	18.3	5	400	14	737
73740	VDN.175 FP+I	175	66	32	40	33	55	90	56	43	15	80	M10	72.5	26	22	24.8	6	500	16	1089
73750	VDN.200 FP+I	200	68	32	40	33	55	90	60	43	15	90	M10	82	26	22	24.8	6	600	18	1314
73760	VDN.225 FP+I	225	71	33	49	40	66	110	66	44.5	15	90	M10	94	34	27	30.3	8	900	25	1708
73770	VDN.250 FP+I	249	76	36	49	40	66	110	70	44.5	15	90	M10	106	35	27	30.3	8	1000	28	2100
73781	VDN.300 FP+I	301	87	36	58	58	94	148	82	56	18	90	M10	132	42	38	41.3	10	1100	35	3138
73791	VDN.350 FP+I	350	92	38	58	58	94	148	90	56	18	102	M10	157	42	38	41.3	10	1200	36	4243

VDN.FP+I-SST**STAINLESS STEEL**

Code	Description	D	L	B	d1	d2	d3	d4	d5	I	l2	H	m	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73715	VDN.100 FP+I-SST	100	46	21	24	20	35	54	39	33.5	12	50	M6	39	16	13	15.3	5	150	6	361
73725	VDN.125 FP+I-SST	125	57	28	32	26.5	44	70	46	38	15	65	M8	50	20	16	18.3	5	300	8	568
73735	VDN.150 FP+I-SST	150	61	30	32	26.5	50	80	48	38	15	65	M8	62	20	16	18.3	5	400	14	737
73755	VDN.200 FP+I-SST	200	68	32	40	33	55	90	60	43	15	90	M10	82	26	22	24.8	6	600	18	1314
73775	VDN.250 FP+I-SST	249	76	36	49	40	66	110	70	44.5	15	90	M10	106	35	27	30.3	8	1000	28	2100
73786	VDN.300 FP+I-SST	301	87	36	58	58	94	148	82	56	18	90	M10	132	42	38	41.3	10	1100	35	3138

VDN.FP+IR

Code	Description	D	L	B	d1	d2	d3	d4	d5	I	l2	H	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73711	VDN.100 FP+IR	100	51	26	24	20	35	54	39	33.5	12	56	37	16	13	15.3	5	150	6	427
73721	VDN.125 FP+IR	125	57	28	32	26.5	44	70	46	38	15	56	48	20	16	18.3	5	300	8	596
73731	VDN.150 FP+IR	150	61	30	32	26.5	50	80	48	38	15	65	57	20	16	18.3	5	400	14	803
73741	VDN.175 FP+IR	175	66	32	40	33	55	90	56	43	15	80	68	26	22	24.8	6	500	16	1147
73751	VDN.200 FP+IR	200	68	32	40	33	55	90	60	43	15	90	76.5	26	22	24.8	6	600	18	1462
73761	VDN.225 FP+IR	225	71	33	49	40	66	110	66	44.5	15	90	88	34	27	30.3	8	900	25	1856
73771	VDN.250 FP+IR	249	76	36	49	40	66	110	70	44.5	15	90	100	35	27	30.3	8	1000	28	2248
73782	VDN.300 FP+IR	301	87	36	58	58	94	148	82	56	18	90	124	42	38	41.3	10	1100	35	3212

For maximum torque (C) and impact strength (L) see Technical Data on page A3.



Safety solid handwheels

Duroplast

MATERIAL

High-strength, reinforced phenolic based (PF) Duroplast, black colour, glossy finish.

RING

Matte anodised aluminium.
(ELESA Original design - Reg. U.S. Pat. & TM Off.)

STANDARD EXECUTION

Safety coupling bushing with "Pull-coupling" assembly GN 000.5 (see page 185) hardened steel with ground sliding surfaces, reamed assembly hole and keyway in compliance with DIN 6885/2 tolerance P9 (see page A16).

Revolving handle I.301+x (see page 574) in Duroplast.

SPECIAL EXECUTIONS ON REQUEST

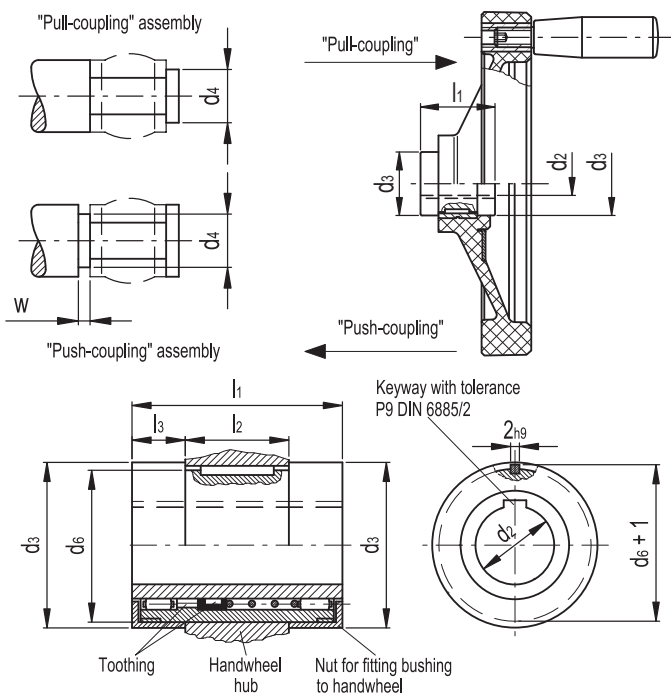
These handwheels can be supplied with "Push-coupling". By inserting the bushing the other way round, the handwheel operates opposite to the standard way.

INSTRUCTIONS OF USE

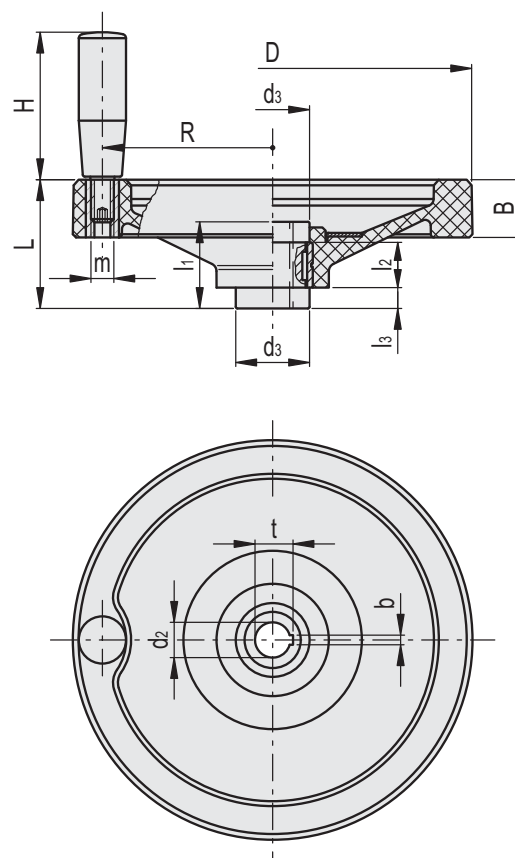
Safety handwheels are designed in accordance with accident prevention rules: in case of push or accidental pressure when the machine is operating, the handwheel is disengaged and is in the rest position. Only by "Pulling" the handwheel parallel to the axis can the shaft operate: the two toothed elements inside the bushing fit into each other in order to couple the handwheel to the shaft. The handwheel returns automatically to its rest position when it is released after the operation.

ERGONOMY

The rim with internal rear scallops makes the grip and the manoeuvre of the handwheel easier.



ELESA Original design



Code	Description	D	d2 H7	L	B	d3	d4 max	d6	l1	l2 ±0.2	l3	H	m	R	wmin	t	b	△
73728	VDN.125 FP+I+ST12	125	12	58	28	29	17	25-0.05	42	18	12	65	M8	50	4	13.1	4	465
73738	VDN.150 FP+I+ST14	150	14	67	30	33	21	29-0.05	48	20	14	65	M8	62	4	15.3	5	650
73748	VDN.175 FP+I+ST14	175	14	69	32	33	21	29-0.05	48	20	14	80	M10	72.5	4	15.3	5	810
73758	VDN.200 FP+I+ST18	200	18	72	32	39	26	35-0.05	50	24	13	90	M10	82	4	19.7	6	1220
73778	VDN.250 FP+I+ST22	249	22	82	36	46	30	41-0.05	54	28	13	90	M10	106	4	23.7	6	1670



Operating elements 1

Disc handwheels

Aluminium, plastic coated

SPECIFICATION

Types

- Type **A**: without handle
- Type **R**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium pressure die casting

- Hub machined
- Rim turned
- plastic coated

black, RAL 9005, textured finish **SW**

silver, RAL 9006, textured finish **SR**

Rim concentric and square to bore < 0.4

Cylindrical Revolving handles GN 798.2 (see page 578)

Plastic, Technopolymer

black, matt

INFORMATION

Disc handwheels GN 923 are distinguished by modern design. The removable plastic cover shrouds the fixing components such as screws, countersunk washers as well as the shaft end.

ACCESSORY

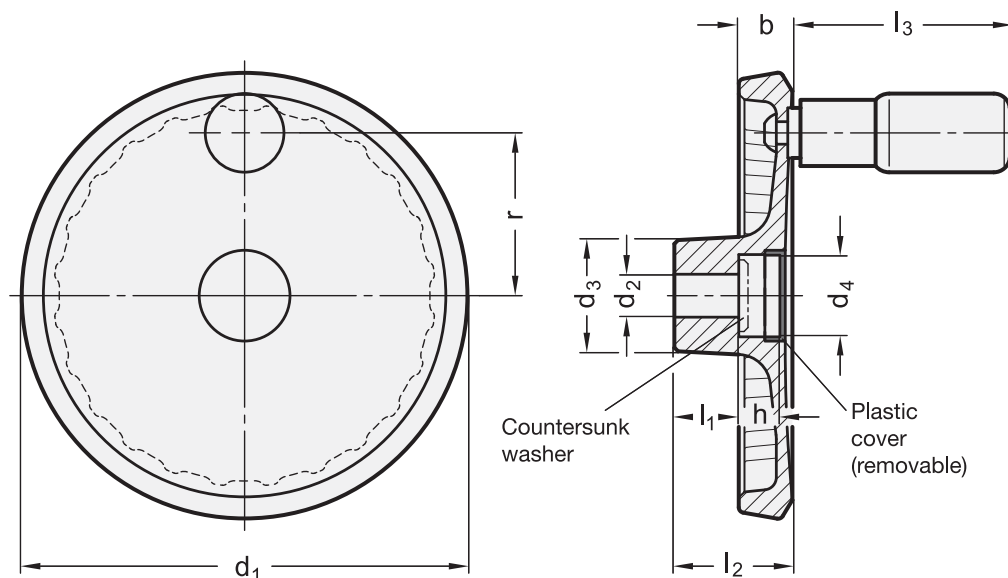
- Countersunk washers GN 184 (see page 971) are to be ordered separately
- screws, countersunk washers as well as the shaft end.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



reddot design award



* Complete with colour index of the Handwheels (SW or SR)

 SW  SR
RAL9005 RAL9006

GN 923-A

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	Recommended countersunk washer	⚖
GN 923-80-B10-A-*	80	10	26	17	13	7	16	26	GN 184-16	101
GN 923-80-K10-A-*	80	10	26	17	13	7	16	26	GN 184-16	101
GN 923-80-B12-A-*	80	12	26	17	13	7	16	26	GN 184-16	100
GN 923-80-K12-A-*	80	12	26	17	13	7	16	26	GN 184-16	100
GN 923-100-B10-A-*	100	10	28	22	14	9.5	17	30	GN 184-20	153
GN 923-100-K10-A-*	100	10	28	22	14	9.5	17	30	GN 184-20	153
GN 923-100-B12-A-*	100	12	28	22	14	9.5	17	30	GN 184-20	150
GN 923-100-K12-A-*	100	12	28	22	14	9.5	17	30	GN 184-20	150
GN 923-125-B12-A-*	125	12	31	22	15	11	18	33	GN 184-20	260
GN 923-125-K12-A-*	125	12	31	22	15	11	18	33	GN 184-20	260
GN 923-125-B14-A-*	125	14	31	22	15	11	18	33	GN 184-20	261
GN 923-125-K14-A-*	125	14	31	22	15	11	18	33	GN 184-20	261
GN 923-140-B14-A-*	140	14	36	28.5	16.5	13	19	36	GN 184-25	338
GN 923-140-K14-A-*	140	14	36	28.5	16.5	13	19	36	GN 184-25	338
GN 923-140-B16-A-*	140	16	36	28.5	16.5	13	19	36	GN 184-25	337
GN 923-140-K16-A-*	140	16	36	28.5	16.5	13	19	36	GN 184-25	330
GN 923-160-B14-A-*	160	14	36	28.5	18	14.5	20	39	GN 184-25	460
GN 923-160-K14-A-*	160	14	36	28.5	18	14.5	20	39	GN 184-25	460
GN 923-160-B16-A-*	160	16	36	28.5	18	14.5	20	39	GN 184-25	449
GN 923-160-K16-A-*	160	16	36	28.5	18	14.5	20	39	GN 184-25	445
GN 923-200-B18-A-*	200	18	42	36	20.5	16	24	45	GN 184-32	780
GN 923-200-K18-A-*	200	18	42	36	20.5	16	24	45	GN 184-32	780
GN 923-200-B20-A-*	200	20	42	36	20.5	16	24	45	GN 184-32	765
GN 923-200-K20-A-*	200	20	42	36	20.5	16	24	45	GN 184-32	765

GN 923-R

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	l3 ≈	r	Ø Handle	Recommended countersunk washer	⚖
GN 923-80-B10-R-*	80	10	26	17	13	7	16	26	43.5	27.5	16	GN 184-16	120
GN 923-80-K10-R-*	80	10	26	17	13	7	16	26	43.5	27.5	16	GN 184-16	120
GN 923-80-B12-R-*	80	12	26	17	13	7	16	26	43.5	27.5	16	GN 184-16	100
GN 923-80-K12-R-*	80	12	26	17	13	7	16	26	43.5	27.5	16	GN 184-16	100
GN 923-100-B10-R-*	100	10	28	22	14	9.5	17	30	58	36	18	GN 184-20	186
GN 923-100-K10-R-*	100	10	28	22	14	9.5	17	30	58	36	18	GN 184-20	186
GN 923-100-B12-R-*	100	12	28	22	14	9.5	17	30	58	36	18	GN 184-20	182
GN 923-100-K12-R-*	100	12	28	22	14	9.5	17	30	58	36	18	GN 184-20	182
GN 923-125-B12-R-*	125	12	31	22	15	11	18	33	61	45.5	22	GN 184-20	340
GN 923-125-K12-R-*	125	12	31	22	15	11	18	33	61	45.5	22	GN 184-20	340
GN 923-125-B14-R-*	125	14	31	22	15	11	18	33	61	45.5	22	GN 184-20	340
GN 923-125-K14-R-*	125	14	31	22	15	11	18	33	61	45.5	22	GN 184-20	339
GN 923-140-B14-R-*	140	14	36	28.5	16.5	13	19	36	76	52	24	GN 184-25	420
GN 923-140-K14-R-*	140	14	36	28.5	16.5	13	19	36	76	52	24	GN 184-25	418
GN 923-140-B16-R-*	140	16	36	28.5	16.5	13	19	36	76	52	24	GN 184-25	420
GN 923-140-K16-R-*	140	16	36	28.5	16.5	13	19	36	76	52	24	GN 184-25	400
GN 923-160-B14-R-*	160	14	36	28.5	18	14.5	20	39	76	61	24	GN 184-25	540
GN 923-160-K14-R-*	160	14	36	28.5	18	14.5	20	39	76	61	24	GN 184-25	535
GN 923-160-B16-R-*	160	16	36	28.5	18	14.5	20	39	76	61	24	GN 184-25	540
GN 923-160-K16-R-*	160	16	36	28.5	18	14.5	20	39	76	61	24	GN 184-25	540
GN 923-200-B18-R-*	200	18	42	36	20.5	16	24	45	85	77.5	25	GN 184-32	880
GN 923-200-K18-R-*	200	18	42	36	20.5	16	24	45	85	77.5	25	GN 184-32	860
GN 923-200-B20-R-*	200	20	42	36	20.5	16	24	45	85	77.5	25	GN 184-32	889
GN 923-200-K20-R-*	200	20	42	36	20.5	16	24	45	85	77.5	25	GN 184-32	885



Handwheels with retractable handle

Aluminium, Handle locked

SPECIFICATION

Type

- Type **R**: with retractable handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium pressure die casting

- Hub machined
- Rim turned
- plastic coated

black, RAL 9005, textured finish **SW**

silver, RAL 9006, textured finish **SR**

Rim concentric and square to bore < 0.4

Retractable handles GN 798.3 (see page 586)

Plastic, Technopolymer

black, matt

Retracting mechanism

Steel, blackened

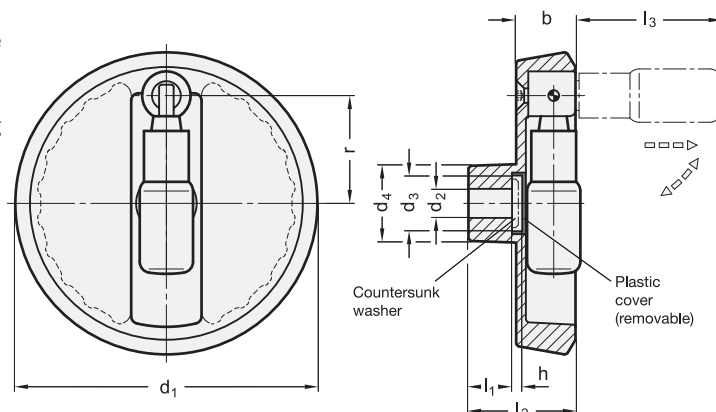


INFORMATION

The handle in these disc handwheels is locked in a conical bore in the operating position.

For reversal, it must first be pulled from the cone in axial direction.

A pressure spring holds the handle in both positions. When swung out, it automatically engages again.



* Complete with colour index of the Handwheels (SW or SR)

SW **SR**
RAL9005 RAL9006

GN 923.3

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	l3 ≈	r	Ø Handle	Recommended countersunk washer	⚖
GN 923.3-100-B10-R-*	100	10	18	28	20	4	17	39	56.5	35	18	GN 184-16	252
GN 923.3-100-K10-R-*	100	10	18	28	20	4	17	39	56.5	35	18	GN 184-16	240
GN 923.3-100-B12-R-*	100	12	18	28	20	4	17	39	56.5	35	18	GN 184-16	260
GN 923.3-100-K12-R-*	100	12	18	28	20	4	17	39	56.5	35	18	GN 184-16	260
GN 923.3-125-B12-R-*	125	12	23	31	24.5	4	18	45	60.5	44.5	22	GN 184-22	460
GN 923.3-125-K12-R-*	125	12	23	31	24.5	4	18	45	60.5	44.5	22	GN 184-22	460
GN 923.3-125-B14-R-*	125	14	23	31	24.5	4	18	45	60.5	44.5	22	GN 184-22	440
GN 923.3-125-K14-R-*	125	14	23	31	24.5	4	18	45	60.5	44.5	22	GN 184-22	440
GN 923.3-140-B14-R-*	140	14	23	36	26	4	19	47	75.5	52	24	GN 184-22	590
GN 923.3-140-K14-R-*	140	14	23	36	26	4	19	47	75.5	52	24	GN 184-22	590
GN 923.3-140-B16-R-*	140	16	23	36	26	4	19	47	75.5	52	24	GN 184-22	550
GN 923.3-140-K16-R-*	140	16	23	36	26	4	19	47	75.5	52	24	GN 184-22	540
GN 923.3-160-B14-R-*	160	14	23	36	26	4	20	48	75.5	61	24	GN 184-22	740
GN 923.3-160-K14-R-*	160	14	23	36	26	4	20	48	75.5	61	24	GN 184-22	740
GN 923.3-160-B16-R-*	160	16	23	36	26	4	20	48	75.5	61	24	GN 184-22	730
GN 923.3-160-K16-R-*	160	16	23	36	26	4	20	48	75.5	61	24	GN 184-22	730
GN 923.3-200-B18-R-*	200	18	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	1100
GN 923.3-200-K18-R-*	200	18	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	1100
GN 923.3-200-B20-R-*	200	20	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	921
GN 923.3-200-K20-R-*	200	20	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	915

Handwheels with retractable handle

Aluminium, Handle swivelling

SPECIFICATION

Type

- Type **R**: with retractable handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium pressure die casting

- Hub machined
- Rim turned
- plastic coated

black, RAL 9005, textured finish **SW**

silver, RAL 9006, textured finish **SR**

Rim concentric and square to bore < 0.4

Safety retractable handles GN 798.7 (see page 587)

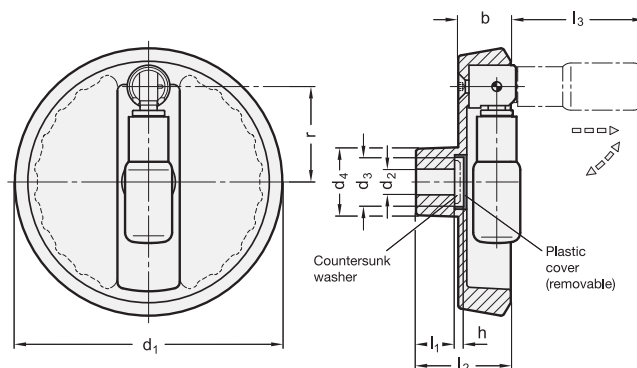
Plastic, Technopolymer
black, matt

Retracting mechanism
Steel, blackened



INFORMATION

Disc handwheels GN 923.7 are distinguished by modern design. These handwheels are suitable for applications where the handle must not remain in the operating position. In order to bring the handle into this position it has to be turned first through 90° to a stop against a torsion spring and then it is pushed against spring pressure into its hold position. By maintaining the forward thrust on the handle the handwheel can easily be rotated. When releasing the handle the springs returns it back to the retracted position.



* Complete with colour index of the Handwheels (SW or SR)

SW **SR**
RAL9005 RAL9006

GN 923.7

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	l3 ≈	r	Ø Handle	Recommended countersunk washer	⚖
GN 923.7-125-B12-R-*	125	12	23	31	24.5	4	18	45	62.5	44.5	22	GN 184-22	460
GN 923.7-125-K12-R-*	125	12	23	31	24.5	4	18	45	62.5	44.5	22	GN 184-22	440
GN 923.7-125-B14-R-*	125	14	23	31	24.5	4	18	45	62.5	44.5	22	GN 184-22	420
GN 923.7-125-K14-R-*	125	14	23	31	24.5	4	18	45	62.5	44.5	22	GN 184-22	420
GN 923.7-140-B14-R-*	140	14	23	36	26	4	19	47	77.5	52	24	GN 184-22	589
GN 923.7-140-K14-R-*	140	14	23	36	26	4	19	47	77.5	52	24	GN 184-22	589
GN 923.7-140-B16-R-*	140	16	23	36	26	4	19	47	77.5	52	24	GN 184-22	580
GN 923.7-140-K16-R-*	140	16	23	36	26	4	19	47	77.5	52	24	GN 184-22	580
GN 923.7-160-B14-R-*	160	14	23	36	26	4	20	48	77.5	61	24	GN 184-22	750
GN 923.7-160-K14-R-*	160	14	23	36	26	4	20	48	77.5	61	24	GN 184-22	730
GN 923.7-160-B16-R-*	160	16	23	36	26	4	20	48	77.5	61	24	GN 184-22	700
GN 923.7-160-K16-R-*	160	16	23	36	26	4	20	48	77.5	61	24	GN 184-22	580
GN 923.7-200-B18-R-*	200	18	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1070
GN 923.7-200-K18-R-*	200	18	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1050
GN 923.7-200-B20-R-*	200	20	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1140
GN 923.7-200-K20-R-*	200	20	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1080



Disc handwheels

Aluminium, blank, rim polished

SPECIFICATION

Types

- Type **A**: without handle
- Type **R**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body

- Rim high-polished
- unmachined body matt shot-blasted

Cylindrical Revolving handles GN 798 (see page 577)

Plastic, Technopolymer
black, matt

INFORMATION

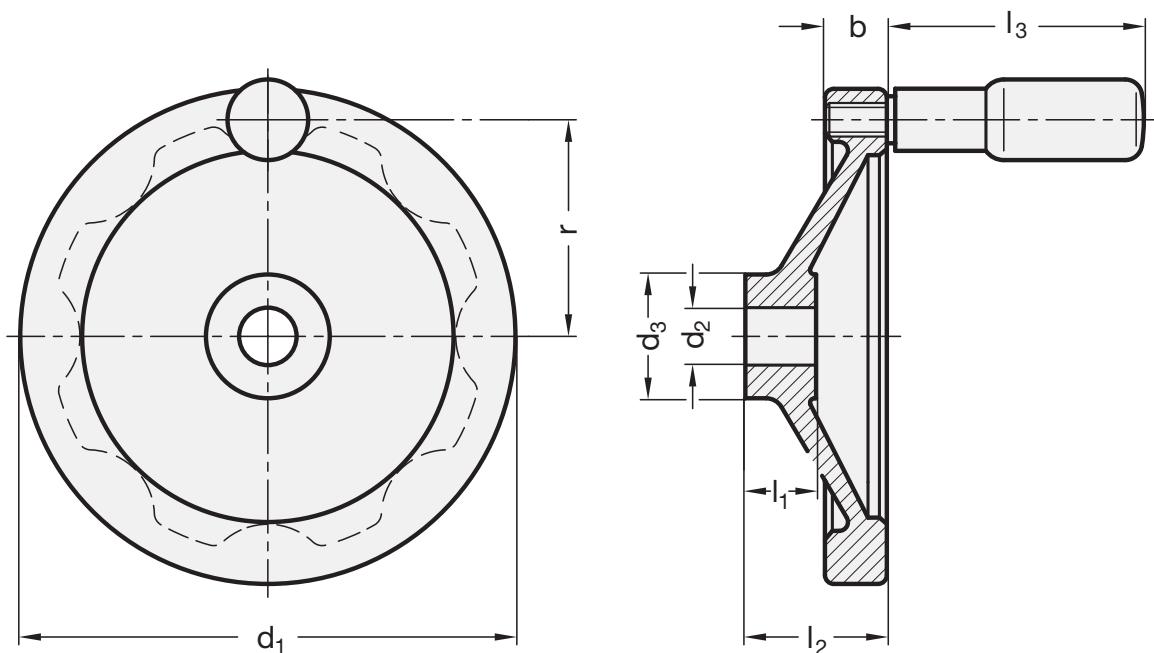
- Disc handwheels GN 321 have recessed grips at their back.
- Countersunk washers GN 184 (for axial fixing) (see page 971)

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



design80
stuttgart



* Complete with Bore codes of the Handwheel (B or K)

B without keyway **K** with keyway

GN 321-A

Description	d1	d2 H7	d3	b	l1	l2 ≈	⚖
GN 321-80-*10-A	80	10	28	13	16	26	134
GN 321-80-*12-A	80	12	28	13	16	26	127
GN 321-100-*10-A	100	10	28	14	17	30	200
GN 321-100-*12-A	100	12	28	14	17	30	190
GN 321-125-*12-A	125	12	31	15	18	33	318
GN 321-125-*14-A	125	14	31	15	18	33	290
GN 321-140-*14-A	140	14	36	16.5	19	36	431
GN 321-140-*16-A	140	16	36	16.5	19	36	427
GN 321-160-*14-A	160	14	36	18	20	39	460
GN 321-160-*16-A	160	16	36	18	20	39	450
GN 321-200-*18-A	200	18	45	20.5	24	45	885
GN 321-200-*20-A	200	20	45	20.5	24	45	875
GN 321-250-*22-A	250	22	48	23	28	51	1522
GN 321-250-*26-A	250	26	48	23	28	51	1479

GN 321-R

Description	d1	d2 H7	d3	b	l1	l2 ≈	l3 ≈	r	Ø Handle	⚖
GN 321-80-*10-R	80	10	28	13	16	26	44	33.5	16	153
GN 321-80-*12-R	80	12	28	13	16	26	44	33.5	16	149
GN 321-100-*10-R	100	10	28	14	17	30	58.5	42.5	18	215
GN 321-100-*12-R	100	12	28	14	17	30	58.5	42.5	18	213
GN 321-125-*12-R	125	12	31	15	18	33	61.5	54	22	403
GN 321-125-*14-R	125	14	31	15	18	33	61.5	54	22	383
GN 321-140-*14-R	140	14	36	16.5	19	36	76.5	61	24	431
GN 321-140-*16-R	140	16	36	16.5	19	36	76.5	61	24	427
GN 321-160-*14-R	160	14	36	18	20	39	76.5	71	24	665
GN 321-160-*16-R	160	16	36	18	20	39	76.5	71	24	655
GN 321-200-*18-R	200	18	45	20.5	24	45	86.5	89	25	940
GN 321-200-*20-R	200	20	45	20.5	24	45	86.5	89	25	930
GN 321-250-*22-R	250	22	48	23	28	51	86.5	113	25	1520
GN 321-250-*26-R	250	26	48	23	28	51	86.5	113	25	1480

Weight bore code B



Disc handwheels

Aluminium, black, plastic coated

SPECIFICATION

Types

- Type **A**: without handle
- Type **R**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body

plastic coated
black, textured finish

Cylindrical Revolving handles GN 798 (see page 577)

Plastic, Technopolymer
black, matt

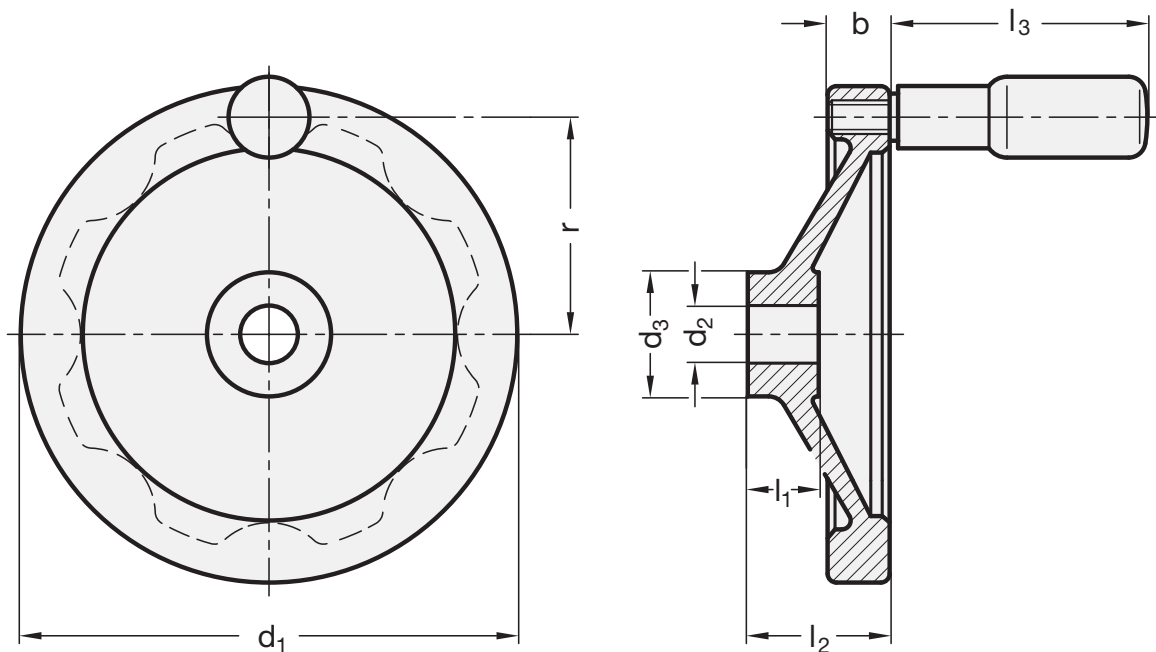
INFORMATION

Disc handwheels GN 323 have recessed grips at their back.

- Countersunk washers GN 184 (for axial fixing) (see page 971)

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (for axial fixing) (see page A17)
- ISO-Fundamental tolerances (see page A21)



GN 323-A

Description	d1	d2 H7	d3	b	l1	l2 ≈	⚖
GN 323-80-B10-A	80	10	26	13	16	26	136
GN 323-80-K10-A	80	10	26	13	16	26	134
GN 323-80-B12-A	80	12	26	13	16	26	130
GN 323-80-K12-A	80	12	26	13	16	26	128
GN 323-100-B10-A	100	10	28	14	17	30	211
GN 323-100-K10-A	100	10	28	14	17	30	200
GN 323-100-B12-A	100	12	28	14	17	30	216
GN 323-100-K12-A	100	12	28	14	17	30	214
GN 323-125-B12-A	125	12	31	15	18	33	321
GN 323-125-K12-A	125	12	31	15	18	33	300
GN 323-125-B14-A	125	14	31	15	18	33	316
GN 323-125-K14-A	125	14	31	15	18	33	313
GN 323-140-B14-A	140	14	36	16.5	19	36	380
GN 323-140-K14-A	140	14	36	16.5	19	36	377
GN 323-140-B16-A	140	16	36	16.5	19	36	431
GN 323-140-K16-A	140	16	36	16.5	19	36	400
GN 323-160-B14-A	160	14	36	18	20	39	535
GN 323-160-K14-A	160	14	36	18	20	39	520
GN 323-160-B16-A	160	16	36	18	20	39	568
GN 323-160-K16-A	160	16	36	18	20	39	560
GN 323-200-B18-A	200	18	45	20.5	24	45	926
GN 323-200-K18-A	200	18	45	20.5	24	45	920
GN 323-200-B20-A	200	20	45	20.5	24	45	896
GN 323-200-K20-A	200	20	45	20.5	24	45	891
GN 323-250-B22-A	250	22	48	23	28	51	1546
GN 323-250-K22-A	250	22	48	23	28	51	1541
GN 323-250-B26-A	250	26	48	23	28	51	1416
GN 323-250-K26-A	250	26	48	23	28	51	1400

GN 323-R

Description	d1	d2 H7	d3	b	l1	l2 ≈	l3 ≈	r	Ø Handle	⚖
GN 323-80-B10-R	80	10	26	13	16	26	44	33.5	16	155
GN 323-80-K10-R	80	10	26	13	16	26	44	33.5	16	150
GN 323-80-B12-R	80	12	26	13	16	26	44	33.5	16	160
GN 323-80-K12-R	80	12	26	13	16	26	44	33.5	16	155
GN 323-100-B10-R	100	10	28	14	17	30	58.5	42.5	18	220
GN 323-100-K10-R	100	10	28	14	17	30	58.5	42.5	18	210
GN 323-100-B12-R	100	12	28	14	17	30	58.5	42.5	18	200
GN 323-100-K12-R	100	12	28	14	17	30	58.5	42.5	18	190
GN 323-125-B12-R	125	12	31	15	18	33	61.5	54	22	390
GN 323-125-K12-R	125	12	31	15	18	33	61.5	54	22	385
GN 323-125-B14-R	125	14	31	15	18	33	61.5	54	22	380
GN 323-125-K14-R	125	14	31	15	18	33	61.5	54	22	375
GN 323-140-B14-R	140	14	36	16.5	19	36	76.5	61	24	440
GN 323-140-K14-R	140	14	36	16.5	19	36	76.5	61	24	438
GN 323-140-B16-R	140	16	36	16.5	19	36	76.5	61	24	430
GN 323-140-K16-R	140	16	36	16.5	19	36	76.5	61	24	420
GN 323-160-B14-R	160	14	36	18	20	39	76.5	71	24	660
GN 323-160-K14-R	160	14	36	18	20	39	76.5	71	24	650
GN 323-160-B16-R	160	16	36	18	20	39	76.5	71	24	643
GN 323-160-K16-R	160	16	36	18	20	39	76.5	71	24	640
GN 323-200-B18-R	200	18	45	20.5	24	45	86.5	89	25	1051
GN 323-200-K18-R	200	18	45	20.5	24	45	86.5	89	25	1040
GN 323-200-B20-R	200	20	45	20.5	24	45	86.5	89	25	1021
GN 323-200-K20-R	200	20	45	20.5	24	45	86.5	89	25	1010
GN 323-250-B22-R	250	22	48	23	28	51	86.5	113	25	1671
GN 323-250-K22-R	250	22	48	23	28	51	86.5	113	25	1660
GN 323-250-B26-R	250	26	48	23	28	51	86.5	113	25	1536
GN 323-250-K26-R	250	26	48	23	28	51	86.5	113	25	1520



Safety handwheels

friction bearing

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving steel handle

Coding

- Version **ZI**: engage by pulling
- Version **DR**: engage by pushing

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body

plastic coated
black, textured finish

Cylindrical Revolving handles GN 598 (see page 573)

Steel, plastic coated
black, matt

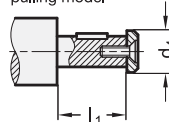


INFORMATION

The use of coupling attachments in handwheels other than specified is also possible.

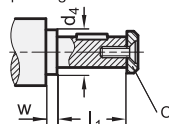
- Instructions for safety handwheels (see page 133)

Shaft design for
pulling model



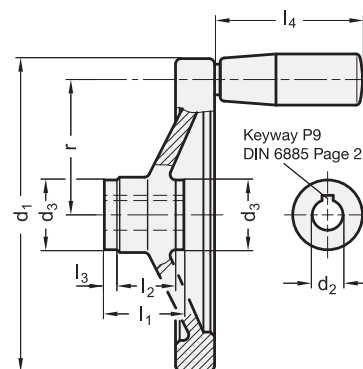
Engage by
pulling
□□□▷

Shaft design for
pushing model



Engage by
pushing
◁□□□

Countersunk washer
GN 184



* Complete with Coding of the Handwheels (ZI or DR)

ZI

Engage by pulling

DR

Engage by pushing

GN 323.4-A

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	w min.	Coupling	Weight
GN 323.4-125-K12-A-*	125	K 12	28	17	28.5	18	5	4	GN 000.4-1	405
GN 323.4-140-K12-A-*	140	K 12	28	17	28.5	19	5	4	GN 000.4-1	493
GN 323.4-140-K14-A-*	140	K 14	32	21	32.5	19	6	4	GN 000.4-2	450
GN 323.4-140-K16-A-*	140	K 16	32	21	32.5	19	6	4	GN 000.4-2	440
GN 323.4-160-K14-A-*	160	K 14	32	21	32.5	20	6	4	GN 000.4-2	632
GN 323.4-160-K16-A-*	160	K 16	32	21	32.5	20	6	4	GN 000.4-2	619
GN 323.4-200-K18-A-*	200	K 18	38	26	36.5	24	6	4	GN 000.4-3	1035
GN 323.4-200-K20-A-*	200	K 20	38	26	36.5	24	6	4	GN 000.4-3	1018
GN 323.4-250-K22-A-*	250	K 22	45	30	47.5	28	12	4	GN 000.4-4	1796

GN 323.4-D

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	l4	r	w min.	Ø Handle	Coupling	Weight
GN 323.4-125-K12-D-*	125	K 12	28	17	28.5	18	5	67.5	54	4	23	GN 000.4-1	620
GN 323.4-140-K12-D-*	140	K 12	28	17	28.5	19	5	67.5	61	4	23	GN 000.4-1	678
GN 323.4-140-K14-D-*	140	K 14	32	21	32.5	19	6	67.5	61	4	23	GN 000.4-2	660
GN 323.4-140-K16-D-*	140	K 16	32	21	32.5	19	6	67.5	61	4	23	GN 000.4-2	650
GN 323.4-160-K14-D-*	160	K 14	32	21	32.5	20	6	82.5	71	4	26	GN 000.4-2	905
GN 323.4-160-K16-D-*	160	K 16	32	21	32.5	20	6	82.5	71	4	26	GN 000.4-2	900
GN 323.4-200-K18-D-*	200	K 18	38	26	36.5	24	6	82.5	89	4	26	GN 000.4-3	1328
GN 323.4-200-K20-D-*	200	K 20	38	26	36.5	24	6	82.5	89	4	26	GN 000.4-3	1311
GN 323.4-250-K22-D-*	250	K 22	45	30	47.5	28	12	92.5	113	4	28	GN 000.4-4	2181

Weight Coding ZI

Safety handwheels

needle bearing

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving steel handle

Coding

- Version **ZI**: engage by pulling
- Version **DR**: engage by pushing

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body
plastic coated
black, textured finish

Cylindrical Revolving handles GN 598 (see page 573)

Steel, plastic coated
black, matt

INFORMATION

The use of coupling attachments in handwheels other than specified is also possible.

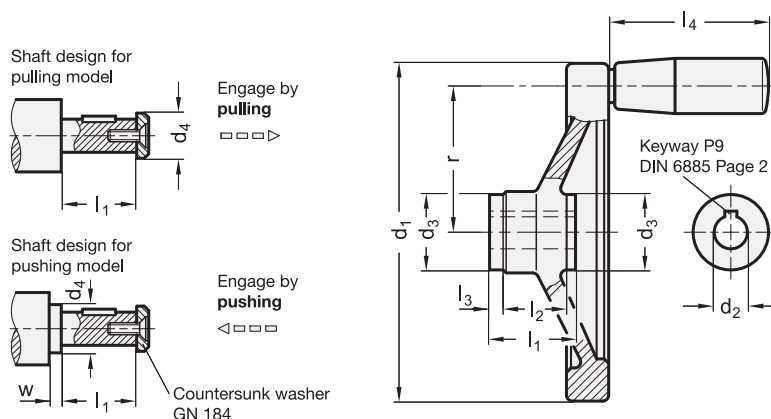
- Instructions for safety handwheels (see page 133)

TECHNICAL INFORMATION

- Keyway DIN 6885 (see page A16)
- ISO-Fundamental tolerances (see page A21)

* Complete with Coding of the Handwheels (ZI or DR)

ZI Engage by pulling
DR Engage by pushing



GN 323.5-A

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	Coupling	⚖
GN 323.5-125-K12-A-*	125	K 12	29	17	42	18	12	GN 000.5-1	423
GN 323.5-140-K12-A-*	140	K 12	29	17	42	19	12	GN 000.5-1	512
GN 323.5-140-K14-A-*	140	K 14	33	21	48	19	14	GN 000.5-2	500
GN 323.5-160-K14-A-*	160	K 14	33	21	48	20	14	GN 000.5-2	715
GN 323.5-200-K18-A-*	200	K 18	39	26	50	24	13	GN 000.5-3	1127
GN 323.5-250-K22-A-*	250	K 22	46	30	54	28	13	GN 000.5-4	1837

GN 323.5-D

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	l4	r	Ø Handle	Coupling	⚖
GN 323.5-125-K12-D-*	125	K 12	29	17	42	18	12	67.5	54	23	GN 000.5-1	611
GN 323.5-140-K12-D-*	140	K 12	29	17	42	19	12	67.5	61	23	GN 000.5-1	697
GN 323.5-140-K14-D-*	140	K 14	33	21	48	19	14	67.5	61	23	GN 000.5-2	680
GN 323.5-160-K14-D-*	160	K 14	33	21	48	20	14	82.5	71	26	GN 000.5-2	1008
GN 323.5-200-K18-D-*	200	K 18	39	26	50	24	13	82.5	89	26	GN 000.5-3	1425
GN 323.5-250-K22-D-*	250	K 22	46	30	54	28	13	92.5	113	28	GN 000.5-4	2130

Weight Coding ZI



Safety handwheels

friction bearing

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving steel handle

Coding

- Version **ZI**: engage by pulling
- Version **DR**: engage by pushing

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body

- Rim high-polished
- unmachined body matt shot-blasted

Cylindrical Revolving handles GN 598 (see page 573)

Steel, plastic coated
black, matt

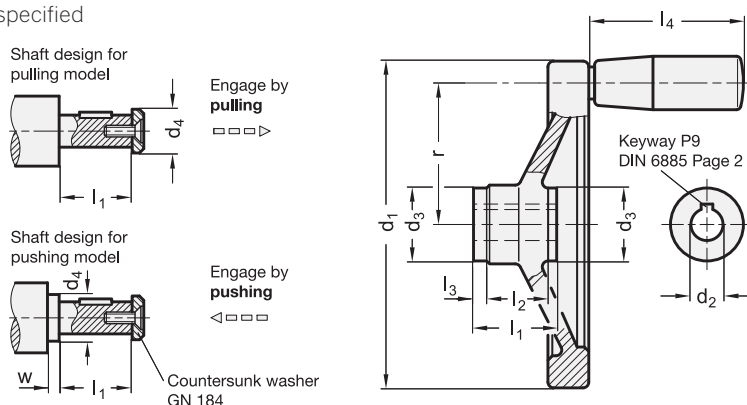
INFORMATION

The use of coupling attachments in handwheels other than specified is also possible.

- Instructions for safety handwheels (see page 133)

* Complete with Coding of the Handwheels (ZI or DR)

ZI Engage by pulling
DR Engage by pushing



GN 321.4-A

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	w min.	Coupling	Weight
GN 321.4-125-K12-A-*	125	K 12	28	17	28.5	18	5	4	GN 000.4-1	377
GN 321.4-140-K12-A-*	140	K 12	28	17	28.5	19	5	4	GN 000.4-1	466
GN 321.4-140-K14-A-*	140	K 14	32	21	32.5	19	6	4	GN 000.4-2	440
GN 321.4-140-K16-A-*	140	K 16	32	21	32.5	19	6	4	GN 000.4-2	420
GN 321.4-160-K14-A-*	160	K 14	32	21	32.5	20	6	4	GN 000.4-2	644
GN 321.4-160-K16-A-*	160	K 16	32	21	32.5	20	6	4	GN 000.4-2	631
GN 321.4-200-K18-A-*	200	K 18	38	26	36.5	24	6	4	GN 000.4-3	1210
GN 321.4-200-K20-A-*	200	K 20	38	26	36.5	24	6	4	GN 000.4-3	1190
GN 321.4-250-K22-A-*	250	K 22	45	30	47.5	28	12	4	GN 000.4-4	1800

GN 321.4-D

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	l4 ≈	r	w min.	Ø Handle	Coupling	Weight
GN 321.4-125-K12-D-*	125	K 12	28	17	28.5	18	5	67.5	54	4	23	GN 000.4-1	559
GN 321.4-140-K12-D-*	140	K 12	28	17	28.5	19	5	67.5	61	4	23	GN 000.4-1	651
GN 321.4-140-K14-D-*	140	K 14	32	21	32.5	19	6	67.5	61	4	23	GN 000.4-2	630
GN 321.4-140-K16-D-*	140	K 16	32	21	32.5	19	6	67.5	61	4	23	GN 000.4-2	610
GN 321.4-160-K14-D-*	160	K 14	32	21	32.5	20	6	82.5	71	4	26	GN 000.4-2	937
GN 321.4-160-K16-D-*	160	K 16	32	21	32.5	20	6	82.5	71	4	26	GN 000.4-2	924
GN 321.4-200-K18-D-*	200	K 18	38	26	36.5	24	6	82.5	89	4	26	GN 000.4-3	1335
GN 321.4-200-K20-D-*	200	K 20	38	26	36.5	24	6	82.5	89	4	26	GN 000.4-3	1318
GN 321.4-250-K22-D-*	250	K 22	45	30	47.5	28	12	92.5	113	4	28	GN 000.4-4	1916

Weight coding ZI

Safety handwheels

needle bearing

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving steel handle

Coding

- Version **ZI**: engage by pulling
- Version **DR**: engage by pushing

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body

- Rim high-polished
- unmachined body matt shot-blasted

Cylindrical Revolving handles GN 598 (see page 573)

Steel, plastic coated
black, matt

INFORMATION

The use of coupling attachments in handwheels other than specified is also possible.

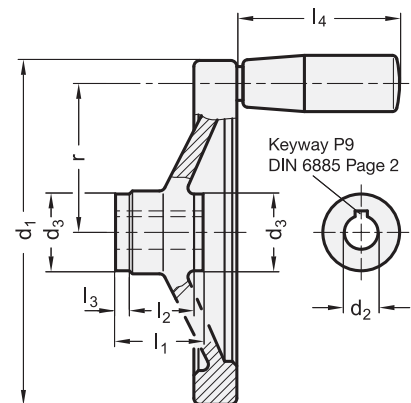
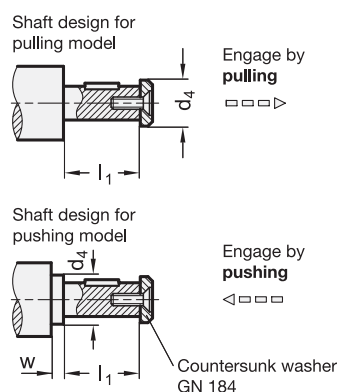
- Instructions for safety handwheels (see page 133)

TECHNICAL INFORMATION

- Keyway DIN 6885 (see page A16)
- ISO-Fundamental tolerances (see page A21)

* Complete with Coding of the Handwheels (ZI or DR)

ZI Engage by pulling
DR Engage by pushing



GN 321.5-A

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	Coupling	⚖
GN 321.5-125-K12-A-*	125	K 12	29	17	42	18	12	GN 000.5-1	423
GN 321.5-140-K12-A-*	140	K 12	29	17	42	19	12	GN 000.5-1	512
GN 321.5-140-K14-A-*	140	K 14	33	21	48	19	14	GN 000.5-2	500
GN 321.5-160-K14-A-*	160	K 14	33	21	48	20	14	GN 000.5-2	600
GN 321.5-200-K18-A-*	200	K 18	39	26	50	24	13	GN 000.5-3	800
GN 321.5-250-K22-A-*	250	K 22	46	30	54	28	13	GN 000.5-4	1900

GN 321.5-D

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	l4 ≈	r	Ø Handle	Coupling	⚖
GN 321.5-125-K12-D-*	125	K 12	29	17	42	18	12	67.5	54	23	GN 000.5-1	608
GN 321.5-140-K12-D-*	140	K 12	29	17	42	19	12	67.5	61	23	GN 000.5-1	697
GN 321.5-140-K14-D-*	140	K 14	33	21	48	19	14	67.5	61	23	GN 000.5-2	677
GN 321.5-160-K14-D-*	160	K 14	33	21	48	20	14	82.5	71	26	GN 000.5-2	1008
GN 321.5-200-K18-D-*	200	K 18	39	26	50	24	13	82.5	89	26	GN 000.5-3	1420
GN 321.5-250-K22-D-*	250	K 22	46	30	54	28	13	92.5	113	28	GN 000.5-4	2133

Weight Coding ZI



Safety handwheels

Aluminium, with needle bearings

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Handwheel body

- Aluminium
- Rim turned and polished
- unmachined surfaces plastic coated black, matt

Coupling elements

- Steel, hardened
- Glide surfaces honed

Cover cap

Plastic, light grey

Cylindrical Revolving handles GN 598 (see page 573)

Steel, plastic coated
black, matt

INFORMATION

The hub cap protects the bearing from the ingress of dust and at the same time acts as a shroud for the mounting components.

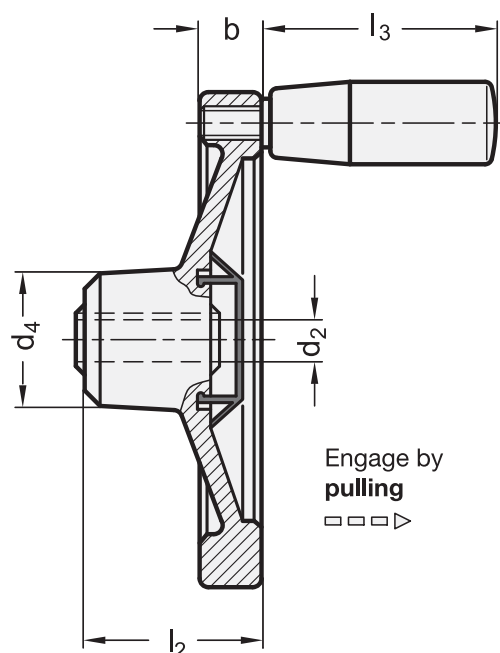
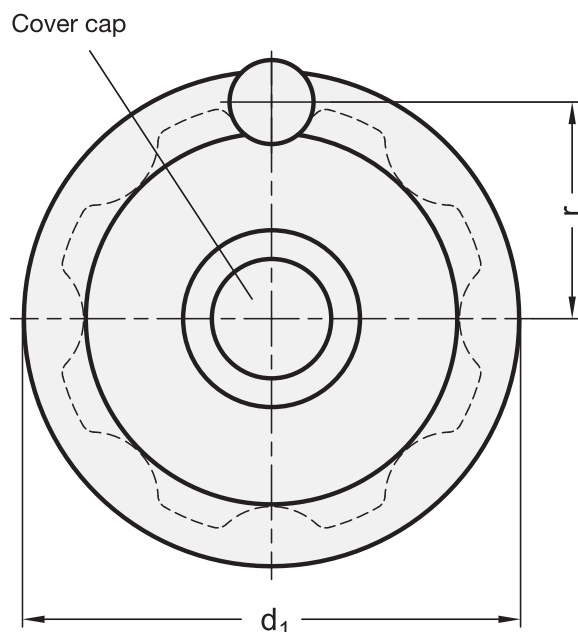
The wheel hub is fitted with an inside groove to retain the hub cap on its segmented edge.

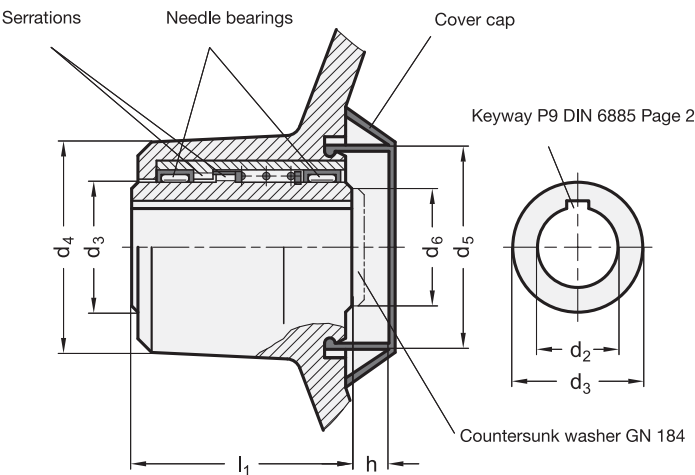
The hub cap is pushed into position by hand and it can be removed by levering it away at the relieved point with a screw driver.

The needle bearings are greased on assembly which should be ample for permanent lubrication.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)





GN 321.6-A

Description	d1	d2 H7	d3	d4	d5	d6 max.	b	h	l1	l2	⚖
GN 321.6-140-K12-A	140	K 12	24	42	40	23	16.5	7	45	58	540
GN 321.6-140-K14-A	140	K 14	24	42	40	23	16.5	7	45	58	520
GN 321.6-140-K16-A	140	K 16	24	42	40	23	16.5	7	45	58	504
GN 321.6-160-K12-A	160	K 12	24	42	40	23	18	7	45	58	659
GN 321.6-160-K14-A	160	K 14	24	42	40	23	18	7	45	58	644
GN 321.6-160-K16-A	160	K 16	24	42	40	23	18	7	45	58	628

GN 321.6-D

Description	d1	d2 H7	d3	d4	d5	d6 max.	b	h	l1	l2	l3	r	Ø Handle	⚖
GN 321.6-140-K12-D	140	K 12	24	42	40	23	16.5	7	45	58	67.5	61	23	720
GN 321.6-140-K14-D	140	K 14	24	42	40	23	16.5	7	45	58	67.5	61	23	705
GN 321.6-140-K16-D	140	K 16	24	42	40	23	16.5	7	45	58	67.5	61	23	690
GN 321.6-160-K12-D	160	K 12	24	42	40	23	18	7	45	58	82.5	71	26	952
GN 321.6-160-K14-D	160	K 14	24	42	40	23	18	7	45	58	82.5	71	26	937
GN 321.6-160-K16-D	160	K 16	24	42	40	23	18	7	45	58	82.5	71	26	920



Safety handwheels

Aluminium, fixed bearing flange

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Identification no.

- Version **1**: with bearing bush
- Version **2**: with centring ring

Handwheel body

Aluminium

Rim turned and polished

Coupling elements

- Steel, nitrided
- Bearing surface ground and / or PTFE-coated
- Bearing flange blackened

Cylindrical Revolving handles GN 598 (see page 573)

Plastic, Duroplast

black, shiny finish

INFORMATION

Safety handwheels GN 327 feature the ultimate in health and safety at work standards because the handwheel, if disengaged, is mounted on a fixed component, the bearing flange. The wheel is fully disengaged from the rotating shaft.

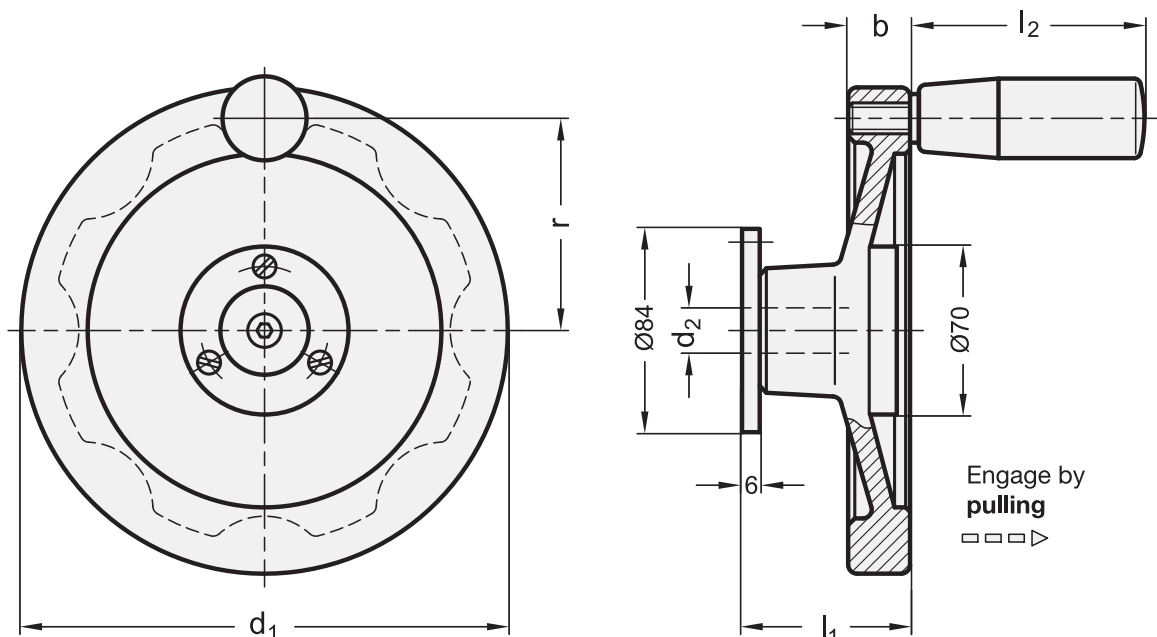
The bearing flange can also accept the bearing of the shaft via the bearing bushing (code No. 1). This bearing bushing is a dry bearing (DU bushing). Normally, the shaft has a separate bearing and the bearing bushing serves to center the bearing flange.

Centering can also be effected by a centering ring (code No. 2) if the appropriate bore hole has been made at the machine side. In this case there is no need for the bearing bushes and no bearing friction (heating) will occur.

- Instructions for safety handwheels (see page 133)

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)



ASSEMBLY INSTRUCTIONS

Shaft bush and countershaft pulley are delivered in two separate components. Before assembly, make sure that the shaft bush can be pushed smoothly and free-moving over the shaft.

Proper function is guaranteed only if:

- shaft bush and bearing surface are level with each other
- the shaft axis lies at a right angle to the bearing surface on the machine side.

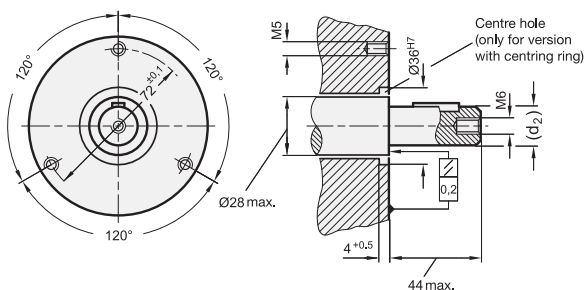
Design with bearing bush (Mode 1)

Push the handwheel and the shaft bush at the same time over the shaft, bolt down the bearing flange, and fix the shaft bush axially with the countershaft pulley

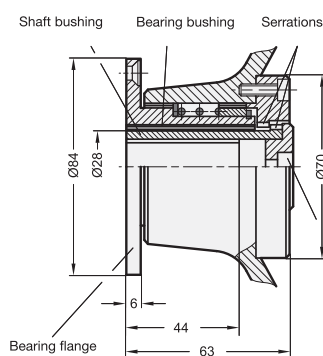
Design with centring ring (Mode 2)

The handwheel can be bolted at once through the centring ring above the bearing flange. Then push the shaft bush onto the shaft and fix it axially with the countershaft pulley.

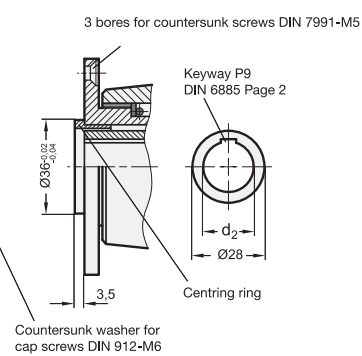
Specification of shaft and dimensions



with bearing bush: Identification no. 1



with centring ring: Identification no. 2



* Complete with Identification no. of the Handwheel (1 or 2)

1 bearing bush **2** centring ring

GN 327-A

Description	d1	d2 H7	b	l1	
GN 327-160-K14-A-*	160	K 14	18	66	1706
GN 327-160-K16-A-*	160	K 16	18	66	1690
GN 327-160-K18-A-*	160	K 18	18	66	1670
GN 327-160-K20-A-*	160	K 20	18	66	1649
GN 327-200-K14-A-*	200	K 14	20.5	68	2047
GN 327-200-K16-A-*	200	K 16	20.5	68	2031
GN 327-200-K18-A-*	200	K 18	20.5	68	2011
GN 327-200-K20-A-*	200	K 20	20.5	68	1990

GN 327-D

Description	d1	d2 H7	b	l1	l2	r	Ø Handle	
GN 327-160-K14-D-*	160	K 14	18	66	82.5	71	26	1820
GN 327-160-K16-D-*	160	K 16	18	66	82.5	71	26	1794
GN 327-160-K18-D-*	160	K 18	18	66	82.5	71	26	1774
GN 327-160-K20-D-*	160	K 20	18	66	82.5	71	26	1753
GN 327-200-K14-D-*	200	K 14	20.5	68	82.5	89	26	2151
GN 327-200-K16-D-*	200	K 16	20.5	68	82.5	89	26	2135
GN 327-200-K18-D-*	200	K 18	20.5	68	82.5	89	26	2117
GN 327-200-K20-D-*	200	K 20	20.5	68	82.5	89	26	2094

Weight Identification no. 1



Coupling attachments

for safety handwheels, with friction bearing

SPECIFICATION

Steel
nitrided

Bearing surface ground and / or PTFE-coated

INFORMATION

The PTFE-coated surfaces of the coupling attachments GN 000.4 provide minimal friction between bearing surfaces even when lubrication is being neglected.

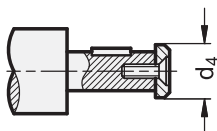
An oil-hole is provided which in the completely assembled safety handwheel connects with the wheel hub.

TECHNICAL INFORMATION

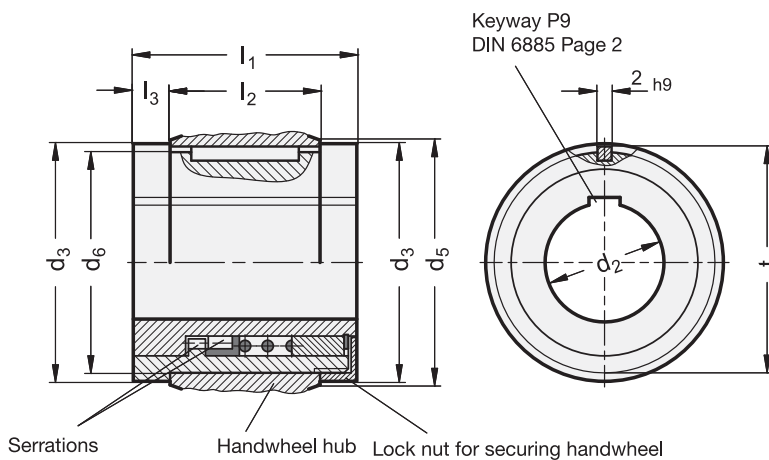
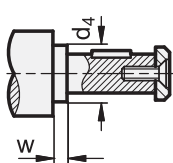
- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)



Shaft design for
pulling model



Shaft design for
pushing model



GN 000.4

Description	No.	d1 Ø Handwheel GN 321 GN 322 GN 323	d2 H7	d3	d4 max.	d5 Mini- mum-Ø of handwheel hub	d6 -0.03 Bore-Ø of hub d6 H7	l1	l2 ±0.1	l3	t	w min.	⚖
GN 000.4-1-K12	1	125	K 12	28	17	29	25	28.5	18 19	5	26	4	81
GN 000.4-2-K14	2	140	K 14	32	21	33	29	32.5	19 20	6	30	4	123
GN 000.4-2-K16	2	140	K 16	32	21	33	29	32.5	19 20	6	30	4	110
GN 000.4-3-K18	3	160	K 18	38	26	39	35	36.5	24	6	36	4	190
GN 000.4-3-K20	3	200	K 20	38	26	39	35	36.5	24	6	36	4	173
GN 000.4-4-K22	4	250	K 22	45	30	46	41	47.5	28	12	42	4	349

Coupling attachments
for safety handwheels, with needle bearing

SPECIFICATION

Steel
hardened
Bearing surfaces ground

INFORMATION

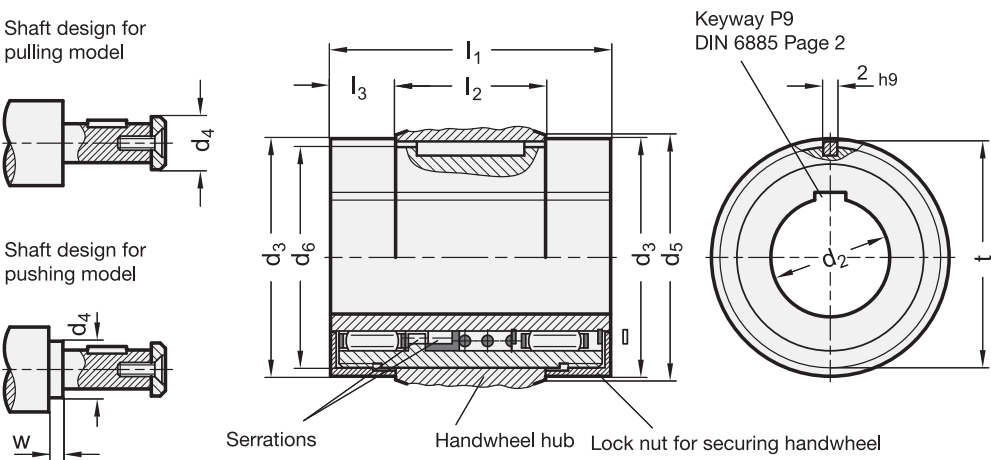
The use of needle bearings and the hardened bearing surfaces make the clutch engagement extremely easy. This is also assisted by the finer teeth of the clutch and the increased length of the coupling attachment.

It is suitability for high shaft speeds, especially when these are maintained for long periods, is a further advantage of the needle bearing.

An oil-hole is provided which in the completely assembled safety handwheel connects with the wheel hub.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)



GN 000.5

Description	No.	d1 Ø Handwheel GN 321 GN 322 GN 323	d2 H7	d3	d4 max.	d5	d6 -0.05 Bore-Ø of hub d6 H7	l1	l2 ±0.1	l3	t	w min.	⚖
GN 000.5-1-K12	1	125	K 12	29	17	29	25	42	18 19	12	26	4	130
GN 000.5-2-K14	2	140	K 14	33	21	33	29	48	19 20	14	30	4	193
GN 000.5-3-K18	3	200	K 18	39	26	39	35	50	24	13	36	4	275
GN 000.5-4-K22	4	160	K 22	46	30	46	41	54	28	13	42	4	390

Disc handwheels

Aluminium

SPECIFICATION

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned and polished
- Unmachined body shot-blasted

Rim concentric and square to bore < 0.4

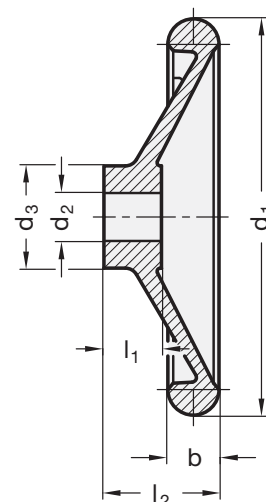
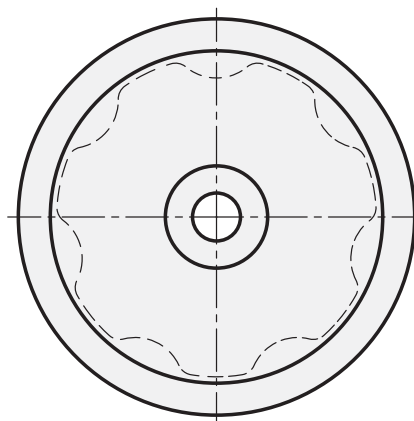
INFORMATION

Disc handwheels DIN 3670 have recessed grips at their back. As a rule they are supplied without handle, but the mounting of a handle is possible.

The handwheel diameter $d_1=80$ and $d_1=400$ are not provided in the official standard sheet.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



* Complete with Bore codes of the Handwheel (B or K)

B without keyway
K with keyway

DIN 3670

Description	d_1	d_2 H7	d_3	b	l_1	$l_2 \approx$	Δ
DIN 3670-80-*10	80	10	26	14	16	29	128
DIN 3670-80-*12	80	12	26	14	16	29	127
DIN 3670-100-*10	100	10	28	15	17	33	188
DIN 3670-100-*12	100	12	28	15	17	33	185
DIN 3670-125-*12	125	12	31	16	18	36	306
DIN 3670-125-*14	125	14	31	16	18	36	304
DIN 3670-160-*14	160	14	36	18	20	40	514
DIN 3670-160-*16	160	16	36	18	20	40	480
DIN 3670-200-*18	200	18	42	22	24	45	943
DIN 3670-200-*20	200	20	42	22	24	45	938
DIN 3670-200-*22	200	22	42	22	24	45	934
DIN 3670-250-*22	250	22	48	26	28	50	1608
DIN 3670-250-*24	250	24	48	26	28	50	1596
DIN 3670-250-*26	250	26	48	26	28	50	1582
DIN 3670-315-*26	315	26	56	28	33	56	2695
DIN 3670-315-*28	315	28	56	28	33	56	2689
DIN 3670-315-*30	315	30	56	28	33	56	2683
DIN 3670-400-*30	400	30	65	32	38	63	4370
DIN 3670-400-*32	400	32	65	32	38	63	4342

Weight bore code B

Two-arm handwheels

Technopolymer and steel

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.

ARMS

Matte chrome-plated steel complete with handles type I.622 (see page 535) in technopolymer.

STANDARD EXECUTION

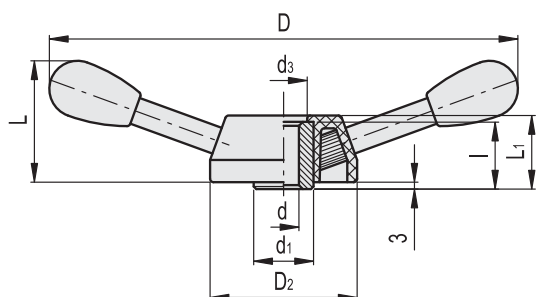
Black-oxide steel boss, uncovered front end with pre-drilled pass-through hole.

ACCESSORIES ON REQUEST

Axial retaining washer GN 184 (see page 971).



ELESA Original design



Code	Description	D	dh9	L	L1	D2	d1	d3	I	C# [Nm]	⚖
65801	VBR.2/200	200	10	60	42	86	35	34	38	195	600
65811	VBR.2/280	274	10	74	42	86	35	34	38	195	715
65821	VBR.2/320	312	10	80	42	86	35	34	38	195	780
65831	VBR.2/370	363	10	90	42	86	35	34	38	195	865

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.

Four-arm handwheels

Technopolymer and steel

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.

ARMS

Matte chrome-plated steel complete with handles type I.622 (see page 535) in technopolymer.

STANDARD EXECUTION

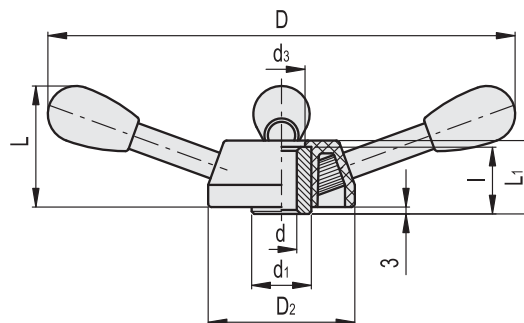
Black-oxide steel boss, uncovered front end with pre-drilled pass-through hole.

ACCESSORIES ON REQUEST

Axial retaining washer GN 184 (see page 971).



ELESA Original design



Code	Description	D	dh9	L	L1	D2	d1	d3	I	C# [Nm]	⚖
65901	VBR.4/200	200	10	60	42	86	35	34	38	195	780
65911	VBR.4/280	274	10	74	42	86	35	34	38	195	1030
65921	VBR.4/320	312	10	80	42	86	35	34	38	195	1150
65931	VBR.4/370	363	10	90	42	86	35	34	38	195	1315

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.



Turret levers

Steel, blackened

SPECIFICATION

Steel

blackened

Ball knobs DIN 319 (see page 538)

Plastic, Duroplast

black, shiny finish

INFORMATION

Turret levers GN 213 can also be supplied as standard with:

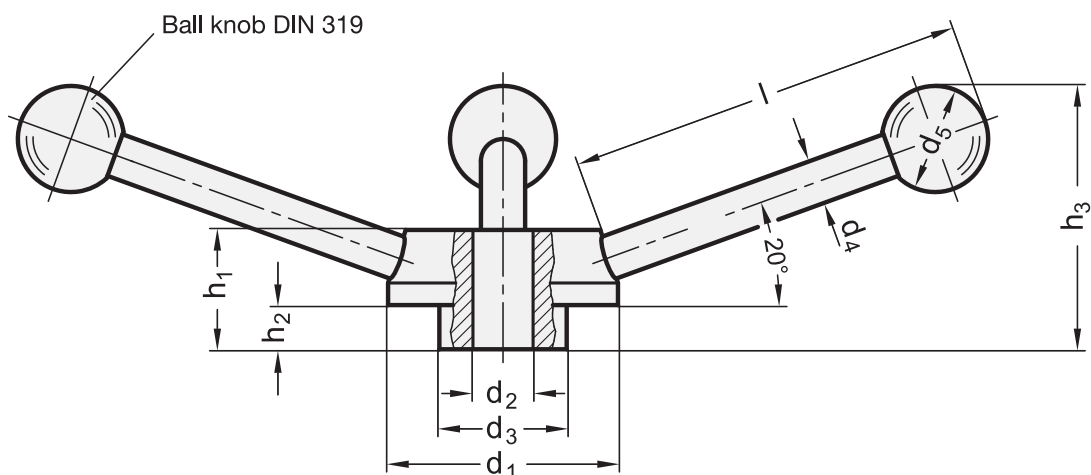
Square DIN 79 **V** + Bore-Ø

Keyway DIN 6885 **K** + Bore-Ø

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)

- ISO Fundamental Tolerances (see page A21)



GN 213

Description	d1	d2 H7	d3	d4	d5	h1	h2	h3 ≈	l ≈	Δ
GN 213-50-B12	50	B 12	28	8	20	26	9	53	82	382
GN 213-50-V12	50	V 12	28	8	20	26	9	53	82	375
GN 213-50-K12	50	K 12	28	8	20	26	9	53	82	380
GN 213-55-B14	55	B 14	30	10	25	28	10	61	96	544
GN 213-55-V14	55	V 14	30	10	25	28	10	61	96	536
GN 213-55-K14	55	K 14	30	10	25	28	10	61	96	541
GN 213-60-B15	60	B 15	32	10	25	30	11	64	96	633
GN 213-60-V15	60	V 15	32	10	25	30	11	64	96	590
GN 213-60-K15	60	K 15	32	10	25	30	11	64	96	630
GN 213-65-B16	65	B 16	35	12	30	32	12	71	110	848
GN 213-65-V16	65	V 16	35	12	30	32	12	71	110	833
GN 213-65-K16	65	K 16	35	12	30	32	12	71	110	860
GN 213-72-B18	72	B 18	40	12	32	36	14	80	124	1097
GN 213-72-V18	72	V 18	40	12	32	36	14	80	124	1087
GN 213-72-K18	72	K 18	40	12	32	36	14	80	124	1092
GN 213-80-B20	80	B 20	44	14	35	40	16	89	138	1531
GN 213-80-V20	80	V 20	44	14	35	40	16	89	138	1517
GN 213-80-K20	80	K 20	44	14	35	40	16	89	138	1525
GN 213-100-B24	100	B 24	54	16	40	52	24	113	170	2781
GN 213-100-V24	100	V 24	54	16	40	52	24	113	170	2769
GN 213-100-K24	100	K 24	54	16	40	52	24	113	170	2775

Crank handles

Technopolymer

MATERIAL

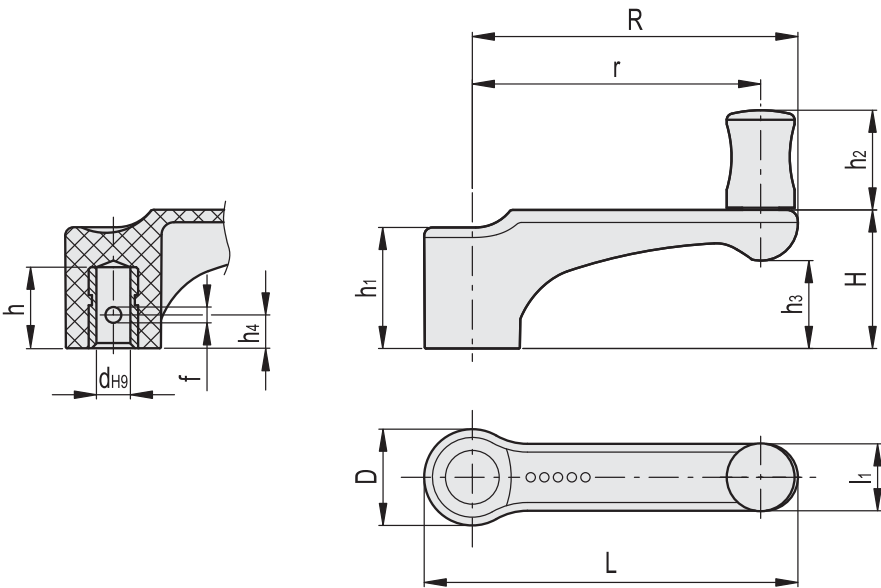
Glass-fibre reinforced polyamide based (PA) technopolymer, greyblack colour, matte finish.

STANDARD EXECUTIONS

Brass boss, cylindrical blind hole, transversal semi-machined hole for pinning to shaft.
Revolving handle l.741+x (see page 581) in technopolymer.
The grooves cut into the cylindrical surface allow an effective and ergonomic grip, though necessarily limited to the fingertips, due to the small size of the handle.



ERGOSTYLE®



Code	Description	R	dH9	L	D	l1	h	h1	h2	h3	h4	H	r	f	⚖
232411-C1	ERFW.44 N-6+I-C1	44	6	52	15.5	11	15	19	20	12.5	7	21	38	3	18
232431-C1	ERFW.63 N-8+I-C1	63	8	73.5	19	13.5	20	24.5	23	18.5	8	28.5	56	4	28
232451-C1	ERFW.78 N-10+I-C1	78	10	90.5	23	16	25	29.5	23	18	9	30	71	4	43

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Operating elements

Crank handles

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

SELF-ADHESIVE FRONT PLATE

Anodised aluminium.

STANDARD EXECUTIONS

- **MT.:** with revolving handle I.601+x (see page 575) in technopolymer. Black-oxide steel hub, H9 blind hole or H7 reamed pass-through hole.
- **MT-AS:** with revolving handle I.601+x (see page 575) in technopolymer. Black-oxide steel boss with H9 square pass-through hole. MT.50-AS H9 square pass-through hole with brass reinforcement.
- **MT+IR:** with fold-away handle IR.602 in technopolymer. Black-oxide steel hub, H9 blind hole or H7 reamed pass-through hole.

FEATURES AND APPLICATIONS

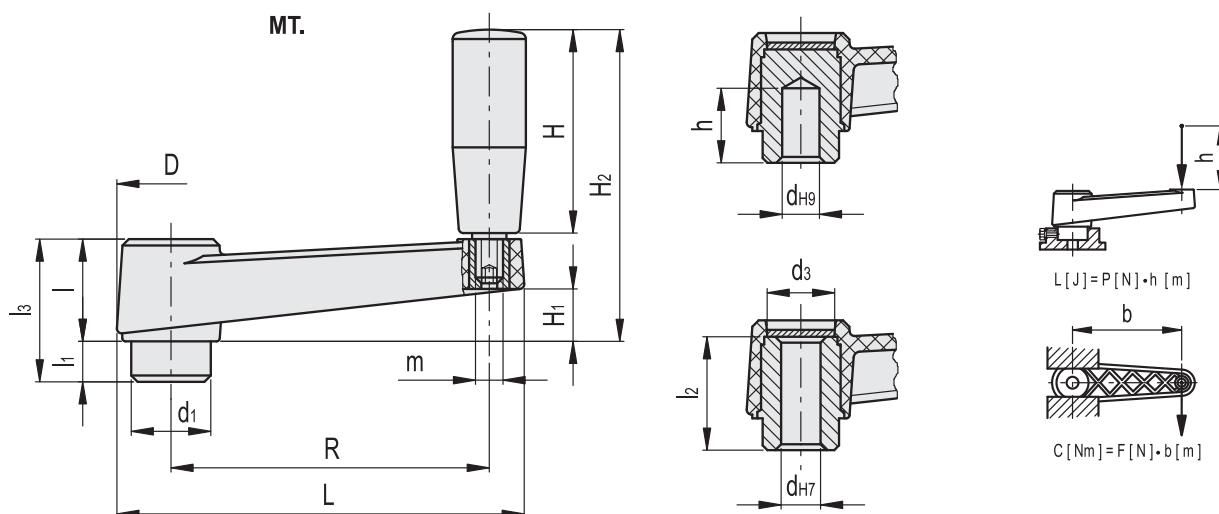
The reticular structure of the crank arm and the technopolymer used make this handle very strong and therefore suitable for transmitting high torque values.

ACCESSORIES ON REQUEST

Axial retaining washer GN 184 (see page 971).



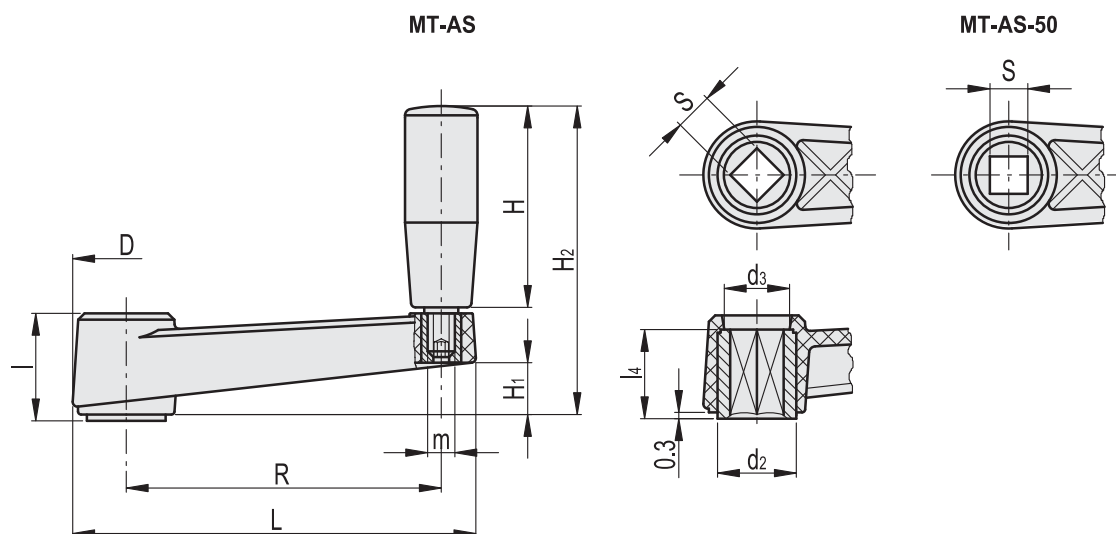
design80
 if79
 ELESa Original design
 stuttgart



MT.

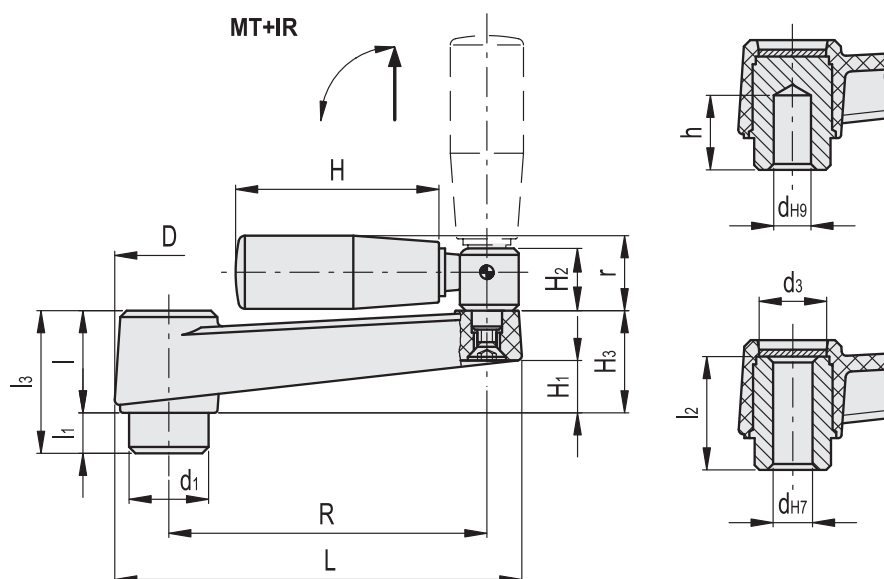
Code	Description	R	dH7	dH9	L	D	d1	d3	I	I1	I2	I3	h	H	H1	H2	m	C# [Nm]	L# [J]	
44051	MT.50 A-6	50	6	-	69	23	16	13	21	10	28	31	-	28	10	49	-	60	7	65
44091	MT.64	64	-	6	86	27	18	16	23	10	29	33	18	40	10	63	M6	120	11	100
44101	MT.64 A-8	64	8	-	86	27	18	16	23	10	29	33	-	40	10	63	M6	120	11	95
44102	MT.64 A-10	64	10	-	86	27	18	16	23	10	29	33	-	40	10	63	M6	120	11	93
44191	MT.80	80	-	6	105	30	22	17	26	10	32	36	26	50	13	76	M6	180	15	145
44201	MT.80 A-10	80	10	-	105	30	22	17	26	10	32	36	-	50	13	76	M6	180	15	130
44291	MT.100	100	-	8	128	34	24	21	30	10	37	40	28	65	15	96	M8	200	27	240
44301	MT.100 A-12	100	12	-	128	34	24	21	30	10	37	40	-	65	15	96	M8	200	27	225
44391	MT.130	130	-	10	162	40	28	25	35	14	44	49	30	80	20	115	M8	350	45	345
44401	MT.130 A-14	130	14	-	162	40	28	25	35	14	44	49	-	80	20	115	M8	350	45	310
44491	MT.160	160	-	10	198	45	34	27	40	15	49	55	30	90	23	130	M10	450	55	495
44501	MT.160 A-16	160	16	-	198	45	34	27	40	15	49	55	-	90	23	130	M10	450	55	435
44601	MT.210	212	-	12	252	50	40	31	45	15	53	60	30	90	26	136	M10	950	80	705

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.



MT-AS

Code	Description	R	SH9	L	D	d2	d3	l	l4	H	H1	H2	m	C# [Nm]	L# [J]	⚖
44052	MT.50 AS-6x6	50	6	69	23	-	13	21	18	28	10	49	-	60	7	35
44111	MT.64 AS-8x8	64	8	86	27	18	16	23	19	40	10	63	M6	120	11	78
44211	MT.80 AS-10x10	80	10	105	30	20	17	26	22	50	13	76	M6	180	15	105
44311	MT.100 AS-12x12	100	12	128	34	25	21	30	27	65	15	96	M8	200	27	190
44411	MT.130 AS-14x14	130	14	162	40	28	25	35	30	80	20	115	M8	350	45	255
44511	MT.160 AS-17x17	160	17	198	45	30	27	40	34	90	23	130	M10	450	55	335



MT+IR

Code	Description	R	dH7	dH9	L	D	d1	d3	l	l1	l2	l3	h	H	H1	H2	H3	r	C# [Nm]	L# [J]	⚖
44216	MT.80+IR	80	-	6	105	30	22	17	26	10	32	36	26	56	13	15	27	19	180	15	177
44221	MT.80+IR A-10	80	10	-	105	30	22	17	26	10	32	36	-	56	13	15	27	19	180	15	163
44316	MT.100+IR	100	-	8	128	34	24	21	30	10	37	40	28	65	15	20	31	22	200	27	285
44321	MT.100+IR A-12	100	12	-	128	34	24	21	30	10	37	40	-	65	15	20	31	22	200	27	265
44416	MT.130+IR	130	-	10	162	40	28	25	35	14	44	49	30	65	20	20	35	22	350	45	385
44421	MT.130+IR A-14	130	14	-	162	40	28	25	35	14	44	49	-	65	20	20	35	22	350	45	340
44516	MT.160+IR	160	-	10	198	45	34	27	40	15	49	55	30	80	23	20	40	24	450	55	525
44521	MT.160+IR A-16	160	16	-	198	45	34	27	40	15	49	55	-	80	23	20	40	24	450	55	473
44621	MT.210+IR	212	-	12	252	50	40	31	45	15	53	60	30	90	26	23	46	27	950	80	840

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.



Crank handles

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

Black-oxide steel boss, H9 reamed hole.

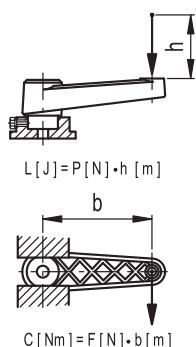
- **MT-AT:** with revolving handle I.621+x (see page 576) in technopolymer, not removable.
- **MT-AT+IR:** with fold-away handle IR.620 (see page 584) in technopolymer.

FEATURES AND APPLICATIONS

The reticular structure of the crank arm and the technopolymer used make this handle very strong and therefore suitable for transmitting high torque values.

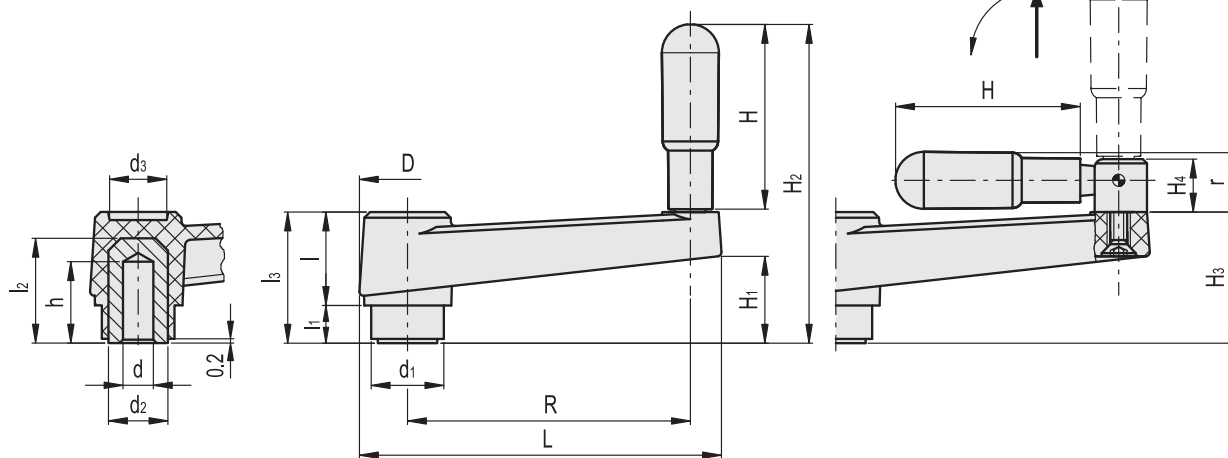


ELESA Original design



MT-AT

MT-AT+IR



MT-AT

Code	Description	R	dH9	L	D	d1	d2	d3	I	I1	I2	I3	h	H	H1	H2	C# [Nm]	L# [J]	⚠
44053	MT.50-AT	50	6	69	22.5	18	15	13	20.5	9	23	29.5	18	35	18.5	66	80	7	55
44113	MT.64-AT	64	8	86	26.5	20	15	16	22.5	9	25	31.5	20	45	17.5	78	120	11	82
44213	MT.80-AT	80	10	106	30	24	18	17	26	11	31	37	25	60	23.5	99	200	15	118
44313	MT.100-AT	100	12	128	33.5	24	18	21	30.5	10	31	40.5	24	65	25	106	210	27	190
44413	MT.130-AT	130	14	162	39	34	26	25	35	14	43	49	30	65	32.5	113	350	45	335
44513	MT.160-AT	160	16	197	44	34.5	26	27	39.5	15	43	54.5	30	80	36	136	470	55	375

MT-AT+IR

Code	Description	R	dH9	L	D	d1	d2	d3	I	I1	I2	I3	h	H	H1	H3	H4	r	C# [Nm]	L# [J]	⚠
44117	MT.64-AT+IR	64	8	86	26.5	20	15	16	22.5	9	25	31.5	20	45	17.5	31	14	16	120	11	89
44217	MT.80-AT+IR	80	10	106	30	24	18	17	26	11	31	37	25	60	23.5	37	14	16.5	200	15	130
44317	MT.100-AT+IR	100	12	128	33.5	24	18	21	30.5	10	31	40.5	24	65	25	39	18.5	20.5	210	27	200
44417	MT.130-AT+IR	130	14	162	39	34	26	25	35	14	43	49	30	65	34	49	18.5	20.5	350	45	330
44517	MT.160-AT+IR	160	16	197	44	34.5	26	27	39.5	15	43	54.5	30	80	36	54	18.5	22	470	55	370

For maximum torque (C) and impact strength (L) see Technical Data on page A3.

Crank handles

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

HUB CAP

Glass-fibre reinforced polyamide based (PA) technopolymer, in Ergostyle colours, matte finish, press-fit assembly.
Available also as accessory sold separately (see table ECM.).

Code	Description	Boss cap for
29633-*	ECM.K3-*	EKH.100
29634-*	ECM.K4-*	EKH.125

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTION

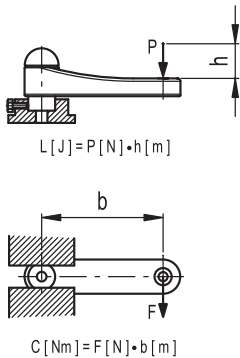
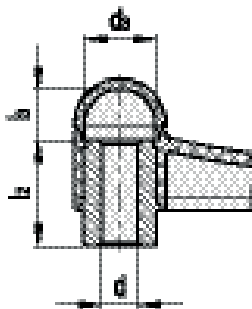
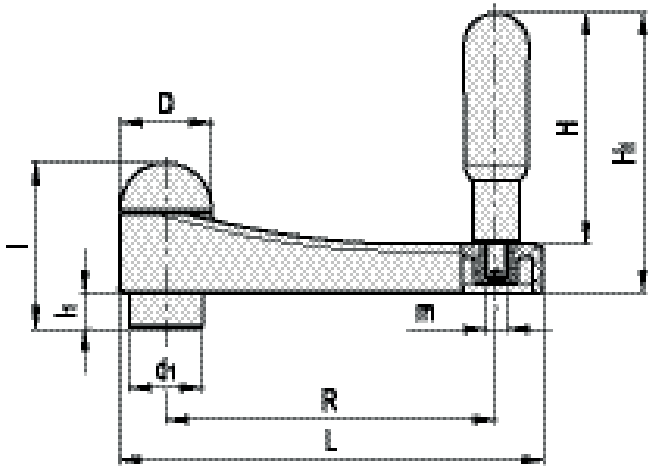
Black-oxide steel hub, H7 reamed hole.
Revolving handle l.621+x (see page 576) in technopolymer.

FEATURES AND APPLICATIONS

The reticular structure of the crank arm and the technopolymer used make this handle very strong and therefore suitable for transmitting high torque values.

ACCESSORIES ON REQUEST

Axial retaining washer GN 184 (see page 971).



* Complete with colour index, example: 210241-C2 EKH.100 A-12-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

Code	Description	R	dH7	L	D	d1	d3	l	l1	l2	l3	H	H1	m	C# [Nm]	L# [J]	⚖
210241-*	EKH.100 A-12-*	101	12	131.5	30.5	24	23.5	52.5	10	33	17	65	81	M8	200	27	231
210251-*	EKH.125 A-14-*	126	14	161.5	35	28	26.5	62	14	40	18	80	98.5	M8	350	45	316

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.



GN 269

Stainless Steel- Cranked handles

SPECIFICATION

Body

- Stainless Steel precision die casting
- AISI CF-8
- Face of the hub machined

Revolving handles

Plastic, Duroplast
black, shiny finish

Spindle

Stainless Steel AISI 304

INFORMATION

Stainless Steel-Cranked handles GN 269 have been designed to comply with stringent hygiene requirements.

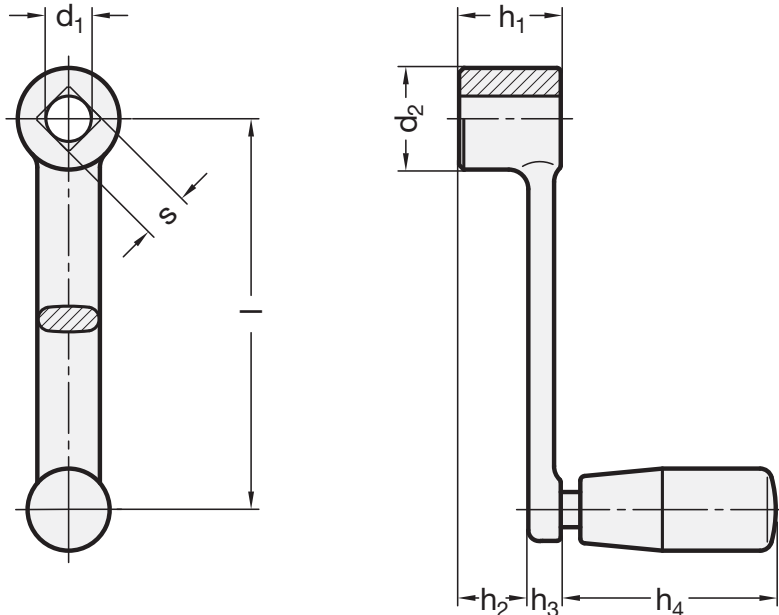
The cylindrical handles are made of thermoset material which in general provides good stability when exposed to chemicals.

ON REQUEST

- Stainless Steel-Cranked handles with retractable handle GN 798.5 (see page 586)

TECHNICAL INFORMATION

- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



GN 269

STAINLESS STEEL

Description	l	d1 H9	s H11	d2	h1	h2 ≈	h3	h4 ≈	Ø Handle	⚖
GN 269-80-B10	80	B 10	-	22	22	15.4	6.6	45	18	127
GN 269-80-V10	80	-	V 10	22	22	15.4	6.6	45	18	124
GN 269-100-B12	100	B 12	-	26	26	17.7	8.3	55	21	200
GN 269-100-V12	100	-	V 12	26	26	17.7	8.3	55	21	187
GN 269-125-B14	125	B 14	-	28	28	18.8	9.2	71	23	305
GN 269-125-V14	125	-	V 14	28	28	18.8	9.2	71	23	291
GN 269-160-B17	160	B 17	-	32	32	22.6	9.4	71	23	396
GN 269-160-V17	160	-	V 17	32	32	22.6	9.4	71	23	372

Cranks

Steel

SPECIFICATION

Types

- Type **A**: without slot
- Type **N**: with slot

Steel

- shot-blasted and nickel plated
- Crank butt-welded

Plastic cap
black

Cylindrical Revolving handles GN 598 (see page 573)

Plastic, Duroplast
black, shiny finish

INFORMATION

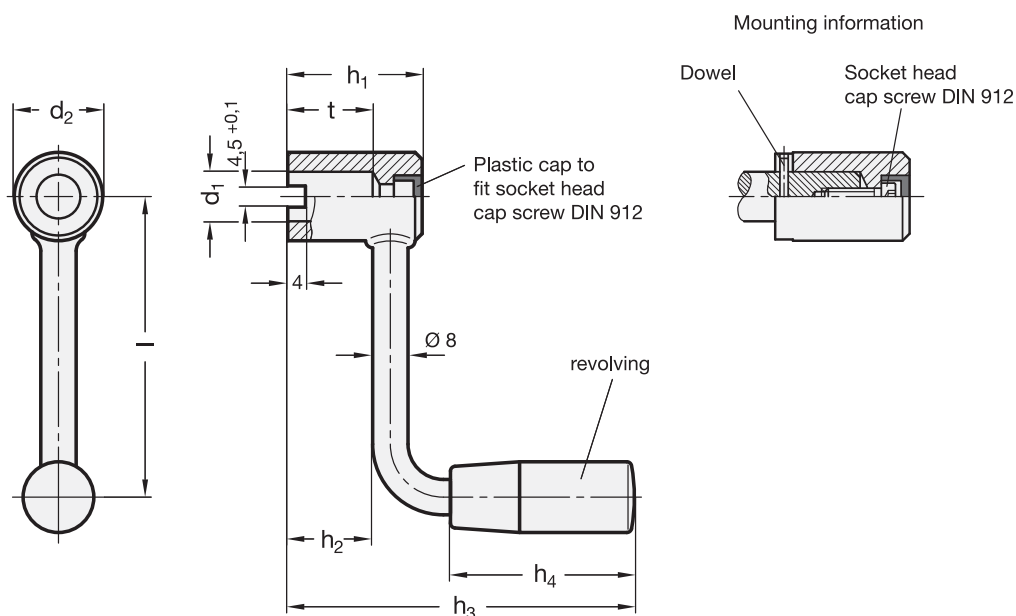
Cranks GN 369 are for light duty applications and are of extremely good value.

A suitable dowel in the shaft and the slot in the handle provides a cheap connection to the shaft. To secure the handle permanently to the shaft, remove the plastic cap and insert screw.

Due to the production method which is not dependent on a specific shape, these cranked handles can be produced as specials at a competitive price.

TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



GN 369

Description	l	d1 H9	d2	h1	h2 ≈	h3 ≈	h4 ≈	t +0.5	Ø Handle	For screws DIN 912	⚖
GN 369-63-B10-A	63	B 10	18	28	18	74	40	18	18	M5	88
GN 369-63-B10-N	63	B 10	18	28	18	74	40	18	18	M5	87
GN 369-80-B10-A	80	B 10	18	28	18	74	40	18	18	M5	94
GN 369-80-B10-N	80	B 10	18	28	18	74	40	18	18	M5	93
GN 369-100-B12-A	100	B 12	20	30	20	88	50	20	21	M6	122
GN 369-100-B12-N	100	B 12	20	30	20	88	50	20	21	M6	121
GN 369-125-B12-A	125	B 12	20	30	20	88	50	20	21	M6	135
GN 369-125-B12-N	125	B 12	20	30	20	88	50	20	21	M6	131



Cranked handles

Aluminium

SPECIFICATION

Body

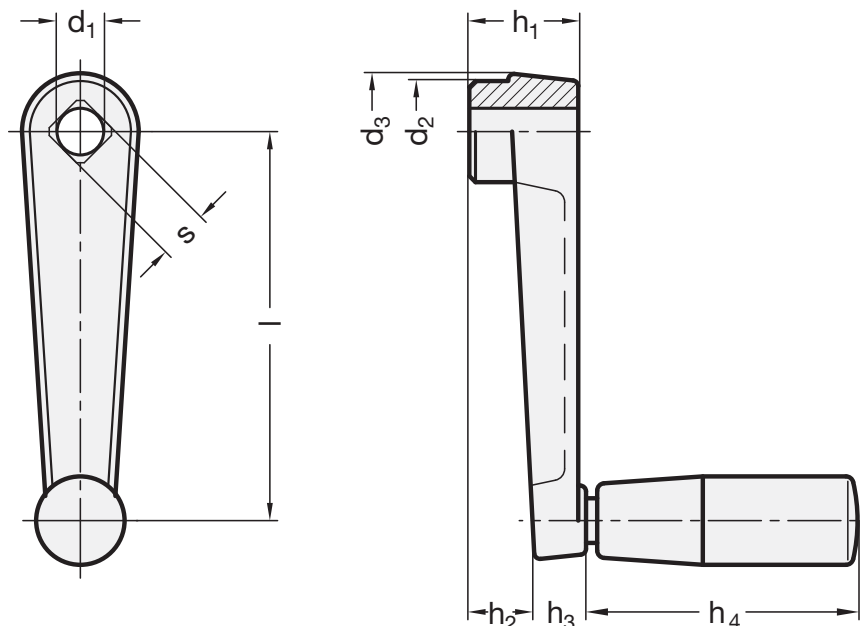
- Aluminium
- plastic coated, black, textured finish
- hub machined

Cylindrical Revolving handles GN 598 (see page 573)

Plastic, Technopolymer
black, matt

TECHNICAL INFORMATION

- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



GN 471

Description	l	d1 H7	s H11	d2	d3	h1	h2 ≈	h3	h4 ≈	Ø Handle	⚖
GN 471-80-B10	80	B 10	-	23	26	24	14	14	52.5	21	120
GN 471-80-V10	80	-	V 10	23	26	24	14	14	52.5	21	98
GN 471-100-B12	100	B 12	-	27	30	28	17	15	67.5	23	170
GN 471-100-V12	100	-	V 12	27	30	28	17	15	67.5	23	150
GN 471-125-B14	125	B 14	-	32	35	34	22	18	82.5	26	255
GN 471-125-V14	125	-	V 14	32	35	34	22	18	82.5	26	240
GN 471-160-B17	160	B 17	-	35	39	38	26	18	82.5	26	301
GN 471-160-V17	160	-	V 17	35	39	38	26	18	82.5	26	280

Cranked handles

Zinc die casting

SPECIFICATION

Body

- Zinc die casting
- plastic coated, black, textured finish
- hub machined

Cylindrical Revolving handles GN 598 (see page 573)

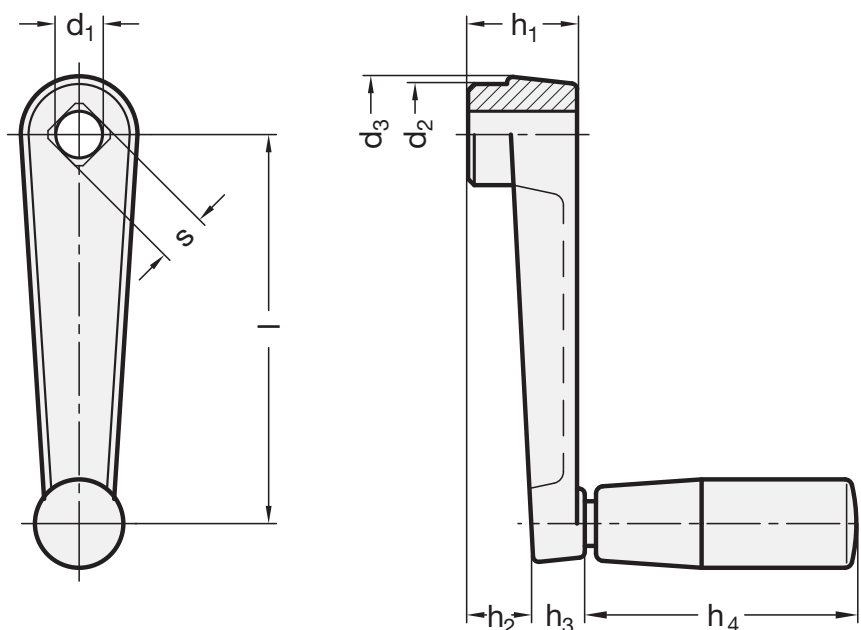
Plastic, Technopolymer, black matt

INFORMATION

- Cranked handles GN 471 (see page 196)

TECHNICAL INFORMATION

- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



GN 471.1

Description	l	d1 H7	s H11	d2	d3	h1	h2	h3	h4 ≈	Ø Handle	⚖
GN 471.1-50-B8	50	B 8	-	16	18	18	10	10	28.5	14	70
GN 471.1-50-V8	50	-	V 8	16	18	18	10	10	28.5	14	58
GN 471.1-64-B10	64	B 10	-	19	22	20	11	12	42.5	18	100
GN 471.1-64-V10	64	-	V 10	19	22	20	11	12	42.5	18	97
GN 471.1-80-B10	80	B 10	-	23	26	24	14	14	52.5	21	170
GN 471.1-80-V10	80	-	V 10	23	26	24	14	14	52.5	21	162
GN 471.1-100-B12	100	B 12	-	27	30	28	17	15	67.5	23	275
GN 471.1-100-V12	100	-	V 12	27	30	28	17	15	67.5	23	270



Cranked handles with retractable handle

Aluminium

SPECIFICATION

Body

- Aluminium
- plastic coated, black, textured finish
- hub machined

Retractable handles GN 598.3 (see page 585)

Plastic, Duroplast
black, shiny finish

Retractable mechanism
Steel, blackened

INFORMATION

The handpiece of cranked handles GN 471.3 is locked in a tapered bore in the operating position.

For tilting, the handle must first be pulled out of the taper in axial direction.

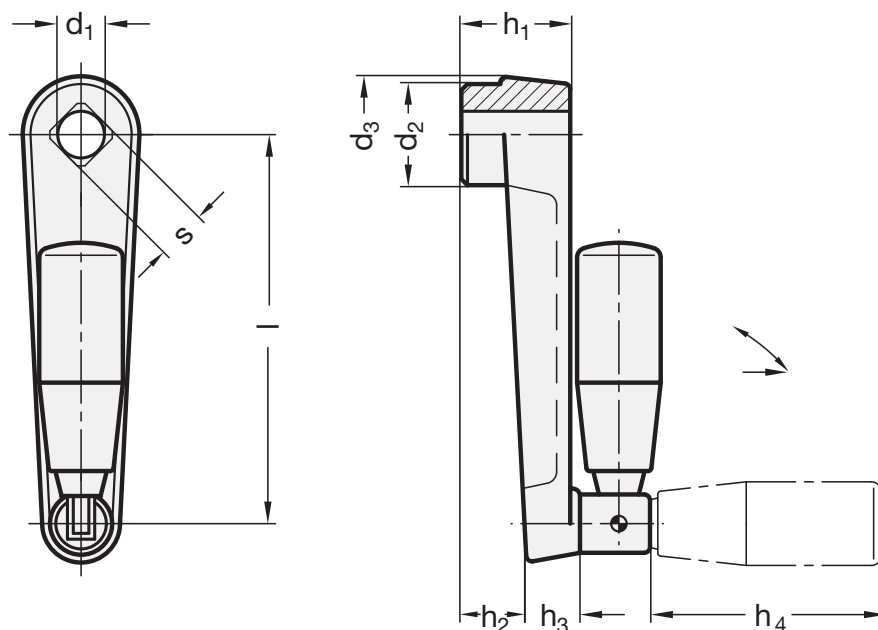
A compression spring holds the handle in both end positions. When folded out, it automatically re-engages.

ON REQUEST

- with retractable handle GN 598.5 (retractable mechanism Stainless Steel) (see page 585)

TECHNICAL INFORMATION

- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



GN 471.3

Description	l	d1 H7	s H11	d2	d3	h1	h2	h3	h4 ≈	Ø Handle	
GN 471.3-100-B12	100	B 12	-	27	30	28	17	13	67.5	23	199
GN 471.3-100-V12	100	-	V 12	27	30	28	17	13	67.5	23	194
GN 471.3-125-B14	125	B 14	-	32	35	34	22	14	67.5	23	254
GN 471.3-125-V14	125	-	V 14	32	35	34	22	14	67.5	23	247
GN 471.3-160-B17	160	B 17	-	35	39	38	26	16	82.5	26	346
GN 471.3-160-V17	160	-	V 17	35	39	38	26	16	82.5	26	340

Cranked handles with retractable handle

Aluminium

SPECIFICATION

Body

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

silver, RAL 9006, textured finish **SR**

hub machined

Hub cover

light grey

Retractable handles GN 798.3 (see page 586)

Plastic, Technopolymer

black, matt finish

Retractable mechanism

Steel, blackened

INFORMATION

The handpiece of cranked handles GN 472.3 is locked in a tapered bore in the operating position.

For tilting, the handle must first be pulled out of the taper in axial direction.

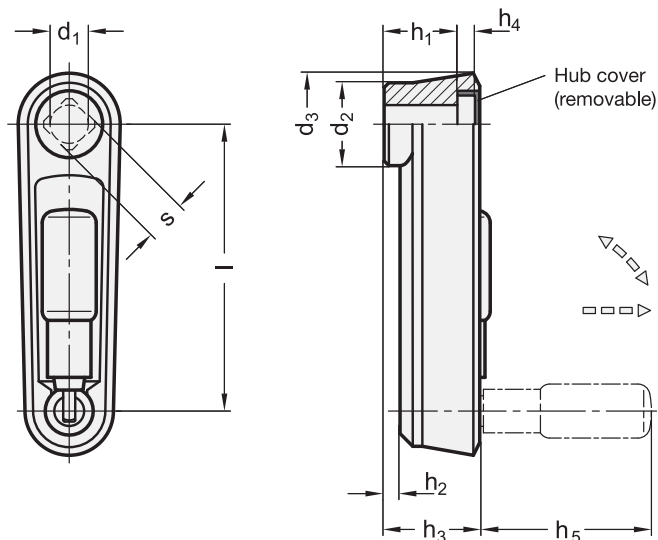
A compression spring holds the handle in both end positions. When folded out, it automatically re-engages.

ON REQUEST

- Retractable handle GN 798.5 (retractable mechanism Stainless Steel) (see page 586)

TECHNICAL INFORMATION

- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



* Complete with colour index of the clamping lever body (SW or SR)

SW **SR**
RAL9005 RAL9006

GN 472.3

Description	l	d1 H7	s H11	d2	d3	h1	h2	h3	h4	h5 ≈	Ø Handle	⚖
GN 472.3-80-B10-*	80	B 10	-	23	29	20	4	26	4.3	43	16	131
GN 472.3-80-V10-*	80	-	V 10	23	29	20	4	26	4.3	43	16	130
GN 472.3-100-B12-*	100	B 12	-	26	34	24	5.5	30	4.2	57.5	18	190
GN 472.3-100-V12-*	100	-	V 12	26	34	24	5.5	30	4.2	57.5	18	180
GN 472.3-125-B14-*	125	B 14	-	28	36	31	10.5	37	4.2	76.5	24	270
GN 472.3-125-V14-*	125	-	V 14	28	36	31	10.5	37	4.2	76.5	24	260



Cranked handles

Cast iron

SPECIFICATION

Types

- Type **F**: with fixed handle
- Type **D**: with revolving handle

Crank handle body
Cast iron (GG)

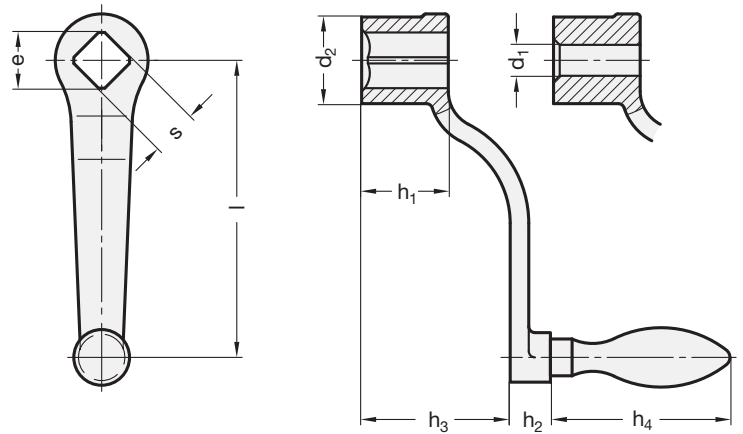
- plastic coated, black, textured finish
- hub machined

Fixed handles DIN 39 (see page 565)
Steel zinc plated, blue passivated

Revolving handles DIN 98 (see page 579)
Steel zinc plated, blue passivated

INFORMATION

The hub bores d1 H7 are not provided for in the official standard sheet.



* Complete with types of the Cranked handles (F or D)

F fixed handle
D revolving handle

DIN 468

Description	l	s H11	e min.	d1 H7	d2	h1	h2	h3 ≈	h4 ≈ Type D	h4 ≈ Type F	Ø Handle	⚖
DIN 468-63-B6-*	63	-	13.1	B 6	20	20	11	32	54.5	50	16	123
DIN 468-63-V10-*	63	V 10	13.1	-	20	20	11	32	54.5	50	16	114
DIN 468-80-B8-*	80	-	13.1	B 8	24	24	13	38	61	56	18	195
DIN 468-80-V10-*	80	V 10	13.1	-	24	24	13	38	61	56	18	150
DIN 468-80-V12-*	80	V 12	13.1	-	24	24	13	38	61	56	18	173
DIN 468-100-B10-*	100	-	16.1	B 10	28	28	13	48	67	64	20	293
DIN 468-100-V12-*	100	V 12	16.1	-	28	28	13	48	67	64	20	281
DIN 468-100-V14-*	100	V 14	16.1	-	28	28	13	48	67	64	20	268
DIN 468-125-B10-*	125	-	18.1	B 10	34	34	14	55	76	72	22	463
DIN 468-125-V14-*	125	V 14	18.1	-	34	34	14	55	76	72	22	434
DIN 468-125-V17-*	125	V 17	18.1	-	34	34	14	55	76	72	22	413
DIN 468-160-B14-*	160	-	22.2	B 14	38	38	14	65	83	80	25	697
DIN 468-160-V17-*	160	V 17	22.2	-	38	38	14	65	83	80	25	650
DIN 468-160-V19-*	160	V 19	22.2	-	38	38	14	65	83	80	25	630
DIN 468-200-B17-*	200	-	25.2	B 17	44	44	21	78	96.5	90	28	1043
DIN 468-200-V19-*	200	V 19	25.2	-	44	44	21	78	96.5	90	28	999
DIN 468-200-V22-*	200	V 22	25.2	-	44	44	21	78	96.5	90	28	942
DIN 468-250-B17-*	250	-	28.2	B 17	48	48	21	90	105.5	100	32	1517
DIN 468-250-V22-*	250	V 22	28.2	-	48	48	21	90	105.5	100	32	1427
DIN 468-250-V24-*	250	V 24	28.2	-	48	48	21	90	105.5	100	32	1374
DIN 468-315-B20-*	315	-	32.2	B 20	54	54	26	105	117	112	36	2298
DIN 468-315-V24-*	315	V 24	32.2	-	54	54	26	105	117	112	36	2123
DIN 468-315-V27-*	315	V 27	32.2	-	54	54	26	105	117	112	36	2047

Weight type F

Cranked handles

Cast iron

SPECIFICATION

Types

- Type **F**: with fixed handle
- Type **D**: with revolving handle

Crank handle body

Cast iron (GG)

- plastic coated, black, textured finish
- hub machined

Fixed handles DIN 39 (see page 565)

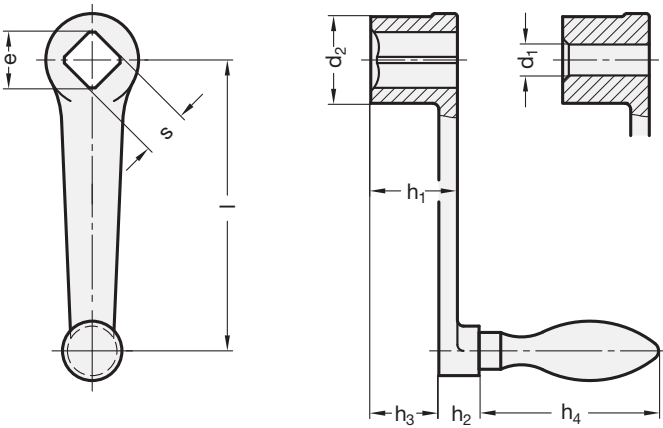
Steel zinc plated, blue passivated

Revolving handles DIN 98 (see page 579)

Steel zinc plated, blue passivated

INFORMATION

The hub bores d1 H7 are not provided for in the official standard sheet.



*Complete with types of the Cranked handles (F or D)

F	D
fixed handle	revolving handle

DIN 469

Description	l	s H11	e min.	d1 H7	d2	h1	h2	h3 ≈	h4 ≈ Type D	h4 ≈ Type F	Ø Handle	⚖
DIN 469-63-B6-*	63	-	13.1	B 6	20	20	11	15	54.5	50	16	125
DIN 469-63-V10-*	63	V 10	13.1	-	20	20	11	15	54.5	50	16	110
DIN 469-80-B8-*	80	-	13.1	B 8	24	24	13	18	61	56	18	203
DIN 469-80-V10-*	80	V 10	13.1	-	24	24	13	18	61	56	18	179
DIN 469-80-V12-*	80	V 12	13.1	-	24	24	13	18	61	56	18	170
DIN 469-100-B10-*	100	-	16.1	B 10	28	28	13	21	67	64	20	288
DIN 469-100-V12-*	100	V 12	16.1	-	28	28	13	21	67	64	20	271
DIN 469-100-V14-*	100	V 14	16.1	-	28	28	13	21	67	64	20	264
DIN 469-125-B10-*	125	-	18.1	B 10	34	34	14	26	76	72	22	458
DIN 469-125-V14-*	125	V 14	18.1	-	34	34	14	26	76	72	22	434
DIN 469-125-V17-*	125	V 17	18.1	-	34	34	14	26	76	72	22	414
DIN 469-160-B14-*	160	-	22.2	B 14	38	38	14	29	83	80	25	677
DIN 469-160-V17-*	160	V 17	22.2	-	38	38	14	29	83	80	25	642
DIN 469-160-V19-*	160	V 19	22.2	-	38	38	14	29	83	80	25	604
DIN 469-200-B17-*	200	-	25.2	B 17	44	44	21	34	96.5	90	28	1021
DIN 469-200-V19-*	200	V 19	25.2	-	44	44	21	34	96.5	90	28	998
DIN 469-200-V22-*	200	V 22	25.2	-	44	44	21	34	96.5	90	28	970
DIN 469-250-B17-*	250	-	28.2	B 17	48	48	21	36	105.5	100	32	1412
DIN 469-250-V22-*	250	V 22	28.2	-	48	48	21	36	105.5	100	32	1332
DIN 469-250-V24-*	250	V 24	28.2	-	48	48	21	36	105.5	100	32	1281

Weight type F

Indexing cranked handles

SPECIFICATION

Bores

- Bore **B**: without keyway
- Bore **K**: with keyway

Body

Cast iron (GGG)

- deburred and shot-blasted
- hub machined

Handle

Steel, blackened

Indexing pin

Steel, hardened

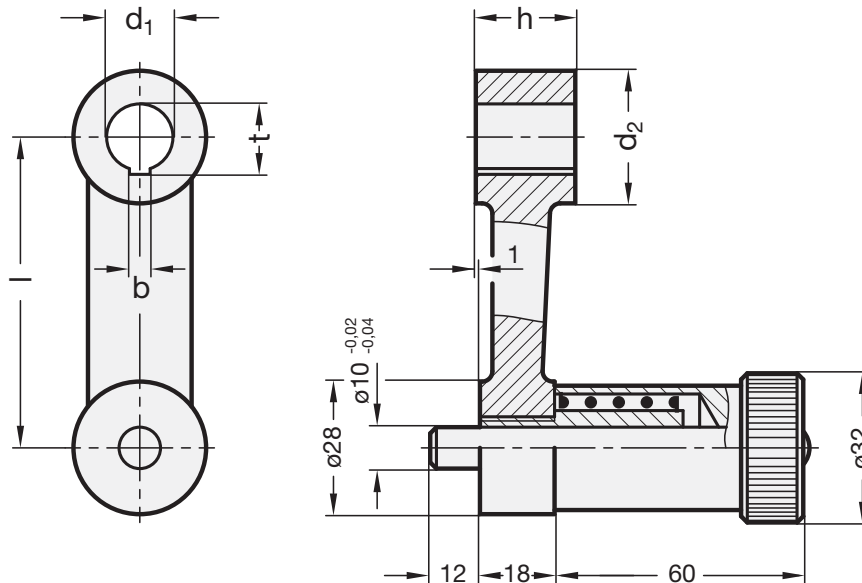
INFORMATION

Indexing cranked handles GN 558 are for positioning mechanisms.
Standard machine elements for positioning of spindles:

- Indexing mechanisms GN 200 (see page 622)
- Indexing levers GN 215 (see page 634)
- Adjustable knobs GN 700 (see page 624)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Keyway P9 DIN 6885 (see page A16)



GN 558

Description	l	d1 H7	d2	h	bp9	t	⚖
GN 558-75-B16	75	B 16	32	24	-	-	544
GN 558-75-K16	75	K 16	32	24	5	17.3	540
GN 558-90-B18	90	B 18	34	26	-	-	588
GN 558-90-K18	90	K 18	34	26	6	19.7	583
GN 558-110-B20	110	B 20	36	30	-	-	684
GN 558-110-K20	110	K 20	36	30	6	21.7	680
GN 558-135-B22	135	B 22	42	32	-	-	823
GN 558-135-K22	135	K 22	42	32	6	23.7	818
GN 558-165-B24	165	B 24	44	36	-	-	994
GN 558-165-K24	165	K 24	44	36	8	25.7	988

Control handles

Zinc die casting

SPECIFICATION

Body
Zinc die casting
plastic coated
black, textured finish

Cylindrical Revolving handles GN 598 (see page 573)

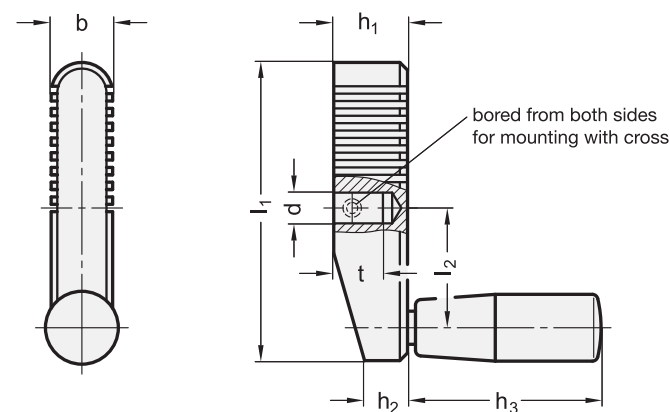
Plastic, Technopolymer
black, matt finish

INFORMATION

Control handles GN 112.1 allow fine adjustment.
They are connected to a shaft by means of a cross pin. To simplify the installation there is a centred drilling on both sides.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



Tri-ball handles

Steel

SPECIFICATION

Type

- Type **F**: with fixed handle

Steel

- turned
- zinc plated, blue passivated

Fixed handles DIN 39 (see page 565)

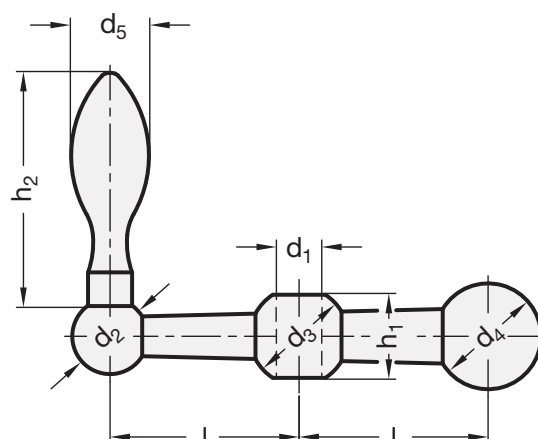
Steel zinc plated, blue passivated

INFORMATION

Tri-ball handles GN 10 allow fine adjustment.
An alternative in modern design are control handles GN 112.1 (see page 203)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 112.1

Description	l1	d	H7	b	h1	h2	h3 ≈	l2	t min.	Ø Hand-le	⚖
GN 112.1-70-S8	70	S 8	17	19	11.5	42.5	26.5	12	18	125	
GN 112.1-80-S8	80	S 8	18	21	12.5	52.5	31	12	21	170	
GN 112.1-90-S10	90	S 10	19	23	13.5	52.5	35.5	15	21	251	
GN 112.1-100-S10	100	S 10	20	25	14	67.5	40	17	23	320	
GN 112.1-100-S12	100	S 12	20	25	14	67.5	40	17	23	295	

GN 10

Description	No.	d1 H7	d2	d3	d4	d5	h1	h2 ≈	l	⚖
GN 10-100-B7-F	100	B 7	13	16	18	10	13	31	25	60
GN 10-101-B8-F	101	B 8	15	19	20	13	17	40	28	102
GN 10-102-B8-F	102	B 8	16	20	22	14	17	45	34	136
GN 10-103-B10-F	103	B 10	18	23	25	16	19.5	50	41	194
GN 10-104-B12-F	104	B 12	20	26	28	18	21.5	56	50	283

Balanced crank handles

Duroplast

MATERIAL

Reinforced phenolic based (PF) Duroplast. Polyamide based (PA) technopolymer for ME.95, black colour, glossy finish. Balancing by means of an incorporated counterweight

FRONT PLATE

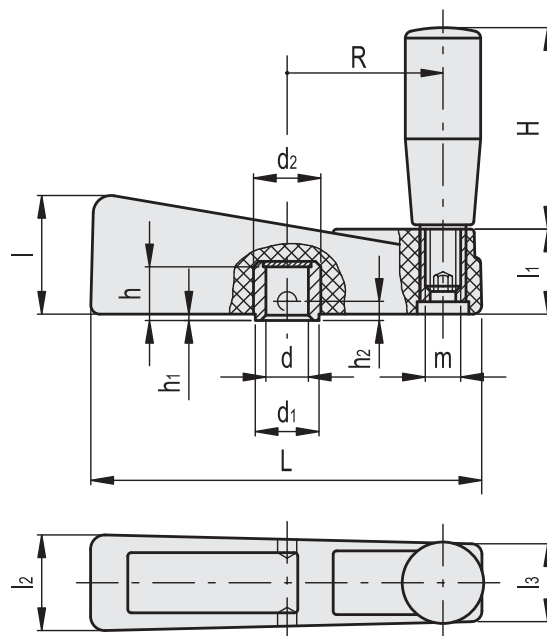
Matte anodised aluminium (ELESA original design).

STANDARD EXECUTION

Black-oxide steel boss, H7 reamed hole. Reamed hole provided with centres already drilled for pinning to shaft. Use pins with smaller diameter than the one of the already drilled hole to avoid local stress. Revolving handle I.301+x (see page 574) in Duroplast.



ELESA Original design



Code	Description	dH7	L	d1	d2	I	l1	l2	l3	h	h1	h2	H	m	R	△
38001	ME.65	8	65	13	14	23	18	22	19	13	1.5	6.5	40	M6	23	93
38101	ME.80	10	80	14	15	26	20	24	20	16	1.5	8	40	M6	30	102
38201	ME.95	10	94	14	15	29	22	26	22	19	1.5	8	50	M8	36	133
38301	ME.110	12	110	18	19	34	24	28	22	17.5	1.5	9	65	M10	44	260
38401	ME.140	12	140	18	19	37	26	30	24	17.5	1.5	9	80	M10	57	335

Balanced crank handle

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour matte finish. Balancing by means of an incorporated counterweight.

CENTRE CLOSING CAP

Technopolymer, black colour. On request and for sufficient quantities it can be supplied in other colours and customised with marks or words.

STANDARD EXECUTION

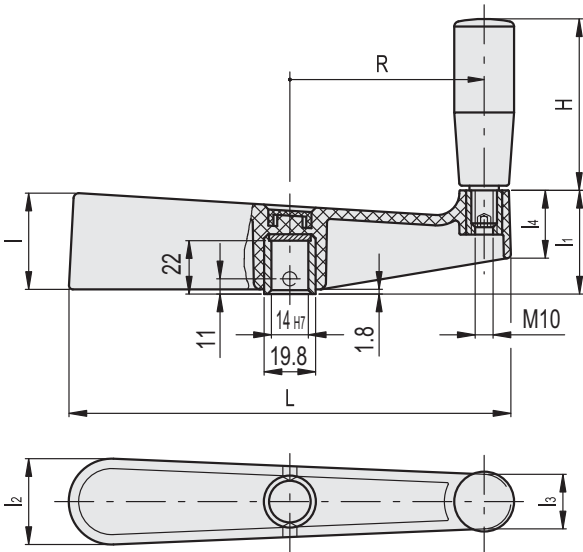
Black-oxide steel boss, H7 reamed hole.
Reamed hole provided with centres already drilled for pinning to shaft.
Revolving handle l.601+x (see page 575) in technopolymer.

FEATURES

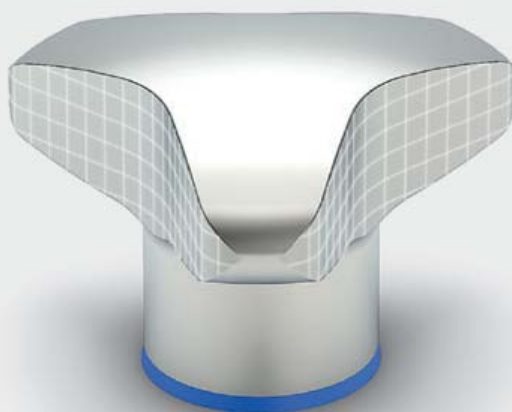
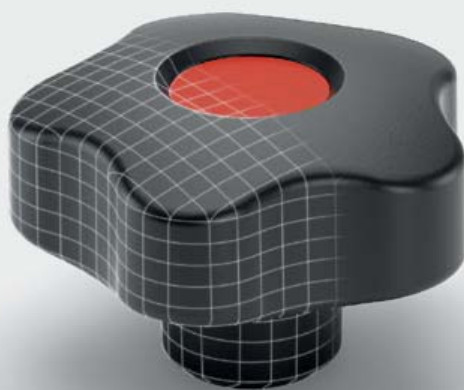
Its surface with matte finish allows a sensible grip during operation, even in case of short approach controls. The revolving handle makes high-speed rotation easier.



ELESA Original design



Code	Description	dH7	L	I	I1	I2	I3	I4	H	R	⚖
38901	METP.170	14	170	37	39	33	21	25	65	74	275



Three-arm knobs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

VB.639/130: glass-fibre reinforced polypropylene based (PP) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

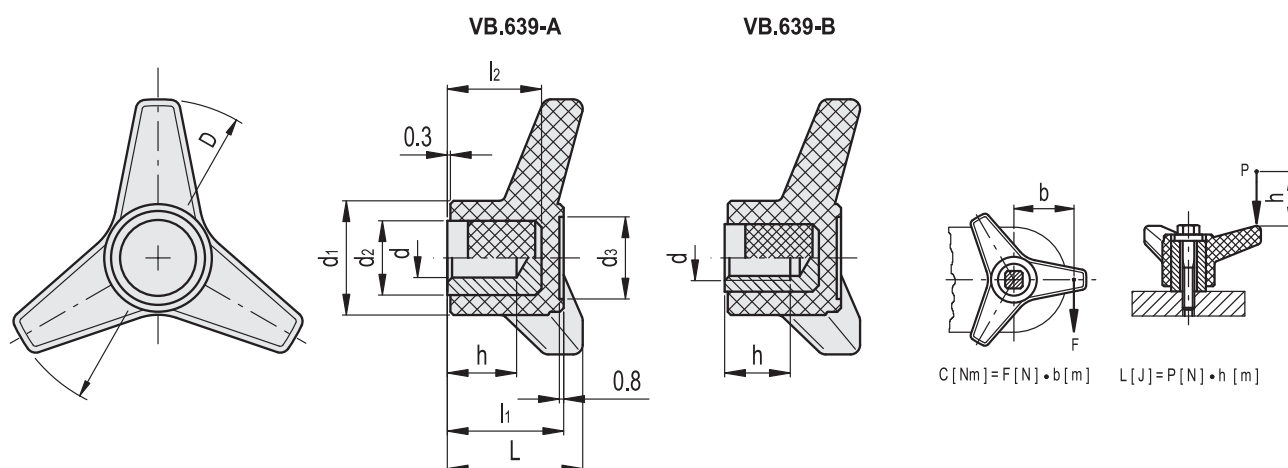
- **VB.639-A**: black-oxide steel boss, plain blind hole.
- **VB.639-B**: brass boss, threaded blind hole.
- **VB.639-FP**: brass boss, threaded pass-through hole.
- **VB.639-p**: zinc-plated steel threaded stud with chamfered flat end as in UNI 947 : ISO 4753 (see Technical data on page A11).
- **VB.639-SST**: AISI 303 stainless steel boss, threaded blind hole.

APPLICATIONS

This knob has been designed for heavy duty work where the use of a hammer for a firmer clamping action is required.



ELESA Original design



VB.639-A

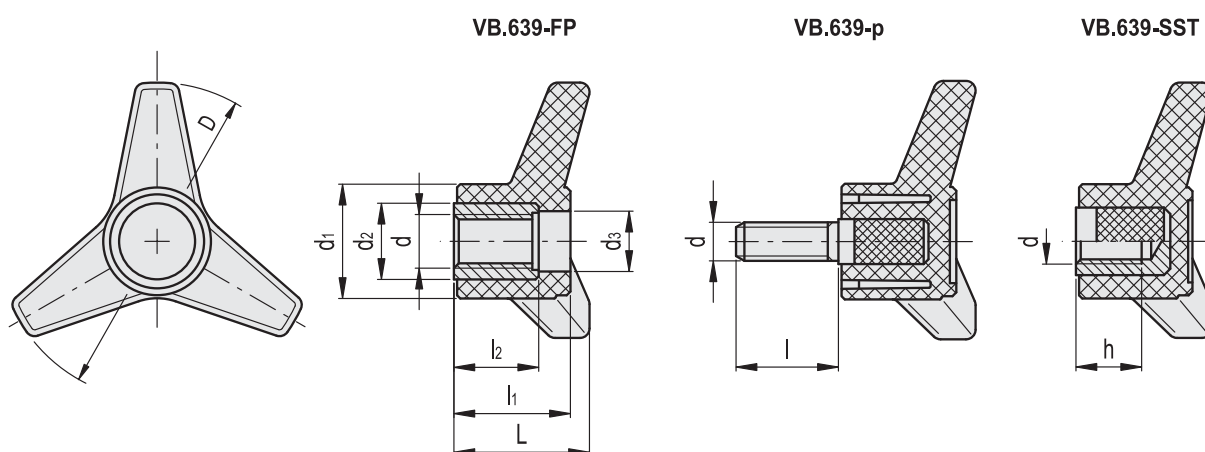
Code	Description	D	dH9	L	d1	d2	d3	l1	l2	h	C# [Nm]	L* [J]	⚖
65531	VB.639/45 A-6	45	6	25	19	12	12	22.5	17	14	11	2	40
65631	VB.639/63 A-6	63	6	28	26	15	18	25	23	18	30	7	55
65672	VB.639/80 A-8	80	8	35	32	15	21	30	25	20	80	6	75
65702	VB.639/100 A-10	100	10	42	36	20	25	36	25	21	110	8	130
65742	VB.639/130 A-12	130	12	47	43	20	29	40	31	24	135	9	180

VB.639-B

Code	Description	D	d6H	L	d1	d3	l1	h	C# [Nm]	L* [J]	⚖
65541	VB.639/45 B-M6	45	M6	25	19	12	22.5	12	11	2	33
65545	VB.639/45 B-M8	45	M8	25	19	12	22.5	13	11	2	30
65635	VB.639/63 B-M8	63	M8	28	26	18	25	15	30	7	48
65636	VB.639/63 B-M10	63	M10	28	26	18	25	17	30	7	40
65675	VB.639/80 B-M10	80	M10	35	32	21	30	17	80	6	60
65676	VB.639/80 B-M12	80	M12	35	32	21	30	17	80	6	67
65705	VB.639/100 B-M12	100	M12	42	36	25	36	20	110	8	96
65706	VB.639/100 B-M14	100	M14	42	36	25	36	20	110	8	105
65745	VB.639/130 B-M16	130	M16	47	43	29	40	22	135	9	162

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

*For impact strength (L) see Technical Data on page A3.



VB.639-FP

Code	Description	D	d6H	L	d1	d2	d3	l1	l2	C# [Nm]	L* [J]	⚖
65551	VB.639/45 FP-M6	45	M6	25	19	8	9	22.5	12	11	2	30
65555	VB.639/45 FP-M8	45	M8	25	19	11	10	22.5	12	11	2	27
65641	VB.639/63 FP-M10	63	M10	28	27	16	13	25	21	30	7	47
65642	VB.639/63 FP-M12	63	M12	28	27	16	13	25	21	30	7	50
65681	VB.639/80 FP-M12	80	M12	35	32	18	17	30	25	80	7	77
65711	VB.639/100 FP-M16	100	M16	42	36	20	20	37	31	110	8	105
65751	VB.639/130 FP-M16	130	M16	47	43	24	22	40	34	135	9	157

VB.639-p

Code	Description	D	d6g	L	d1	d3	l	l1	C# [Nm]	L* [J]	⚖
65561	VB.639/45 p-M6x20	45	M6	25	19	12	20	22.5	10	2	29
65565	VB.639/45 p-M8x25	45	M8	25	19	12	25	22.5	23	2	31
65652	VB.639/63 p-M8x25	63	M8	28	26	18	25	25	30	7	44
65692	VB.639/80 p-M10x30	80	M10	35	32	21	30	30	80	7	78
65722	VB.639/100 p-M12x40	100	M12	42	36	25	40	36	110	8	126

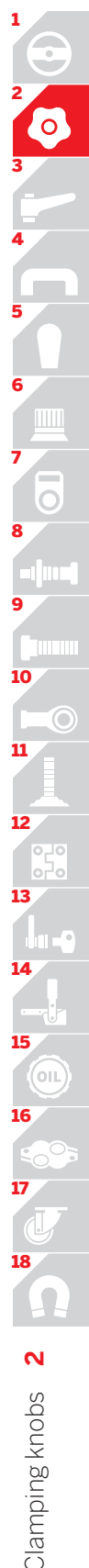
VB.639-SST

STAINLESS STEEL

Code	Description	D	d6H	L	d1	d3	l1	h	C# [Nm]	L* [J]	⚖
65548	VB.639/45 SST-M6	45	M6	25	19	12	22.5	12	11	2	34
65638	VB.639/63-SST-M8	63	M8	28	26	18	25	15	30	7	49
65678	VB.639/80-SST-M10	80	M10	35	32	21	30	17	80	6	61
65708	VB.639/100-SST-M12	100	M12	42	36	25	36	20	110	8	97
65748	VB.639/130-SST-M16	130	M16	47	43	29	40	22	135	9	164

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

*For impact strength (L) see Technical Data on page A3.



Knobs with solid section

Technopolymer, easy cleaning

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

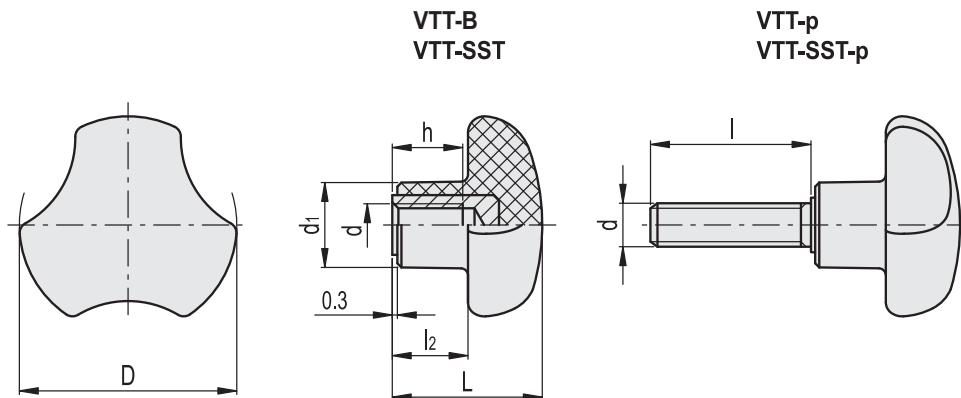
- **VTT**: brass boss, threaded blind hole.
- **VTT-SST**: AISI 304 stainless steel boss, threaded blind hole.
- **VTT-p**: zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).
- **VTT-SST-p**: AISI 304 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

FEATURES AND APPLICATIONS

The three-lobed shape with large recesses is particularly ergonomic also for smaller knobs, ensuring an effective grip even with work gloves. The design without rear recesses, generally suitable for reducing thickness, prevents unhealthy residues from depositing, ensuring maximum easy cleaning. Particularly suitable for applications on machines and equipment whose parts must be frequently cleaned by using water jets or steam.



ELESA Original design



VTT

Code	Description	D	d6H	L	d1	l2	h	△
167106	VTT.25-B-M5	25	M5	20	12	10	10	9
167216	VTT.32-B-M6	32	M6	23	14	11.5	10	19
167336	VTT.40-B-M8	40	M8	27	16	13.5	13	23
167466	VTT.50-B-M10	50	M10	30	19	15	17	36

VTT-SST

STAINLESS STEEL

Code	Description	D	d6H	L	d1	l2	h	△
167116	VTT.25-SST-M5	25	M5	20	12	10	10	9
167226	VTT.32-SST-M6	32	M6	23	14	11.5	10	19
167346	VTT.40-SST-M8	40	M8	27	16	13.5	13	24
167476	VTT.50-SST-M10	50	M10	30	19	15	17	37

VTT-p

Code	Description	D	d6g	L	d1	l	l2	△
167151	VTT.25-p-M5x10	25	M5	20	12	10	10	8
167152	VTT.25-p-M5x16	25	M5	20	12	16	10	9
167252	VTT.32-p-M6x16	32	M6	23	14	16	11.5	15
167253	VTT.32-p-M6x20	32	M6	23	14	20	11.5	16
167254	VTT.32-p-M6x30	32	M6	23	14	30	11.5	19
167371	VTT.40-p-M8x20	40	M8	27	16	20	13.5	27
167373	VTT.40-p-M8x30	40	M8	27	16	30	13.5	31
167375	VTT.40-p-M8x40	40	M8	27	16	40	13.5	35
167481	VTT.50-p-M10x20	50	M10	30	19	20	15	46
167483	VTT.50-p-M10x30	50	M10	30	19	30	15	56
167485	VTT.50-p-M10x40	50	M10	30	19	40	15	66

VTT-SST-p

STAINLESS STEEL

Code	Description	D	d6g	L	d1	l	l2	△
167161	VTT.25-SST-p-M5x10	25	M5	20	12	10	10	8
167162	VTT.25-SST-p-M5x16	25	M5	20	12	16	10	9
167262	VTT.32-SST-p-M6x16	32	M6	23	14	16	11.5	15
167263	VTT.32-SST-p-M6x20	32	M6	23	14	20	11.5	16
167264	VTT.32-SST-p-M6x30	32	M6	23	14	30	11.5	19
167381	VTT.40-SST-p-M8x20	40	M8	27	16	20	13.5	28
167383	VTT.40-SST-p-M8x30	40	M8	27	16	30	13.5	32
167385	VTT.40-SST-p-M8x40	40	M8	27	16	40	13.5	36
167491	VTT.50-SST-p-M10x20	50	M10	30	19	20	15	47
167493	VTT.50-SST-p-M10x30	50	M10	30	19	30	15	57
167495	VTT.50-SST-p-M10x40	50	M10	30	19	40	15	67

Ergonomic Design

Three ample lobes to offer a safe and effective grip to the operator even with smaller diameters when wearing gloves too.



Easy cleaning

The absence of recesses prevent unhealthy residues or dust from depositing ensuring maximum cleaning.

Knobs with solid section

Technopolymer, easy cleaning

MATERIAL

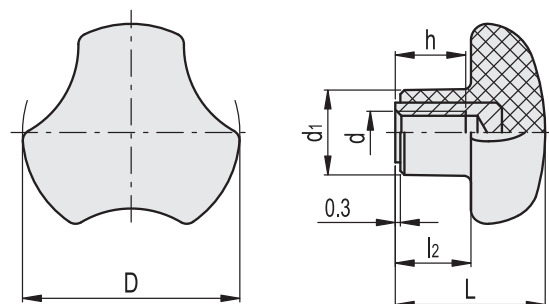
Glass-fibre reinforced polyamide based (PA) technopolymer, white colour similar to RAL 9002, matte finish.

STANDARD EXECUTION

AISI 304 stainless steel boss, threaded blind hole.



ELESA Original design



STAINLESS STEEL

Code	Description	D	d6H	L	d1	l2	h	△
151752	VTT.25-SST-M5 CLEAN	25	M5	20	12	10	10	9
151762	VTT.32-SST-M6 CLEAN	32	M6	23	14	11.5	10	19
151772	VTT.40-SST-M8 CLEAN	40	M8	27	16	13.5	13	24
151782	VTT.50-SST-M10 CLEAN	50	M10	30	19	15	17	37



Clamping knobs 2

Knobs with solid section

with retaining chain, technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

Elastic fork in acetal based technopolymer (POM), black colour.

RETAINING CHAIN

Ball cable and coupling heads in acetal resin based (POM) technopolymer, black colour.

NERINOX treated stainless steel ring with two coils.

Head fastening by means of a self-tapping screw $\varnothing 4.8$ mm UNI EN ISO 7050 or a M5 countersunk-head screw UNI EN ISO 10642.

STANDARD EXECUTIONS

- **VTT-B-LP**: brass boss, threaded blind hole.
- **VTT-SST-LP**: AISI 304 stainless steel boss, threaded blind hole.
- **VTT-p-LP**: zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).
- **VTT-SST-p-LP**: AISI 304 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS

Suitable where it is necessary to prevent the loss of the knob.

The elastic fork, housed in the groove of the knob can turn freely. The coiled ring connects the fork to the chain.

The three-lobe shape with large recesses is particularly ergonomic also for smaller knobs, ensuring an effective grip even with work gloves.

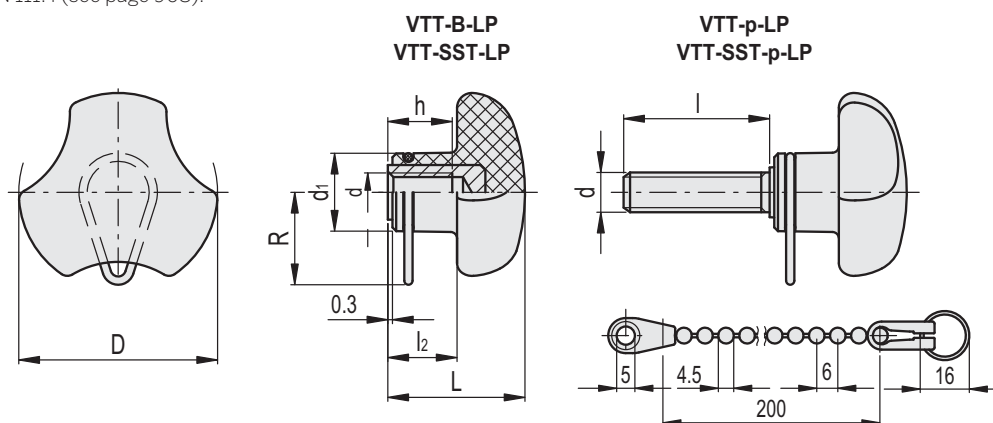
The design without rear cavities, generally suitable for reducing thickness, prevents unhealthy residues from depositing, ensuring easy cleaning. Particularly suitable for applications on machines and equipment whose parts must be frequently cleaned by using water jets or steam.

SPECIAL EXECUTIONS ON REQUEST

- Chain in different lengths.
- Knob with stainless steel cable GN 111 (see page 904), GN 111.2 (see page 906) and GN 111.4 (see page 908).



ELESA Original design



VTT-B-LP

VTT-SST-LP

STAINLESS STEEL

Code	Description	Code	Description	D	d6H	L	d1	l2	h	R	△
168106	VTT.25-B-M5-LP	168116	VTT.25-SST-M5-LP	25	M5	20	12	10	10	20	12
168216	VTT.32-B-M6-LP	168226	VTT.32-SST-M6-LP	32	M6	23	14	11.5	10	21	22
168336	VTT.40-B-M8-LP	168346	VTT.40-SST-M8-LP	40	M8	27	16	13.5	13	21.5	26
168466	VTT.50-B-M10-LP	168476	VTT.50-SST-M10-LP	50	M10	30	19	15	17	22.5	39

VTT-p-LP

VTT-SST-p-LP

STAINLESS STEEL

Code	Description	Code	Description	D	d6g	L	d1	l	l2	R	△
168152	VTT.25-p-M5x16-LP	168162	VTT.25-SST-p-M5x16-LP	25	M5	20	12	16	10	20	12
168253	VTT.32-p-M6x20-LP	168263	VTT.32-SST-p-M6x20-LP	32	M6	23	14	20	11.5	21	19
168373	VTT.40-p-M8x30-LP	168383	VTT.40-SST-p-M8x30-LP	40	M8	27	16	30	13.5	21.5	34
168485	VTT.50-p-M10x40-LP	168495	VTT.50-SST-p-M10x40-LP	50	M10	30	19	40	15	22.5	69

Stainless Steel- Three lobe knobs

Material AISI 303 (A2)

SPECIFICATION

Types

- Type **A**: without bore
- Type **E**: with threaded blind bore
- Type **D**: with threaded through bore
- Type **C**: with plain blind bore H7

Stainless Steel AISI 303

Stainless Steel AISI 316L (A4)

matt shot-blasted

INFORMATION

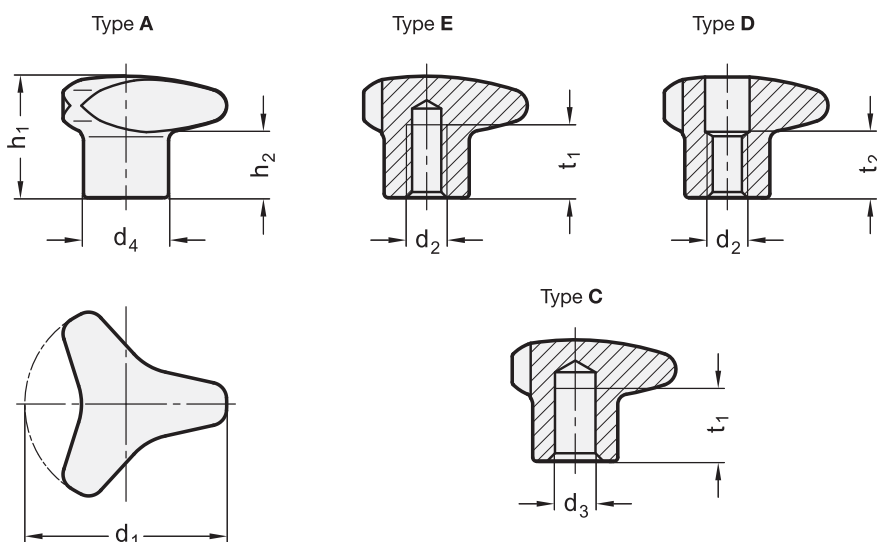
Stainless Steel-Three lobe knobs GN 5345 have a smooth and sealed surface. They are particularly suitable for use where hygiene requirements are high. Their shape allows relatively high torques to be applied.

ON REQUEST

- highly polished (PL)

TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



GN 5345

STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h1	h2	t1 min.	t2	⚖
GN 5345-40-A	40	-	-	18	26	15	-	-	76
GN 5345-50-A	50	-	-	21	30	17	-	-	127
GN 5345-60-A	60	-	-	25	35	18	-	-	216
GN 5345-40-B8-C	40	-	B 8	18	26	15	15	-	70
GN 5345-50-B10-C	50	-	B 10	21	30	17	18	-	114
GN 5345-60-B12-C	60	-	B 12	25	35	18	22	-	195
GN 5345-40-M6-D	40	M 6	-	18	26	15	-	13	70
GN 5345-40-M8-D	40	M 8	-	18	26	15	-	13	67
GN 5345-50-M8-D	50	M 8	-	21	30	17	-	16	115
GN 5345-50-M10-D	50	M 10	-	21	30	17	-	16	109
GN 5345-60-M10-D	60	M 10	-	25	35	18	-	20	193
GN 5345-60-M12-D	60	M 12	-	25	35	18	-	20	185
GN 5345-40-M6-E	40	M 6	-	18	26	15	12	-	74
GN 5345-40-M8-E	40	M 8	-	18	26	15	15	-	70
GN 5345-50-M8-E	50	M 8	-	21	30	17	15	-	119
GN 5345-50-M10-E	50	M 10	-	21	30	17	18	-	115
GN 5345-60-M10-E	60	M 10	-	25	35	18	18	-	202
GN 5345-60-M12-E	60	M 12	-	25	35	18	22	-	195

GN 5345.4

STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h1	h2	t1 min.	t2	⚖
GN 5345.4-40-A	40	-	-	18	26	15	-	-	96
GN 5345.4-50-A	50	-	-	21	30	17	-	-	128
GN 5345.4-60-A	60	-	-	25	35	18	-	-	219
GN 5345.4-40-B8-C	40	-	B 8	18	26	15	15	-	70
GN 5345.4-50-B10-C	50	-	B 10	21	30	17	18	-	115
GN 5345.4-60-B12-C	60	-	B 12	25	35	18	22	-	192
GN 5345.4-40-M6-D	40	M 6	-	18	26	15	-	13	60
GN 5345.4-40-M8-D	40	M 8	-	18	26	15	-	13	67
GN 5345.4-50-M8-D	50	M 8	-	21	30	17	-	16	117
GN 5345.4-50-M10-D	50	M 10	-	21	30	17	-	16	111
GN 5345.4-60-M10-D	60	M 10	-	25	35	18	-	20	197
GN 5345.4-60-M12-D	60	M 12	-	25	35	18	-	20	188
GN 5345.4-40-M6-E	40	M 6	-	18	26	15	12	-	77
GN 5345.4-40-M8-E	40	M 8	-	18	26	15	15	-	71
GN 5345.4-50-M8-E	50	M 8	-	21	30	17	15	-	120
GN 5345.4-50-M10-E	50	M 10	-	21	30	17	18	-	115
GN 5345.4-60-M10-E	60	M 10	-	25	35	18	18	-	202
GN 5345.4-60-M12-E	60	M 12	-	25	35	18	22	-	195



Lobe knobs

Technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish. VCT.25: glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

COLOURED CENTRE CAP

Technopolymer, matte finish. Not available for VCT.25.

To order, add the index of the desired colour (C9, ..., C6) to the code and the description.

On request and for sufficient quantities it can be supplied in other colours or with customised graphic symbols, marks or writings.

STANDARD EXECUTIONS

- **VCT-A:** black-oxide steel boss, plain blind hole.
- **VCT-B:** brass boss, threaded blind hole (VCT.25 - 95) or threaded pass-through hole (VCT.32 - 40 - 50 - 63 - 74).
- **VCT.FP:** brass boss, threaded pass-through hole.
- **VCT-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

ACCESSORIES ON REQUEST

Coloured centre caps (see table).



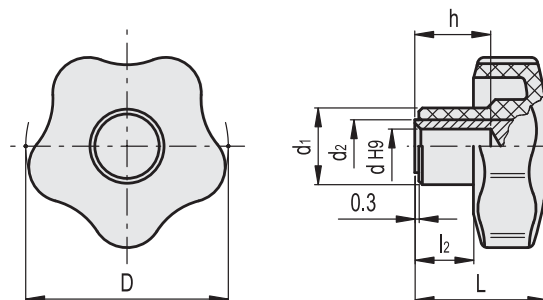
ELESA Original design

Cap for	C9	C2	C3	C4	C5	C6	Description
	Code						
VCT.32	6900	6903	6904	6905	6906	6901	CA.VCT.32-*
VCT.40	6910	6913	6914	6915	6916	6911	CA.VCT.40-*
VCT.50	6920	6923	6924	6925	6926	6921	CA.VCT.50-*
VCT.63-74-95	6930	6933	6934	6935	6936	6931	CA.VCT.63-74-95-*

* Complete with colour index (C9, ..., C6).

C9	C2	C3	C4	C5	C6
RAL9005	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

VCT-A

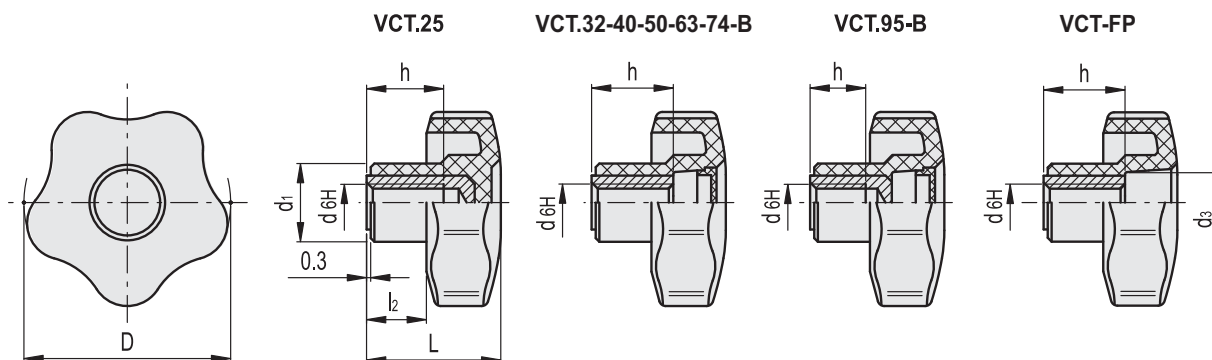


* Complete with colour index, example: 69841-C2 VCT.32 A-6-C2

C9	C2	C3	C4	C5	C6
RAL9005	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

VCT-A

Code	Description	D	dH9	L	d1	d2	l2	h	⚖
69892-*	VCT.40 A-8-*	40	8	27	17	12	12	14	36
69951-*	VCT.50 A-8-*	50	8	32	19	12	14	14	37
69952-*	VCT.50 A-10-*	50	10	32	19	15	14	16	34
70001-*	VCT.63 A-8-*	63	8	37	22	15	16	20	52
70002-*	VCT.63 A-10-*	63	10	37	22	16	16	21	49
70051-*	VCT.74 A-8-*	74	8	43.5	26	15	22	20	65



* Complete with colour index, example: 69843-C2 VCT.32 B-M5-C2

C9	C2	C3	C4	C5	C6
RAL9005	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

VCT-B

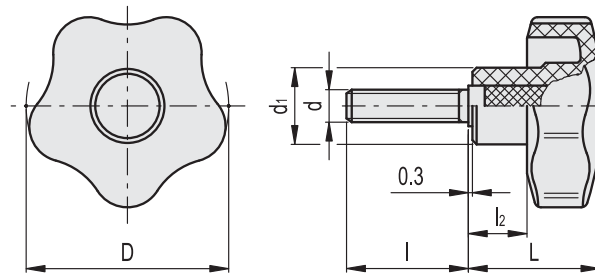
Code	Description	D	d6H	L	d1	l2	h	C# [Nm]	⚖
69811-C9	VCT.25 B-M4-C9	25	M4	19	13	8	10	6	7
69812-C9	VCT.25 B-M5-C9	25	M5	19	13	8	10	7	6
69813-C9	VCT.25 B-M6-C9	25	M6	19	13	8	10	7	5
69843-*	VCT.32 B-M5-*	32	M5	23	15	10	12	10	11
69844-*	VCT.32 B-M6-*	32	M6	23	15	10	12	10	10
69845-*	VCT.32 B-M8-*	32	M8	23	15	10	12	10	9
69893-*	VCT.40 B-M6-*	40	M6	27	17	12	18	16	26
69894-*	VCT.40 B-M8-*	40	M8	27	17	12	18	18	24
69895-*	VCT.40 B-M10-*	40	M10	27	17	12	17	18	23
69953-*	VCT.50 B-M8-*	50	M8	32	19	14	20	25	38
69954-*	VCT.50 B-M10-*	50	M10	32	19	14	20	27	34
69955-*	VCT.50 B-M12-*	50	M12	32	19	14	20	27	30
70012-*	VCT.63 B-M8-*	63	M8	37	22	16	26	48	45
70013-*	VCT.63 B-M10-*	63	M10	37	22	16	26	50	42
70014-*	VCT.63 B-M12-*	63	M12	37	22	16	26	50	40
70062-*	VCT.74 B-M12-*	74	M12	43.5	26	22	26	60	57
70063-*	VCT.74 B-M14-*	74	M14	43.5	26	22	26	65	53
70064-*	VCT.74 B-M16-*	74	M16	43.5	26	22	31	69	55
70097-*	VCT.95 B-M16-*	95	M16	46	32	21	22	100	109

VCT.FP

Code	Description	D	d6H	L	d1	d3	l2	h	⚖
69847	VCT.32 FP-M5	32	M5	23	15	10	10	12	11
69848	VCT.32 FP-M6	32	M6	23	15	10	10	12	10
69849	VCT.32 FP-M8	32	M8	23	15	10	10	12	9
69897	VCT.40 FP-M6	40	M6	27	17	12	12	18	26
69898	VCT.40 FP-M8	40	M8	27	17	12	12	18	24
69899	VCT.40 FP-M10	40	M10	27	17	12	12	17	23
69956	VCT.50 FP-M8	50	M8	32	19	15	14	20	38
69957	VCT.50 FP-M10	50	M10	32	19	15	14	20	34
69958	VCT.50 FP-M12	50	M12	32	19	15	14	20	30
70016	VCT.63 FP-M8	63	M8	37	22	19	16	26	44
70017	VCT.63 FP-M10	63	M10	37	22	19	16	26	42
70018	VCT.63 FP-M12	63	M12	37	22	19	16	26	40
70067	VCT.74 FP-M12	74	M12	43.5	26	17	22	26	56
70068	VCT.74 FP-M14	74	M14	43.5	26	17	22	26	52
70069	VCT.74 FP-M16	74	M16	43.5	26	17	22	31	54

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

VCT-p



* Complete with colour index, example: 69872-C2 VCT.32 p-M5x20-C2

C9
RAL9005C2
RAL2004C3
RAL7035C4
RAL1021C5
RAL5024C6
RAL3000

VCT-p

Code	Description	D	d6g	L	d1	l	l2	C#	[Nm]
69816-C9	VCT.25 p-M4x6-C9	25	M4	19	13	6	8	5	5
69817-C9	VCT.25 p-M4x10-C9	25	M4	19	13	10	8	5	6
69821-C9	VCT.25 p-M5x10-C9	25	M5	19	13	10	8	6	7
69822-C9	VCT.25 p-M5x16-C9	25	M5	19	13	16	8	6	8
69823-C9	VCT.25 p-M5x20-C9	25	M5	19	13	20	8	6	9
69824-C9	VCT.25 p-M5x25-C9	25	M5	19	13	25	8	6	10
69825-C9	VCT.25 p-M5x30-C9	25	M5	19	13	30	8	6	12
69826-C9	VCT.25 p-M5x40-C9	25	M5	19	13	40	8	6	14
69831-C9	VCT.25 p-M6x10-C9	25	M6	19	13	10	8	6	8
69832-C9	VCT.25 p-M6x16-C9	25	M6	19	13	16	8	6	9
69833-C9	VCT.25 p-M6x20-C9	25	M6	19	13	20	8	6	10
69835-C9	VCT.25 p-M6x25-C9	25	M6	19	13	25	8	6	11
69834-C9	VCT.25 p-M6x30-C9	25	M6	19	13	30	8	6	13
69836-C9	VCT.25 p-M6x40-C9	25	M6	19	13	40	8	6	15
69872-*	VCT.32 p-M5x20-*	32	M5	23	15	20	10	6	13
69851-*	VCT.32 p-M6x16-*	32	M6	23	15	16	10	8	13
69852-*	VCT.32 p-M6x20-*	32	M6	23	15	20	10	8	14
69853-*	VCT.32 p-M6x25-*	32	M6	23	15	25	10	8	15
69854-*	VCT.32 p-M6x30-*	32	M6	23	15	30	10	8	16
69856-*	VCT.32 p-M6x40-*	32	M6	23	15	40	10	8	18
69858-*	VCT.32 p-M6x50-*	32	M6	23	15	50	10	8	20
69859-*	VCT.32 p-M8x16-*	32	M8	23	15	16	10	8	14
69861-*	VCT.32 p-M8x20-*	32	M8	23	15	20	10	8	18
69863-*	VCT.32 p-M8x30-*	32	M8	23	15	30	10	8	21
69865-*	VCT.32 p-M8x40-*	32	M8	23	15	40	10	8	24
69867-*	VCT.32 p-M8x50-*	32	M8	23	15	50	10	8	26
69901-*	VCT.40 p-M6x20-*	40	M6	27	17	20	12	13	18
69902-*	VCT.40 p-M6x25-*	40	M6	27	17	25	12	13	19
69903-*	VCT.40 p-M6x30-*	40	M6	27	17	30	12	13	20
69911-*	VCT.40 p-M8x16-*	40	M8	27	17	16	12	16	23
69912-*	VCT.40 p-M8x20-*	40	M8	27	17	20	12	16	24
69913-*	VCT.40 p-M8x25-*	40	M8	27	17	25	12	16	26
69914-*	VCT.40 p-M8x30-*	40	M8	27	17	30	12	16	27
69915-*	VCT.40 p-M8x35-*	40	M8	27	17	35	12	16	28
69916-*	VCT.40 p-M8x40-*	40	M8	27	17	40	12	16	30
69917-*	VCT.40 p-M8x45-*	40	M8	27	17	45	12	16	32
69918-*	VCT.40 p-M8x50-*	40	M8	27	17	50	12	16	35
69919-*	VCT.40 p-M8x55-*	40	M8	27	17	55	12	16	36
69931-*	VCT.40 p-M10x20-*	40	M10	27	17	20	12	18	26
69933-*	VCT.40 p-M10x25-*	40	M10	27	17	25	12	18	28
69935-*	VCT.40 p-M10x30-*	40	M10	27	17	30	12	18	30
69937-*	VCT.40 p-M10x40-*	40	M10	27	17	40	12	18	32
69939-*	VCT.40 p-M10x50-*	40	M10	27	17	50	12	18	34

VCT-p

Code	Description	D	d6g	L	d1	l	l2	C#	[Nm]
69960-*	VCT.50 p-M8x16-*	50	M8	32	19	16	14	16	26
69961-*	VCT.50 p-M8x20-*	50	M8	32	19	20	14	16	28
69962-*	VCT.50 p-M8x25-*	50	M8	32	19	25	14	16	30
69963-*	VCT.50 p-M8x30-*	50	M8	32	19	30	14	16	31
69965-*	VCT.50 p-M8x40-*	50	M8	32	19	40	14	16	33
69967-*	VCT.50 p-M8x50-*	50	M8	32	19	50	14	16	35
69971-*	VCT.50 p-M10x20-*	50	M10	32	19	20	14	23	36
69972-*	VCT.50 p-M10x25-*	50	M10	32	19	25	14	23	39
69973-*	VCT.50 p-M10x30-*	50	M10	32	19	30	14	23	41
69975-*	VCT.50 p-M10x40-*	50	M10	32	19	40	14	23	46
69977-*	VCT.50 p-M10x50-*	50	M10	32	19	50	14	23	51
69979-*	VCT.50 p-M10x60-*	50	M10	32	19	60	14	23	55
69981-*	VCT.50 p-M12x20-*	50	M12	32	19	20	14	25	39
69983-*	VCT.50 p-M12x30-*	50	M12	32	19	30	14	25	44
69985-*	VCT.50 p-M12x40-*	50	M12	32	19	40	14	25	49
69987-*	VCT.50 p-M12x50-*	50	M12	32	19	50	14	25	54
69989-*	VCT.50 p-M12x60-*	50	M12	32	19	60	14	25	59
70021-*	VCT.63 p-M10x20-*	63	M10	37	22	20	16	37	54
70023-*	VCT.63 p-M10x30-*	63	M10	37	22	30	16	37	59
70025-*	VCT.63 p-M10x40-*	63	M10	37	22	40	16	37	64
70027-*	VCT.63 p-M10x50-*	63	M10	37	22	50	16	37	69
70029-*	VCT.63 p-M10x60-*	63	M10	37	22	60	16	37	74
70032-*	VCT.63 p-M12x30-*	63	M12	37	22	30	16	46	67
70033-*	VCT.63 p-M12x40-*	63	M12	37	22	40	16	46	73
70036-*	VCT.63 p-M12x50-*	63	M12	37	22	50	16	46	79
70039-*	VCT.63 p-M12x60-*	63	M12	37	22	60	16	46	85
70083-*	VCT.74 p-M12x30-*	74	M12	43.5	26	30	22	68	86
70085-*	VCT.74 p-M12x50-*	74	M12	43.5	26	50	22	68	98
70087-*	VCT.74 p-M12x70-*	74	M12	43.5	26	70	22	68	110
70095-*	VCT.74 p-M14x50-*	74	M14	43.5	26	50	22	78	106
70099-*	VCT.95 p-M16x50-*	95	M16	46	32	50	21	138	175

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

Lobe knobs

Technopolymer certified self-extinguish

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer certified self-extinguishing UL-94 V0.

STANDARD EXECUTION

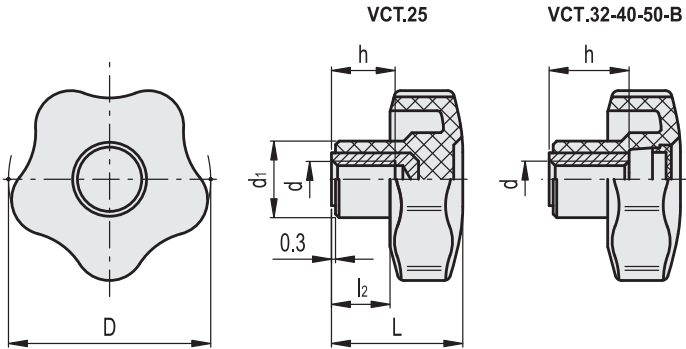
Brass boss with threaded blind hole (VCT.25) or pass-through hole (VCT. from 32 to 50).

TECHNICAL DATA

In long-term thermal ageing tests, with a maximum decrease in critical mechanical properties by 50%, the relative temperature index UL 746 B (RTI) was equal to 65.
The "V0" certification in accordance with UL-94 V (Underwriters Laboratories) (see page A5) indicates that on a plastic test sample with specific shape and dimensions, in the vertical position, the flame is extinguished within 10 seconds, without generating incandescent drops.



ELESA Original design



Code	Description	D	d6H	L	d1	l2	h	⚖
150534	VCT.25 AE-V0 B-M5	25	M5	19	13	8	10	6
150544	VCT.32 AE-V0 B-M6	32	M6	23	15	10	12	11
150564	VCT.40 AE-V0 B-M8	40	M8	27	17	12	18	24
150584	VCT.50 AE-V0 B-M10	50	M10	32	19	14	26	34

Lobe knobs

with retaining chain, technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

Technopolymer centre cap, black colour, matte finish. Not available for VCT.25.

Elastic fork in acetal based technopolymer (POM), black colour.

RETAINING CHAIN

Ball cable and coupling heads in acetal resin based (POM) technopolymer, black colour.

NERINOX treated stainless steel ring with two coils.

Head fastening by means of a self-tapping screw $\varnothing 4.8$ mm UNI EN ISO 7050 or a M5 countersunk-head screw UNI EN ISO 10642.

STANDARD EXECUTION

- **VCT-B-LP**: brass boss, threaded pass-through hole.
- **VCT-p-LP**: zinc-plated steel threaded stud chamfered flat end according to UNI 947: ISO 4753 (see Technical data on page A11).

FEATURES AND APPLICATIONS

The elastic fork, housed in the groove of the knob can turn freely. The coiled ring connects the fork to the chain.

Suitable where it is necessary to prevent the loss of the knob.

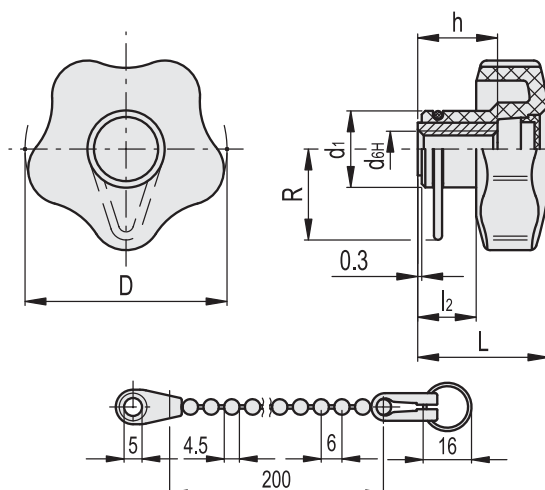
SPECIAL EXECUTIONS ON REQUEST

- Chain in different lengths.
- Knob with stainless steel cable GN 111 (see page 904), GN 111.2 (see page 906) and GN 111.4 (see page 908).



ELESA Original design

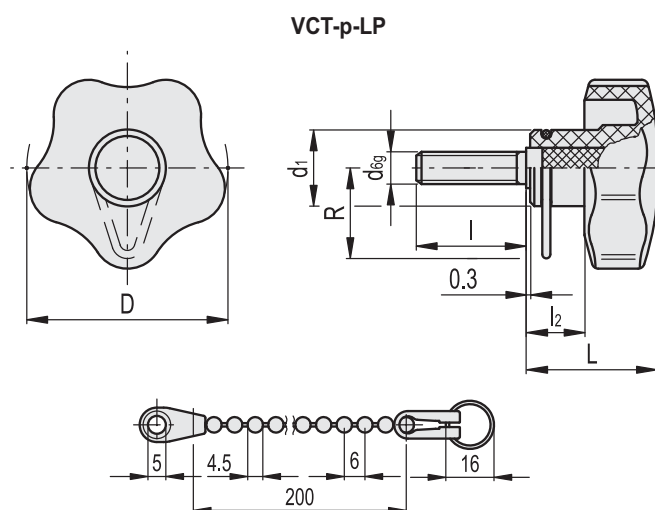
VCT-B-LP



VCT-B-LP

Code	Description	D	d6H	L	d1	l2	h	R	C# [Nm]	
69512-C9	VCT.25 B-M5-LP-C9	25	M5	19	13	8	10	20	7	10
69544-C9	VCT.32 B-M6-LP-C9	32	M6	23	15	10	12	21	10	14
69594-C9	VCT.40 B-M8-LP-C9	40	M8	27	17	12	18	21.5	18	24
69654-C9	VCT.50 B-M10-LP-C9	50	M10	32	19	14	20	22.5	27	34
69714-C9	VCT.63 B-M12-LP-C9	63	M12	37	22	16	26	24	50	44

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

**VCT-p-LP**

Code	Description	D	d6g	L	d1	l	l2	R	C# [Nm]	⚖
69521-C9	VCT.25 p-M5x10-LP-C9	25	M5	19	13	10	8	20	6	9
69522-C9	VCT.25 p-M5x16-LP-C9	25	M5	19	13	16	8	20	6	10
69523-C9	VCT.25 p-M5x20-LP-C9	25	M5	19	13	20	8	20	6	11
69524-C9	VCT.25 p-M5x25-LP-C9	25	M5	19	13	25	8	20	6	12
69551-C9	VCT.32 p-M6x16-LP-C9	32	M6	23	15	16	10	21	8	15
69552-C9	VCT.32 p-M6x20-LP-C9	32	M6	23	15	20	10	21	8	16
69553-C9	VCT.32 p-M6x25-LP-C9	32	M6	23	15	25	10	21	8	17
69554-C9	VCT.32 p-M6x30-LP-C9	32	M6	23	15	30	10	21	8	18
69612-C9	VCT.40 p-M8x20-LP-C9	40	M8	27	17	20	12	21.5	16	26
69613-C9	VCT.40 p-M8x25-LP-C9	40	M8	27	17	25	12	21.5	16	28
69614-C9	VCT.40 p-M8x30-LP-C9	40	M8	27	17	30	12	21.5	16	29
69616-C9	VCT.40 p-M8x40-LP-C9	40	M8	27	17	40	12	21.5	16	32
69671-C9	VCT.50 p-M10x20-LP-C9	50	M10	32	19	20	14	22.5	23	38
69672-C9	VCT.50 p-M10x25-LP-C9	50	M10	32	19	25	14	22.5	23	41
69673-C9	VCT.50 p-M10x30-LP-C9	50	M10	32	19	30	14	22.5	23	43
69675-C9	VCT.50 p-M10x40-LP-C9	50	M10	32	19	40	14	22.5	23	48
69733-C9	VCT.63 p-M12x30-LP-C9	63	M12	37	22	30	16	24	46	69
69735-C9	VCT.63 p-M12x40-LP-C9	63	M12	37	22	40	16	24	46	75
69736-C9	VCT.63 p-M12x50-LP-C9	63	M12	37	22	50	16	24	46	82

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.



Lobe knobs

"Soft-touch" technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, coated with thermoplastic elastomer (TPE) "soft-touch" chemically bonded, hardness 70 Shore A.

The coating material is certified according to FDA (U.S. Food and Drug administration), black colour, matte finish.

COLOURED CENTRE CAP

Polypropylene based (PP) technopolymer, in the six standard colours, matte finish.

On request and for sufficient quantities, it can be supplied in other colours or with customised graphic symbols, marks or writings.

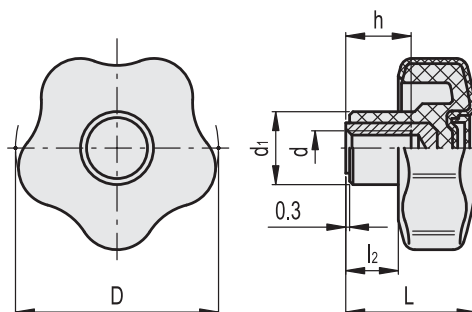
STANDARD EXECUTIONS

- **VCT-B-SOFT:** brass boss, threaded blind hole.
- **VCT-p-SOFT:** zinc-plated steel threaded stud with chamfered flat end as in UNI 947 : ISO 4753 (see Technical data on page A11).



ELESA Original design

VCT-B-SOFT



* Complete with colour index, example: 169894-C2 VCT.43 B-M8-SOFT-C2

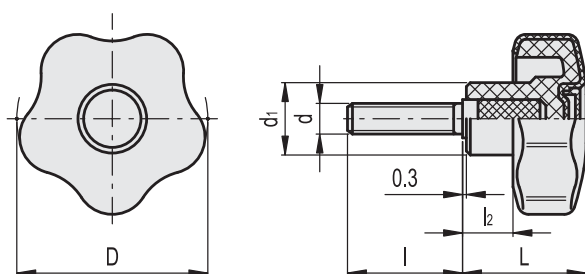
C9 RAL9005
 C2 RAL2004
 C3 RAL7035
 C4 RAL1021
 C5 RAL5024
 C6 RAL3000

VCT-B-SOFT

Code	Description	D	d6H	L	d1	l2	h	C# [Nm]	⚖
169892-*	VCT.43 B-M6-SOFT-*	43	M6	29	17	11	12	15	22
169894-*	VCT.43 B-M8-SOFT-*	43	M8	29	17	11	13	18	20
169952-*	VCT.53 B-M8-SOFT-*	53	M8	34	19	13	15	25	33
169954-*	VCT.53 B-M10-SOFT-*	53	M10	34	19	13	17	27	36
170013-*	VCT.66 B-M10-SOFT-*	66	M10	38.5	21.5	15.5	17	50	44
170015-*	VCT.66 B-M12-SOFT-*	66	M12	38.5	21.5	15.5	17	50	42
170062-*	VCT.77 B-M12-SOFT-*	77	M12	46	26	21	20	60	51

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

VCT-p-SOFT



* Complete with colour index, example: 169903-C2 VCT.43 p-M6x25-SOFT-C2

C9 RAL9005
 C2 RAL2004
 C3 RAL7035
 C4 RAL1021
 C5 RAL5024
 C6 RAL3000

VCT-p-SOFT

Code	Description	D	d6g	L	d1	l	l2	C# [Nm]	⚖
169901-*	VCT.43 p-M6x16-SOFT-*	43	M6	29	17	16	11	13	18
169902-*	VCT.43 p-M6x20-SOFT-*	43	M6	29	17	20	11	13	19
169903-*	VCT.43 p-M6x25-SOFT-*	43	M6	29	17	25	11	13	20
169905-*	VCT.43 p-M6x30-SOFT-*	43	M6	29	17	30	11	13	21
169911-*	VCT.43 p-M8x16-SOFT-*	43	M8	29	17	16	11	16	19
169912-*	VCT.43 p-M8x20-SOFT-*	43	M8	29	17	20	11	16	20
169913-*	VCT.43 p-M8x25-SOFT-*	43	M8	29	17	25	11	16	22
169915-*	VCT.43 p-M8x30-SOFT-*	43	M8	29	17	30	11	16	24
169961-*	VCT.53 p-M8x16-SOFT-*	53	M8	34	19	16	13	16	33
169963-*	VCT.53 p-M8x20-SOFT-*	53	M8	34	19	20	13	16	34
169965-*	VCT.53 p-M8x30-SOFT-*	53	M8	34	19	30	13	16	36
169967-*	VCT.53 p-M8x40-SOFT-*	53	M8	34	19	40	13	16	38
169971-*	VCT.53 p-M10x20-SOFT-*	53	M10	34	19	20	13	23	36
169973-*	VCT.53 p-M10x30-SOFT-*	53	M10	34	19	30	13	23	40
169975-*	VCT.53 p-M10x40-SOFT-*	53	M10	34	19	40	13	23	44
169977-*	VCT.53 p-M10x50-SOFT-*	53	M10	34	19	50	13	23	48
170021-*	VCT.66 p-M10x20-SOFT-*	66	M10	38.5	21.5	20	15.5	37	46
170023-*	VCT.66 p-M10x30-SOFT-*	66	M10	38.5	21.5	30	15.5	37	49
170025-*	VCT.66 p-M10x40-SOFT-*	66	M10	38.5	21.5	40	15.5	37	52
170027-*	VCT.66 p-M10x50-SOFT-*	66	M10	38.5	21.5	50	15.5	37	56
170033-*	VCT.66 p-M12x30-SOFT-*	66	M12	38.5	21.5	30	15.5	46	52
170035-*	VCT.66 p-M12x40-SOFT-*	66	M12	38.5	21.5	40	15.5	46	56
170037-*	VCT.66 p-M12x50-SOFT-*	66	M12	38.5	21.5	50	15.5	46	60
170083-*	VCT.77 p-M12x30-SOFT-*	77	M12	46	26	30	21	68	53
170085-*	VCT.77 p-M12x40-SOFT-*	77	M12	46	26	40	21	68	57
170087-*	VCT.77 p-M12x50-SOFT-*	77	M12	46	26	50	21	68	62

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.



Lobe knobs with solid section

Technopolymer, easy cleaning

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **VC.692-B:** brass boss, threaded blind hole.
- **VC.692-SST:** AISI 303 stainless steel boss, threaded blind hole.
- **VC.692-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).
- **VC.692-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

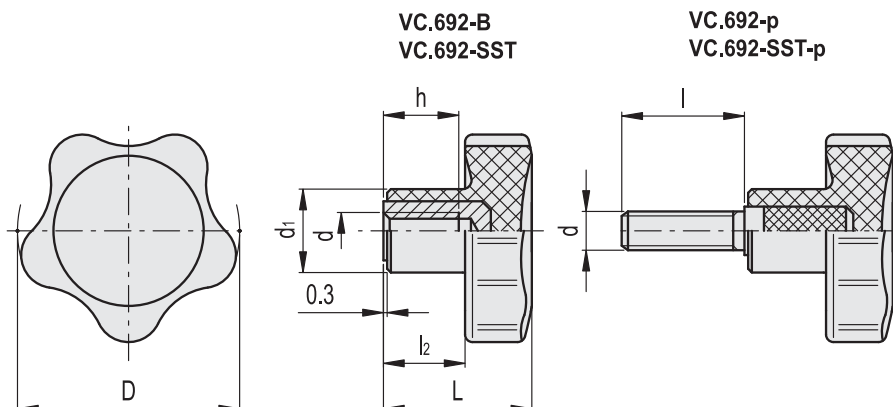
FEATURES AND APPLICATIONS

The exclusive five-lobe shape (ELESA original design) offers the operator's fingers a proper grip and prevents unhealthy residues from depositing thanks to its solid shape without cavities.

The metal insert in AISI 303 stainless steel can be used in sectors where corrosion resistant materials are required.



ELESA Original design



VC.692-B

Code	Description	D	d6H	L	d1	l2	h	⚖
166111	VC.692/25 B-M4	25	M4	20	12	10	10	7
166112	VC.692/25 B-M5	25	M5	20	12	10	10	7
166113	VC.692/25 B-M6	25	M6	20	12	10	10	7
166221	VC.692/32 B-M5	32	M5	22.5	14	12.5	10	15
166222	VC.692/32 B-M6	32	M6	22.5	14	12.5	10	14
166223	VC.692/32 B-M8	32	M8	22.5	14	12.5	10	13
166341	VC.692/40 B-M6	40	M6	26	15	14	12	25
166342	VC.692/40 B-M8	40	M8	26	15	14	13	23
166471	VC.692/50 B-M8	50	M8	31	18	17	15	44
166472	VC.692/50 B-M10	50	M10	31	18	17	17	40
166551	VC.692/60 B-M10	60	M10	36.5	21	21	20	63
166552	VC.692/60 B-M12	60	M12	36.5	21	21	20	54

VC.692-SST

STAINLESS STEEL

Code	Description	D	d6H	L	d1	l2	h	⚖
166116	VC.692/25-SST-M5	25	M5	20	12	10	10	7
166117	VC.692/25-SST-M6	25	M6	20	12	10	10	7
166225	VC.692/32 SST-M5	32	M5	22.5	14	12.5	10	15
166226	VC.692/32-SST-M6	32	M6	22.5	14	12.5	10	15
166345	VC.692/40 SST-M6	40	M6	26	15	14	12	26
166346	VC.692/40-SST-M8	40	M8	26	15	14	13	24
166475	VC.692/50 SST-M8	50	M8	31	18	17	15	45
166476	VC.692/50-SST-M10	50	M10	31	18	17	17	42
166555	VC.692/60 SST-M10	60	M10	36.5	21	21	17	64
166556	VC.692/60-SST-M12	60	M12	36.5	21	21	20	54

VC.692-p

Code	Description	D	d _{6g}	L	d ₁	I	I ₂	
166131	VC.692/25 p-M4x6	25	M4	20	12	6	10	6
166132	VC.692/25 p-M4x10	25	M4	20	12	10	10	7
166141	VC.692/25 p-M5x10	25	M5	20	12	10	10	8
166142	VC.692/25 p-M5x16	25	M5	20	12	16	10	9
166143	VC.692/25 p-M5x20	25	M5	20	12	20	10	10
166151	VC.692/25 p-M6x10	25	M6	20	12	10	10	10
166152	VC.692/25 p-M6x16	25	M6	20	12	16	10	11
166153	VC.692/25 p-M6x20	25	M6	20	12	20	10	12
166154	VC.692/25 p-M6x25	25	M6	20	12	25	10	13
166155	VC.692/25 p-M6x30	25	M6	20	12	30	10	14
166156	VC.692/25 p-M6x35	25	M6	20	12	35	10	15
166242	VC.692/32 p-M6x16	32	M6	22.5	14	16	12.5	15
166243	VC.692/32 p-M6x20	32	M6	22.5	14	20	12.5	16
166244	VC.692/32 p-M6x25	32	M6	22.5	14	25	12.5	17
166245	VC.692/32 p-M6x30	32	M6	22.5	14	30	12.5	19
166246	VC.692/32 p-M6x35	32	M6	22.5	14	35	12.5	20
166247	VC.692/32 p-M6x40	32	M6	22.5	14	40	12.5	22
166252	VC.692/32 p-M8x16	32	M8	22.5	14	16	12.5	14
166253	VC.692/32 p-M8x20	32	M8	22.5	14	20	12.5	16
166254	VC.692/32 p-M8x25	32	M8	22.5	14	25	12.5	17
166255	VC.692/32 p-M8x30	32	M8	22.5	14	30	12.5	18
166256	VC.692/32 p-M8x35	32	M8	22.5	14	35	12.5	19
166350	VC.692/40 p-M6x10	40	M6	26	15	10	14	14
166351	VC.692/40 p-M6x16	40	M6	26	15	16	14	16
166352	VC.692/40 p-M6x20	40	M6	26	15	20	14	17
166353	VC.692/40 p-M6x25	40	M6	26	15	25	14	18
166354	VC.692/40 p-M6x30	40	M6	26	15	30	14	19
166356	VC.692/40 p-M6x40	40	M6	26	15	40	14	20
166361	VC.692/40 p-M8x16	40	M8	26	15	16	14	23
166362	VC.692/40 p-M8x20	40	M8	26	15	20	14	28
166363	VC.692/40 p-M8x25	40	M8	26	15	25	14	29
166364	VC.692/40 p-M8x30	40	M8	26	15	30	14	32
166365	VC.692/40 p-M8x35	40	M8	26	15	35	14	33
166366	VC.692/40 p-M8x40	40	M8	26	15	40	14	36
166367	VC.692/40 p-M8x50	40	M8	26	15	50	14	38
166368	VC.692/40 p-M8x60	40	M8	26	15	60	14	40
166369	VC.692/40 p-M8x70	40	M8	26	15	70	14	42
166431	VC.692/50 p-M8x16	50	M8	31	18	16	17	33
166432	VC.692/50 p-M8x20	50	M8	31	18	20	17	35
166433	VC.692/50 p-M8x25	50	M8	31	18	25	17	36
166434	VC.692/50 p-M8x30	50	M8	31	18	30	17	38
166436	VC.692/50 p-M8x40	50	M8	31	18	40	17	40
166437	VC.692/50 p-M8x45	50	M8	31	18	45	17	42
166438	VC.692/50 p-M8x50	50	M8	31	18	50	17	44
166439	VC.692/50 p-M8x60	50	M8	31	18	60	17	46
166481	VC.692/50 p-M10x20	50	M10	31	18	20	17	47
166483	VC.692/50 p-M10x30	50	M10	31	18	30	17	57
166485	VC.692/50 p-M10x40	50	M10	31	18	40	17	66
166532	VC.692/60 p-M10x20	60	M10	36.5	21	20	21	55
166533	VC.692/60 p-M10x25	60	M10	36.5	21	25	21	57
166534	VC.692/60 p-M10x30	60	M10	36.5	21	30	21	59
166536	VC.692/60 p-M10x40	60	M10	36.5	21	40	21	62
166538	VC.692/60 p-M10x50	60	M10	36.5	21	50	21	65
166570	VC.692/60 p-M12x25	60	M12	36.5	21	25	21	67
166571	VC.692/60 p-M12x30	60	M12	36.5	21	30	21	69
166573	VC.692/60 p-M12x40	60	M12	36.5	21	40	21	80
166575	VC.692/60 p-M12x50	60	M12	36.5	21	50	21	91
166576	VC.692/60 p-M12x60	60	M12	36.5	21	60	21	93

VC.692-SST-p

STAINLESS STEEL

Code	Description	D	d _{6g}	L	d ₁	I	I ₂	
166157	VC.692/25 SST-p-M4x6	25	M4	20	12	6	10	6
166158	VC.692/25 SST-p-M4x10	25	M4	20	12	10	10	7
166161	VC.692/25 SST-p-M5x10	25	M5	20	12	10	10	8
166162	VC.692/25 SST-p-M5x16	25	M5	20	12	16	10	9
166163	VC.692/25 SST-p-M5x20	25	M5	20	12	20	10	10
166164	VC.692/25 SST-p-M5x25	25	M5	20	12	25	10	11
166171	VC.692/25 SST-p-M6x10	25	M6	20	12	10	10	10
166172	VC.692/25 SST-p-M6x16	25	M6	20	12	16	10	11
166173	VC.692/25 SST-p-M6x20	25	M6	20	12	20	10	12
166175	VC.692/25 SST-p-M6x25	25	M6	20	12	25	10	13
166174	VC.692/25 SST-p-M6x30	25	M6	20	12	30	10	14
166176	VC.692/25 SST-p-M6x35	25	M6	20	12	35	10	15
166261	VC.692/32 SST-p-M6x10	32	M6	22.5	14	10	12.5	17
166262	VC.692/32 SST-p-M6x16	32	M6	22.5	14	16	12.5	15
166263	VC.692/32 SST-p-M6x20	32	M6	22.5	14	20	12.5	16
166264	VC.692/32 SST-p-M6x30	32	M6	22.5	14	30	12.5	19
166266	VC.692/32 SST-p-M6x35	32	M6	22.5	14	35	12.5	20
166272	VC.692/32 SST-p-M8x16	32	M8	22.5	14	16	12.5	19
166273	VC.692/32 SST-p-M8x20	32	M8	22.5	14	20	12.5	20
166274	VC.692/32 SST-p-M8x25	32	M8	22.5	14	25	12.5	21
166275	VC.692/32 SST-p-M8x30	32	M8	22.5	14	30	12.5	22
166277	VC.692/32 SST-p-M8x40	32	M8	22.5	14	40	12.5	23
166370	VC.692/40 SST-p-M6x10	40	M6	26	15	10	14	20
166372	VC.692/40 SST-p-M6x20	40	M6	26	15	20	14	25
166374	VC.692/40 SST-p-M6x30	40	M6	26	15	30	14	27
166376	VC.692/40 SST-p-M6x40	40	M6	26	15	40	14	31
166379	VC.692/40 SST-p-M8x16	40	M8	26	15	16	14	26
166381	VC.692/40 SST-p-M8x20	40	M8	26	15	20	14	28
166382	VC.692/40 SST-p-M8x25	40	M8	26	15	25	14	30
166383	VC.692/40 SST-p-M8x30	40	M8	26	15	30	14	32
166384	VC.692/40 SST-p-M8x35	40	M8	26	15	35	14	34
166385	VC.692/40 SST-p-M8x40	40	M8	26	15	40	14	36
166386	VC.692/40 SST-p-M8x45	40	M8	26	15	45	14	38
166451	VC.692/50 SST-p-M8x16	50	M8	31	18	16	17	38
166452	VC.692/50 SST-p-M8x20	50	M8	31	18	20	17	40
166453	VC.692/50 SST-p-M8x25	50	M8	31	18	25	17	41
166454	VC.692/50 SST-p-M8x30	50	M8	31	18	30	17	42
166455	VC.692/50 SST-p-M8x35	50	M8	31	18	35	17	43
166456	VC.692/50 SST-p-M8x40	50	M8	31	18	40	17	45
166457	VC.692/50 SST-p-M8x50	50	M8	31	18	50	17	46
166491	VC.692/50 SST-p-M10x20	50	M10	31	18	20	17	47
166493	VC.692/50 SST-p-M10x30	50	M10	31	18	30	17	57
166495	VC.692/50 SST-p-M10x40	50	M10	31	18	40	17	67
166496	VC.692/50 SST-p-M10x50	50	M10	31	18	50	17	69
166562	VC.692/60 SST-p-M10x20	60	M10	36.5	21	20	21	70
166564	VC.692/60 SST-p-M10x30	60	M10	36.5	21	30	21	71
166566	VC.692/60 SST-p-M10x40	60	M10	36.5	21	40	21	73
166568	VC.692/60 SST-p-M10x50	60	M10	36.5	21	50	21	75
166591	VC.692/60 SST-p-M12x30	60	M12	36.5	21	30	21	70
166593	VC.692/60 SST-p-M12x40	60	M12	36.5	21	40	21	81
166595	VC.692/60 SST-p-M12x50	60	M12	36.5	21	50	21	92



Clamping knobs

Lobe knobs

Technopolymer, easy cleaning

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, white colour similar to RAL 9002, matte finish.

STANDARD EXECUTION

AISI 303 stainless steel boss, threaded blind hole.

FEATURES AND APPLICATIONS

The exclusive five-lobe shape (ELESA original design) offers the operator's fingers a proper grip and prevents unhealthy residues from depositing thanks to its solid shape without cavities.

This knob is particularly suitable for applications on machines and equipment whose parts must be frequently cleaned by using water jets or steam.

The metal insert in AISI 303 stainless steel can be used in sectors where corrosion resistant materials are required.



ELESA Original design

Lobe knobs

Technopolymer chrome-plate

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, chrome-plated, glossy finish.

STANDARD EXECUTION

Brass boss, threaded blind hole.

FEATURES AND APPLICATIONS

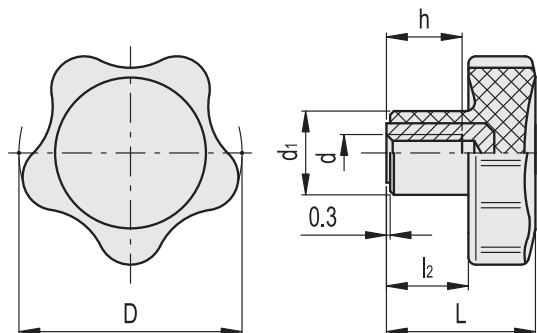
The exclusive five-lobe shape (ELESA original design) offers the operator's fingers a proper grip and prevents unhealthy residues from depositing thanks to its solid shape without cavities.

CHEMICAL AGENTS RESISTANCE

This knob is particularly suitable for applications on machines and equipment whose parts, for hygienic reasons, must be frequently cleaned also using water or steam jets. The chrome-plating makes the surface finish semi-glossy and homogeneous to facilitate cleaning operations. The chrome-plated surface is resistant to wear, scrapes and shocks. In laboratory tests carried out at ambient temperature (23°C), the chrome-plated surface revealed to be resistant to: sea water, detergents, acetone, ethyl alcohol, formic acid, chlorine solutions.



ELESA Original design



STAINLESS STEEL

Code	Description	D	d6H	L	d1	l2	h	⚖
151702	VC.692/32-SST-M6-CLEAN	32	M6	22.5	14	12.5	10	15
151712	VC.692/40-SST-M8-CLEAN	40	M8	26	15	14	13	24
151722	VC.692/50-SST-M10-CLEAN	50	M10	31	18	17	17	42
151732	VC.692/60-SST-M12-CLEAN	60	M12	36.5	21	21	20	54

Code	Description	D	d6H	L	d1	l2	h	⚖
152702	VC.692/32-CR-B-M6	32	M6	22.5	14	12.5	10	14
152712	VC.692/40-CR-B-M8	40	M8	26	15	14	13	23
152722	VC.692/50-CR-B-M10	50	M10	31	18	17	17	40
152731	VC.692/60-CR-B-M10	60	M10	36.5	21	21	20	63

Lobe knobs with solid section

Technopolymer, pad

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **VC.692-SST-p-PO:** AISI 303 stainless steel threaded stud, chamfered end with acetal resin (POM) pad.
- **VC.692-SST-p-PB:** AISI 303 stainless steel threaded stud, chamfered end with brass pad.

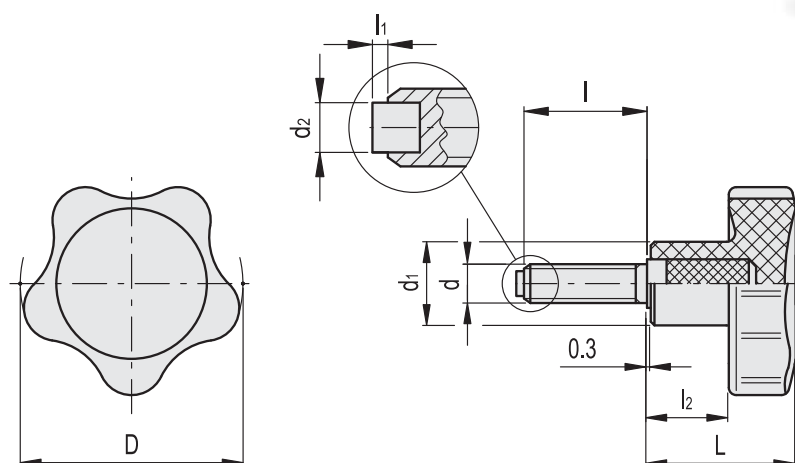
FEATURES AND APPLICATIONS

The chamfered end with bolt avoids to damage the surface of contact even in case of strong clamping.

Standard executions either with brass or acetal resin pad.



ELESA Original design



VC.692-SST-p-PO

STAINLESS STEEL

Code	Description	D	d6g	L	d1	d2	l	l1	l2	⚖
166282	VC.692/32-SST-p-M6x16-PO	32	M6	22.5	14	4	16	1.5	12.5	15
166283	VC.692/32-SST-p-M6x20-PO	32	M6	22.5	14	4	20	1.5	12.5	16
166284	VC.692/32-SST-p-M6x30-PO	32	M6	22.5	14	4	30	1.5	12.5	19
166401	VC.692/40-SST-p-M8x20-PO	40	M8	26	15	5	20	1.8	14	28
166403	VC.692/40-SST-p-M8x30-PO	40	M8	26	15	5	30	1.8	14	32
166405	VC.692/40-SST-p-M8x40-PO	40	M8	26	15	5	40	1.8	14	36
166511	VC.692/50-SST-p-M10x20-PO	50	M10	31	18	6	20	2	17	47
166513	VC.692/50-SST-p-M10x30-PO	50	M10	31	18	6	30	2	17	57
166515	VC.692/50-SST-p-M10x40-PO	50	M10	31	18	6	40	2	17	66

VC.692-SST-p-PB

STAINLESS STEEL

Code	Description	D	d6g	L	d1	d2	l	l1	l2	⚖
166182	VC.692/25 SST-p-M5x16-PB	25	M5	20	12	3	16	1.5	10	12
166184	VC.692/25 SST-p-M5x25-PB	25	M5	20	12	3	25	1.5	10	12
166292	VC.692/32-SST-p-M6x16-PB	32	M6	22.5	14	4	16	1.5	12.5	16
166293	VC.692/32-SST-p-M6x20-PB	32	M6	22.5	14	4	20	1.5	12.5	17
166294	VC.692/32-SST-p-M6x30-PB	32	M6	22.5	14	4	30	1.5	12.5	20
166411	VC.692/40-SST-p-M8x20-PB	40	M8	26	15	5	20	1.8	14	29
166413	VC.692/40-SST-p-M8x30-PB	40	M8	26	15	5	30	1.8	14	33
166415	VC.692/40-SST-p-M8x40-PB	40	M8	26	15	5	40	1.8	14	37
166521	VC.692/50-SST-p-M10x20-PB	50	M10	31	18	6	20	2	17	48
166523	VC.692/50-SST-p-M10x30-PB	50	M10	31	18	6	30	2	17	58
166525	VC.692/50-SST-p-M10x40-PB	50	M10	31	18	6	40	2	17	67

Lobe knobs

Duroplast, easy cleaning

MATERIAL

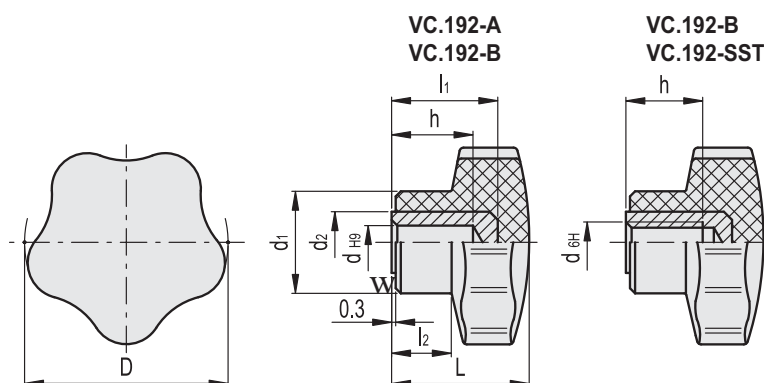
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS

- **VC.192-A:** black-oxide steel boss, plain blind hole.
- **VC.192-B:** brass boss, plain or threaded blind hole.
- **VC.192-SST:** AISI 303 stainless steel boss, threaded blind hole.
- **VC.192-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).
- **VC.192-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).



ELESA Original design



VC.192-A

Code	Description	D	dH9	L	d1	d2	l1	l2	h	Δ
66401	VC.192/50 A-6	50	6	33	25	15	23	14	18	65
66411	VC.192/50 A-8	50	8	33	25	15	25	14	20	57
66441	VC.192/50 A-10	50	10	33	25	16	25	14	21	60
66501	VC.192/60 A-6	60	6	37	27	18	28	17	20	104
66511	VC.192/60 A-8	60	8	37	27	15	25	17	25	89
66541	VC.192/60 A-10	60	10	37	27	18	31	17	25	100
66601	VC.192/70 A-8	70	8	44	30	20	35	20	26	165
66611	VC.192/70 A-10	70	10	44	30	18	31	20	25	135
66701	VC.192/85 A-8	85	8	55	35	22	38	30	25	240
66801	VC.192/100 A-8	100	8	60	38	22	38	31	25	310

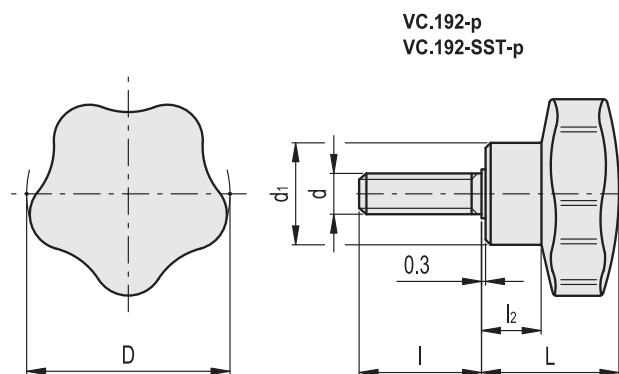
VC.192-B

Code	Description	D	d6H	dH9	L	d1	d2	l1	l2	h	Δ
66101	VC.192/25 B-4	25	-	4	21	15	11	14	9	11	15
66111	VC.192/25 B-M4	25	M4	-	21	15	-	-	9	10	11
66201	VC.192/30 B-6	32	-	6	23	19	12	17	11	14	23
66221	VC.192/30 B-M5	32	M5	-	23	19	-	-	11	10	16
66222	VC.192/30 B-M6	32	M6	-	23	19	-	-	11	12	19
66301	VC.192/40 B-6	40	-	6	27	21	12	17	12	14	35
66331	VC.192/40 B-8	40	-	8	27	21	12	18	12	14	32
66341	VC.192/40 B-M6	40	M6	-	27	21	-	-	12	12	27
66342	VC.192/40 B-M8	40	M8	-	27	21	-	-	12	13	31
66451	VC.192/50 B-6	50	-	6	33	25	15	23	14	18	67
66461	VC.192/50 B-8	50	-	8	33	25	15	25	14	20	65
66471	VC.192/50 B-M8	50	M8	-	33	25	-	-	14	20	50
66472	VC.192/50 B-M10	50	M10	-	33	25	-	-	14	17	52
66551	VC.192/60 B-M10	60	M10	-	37	27	-	-	17	17	76
66552	VC.192/60 B-M12	60	M12	-	37	27	-	-	17	20	80
66641	VC.192/70 B-M12	70	M12	-	44	30	-	-	20	20	119
66642	VC.192/70 B-M14	70	M14	-	44	30	-	-	20	20	122
66721	VC.192/85 B-M16	85	M16	-	55	35	-	-	30	22	176
66821	VC.192/100 B-M16	100	M16	-	60	38	-	-	31	22	255

VC.192-SST

STAINLESS STEEL

Code	Description	D	d6H	L	d1	l2	h	Δ
66226	VC.192/30-SST-M6	32	M6	23	19	11	12	18
66346	VC.192/40-SST-M8	40	M8	27	21	12	13	30
66476	VC.192/50-SST-M10	50	M10	33	25	14	17	50
66556	VC.192/60-SST-M12	60	M12	37	27	17	20	78



VC.192-p

Code	Description	D	d6g	L	d1	l	l2	△
66121	VC.192/25 p-M5x10	25	M5	21	15	10	9	11
66122	VC.192/25 p-M5x16	25	M5	21	15	16	9	12
66131	VC.192/25 p-M6x10	25	M6	21	15	10	9	10
66132	VC.192/25 p-M6x16	25	M6	21	15	16	9	12
66133	VC.192/25 p-M6x20	25	M6	21	15	20	9	14
66134	VC.192/25 p-M6x30	25	M6	21	15	30	9	18
66231	VC.192/30 p-M6x10	32	M6	23	19	10	11	17
66232	VC.192/30 p-M6x16	32	M6	23	19	16	11	18
66233	VC.192/30 p-M6x20	32	M6	23	19	20	11	20
66234	VC.192/30 p-M6x35	32	M6	23	19	35	11	25
66241	VC.192/30 p-M8x20	32	M8	23	19	20	11	24
66242	VC.192/30 p-M8x30	32	M8	23	19	30	11	27
66243	VC.192/30 p-M8x40	32	M8	23	19	40	11	29
66351	VC.192/40 p-M6x10	40	M6	27	21	10	12	28
66352	VC.192/40 p-M6x20	40	M6	27	21	20	12	30
66353	VC.192/40 p-M6x30	40	M6	27	21	30	12	32
66361	VC.192/40 p-M8x16	40	M8	27	21	16	12	35
66362	VC.192/40 p-M8x25	40	M8	27	21	25	12	38
66363	VC.192/40 p-M8x35	40	M8	27	21	35	12	40
66364	VC.192/40 p-M8x45	40	M8	27	21	45	12	43
66481	VC.192/50 p-M8x16	50	M8	33	25	16	14	52
66482	VC.192/50 p-M8x20	50	M8	33	25	20	14	53
66483	VC.192/50 p-M8x25	50	M8	33	25	25	14	55
66484	VC.192/50 p-M8x30	50	M8	33	25	30	14	56
66485	VC.192/50 p-M8x40	50	M8	33	25	40	14	60
66491	VC.192/50 p-M10x20	50	M10	33	25	20	14	63
66492	VC.192/50 p-M10x30	50	M10	33	25	30	14	66
66493	VC.192/50 p-M10x40	50	M10	33	25	40	14	70
66494	VC.192/50 p-M10x50	50	M10	33	25	50	14	73
66561	VC.192/60 p-M10x20	60	M10	37	27	20	17	87
66562	VC.192/60 p-M10x30	60	M10	37	27	30	17	92
66563	VC.192/60 p-M10x40	60	M10	37	27	40	17	98
66564	VC.192/60 p-M10x50	60	M10	37	27	50	17	101
66571	VC.192/60 p-M12x25	60	M12	37	27	25	17	105
66572	VC.192/60 p-M12x30	60	M12	37	27	30	17	110
66573	VC.192/60 p-M12x40	60	M12	37	27	40	17	118
66574	VC.192/60 p-M12x50	60	M12	37	27	50	17	128
66651	VC.192/70 p-M12x30	70	M12	44	30	30	20	140
66652	VC.192/70 p-M12x50	70	M12	44	30	50	20	160
66653	VC.192/70 p-M12x60	70	M12	44	30	60	20	165
66654	VC.192/70 p-M12x70	70	M12	44	30	70	20	175
66661	VC.192/70 p-M14x50	70	M14	44	30	50	20	180
66662	VC.192/70 p-M14x70	70	M14	44	30	70	20	200
66731	VC.192/85 p-M16x50	85	M16	55	35	50	30	290

VC.192-SST-p

STAINLESS STEEL

Code	Description	D	d6g	L	d1	l	l2	△
66261	VC.192/30-SST-p-M6x10	32	M6	23	19	10	11	17
66262	VC.192/30-SST-p-M6x16	32	M6	23	19	16	11	18
66263	VC.192/30-SST-p-M6x20	32	M6	23	19	20	11	20
66268	VC.192/30-SST-p-M6x35	32	M6	23	19	35	11	25
66381	VC.192/40-SST-p-M8x20	40	M8	27	21	20	12	37
66382	VC.192/40-SST-p-M8x25	40	M8	27	21	25	12	38
66383	VC.192/40-SST-p-M8x30	40	M8	27	21	30	12	39
66384	VC.192/40-SST-p-M8x35	40	M8	27	21	35	12	40
66388	VC.192/40-SST-p-M8x45	40	M8	27	21	45	12	43
66496	VC.192/50-SST-p-M10x20	50	M10	33	25	20	14	63
66497	VC.192/50-SST-p-M10x30	50	M10	33	25	30	14	66
66498	VC.192/50-SST-p-M10x40	50	M10	33	25	40	14	70
66499	VC.192/50-SST-p-M10x50	50	M10	33	25	50	14	73
66591	VC.192/60-SST-p-M12x30	60	M12	37	27	30	17	110
66593	VC.192/60-SST-p-M12x40	60	M12	37	27	40	17	118
66595	VC.192/60-SST-p-M12x50	60	M12	37	27	50	17	128
66671	VC.192/70-SST-p-M12x70	70	M12	44	30	70	20	175

Shortened lobe knobs

Duroplast

MATERIAL

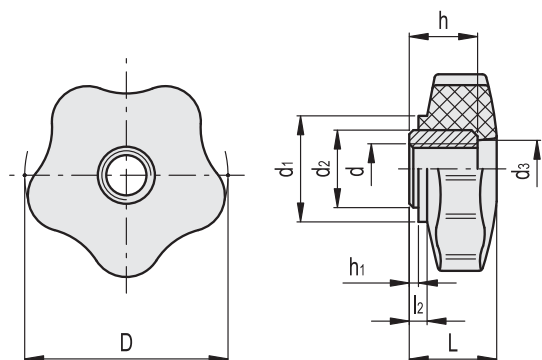
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Black-oxide steel boss, threaded pass-through hole.



ELESA Original design



Code	Description	D	d6H	L	d1	d2	d3	l2	h	h1	
66951	VC.253/40 A-M8	40	M8	19	23	17	14	3	15	1.5	38
67001	VC.253/40 A-M10	40	M10	19	23	17	14	3	15	1.5	34
67011	VC.253/40 A-M12	40	M12	19	23	17	14	3	15	1.5	30
67101	VC.253/50 A-M12	50	M12	21	26	19	14	3	16	1.5	50
67201	VC.253/60 A-M12	60	M12	24	30	19	16	4	16	1.5	75
67301	VC.253/85 A-M14	85	M14	30	32	18	18	6	22	1.5	135

Lobe knobs

Duroplast

MATERIAL

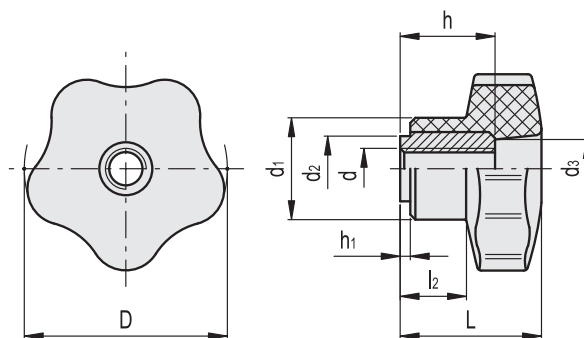
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Brass boss, threaded pass-through hole and large metal locking face.



ELESA Original design



Code	Description	D	d6H	L	d1	d2	d3	l2	h	h1	
67501	VC.254/40 B-M6	40	M6	28	21	14	13	13	18	1.5	42
67511	VC.254/40 B-M8	40	M8	28	21	14	13	13	18	1.5	38
67521	VC.254/40 B-M10	40	M10	28	21	14	13	13	18	1.5	34
67601	VC.254/50 B-M10	50	M10	34	25	16	13	15	22	1.5	62
67611	VC.254/50 B-M12	50	M12	34	25	16	13	15	22	1.5	55
67701	VC.254/60 B-M10	60	M10	38	27	17	15	18	26	1.5	97
67711	VC.254/60 B-M12	60	M12	38	27	17	15	18	26	1.5	90
67721	VC.254/60 B-M14	60	M14	38	27	17	15	18	26	1.5	85
67801	VC.254/70 B-M12	70	M12	45	30	17	17	21	26	1.5	125
67811	VC.254/70 B-M14	70	M14	45	30	17	17	21	26	1.5	115
67901	VC.254/85 B-M16	85	M16	56	35	24	18	32	35	2	210

Stainless Steel-Star knobs

Stainless Steel AISI 304 (A2)

SPECIFICATION

Version with female thread:

Types

- Type **E**: with threaded blind bore
- Type **C**: with plain blind bore H7

Stainless Steel AISI 304 (A2)

Stainless Steel AISI 316L (A4)

- Knob drawn from Stainless Steel sheet
- Hub welded
- matt shot-blasted

Version with threaded bolt:

Stainless Steel AISI 304 (A2)

Stainless Steel AISI 316L (A4)

- Knob drawn from Stainless Steel sheet
- Hub with threaded bolt welded
- matt shot-blasted

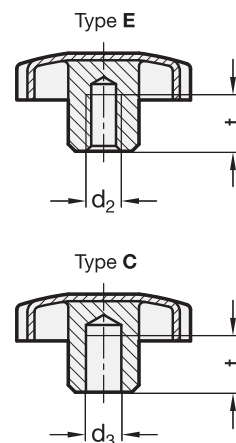
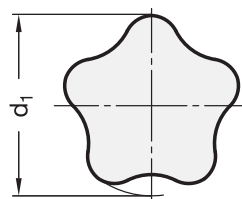
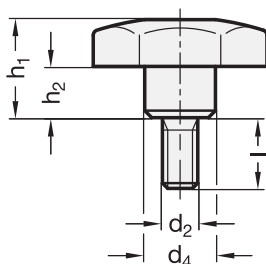
INFORMATION

The original ELESa design with 5 recess grips is typical for GN 5334 star knobs.

This form gives these grips an appealing look and additionally allows a high torque to be achieved.

TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



GN 5334-with female thread

STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h1 ≈	h2 ≈	t min.	⚖
GN 5334-40-B8-C	40	-	B 8	14	24	12	15	36
GN 5334-50-B10-C	50	-	B 10	18	30	16.5	18	67
GN 5334-60-B12-C	60	-	B 12	20	37.5	20	22	110
GN 5334-40-M8-E	40	M 8	-	14	24	12	15	38
GN 5334-50-M10-E	50	M 10	-	18	30	16.5	18	69
GN 5334-60-M12-E	60	M 12	-	20	37.5	20	22	112

GN 5334.4-with female thread

STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h1 ≈	h2 ≈	t min.	⚖
GN 5334.4-40-B8-C	40	-	B 8	14	24	12	15	37
GN 5334.4-50-B10-C	50	-	B 10	18	30	16.5	18	67
GN 5334.4-60-B12-C	60	-	B 12	20	37.5	20	22	109
GN 5334.4-40-M8-E	40	M 8	-	14	24	12	15	37
GN 5334.4-50-M10-E	50	M 10	-	18	30	16.5	18	68
GN 5334.4-60-M12-E	60	M 12	-	20	37.5	20	22	114

GN 5334-with threaded bolt

STAINLESS STEEL

Description	d1	d2	l	d4	h1 ≈	h2 ≈	⚖
GN 5334-40-M8-20	40	M 8	20	14	24	12	50
GN 5334-40-M8-30	40	M 8	30	14	24	12	53
GN 5334-40-M8-40	40	M 8	40	14	24	12	57
GN 5334-50-M10-20	50	M 10	20	18	30	16.5	91
GN 5334-50-M10-30	50	M 10	30	18	30	16.5	96
GN 5334-50-M10-40	50	M 10	40	18	30	16.5	101
GN 5334-60-M12-20	60	M 12	20	20	37.5	20	155
GN 5334-60-M12-30	60	M 12	30	20	37.5	20	155
GN 5334-60-M12-40	60	M 12	40	20	37.5	20	161
GN 5334-60-M12-50	60	M 12	50	20	37.5	20	170

GN 5334.4-with threaded bolt

STAINLESS STEEL

Description	d1	d2	l	d4	h1 ≈	h2 ≈	⚖
GN 5334.4-40-M8-20	40	M 8	20	14	24	12	43
GN 5334.4-40-M8-30	40	M 8	30	14	24	12	53
GN 5334.4-40-M8-40	40	M 8	40	14	24	12	57
GN 5334.4-50-M10-20	50	M 10	20	18	30	16.5	91
GN 5334.4-50-M10-30	50	M 10	30	18	30	16.5	97
GN 5334.4-50-M10-40	50	M 10	40	18	30	16.5	110
GN 5334.4-60-M12-20	60	M 12	20	20	37.5	20	155
GN 5334.4-60-M12-30	60	M 12	30	20	37.5	20	155
GN 5334.4-60-M12-40	60	M 12	40	20	37.5	20	161
GN 5334.4-60-M12-50	60	M 12	50	20	37.5	20	170

Star knobs

Aluminium

SPECIFICATION

Types

- Type **A**: without bore
- Type **C**: with plain blind bore H7
- Type **D**: with threaded through bore
- Type **E**: with threaded blind bore

Aluminium

- matt finish (ground), flash mark not visible **MT**
- polished **PL**

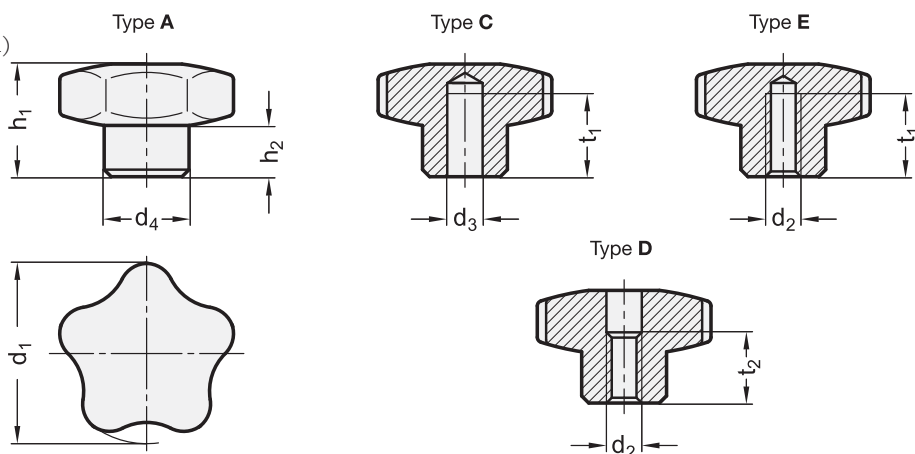
Type **A** (without bore) is only available with a matt finish (**MT**)

INFORMATION

Star knobs GN 5336 are forged, therefore a close grain structure is maintained providing a high tensile strength and a smooth surface. Original ELESA design, now produced in metal in agreement with ELESA s.p.a.

TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



* Complete with surface index of the star knob (MT or PL)

MT **PL**
Matt finish Polished

GN 5336

Description	d1	d2	d3 H7	d4 -0.5	h1	h1 -1	h2 ≈	t1 min.	t2	Δ
GN 5336-40-A-MT	40	-	-	15	-	26	12.5	-	-	31
GN 5336-50-A-MT	50	-	-	19	-	33	16	-	-	69
GN 5336-60-A-MT	60	-	-	21	-	41	20	-	-	101
GN 5336-70-A-MT	70	-	-	26	-	47	23	-	-	163
GN 5336-40-B8-C-*	40	-	B 8	15	25	-	12.5	15	-	32
GN 5336-50-B10-C-*	50	-	B 10	19	32	-	16	18	-	62
GN 5336-60-B12-C-*	60	-	B 12	21	40	-	20	22	-	110
GN 5336-70-B16-C-*	70	-	B 16	26	46	-	23	28	-	144
GN 5336-40-M8-D-*	40	M 8	-	15	25	-	12.5	-	15	32
GN 5336-50-M10-D-*	50	M 10	-	19	32	-	16	-	20	60
GN 5336-60-M12-D-*	60	M 12	-	21	40	-	20	-	26	90
GN 5336-70-M16-D-*	70	M 16	-	26	46	-	23	-	32	174
GN 5336-40-M6-E-*	40	M 6	-	15	25	-	12.5	15	-	35
GN 5336-40-M8-E-*	40	M 8	-	15	25	-	12.5	15	-	33
GN 5336-50-M8-E-*	50	M 8	-	19	32	-	16	18	-	63
GN 5336-50-M10-E-*	50	M 10	-	19	32	-	16	18	-	61
GN 5336-60-M10-E-*	60	M 10	-	21	40	-	20	22	-	115
GN 5336-60-M12-E-*	60	M 12	-	21	40	-	20	22	-	100
GN 5336-70-M12-E-*	70	M 12	-	26	46	-	23	28	-	174
GN 5336-70-M16-E-*	70	M 16	-	26	46	-	23	28	-	165

Stainless Steel-Star knobs

Stainless Steel AISI 316L (A4)

SPECIFICATION

Types

- Type **A**: without bore
- Type **E**: with threaded blind bore
- Type **D**: with threaded through bore
- Type **C**: with plain blind bore H7

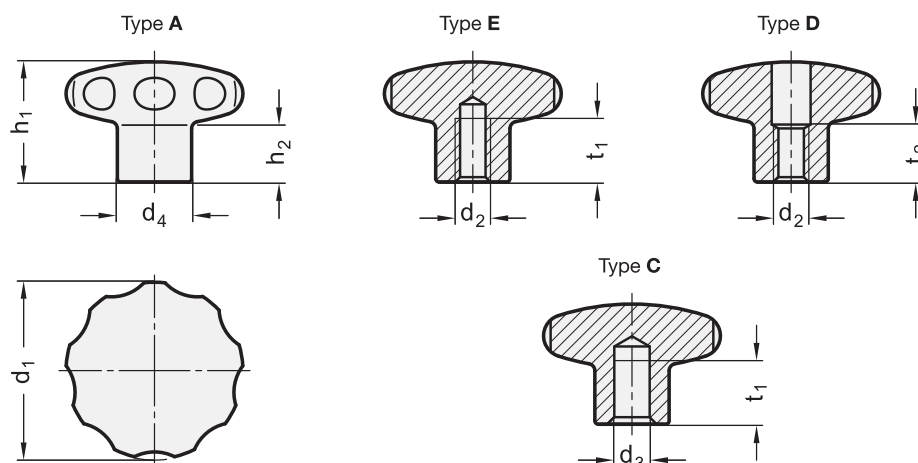
Stainless Steel AISI 316L (A4)
matt shot-blasted

INFORMATION

Stainless Steel-Star knobs GN 5335.4 are a special development intended for the food processing machinery industry. The smooth and enclosed areas as well as the large corner radii comply with the requirements of hygiene standards.

TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



GN 5335.4

STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h1	h2	t1 min.	t2	⚖
GN 5335.4-40-A	40	-	-	18	30.5	15	-	-	130
GN 5335.4-50-A	50	-	-	21	34	17	-	-	220
GN 5335.4-60-A	60	-	-	25	39	18	-	-	388
GN 5335.4-40-B8-C	40	-	B 8	18	30.5	15	15	-	125
GN 5335.4-50-B10-C	50	-	B 10	21	34	17	18	-	205
GN 5335.4-60-B12-C	60	-	B 12	25	39	18	22	-	366
GN 5335.4-40-M6-D	40	M 6	-	18	30.5	15	-	13	132
GN 5335.4-40-M8-D	40	M 8	-	18	30.5	15	-	13	150
GN 5335.4-50-M8-D	50	M 8	-	21	34	17	-	16	225
GN 5335.4-50-M10-D	50	M 10	-	21	34	17	-	16	205
GN 5335.4-60-M10-D	60	M 10	-	25	39	18	-	20	360
GN 5335.4-60-M12-D	60	M 12	-	25	39	18	-	20	366
GN 5335.4-40-M6-E	40	M 6	-	18	30.5	15	12	-	140
GN 5335.4-40-M8-E	40	M 8	-	18	30.5	15	15	-	225
GN 5335.4-50-M8-E	50	M 8	-	21	34	17	15	-	150
GN 5335.4-50-M10-E	50	M 10	-	21	34	17	18	-	218
GN 5335.4-60-M10-E	60	M 10	-	25	39	18	18	-	367
GN 5335.4-60-M12-E	60	M 12	-	25	39	18	22	-	367



Stainless Steel-Star knobs

Stainless Steel AISI 303 (A2)

SPECIFICATION

Version with female thread:

Types

- Type **A**: without bore
- Type **E**: with threaded blind bore
- Type **D**: with threaded through bore
- Type **C**: with plain blind bore H7

Stainless Steel AISI 303

- matt shot-blasted
- highly polished PL (only type D and E)

Version with threaded bolt:

Stainless Steel AISI 303

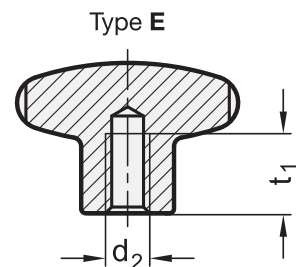
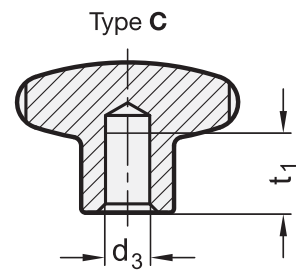
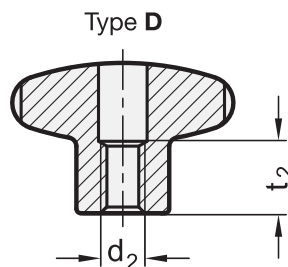
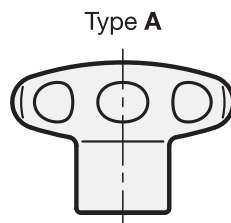
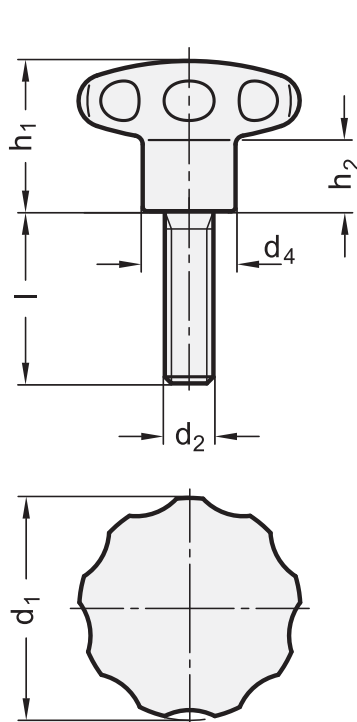
- matt shot-blasted

INFORMATION

Stainless Steel-Star knobs GN 5335 are a special development intended for the food processing machinery industry. The smooth and enclosed areas as well as the large corner radii comply with the requirements of hygiene standards.

TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



GN 5335-with female thread

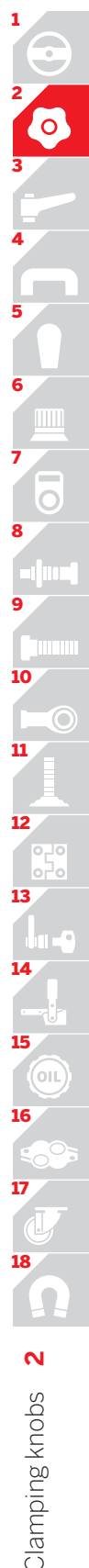
STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h1	h2	t1 min.	t2	⚖
GN 5335-40-A	40	-	-	18	30.5	15	-	-	130
GN 5335-50-A	50	-	-	21	34	17	-	-	220
GN 5335-60-A	60	-	-	25	39	18	-	-	388
GN 5335-40-B8-C	40	-	B 8	18	30.5	15	15	-	125
GN 5335-50-B10-C	50	-	B 10	21	34	17	18	-	205
GN 5335-60-B12-C	60	-	B 12	25	39	18	22	-	366
GN 5335-40-M6-D	40	M 6	-	18	30.5	15	-	13	132
GN 5335-40-M8-D	40	M 8	-	18	30.5	15	-	13	130
GN 5335-50-M8-D	50	M 8	-	21	34	17	-	16	225
GN 5335-50-M10-D	50	M 10	-	21	34	17	-	16	205
GN 5335-60-M10-D	60	M 10	-	25	39	18	-	20	370
GN 5335-60-M12-D	60	M 12	-	25	39	18	-	20	366
GN 5335-40-M6-E	40	M 6	-	18	30.5	15	12	-	140
GN 5335-40-M8-E	40	M 8	-	18	30.5	15	15	-	135
GN 5335-50-M8-E	50	M 8	-	21	34	17	15	-	240
GN 5335-50-M10-E	50	M 10	-	21	34	17	18	-	208
GN 5335-60-M10-E	60	M 10	-	25	39	18	18	-	391
GN 5335-60-M12-E	60	M 12	-	25	39	18	22	-	389
GN 5335-40-M6-D-PL	40	M 6	-	18	30.5	15	-	13	132
GN 5335-40-M8-D-PL	40	M 8	-	18	30.5	15	-	13	130
GN 5335-50-M8-D-PL	50	M 8	-	21	34	17	-	16	225
GN 5335-50-M10-D-PL	50	M 10	-	21	34	17	-	16	205
GN 5335-60-M10-D-PL	60	M 10	-	25	39	18	-	20	370
GN 5335-60-M12-D-PL	60	M 12	-	25	39	18	-	20	366
GN 5335-40-M6-E-PL	40	M 6	-	18	30.5	15	12	-	140
GN 5335-40-M8-E-PL	40	M 8	-	18	30.5	15	15	-	140
GN 5335-50-M8-E-PL	50	M 8	-	21	34	17	15	-	240
GN 5335-50-M10-E-PL	50	M 10	-	21	34	17	18	-	240
GN 5335-60-M10-E-PL	60	M 10	-	25	39	18	18	-	391
GN 5335-60-M12-E-PL	60	M 12	-	25	39	18	22	-	400

GN 5335-with threaded bolt

STAINLESS STEEL

Description	d1	d2	l	d4	h1	h2	⚖
GN 5335-40-M8-16	40	M 8	16	18	30.5	15	140
GN 5335-40-M8-20	40	M 8	20	18	30.5	15	151
GN 5335-40-M8-25	40	M 8	25	18	30.5	15	180
GN 5335-50-M10-20	50	M 10	20	21	34	17	245
GN 5335-50-M10-25	50	M 10	25	21	34	17	247
GN 5335-50-M10-30	50	M 10	30	21	34	17	260
GN 5335-60-M12-25	60	M 12	25	25	39	18	420
GN 5335-60-M12-30	60	M 12	30	25	39	18	426
GN 5335-60-M12-40	60	M 12	40	25	39	18	441



Hand knobs

Cast iron / Stainless Steel / Aluminium

SPECIFICATION

Types

- Type **A**: without bore
- Type **B**: with plain through bore H7
- Type **C**: with plain blind bore H7
- Type **D**: with threaded through bore
- Type **E**: with threaded blind bore

Cast iron **GG**

fettled and tumbled

Stainless Steel precision casting **NI**

only types A, D, E

- AISI CF-8
- matt shot-blasted

Aluminium **AL**

only types A, C, D, E

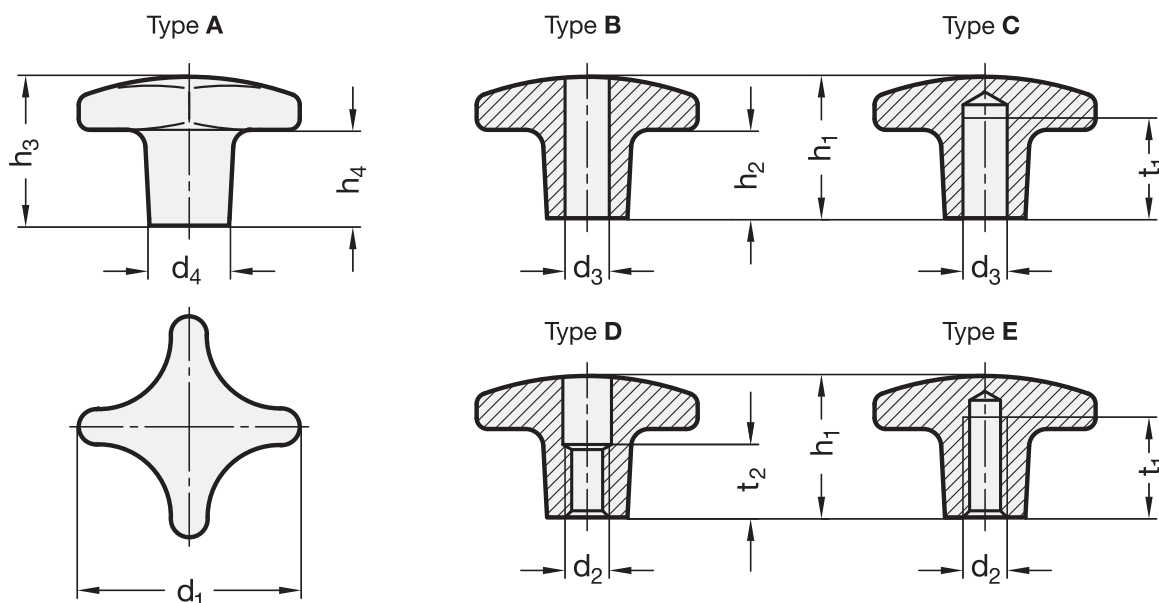
- matt finish (ground), flash mark not visible **MT**
- polished **PL**

ON REQUEST

- plastic coated

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



DIN 6335-NI

STAINLESS STEEL

Description	d1	d2	d4	h1	h2	h3	h4	t1 min.	t2	⚖
DIN 6335-NI-32-A	32	-	12	-	-	21	10	-	-	41
DIN 6335-NI-40-A	40	-	14	-	-	26	14	-	-	71
DIN 6335-NI-50-A	50	-	18	-	-	34	20	-	-	128
DIN 6335-NI-63-A	63	-	20	-	-	42	25	-	-	228
DIN 6335-NI-32-M6-D	32	M 6	12	20	9	-	-	-	10	36
DIN 6335-NI-40-M8-D	40	M 8	14	25	13	-	-	-	12	60
DIN 6335-NI-50-M10-D	50	M 10	18	32	18	-	-	-	16	108
DIN 6335-NI-63-M12-D	63	M 12	20	40	23	-	-	-	20	192
DIN 6335-NI-32-M6-E	32	M 6	12	20	9	-	-	12	-	38
DIN 6335-NI-40-M8-E	40	M 8	14	25	13	-	-	15	-	62
DIN 6335-NI-50-M10-E	50	M 10	18	32	18	-	-	18	-	119
DIN 6335-NI-63-M12-E	63	M 12	20	40	23	-	-	22	-	205

* Complete with surface index of the hand knob (MT or PL)

MT **PL**
Matt finish Polished

DIN 6335-AL

Description	d1	d2	d3 H7	d4	h1	h2	h3	h4	t1 min.	t2	
DIN 6335-AL-40-A	40	-	-	14	-	-	26	14	-	-	25
DIN 6335-AL-50-A	50	-	-	18	-	-	34	20	-	-	53
DIN 6335-AL-63-A	63	-	-	20	-	-	42	25	-	-	85
DIN 6335-AL-80-A	80	-	-	25	-	-	52	30	-	-	165
DIN 6335-AL-40-B8-C-*	40	-	B 8	14	25	13	-	-	15	-	22
DIN 6335-AL-50-B10-C-*	50	-	B 10	18	32	18	-	-	18	-	44
DIN 6335-AL-63-B12-C-*	63	-	B 12	20	40	23	-	-	22	-	72
DIN 6335-AL-80-B16-C-*	80	-	B 16	25	50	28	-	-	28	-	140
DIN 6335-AL-40-M8-D-*	40	M 8	-	14	25	13	-	-	-	12	23
DIN 6335-AL-50-M10-D-*	50	M 10	-	18	32	18	-	-	-	16	44
DIN 6335-AL-63-M12-D-*	63	M 12	-	20	40	23	-	-	-	20	70
DIN 6335-AL-80-M16-D-*	80	M 16	-	25	50	28	-	-	-	30	135
DIN 6335-AL-40-M8-E-*	40	M 8	-	14	25	13	-	-	15	-	24
DIN 6335-AL-50-M10-E-*	50	M 10	-	18	32	18	-	-	18	-	46
DIN 6335-AL-63-M12-E-*	63	M 12	-	20	40	23	-	-	22	-	74
DIN 6335-AL-80-M16-E-*	80	M 16	-	25	50	28	-	-	28	-	145

DIN 6335-GG

Description	d1	d2	d3 H7	d4	h1	h2	h3	h4	t1 min.	t2	
DIN 6335-GG-32-A	32	-	-	12	-	-	21	10	-	-	30
DIN 6335-GG-40-A	40	-	-	14	-	-	26	14	-	-	61
DIN 6335-GG-50-A	50	-	-	18	-	-	34	20	-	-	119
DIN 6335-GG-63-A	63	-	-	20	-	-	42	25	-	-	220
DIN 6335-GG-80-A	80	-	-	25	-	-	52	30	-	-	308
DIN 6335-GG-100-A	100	-	-	32	-	-	65	38	-	-	800
DIN 6335-GG-32-B6-B	32	-	B 6	12	20	9	-	-	-	-	31
DIN 6335-GG-40-B8-B	40	-	B 8	14	25	13	-	-	-	-	47
DIN 6335-GG-50-B10-B	50	-	B 10	18	32	18	-	-	-	-	99
DIN 6335-GG-63-B12-B	63	-	B 12	20	40	23	-	-	-	-	158
DIN 6335-GG-80-B16-B	80	-	B 16	25	50	28	-	-	-	-	332
DIN 6335-GG-100-B20-B	100	-	B 20	32	63	36	-	-	-	-	682
DIN 6335-GG-32-B6-C	32	-	B 6	12	20	9	-	-	12	-	29
DIN 6335-GG-40-B8-C	40	-	B 8	14	25	13	-	-	15	-	50
DIN 6335-GG-50-B10-C	50	-	B 10	18	32	18	-	-	18	-	103
DIN 6335-GG-63-B12-C	63	-	B 12	20	40	23	-	-	22	-	169
DIN 6335-GG-80-B16-C	80	-	B 16	25	50	28	-	-	28	-	341
DIN 6335-GG-100-B20-C	100	-	B 20	32	63	36	-	-	36	-	682
DIN 6335-GG-32-M6-D	32	M 6	-	12	20	9	-	-	-	10	33
DIN 6335-GG-40-M8-D	40	M 8	-	14	25	13	-	-	-	12	53
DIN 6335-GG-50-M10-D	50	M 10	-	18	32	18	-	-	-	16	100
DIN 6335-GG-63-M12-D	63	M 12	-	20	40	23	-	-	-	20	170
DIN 6335-GG-80-M16-D	80	M 16	-	25	50	28	-	-	-	30	300
DIN 6335-GG-100-M20-D	100	M 20	-	32	63	36	-	-	-	38	600
DIN 6335-GG-32-M6-E	32	M 6	-	12	20	9	-	-	12	-	34
DIN 6335-GG-40-M8-E	40	M 8	-	14	25	13	-	-	15	-	51
DIN 6335-GG-50-M10-E	50	M 10	-	18	32	18	-	-	18	-	100
DIN 6335-GG-63-M12-E	63	M 12	-	20	40	23	-	-	22	-	200
DIN 6335-GG-80-M16-E	80	M 16	-	25	50	28	-	-	28	-	350
DIN 6335-GG-100-M20-E	100	M 20	-	32	63	36	-	-	36	-	800



Hand knobs

Cast iron / Threaded bolt, Steel

SPECIFICATION

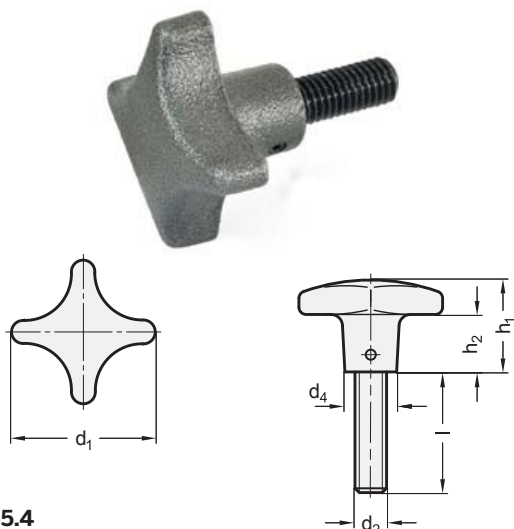
Type

Type **SG**: Hand knobs DIN 6335 cast iron (GG) (see page 234)

The threaded bolt is screwed in and secured by a cross-dowel.

INFORMATION

Should clamping with the bush face be necessary, then it is recommendable to use this hand knobs.



GN 6335.4

Description	d1	d2	l ≈	d4	h1	h2	△
GN 6335.4-SG-32-M6-16	32	M 6	16	12	20	9	34
GN 6335.4-SG-32-M6-20	32	M 6	20	12	20	9	35
GN 6335.4-SG-32-M6-25	32	M 6	25	12	20	9	36
GN 6335.4-SG-32-M6-30	32	M 6	30	12	20	9	37
GN 6335.4-SG-32-M6-35	32	M 6	35	12	20	9	38
GN 6335.4-SG-32-M6-45	32	M 6	45	12	20	9	40
GN 6335.4-SG-40-M8-15	40	M 8	15	14	25	13	58
GN 6335.4-SG-40-M8-20	40	M 8	20	14	25	13	60
GN 6335.4-SG-40-M8-25	40	M 8	25	14	25	13	61
GN 6335.4-SG-40-M8-30	40	M 8	30	14	25	13	63
GN 6335.4-SG-40-M8-40	40	M 8	40	14	25	13	66
GN 6335.4-SG-40-M8-55	40	M 8	55	14	25	13	70
GN 6335.4-SG-50-M10-25	50	M 10	25	18	32	18	124
GN 6335.4-SG-50-M10-30	50	M 10	30	18	32	18	126
GN 6335.4-SG-50-M10-35	50	M 10	35	18	32	18	129
GN 6335.4-SG-50-M10-45	50	M 10	45	18	32	18	134
GN 6335.4-SG-50-M10-55	50	M 10	55	18	32	18	139
GN 6335.4-SG-63-M12-30	63	M 12	30	20	40	23	206
GN 6335.4-SG-63-M12-35	63	M 12	35	20	40	23	208
GN 6335.4-SG-63-M12-40	63	M 12	40	20	40	23	211
GN 6335.4-SG-63-M12-50	63	M 12	50	20	40	23	218
GN 6335.4-SG-63-M12-60	63	M 12	60	20	40	23	225
GN 6335.4-SG-80-M16-30	80	M 16	30	25	50	28	4106
GN 6335.4-SG-80-M16-40	80	M 16	40	25	50	28	430
GN 6335.4-SG-80-M16-50	80	M 16	50	25	50	28	452
GN 6335.4-SG-80-M16-60	80	M 16	60	25	50	28	452
GN 6335.4-SG-80-M16-70	80	M 16	70	25	50	28	478

Star knobs

Cast iron / Threaded bolt, Steel

SPECIFICATION

Type

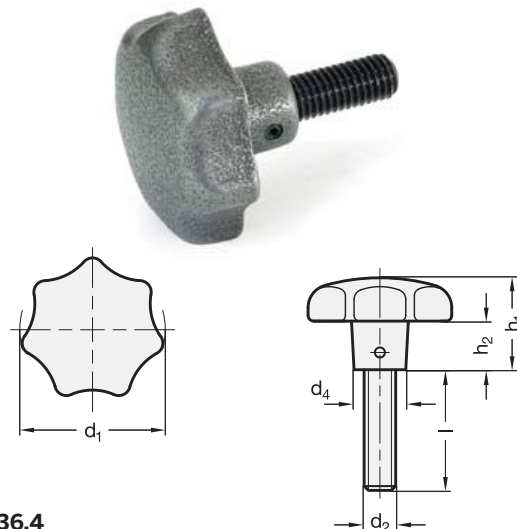
Type **SG**: Star knob DIN 6336 cast iron (GG) (see page 238)

Star knob details and dimensions see: DIN 6336-GG

The threaded bolt is screwed in and secured by a cross-dowel.

INFORMATION

Should clamping with the bush face be necessary, then it is recommendable to use this star knob.



GN 6336.4

Description	d1	d2	l ≈	d4	h1	h2	△
GN 6336.4-SG-32-M6-16	32	M 6	16	12	20	9	53
GN 6336.4-SG-32-M6-20	32	M 6	20	12	20	9	54
GN 6336.4-SG-32-M6-25	32	M 6	25	12	20	9	55
GN 6336.4-SG-32-M6-30	32	M 6	30	12	20	9	56
GN 6336.4-SG-32-M6-35	32	M 6	35	12	20	9	57
GN 6336.4-SG-32-M6-45	32	M 6	45	12	20	9	59
GN 6336.4-SG-40-M8-16	40	M 8	16	14	25	12	79
GN 6336.4-SG-40-M8-20	40	M 8	20	14	25	12	81
GN 6336.4-SG-40-M8-25	40	M 8	25	14	25	12	82
GN 6336.4-SG-40-M8-30	40	M 8	30	14	25	12	84
GN 6336.4-SG-40-M8-40	40	M 8	40	14	25	12	87
GN 6336.4-SG-40-M8-55	40	M 8	55	14	25	12	91
GN 6336.4-SG-50-M10-25	50	M 10	25	18	32	15	167
GN 6336.4-SG-50-M10-30	50	M 10	30	18	32	15	169
GN 6336.4-SG-50-M10-35	50	M 10	35	18	32	15	172
GN 6336.4-SG-50-M10-45	50	M 10	45	18	32	15	177
GN 6336.4-SG-50-M10-55	50	M 10	55	18	32	15	182
GN 6336.4-SG-63-M12-30	63	M 12	30	20	40	19	288
GN 6336.4-SG-63-M12-35	63	M 12	35	20	40	19	292
GN 6336.4-SG-63-M12-40	63	M 12	40	20	40	19	295
GN 6336.4-SG-63-M12-50	63	M 12	50	20	40	19	302
GN 6336.4-SG-63-M12-60	63	M 12	60	20	40	19	309
GN 6336.4-SG-80-M16-30	80	M 16	30	25	50	23	618
GN 6336.4-SG-80-M16-40	80	M 16	40	25	50	23	626
GN 6336.4-SG-80-M16-50	80	M 16	50	25	50	23	630
GN 6336.4-SG-80-M16-60	80	M 16	60	25	50	23	650
GN 6336.4-SG-80-M16-70	80	M 16	70	25	50	23	670

Hand knobs

Aluminium / Stainless Steel

SPECIFICATION

Types

- Type **AM**: Hand knobs DIN 6335, Aluminium (AL), matt (ground)
- Type **AP**: Hand knobs DIN 6335, Aluminium (AL), polished
- Type **ES**: Hand knobs DIN 6335, Stainless Steel precision casting (NI), matt shot-blasted

Hand knobs details and dimensions see:

- DIN 6335-AL (see page 234)
- DIN 6335-GG (see page 234)
- DIN 6335-NI (see page 234)

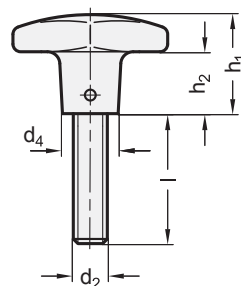
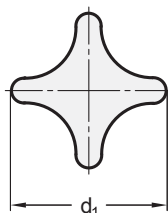
Threaded bolt

Stainless Steel AISI 303

The threaded bolt is screwed in and secured by a cross-dowel.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 6335.5-AM

Description	d1	d2	l	d4	h1	h2	⚖
GN 6335.5-AM-40-M8-20	40	M 8	20	14	25	13	34
GN 6335.5-AM-40-M8-25	40	M 8	25	14	25	13	36
GN 6335.5-AM-40-M8-30	40	M 8	30	14	25	13	38
GN 6335.5-AM-40-M8-40	40	M 8	40	14	25	13	41
GN 6335.5-AM-50-M10-20	50	M 10	20	18	32	18	63
GN 6335.5-AM-50-M10-25	50	M 10	25	18	32	18	65
GN 6335.5-AM-50-M10-30	50	M 10	30	18	32	18	68
GN 6335.5-AM-50-M10-45	50	M 10	45	18	32	18	75
GN 6335.5-AM-50-M10-55	50	M 10	55	18	32	18	79
GN 6335.5-AM-63-M12-30	63	M 12	30	20	40	23	104
GN 6335.5-AM-63-M12-40	63	M 12	40	20	40	23	111
GN 6335.5-AM-63-M12-50	63	M 12	50	20	40	23	118

GN 6335.5-AP

Description	d1	d2	l	d4	h1	h2	⚖
GN 6335.5-AP-40-M8-20	40	M 8	20	14	25	13	34
GN 6335.5-AP-40-M8-25	40	M 8	25	14	25	13	36
GN 6335.5-AP-40-M8-30	40	M 8	30	14	25	13	37
GN 6335.5-AP-40-M8-40	40	M 8	40	14	25	13	40
GN 6335.5-AP-50-M10-20	50	M 10	20	18	32	18	64
GN 6335.5-AP-50-M10-25	50	M 10	25	18	32	18	65
GN 6335.5-AP-50-M10-30	50	M 10	30	18	32	18	66
GN 6335.5-AP-50-M10-45	50	M 10	45	18	32	18	74
GN 6335.5-AP-50-M10-55	50	M 10	55	18	32	18	79
GN 6335.5-AP-63-M12-30	63	M 12	30	20	40	23	105
GN 6335.5-AP-63-M12-40	63	M 12	40	20	40	23	113
GN 6335.5-AP-63-M12-50	63	M 12	50	20	40	23	118

GN 6335.5-ES

STAINLESS STEEL

Description	d1	d2	l	d4	h1	h2	⚖
GN 6335.5-ES-40-M8-20	40	M 8	20	14	25	13	72
GN 6335.5-ES-40-M8-25	40	M 8	25	14	25	13	74
GN 6335.5-ES-40-M8-30	40	M 8	30	14	25	13	75
GN 6335.5-ES-40-M8-40	40	M 8	40	14	25	13	79
GN 6335.5-ES-50-M10-20	50	M 10	20	18	32	18	130
GN 6335.5-ES-50-M10-25	50	M 10	25	18	32	18	132
GN 6335.5-ES-50-M10-30	50	M 10	30	18	32	18	135
GN 6335.5-ES-50-M10-45	50	M 10	45	18	32	18	142
GN 6335.5-ES-50-M10-55	50	M 10	55	18	32	18	146
GN 6335.5-ES-63-M12-30	63	M 12	30	20	40	23	236
GN 6335.5-ES-63-M12-40	63	M 12	40	20	40	23	240
GN 6335.5-ES-63-M12-50	63	M 12	50	20	40	23	249

Star knobs

Cast iron / Stainless Steel / Aluminium

SPECIFICATION

Types

- Type **A**: without bore
- Type **B**: with plain through bore H7
- Type **C**: with plain blind bore H7
- Type **D**: with threaded through bore
- Type **E**: with threaded blind bore

Cast iron **GG**

fettled and tumbled

Stainless Steel precision casting **NI**

only types A, D, E

- AISI CF-8

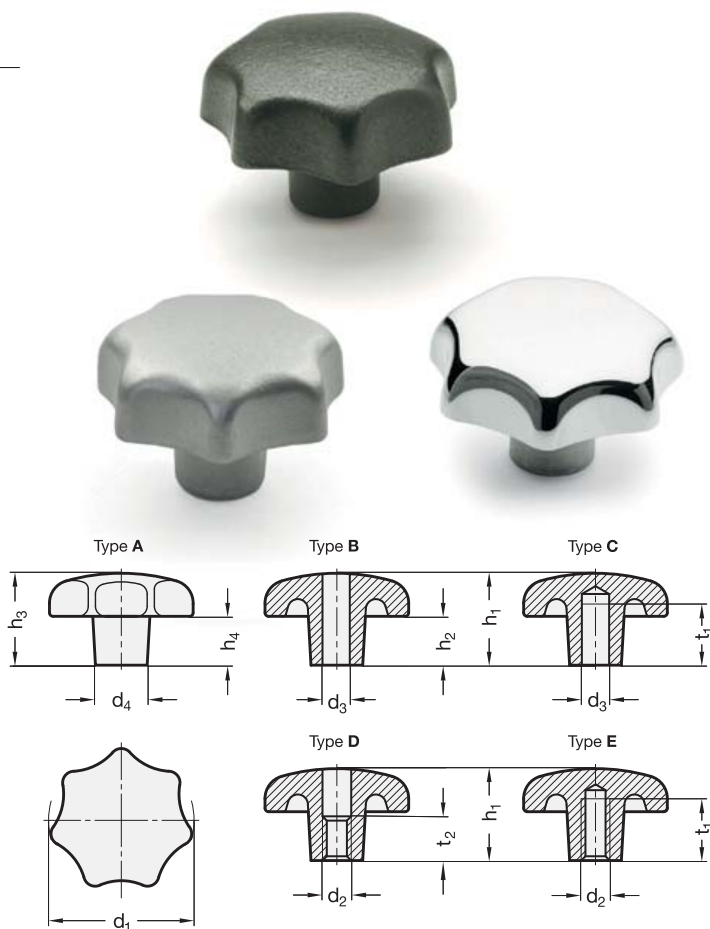
- matt shot-blasted

Aluminium **AL**

only types A, C, D, E

- matt finish (ground), flash mark not visible **MT**

- polished **PL**



DIN 6336-GG

Description	d1	d2	d3 H7	d4	h1	h2 min.	h3	h4 min.	t1	t2	△
DIN 6336-GG-32-A	32	-	-	12	-	-	21	10	-	-	53
DIN 6336-GG-40-A	40	-	-	14	-	-	26	13	-	-	79
DIN 6336-GG-50-A	50	-	-	18	-	-	34	17	-	-	161
DIN 6336-GG-63-A	63	-	-	20	-	-	42	21	-	-	281
DIN 6336-GG-80-A	80	-	-	25	-	-	52	25	-	-	580
DIN 6336-GG-32-B6-B	32	-	B 6	12	20	9	-	-	-	-	42
DIN 6336-GG-40-B8-B	40	-	B 8	14	25	12	-	-	-	-	69
DIN 6336-GG-50-B8-B	50	-	B 8	18	32	15	-	-	-	-	150
DIN 6336-GG-50-B10-B	50	-	B 10	18	32	15	-	-	-	-	120
DIN 6336-GG-63-B10-B	63	-	B 10	20	40	19	-	-	-	-	249
DIN 6336-GG-63-B12-B	63	-	B 12	20	40	19	-	-	-	-	233
DIN 6336-GG-80-B12-B	80	-	B 12	25	50	23	-	-	-	-	546
DIN 6336-GG-80-B16-B	80	-	B 16	25	50	23	-	-	-	-	440
DIN 6336-GG-32-B6-C	32	-	B 6	12	20	9	-	-	12	-	49
DIN 6336-GG-40-B8-C	40	-	B 8	14	25	12	-	-	15	-	67
DIN 6336-GG-50-B8-C	50	-	B 8	18	32	15	-	-	18	-	133
DIN 6336-GG-50-B10-C	50	-	B 10	18	32	15	-	-	18	-	151
DIN 6336-GG-63-B10-C	63	-	B 10	20	40	19	-	-	22	-	196
DIN 6336-GG-63-B12-C	63	-	B 12	20	40	19	-	-	22	-	246
DIN 6336-GG-80-B12-C	80	-	B 12	25	50	23	-	-	28	-	482
DIN 6336-GG-80-B16-C	80	-	B 16	25	50	23	-	-	28	-	542
DIN 6336-GG-32-M6-D	32	M 6	-	12	20	9	-	-	-	10	46
DIN 6336-GG-40-M8-D	40	M 8	-	14	25	12	-	-	-	12	69
DIN 6336-GG-50-M8-D	50	M 8	-	18	32	15	-	-	-	16	124
DIN 6336-GG-50-M10-D	50	M 10	-	18	32	15	-	-	-	16	140
DIN 6336-GG-63-M10-D	63	M 10	-	20	40	19	-	-	-	20	245
DIN 6336-GG-63-M12-D	63	M 12	-	20	40	19	-	-	-	20	260
DIN 6336-GG-80-M12-D	80	M 12	-	25	50	23	-	-	-	30	474
DIN 6336-GG-80-M16-D	80	M 16	-	25	50	23	-	-	-	30	530

DIN 6336-GG

Description	d1	d2	d3 H7	d4	h1	h2 min.	h3	h4 min.	t1	t2	
DIN 6336-GG-32-M6-E	32	M 6	-	12	20	9	-	-	12	-	34
DIN 6336-GG-40-M8-E	40	M 8	-	14	25	12	-	-	15	-	69
DIN 6336-GG-50-M8-E	50	M 8	-	18	32	15	-	-	18	-	152
DIN 6336-GG-50-M10-E	50	M 10	-	18	32	15	-	-	18	-	149
DIN 6336-GG-63-M10-E	63	M 10	-	20	40	19	-	-	22	-	262
DIN 6336-GG-63-M12-E	63	M 12	-	20	40	19	-	-	22	-	254
DIN 6336-GG-80-M12-E	80	M 12	-	25	50	23	-	-	28	-	550
DIN 6336-GG-80-M16-E	80	M 16	-	25	50	23	-	-	28	-	460

*Complete with surface index of the star knob (MT or PL)

MT PL
Matt finish Polished

DIN 6336-AL

Description	d1	d2	d3 H7	d4	h1	h2 min.	h3	h4 min.	t1	t2	
DIN 6336-AL-40-A	40	-	-	14	-	-	26	13	-	-	30
DIN 6336-AL-50-A	50	-	-	18	-	-	34	17	-	-	57
DIN 6336-AL-63-A	63	-	-	20	-	-	42	21	-	-	97
DIN 6336-AL-80-A	80	-	-	25	-	-	52	25	-	-	250
DIN 6336-AL-40-B8-C-*	40	-	B 8	14	25	12	-	-	15	-	25
DIN 6336-AL-50-B8-C-*	50	-	B 8	18	32	15	-	-	18	-	55
DIN 6336-AL-50-B10-C-*	50	-	B 10	18	32	15	-	-	18	-	50
DIN 6336-AL-63-B10-C-*	63	-	B 10	20	40	19	-	-	22	-	121
DIN 6336-AL-63-B12-C-*	63	-	B 12	20	40	19	-	-	22	-	118
DIN 6336-AL-80-B12-C-*	80	-	B 12	25	50	23	-	-	28	-	240
DIN 6336-AL-80-B16-C-*	80	-	B 16	25	50	23	-	-	28	-	224
DIN 6336-AL-40-M8-D-*	40	M 8	-	14	25	12	-	-	-	12	32
DIN 6336-AL-50-M8-D-*	50	M 8	-	18	32	15	-	-	-	16	65
DIN 6336-AL-50-M10-D-*	50	M 10	-	18	32	15	-	-	-	16	45
DIN 6336-AL-63-M10-D-*	63	M 10	-	20	40	19	-	-	-	20	118
DIN 6336-AL-63-M12-D-*	63	M 12	-	20	40	19	-	-	-	20	114
DIN 6336-AL-80-M12-D-*	80	M 12	-	25	50	23	-	-	-	30	231
DIN 6336-AL-80-M16-D-*	80	M 16	-	25	50	23	-	-	-	30	220
DIN 6336-AL-40-M8-E-*	40	M 8	-	14	25	12	-	-	15	-	25
DIN 6336-AL-50-M8-E-*	50	M 8	-	18	32	15	-	-	18	-	64
DIN 6336-AL-50-M10-E-*	50	M 10	-	18	32	15	-	-	18	-	50
DIN 6336-AL-63-M10-E-*	63	M 10	-	20	40	19	-	-	22	-	110
DIN 6336-AL-63-M12-E-*	63	M 12	-	20	40	19	-	-	22	-	120
DIN 6336-AL-80-M12-E-*	80	M 12	-	25	50	23	-	-	28	-	190
DIN 6336-AL-80-M16-E-*	80	M 16	-	25	50	23	-	-	28	-	196

DIN 6336-NI

STAINLESS STEEL

Description	d1	d2	d4	h1	h2 min.	h3	h4 min.	t1	t2	
DIN 6336-NI-32-A	32	-	12	-	-	21	10	-	-	56
DIN 6336-NI-40-A	40	-	14	-	-	26	13	-	-	85
DIN 6336-NI-50-A	50	-	18	-	-	34	17	-	-	179
DIN 6336-NI-63-A	63	-	20	-	-	42	21	-	-	320
DIN 6336-NI-32-M6-D	32	M 6	12	20	9	-	-	-	10	52
DIN 6336-NI-40-M8-D	40	M 8	14	25	12	-	-	-	12	75
DIN 6336-NI-50-M8-D	50	M 8	18	32	15	-	-	-	16	166
DIN 6336-NI-50-M10-D	50	M 10	18	32	15	-	-	-	16	157
DIN 6336-NI-63-M10-D	63	M 10	20	40	19	-	-	-	20	289
DIN 6336-NI-63-M12-D	63	M 12	20	40	19	-	-	-	20	282
DIN 6336-NI-32-M6-E	32	M 6	12	20	9	-	-	12	-	54
DIN 6336-NI-40-M8-E	40	M 8	14	25	12	-	-	15	-	84
DIN 6336-NI-50-M8-E	50	M 8	18	32	15	-	-	18	-	173
DIN 6336-NI-50-M10-E	50	M 10	18	32	15	-	-	18	-	171
DIN 6336-NI-63-M10-E	63	M 10	20	40	19	-	-	22	-	303
DIN 6336-NI-63-M12-E	63	M 12	20	40	19	-	-	22	-	296



Star knobs

Threaded bolt, Stainless Steel

SPECIFICATION

Types

- Type **AM**: Star knob DIN 6336, Aluminium (AL), matt (ground)
- Type **AP**: Star knob DIN 6336, Aluminium (AL), polished
- Type **ES**: Star knob DIN 6336, Stainless Steel precision casting (NI), matt shot-blasted

Star knob details and dimensions see:

- DIN 6336-AL (see page 238)
- DIN 6336-NI (see page 238)

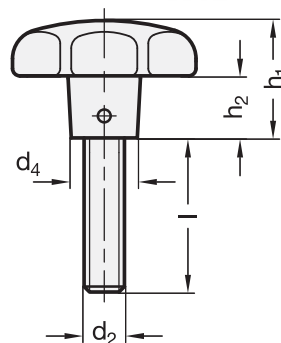
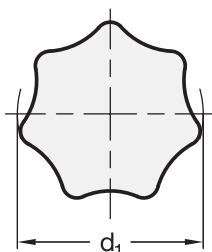
Threaded bolt

Stainless Steel AISI 303

For all types the threaded bolt is screwed in and secured by a cross-dowel.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 6336.5-AM

Description	d1	d2	l ≈	d4	h1	h2	⚖
GN 6336.5-AM-40-M8-20	40	M 8	20	14	25	12	44
GN 6336.5-AM-40-M8-25	40	M 8	25	14	25	12	45
GN 6336.5-AM-40-M8-30	40	M 8	30	14	25	12	47
GN 6336.5-AM-40-M8-40	40	M 8	40	14	25	12	50
GN 6336.5-AM-50-M10-20	50	M 10	20	18	32	15	80
GN 6336.5-AM-50-M10-25	50	M 10	25	18	32	15	82
GN 6336.5-AM-50-M10-30	50	M 10	30	18	32	15	85
GN 6336.5-AM-50-M10-45	50	M 10	45	18	32	15	92
GN 6336.5-AM-50-M10-55	50	M 10	55	18	32	15	97
GN 6336.5-AM-63-M12-30	63	M 12	30	20	40	19	150
GN 6336.5-AM-63-M12-40	63	M 12	40	20	40	19	157
GN 6336.5-AM-63-M12-50	63	M 12	50	20	40	19	164

GN 6336.5-AP

Description	d1	d2	l ≈	d4	h1	h2	⚖
GN 6336.5-AP-40-M8-20	40	M 8	20	14	25	12	43
GN 6336.5-AP-40-M8-25	40	M 8	25	14	25	12	45
GN 6336.5-AP-40-M8-30	40	M 8	30	14	25	12	46
GN 6336.5-AP-40-M8-40	40	M 8	40	14	25	12	50
GN 6336.5-AP-50-M10-20	50	M 10	20	18	32	15	79
GN 6336.5-AP-50-M10-25	50	M 10	25	18	32	15	81
GN 6336.5-AP-50-M10-30	50	M 10	30	18	32	15	84
GN 6336.5-AP-50-M10-45	50	M 10	45	18	32	15	91
GN 6336.5-AP-50-M10-55	50	M 10	55	18	32	15	96
GN 6336.5-AP-63-M12-30	63	M 12	30	20	40	19	150
GN 6336.5-AP-63-M12-40	63	M 12	40	20	40	19	155
GN 6336.5-AP-63-M12-50	63	M 12	50	20	40	19	164

GN 6336.5-ES

STAINLESS STEEL

Description	d1	d2	l ≈	d4	h1	h2	⚖
GN 6336.5-ES-40-M8-20	40	M 8	20	14	25	12	88
GN 6336.5-ES-40-M8-25	40	M 8	25	14	25	12	90
GN 6336.5-ES-40-M8-30	40	M 8	30	14	25	12	91
GN 6336.5-ES-40-M8-40	40	M 8	40	14	25	12	94
GN 6336.5-ES-50-M10-20	50	M 10	20	18	32	15	180
GN 6336.5-ES-50-M10-25	50	M 10	25	18	32	15	184
GN 6336.5-ES-50-M10-30	50	M 10	30	18	32	15	186
GN 6336.5-ES-50-M10-45	50	M 10	45	18	32	15	193
GN 6336.5-ES-50-M10-55	50	M 10	55	18	32	15	197
GN 6336.5-ES-63-M12-30	63	M 12	30	20	40	19	321
GN 6336.5-ES-63-M12-40	63	M 12	40	20	40	19	334
GN 6336.5-ES-63-M12-50	63	M 12	50	20	40	19	340

Quick release knurled nuts

SPECIFICATION

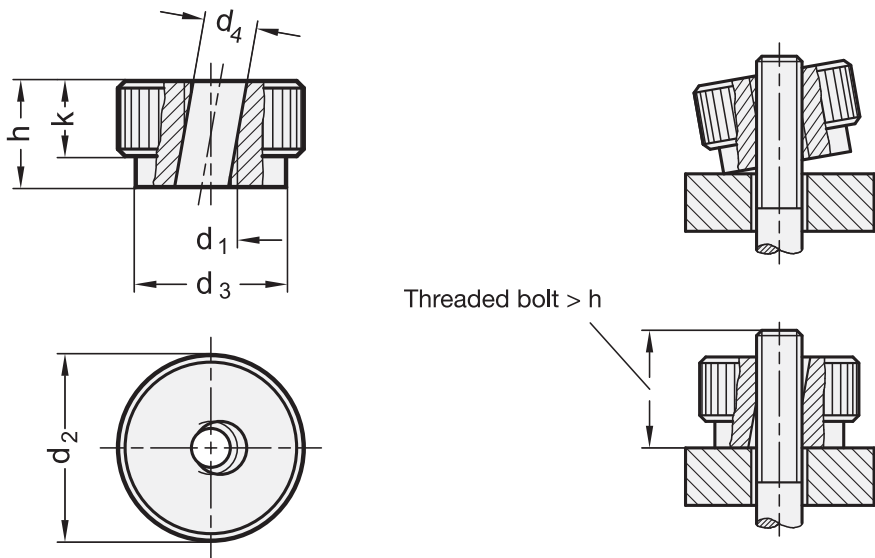
- Steel
- Tensile strength class 5
- blackened

INFORMATION

Quick release knurled nuts GN 6303.1 are used in such applications where the nut has to be completely removed after the releasing operation and re-fitted rapidly for re-clamping.

The nut is tilted over the threaded spindle. When in position, the nut is brought into a straight position for meshing of the two threads on nut and spindle. The nut will then have to be turned only by a fraction of a rotation to achieve clamping.

Functional safety exists only if the clamping surface lies at a right angle to the threaded bolt.



GN 6303.1

Description	d1	d2	d3	d4	h	k	⚖
GN 6303.1-M5	M 5	20	14	5.3	12	8	21
GN 6303.1-M6	M 6	24	16	6.7	14	10	35
GN 6303.1-M8	M 8	30	20	8.7	17	12	70
GN 6303.1-M10	M 10	36	28	11	20	14	120
GN 6303.1-M12	M 12	40	32	13	24	16	179

Quick release star knobs

SPECIFICATION

Plastic

Technopolymer (Polyamide PA)

- shock-resistant
- black, matt finish

Bushing

Steel zinc plated, blue passivated

Stainless Steel AISI 303 **NI**

INFORMATION

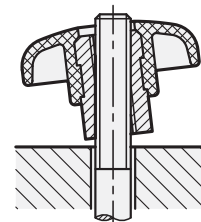
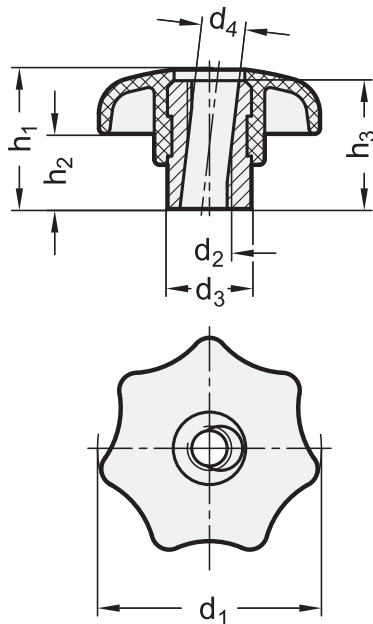
Quick release star knobs GN 6336.3 are used in such applications where the knob has to be completely removed after the releasing operation and refitted rapidly for re-clamping.

The knob is tilted over the threaded spindle. When in position, the knob is brought into a straight position for meshing of the two threads on nut and spindle. The knob will then have to be turned only by fraction of a rotation to achieve clamping.

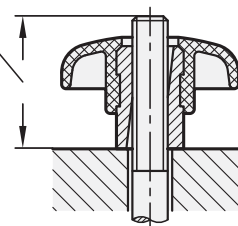
Functional safety exists only if the clamping surface lies at a right angle to the threaded bolt.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



Threaded bolt > h_3



GN 6336.3

Description	d1	d2	d3	d4	h1	h2 ≈	h3 min.	⚖
GN 6336.3-40-M8	40	M 8	16	8.4	26	13	24	32
GN 6336.3-50-M10	50	M 10	20	10.5	34	17	30	61
GN 6336.3-63-M12	63	M 12	26	13	42	21	37	121

GN 6336.3-NI

Description	d1	d2	d3	d4	h1	h2 ≈	h3 min.	⚖
GN 6336.3-40-M8-NI	40	M 8	16	8.4	26	13	24	32
GN 6336.3-50-M10-NI	50	M 10	20	10.5	34	17	30	59
GN 6336.3-63-M12-NI	63	M 12	26	13	42	21	37	131

Hand knobs

with increased clamping force

SPECIFICATION

Plastic
Technopolymer (Polyamide PA)
- shock-resistant
- black, matt finish

Bushes
high quality steel
nitrided, blackened

INFORMATION

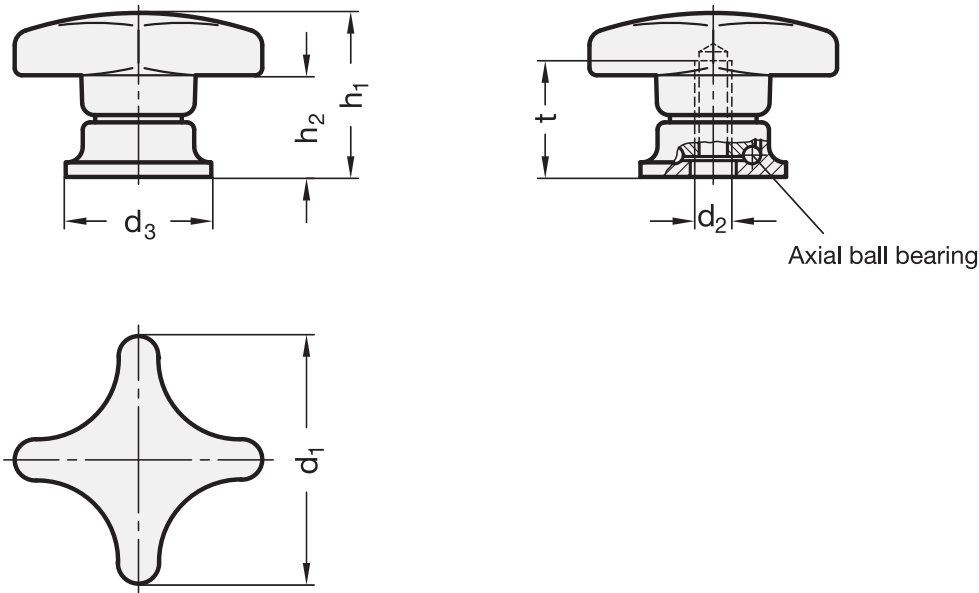
Hand knobs GN 6335.9 have a clamping contact area which is connected to the knob via an axial ball bearing. This has led to the following advantages:
Doubled clamping force through vastly reduced friction. There is no movement on the contact area between star knob and component which greatly reduces any marking on the clamping area. In addition a reduced creep factor has been achieved by the indreased preload.

ON REQUEST

- with threaded bolt

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



GN 6335.9

Description	d1	d2	d3	h1	h2	t min.	△
GN 6335.9-40-M6	40	M 6	24	27	15.5	14.5	40
GN 6335.9-50-M8	50	M 8	25	34	22.5	15	68
GN 6335.9-63-M10	63	M 10	30	41	26.5	19	105
GN 6335.9-80-M12	80	M 12	35	54	34	28.5	185



Safety lobe knobs

Technopolymer, push action

KNOB

Glass-fibre reinforced polyamide based (PA) technopolymer. Built-in zinc alloy toothed insert for coupling to the metal clamping element, black colour, matte finish.

CENTRE CLOSING CAP

Black technopolymer centre cap. On request and for sufficient quantities, it can be supplied in yellow RAL 1021 (safety) or in other colours, with customised graphic symbols, marks or writings.

STANDARD EXECUTIONS

The clamping element has a toothed element for coupling to the zinc alloy insert moulded-in the knob.

- **VCTS-Z:** black-oxide clamping element with threaded hole, black-oxide steel retaining screw. AISI 302 stainless steel return spring.
- **VCTS-Z-SST:** AISI 303 stainless steel clamping element with threaded hole, AISI 303 stainless steel retaining screw. AISI 302 stainless steel return spring.
- **VCTS-Z-p:** black-oxide steel clamping element with threaded stud, black-oxide steel retaining screw. AISI 302 stainless steel return spring.
- **VCTS-Z-SST-p:** AISI 303 stainless steel clamping element with threaded stud, AISI 303 stainless steel retaining screw. AISI 302 stainless steel return spring.

FEATURES AND APPLICATIONS

Particularly suitable where the knob needs to turn freely to avoid that clamping may be accidentally affected.

INSTRUCTIONS

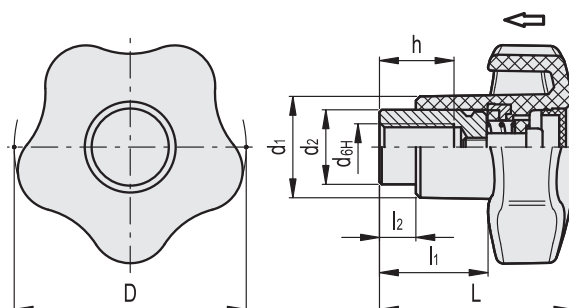
Press the knob to engage the tothing and turn it.

By releasing the knob the spring releases the tothing, thus the knob returns to the rest position.



ELESA Original design

VCTS-Z
VCTS-Z-SST



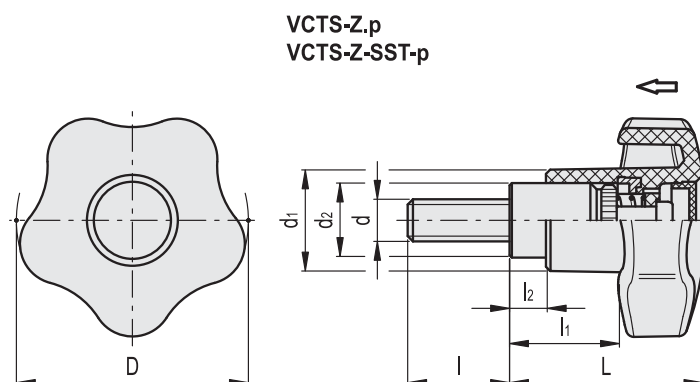
VCTS-Z

Code	Description	D	d	L	d1	d2	l1	l2	h	Teeth no.	△
169631	VCTS-Z-40 A-M6	40	M6	37	18	13.5	22	7	10	24	36
169632	VCTS-Z-40 A-M8	40	M8	37	18	13.5	22	7	10	24	34
169642	VCTS-Z-50 A-M8	50	M8	42	22	16	23	8	14	26	54
169643	VCTS-Z-50 A-M10	50	M10	42	22	16	23	8	14	26	52

VCTS-Z-SST

STAINLESS STEEL

Code	Description	D	d	L	d1	d2	l1	l2	h	Teeth no.	△
169651	VCTS-Z-40-SST-M6	40	M6	37	18	13.5	22	7	10	24	36
169652	VCTS-Z-40-SST-M8	40	M8	37	18	13.5	22	7	10	24	34
169662	VCTS-Z-50-SST-M8	50	M8	42	22	16	23	8	14	26	54
169663	VCTS-Z-50-SST-M10	50	M10	42	22	16	23	8	14	26	52



VCTS-Z-p

Code	Description	D	d	L	d1	d2	l	l1	l2	Teeth no.	⚖
169731	VCTS-Z-40 p-M6x20	40	M6	37	18	13.5	20	22	7	24	40
169732	VCTS-Z-40 p-M6x25	40	M6	37	18	13.5	25	22	7	24	42
169733	VCTS-Z-40 p-M6x32	40	M6	37	18	13.5	32	22	7	24	45
169734	VCTS-Z-40 p-M6x40	40	M6	37	18	13.5	40	22	7	24	50
169741	VCTS-Z-40 p-M8x20	40	M8	37	18	13.5	20	22	7	24	42
169742	VCTS-Z-40 p-M8x25	40	M8	37	18	13.5	25	22	7	24	44
169743	VCTS-Z-40 p-M8x32	40	M8	37	18	13.5	32	22	7	24	47
169744	VCTS-Z-40 p-M8x40	40	M8	37	18	13.5	40	22	7	24	52
169752	VCTS-Z-50 p-M8x25	50	M8	42	22	16	25	23	8	26	58
169753	VCTS-Z-50 p-M8x32	50	M8	42	22	16	32	23	8	26	62
169754	VCTS-Z-50 p-M8x40	50	M8	42	22	16	40	23	8	26	68
169755	VCTS-Z-50 p-M8x50	50	M8	42	22	16	50	23	8	26	74
169762	VCTS-Z-50 p-M10x25	50	M10	42	22	16	25	23	8	26	60
169763	VCTS-Z-50 p-M10x32	50	M10	42	22	16	32	23	8	26	64
169764	VCTS-Z-50 p-M10x40	50	M10	42	22	16	40	23	8	26	70
169765	VCTS-Z-50 p-M10x50	50	M10	42	22	16	50	23	8	26	76

VCTS-Z-SST-p

STAINLESS STEEL

Code	Description	D	d	L	d1	d2	l	l1	l2	Teeth no.	⚖
169771	VCTS-Z-40-SST-p-M6x20	40	M6	37	18	13.5	20	22	7	24	40
169772	VCTS-Z-40-SST-p-M6x25	40	M6	37	18	13.5	25	22	7	24	42
169773	VCTS-Z-40-SST-p-M6x32	40	M6	37	18	13.5	32	22	7	24	45
169774	VCTS-Z-40-SST-p-M6x40	40	M6	37	18	13.5	40	22	7	24	50
169781	VCTS-Z-40-SST-p-M8x20	40	M8	37	18	13.5	20	22	7	24	42
169782	VCTS-Z-40-SST-p-M8x25	40	M8	37	18	13.5	25	22	7	24	44
169783	VCTS-Z-40-SST-p-M8x32	40	M8	37	18	13.5	32	22	7	24	47
169784	VCTS-Z-40-SST-p-M8x40	40	M8	37	18	13.5	40	22	7	24	52
169792	VCTS-Z-50-SST-p-M8x25	50	M8	42	22	16	25	23	8	26	58
169793	VCTS-Z-50-SST-p-M8x32	50	M8	42	22	16	32	23	8	26	62
169794	VCTS-Z-50-SST-p-M8x40	50	M8	42	22	16	40	23	8	26	68
169795	VCTS-Z-50-SST-p-M8x50	50	M8	42	22	16	50	23	8	26	74
169802	VCTS-Z-50-SST-p-M10x25	50	M10	42	22	16	25	23	8	26	60
169803	VCTS-Z-50-SST-p-M10x32	50	M10	42	22	16	32	23	8	26	64
169804	VCTS-Z-50-SST-p-M10x40	50	M10	42	22	16	40	23	8	26	70
169805	VCTS-Z-50-SST-p-M10x50	50	M10	42	22	16	50	23	8	26	76



Safety lobe knobs

Technopolymer

LOBE SOLID CAP

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish, with security anti-intrusion-profiled key slot.

FLANGE

Technopolymer, ultrasonically welded.

CLAMPING ELEMENT

Acetal resin based (POM) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **VLS-B**: brass boss, threaded blind hole.
- **VLS-SST-p**: AISI 304 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

SECURITY KEY (TO BE ORDERED SEPARATELY)

- **CSN** (code 6951): acetal resin based (POM) technopolymer fold-away key, red colour, anti-intrusion-profiled stainless steel insert.
- **CSF** (code 6952): polyamide based (PA) technopolymer ball key, red colour, anti-intrusion-profiled stainless steel insert.

On request and for sufficient quantities the security keys can be supplied in black colour too.

SECURITY DEVICE OPERATION

VLS. security lobe knobs have been designed to be unscrewed only by authorised people, provided with the security key. Without the security key, the knob turns without unscrewing.

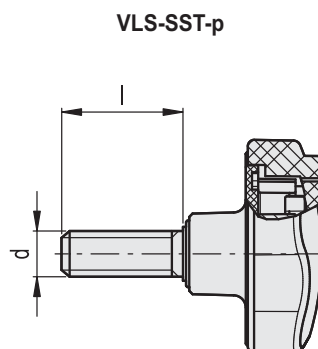
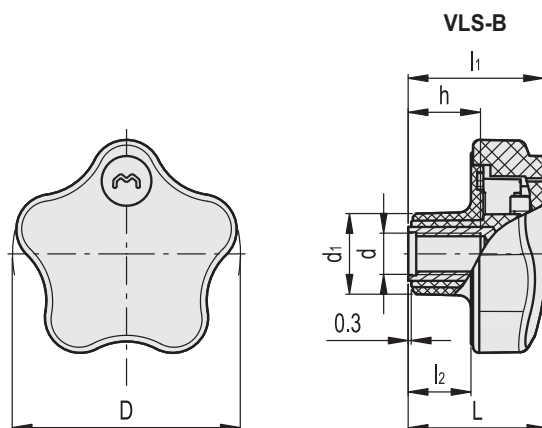
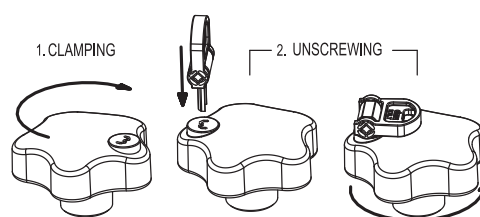
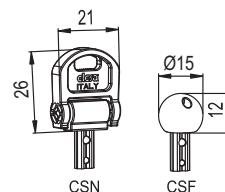
1. Clamping: clamp the knob by screwing it as for a normal knob. Mind that the security key is not inserted.
2. Unscrewing: simply insert the security key (without turning it) and unscrew the knob.

FEATURES AND APPLICATIONS

The particular design of the internal device and of the flange helps the drainage of any dirt (dust, earth, liquid).



ELESA Original design



VLS-B

Code	Description	D	d6H	L	d1	l1	l2	h	△
76501	VLS.42 B-M6*	41.5	M6	30	16.5	29.5	14.5	12	25
76502	VLS.42 B-M8*	41.5	M8	30	16.5	29.5	14.5	13	26
76551	VLS.55 B-M8*	55	M8	33	19	32	15	13	33
76552	VLS.55 B-M10*	55	M10	33	19	32	15	17	35

VLS-SST-p

STAINLESS STEEL

Code	Description	D	d6g	L	d1	l	l1	l2	△
76621	VLS.55-SST-p-M10x20*	55	M10	33	19	20	32	15	44
76625	VLS.55-SST-p-M10x40*	55	M10	33	19	40	32	15	52

* Keys are not supplied with the knobs, to be ordered separately.

Safety lobe knobs

Technopolymer, with lock

LOBE SOLID CAP AND COLOURED CENTRE CAP

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish, with slot for codified key lock.

FLANGE

Technopolymer, ultrasonically welded.

CLAMPING ELEMENT

Special glass-fibre reinforced polyamide based (PA) SUPER-technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **VLSK-B:** brass boss, threaded pass-through hole, with cap.
- **VLSK-FP:** brass boss, threaded pass-through hole, without cap.
- **VLSK-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical data on page A11), with closing cap.

LOCK AND KEYS

Die cast zinc alloy rotor and stator.

The lock has got a red protection tab for closing the lock when the key is not inserted.

Two keys made out of nickel-plated brass and technopolymer.

210 different combinations; each lock has got one pair of keys, removable in two positions at 180°.

SECURITY DEVICE OPERATION

VLSK. security lobe knob has been designed to prevent its unscrewing by unauthorised people. Therefore, it has got a vandal-proof function as well.

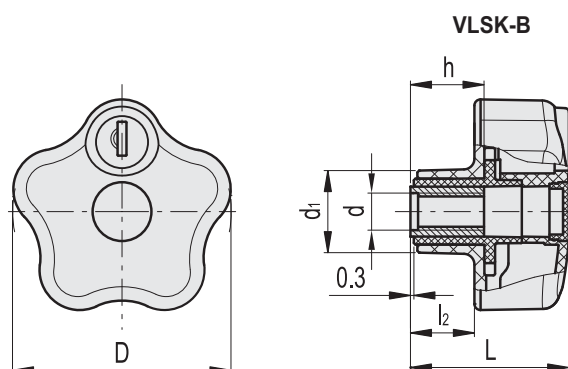
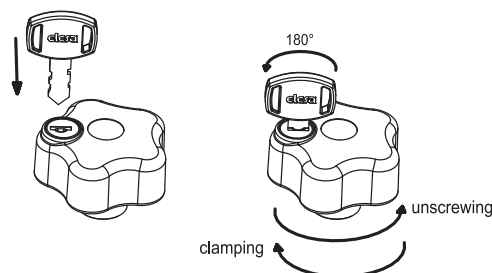
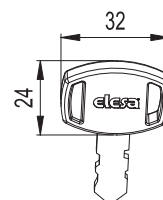
For clamping and unscrewing the knob, insert the special key into the lock and turn it by 180°. By so doing the clamping element and the knob form a single body. When the lock is brought back to the starting position and the key is removed, the knob turns freely preventing the unscrewing.

FEATURES AND APPLICATIONS

The particular design of the internal device and of the flange helps the drainage of any dirt (dust, earth or liquid).

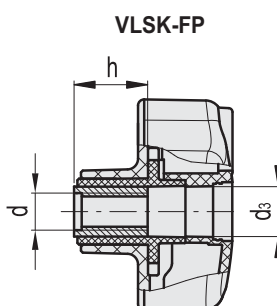


ELESA Original design



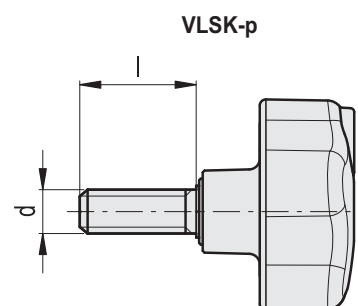
VLSK-B

Code	Description	D	d6H	L	d1	l2	h	⚖
76701	VLSK.63 B-M6	63	M6	44	23	17	18	95
76702	VLSK.63 B-M8	63	M8	44	23	17	18	94
76703	VLSK.63 B-M10	63	M10	44	23	17	20	93



VLSK-FP

Code	Description	D	d6H	L	d1	d3	l2	h	⚖
76711	VLSK.63 FP-M6	63	M6	44	23	14	17	18	95
76712	VLSK.63 FP-M8	63	M8	44	23	14	17	18	94
76713	VLSK.63 FP-M10	63	M10	44	23	14	17	20	93



VLSK-p

VLSK-p

Code	Description	D	d6g	L	d1	l	l2	⚖
76731	VLSK.63 p-M8x20	63	M8	44	23	20	17	106
76741	VLSK.63 p-M10x20	63	M10	44	23	20	17	107

Shortened lobe knobs

Technopolymer, square or threaded hole

MATERIAL

Glass reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **VCRT-N:** square pass-through hole with brass reinforcement.
- **VCRT-FP:** brass boss, threaded pass-through hole.

ACCESSORIES ON REQUEST

Coloured centre caps (see table below). Coloured centre caps allow an easier identification of the different functions of the knobs. Coloured centre caps are available as accessories sold separately.

SPECIAL EXECUTION ON REQUEST

Square pass-through hole without brass reinforcement.

Cap for	C9	C2	C3	C4	C5	C6	Description
	Code						
VCRT.40	6910	6913	6914	6915	6916	6911	CA.VCT.40-*
VCRT.50	6920	6923	6924	6925	6926	6921	CA.VCT.50-*
VCRT.63-74-95	6930	6933	6934	6935	6936	6931	CA.VCT.63-74-95-*

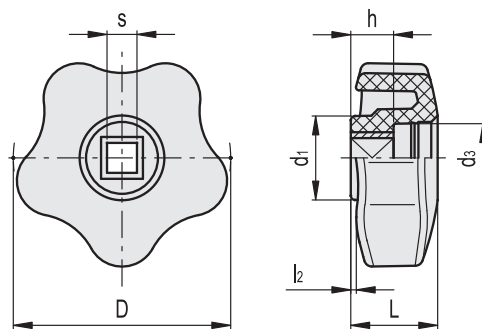
* Complete with colour index (C9, ..., C6)

 C9	 C2	 C3	 C4	 C5	 C6
RAL9005	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

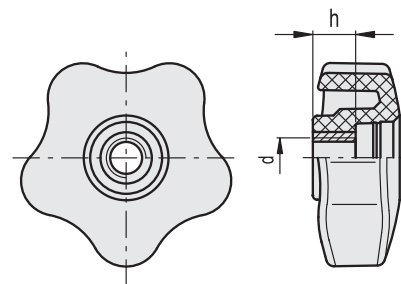


ELESA Original design

VCRT-N



VCRT-FP



VCRT-N

Code	Description	D	sH9	L	d1	d3	l2	h	⚖
169001	VCRT.40 N-6x6	40	6	17	17	12.5	1	10	10
169101	VCRT.50 N-6x6	50	6	20	19	15.5	1.2	10	23
169111	VCRT.50 N-7x7	50	7	20	19	15.5	1.2	10	22
169201	VCRT.63 N-6x6	63	6	21.5	22.5	19.5	1.3	10	36
169211	VCRT.63 N-7x7	63	7	21.5	22.5	19.5	1.3	10	35
169221	VCRT.63 N-8x8	63	8	21.5	22.5	19.5	1.3	10	34
169311	VCRT.74 N-7x7	74	7	24.5	26.5	19.5	2	14	51
169321	VCRT.74 N-8x8	74	8	24.5	26.5	19.5	2	14	50
169331	VCRT.74 N-9x9	74	9	24.5	26.5	19.5	2	14	49
169341	VCRT.74 N-10x10	74	10	24.5	26.5	19.5	2	14	48
169421	VCRT.95 N-8x8	95	8	29.5	32	18	4.5	14	64
169441	VCRT.95 N-10x10	95	10	29.5	32	18	4.5	14	63

VCRT-FP

Code	Description	D	d6H	L	d1	d3	l2	h	⚖
168998	VCRT.40 FP-M8	40	M8	17	17	12.5	1	10	10
168999	VCRT.40 FP-M10	40	M10	17	17	12.5	1	10	9
169098	VCRT.50 FP-M8	50	M8	20	19	15.5	1.2	10	23
169197	VCRT.63 FP-M10	63	M10	21.5	22.5	19.5	1.3	15	35
169198	VCRT.63 FP-M12	63	M12	21.5	22.5	19.5	1.3	15	34
169307	VCRT.74 FP-M10	74	M10	24.5	26.5	19.5	2	15	48
169308	VCRT.74 FP-M12	74	M12	24.5	26.5	19.5	2	15	47
169418	VCRT.95 FP-M16	95	M16	29.5	32	18	4.5	15	60

Shortened lobe knobs

Duroplast, square hole

MATERIAL

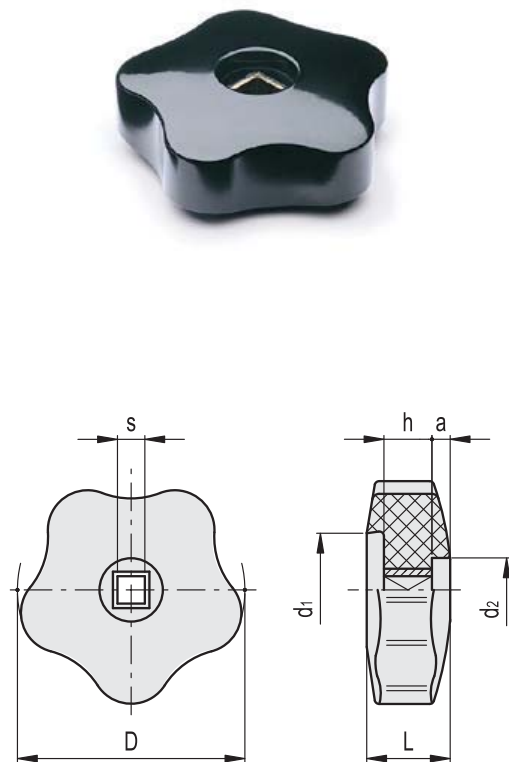
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Square through hole with brass reinforcement.

FEATURES

Special front housing (d₂) for hexagon blind nut with spherical cap UNI 5721-69 - DIN 1587.



Code	Description	D	sH9	L	d1	d2	h	a	⚖
69001	VCR.192/40-6x6	40	6	15	21	14	10	4	21
69101	VCR.192/50-6x6	50	6	18	24	14	10	5	33
69111	VCR.192/50-7x7	50	7	18	24	14	10	5	31
69201	VCR.192/60-6x6	60	6	20	29	16	10	4	52
69211	VCR.192/60-7x7	60	7	20	29	16	10	4	50
69221	VCR.192/60-8x8	60	8	20	29	16	10	4	48
69301	VCR.192/70-7x7	70	7	22	35	18	14	5	83
69311	VCR.192/70-8x8	70	8	22	35	18	14	5	78
69401	VCR.192/85-7x7	85	7	25	45	18	14	8	136
69411	VCR.192/85-8x8	85	8	25	45	18	14	8	127
69421	VCR.192/85-9x9	85	9	25	45	18	14	8	126
69501	VCR.192/100-8x8	100	8	28	57	18	14	6	168
69511	VCR.192/100-10x10	100	10	28	57	18	14	6	166

Lobe threaded nut

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

Brass boss, threaded pass-through hole.

FEATURES AND APPLICATIONS

The ergonomic seven-lobe shape allows an effective grip to the operator when tightening.

Suitable for axial locking; it can be used as a nut.



ELESA Original design

Code	Description	D	d6H	L	d1	li	⚖
168541	GFL.40-B M8	40	M8	10	12	8.5	7
168542	GFL.40-B M10	40	M10	10	13	8.5	6

Knobs

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black, orange colour, glossy finish.

CONTRAST SCREEN

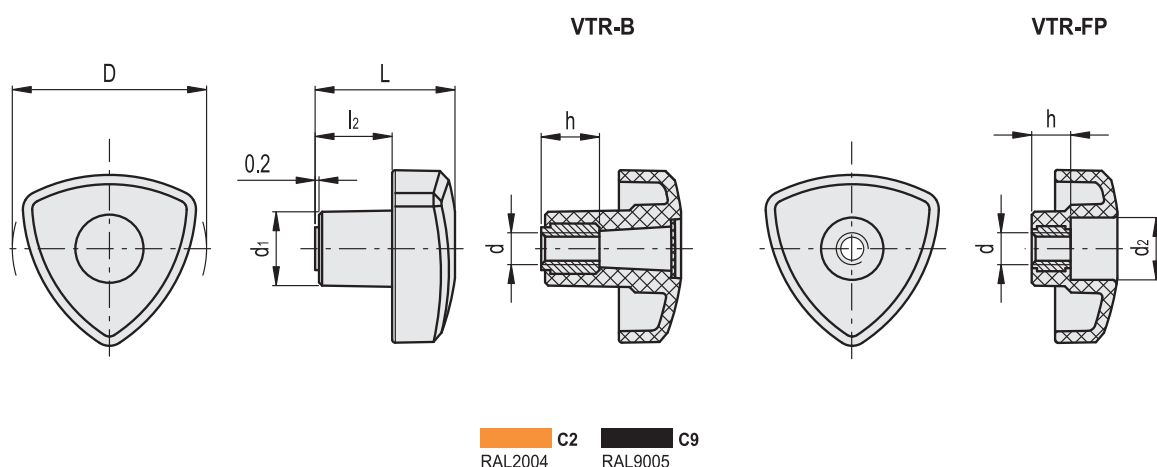
Matte anodised aluminium.

STANDARD EXECUTIONS

- **VTR-B:** brass boss, threaded blind hole.
- **VTR-FP:** brass boss, threaded pass-through hole.
- **VTR-N:** square hole.
- **VTR-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).



ELESA Original design



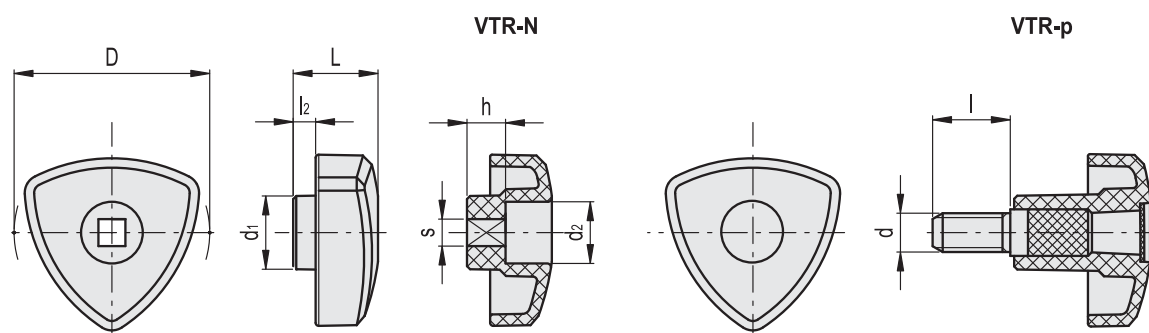
VTR-B

Code	Description	Code	Description	D	d6H	L	d1	l2	h	⚖
83002	VTR.32 B-M5-C2	83001	VTR.32 B-M5-C9	32	M5	26	14	16	10	7
83012	VTR.32 B-M6-C2	83011	VTR.32 B-M6-C9	32	M6	26	14	16	12	9
83402	VTR.40 B-M6-C2	83401	VTR.40 B-M6-C9	40	M6	30	16	17	12	11
83412	VTR.40 B-M8-C2	83411	VTR.40 B-M8-C9	40	M8	30	16	17	14	13
83802	VTR.50 B-M8-C2	83801	VTR.50 B-M8-C9	50	M8	35	19	19	14	18
83812	VTR.50 B-M10-C2	83811	VTR.50 B-M10-C9	50	M10	35	19	19	16	22
84202	VTR.60 B-M10-C2	84201	VTR.60 B-M10-C9	60	M10	41	22	22	16	30
84212	VTR.60 B-M12-C2	84211	VTR.60 B-M12-C9	60	M12	41	22	22	18	32

VTR-FP

Code	Description	D	d6H	L	d1	d2	l2	h	⚖
83021	VTR.32 FP-M5	32	M5	14	14	10	4	6	5
83421	VTR.40 FP-M6	40	M6	18	16	12	5	8	8
83821	VTR.50 FP-M8	50	M8	22	19	16	6	10	14
84221	VTR.60 FP-M10	60	M10	26	22	19	7	12	22





VTR-N

Code	Description	D	sH9	L	d1	d2	l2	h	⚖
83031	VTR.32 N-5x5	32	5	14	14	10	4	6	4
83431	VTR.40 N-6x6	40	6	18	16	12	5	8	7
83831	VTR.50 N-6x6	50	6	22	19	16	6	10	12
83836	VTR.50 N-7x7	50	7	22	19	16	6	10	11
84231	VTR.60 N-7x7	60	7	26	22	19	7	12	18

VTR-p

Code	Description	D	d6g	L	d1	l	l2	⚖
83041	VTR.32 p-M5x10	32	M5	26	14	10	16	9
83042	VTR.32 p-M5x20	32	M5	26	14	20	16	10
83043	VTR.32 p-M5x40	32	M5	26	14	40	16	13
83051	VTR.32 p-M6x10	32	M6	26	14	10	16	10
83052	VTR.32 p-M6x20	32	M6	26	14	20	16	13
83053	VTR.32 p-M6x40	32	M6	26	14	40	16	15
83441	VTR.40 p-M6x10	40	M6	30	16	10	17	14
83442	VTR.40 p-M6x20	40	M6	30	16	20	17	15
83443	VTR.40 p-M6x40	40	M6	30	16	40	17	19
83451	VTR.40 p-M8x16	40	M8	30	16	16	17	19
83452	VTR.40 p-M8x30	40	M8	30	16	30	17	25
83453	VTR.40 p-M8x50	40	M8	30	16	50	17	30
83841	VTR.50 p-M8x16	50	M8	35	19	16	19	28
83842	VTR.50 p-M8x30	50	M8	35	19	30	19	32
83843	VTR.50 p-M8x50	50	M8	35	19	50	19	37
83851	VTR.50 p-M10x20	50	M10	35	19	20	19	35
83852	VTR.50 p-M10x30	50	M10	35	19	30	19	40
83853	VTR.50 p-M10x50	50	M10	35	19	50	19	50
84241	VTR.60 p-M10x20	60	M10	41	22	20	22	46
84242	VTR.60 p-M10x30	60	M10	41	22	30	22	48
84243	VTR.60 p-M10x50	60	M10	41	22	50	22	60
84251	VTR.60 p-M12x20	60	M12	41	22	20	22	57
84252	VTR.60 p-M12x30	60	M12	41	22	30	22	65
84253	VTR.60 p-M12x50	60	M12	41	22	50	22	80



Stainless Steel-Triangular knobs

SPECIFICATION

Types

- Type **E**: with threaded blind bore
- Type **D**: with threaded through bore
- Type **C**: with plain blind bore H7

Stainless Steel precision casting

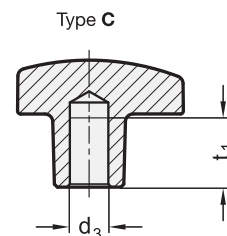
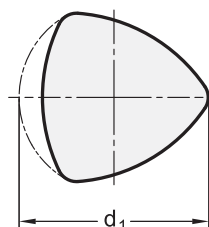
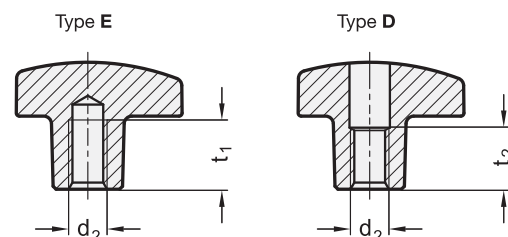
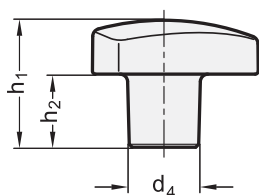
- AISI CF-8
- matt shot-blasted **MT**
- highly polished **PL** (only type D and E)

INFORMATION

Stainless Steel-Triangular knobs GN 5339.5 have been specially designed for use on machinery in the food industry. The smooth and enclosed areas as well as the corner radii comply with the requirements of hygiene standards. Original ELESa-Design, manufactured in metal version under permission of ELESa s.p.a.

TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



* Complete with surface index of the triangular knob (MT or PL)

MT **PL**
Matt shot-blasted Highly polished

GN 5339.5

STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h1 ≈	h2 ≈	t1 min.	t2	⚖
GN 5339.5-32-B6-C-MT	32	-	B 6	12	21	12	12	-	43
GN 5339.5-40-B8-C-MT	40	-	B 8	14	26	14	15	-	88
GN 5339.5-50-B10-C-MT	50	-	B 10	18	33	19	18	-	148
GN 5339.5-60-B12-C-MT	60	-	B 12	20	41	23	22	-	286
GN 5339.5-32-M6-D-*	32	M 6	-	12	21	12	-	10	40
GN 5339.5-40-M8-D-*	40	M 8	-	14	26	14	-	13	82
GN 5339.5-50-M10-D-*	50	M 10	-	18	33	19	-	16	100
GN 5339.5-60-M12-D-*	60	M 12	-	20	41	23	-	20	275
GN 5339.5-32-M5-E-*	32	M 5	-	12	21	12	10	-	44
GN 5339.5-32-M6-E-*	32	M 6	-	12	21	12	12	-	40
GN 5339.5-40-M6-E-*	40	M 6	-	14	26	13	12	-	85
GN 5339.5-40-M8-E-*	40	M 8	-	14	26	14	15	-	100
GN 5339.5-50-M8-E-*	50	M 8	-	18	32	18	15	-	160
GN 5339.5-50-M10-E-*	50	M 10	-	18	33	19	18	-	151
GN 5339.5-60-M10-E-*	60	M 10	-	20	41	23	18	-	295
GN 5339.5-60-M12-E-*	60	M 12	-	20	41	23	22	-	295

Lobe knobs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

CLOSING CAP

Polypropylene based (PP) technopolymer, orange or black colour, glossy finish with matte central surface, snap-in mounting.

STANDARD EXECUTIONS

- **VTL-B:** brass boss, threaded blind hole.
- **VTL-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947: ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS

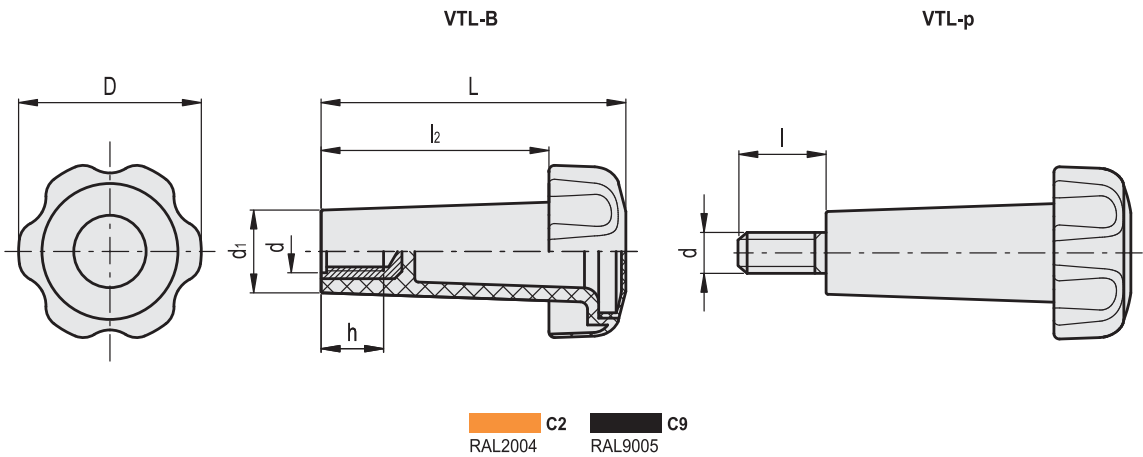
The long cone-shaped body of this knob is especially designed to clamp elements placed at a distance from the operator or in difficult to access places

SPECIAL EXECUTIONS ON REQUEST

On the surface of the closing cap words, marks, graphic symbols, etc... can be tampoprinted in colours.



FMA design



VTL-B

Code	Description	D	d6H	L	d1	l2	h	⚖
182222	VTL.50/80 B-M10-C2	50	M10	82	22.5	62	17	48
182223	VTL.50/80 B-M10-C9	50	M10	82	22.5	62	17	48

VTL-p

Code	Description	D	d6g	L	d1	l	l2	⚖
182232	VTL.50/80 p-M10x20-C2	50	M10	82	22.5	20	62	60
182233	VTL.50/80 p-M10x20-C9	50	M10	82	22.5	20	62	60
182238	VTL.50/80 p-M10x50-C2	50	M10	82	22.5	50	62	75
182239	VTL.50/80 p-M10x50-C9	50	M10	82	22.5	50	62	75

Knobs with rear lobes

Technopolymer

MATERIAL

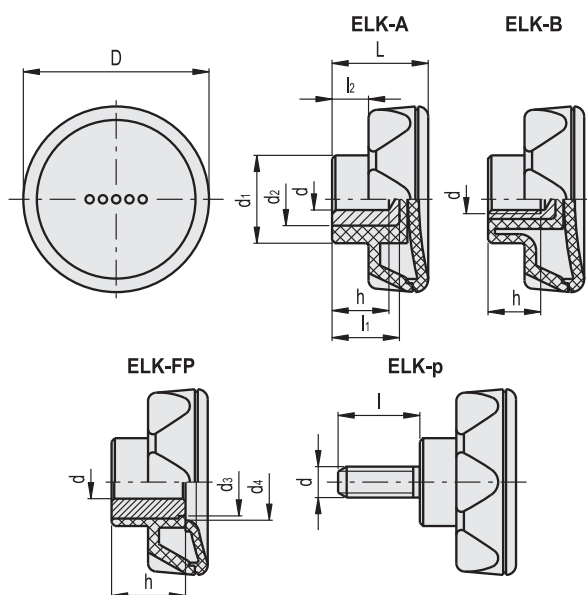
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

CAP

Technopolymer in Ergostyle colours, matte finish. Ultrasonically welded to the body of the knob.

STANDARD EXECUTIONS

- **ELK-A:** black-oxide steel boss, H9 reamed blind hole.
- **ELK-B:** brass boss, threaded blind hole.
- **ELK-FP:** black-oxide steel boss, H7 reamed pass-through hole.
- **ELK-p:** zinc-plated steel threaded stud with chamfered flat end as in UNI 947 : ISO 4753 (see Technical Data on page A11).



* Complete with colour index, example: 221206-C2 ELK.45 A-8-C2

C1 C2 C3 C4 C5 C6
RAL7021 RAL2004 RAL7035 RAL1021 RAL5024 RAL3000



ELK-A

Code	Description	D	dH9	L	d1	d2	l1	l2	h	⚖
221206-*	ELK.45 A-8 -*	45	8	26	21	14	19	10	14	37
221406-*	ELK.56 A-8 -*	56	8	29	26.5	14	18	11	14	53
221606-*	ELK.70 A-10 -*	70	10	35	32.5	22	25	13	21	112

ELK-B

Code	Description	D	d6H	L	d1	l2	h	⚖
221221-*	ELK.45 B-M6-*	45	M6	26	21	10	12	29
221226-*	ELK.45 B-M8-*	45	M8	26	21	10	13	30
221426-*	ELK.56 B-M8-*	56	M8	29	26.5	11	13	41
221431-*	ELK.56 B-M10-*	56	M10	29	26.5	11	13	39
221436-*	ELK.56 B-M12-*	56	M12	29	26.5	11	13	37
221631-*	ELK.70 B-M10-*	70	M10	35	32.5	13	18	68
221636-*	ELK.70 B-M12-*	70	M12	35	32.5	13	17	66
221641-*	ELK.70 B-M16-*	70	M16	35	32.5	13	17	64

ELK-FP

Code	Description	D	dH7	L	d1	d2	d3	d4	l2	h	⚖
220416-*	ELK.56 FP-A-10-*	56	10	29	26.5	22	20.5	23	11	22	80
220616-*	ELK.70 FP-A-12-*	70	12	35	32.5	26	24	28	13	27	132

ELK-p

Code	Description	D	d6g	L	d1	l	l2	⚖
222221-*	ELK.45 p-M8x20-*	45	M8	26	21	20	10	33
222241-*	ELK.45 p-M8x30-*	45	M8	26	21	30	10	36
222251-*	ELK.45 p-M10x20-*	45	M10	26	21	20	10	36
222261-*	ELK.45 p-M10x30-*	45	M10	26	21	30	10	39
222271-*	ELK.45 p-M10x40-*	45	M10	26	21	40	10	42
222406-*	ELK.56 p-M8x20-*	56	M8	29	26.5	20	11	46
222416-*	ELK.56 p-M8x30-*	56	M8	29	26.5	30	11	49
222426-*	ELK.56 p-M8x40-*	56	M8	29	26.5	40	11	52
222451-*	ELK.56 p-M10x20-*	56	M10	29	26.5	20	11	55
222461-*	ELK.56 p-M10x30-*	56	M10	29	26.5	30	11	61
222471-*	ELK.56 p-M10x40-*	56	M10	29	26.5	40	11	67
222481-*	ELK.56 p-M12x30-*	56	M12	29	26.5	30	11	68
222491-*	ELK.56 p-M12x40-*	56	M12	29	26.5	40	11	73
222501-*	ELK.56 p-M12x50-*	56	M12	29	26.5	50	11	78
222616-*	ELK.70 p-M10x30-*	70	M10	35	32.5	30	13	83
222621-*	ELK.70 p-M10x40-*	70	M10	35	32.5	40	13	88
222631-*	ELK.70 p-M10x50-*	70	M10	35	32.5	50	13	93
222641-*	ELK.70 p-M12x30-*	70	M12	35	32.5	30	13	90
222651-*	ELK.70 p-M12x40-*	70	M12	35	32.5	40	13	96
222661-*	ELK.70 p-M12x50-*	70	M12	35	32.5	50	13	102

Lobe knobs

Technopolymer or Duroplast

MATERIAL

- **VL.640 FP:** glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.
- **VL.140 FP:** phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS

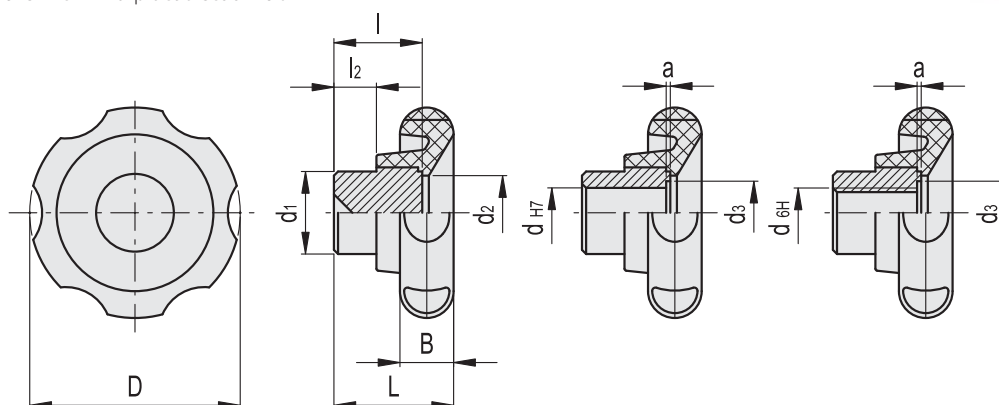
- **VL.640 FP-A:** black-oxide steel hub available in different executions: not drilled, H7 reamed pass-through hole or 6H threaded pass-through hole.
- **VL.640 FP-B:** brass hub, not drilled.
- **VL.140 FP-A:** black-oxide steel hub available in different executions: not drilled, H7 reamed pass-through hole or 6H threaded pass-through hole.

SPECIAL EXECUTIONS ON REQUEST

Different RAL colours with zinc-plated steel hub.



ELESA Original design



VL.640 FP-A - VL.640 FP-B

Code	Description	D	d6H	dH7	L	B	d1	d2	d3	l	l2	a	△
174111	VL.640/50 FP-A	50	-	-	29	13	20	18	-	21	10	-	72
174121	VL.640/50 FP-A-8	50	-	8	29	13	20	18	-	21	10	-	65
174131	VL.640/50 FP-A-10	50	-	10	29	13	20	18	-	21	10	-	60
174141	VL.640/50 FP-A-M8	50	M8	-	29	13	20	18	-	21	10	-	68
174151	VL.640/50 FP-A-M10	50	M10	-	29	13	20	18	-	21	10	-	61
174161	VL.640/50 FP-B	50	-	-	29	13	20	18	-	21	10	-	72
174211	VL.640/60 FP-A	61	-	-	30	16	25	24	-	23	11	-	126
174221	VL.640/60 FP-A-10	61	-	10	30	16	25	24	15.2	23	11	0.8	114
174231	VL.640/60 FP-A-12	61	-	12	30	16	25	24	18.1	23	11	0.8	110
174241	VL.640/60 FP-A-M10	61	M10	-	30	16	25	24	18.1	23	11	0.8	117
174251	VL.640/60 FP-A-M12	61	M12	-	30	16	25	24	18.1	23	11	0.8	111
174261	VL.640/60 FP-B	61	-	-	30	16	25	24	-	23	11	-	126
174311	VL.640/70 FP-A	70	-	-	33	18	30	30	-	25	12	-	190
174321	VL.640/70 FP-A-12	70	-	12	33	18	30	30	18.1	25	12	0.8	170
174331	VL.640/70 FP-A-14	70	-	14	33	18	30	30	21.4	25	12	1.5	160
174341	VL.640/70 FP-A-M12	70	M12	-	33	18	30	30	18.1	25	12	0.8	175
174361	VL.640/70 FP-B	70	-	-	33	18	30	30	-	25	12	-	190
174411	VL.640/80 FP-A	80	-	-	40	19	35	34	-	30	15	-	300
174421	VL.640/80 FP-A-14	80	-	14	40	19	35	34	18.1	30	15	0.8	270
174431	VL.640/80 FP-A-16	80	-	16	40	19	35	34	21.4	30	15	1.5	255
174441	VL.640/80 FP-A-M14	80	M14	-	40	19	35	34	18.1	30	15	0.8	274
174451	VL.640/80 FP-A-M16	80	M16	-	40	19	35	34	18.1	30	15	0.8	260
174461	VL.640/80 FP-B	80	-	-	40	19	35	34	-	30	15	-	300

VL.140 FP-A

Code	Description	D	d6H	dH7	L	B	d1	d2	d3	l	l2	a	△
74511	VL.140/100 FP-A	99	-	-	44	20	36	34	-	34	14	-	405
74514	VL.140/100 FP-A-16	99	-	16	44	20	36	34	21.4	34	14	1.5	350
74517	VL.140/100 FP-A-M16	99	M16	-	44	20	36	34	21.4	34	14	1.5	360
74611	VL.140/130 FP-A	129	-	-	47	22	40	36	-	34	13	-	560

Lobe knobs

Duroplast

MATERIAL

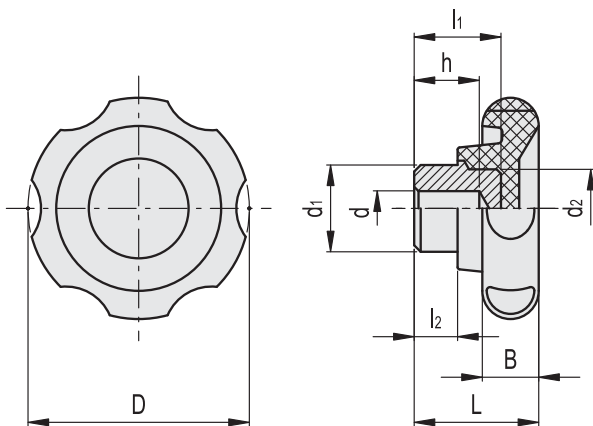
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Black-oxide steel hub, pre-drilled blind hole.



ELESA Original design



Code	Description	D	d-0.1	dH9	L	B	d1	d2	l1	l2	h	⚖
74101	VL.140/50	51	6	-	29	13	20	18	20	10	15	67
74201	VL.140/60	61	6	-	32	16	20	18	20	10	15	87
74301	VL.140/70	69	6	-	36	18	24	20	23	12	15	126
74401	VL.140/80	82	6	-	40	19	24	20	23	12	15	160
74501	VL.140/100	99	-	8	44	20	36	30	31	14	22	325
74601	VL.140/130	129	-	8	47	22	40	40	30	13	20	500

Lobe knobs

Duroplast

MATERIAL

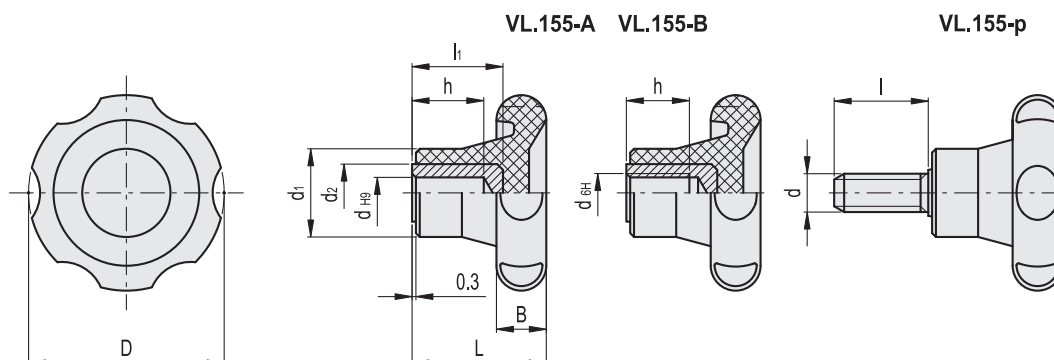
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS

- **VL.155-A:** black-oxide steel boss, plain blind hole.
- **VL.155-B:** brass boss, plain or threaded blind hole.
- **VL.155-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).



ELESA Original design



VL.155-A

Code	Description	D	dH9	L	B	d1	d2	l1	h	Δ
75001	VL.155/50 A-6	51	6	34	13	23	15	23	18	57
75101	VL.155/60 A-6	61	6	38	16	25	15	23	18	81
75211	VL.155/70 A-8	69	8	42	18	27	18	28	21	115
75221	VL.155/70 A-10	69	10	42	18	27	18	31	25	110
75301	VL.155/80 A-8	82	8	48	19	33	20	35	26	177
75311	VL.155/80 A-10	82	10	48	19	33	18	31	25	170
75321	VL.155/80 A-12	82	12	48	19	33	18	29	23	165
75401	VL.155/100 A-8	99	8	52	20	36	26	36	25	275

VL.155-B

Code	Description	D	d6H	dH9	L	B	d1	d2	l1	h	Δ
75011	VL.155/50 B-6	51	-	6	34	13	23	15	23	18	58
75021	VL.155/50 B-M8	51	M8	-	34	13	23	-	-	13	41
75111	VL.155/60 B-6	61	-	6	38	16	25	15	23	18	82
75121	VL.155/60 B-M8	61	M8	-	38	16	25	-	-	20	66
75131	VL.155/60 B-M10	61	M10	-	38	16	25	-	-	17	68
75231	VL.155/70 B-6	69	-	6	42	18	27	18	28	20	120
75241	VL.155/70 B-M10	69	M10	-	42	18	27	-	-	17	85
75251	VL.155/70 B-M12	69	M12	-	42	18	27	-	-	20	90
75331	VL.155/80 B-8	82	-	8	48	19	33	20	35	26	183

VL.155-p

Code	Description	D	d6g	L	B	d1	l	Δ
75031	VL.155/50 p-M8x25	51	M8	34	12	23	25	48
75032	VL.155/50 p-M8x40	51	M8	34	12	23	40	52
75041	VL.155/50 p-M10x30	51	M10	34	12	23	30	62
75042	VL.155/50 p-M10x50	51	M10	34	12	23	50	73
75141	VL.155/60 p-M8x30	61	M8	38	16	25	30	77
75151	VL.155/60 p-M10x30	61	M10	38	16	25	30	82
75261	VL.155/70 p-M10x30	69	M10	42	18	27	30	100
75262	VL.155/70 p-M10x50	69	M10	42	18	27	50	110
75271	VL.155/70 p-M12x25	69	M12	42	18	27	25	110
75272	VL.155/70 p-M12x50	69	M12	42	18	27	50	135
75341	VL.155/80 p-M12x30	82	M12	48	19	33	30	155
75342	VL.155/80 p-M12x50	82	M12	48	19	33	50	180

Lobe knobs

Duroplast

MATERIAL

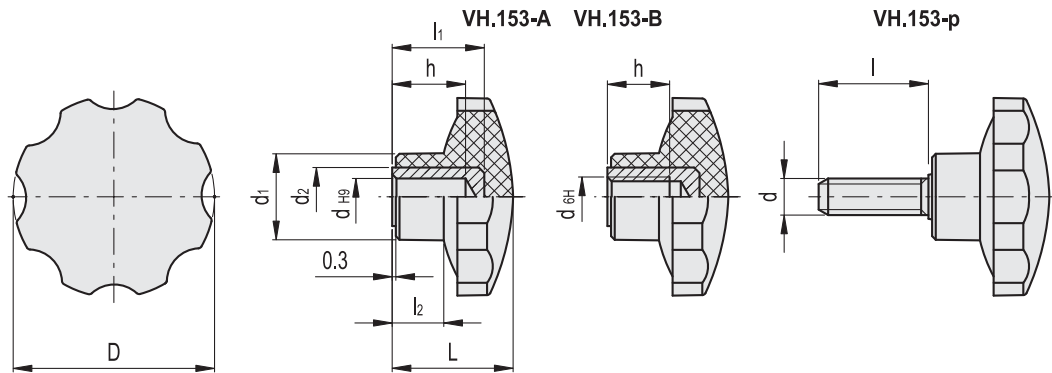
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS

- **VH.153-A:** black-oxide steel boss, plain blind hole.
- **VH.153-B:** brass boss, plain or threaded blind hole.
- **VH.153-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).



ELESA Original design



VH.153-A

Code	Description	D	dH9	L	d1	d2	l1	l2	h	Δ
73302	VH.153/54 A-8	54	8	32	24	15	25	13	20	68
73303	VH.153/54 A-10	54	10	32	24	16	25	13	21	65
73402	VH.153/62 A-10	62	10	35	24	16	25	13	21	85
73501	VH.153/74 A-8	72	8	46	32	20	35	21	26	177
73601	VH.153/85 A-8	85	8	49	32	20	35	21	26	223

VH.153-B

Code	Description	D	d6H	dH9	L	d1	d2	l1	l2	h	Δ
73001	VH.153/25 B-4	25	-	4	18	15	11	14	9	11	15
73021	VH.153/25 B-M4	25	M4	-	18	15	-	9	10	10	
73031	VH.153/25 B-M5	25	M5	-	18	15	-	9	10	10	
73101	VH.153/35 B-6	35	-	6	22	19	12	17	10	14	25
73121	VH.153/35 B-8	35	-	8	22	19	12	18	10	14	33
73131	VH.153/35 B-M6	35	M6	-	22	19	-	10	12	19	
73141	VH.153/35 B-M8	35	M8	-	22	19	-	10	13	22	
73201	VH.153/44 B-6	44	-	6	26	19	12	17	10	14	35
73221	VH.153/44 B-8	44	-	8	26	19	12	18	10	14	33
73231	VH.153/44 B-M6	44	M6	-	26	19	-	10	12	29	
73241	VH.153/44 B-M8	44	M8	-	26	19	-	10	13	31	
73311	VH.153/54 B-6	54	-	6	32	24	15	23	13	18	69
73331	VH.153/54 B-M8	54	M8	-	32	24	-	13	13	53	
73341	VH.153/54 B-M10	54	M10	-	32	24	-	13	17	55	
73411	VH.153/62 B-8	62	-	8	35	24	15	25	13	20	85
73431	VH.153/62 B-M10	62	M10	-	35	24	-	13	17	80	
73521	VH.153/74 B-M12	72	M12	-	46	32	-	21	20	132	
73621	VH.153/85 B-M14	85	M14	-	49	32	-	21	20	184	

VH.153-p

Code	Description	D	d6g	L	d1	l	l2	Δ
73041	VH.153/25 p-M6x20	25	M6	18	15	20	9	14
73151	VH.153/35 p-M6x16	35	M6	22	19	16	10	22
73161	VH.153/35 p-M8x16	35	M8	22	19	16	10	26
73162	VH.153/35 p-M8x25	35	M8	22	19	25	10	29
73163	VH.153/35 p-M8x35	35	M8	22	19	35	10	32
73251	VH.153/44 p-M8x20	44	M8	26	19	20	10	40
73252	VH.153/44 p-M8x25	44	M8	26	19	25	10	42
73253	VH.153/44 p-M8x30	44	M8	26	19	30	10	44
73254	VH.153/44 p-M8x40	44	M8	26	19	40	10	47
73255	VH.153/44 p-M8x50	44	M8	26	19	50	10	50
73261	VH.153/44 p-M10x25	44	M10	26	19	25	10	52
73262	VH.153/44 p-M10x30	44	M10	26	19	30	10	53
73263	VH.153/44 p-M10x50	44	M10	26	19	50	10	60
73351	VH.153/54 p-M10x30	54	M10	32	24	30	13	76
73441	VH.153/62 p-M10x40	62	M10	35	24	40	13	95
73451	VH.153/62 p-M12x30	62	M12	35	24	30	13	105
73531	VH.153/74 p-M12x50	72	M12	46	32	50	21	180

Fluted grip knobs

ESD conductive technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) special conductive technopolymer, black colour, matte finish. 10³ Ω surface resistivity (ASTM D257 trial method), 10³ Ωcm volume resistivity (ASTM D257 trial method).

STANDARD EXECUTIONS

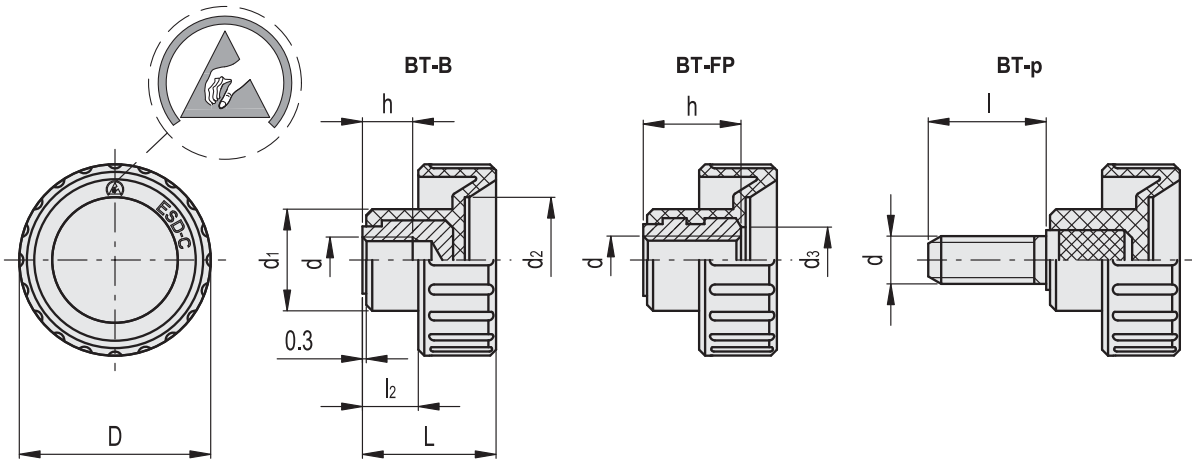
- **BT-B:** brass boss, threaded blind hole.
- **BT-FP:** brass boss, threaded through hole.
- **BT-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS

The special conductive technopolymer (ESD-C Electrostatic Discharge Conductive) prevents the accumulation of electrostatic charge. BT-ESD knobs are suitable for ESD PROTECTED AREA (EPA) where components which are susceptible to electrostatic discharges are to be handled with the minimum risk of damage. The indelibly printed mark (ESD-C) on the surface of the knob identifies the particular conductive feature according to EN 100015/1 and IEC 61340-5-1.



ELESA Original design



Code	Description	D	d6H	L	d1	d2	l2	h	⚖
154121	BT.16 B-M4-ESD-C	16	M4	13	11	9	5	6	5
154221	BT.20 B-M5-ESD-C	20	M5	16	11.5	11	6	6	6
154321	BT.25 B-M6-ESD-C	26	M6	19	16	15	8	8	9
154421	BT.32 B-M8-ESD-C	32	M8	22	17	21	9	10	11

Code	Description	D	d6H	L	d1	d2	d3	l2	h	⚖
154132	BT.16 FP-M5-ESD-C	16	M5	13	11	9	6	5	10	5
154232	BT.20 FP-M6-ESD-C	20	M6	16	11.5	11	7	6	12	7
154332	BT.25 FP-M8-ESD-C	26	M8	19	16	15	9	8	14	11
154432	BT.32 FP-M10-ESD-C	32	M10	22	17	21	11	9	16	13

Code	Description	D	d6g	L	d1	d2	l	l2	⚖
154151	BT.16 p-M5x10-ESD-C	16	M5	13	11	9	10	5	6
154152	BT.16 p-M5x16-ESD-C	16	M5	13	11	9	16	5	6
154251	BT.20 p-M6x10-ESD-C	20	M6	16	11.5	11	10	6	9
154252	BT.20 p-M6x16-ESD-C	20	M6	16	11.5	11	16	6	11
154253	BT.20 p-M6x25-ESD-C	20	M6	16	11.5	11	25	6	16
154351	BT.25 p-M8x16-ESD-C	26	M8	19	16	15	16	8	15
154352	BT.25 p-M8x25-ESD-C	26	M8	19	16	15	25	8	18
154451	BT.32 p-M10x20-ESD-C	32	M10	22	17	21	20	9	25
154452	BT.32 p-M10x30-ESD-C	32	M10	22	17	21	30	9	28

Fluted grip knobs

Technopolymer

MATERIAL

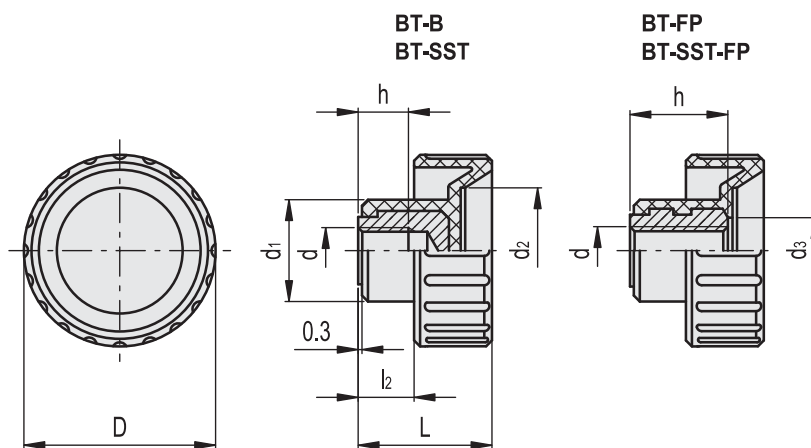
Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION

- **BT-B**: brass boss, threaded blind hole.
- **BT-SST**: AISI 303 stainless steel boss, threaded blind hole.
- **BT-FP**: brass boss, threaded pass-through hole.
- **BT-SST-FP**: AISI 303 stainless steel, threaded pass-through hole.
- **BT-p**: zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).
- **BT-SST-p**: AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).



ELESA Original design



BT-B

Code	Description	D	d6H	L	d1	d2	l2	h	⚖
6310	BT.12 B-M3	12	M3	11.5	9.5	6	4	6	5
6311	BT.12 B-M4	12	M4	11.5	9.5	6	4	6	4
6312	BT.12 B-M5	12	M5	11.5	9.5	6	4	6	3
6320	BT.16 B-M3	16	M3	13	11	9	5	6	6
6321	BT.16 B-M4	16	M4	13	11	9	5	6	5
6322	BT.16 B-M5	16	M5	13	11	9	5	6	4
6521	BT.20 B-M5	20	M5	16	11.5	11	6	6	6
6522	BT.20 B-M6	20	M6	16	11.5	11	6	6	7
6611	BT.25 B-M5	26	M5	19	16	15	8	6	10
6621	BT.25 B-M6	26	M6	19	16	15	8	8	9
6721	BT.32 B-M8	32	M8	22	17	21	9	10	11
6811	BT.40 B-M8	40	M8	27	19	25	13	13	21
6813	BT.40 B-M10	40	M10	27	19	25	13	13	19
6863	BT.50 B-M10	50	M10	28.5	22	31	13.5	13	25

BT-FP

Code	Description	D	d6H	L	d1	d2	d3	l2	h	⚖
6331	BT.16 FP-M4	16	M4	13	11	9	5	5	10	4
6336	BT.16 FP-M5	16	M5	13	11	9	6	5	10	5
6530	BT.20 FP-M5	20	M5	16	11.5	11	6	6	12	8
6531	BT.20 FP-M6	20	M6	16	11.5	11	7	6	12	7
6631	BT.25 FP-M6	26	M6	19	16	15	7	8	14	9
6636	BT.25 FP-M8	26	M8	19	16	15	9	8	14	11
6730	BT.32 FP-M6	32	M6	22	17	21	7	9	16	18
6731	BT.32 FP-M8	32	M8	22	17	21	10	9	16	15
6732	BT.32 FP-M10	32	M10	22	17	21	11	9	16	13
6803	BT.40 FP-M10	40	M10	27	19	25	14	13	20	25
6850	BT.50 FP-M10	50	M10	28.5	22	31	14	13.5	20	32

BT-SST

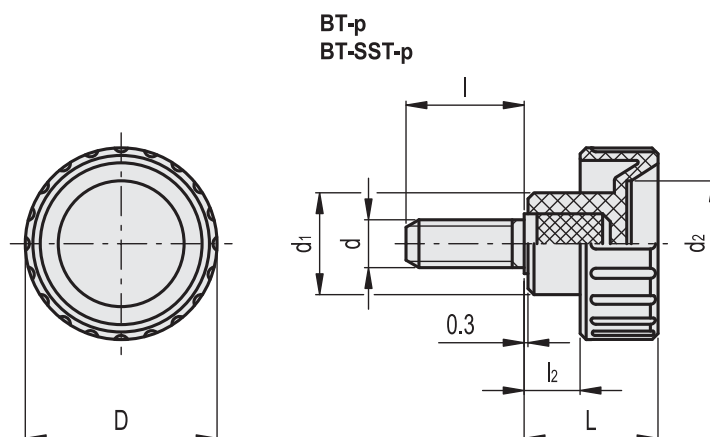
STAINLESS STEEL

Code	Description	D	d6H	L	d1	d2	l2	h	⚖
106521	BT.20-SST-M5	20	M5	16	11.5	11	6	5	6
106621	BT.25-SST-M6	26	M6	19	16	15	8	8	9
106721	BT.32-SST-M8	32	M8	22	17	21	9	10	12

BT-SST-FP

STAINLESS STEEL

Code	Description	D	d6H	L	d1	d2	d3	l2	h	⚖
106530	BT.20-SST-FP-M5	20	M5	16	11.5	11	6	6	12	7
106631	BT.25-SST-FP-M6	26	M6	19	16	15	7	8	14	9
106731	BT.32-SST-FP-M8	32	M8	22	17	21	10	9	16	15



BT-p

Code	Description	D	d6g	L	d1	d2	l	l2	△
6341	BT.12 p-M4x10	12	M4	11.5	9.5	6	10	4	3
6342	BT.12 p-M4x16	12	M4	11.5	9.5	6	16	4	3
6343	BT.12 p-M5x10	12	M5	11.5	9.5	6	10	4	4
6344	BT.12 p-M5x16	12	M5	11.5	9.5	6	16	4	4
6351	BT.16 p-M4x10	16	M4	13	11	9	10	5	3
6356	BT.16 p-M4x16	16	M4	13	11	9	16	5	3
6361	BT.16 p-M4x20	16	M4	13	11	9	20	5	4
6366	BT.16 p-M4x30	16	M4	13	11	9	30	5	5
6371	BT.16 p-M5x10	16	M5	13	11	9	10	5	6
6376	BT.16 p-M5x16	16	M5	13	11	9	16	5	7
6541	BT.20 p-M5x10	20	M5	16	11.5	11	10	6	7
6546	BT.20 p-M5x16	20	M5	16	11.5	11	16	6	8
6548	BT.20 p-M5x20	20	M5	16	11.5	11	20	6	8
6551	BT.20 p-M5x25	20	M5	16	11.5	11	25	6	9
6571	BT.20 p-M6x10	20	M6	16	11.5	11	10	6	9
6576	BT.20 p-M6x16	20	M6	16	11.5	11	16	6	11
6581	BT.20 p-M6x25	20	M6	16	11.5	11	25	6	13
6591	BT.20 p-M6x40	20	M6	16	11.5	11	40	6	16
6638	BT.25 p-M6x10	26	M6	16	11.5	15	10	8	18
6641	BT.25 p-M6x16	26	M6	19	16	15	16	8	20
6643	BT.25 p-M6x20	26	M6	19	16	15	20	8	23
6646	BT.25 p-M6x25	26	M6	19	16	15	25	8	27
6647	BT.25 p-M6x30	26	M6	19	16	15	30	8	30
6649	BT.25 p-M6x50	26	M6	19	16	15	50	8	32
6661	BT.25 p-M8x16	26	M8	19	16	15	16	8	22
6666	BT.25 p-M8x25	26	M8	19	16	15	25	8	27
6753	BT.32 p-M8x16	32	M8	22	17	21	16	9	25
6754	BT.32 p-M8x20	32	M8	22	17	21	20	9	28
6755	BT.32 p-M8x25	32	M8	22	17	21	25	9	31
6756	BT.32 p-M8x30	32	M8	22	17	21	30	9	35
6758	BT.32 p-M8x40	32	M8	22	17	21	40	9	42
6763	BT.32 p-M10x20	32	M10	22	17	21	20	9	32
6764	BT.32 p-M10x25	32	M10	22	17	21	25	9	34
6765	BT.32 p-M10x30	32	M10	22	17	21	30	9	37
6768	BT.32 p-M10x40	32	M10	22	17	21	40	9	42
6833	BT.40 p-M10x30	40	M10	27	19	25	30	13	40
6883	BT.50 p-M10x30	50	M10	28.5	22	31	30	13.5	44

BT-SST-p

STAINLESS STEEL

Code	Description	D	d6g	L	d1	d2	l	l2	△
106541	BT.20-SST-p-M5x10	20	M5	16	11.5	11	10	6	8
106542	BT.20-SST-p-M5x16	20	M5	16	11.5	11	16	6	9
106642	BT.25-SST-p-M6x16	26	M6	19	16	15	16	8	20
106644	BT.25-SST-p-M6x20	26	M6	19	16	15	20	8	24
106647	BT.25-SST-p-M6x30	26	M6	19	16	15	30	8	28
106752	BT.32-SST-p-M8x16	32	M8	22	17	21	16	9	26
106754	BT.32-SST-p-M8x20	32	M8	22	17	21	20	9	29
106757	BT.32-SST-p-M8x30	32	M8	22	17	21	30	9	36

Knurled grip knobs

Duroplast

MATERIAL

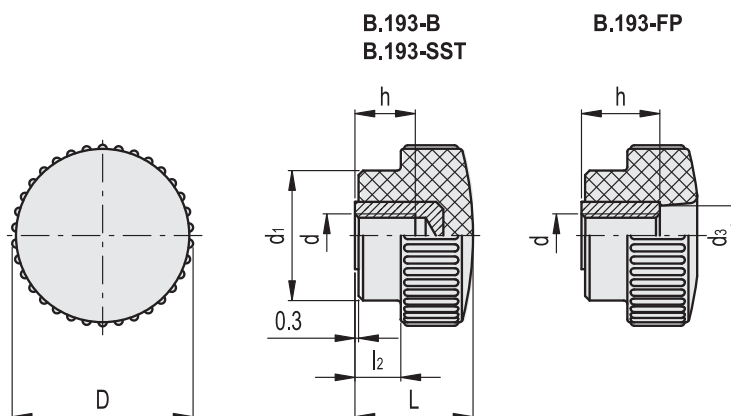
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS

- **B.193-B**: brass boss, threaded blind hole.
- **B.193-SST**: AISI 303 stainless steel boss, threaded blind hole.
- **B.193-FP**: brass boss, threaded through hole.
- **B.193-p**: zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).
- **B.193-SST-p**: AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).



ELESA Original design



B.193-B

Code	Description	D	d6H	L	d1	l2	h	△
2101	B.193/15 B-M3	15	M3	11	11	2	6	4
2102	B.193/15 B-M4	15	M4	11	11	2	6	4
2103	B.193/15 B-M5	15	M5	11	11	2	5	4
2201	B.193/18 B-M5	18	M5	12	13	3	5	5
2301	B.193/20 B-M6	22	M6	14	15	4	6	8
2401	B.193/25 B-M6	26	M6	18	19	6	10	13
2501	B.193/30 B-M8	31	M8	18	24	6	10	20
2601	B.193/35 B-M8	36	M8	23	27	8	10	30
2701	B.193/40 B-M10	40	M10	26	29	10	13	38
2801	B.193/50 B-M10	50	M10	32	36	12	17	73
2802	B.193/50 B-M12	50	M12	32	36	12	20	80

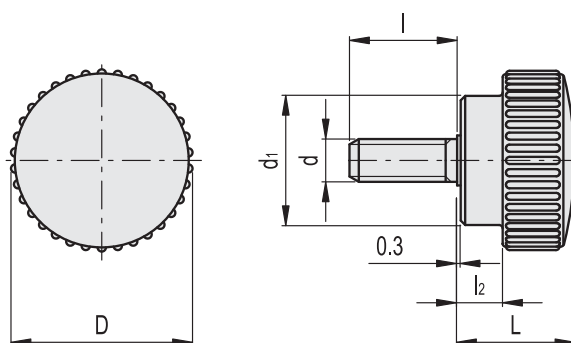
B.193-FP

Code	Description	D	d6H	L	d1	d3	l2	h	△
2111	B.193/15 FP-M4	15	M4	11	11	6	2	10	4
2211	B.193/18 FP-M5	18	M5	12	13	7	3	10	5
2311	B.193/20 FP-M6	22	M6	14	15	8	4	11	8
2411	B.193/25 FP-M6	26	M6	18	19	10	6	15	16
2412	B.193/25 FP-M8	26	M8	18	19	10	6	15	17
2511	B.193/30 FP-M6	31	M6	18	24	13	6	15	22
2512	B.193/30 FP-M8	31	M8	18	24	13	6	15	21
2513	B.193/30 FP-M10	31	M10	18	24	13	6	15	24
2514	B.193/30 FP-M12	31	M12	18	24	13	6	15	20
2611	B.193/35 FP-M10	36	M10	22.5	27	14	8	15	31
2612	B.193/35 FP-M12	36	M12	22.5	27	14	8	15	30
2711	B.193/40 FP-M10	40	M10	26	29	14	10	15	40
2712	B.193/40 FP-M12	40	M12	26	29	14	10	15	38
2811	B.193/50 FP-M12	50	M12	32	36	21	12	21	72

B.193-SST

STAINLESS STEEL

Code	Description	D	d6H	L	d1	l2	h	△
102103	B.193/15-SST-M5	15	M5	11	11	2	6	4
102301	B.193/20-SST-M6	22	M6	14	15	4	6	8
102401	B.193/25-SST-M6	26	M6	18	19	6	10	13
102501	B.193/30-SST-M8	31	M8	18	24	6	10	20

B.193-p
B.193-SST-p

B.193-p

Code	Description	D	d6g	L	d1	l	l2	⚖
2115	B.193/15 p-M3x6	15	M3	11	11	6	2	2
2116	B.193/15 p-M3x10	15	M3	11	11	10	2	3
2117	B.193/15 p-M3x16	15	M3	11	11	16	2	4
2121	B.193/15 p-M4x6	15	M4	11	11	6	2	3
2122	B.193/15 p-M4x10	15	M4	11	11	10	2	4
2123	B.193/15 p-M4x16	15	M4	11	11	16	2	5
2131	B.193/15 p-M5x10	15	M5	11	11	10	2	5
2132	B.193/15 p-M5x16	15	M5	11	11	16	2	6
2133	B.193/15 p-M5x25	15	M5	11	11	25	2	7
2221	B.193/18 p-M5x10	18	M5	12	13	10	3	6
2222	B.193/18 p-M5x16	18	M5	12	13	16	3	7
2224	B.193/18 p-M5x25	18	M5	12	13	25	3	9
2223	B.193/18 p-M5x40	18	M5	12	13	40	3	11
2321	B.193/20 p-M6x10	22	M6	14	15	10	4	9
2322	B.193/20 p-M6x16	22	M6	14	15	16	4	10
2325	B.193/20 p-M6x20	22	M6	14	15	20	4	11
2323	B.193/20 p-M6x25	22	M6	14	15	25	4	12
2326	B.193/20 p-M6x30	22	M6	14	15	30	4	14
2324	B.193/20 p-M6x40	22	M6	14	15	40	4	15
2421	B.193/25 p-M6x16	26	M6	18	19	16	6	14
2422	B.193/25 p-M6x25	26	M6	18	19	25	6	16
2431	B.193/25 p-M8x16	26	M8	18	19	16	6	20
2432	B.193/25 p-M8x25	26	M8	18	19	25	6	23
2521	B.193/30 p-M8x16	31	M8	18	24	16	6	25
2522	B.193/30 p-M8x25	31	M8	18	24	25	6	28
2523	B.193/30 p-M8x40	31	M8	18	24	40	6	32
2621	B.193/35 p-M8x25	36	M8	23	27	25	8	38
2622	B.193/35 p-M8x40	36	M8	23	27	40	8	42
2721	B.193/40 p-M10x30	40	M10	26	29	30	10	59
2821	B.193/50 p-M10x40	50	M10	32	36	40	12	94

B.193-SST-p

STAINLESS STEEL

Code	Description	D	d6g	L	d1	l	l2	⚖
102115	B.193/15-SST-p-M3x6	15	M3	11	11	6	2	2
102116	B.193/15-SST-p-M3x10	15	M3	11	11	10	2	3
102117	B.193/15-SST-p-M3x16	15	M3	11	11	16	2	4
102121	B.193/15-SST-p-M4x6	15	M4	11	11	6	2	3
102122	B.193/15-SST-p-M4x10	15	M4	11	11	10	2	4
102123	B.193/15-SST-p-M4x16	15	M4	11	11	16	2	5
102131	B.193/15-SST-p-M5x10	15	M5	11	11	10	2	4
102132	B.193/15-SST-p-M5x16	15	M5	11	11	16	2	5
102133	B.193/15-SST-p-M5x25	15	M5	11	11	25	2	8
102221	B.193/18-SST-p-M5x10	18	M5	12	13	10	3	6
102222	B.193/18-SST-p-M5x16	18	M5	12	13	16	3	7
102224	B.193/18-SST-p-M5x25	18	M5	12	13	25	3	9
102321	B.193/20-SST-p-M6x10	22	M6	14	15	10	4	9
102322	B.193/20-SST-p-M6x16	22	M6	14	15	16	4	10
102325	B.193/20-SST-p-M6x20	22	M6	14	15	20	4	12
102323	B.193/20-SST-p-M6x25	22	M6	14	15	25	4	14
102326	B.193/20-SST-p-M6x30	22	M6	14	15	30	4	16
102421	B.193/25-SST-p-M6x16	26	M6	18	19	16	6	14
102422	B.193/25-SST-p-M6x25	26	M6	18	19	25	6	16
102521	B.193/30-SST-p-M8x16	31	M8	18	24	16	6	20
102522	B.193/30-SST-p-M8x25	31	M8	18	24	25	6	24
102523	B.193/30-SST-p-M8x40	31	M8	18	24	40	6	30



Knurled grip knobs

Duroplast

MATERIAL

Phenolic based (PF) Duroplast.

COLOUR

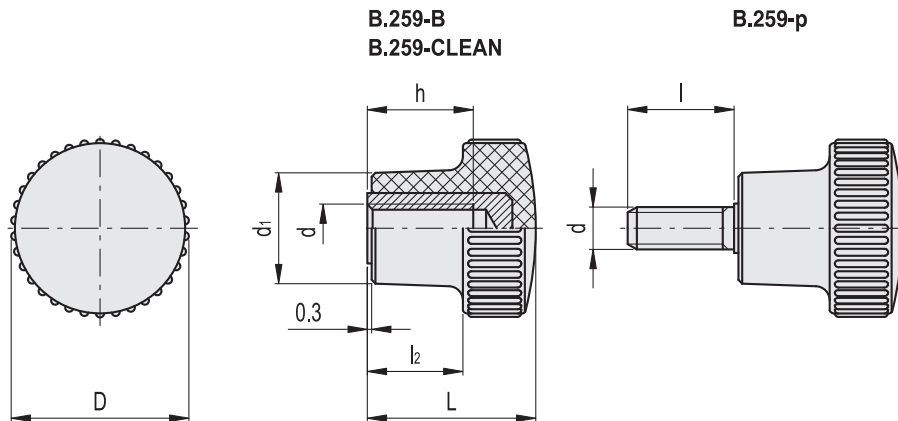
- B.259: black, glossy finish.
- B.259-CLEAN: white similar to RAL 9002, glossy finish.

STANDARD EXECUTIONS

- **B.259-B:** brass boss, threaded blind hole.
- **B.259-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).
- **B.259-CLEAN:** AISI 303 stainless steel boss, threaded blind hole.

FEATURES AND APPLICATIONS (B.259-CLEAN)

B.259-CLEAN knob, thanks to its white colour and glossy finish, is particularly suitable for applications on medical and hospital equipment and on food processing machines whose parts, for hygienic reasons, must be frequently cleaned. Its solid shape without cavities prevents unhealthy residues from depositing.



B.259-B

Code	Description	D	d6H	L	d1	l2	h	⚖
3001	B.259/20 B-M5	21	M5	25	13	12	16	12
3002	B.259/20 B-M6	21	M6	25	13	12	16	11
3111	B.259/25 B-M6	26	M6	28	16	15	16	18
3112	B.259/25 B-M8	26	M8	28	16	15	20	19
3201	B.259/30 B-M6	31	M6	32	19	17	16	25
3202	B.259/30 B-M8	31	M8	32	19	17	20	28
3203	B.259/30 B-M10	31	M10	32	19	17	17	29

B.259-p

Code	Description	D	d6g	L	d1	l	l2	⚖
3011	B.259/20 p-M6x16	21	M6	25	13	16	12	13
3121	B.259/25 p-M8x20	26	M8	28	16	20	15	25
3211	B.259/30 p-M8x25	31	M8	32	19	25	17	38

B.259-CLEAN

STAINLESS STEEL

Code	Description	D	d6H	L	d1	l2	h	⚖
151102	B.259/20-SST-M6 CLEAN	21	M6	25	13	12	12	11
151112	B.259/25-SST-M8 CLEAN	26	M8	28	16	15	13	19
151123	B.259/30-SST-M10 CLEAN	31	M10	32	19	17	17	29

Knurled grip knobs

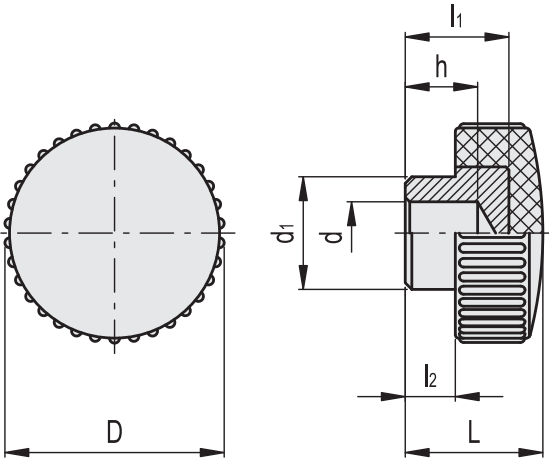
Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Black-oxide steel hub, plain blind hole.



Code	Description	D	dH9	L	d1	l1	l2	h	⚖
2901	B.220/35	35	10	21	18	15	8	10	37

1

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2

Clamping knobs

Stainless Steel-Knurled screws

SPECIFICATION

Stainless Steel AISI 304

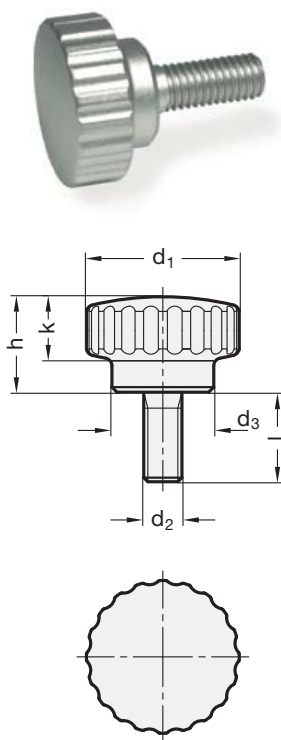
- matt shot-blasted **MT**
- highly polished **PL**

INFORMATION

The knurling of Stainless Steel-Knurled screws GN 535 allows a use in an environment with hygienic requirements.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 535

STAINLESS STEEL

Description	d1	d2	l	d3	h	k	△△
GN 535-20-M5-10-MT	20	M 5	10	14	13	8.5	26
GN 535-20-M5-10-PL	20	M 5	10	14	13	8.5	26
GN 535-20-M5-16-MT	20	M 5	16	14	13	8.5	27
GN 535-20-M5-16-PL	20	M 5	16	14	13	8.5	27
GN 535-24-M6-16-MT	24	M 6	16	16	15	10.5	43
GN 535-24-M6-16-PL	24	M 6	16	16	15	10.5	43
GN 535-24-M6-20-MT	24	M 6	20	16	15	10.5	44
GN 535-24-M6-20-PL	24	M 6	20	16	15	10.5	44
GN 535-24-M6-25-MT	24	M 6	25	16	15	10.5	45
GN 535-24-M6-25-PL	24	M 6	25	16	15	10.5	45
GN 535-28-M8-16-MT	28	M 8	16	18	17	12.5	68
GN 535-28-M8-16-PL	28	M 8	16	18	17	12.5	68
GN 535-28-M8-20-MT	28	M 8	20	18	17	12.5	69
GN 535-28-M8-20-PL	28	M 8	20	18	17	12.5	69
GN 535-28-M8-30-MT	28	M 8	30	18	17	12.5	72
GN 535-28-M8-30-PL	28	M 8	30	18	17	12.5	72

Stainless Steel-Knurled nuts

SPECIFICATION

Stainless Steel AISI 304

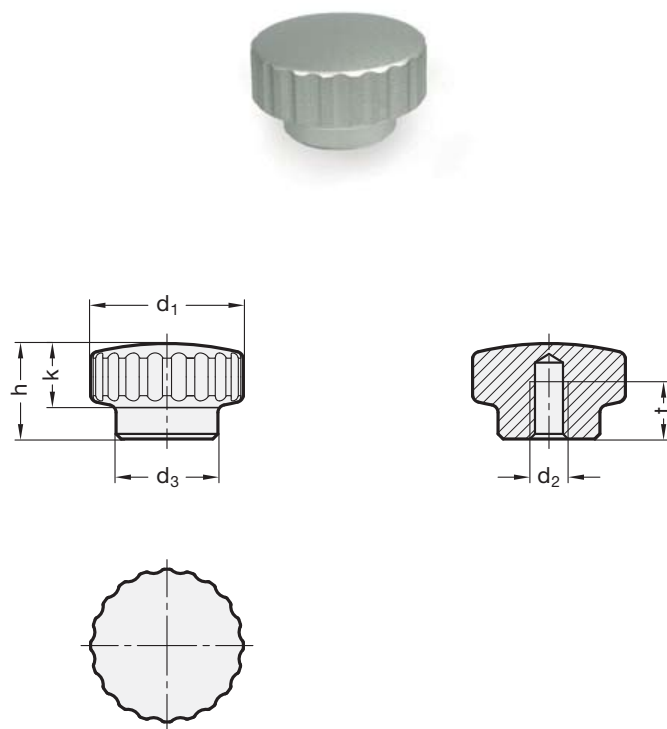
- matt shot-blasted **MT**
- highly polished **PL**

INFORMATION

The knurling of Stainless Steel-Knurled nuts GN 536 allows a use in an environment with hygienic requirements.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 536

STAINLESS STEEL

Description	d1	d2	d3	h	k	t min.	△△
GN 536-20-M5-MT	20	M 5	14	13	8.5	8	24
GN 536-20-M5-PL	20	M 5	14	13	8.5	8	24
GN 536-24-M6-MT	24	M 6	16	15	10.5	9	38
GN 536-24-M6-PL	24	M 6	16	15	10.5	9	38
GN 536-28-M8-MT	28	M 8	18	17	12.5	10	58
GN 536-28-M8-PL	28	M 8	18	17	12.5	10	58

Knurled nuts

Steel / Stainless Steel

SPECIFICATION

Types

- Type **A**: without dowel hole
- Type **B**: with dowel hole (in Stainless Steel requires a minimum order quantity)

Version in Steel

- Tensile strength class 5
- blackened

Version in Stainless Steel AISI 303 NI

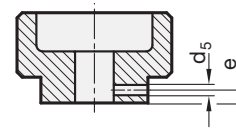
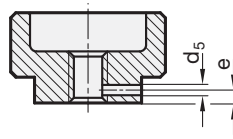
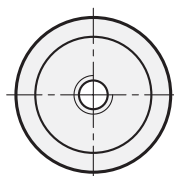
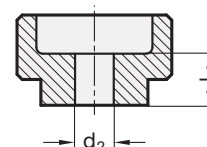
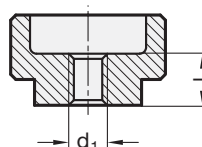
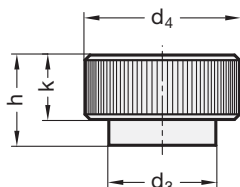
matt shot-blasted

INFORMATION

The dowel bore d_5 in the knurled nut DIN 6303 is designed for the use of clamping or notch pins.
Knurled nuts DIN 6303 with H7 bore and the size M12 are not provided on the official standard sheet.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



*Complete with type index of the knurled nut (A or B)

A
without dowel hole

B
with dowel hole

DIN 6303

Description	d1	d2 H7	d3	d4	d5 H11	e	h	k	l	⚖
DIN 6303-M5-*	M5	-	14	20	1.5	2.5	12	8	7	15
DIN 6303-B5-*	-	B 5	14	20	1.5	2.5	12	8	7	18
DIN 6303-M6-*	M6	-	16	24	1.5	2.5	14	10	8	27
DIN 6303-B6-*	-	B 6	16	24	1.5	2.5	14	10	8	29
DIN 6303-M8-*	M8	-	20	30	2	3	17	12	10	47
DIN 6303-B8-*	-	B 8	20	30	2	3	17	12	10	45
DIN 6303-M10-*	M10	-	28	36	3	4	20	14	12	85
DIN 6303-B10-*	-	B 10	28	36	3	4	20	14	12	89
DIN 6303-M12-*	M12	-	32	40	4	4	24	16	16	132
DIN 6303-B12-*	-	B 12	32	40	4	4	24	16	16	124

DIN 6303-NI

STAINLESS STEEL

Description	d1	d3	d4	d5 H11	e	h	k	l	⚖
DIN 6303-M5-A-NI	M5	14	20	-	-	12	8	7	15
DIN 6303-M6-A-NI	M6	16	24	-	-	14	10	8	27
DIN 6303-M8-A-NI	M8	20	30	-	-	17	12	10	44
DIN 6303-M10-A-NI	M10	28	36	-	-	20	14	12	85
DIN 6303-M12-A-NI	M12	32	40	-	-	24	16	16	132
DIN 6303-M5-B-NI	M5**	14	20	1.5	2.5	12	8	7	15
DIN 6303-M6-B-NI	M6**	16	24	1.5	2.5	14	10	8	27
DIN 6303-M8-B-NI	M8**	20	30	2	3	17	12	10	47
DIN 6303-M10-B-NI	M10**	28	36	3	4	20	14	12	85
DIN 6303-M12-B-NI	M12**	32	40	4	4	24	16	16	132

** usually not available from stock, requires a minimum order quantity

DIN 464

Knurled screws

Steel / Stainless Steel

SPECIFICATION

Version in Steel

- Tensile strength class 5
- visible face fine turned
- blackened

Version in Stainless Steel AISI 303 NI

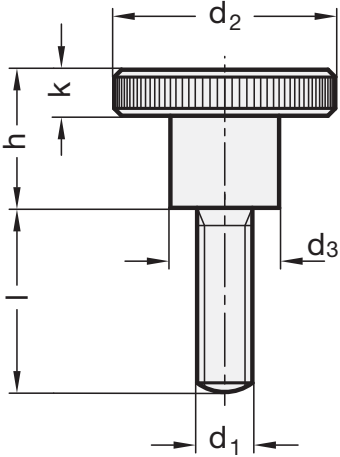
- visible face fine turned
- matt shot-blasted

INFORMATION

All knurled screws DIN 464 are produced from one piece.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



DIN 464

Description	d1	l	d2	d3	h	k	⚙
DIN 464-M3-6	M 3	6	12	6	7.5	2.5	4
DIN 464-M3-10	M 3	10	12	6	7.5	2.5	4
DIN 464-M3-12	M 3	12	12	6	7.5	2.5	4
DIN 464-M3-16	M 3	16	12	6	7.5	2.5	5
DIN 464-M3-20	M 3	20	12	6	7.5	2.5	5
DIN 464-M4-5	M 4	5	16	8	9.5	3.5	7
DIN 464-M4-8	M 4	8	16	8	9.5	3.5	8
DIN 464-M4-10	M 4	10	16	8	9.5	3.5	8
DIN 464-M4-12	M 4	12	16	8	9.5	3.5	8
DIN 464-M4-16	M 4	16	16	8	9.5	3.5	9
DIN 464-M4-20	M 4	20	16	8	9.5	3.5	9
DIN 464-M4-25	M 4	25	16	8	9.5	3.5	10
DIN 464-M5-6	M 5	6	20	10	11.5	4	15
DIN 464-M5-8	M 5	8	20	10	11.5	4	16
DIN 464-M5-10	M 5	10	20	10	11.5	4	15
DIN 464-M5-12	M 5	12	20	10	11.5	4	16
DIN 464-M5-16	M 5	16	20	10	11.5	4	17
DIN 464-M5-20	M 5	20	20	10	11.5	4	18
DIN 464-M5-25	M 5	25	20	10	11.5	4	19
DIN 464-M5-30	M 5	30	20	10	11.5	4	20

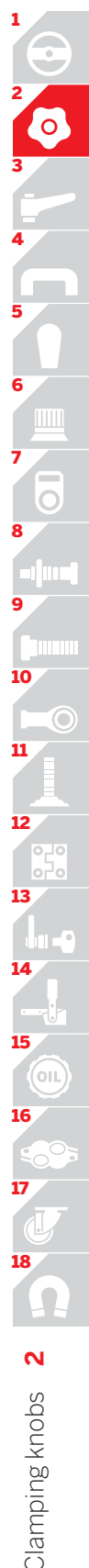
DIN 464

Description	d1	l	d2	d3	h	k	⚖
DIN 464-M6-8	M 6	8	24	12	15	5	27
DIN 464-M6-10	M 6	10	24	12	15	5	28
DIN 464-M6-12	M 6	12	24	12	15	5	29
DIN 464-M6-16	M 6	16	24	12	15	5	30
DIN 464-M6-20	M 6	20	24	12	15	5	28
DIN 464-M6-25	M 6	25	24	12	15	5	30
DIN 464-M6-30	M 6	30	24	12	15	5	30
DIN 464-M6-35	M 6	35	24	12	15	5	31
DIN 464-M8-12	M 8	12	30	16	18	6	55
DIN 464-M8-16	M 8	16	30	16	18	6	55
DIN 464-M8-20	M 8	20	30	16	18	6	56
DIN 464-M8-25	M 8	25	30	16	18	6	57
DIN 464-M8-30	M 8	30	30	16	18	6	61
DIN 464-M8-35	M 8	35	30	16	18	6	63
DIN 464-M8-40	M 8	40	30	16	18	6	65
DIN 464-M10-15	M 10	15	36	20	23	8	107
DIN 464-M10-20	M 10	20	36	20	23	8	106
DIN 464-M10-25	M 10	25	36	20	23	8	112
DIN 464-M10-30	M 10	30	36	20	23	8	111
DIN 464-M10-35	M 10	35	36	20	23	8	117
DIN 464-M10-40	M 10	40	36	20	23	8	117

DIN 464-NI

STAINLESS STEEL

Description	d1	l	d2	d3	h	k	⚖
DIN 464-M3-6-NI	M 3	6	12	6	7.5	3	4
DIN 464-M3-10-NI	M 3	10	12	6	7.5	3	4
DIN 464-M3-12-NI	M 3	12	12	6	7.5	3	4
DIN 464-M3-16-NI	M 3	16	12	6	7.5	3	5
DIN 464-M4-8-NI	M 4	8	16	8	9.5	3.5	8
DIN 464-M4-10-NI	M 4	10	16	8	9.5	3.5	8
DIN 464-M4-12-NI	M 4	12	16	8	9.5	3.5	9
DIN 464-M4-16-NI	M 4	16	16	8	9.5	3.5	9
DIN 464-M4-20-NI	M 4	20	16	8	9.5	3.5	9
DIN 464-M4-25-NI	M 4	25	16	8	9.5	3.5	10
DIN 464-M5-10-NI	M 5	10	20	10	11.5	4	15
DIN 464-M5-12-NI	M 5	12	20	10	11.5	4	16
DIN 464-M5-16-NI	M 5	16	20	10	11.5	4	15
DIN 464-M5-20-NI	M 5	20	20	10	11.5	4	16
DIN 464-M5-25-NI	M 5	25	20	10	11.5	4	17
DIN 464-M5-30-NI	M 5	30	20	10	11.5	4	18
DIN 464-M6-12-NI	M 6	12	24	12	15	5	26
DIN 464-M6-16-NI	M 6	16	24	12	15	5	28
DIN 464-M6-20-NI	M 6	20	24	12	15	5	30
DIN 464-M6-25-NI	M 6	25	24	12	15	5	30
DIN 464-M6-30-NI	M 6	30	24	12	15	5	30
DIN 464-M6-35-NI	M 6	35	24	12	15	5	31
DIN 464-M8-16-NI	M 8	16	30	16	18	6	56
DIN 464-M8-20-NI	M 8	20	30	16	18	6	56
DIN 464-M8-25-NI	M 8	25	30	16	18	6	57
DIN 464-M8-30-NI	M 8	30	30	16	18	6	60
DIN 464-M8-35-NI	M 8	35	30	16	18	6	60



Knurled nuts

Steel / Stainless Steel

SPECIFICATION

Version in Steel

- Tensile strength class 5
- visible face fine turned
- blackened

Version in Stainless Steel AISI 303 NI

- matt shot-blasted

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

Flat knurled nuts

Steel / Stainless Steel

SPECIFICATION

Version in Steel

- Tensile strength class 5
- visible face fine turned
- blackened

Version in Stainless Steel AISI 303 NI

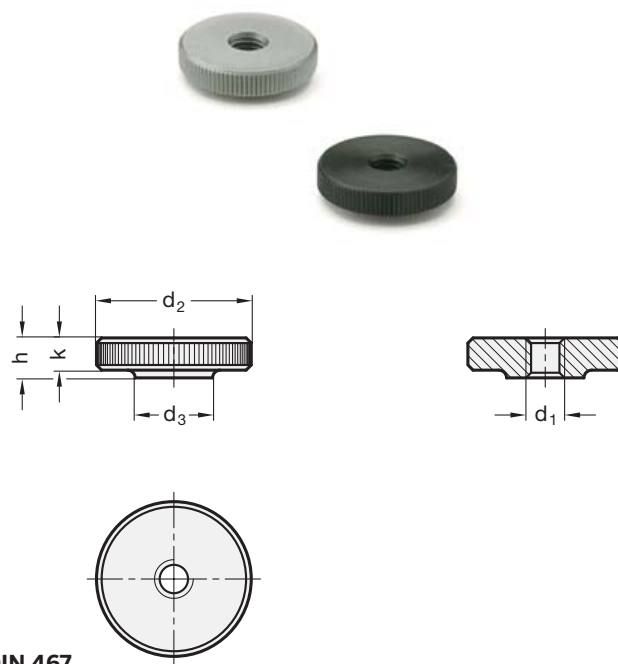
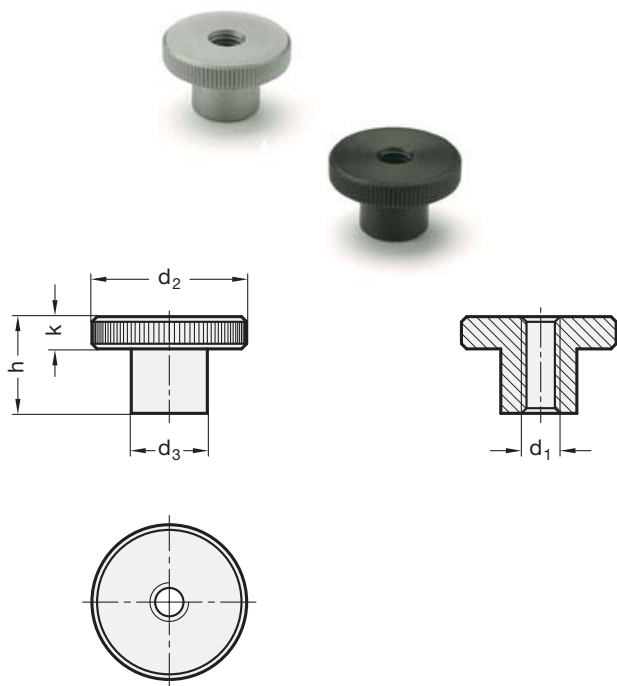
- matt shot-blasted

INFORMATION

The official standard sheet also provides for the sizes M1 / M1.2 / M1.4 / M1.6 / M2 and M2.5, on the other hand lack the size M12.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



DIN 466

Description	d1	d2	d3	h	k	⚖
DIN 466-M3	M 3	12	6	7.5	2.5	3
DIN 466-M4	M 4	16	8	9.5	3.5	6
DIN 466-M5	M 5	20	10	11.5	4	11
DIN 466-M6	M 6	24	12	15	5	22
DIN 466-M8	M 8	30	16	18	6	44
DIN 466-M10	M 10	36	20	23	8	84
DIN 466-M12	M 12	40	22	25	10	100

DIN 466-NI

STAINLESS STEEL

Description	d1	d2	d3	h	k	⚖
DIN 466-M4-NI	M 4	16	8	9.5	3.5	6
DIN 466-M5-NI	M 5	20	10	11.5	4	12
DIN 466-M6-NI	M 6	24	12	15	5	22
DIN 466-M8-NI	M 8	30	16	18	6	44
DIN 466-M10-NI	M 10	36	20	23	8	84

DIN 467

Description	d1	d2	d3	h	k	⚖
DIN 467-M3	M 3	12	6	3	2.5	2
DIN 467-M4	M 4	16	8	4	3.5	5
DIN 467-M5	M 5	20	10	5	4	9
DIN 467-M6	M 6	24	12	6	5	17
DIN 467-M8	M 8	30	16	8	6	32
DIN 467-M10	M 10	36	20	10	8	62
DIN 467-M12	M 12	40	22	12	10	92

DIN 467-NI

STAINLESS STEEL

Description	d1	d2	d3	h	k	⚖
DIN 467-M3-NI	M 3	12	6	3	2.5	2
DIN 467-M4-NI	M 4	16	8	4	3.5	5
DIN 467-M5-NI	M 5	20	10	5	4	9
DIN 467-M6-NI	M 6	24	12	6	5	17
DIN 467-M8-NI	M 8	30	16	8	6	30
DIN 467-M10-NI	M 10	36	20	10	8	61

Flat knurled screws

Steel / Stainless Steel

SPECIFICATION

Version in Steel

- Tensile strength class 5
- visible face fine turned
- blackened

Version in Stainless Steel AISI 303 NI

- visible face fine turned
- matt shot-blasted

INFORMATION

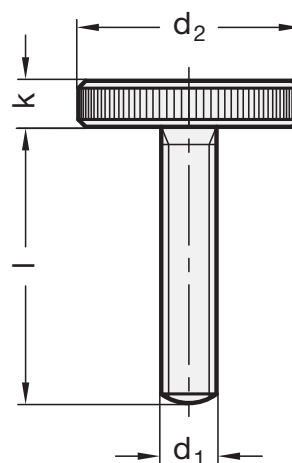
All flat knurled screws DIN 653 are produced from one piece and threaded over its full length.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

DIN 653

Description	d1	l	d2	k	
DIN 653-M3-6	M 3	6	12	2.5	3
DIN 653-M3-8	M 3	8	12	2.5	3
DIN 653-M3-10	M 3	10	12	2.5	3
DIN 653-M3-16	M 3	16	12	2.5	3
DIN 653-M3-20	M 3	20	12	2.5	3
DIN 653-M4-8	M 4	8	16	3.5	6
DIN 653-M4-10	M 4	10	16	3.5	6
DIN 653-M4-12	M 4	12	16	3.5	7
DIN 653-M4-16	M 4	16	16	3.5	7
DIN 653-M4-20	M 4	20	16	3.5	7
DIN 653-M4-25	M 4	25	16	3.5	7
DIN 653-M5-10	M 5	10	20	4	10
DIN 653-M5-12	M 5	12	20	4	10
DIN 653-M5-16	M 5	16	20	4	10
DIN 653-M5-20	M 5	20	20	4	13
DIN 653-M5-25	M 5	25	20	4	14
DIN 653-M5-30	M 5	30	20	4	14
DIN 653-M6-12	M 6	12	24	5	19
DIN 653-M6-16	M 6	16	24	5	20
DIN 653-M6-20	M 6	20	24	5	20
DIN 653-M6-25	M 6	25	24	5	20
DIN 653-M6-30	M 6	30	24	5	20
DIN 653-M6-40	M 6	40	24	5	23
DIN 653-M8-16	M 8	16	30	6	37
DIN 653-M8-20	M 8	20	30	6	39
DIN 653-M8-25	M 8	25	30	6	40
DIN 653-M8-30	M 8	30	30	6	42
DIN 653-M8-35	M 8	35	30	6	43
DIN 653-M8-40	M 8	40	30	6	48
DIN 653-M10-20	M 10	20	36	8	72
DIN 653-M10-25	M 10	25	36	8	74
DIN 653-M10-30	M 10	30	36	8	76
DIN 653-M10-35	M 10	35	36	8	75
DIN 653-M10-40	M 10	40	36	8	80



DIN 653-NI

STAINLESS STEEL

Description	d1	l	d2	k	
DIN 653-M3-6-NI	M 3	6	12	2.5	2
DIN 653-M3-8-NI	M 3	8	12	2.5	2
DIN 653-M3-10-NI	M 3	10	12	2.5	3
DIN 653-M3-16-NI	M 3	16	12	2.5	3
DIN 653-M4-8-NI	M 4	8	16	3.5	6
DIN 653-M4-10-NI	M 4	10	16	3.5	6
DIN 653-M4-12-NI	M 4	12	16	3.5	7
DIN 653-M4-16-NI	M 4	16	16	3.5	7
DIN 653-M5-10-NI	M 5	10	20	4	11
DIN 653-M5-12-NI	M 5	12	20	4	11
DIN 653-M5-16-NI	M 5	16	20	4	12
DIN 653-M5-20-NI	M 5	20	20	4	12
DIN 653-M5-25-NI	M 5	25	20	4	13
DIN 653-M6-12-NI	M 6	12	24	5	18
DIN 653-M6-16-NI	M 6	16	24	5	21
DIN 653-M6-20-NI	M 6	20	24	5	20
DIN 653-M6-25-NI	M 6	25	24	5	23
DIN 653-M6-30-NI	M 6	30	24	5	22
DIN 653-M8-16-NI	M 8	16	30	6	35
DIN 653-M8-20-NI	M 8	20	30	6	37
DIN 653-M8-25-NI	M 8	25	30	6	40
DIN 653-M8-30-NI	M 8	30	30	6	42
DIN 653-M10-20-NI	M 10	20	36	8	72
DIN 653-M10-25-NI	M 10	25	36	8	74
DIN 653-M10-30-NI	M 10	30	36	8	76
DIN 653-M10-40-NI	M 10	40	36	8	80

Knurled screws

Steel / Stainless Steel,
with recess cut for loss-prevention

SPECIFICATION

Version in Steel ST

- Tensile strength class 5
- visible face fine turned
- black oxide finish

Version in Stainless Steel AISI 303 NI

- AISI 303
- visible face fine turned
- matt shot-blasted

INFORMATION

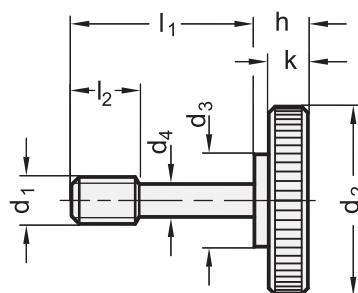
Knurled screws GN 653.2 can be used for to prevent loss of the thumb screw, due to the d_4 recessed portion of the stud.

When using, instead of a typical tapped and bore hole, it is necessary to provide tapped bores with a thread d_1 on each of the two elements to be assembled. Additionally, a clearance bore of d_5 on one or both sides must be cut.

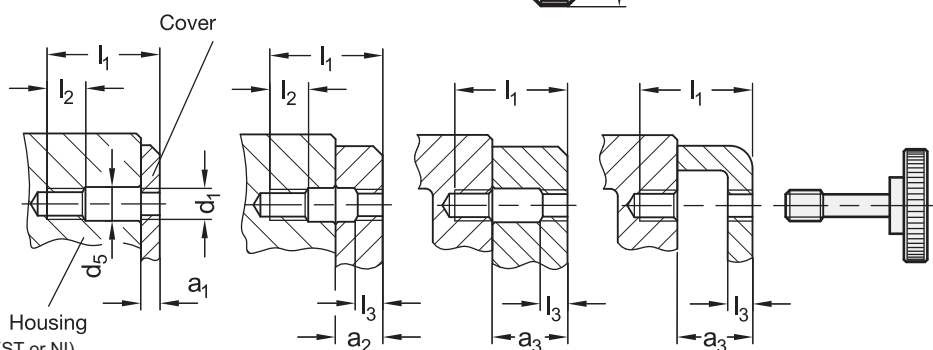
Depending on the design and required clamping length $a_1 \dots a_3$ of the component being attached, there are a number of assembly options as shown.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Assembly options



* Complete with material index of the knurled screw (ST or NI)

ST NI
Steel Stainless Steel

GN 653.2

STAINLESS STEEL

Description	d_1	l_1	a_1	a_2	a_3	d_2	d_3	$d_4 - 0.2$	d_5	h	k	l_2	l_3	Δ
GN 653.2-M4-15-*	M4	15	2-4	4-8	8-10	16	8	3.2	4.5	5.5	3.5	5	2	7
GN 653.2-M4-17-*	M4	17	4-6	6-10	10-12	16	8	3.2	4.5	5.5	3.5	5	2	7
GN 653.2-M4-19-*	M4	19	6-8	8-12	12-14	16	8	3.2	4.5	5.5	3.5	5	2	7
GN 653.2-M4-21-*	M4	21	8-10	10-14	14-16	16	8	3.2	4.5	5.5	3.5	5	2	9
GN 653.2-M5-18-*	M5	18	2.5-4	4-10.5	10.5-12	20	10	4	5.5	6.5	4	6	2.5	13
GN 653.2-M5-20-*	M5	20	4-6	6-12	12-14	20	10	4	5.5	6.5	4	6	2.5	13
GN 653.2-M5-22-*	M5	22	6-8	8-14	14-16	20	10	4	5.5	6.5	4	6	2.5	13
GN 653.2-M5-26-*	M5	26	8-12	12-16	16-18	20	10	4	5.5	6.5	4	6	2.5	14
GN 653.2-M6-24-*	M6	24	3-6	6-13	13-16	24	12	4.8	6.5	8	5	8	3	23
GN 653.2-M6-26-*	M6	26	6-8	8-16	16-18	24	12	4.8	6.5	8	5	8	3	24
GN 653.2-M6-30-*	M6	30	8-12	12-18	18-22	24	12	4.8	6.5	8	5	8	3	30
GN 653.2-M6-34-*	M6	34	12-16	16-22	22-26	24	12	4.8	6.5	8	5	8	3	32
GN 653.2-M8-30-*	M8	30	4-8	8-16	16-20	30	16	6.5	8.5	9	6	10	4	44
GN 653.2-M8-34-*	M8	34	8-12	12-20	20-24	30	16	6.5	8.5	9	6	10	4	45
GN 653.2-M8-38-*	M8	38	12-16	16-24	24-28	30	16	6.5	8.5	9	6	10	4	48
GN 653.2-M8-42-*	M8	42	16-20	20-28	28-32	30	16	6.5	8.5	9	6	10	4	50

Weight type NI

Flat knurled screws

Steel / Stainless Steel, with MS- / KU- pivot

SPECIFICATION

Version in Steel ST

- Tensile strength class 5
- visible face fine turned
- blackened

Version in Stainless Steel AISI 303 NI

- visible face fine turned
- matt shot-blasted

Pivot

Brass **MS**

Plastic (Polyacetal POM) **KU**

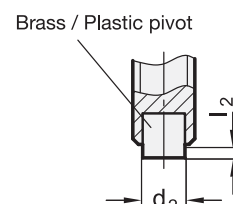
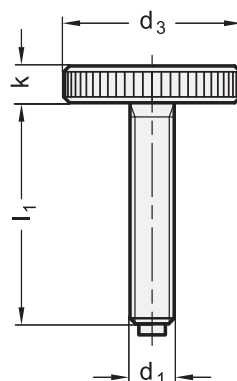
INFORMATION

Flat knurled screws GN 653.10 with pivots in brass or plastic are used in applications, where marks and damages on the workpiece are unacceptable.

The head dimensions comply with flat knurled screws DIN 653 (see page 271).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 653.10

Description	d1	l1-1	l2	d2	d3	k	
GN 653.10-M5-12-ST-KU	M 5	12	1	3	20	4	11
GN 653.10-M5-12-ST-MS	M 5	12	0.5	3	20	4	11
GN 653.10-M5-16-ST-KU	M 5	16	1	3	20	4	11
GN 653.10-M5-16-ST-MS	M 5	16	0.5	3	20	4	12
GN 653.10-M5-20-ST-KU	M 5	20	1	3	20	4	12
GN 653.10-M5-20-ST-MS	M 5	20	0.5	3	20	4	12
GN 653.10-M5-25-ST-KU	M 5	25	1	3	20	4	12
GN 653.10-M5-25-ST-MS	M 5	25	0.5	3	20	4	12
GN 653.10-M6-12-ST-KU	M 6	12	1.3	3.5	24	5	19
GN 653.10-M6-12-ST-MS	M 6	12	1	4	24	5	19
GN 653.10-M6-16-ST-KU	M 6	16	1.3	3.5	24	5	19
GN 653.10-M6-16-ST-MS	M 6	16	1	4	24	5	19
GN 653.10-M6-20-ST-KU	M 6	20	1.3	3.5	24	5	20
GN 653.10-M6-20-ST-MS	M 6	20	1	4	24	5	20
GN 653.10-M6-25-ST-KU	M 6	25	1.3	3.5	24	5	21
GN 653.10-M6-25-ST-MS	M 6	25	1	4	24	5	21
GN 653.10-M6-30-ST-KU	M 6	30	1.3	3.5	24	5	22
GN 653.10-M6-30-ST-MS	M 6	30	1	4	24	5	22
GN 653.10-M8-16-ST-KU	M 8	16	1.6	5	30	6	36
GN 653.10-M8-16-ST-MS	M 8	16	1.5	6	30	6	36
GN 653.10-M8-20-ST-KU	M 8	20	1.6	5	30	6	38
GN 653.10-M8-20-ST-MS	M 8	20	1.5	6	30	6	38
GN 653.10-M8-25-ST-KU	M 8	25	1.6	5	30	6	39
GN 653.10-M8-25-ST-MS	M 8	25	1.5	6	30	6	39
GN 653.10-M8-30-ST-KU	M 8	30	1.6	5	30	6	40
GN 653.10-M8-30-ST-MS	M 8	30	1.5	6	30	6	40
GN 653.10-M8-40-ST-KU	M 8	40	1.6	5	30	6	43
GN 653.10-M8-40-ST-MS	M 8	40	1.5	6	30	6	43

GN 653.10-NI

STAINLESS STEEL

Description	d1	l1-1	l2	d2	d3	k	
GN 653.10-M5-12-NI-KU	M 5	12	1	3	20	4	11
GN 653.10-M5-12-NI-MS	M 5	12	0.5	3	20	4	11
GN 653.10-M5-16-NI-KU	M 5	16	1	3	20	4	11
GN 653.10-M5-16-NI-MS	M 5	16	0.5	3	20	4	12
GN 653.10-M5-20-NI-KU	M 5	20	1	3	20	4	12
GN 653.10-M5-20-NI-MS	M 5	20	0.5	3	20	4	12
GN 653.10-M5-25-NI-KU	M 5	25	1	3	20	4	12
GN 653.10-M5-25-NI-MS	M 5	25	0.5	3	20	4	12
GN 653.10-M6-12-NI-KU	M 6	12	1.3	3.5	24	5	19
GN 653.10-M6-12-NI-MS	M 6	12	1	4	24	5	19
GN 653.10-M6-16-NI-KU	M 6	16	1.3	3.5	24	5	20
GN 653.10-M6-16-NI-MS	M 6	16	1	4	24	5	20
GN 653.10-M6-20-NI-KU	M 6	20	1.3	3.5	24	5	20
GN 653.10-M6-20-NI-MS	M 6	20	1	4	24	5	20
GN 653.10-M6-25-NI-KU	M 6	25	1.3	3.5	24	5	21
GN 653.10-M6-25-NI-MS	M 6	25	1	4	24	5	21
GN 653.10-M6-30-NI-KU	M 6	30	1.3	3.5	24	5	22
GN 653.10-M6-30-NI-MS	M 6	30	1	4	24	5	22
GN 653.10-M8-16-NI-KU	M 8	16	1.6	5	30	6	36
GN 653.10-M8-16-NI-MS	M 8	16	1.5	6	30	6	37
GN 653.10-M8-20-NI-KU	M 8	20	1.6	5	30	6	37
GN 653.10-M8-20-NI-MS	M 8	20	1.5	6	30	6	38
GN 653.10-M8-25-NI-KU	M 8	25	1.6	5	30	6	39
GN 653.10-M8-25-NI-MS	M 8	25	1.5	6	30	6	40
GN 653.10-M8-30-NI-KU	M 8	30	1.6	5	30	6	40
GN 653.10-M8-30-NI-MS	M 8	30	1.5	6	30	6	41
GN 653.10-M8-40-NI-KU	M 8	40	1.6	5	30	6	43
GN 653.10-M8-40-NI-MS	M 8	40	1.5	6	30	6	43

Fluted grip knobs

Technopolymer, assembly with screws

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

CLOSING CAP

Polypropylene based (PP) technopolymer, orange or black colour, glossy finish with matte central surface, snap-in mounting.

STANDARD EXECUTION

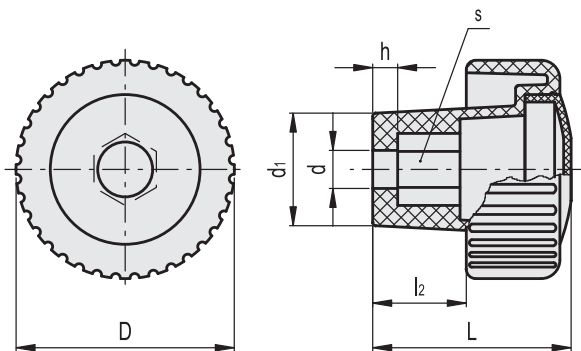
Assembly by means of hexagon head screws or standard lock nuts (not supplied) to put in place inside the knob by pressing.

SPECIAL EXECUTIONS ON REQUEST

On the surface of the closing cap words, marks, graphic symbols, etc... can be tampoprinted in colours.

ASSEMBLY INSTRUCTIONS

1. The base of the knob should rest on a flat surface.
2. Insert the screw or the lock nut into the knob hole by means of a thrust tool.
3. Push until the insert is completely fitted in.
4. Assemble the snap-in closing cap.



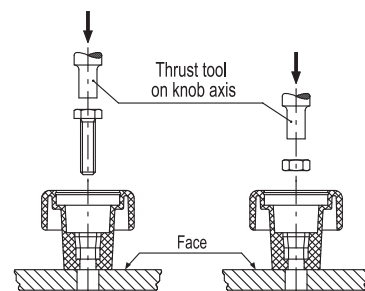
■ C2 RAL2004 ■ C9 RAL9005

Code	Description	D	d	L	d1	l2	h	s	⚖
138711	MCT.35 EH-5-C2	35	5	32	18	15	4	8	12
138712	MCT.35 EH-5-C9	35	5	32	18	15	4	8	12
138721	MCT.35 EH-6-C2	35	6	32	18	15	4	10	11
138722	MCT.35 EH-6-C9	35	6	32	18	15	4	10	11
138731	MCT.35 EH-8-C2	35	8	32	18	15	4	13	10
138732	MCT.35 EH-8-C9	35	8	32	18	15	4	13	10
138751	MCT.50 EH-6-C2	50	6	40	23	21	5	10	23
138752	MCT.50 EH-6-C9	50	6	40	23	21	5	10	23
138761	MCT.50 EH-8-C2	50	8	40	23	21	5	13	22
138762	MCT.50 EH-8-C9	50	8	40	23	21	5	13	22
138771	MCT.50 EH-10-C2	50	10	40	23	21	5	17	21
138772	MCT.50 EH-10-C9	50	10	40	23	21	5	17	21
138791	MCT.70 EH-8-C2	70	8	71	30.5	40	9	13	64
138792	MCT.70 EH-8-C9	70	8	71	30.5	40	9	13	64
138801	MCT.70 EH-10-C2	70	10	71	30.5	40	9	17	63
138802	MCT.70 EH-10-C9	70	10	71	30.5	40	9	17	63
138811	MCT.70 EH-12-C2	70	12	71	30.5	40	9	19	62
138812	MCT.70 EH-12-C9	70	12	71	30.5	40	9	19	62
138821	MCT.70 EH-14-C2	70	14	71	30.5	40	9	22	61
138822	MCT.70 EH-14-C9	70	14	71	30.5	40	9	22	61

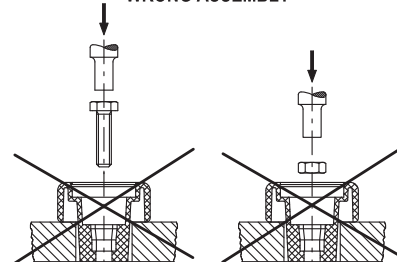


FM design

RIGHT ASSEMBLY



WRONG ASSEMBLY





2
Clamping knobs

Diamond cut knurled knobs

Technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

COLOURED CENTRE CAP

Technopolymer, matte finish.

To order, add the index of the desired colour (C9, ..., C6) to the code and the description.

On request and for sufficient quantities, it can be supplied in other colours or with customised graphic symbols, marks or writings.

STANDARD EXECUTIONS

- **MBT-B**: brass boss, plain or threaded blind hole.
- **MBT-p**: zinc-plated steel threaded stud with chamfered flat end as in UNI 947 : ISO 4753 (see Technical Data on page A11).

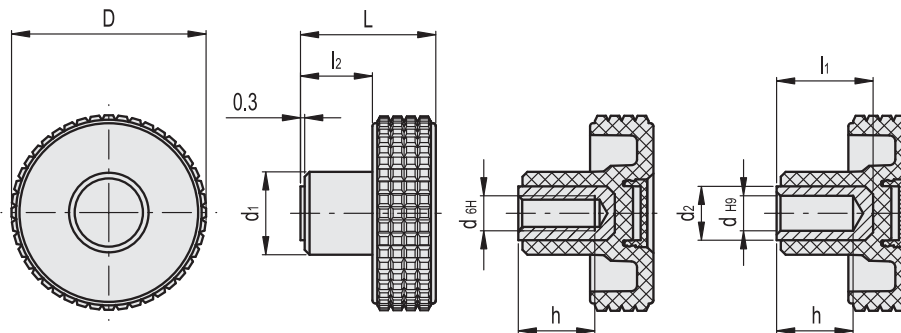
ERGONOMY AND DESIGN

The particular knurling on the outside rim of the knob, provided with a structure of very fine pitch, allows a safe and comfortable grip, offering the operator the possibility of operating under the most different working conditions in a sensitive and ergonomic way and simplifying the adjustment of the knob during rapid rotation (or screwing) without any unpleasant angular work for the hand and wrist.



ELESA Original design

MBT-B



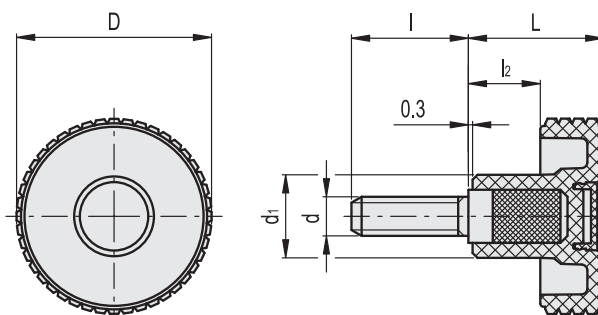
* Complete with colour index, example: 34201-C2 MBT.30 B-M5-C2

 **C9** RAL9005
  **C2** RAL2004
  **C3** RAL7035
  **C4** RAL1021
  **C5** RAL5024
  **C6** RAL3000

MBT-B

Code	Description	D	d6H	dH9	L	d1	d2	l1	l2	h	⚖
34201-*	MBT.30 B-M5-*	31	M5	-	24	15	-	-	11.5	10	12
34206-*	MBT.30 B-M6-*	31	M6	-	24	15	-	-	11.5	12	17
34316-*	MBT.40 B-6-*	39.5	-	6	26.5	17	12	17	12.5	14	27
34321-*	MBT.40 B-M6-*	39.5	M6	-	26.5	17	-	-	12.5	12	22
34326-*	MBT.40 B-M8-*	39.5	M8	-	26.5	17	-	-	12.5	13	23
34411-*	MBT.50 B-6-*	50	-	6	33	20	15	23	16	18	48
34416-*	MBT.50 B-8-*	50	-	8	33	20	15	25	16	20	47
34421-*	MBT.50 B-M8-*	50	M8	-	33	20	-	-	16	20	32
34426-*	MBT.50 B-M10-*	50	M10	-	33	20	-	-	16	18	34
34506-*	MBT.60 B-10-*	61	-	10	39	23	16	30	18.5	25	67
34511-*	MBT.60 B-M10-*	61	M10	-	39	23	-	-	18.5	20	50
34516-*	MBT.60 B-M12-*	61	M12	-	39	23	-	-	18.5	20	58
34611-*	MBT.70 B-M12-*	70	M12	-	42	24	-	-	20.5	20	70
34616-*	MBT.70 B-M14-*	70	M14	-	42	24	-	-	20.5	20	78

MBT-p

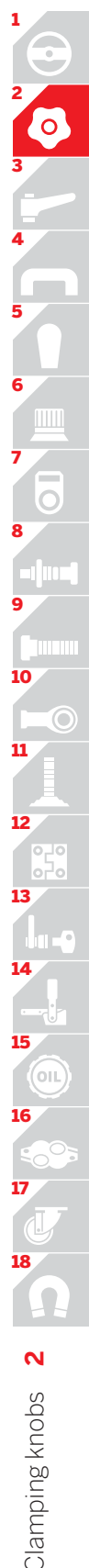


* Complete with colour index, example: 34221-C2 MBT.30 p-M5x10-C2

C9 RAL9005
 C2 RAL2004
 C3 RAL7035
 C4 RAL1021
 C5 RAL5024
 C6 RAL3000

MBT-p

Code	Description	D	d6g	L	d1	l	l2	⚖
34221-*	MBT.30 p-M5x10-*	31	M5	24	15	10	11.5	13
34226-*	MBT.30 p-M5x20-*	31	M5	24	15	20	11.5	14
34241-*	MBT.30 p-M5x40-*	31	M5	24	15	40	11.5	16
34261-*	MBT.30 p-M6x10-*	31	M6	24	15	10	11.5	14
34263-*	MBT.30 p-M6x16-*	31	M6	24	15	16	11.5	14
34266-*	MBT.30 p-M6x20-*	31	M6	24	15	20	11.5	15
34269-*	MBT.30 p-M6x25-*	31	M6	24	15	25	11.5	16
34271-*	MBT.30 p-M6x30-*	31	M6	24	15	30	11.5	17
34281-*	MBT.30 p-M6x40-*	31	M6	24	15	40	11.5	19
34341-*	MBT.40 p-M6x10-*	39.5	M6	26.5	17	10	12.5	18
34343-*	MBT.40 p-M6x16-*	39.5	M6	26.5	17	16	12.5	19
34346-*	MBT.40 p-M6x20-*	39.5	M6	26.5	17	20	12.5	20
34351-*	MBT.40 p-M6x30-*	39.5	M6	26.5	17	30	12.5	22
34361-*	MBT.40 p-M6x40-*	39.5	M6	26.5	17	40	12.5	24
34381-*	MBT.40 p-M8x16-*	39.5	M8	26.5	17	16	12.5	26
34383-*	MBT.40 p-M8x20-*	39.5	M8	26.5	17	20	12.5	27
34386-*	MBT.40 p-M8x25-*	39.5	M8	26.5	17	25	12.5	28
34391-*	MBT.40 p-M8x30-*	39.5	M8	26.5	17	30	12.5	30
34393-*	MBT.40 p-M8x40-*	39.5	M8	26.5	17	40	12.5	33
34396-*	MBT.40 p-M8x50-*	39.5	M8	26.5	17	50	12.5	36
34431-*	MBT.50 p-M8x16-*	50	M8	33	20	16	16	36
34436-*	MBT.50 p-M8x30-*	50	M8	33	20	30	16	38
34441-*	MBT.50 p-M8x50-*	50	M8	33	20	50	16	44
34451-*	MBT.50 p-M10x20-*	50	M10	33	20	20	16	42
34456-*	MBT.50 p-M10x30-*	50	M10	33	20	30	16	47
34471-*	MBT.50 p-M10x50-*	50	M10	33	20	50	16	57
34521-*	MBT.60 p-M10x20-*	61	M10	39	23	20	18.5	58
34526-*	MBT.60 p-M10x30-*	61	M10	39	23	30	18.5	63
34536-*	MBT.60 p-M10x50-*	61	M10	39	23	50	18.5	73
34551-*	MBT.60 p-M12x20-*	61	M12	39	23	20	18.5	70
34556-*	MBT.60 p-M12x30-*	61	M12	39	23	30	18.5	78
34571-*	MBT.60 p-M12x50-*	61	M12	39	23	50	18.5	94
34631-*	MBT.70 p-M12x30-*	70	M12	42	24	30	20.5	90
34641-*	MBT.70 p-M12x50-*	70	M12	42	24	50	20.5	105



Fluted grip knobs

"Soft-touch" technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

FLUTED RIM

"Soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A. The coating material is certified according to FDA (U.S. Food and Drug administration).

STANDARD EXECUTIONS

- **MBT-B-SOFT:** brass boss, threaded and plain blind hole.
- **MBT-p-SOFT:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS

The rim, coated with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason these fluted knobs are suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.

ERGONOMY AND DESIGN

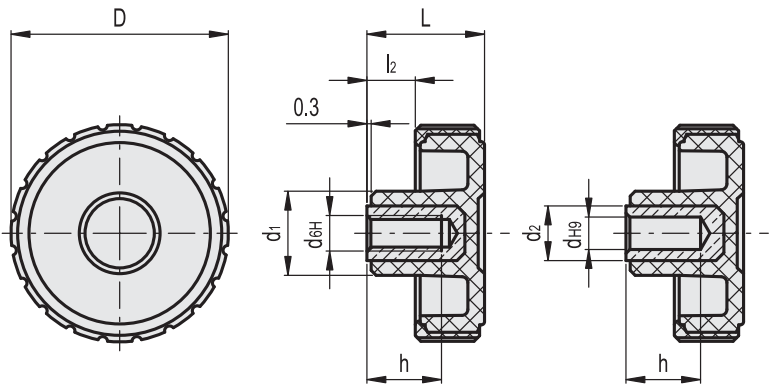
This kind of knob allows operation in an ergonomic way in all working conditions, reaching the maximum torque level with little fatigue for the operator's hand.

The very fine pitch structure of the rim, together with the soft-touch cover, simplifies the adjustment of the knob during rapid rotation (or screwing) without any unpleasant angular work for the hand and wrist.



ELESA Original design

MBT-B-SOFT



MBT-B-SOFT

Code	Description	D	d6H	dH9	L	d1	l2	h	C# [Nm]	
134316	MBT.45 B-6-SOFT	44	-	6	24	17	10	14	18	32
134321	MBT.45 B-M6-SOFT	44	M6	-	24	17	10	12	15	31
134326	MBT.45 B-M8-SOFT	44	M8	-	24	17	10	13	18	30
134416	MBT.55 B-8-SOFT	54	-	8	30	20	12.5	20	30	40
134421	MBT.55 B-M8-SOFT	54	M8	-	30	20	12.5	20	30	46
134426	MBT.55 B-M10-SOFT	54	M10	-	30	20	12.5	18	32	44

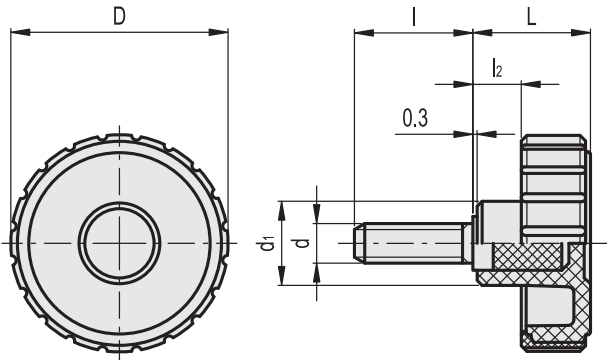
"Max limit tightening torque" means the value under which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic part.



2

Clamping knobs

MBT-p-SOFT



MBT-p-SOFT

Code	Description	D	d6g	L	d1	l	l2	C# [Nm]	⚖
134341	MBT.45 p-M6x10-SOFT	44	M6	24	17	10	10	13	25
134346	MBT.45 p-M6x20-SOFT	44	M6	24	17	20	10	13	30
134381	MBT.45 p-M8x16-SOFT	44	M8	24	17	16	10	16	33
134391	MBT.45 p-M8x30-SOFT	44	M8	24	17	30	10	16	37
134396	MBT.45 p-M8x50-SOFT	44	M8	24	17	50	10	16	47
134431	MBT.55 p-M8x16-SOFT	54	M8	30	20	16	12.5	25	40
134436	MBT.55 p-M8x30-SOFT	54	M8	30	20	30	12.5	25	50
134441	MBT.55 p-M8x50-SOFT	54	M8	30	20	50	12.5	25	64
134451	MBT.55 p-M10x20-SOFT	54	M10	30	20	20	12.5	27	52
134456	MBT.55 p-M10x30-SOFT	54	M10	30	20	30	12.5	27	57
134471	MBT.55 p-M10x50-SOFT	54	M10	30	20	50	12.5	27	73

"Max limit tightening torque" means the value under which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic part.

GN 7336

Knurled knobs / Knurled screws

SPECIFICATION

Plastic

Technopolymer (Polyamide PA)

- glass fibre reinforced
- temperature resistant up to 130 °C
- black, matt finish

Threaded inserts

Steel **ST**

zinc plated, blue passivated

Stainless Steel AISI 304 **NI**

Cover cap

Plastic

light grey, matt

INFORMATION

Knurled knobs / Knurled screws GN 7336 distinguish an attractive design in combination with closed shape (no recess on the underside of the handles).

They are also available without threaded insert.

How to order:

GN 7336-34

GN 7336-42

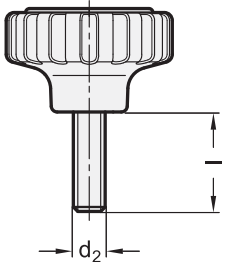
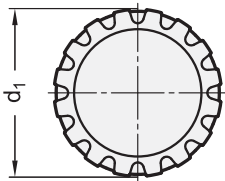
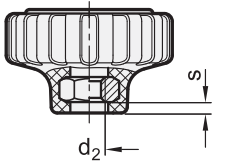
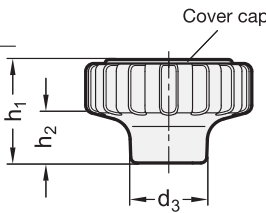
GN 7336-53

ON REQUEST

The cover cap is also available in different colours (standard colour: light grey).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



GN 7336-with female thread (ST)

Description	d1	d2	d3	h1	h2	s	Max. thread length	⚖
GN 7336-34-M6-ST	34	M 6	16	21	10.5	5	19	14
GN 7336-42-M8-ST	42	M 8	19	26	13	5	24	21
GN 7336-42-M8x1-ST	42	M 8x1	19	26	13	5	24	21
GN 7336-53-M10-ST	53	M 10	24	32	16	5	30	49
GN 7336-53-M10x1-ST	53	M 10x1	24	32	16	5	30	49

GN 7336-with female thread (NI)

STAINLESS STEEL

Description	d1	d2	d3	h1	h2	s	Max. thread length	⚖
GN 7336-34-M6-NI	34	M 6	16	21	10.5	5	19	15
GN 7336-42-M8-NI	42	M 8	19	26	13	5	24	22
GN 7336-42-M8x1-NI	42	M 8x1	19	26	13	5	24	22
GN 7336-53-M10-NI	53	M 10	24	32	16	5	30	50
GN 7336-53-M10x1-NI	53	M 10x1	24	32	16	5	30	50

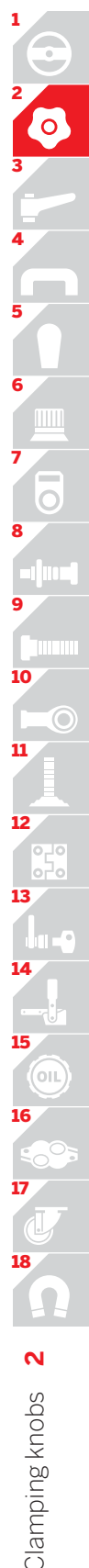
GN 7336-with threaded bolt (ST)

Description	d1	d2	l	d3	h1	h2	⚖
GN 7336-34-M6-11-ST	34	M 6	11	16	21	10.5	16
GN 7336-34-M6-15-ST	34	M 6	15	16	21	10.5	16
GN 7336-34-M6-20-ST	34	M 6	20	16	21	10.5	17
GN 7336-34-M6-25-ST	34	M 6	25	16	21	10.5	18
GN 7336-34-M6-30-ST	34	M 6	30	16	21	10.5	18
GN 7336-42-M8-15-ST	42	M 8	15	19	26	13	30
GN 7336-42-M8-20-ST	42	M 8	20	19	26	13	32
GN 7336-42-M8-25-ST	42	M 8	25	19	26	13	32
GN 7336-42-M8-30-ST	42	M 8	30	19	26	13	35
GN 7336-42-M8-40-ST	42	M 8	40	19	26	13	40
GN 7336-42-M8x1-15-ST	42	M 8x1	15	19	26	13	29
GN 7336-42-M8x1-20-ST	42	M 8x1	20	19	26	13	31
GN 7336-42-M8x1-25-ST	42	M 8x1	25	19	26	13	33
GN 7336-42-M8x1-30-ST	42	M 8x1	30	19	26	13	34
GN 7336-53-M10-20-ST	53	M 10	20	24	32	16	55
GN 7336-53-M10-25-ST	53	M 10	25	24	32	16	60
GN 7336-53-M10-30-ST	53	M 10	30	24	32	16	63
GN 7336-53-M10-40-ST	53	M 10	40	24	32	16	67
GN 7336-53-M10-50-ST	53	M 10	50	24	32	16	76
GN 7336-53-M10x1-20-ST	53	M 10x1	20	24	32	16	56
GN 7336-53-M10x1-25-ST	53	M 10x1	25	24	32	16	59
GN 7336-53-M10x1-30-ST	53	M 10x1	30	24	32	16	62
GN 7336-53-M10x1-40-ST	53	M 10x1	40	24	32	16	67

GN 7336-with threaded bolt (NI)

STAINLESS STEEL

Description	d1	d2	l	d3	h1	h2	⚖
GN 7336-34-M6-11-NI	34	M 6	11	16	21	10.5	15
GN 7336-34-M6-15-NI	34	M 6	15	16	21	10.5	16
GN 7336-34-M6-20-NI	34	M 6	20	16	21	10.5	17
GN 7336-34-M6-25-NI	34	M 6	25	16	21	10.5	20
GN 7336-34-M6-30-NI	34	M 6	30	16	21	10.5	23
GN 7336-42-M8-15-NI	42	M 8	15	19	26	13	30
GN 7336-42-M8-20-NI	42	M 8	20	19	26	13	32
GN 7336-42-M8-25-NI	42	M 8	25	19	26	13	32
GN 7336-42-M8-30-NI	42	M 8	30	19	26	13	35
GN 7336-42-M8-40-NI	42	M 8	40	19	26	13	40
GN 7336-42-M8x1-15-NI	42	M 8x1	15	19	26	13	29
GN 7336-42-M8x1-20-NI	42	M 8x1	20	19	26	13	30
GN 7336-42-M8x1-25-NI	42	M 8x1	25	19	26	13	33
GN 7336-42-M8x1-30-NI	42	M 8x1	30	19	26	13	34
GN 7336-53-M10-20-NI	53	M 10	20	24	32	16	55
GN 7336-53-M10-25-NI	53	M 10	25	24	32	16	58
GN 7336-53-M10-30-NI	53	M 10	30	24	32	16	60
GN 7336-53-M10-40-NI	53	M 10	40	24	32	16	65
GN 7336-53-M10-50-NI	53	M 10	50	24	32	16	70
GN 7336-53-M10x1-20-NI	53	M 10x1	20	24	32	16	56
GN 7336-53-M10x1-25-NI	53	M 10x1	25	24	32	16	58
GN 7336-53-M10x1-30-NI	53	M 10x1	30	24	32	16	62
GN 7336-53-M10x1-40-NI	53	M 10x1	40	24	32	16	67



Knurled screws

Brass / Plastic / Spherical pivot

SPECIFICATION

Types

- Type **MS**: Brass pivot
- Type **KU**: Plastic pivot (Polyacetal POM)
- Type **ZK**: spherical pivot

Plastic

Technopolymer (Polyamide PA)

- glasfibre reinforced
- temperature resistant up to 130 °C
- black, matt

Threaded stud

Stainless Steel AISI 304

Cover cap plastic

light grey, matt



INFORMATION

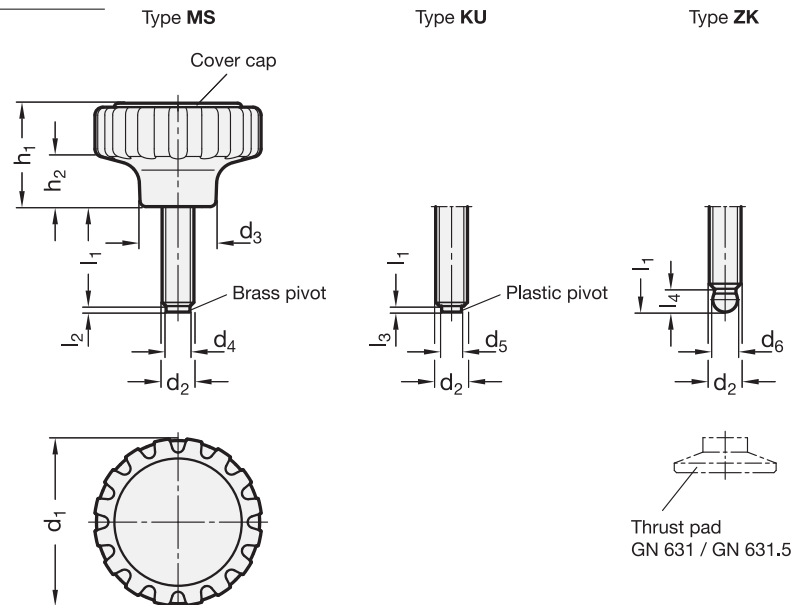
Knurled screws GN 7336.5, type MS/KU with brass or plastic pivots are used when pressure dents or damage must be avoided.

Knurled screws GN 7336.5, type ZK feature a spherical pivot whose $\varnothing d_5$ is smaller than the core $\varnothing$ of the thread. The version with spherical pivot is suitable for holding GN 631 (see page 940) / GN 631.5 (see page 941) thrust pads, which must be ordered separately.

The knurled screws GN 7336.5 distinguish an attractive design in combination with closed shape (no recess on the underside of the handles).

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



* Complete with type index of the knurled screw (MS, KU or ZK)

MS	KU	ZK
Brass pivot	Plastic pivot (Polyacetal POM)	Spherical pivot

GN 7336.5

Description	d1	d2	l1	d3	d4	d5	d6	h1	h2	l2	l3	l4 ≈	⚖
GN 7336.5-34-M6-15-*	34	M 6	15	16	4	3.5	4.5 ±0.03	21	10.5	1	1.3	5.1	16
GN 7336.5-34-M6-20-*	34	M 6	20	16	4	3.5	4.5 ±0.03	21	10.5	1	1.3	5.1	17
GN 7336.5-34-M6-25-*	34	M 6	25	16	4	3.5	4.5 ±0.03	21	10.5	1	1.3	5.1	18
GN 7336.5-34-M6-30-*	34	M 6	30	16	4	3.5	4.5 ±0.03	21	10.5	1	1.3	5.1	19
GN 7336.5-42-M8-20-*	42	M 8	20	19	6	5	6.1 ±0.05	26	13	1.5	1.6	6.2	30
GN 7336.5-42-M8-25-*	42	M 8	25	19	6	5	6.1 ±0.05	26	13	1.5	1.6	6.2	32
GN 7336.5-42-M8-30-*	42	M 8	30	19	6	5	6.1 ±0.05	26	13	1.5	1.6	6.2	34
GN 7336.5-42-M8-40-*	42	M 8	40	19	6	5	6.1 ±0.05	26	13	1.5	1.6	6.2	37
GN 7336.5-53-M10-25-*	53	M 10	25	24	8	6.5	7.8 ±0.05	32	16	2	1.9	7.3	58
GN 7336.5-53-M10-30-*	53	M 10	30	24	8	6.5	7.8 ±0.05	32	16	2	1.9	7.3	61
GN 7336.5-53-M10-40-*	53	M 10	40	24	8	6.5	7.8 ±0.05	32	16	2	1.9	7.3	64
GN 7336.5-53-M10-50-*	53	M 10	50	24	8	6.5	7.8 ±0.05	32	16	2	1.9	7.3	70

Torque knurled knobs / Torque knurled knob screws

SPECIFICATION

Knob
Aluminium
black, anodized
Torque mechanism
Steel, hardened
Other parts
Steel, blackened
Cover cap
Plastic light grey

INFORMATION

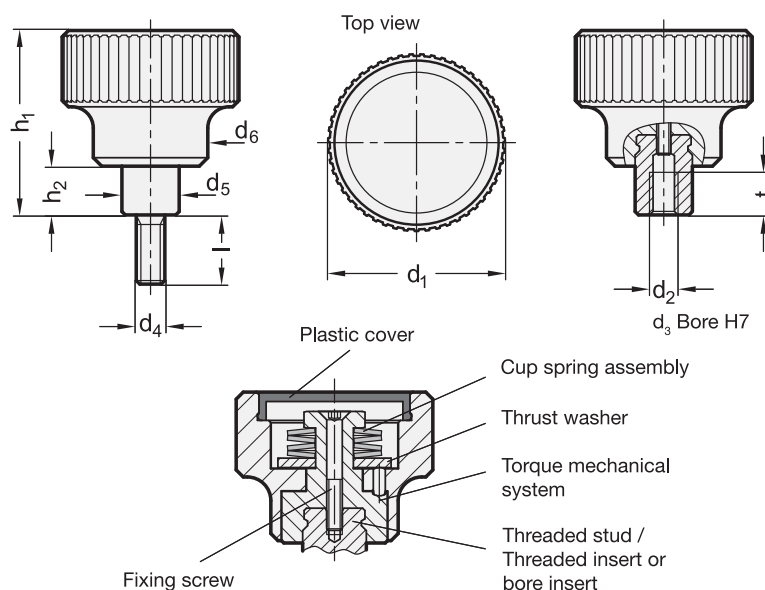
Torque knurled knobs / Torque knurled knob screws GN 3663 are used when the manually applied torque is to be limited.

When turned clockwise, the torque mechanical system of the knurled knob triggers an „over-engagement“ as soon as the specified torque is reached. When turning anti-clockwise, the mechanical system locks such that the torque is not limited. When tightening, this will ensure that the maximum permissible torque is not exceeded. On the other hand, the torque necessary for releasing will always be transferred reliably.

After removing the cover and loosening the countersunk screw, the thread or bore insert can be dismantled.

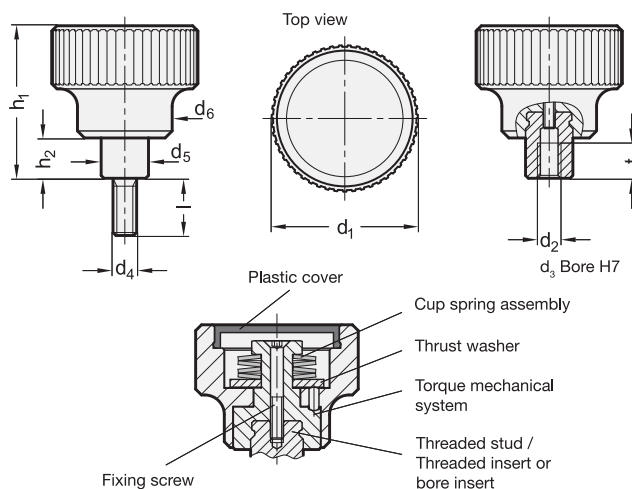
ON REQUEST

- Other dimensions for inserts with bore, thread and threaded stud inserts analog GN 300 (see page 320)
- Other dimensions with special threaded studs analog GN 306 (see page 340)
- Other torques
- Torques limiting turning anti-clockwise or turning anti-clockwise and clockwise



GN 3663-with female thread

Description	d1	d2	d3 H7	d5	d6	h1	h2	t min.	Torque ±10% in Nm	⚖
GN 3663-27-B5-0,7	27	-	B 5	10	19	35	9.5	7	0.7	41
GN 3663-27-B5-1	27	-	B 5	10	19	35	9.5	7	1	40
GN 3663-27-B5-1,5	27	-	B 5	10	19	35	9.5	7	1.5	40
GN 3663-27-B6-0,7	27	-	B 6	10	19	35	9.5	9	0.7	50
GN 3663-27-B6-1	27	-	B 6	10	19	35	9.5	9	1	50
GN 3663-27-B6-1,5	27	-	B 6	10	19	35	9.5	9	1.5	50
GN 3663-34-B5-1	34	-	B 5	10	21	37.5	9.5	7	1	57
GN 3663-34-B5-1,5	34	-	B 5	10	21	37.5	9.5	7	1.5	58
GN 3663-34-B5-2,2	34	-	B 5	10	21	37.5	9.5	7	2.2	59
GN 3663-34-B6-1	34	-	B 6	10	21	37.5	9.5	9	1	56
GN 3663-34-B6-1,5	34	-	B 6	10	21	37.5	9.5	9	1.5	57
GN 3663-34-B6-2,2	34	-	B 6	10	21	37.5	9.5	9	2.2	58
GN 3663-42-B6-2	42	-	B 6	13.5	27	43.5	11.5	11	2	108
GN 3663-42-B6-2,5	42	-	B 6	13.5	27	43.5	11.5	11	2.5	109
GN 3663-42-B6-3,2	42	-	B 6	13.5	27	43.5	11.5	11	3.2	110
GN 3663-42-B8-2	42	-	B 8	13.5	27	43.5	11.5	11	2	106
GN 3663-42-B8-2,5	42	-	B 8	13.5	27	43.5	11.5	11	2.5	107
GN 3663-42-B8-3,2	42	-	B 8	13.5	27	43.5	11.5	11	3.2	108
GN 3663-52-B10-2,5	52	-	B 10	19	32	54	15.5	17	2.5	208
GN 3663-52-B10-3	52	-	B 10	19	32	54	15.5	17	3	209
GN 3663-52-B10-4	52	-	B 10	19	32	54	15.5	17	4	210
GN 3663-52-B12-2,5	52	-	B 12	19	32	54	15.5	17	2.5	209
GN 3663-52-B12-3	52	-	B 12	19	32	54	15.5	17	3	210
GN 3663-52-B12-4	52	-	B 12	19	32	54	15.5	17	4	211
GN 3663-62-B10-3	62	-	B 10	19	33	54	15.5	17	3	241
GN 3663-62-B10-4	62	-	B 10	19	33	54	15.5	17	4	242
GN 3663-62-B10-5,5	62	-	B 10	19	33	54	15.5	17	5.5	243
GN 3663-62-B12-3	62	-	B 12	19	33	54	15.5	17	3	235
GN 3663-62-B12-4	62	-	B 12	19	33	54	15.5	17	4	236
GN 3663-62-B12-5,5	62	-	B 12	19	33	54	15.5	17	5.5	237
GN 3663-27-M3-0,7	27	M 3	-	10	19	35	9.5	7	0.7	150
GN 3663-27-M3-1	27	M 3	-	10	19	35	9.5	7	1	160
GN 3663-27-M3-1,5	27	M 3	-	10	19	35	9.5	7	1.5	200
GN 3663-27-M4-0,7	27	M 4	-	10	19	35	9.5	9	0.7	40
GN 3663-27-M4-1	27	M 4	-	10	19	35	9.5	9	1	41
GN 3663-27-M4-1,5	27	M 4	-	10	19	35	9.5	9	1.5	42
GN 3663-27-M5-0,7	27	M 5	-	10	19	35	9.5	9	0.7	39
GN 3663-27-M5-1	27	M 5	-	10	19	35	9.5	9	1	40
GN 3663-27-M5-1,5	27	M 5	-	10	19	35	9.5	9	1.5	41
GN 3663-27-M6-0,7	27	M 6	-	10	19	35	9.5	9	0.7	40
GN 3663-27-M6-1	27	M 6	-	10	19	35	9.5	9	1	41
GN 3663-27-M6-1,5	27	M 6	-	10	19	35	9.5	9	1.5	42
GN 3663-34-M3-1	34	M 3	-	10	21	37.5	9.5	7	1	58
GN 3663-34-M3-1,5	34	M 3	-	10	21	37.5	9.5	7	1.5	59
GN 3663-34-M3-2,2	34	M 3	-	10	21	37.5	9.5	7	2.2	59
GN 3663-34-M4-1	34	M 4	-	10	21	37.5	9.5	9	1	58
GN 3663-34-M4-1,5	34	M 4	-	10	21	37.5	9.5	9	1.5	59
GN 3663-34-M4-2,2	34	M 4	-	10	21	37.5	9.5	9	2.2	60
GN 3663-34-M5-1	34	M 5	-	10	21	37.5	9.5	9	1	57
GN 3663-34-M5-1,5	34	M 5	-	10	21	37.5	9.5	9	1.5	58
GN 3663-34-M5-2,2	34	M 5	-	10	21	37.5	9.5	9	2.2	59



GN 3663-with female thread

Description	d1	d2	d3 H7	d5	d6	h1	h2	t min.	Torque ±10% in Nm	⚖
GN 3663-34-M6-1	34	M 6	-	10	21	37.5	9.5	9	1	58
GN 3663-34-M6-1,5	34	M 6	-	10	21	37.5	9.5	9	1.5	59
GN 3663-34-M6-2,2	34	M 6	-	10	21	37.5	9.5	9	2.2	60
GN 3663-42-M6-2	42	M 6	-	13.5	27	43.5	11.5	11	2	109
GN 3663-42-M6-2,5	42	M 6	-	13.5	27	43.5	11.5	11	2.5	110
GN 3663-42-M6-3,2	42	M 6	-	13.5	27	43.5	11.5	11	3.2	111
GN 3663-42-M8-2	42	M 8	-	13.5	27	43.5	11.5	11	2	107
GN 3663-42-M8-2,5	42	M 8	-	13.5	27	43.5	11.5	11	2.5	108
GN 3663-42-M8-3,2	42	M 8	-	13.5	27	43.5	11.5	11	3.2	109
GN 3663-52-M10-2,5	52	M 10	-	19	32	54	15.5	17	2.5	208
GN 3663-52-M10-3	52	M 10	-	19	32	54	15.5	17	3	209
GN 3663-52-M10-4	52	M 10	-	19	32	54	15.5	17	4	210
GN 3663-52-M12-2,5	52	M 12	-	19	32	54	15.5	17	2.5	209
GN 3663-52-M12-3	52	M 12	-	19	32	54	15.5	17	3	210
GN 3663-52-M12-4	52	M 12	-	19	32	54	15.5	17	4	211
GN 3663-62-M10-3	62	M 10	-	19	33	54	15.5	17	3	240
GN 3663-62-M10-4	62	M 10	-	19	33	54	15.5	17	4	241
GN 3663-62-M10-5,5	62	M 10	-	19	33	54	15.5	17	5.5	242
GN 3663-62-M12-3	62	M 12	-	19	33	54	15.5	17	3	235
GN 3663-62-M12-4	62	M 12	-	19	33	54	15.5	17	4	236
GN 3663-62-M12-5,5	62	M 12	-	19	33	54	15.5	17	5.5	237

GN 3663-with threaded bolt

Description	d1	d4	l	d5	d6	h1	h2	Torque ±10% in Nm	
GN 3663-27-M4-12-0,7	27	M 4	12	10	19	35	9,5	0,7	43
GN 3663-27-M4-12-1	27	M 4	12	10	19	35	9,5	1	44
GN 3663-27-M4-12-1,5	27	M 4	12	10	19	35	9,5	1,5	45
GN 3663-27-M4-16-0,7	27	M 4	16	10	19	35	9,5	0,7	44
GN 3663-27-M4-16-1	27	M 4	16	10	19	35	9,5	1	45
GN 3663-27-M4-16-1,5	27	M 4	16	10	19	35	9,5	1,5	46
GN 3663-27-M4-20-0,7	27	M 4	20	10	19	35	9,5	0,7	45
GN 3663-27-M4-20-1	27	M 4	20	10	19	35	9,5	1	46
GN 3663-27-M4-20-1,5	27	M 4	20	10	19	35	9,5	1,5	47
GN 3663-27-M4-25-0,7	27	M 4	25	10	19	35	9,5	0,7	46
GN 3663-27-M4-25-1	27	M 4	25	10	19	35	9,5	1	47
GN 3663-27-M4-25-1,5	27	M 4	25	10	19	35	9,5	1,5	48
GN 3663-27-M4-32-0,7	27	M 4	32	10	19	35	9,5	0,7	47
GN 3663-27-M4-32-1	27	M 4	32	10	19	35	9,5	1	48
GN 3663-27-M4-32-1,5	27	M 4	32	10	19	35	9,5	1,5	49
GN 3663-27-M5-12-0,7	27	M 5	12	10	19	35	9,5	0,7	44
GN 3663-27-M5-12-1	27	M 5	12	10	19	35	9,5	1	45
GN 3663-27-M5-12-1,5	27	M 5	12	10	19	35	9,5	1,5	46
GN 3663-27-M5-16-0,7	27	M 5	16	10	19	35	9,5	0,7	45
GN 3663-27-M5-16-1	27	M 5	16	10	19	35	9,5	1	46
GN 3663-27-M5-16-1,5	27	M 5	16	10	19	35	9,5	1,5	47
GN 3663-27-M5-20-0,7	27	M 5	20	10	19	35	9,5	0,7	46
GN 3663-27-M5-20-1	27	M 5	20	10	19	35	9,5	1	47
GN 3663-27-M5-20-1,5	27	M 5	20	10	19	35	9,5	1,5	48
GN 3663-27-M5-25-0,7	27	M 5	25	10	19	35	9,5	0,7	47
GN 3663-27-M5-25-1	27	M 5	25	10	19	35	9,5	1	48
GN 3663-27-M5-25-1,5	27	M 5	25	10	19	35	9,5	1,5	49
GN 3663-27-M5-32-0,7	27	M 5	32	10	19	35	9,5	0,7	48
GN 3663-27-M5-32-1	27	M 5	32	10	19	35	9,5	1	49
GN 3663-27-M5-32-1,5	27	M 5	32	10	19	35	9,5	1,5	50
GN 3663-34-M5-12-1	34	M 5	12	10	21	37,5	9,5	1	62
GN 3663-34-M5-12-1,5	34	M 5	12	10	21	37,5	9,5	1,5	63
GN 3663-34-M5-12-2,2	34	M 5	12	10	21	37,5	9,5	2,2	64
GN 3663-34-M5-16-1	34	M 5	16	10	21	37,5	9,5	1	63
GN 3663-34-M5-16-1,5	34	M 5	16	10	21	37,5	9,5	1,5	64
GN 3663-34-M5-16-2,2	34	M 5	16	10	21	37,5	9,5	2,2	65
GN 3663-34-M5-20-1	34	M 5	20	10	21	37,5	9,5	1	64
GN 3663-34-M5-20-1,5	34	M 5	20	10	21	37,5	9,5	1,5	65
GN 3663-34-M5-20-2,2	34	M 5	20	10	21	37,5	9,5	2,2	66
GN 3663-34-M5-25-1	34	M 5	25	10	21	37,5	9,5	1	65
GN 3663-34-M5-25-1,5	34	M 5	25	10	21	37,5	9,5	1,5	66
GN 3663-34-M5-25-2,2	34	M 5	25	10	21	37,5	9,5	2,2	67
GN 3663-34-M5-32-1	34	M 5	32	10	21	37,5	9,5	1	66
GN 3663-34-M5-32-1,5	34	M 5	32	10	21	37,5	9,5	1,5	67
GN 3663-34-M5-32-2,2	34	M 5	32	10	21	37,5	9,5	2,2	68
GN 3663-34-M6-12-1	34	M 6	12	10	21	37,5	9,5	1	63
GN 3663-34-M6-12-1,5	34	M 6	12	10	21	37,5	9,5	1,5	64
GN 3663-34-M6-12-2,2	34	M 6	12	10	21	37,5	9,5	2,2	65
GN 3663-34-M6-16-1	34	M 6	16	10	21	37,5	9,5	1	64
GN 3663-34-M6-16-1,5	34	M 6	16	10	21	37,5	9,5	1,5	65
GN 3663-34-M6-16-2,2	34	M 6	16	10	21	37,5	9,5	2,2	66

GN 3663-with threaded bolt

Description	d1	d4	l	d5	d6	h1	h2	Torque ±10% in Nm	
GN 3663-34-M6-20-1	34	M 6	20	10	21	37,5	9,5	1	65
GN 3663-34-M6-20-1,5	34	M 6	20	10	21	37,5	9,5	1,5	66
GN 3663-34-M6-20-2,2	34	M 6	20	10	21	37,5	9,5	2,2	67
GN 3663-34-M6-25-1	34	M 6	25	10	21	37,5	9,5	1	66
GN 3663-34-M6-25-1,5	34	M 6	25	10	21	37,5	9,5	1,5	67
GN 3663-34-M6-25-2,2	34	M 6	25	10	21	37,5	9,5	2,2	68
GN 3663-34-M6-32-1	34	M 6	32	10	21	37,5	9,5	1	67
GN 3663-34-M6-32-1,5	34	M 6	32	10	21	37,5	9,5	1,5	68
GN 3663-34-M6-32-2,2	34	M 6	32	10	21	37,5	9,5	2,2	69
GN 3663-42-M8-16-2	42	M 8	16	13,5	27	43,5	11,5	2	93
GN 3663-42-M8-16-2,5	42	M 8	16	13,5	27	43,5	11,5	2,5	94
GN 3663-42-M8-16-3,2	42	M 8	16	13,5	27	43,5	11,5	3,2	95
GN 3663-42-M8-20-2	42	M 8	20	13,5	27	43,5	11,5	2	94
GN 3663-42-M8-20-2,5	42	M 8	20	13,5	27	43,5	11,5	2,5	95
GN 3663-42-M8-20-3,2	42	M 8	20	13,5	27	43,5	11,5	3,2	96
GN 3663-42-M8-25-2	42	M 8	25	13,5	27	43,5	11,5	2	95
GN 3663-42-M8-25-2,5	42	M 8	25	13,5	27	43,5	11,5	2,5	96
GN 3663-42-M8-25-3,2	42	M 8	25	13,5	27	43,5	11,5	3,2	97
GN 3663-42-M8-32-2	42	M 8	32	13,5	27	43,5	11,5	2	96
GN 3663-42-M8-32-2,5	42	M 8	32	13,5	27	43,5	11,5	2,5	97
GN 3663-42-M8-32-3,2	42	M 8	32	13,5	27	43,5	11,5	3,2	98
GN 3663-42-M8-40-2	42	M 8	40	13,5	27	43,5	11,5	2	100
GN 3663-42-M8-40-2,5	42	M 8	40	13,5	27	43,5	11,5	2,5	101
GN 3663-42-M8-40-3,2	42	M 8	40	13,5	27	43,5	11,5	3,2	102
GN 3663-42-M10-20-2	42	M 10	20	13,5	27	43,5	11,5	2	101
GN 3663-42-M10-20-2,5	42	M 10	20	13,5	27	43,5	11,5	2,5	102
GN 3663-42-M10-20-3,2	42	M 10	20	13,5	27	43,5	11,5	3,2	103
GN 3663-42-M10-25-2	42	M 10	25	13,5	27	43,5	11,5	2	102
GN 3663-42-M10-25-2,5	42	M 10	25	13,5	27	43,5	11,5	2,5	103
GN 3663-42-M10-25-3,2	42	M 10	25	13,5	27	43,5	11,5	3,2	104
GN 3663-42-M10-32-2	42	M 10	32	13,5	27	43,5	11,5	2	126
GN 3663-42-M10-32-2,5	42	M 10	32	13,5	27	43,5	11,5	2,5	127
GN 3663-42-M10-32-3,2	42	M 10	32	13,5	27	43,5	11,5	3,2	128
GN 3663-42-M10-40-2	42	M 10	40	13,5	27	43,5	11,5	2	128
GN 3663-42-M10-40-2,5	42	M 10	40	13,5	27	43,5	11,5	2,5	129
GN 3663-42-M10-40-3,2	42	M 10	40	13,5	27	43,5	11,5	3,2	130
GN 3663-42-M10-50-2	42	M 10	50	13,5	27	43,5	11,5	2	133
GN 3663-42-M10-50-2,5	42	M 10	50	13,5	27	43,5	11,5	2,5	134
GN 3663-42-M10-50-3,2	42	M 10	50	13,5	27	43,5	11,5	3,2	135
GN 3663-52-M10-25-2,5	52	M 10	25	19	32	54	15,5	2,5	150
GN 3663-52-M10-25-3	52	M 10	25	19	32	54	15,5	3	160
GN 3663-52-M10-25-4	52	M 10	25	19	32	54	15,5	4	165
GN 3663-52-M10-32-2,5	52	M 10	32	19	32	54	15,5	2,5	170
GN 3663-52-M10-32-3	52	M 10	32	19	32	54	15,5	3	175
GN 3663-52-M10-32-4	52	M 10	32	19	32	54	15,5	4	180
GN 3663-52-M10-40-2,5	52	M 10	40	19	32	54	15,5	2,5	170
GN 3663-52-M10-40-3	52	M 10	40	19	32	54	15,5	3	175
GN 3663-52-M10-40-4	52	M 10	40	19	32	54	15,5	4	180
GN 3663-52-M10-50-2,5	52	M 10	50	19	32	54	15,5	2,5	180
GN 3663-52-M10-50-3	52	M 10	50	19	32	54	15,5	3	185
GN 3663-52-M10-50-4	52	M 10	50	19	32	54	15,5	4	190





Clamping knobs 2

GN 3663-with threaded bolt

Description	d1	d4	l	d5	d6	h1	h2	Torque ±10% in Nm	
GN 3663-52-M10-63-2,5	52	M10	63	19	32	54	15,5	2,5	255
GN 3663-52-M10-63-3	52	M10	63	19	32	54	15,5	3	256
GN 3663-52-M10-63-4	52	M10	63	19	32	54	15,5	4	257
GN 3663-52-M12-25-2,5	52	M12	25	19	32	54	15,5	2,5	243
GN 3663-52-M12-25-3	52	M12	25	19	32	54	15,5	3	244
GN 3663-52-M12-25-4	52	M12	25	19	32	54	15,5	4	245
GN 3663-52-M12-32-2,5	52	M12	32	19	32	54	15,5	2,5	247
GN 3663-52-M12-32-3	52	M12	32	19	32	54	15,5	3	248
GN 3663-52-M12-32-4	52	M12	32	19	32	54	15,5	4	249
GN 3663-52-M12-40-2,5	52	M12	40	19	32	54	15,5	2,5	252
GN 3663-52-M12-40-3	52	M12	40	19	32	54	15,5	3	254
GN 3663-52-M12-40-4	52	M12	40	19	32	54	15,5	4	256
GN 3663-52-M12-50-2,5	52	M12	50	19	32	54	15,5	2,5	254
GN 3663-52-M12-50-3	52	M12	50	19	32	54	15,5	3	255
GN 3663-52-M12-50-4	52	M12	50	19	32	54	15,5	4	257
GN 3663-52-M12-63-2,5	52	M12	63	19	32	54	15,5	2,5	260
GN 3663-52-M12-63-3	52	M12	63	19	32	54	15,5	3	262
GN 3663-52-M12-63-4	52	M12	63	19	32	54	15,5	4	264
GN 3663-62-M10-25-3	62	M10	25	19	33	54	15,5	3	262
GN 3663-62-M10-25-4	62	M10	25	19	33	54	15,5	4	263
GN 3663-62-M10-25-5,5	62	M10	25	19	33	54	15,5	5,5	264
GN 3663-62-M10-32-3	62	M10	32	19	33	54	15,5	3	266
GN 3663-62-M10-32-4	62	M10	32	19	33	54	15,5	4	267
GN 3663-62-M10-32-5,5	62	M10	32	19	33	54	15,5	5,5	268
GN 3663-62-M10-40-3	62	M10	40	19	33	54	15,5	3	270
GN 3663-62-M10-40-4	62	M10	40	19	33	54	15,5	4	271
GN 3663-62-M10-40-5,5	62	M10	40	19	33	54	15,5	5,5	272
GN 3663-62-M10-50-3	62	M10	50	19	33	54	15,5	3	276
GN 3663-62-M10-50-4	62	M10	50	19	33	54	15,5	4	277
GN 3663-62-M10-50-5,5	62	M10	50	19	33	54	15,5	5,5	278
GN 3663-62-M10-63-3	62	M10	63	19	33	54	15,5	3	281
GN 3663-62-M10-63-4	62	M10	63	19	33	54	15,5	4	282
GN 3663-62-M10-63-5,5	62	M10	63	19	33	54	15,5	5,5	283
GN 3663-62-M12-25-3	62	M12	25	19	33	54	15,5	3	269
GN 3663-62-M12-25-4	62	M12	25	19	33	54	15,5	4	270
GN 3663-62-M12-25-5,5	62	M12	25	19	33	54	15,5	5,5	272
GN 3663-62-M12-32-3	62	M12	32	19	33	54	15,5	3	273
GN 3663-62-M12-32-4	62	M12	32	19	33	54	15,5	4	274
GN 3663-62-M12-32-5,5	62	M12	32	19	33	54	15,5	5,5	275
GN 3663-62-M12-40-3	62	M12	40	19	33	54	15,5	3	278
GN 3663-62-M12-40-4	62	M12	40	19	33	54	15,5	4	279
GN 3663-62-M12-40-5,5	62	M12	40	19	33	54	15,5	5,5	280
GN 3663-62-M12-50-3	62	M12	50	19	33	54	15,5	3	286
GN 3663-62-M12-50-4	62	M12	50	19	33	54	15,5	4	287
GN 3663-62-M12-50-5,5	62	M12	50	19	33	54	15,5	5,5	288
GN 3663-62-M12-63-3	62	M12	63	19	33	54	15,5	3	295
GN 3663-62-M12-63-4	62	M12	63	19	33	54	15,5	4	296
GN 3663-62-M12-63-5,5	62	M12	63	19	33	54	15,5	5,5	297

Torque limiting wing knobs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black (C9) or orange (C2) colour, matte finish.

TORQUE LIMITING MECHANISM

Nickel-plated steel.

STANDARD EXECUTIONS

- **CTD-B-2:** nickel-plated steel boss with threaded blind hole, maximum torque 2Nm.
- **CTD-B-3:** nickel-plated steel boss with threaded blind hole, maximum torque 3Nm.
- **CTD-p-2:** nickel-plated steel threaded screw, maximum torque 2Nm.
- **CTD-p-3:** nickel-plated steel threaded screw, maximum torque 3Nm.

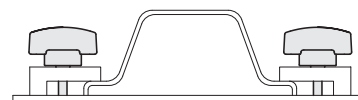
FEATURES AND APPLICATIONS

CTD wing knobs are used when the applied tightening torque must not exceed a preset value.

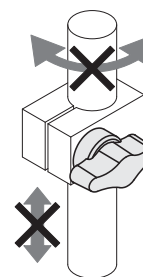
The torque transmission from the wing knob to the clamping element takes place by means of a spring system which prevents the overcoming of the established torque. Upon exceeding the established torque, a "click" sound will be heard to indicate that the maximum tightening has been reached. By turning the knob anticlockwise the mechanism unlocks.



Application Examples

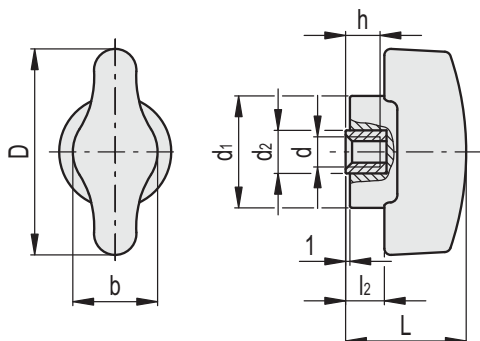


To prevent sheet deformation

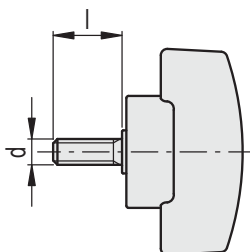


Fastening of the tube to avoid damage to tube surfaces

CTD-B



CTD-p



CTD-B

Code	Description	Code	Description	D	d	L	d1	d2	l1	l2	b	h	C# [Nm]	⚖
221901-C9	CTD.48 B-M5-2-C9	221901-C2	CTD.48 B-M5-2-C2	48	M5	28	26	10	9	20	8	2	35	
221902-C9	CTD.48 B-M5-3-C9	221902-C2	CTD.48 B-M5-3-C2	48	M5	28	26	10	9	20	8	3	36	
221905-C9	CTD.48 B-M6-2-C9	221905-C2	CTD.48 B-M6-2-C2	48	M6	28	26	10	9	20	8	2	34	
221906-C9	CTD.48 B-M6-3-C9	221906-C2	CTD.48 B-M6-3-C2	48	M6	28	26	10	9	20	8	3	35	

CTD-p

Code	Description	Code	Description	D	d	L	d1	d2	l	l2	b	C# [Nm]	⚖
221951-C9	CTD.48 p-M5x10-2-C9	221951-C2	CTD.48 p-M5x10-2-C2	48	M5	28	26	10	10	9	20	2	37
221952-C9	CTD.48 p-M5x10-3-C9	221952-C2	CTD.48 p-M5x10-3-C2	48	M5	28	26	10	10	9	20	3	38
221955-C9	CTD.48 p-M5x16-2-C9	221955-C2	CTD.48 p-M5x16-2-C2	48	M5	28	26	10	16	9	20	2	38
221956-C9	CTD.48 p-M5x16-3-C9	221956-C2	CTD.48 p-M5x16-3-C2	48	M5	28	26	10	16	9	20	3	39
221961-C9	CTD.48 p-M6x16-2-C9	221961-C2	CTD.48 p-M6x16-2-C2	48	M6	28	26	10	16	9	20	2	39
221962-C9	CTD.48 p-M6x16-3-C9	221962-C2	CTD.48 p-M6x16-3-C2	48	M6	28	26	10	16	9	20	3	40
221965-C9	CTD.48 p-M6x25-2-C9	221965-C2	CTD.48 p-M6x25-2-C2	48	M6	28	26	10	25	9	20	2	41
221966-C9	CTD.48 p-M6x25-3-C9	221966-C2	CTD.48 p-M6x25-3-C2	48	M6	28	26	10	25	9	20	3	42

C# Maximum torque (±15%)

Wing knobs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

CAP

Glass-fibre reinforced polyamide based (PA) technopolymer, in Ergostyle colours, matte finish, press-fit assembly.

Available also as accessory sold separately (see table ECA.).

Code	Description	Boss cap for
29752-*	ECA.W2-*	EWN.48
29753-*	ECA.W3-*	EWN.55
29755-*	ECA.W5-*	EWN.63
29754-*	ECA.W4-*	EWN.70

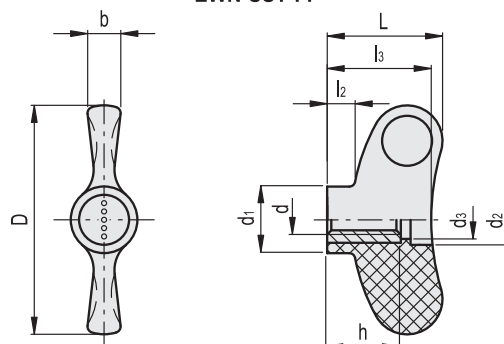
* Complete with colour index (C1, ..., C6).

STANDARD EXECUTIONS

- **EWN-FP:** brass boss, threaded pass-through hole, without cap.
- **EWN-SST-FP:** AISI 303 stainless steel boss, threaded pass-through hole without cap.
- **EWN-B:** brass boss, threaded pass-through hole, with cap.
- **EWN-SST:** AISI 303 stainless steel boss, threaded-pass hole, with cap.
- **EWN-p:** zinc-plated steel threaded stud with chamfered flat end as in UNI 947 : ISO 4753 (see Technical Data on page A11), with closing cap.
- **EWN-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11), with closing cap.



EWN-FP
EWN-SST-FP



EWN-FP

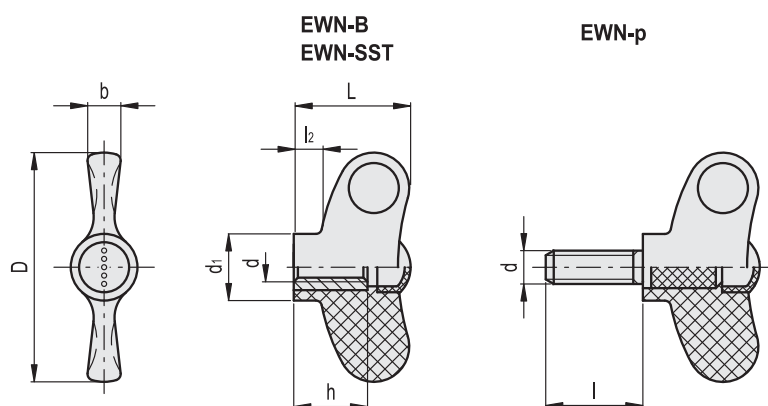
Code	Description	D	d6H	L	d1	d2	d3	l2	l3	b	h	C# [Nm]	⚖
223122-C0	EWN.48 FP-M5-C0	47	M5	24	13.5	10	8.5	5.5	21.5	7	12	9	10
223123-C0	EWN.48 FP-M6-C0	47	M6	24	13.5	10	8.5	5.5	21.5	7	12	10	9
223124-C0	EWN.48 FP-M8-C0	47	M8	24	13.5	10	8.5	5.5	21.5	7	12	11	8
223132-C0	EWN.55 FP-M6-C0	55	M6	28	16	12	10.5	6.5	25	8	18	20	19
223133-C0	EWN.55 FP-M8-C0	55	M8	28	16	12	10.5	6.5	25	8	18	25	18
223144-C0	EWN.63 FP-M8-C0	63	M8	32	19	14	10.5	7.5	29	9	20	45	27
223145-C0	EWN.63 FP-M10-C0	63	M10	32	19	14	10.5	7.5	29	9	20	55	26
223152-C0	EWN.70 FP-M8-C0	70	M8	36	20	15	13	8	32	10	20	45	32
223153-C0	EWN.70 FP-M10-C0	70	M10	36	20	15	13	8	32	10	20	55	31

EWN-SST-FP

STAINLESS STEEL

Code	Description	D	d6H	L	d1	d2	d3	l2	l3	b	h	C# [Nm]	⚖
224122-C0	EWN.48 SST-FP-M6-C0	47	M6	24	13.5	10	8.5	5.5	21.5	7	12	10	9
224123-C0	EWN.48 SST-FP-M8-C0	47	M8	24	13.5	10	8.5	5.5	21.5	7	12	10	8
224133-C0	EWN.55 SST-FP-M8-C0	55	M8	28	16	12	10.5	6.5	25	8	18	20	18
224143-C0	EWN.63 SST-FP-M10-C0	63	M10	32	19	14	10.5	7.5	29	9	20	45	26
224153-C0	EWN.70 SST-FP-M10-C0	70	M10	26	20	15	13	8	32	10	20	45	31

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.



* Complete with colour index, example: 223216-C2 EWN.48 B-M5-C2

C1 RAL7021
 C2 RAL2004
 C3 RAL7035
 C4 RAL1021
 C5 RAL5024
 C6 RAL3000

EWN-B

Code	Description	D	d6H	L	d1	l2	b	h	C# [Nm]	⚖
223216-*	EWN.48 B-M5-*	47	M5	24	13.5	5.5	7	12	10	11
223221-*	EWN.48 B-M6-*	47	M6	24	13.5	5.5	7	12	11	10
223226-*	EWN.48 B-M8-*	47	M8	24	13.5	5.5	7	12	13	9
223236-*	EWN.55 B-M6-*	55	M6	28	16	6.5	8	18	20	20
223241-*	EWN.55 B-M8-*	55	M8	28	16	6.5	8	18	26	19
223251-*	EWN.63 B-M8-*	63	M8	32	19	7.5	9	20	45	29
223256-*	EWN.63 B-M10-*	63	M10	32	19	7.5	9	20	58	28
223406-*	EWN.70 B-M8-*	70	M8	36	20	8	10	20	45	34
223411-*	EWN.70 B-M10-*	70	M10	36	20	8	10	20	58	33

EWN-SST

STAINLESS STEEL

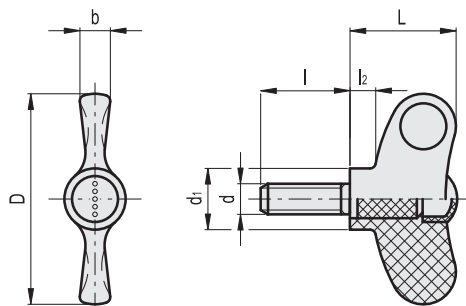
Code	Description	D	d6H	L	d1	l2	b	h	C# [Nm]	⚖
224216-*	EWN.48 SST-M6-*	47	M6	24	13.5	5.5	7	12	10	10
224221-*	EWN.48 SST-M8-*	47	M8	24	13.5	5.5	7	12	10	9
224241-*	EWN.55 SST-M8-*	55	M8	28	16	6.5	8	18	15	19
224256-*	EWN.63 SST-M10-*	63	M10	32	19	7.5	9	20	35	28
224411-*	EWN.70 SST-M10-*	70	M10	36	20	8	10	20	35	33

EWN-p

Code	Description	D	d6g	L	d1	l	l2	b	C# [Nm]	⚖
223511-*	EWN.48 p-M5x16-*	47	M5	24	13.5	16	5.5	7	9	11
223516-*	EWN.48 p-M5x20-*	47	M5	24	13.5	20	5.5	7	9	12
223531-*	EWN.48 p-M6x16-*	47	M6	24	13.5	16	5.5	7	12	13
223536-*	EWN.48 p-M6x20-*	47	M6	24	13.5	20	5.5	7	12	13
223541-*	EWN.48 p-M6x25-*	47	M6	24	13.5	25	5.5	7	12	13
223546-*	EWN.48 p-M6x30-*	47	M6	24	13.5	30	5.5	7	12	15
223556-*	EWN.48 p-M6x40-*	47	M6	24	13.5	40	5.5	7	12	17
223565-*	EWN.48 p-M8x16-*	47	M8	24	13.5	16	5.5	7	12	13
223571-*	EWN.48 p-M8x20-*	47	M8	24	13.5	20	5.5	7	12	19
223572-*	EWN.48 p-M8x25-*	47	M8	24	13.5	25	5.5	7	12	13
223573-*	EWN.48 p-M8x30-*	47	M8	24	13.5	30	5.5	7	12	21
223576-*	EWN.48 p-M8x40-*	47	M8	24	13.5	40	5.5	7	12	24

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.



EWN-p
EWN-SST-p

* Complete with colour index, example: 223531-C2 EWN.48 p-M6x16-C2

C1 RAL7021 C2 RAL2004 C3 RAL7035 C4 RAL1021 C5 RAL5024 C6 RAL3000

EWN-p

Code	Description	D	d6g	L	d1	l	l2	b	C# [Nm]	⚖
223626-*	EWN.55 p-M8x20-*	55	M8	28	16	20	6.5	8	22	23
223636-*	EWN.55 p-M8x30-*	55	M8	28	16	30	6.5	8	22	26
223646-*	EWN.55 p-M8x40-*	55	M8	28	16	40	6.5	8	22	29
223666-*	EWN.55 p-M10x20-*	55	M10	28	16	20	6.5	8	25	28
223676-*	EWN.55 p-M10x30-*	55	M10	28	16	30	6.5	8	25	34
223686-*	EWN.55 p-M10x40-*	55	M10	28	16	40	6.5	8	25	40
223726-*	EWN.63 p-M8x20-*	63	M8	32	19	20	7.5	9	32	30
223736-*	EWN.63 p-M8x30-*	63	M8	32	19	30	7.5	9	32	33
223746-*	EWN.63 p-M8x40-*	63	M8	32	19	40	7.5	9	32	35
223756-*	EWN.63 p-M10x20-*	63	M10	32	19	20	7.5	9	48	36
223766-*	EWN.63 p-M10x30-*	63	M10	32	19	30	7.5	9	48	42
223776-*	EWN.63 p-M10x40-*	63	M10	32	19	40	7.5	9	48	48
223806-*	EWN.70 p-M8x20-*	70	M8	36	20	20	8	10	32	35
223816-*	EWN.70 p-M8x30-*	70	M8	36	20	30	8	10	32	38
223826-*	EWN.70 p-M8x40-*	70	M8	36	20	40	8	10	32	40
223856-*	EWN.70 p-M10x20-*	70	M10	36	20	20	8	10	48	41
223866-*	EWN.70 p-M10x30-*	70	M10	36	20	30	8	10	48	47
223876-*	EWN.70 p-M10x40-*	70	M10	36	20	40	8	10	48	53

EWN-SST-p

STAINLESS STEEL

Code	Description	D	d6g	L	d1	l	l2	b	C# [Nm]	⚖
224536-*	EWN.48 SST-p-M6x20-*	47	M6	24	13.5	20	5.5	7	11	13
224546-*	EWN.48 SST-p-M6x30-*	47	M6	24	13.5	30	5.5	7	11	15
224549-*	EWN.48 SST-p-M8x20-*	47	M8	24	13.5	20	5.5	7	11	20
224551-*	EWN.48 SST-p-M8x30-*	47	M8	24	13.5	30	5.5	7	11	22
224553-*	EWN.48 SST-p-M8x40-*	47	M8	24	13.5	40	5.5	7	11	25
224626-*	EWN.55 SST-p-M8x20-*	55	M8	28	16	20	6.5	8	16	23
224636-*	EWN.55 SST-p-M8x30-*	55	M8	28	16	30	6.5	8	16	26
224638-*	EWN.55 SST-p-M8x40-*	55	M8	28	16	40	6.5	8	16	30
224756-*	EWN.63 SST-p M10x20-*	63	M10	32	19	20	7.5	9	45	36
224766-*	EWN.63 SST-p M10x30-*	63	M10	32	19	30	7.5	9	45	42
224856-*	EWN.70 SST-p-M10x20-*	70	M10	36	20	20	8	10	45	41
224866-*	EWN.70 SST-p-M10x30-*	70	M10	36	20	30	8	10	45	47
224876-*	EWN.70 SST-p-M10x40-*	70	M10	36	20	40	8	10	45	54

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

Wing knobs

Technopolymer, pad

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

CAP

Glass-fibre reinforced polyamide based (PA) technopolymer, in Ergostyle colours, matte finish, press-fit assembly.

Available also as accessory sold separately (see table ECA.).

Code	Description	Cap for
29752-*	ECA.W2-*	EWN.48
29753-*	ECA.W3-*	EWN.55
29754-*	ECA.W4-*	EWN.70

* Complete with the colour index (C1, ..., C6)

STANDARD EXECUTIONS

- **EWN-SST-p-PO:** AISI 303 stainless steel threaded stud, acetal resin (POM) pad.
- **EWN-SST-p-PB:** AISI 303 stainless steel threaded stud, brass pad.

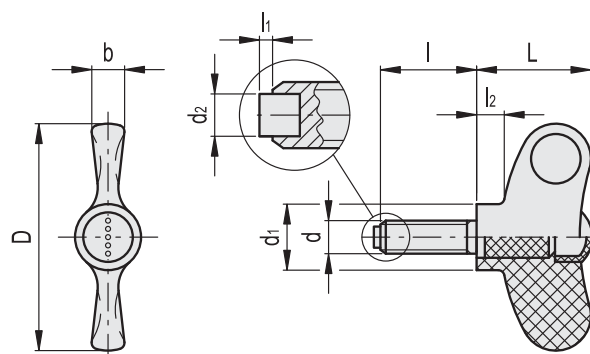
FEATURES AND APPLICATIONS

The chamfered end with bolt avoids to damage the surface of contact even in case of strong clamping.

Standard executions either with brass or acetal resin pad.

ERGONOMY AND DESIGN

The slightly concave marks on the wings help to position the fingers in order to apply the maximum force when tightening.



* Complete with colour index, example: 224556-C2 EWN.48-SST-p-M6x20-PO-C2

RAL7021 **C1**
RAL2004 **C2**
RAL7035 **C3**
RAL1021 **C4**
RAL5024 **C5**
RAL3000 **C6**

EWN-SST-p-PO

STAINLESS STEEL

Code	Description	D	d6g	L	d1	d2	l	l1	l2	b	⚖
224556-*	EWN.48-SST-p-M6x20-PO-*	47	M6	24	13.5	4	20	1.5	5.5	7	13
224566-*	EWN.48-SST-p-M6x30-PO-*	47	M6	24	13.5	4	30	1.5	5.5	7	15
224646-*	EWN.55-SST-p-M8x20-PO-*	55	M8	28	16	5	20	1.8	6.5	8	23
224656-*	EWN.55-SST-p-M8x30-PO-*	55	M8	28	16	5	30	1.8	6.5	8	26
224676-*	EWN.70-SST-p-M10x20-PO-*	70	M10	36	20	6	20	2	8	10	41
224686-*	EWN.70-SST-p-M10x30-PO-*	70	M10	36	20	6	30	2	8	10	47

EWN-SST-p-PB

STAINLESS STEEL

Code	Description	D	d6g	L	d1	d2	l	l1	l2	b	⚖
224576-*	EWN.48-SST-p-M6x20-PB-*	47	M6	24	13.5	4	20	1.5	5.5	7	14
224586-*	EWN.48-SST-p-M6x30-PB-*	47	M6	24	13.5	4	30	1.5	5.5	7	16
224661-*	EWN.55-SST-p-M8x20-PB-*	55	M8	28	16	5	20	1.8	6.5	8	24
224666-*	EWN.55-SST-p-M8x30-PB-*	55	M8	28	16	5	30	1.8	6.5	8	27
224691-*	EWN.70-SST-p-M10x20-PB-*	70	M10	36	20	6	20	2	8	10	42
224696-*	EWN.70-SST-p-M10x30-PB-*	70	M10	36	20	6	30	2	8	10	48



EWNM-SST

Wing knobs

Stainless steel

MATERIAL

AISI 304 stainless steel, sandblasted matte finish.

STANDARD EXECUTIONS

- **EWNM-SST:** threaded blind hole.
- **EWNM-SST-FP:** threaded pass-through hole.
- **EWNM-SST-p:** threaded pin.

FEATURES AND APPLICATIONS

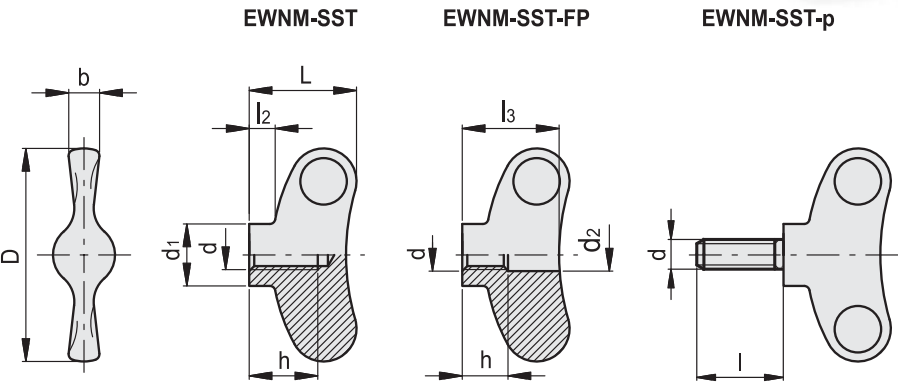
These wing nuts allow high tightening torque values.

ERGONOMY AND DESIGN

The slightly concave marks on the wings help to position the fingers in order to apply the maximum force when tightening.
Different threadings.



ERGOSTYLE®



EWNM-SST

STAINLESS STEEL

Code	Description	D	d	L	d1	l2	b	h	⚖
222002	EWNM-SST-40-M5	40	M5	21	13.5	5.5	6.5	12	31
222004	EWNM-SST-40-M6	40	M6	21	13.5	5.5	6.5	12	31
222012	EWNM-SST-48-M6	48	M6	24	13.5	6	7	15	41
222014	EWNM-SST-48-M8	48	M8	24	13.5	6	7	15	40
222022	EWNM-SST-55-M8	55	M8	28	16	7	8	18	62
222024	EWNM-SST-55-M10	55	M10	28	16	7	8	18	61

EWNM-SST-FP

STAINLESS STEEL

Code	Description	D	d	d2 H13	L	d1	l2	l3	b	h	⚖
222001	EWNM-SST-40-FP-M5	40	M5	5.3	21	13.5	5.5	19	6.5	8	30
222003	EWNM-SST-40-FP-M6	40	M6	6.4	21	13.5	5.5	19	6.5	10	29
222011	EWNM-SST-48-FP-M6	48	M6	6.4	24	13.5	6	22	7	10	40
222013	EWNM-SST-48-FP-M8	48	M8	8.4	24	13.5	6	22	7	13	39
222021	EWNM-SST-55-FP-M8	55	M8	8.4	28	16	7	25	8	13	59
222023	EWNM-SST-55-FP-M10	55	M10	10.5	28	16	7	25	8	16	57

EWNM-SST-p

STAINLESS STEEL

Code	Description	D	d	L	d1	l	l2	b	⚖
222101	EWNM.40-SST-pM5x16	40	M5	21	13.5	16	5.5	6.5	32
222103	EWNM.40-SST-pM5x20	40	M5	21	13.5	20	5.5	6.5	36
222105	EWNM.40-SST-pM5x25	40	M5	21	13.5	25	5.5	6.5	40
222111	EWNM.40-SST-pM6x16	40	M6	21	13.5	16	5.5	6.5	35
222113	EWNM.40-SST-pM6x20	40	M6	21	13.5	20	5.5	6.5	42
222115	EWNM.40-SST-pM6x25	40	M6	21	13.5	25	5.5	6.5	46
222131	EWNM.48-SST-pM6x16	48	M6	24	13.5	16	6	7	44
222133	EWNM.48-SST-pM6x20	48	M6	24	13.5	20	6	7	50
222135	EWNM.48-SST-pM6x25	48	M6	24	13.5	25	6	7	54
222141	EWNM.48-SST-pM8x16	48	M8	24	13.5	16	6	7	46
222143	EWNM.48-SST-pM8x20	48	M8	24	13.5	20	6	7	50
222145	EWNM.48-SST-pM8x25	48	M8	24	13.5	25	6	7	52
222161	EWNM.55-SST-pM8x20	55	M8	28	16	20	7	8	55
222163	EWNM.55-SST-pM8x25	55	M8	28	16	25	7	8	58
222165	EWNM.55-SST-pM8x30	55	M8	28	16	30	7	8	61
222171	EWNM.55-SST-pM10x20	55	M10	28	16	20	7	8	53
222173	EWNM.55-SST-pM10x25	55	M10	28	16	25	7	8	56
222175	EWNM.55-SST-pM10x30	55	M10	28	16	30	7	8	60

Single wing nuts

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

CAP

Glass-fibre reinforced polyamide based (PA) technopolymer, in Ergostyle colours, matte finish, press-fit assembly. Available also as accessory sold separately (see table ECA.).

Code	Description	Boss cap for
29753-*	ECA.W3-*	ESN.55
29754-*	ECA.W4-*	ESN.70

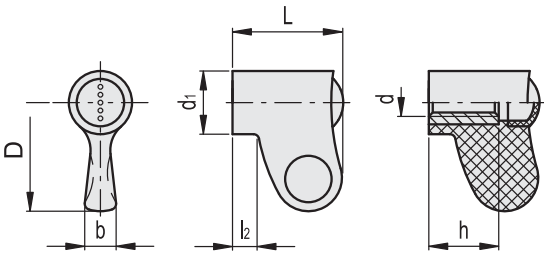
* Complete with colour index (C1, ..., C6).

STANDARD EXECUTION

Brass boss, threaded pass-through hole.

ERGONOMY AND DESIGN

The slightly concave marks on the wing help to position the fingers in order to apply the maximum force when turning.



* Complete with colour index, example: 225236-C2 ESN.55 B-M6-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

Code	Description	D	d6H	L	d1	l2	b	h	⚖
225236-*	ESN.55 B-M6-*	27.5	M6	28	16	6.5	8	18	15
225241-*	ESN.55 B-M8-*	27.5	M8	28	16	6.5	8	18	14
225406-*	ESN.70 B-M8-*	35	M8	36	20	8	10	20	29
225411-*	ESN.70 B-M10-*	35	M10	36	20	8	10	20	28

Wing knobs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

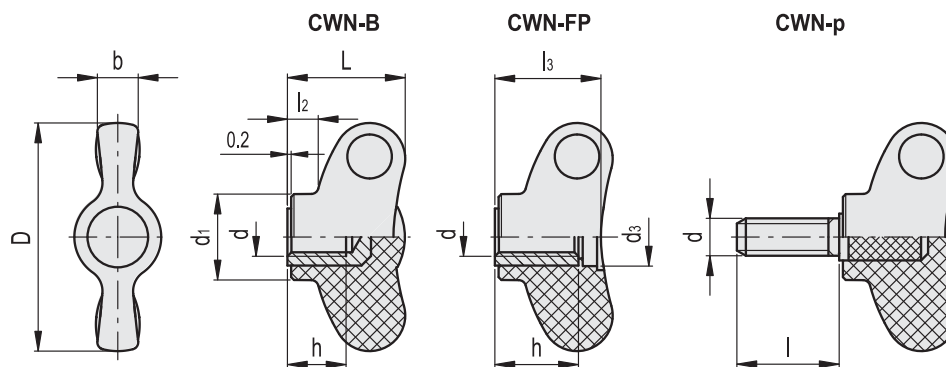
- **CWN-B:** brass boss, threaded blind hole.
- **CWN-FP:** brass boss, threaded pass-through hole.
- **CWN-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

ERGONOMY AND DESIGN

The slightly convex marks on the wings offer a point where the fingers can be positioned.



ELESA Original design



CWN-B

Code	Description	D	d6H	L	d1	l2	b	h	⚖
8600	CWN.32 B-M4	32	M4	16.5	12	3.5	6	6	8
8601	CWN.32 B-M5	32	M5	16.5	12	3.5	6	6	7
8602	CWN.32 B-M6	32	M6	16.5	12	3.5	6	8	6
8651	CWN.40 B-M6	40	M6	21	13.5	4.5	6.5	12	12
8652	CWN.40 B-M8	40	M8	21	13.5	4.5	6.5	13	11

CWN-FP

Code	Description	D	d6H	L	d1	d3	l2	l3	b	h	⚖
8605	CWN.32 FP-M5	32	M5	16.5	12	8	3.5	14.5	6	12	6
8606	CWN.32 FP-M6	32	M6	16.5	12	8	3.5	14.5	6	12	8
8656	CWN.40 FP-M8	40	M8	21	13.5	9.5	5	19	6.5	16	10

CWN-p

Code	Description	D	d6g	L	d1	l	l2	b	⚖
8607	CWN.32 p-M4x10	32	M4	16.5	12	10	3.5	6	7
8608	CWN.32 p-M4x16	32	M4	16.5	12	16	3.5	6	8
8609	CWN.32 p-M5x10	32	M5	16.5	12	10	3.5	6	8
8610	CWN.32 p-M5x16	32	M5	16.5	12	16	3.5	6	9
8615	CWN.32 p-M5x20	32	M5	16.5	12	20	3.5	6	10
8611	CWN.32 p-M6x10	32	M6	16.5	12	10	3.5	6	8
8612	CWN.32 p-M6x16	32	M6	16.5	12	16	3.5	6	9
8613	CWN.32 p-M6x20	32	M6	16.5	12	20	3.5	6	11
8614	CWN.32 p-M6x25	32	M6	16.5	12	25	3.5	6	13
8616	CWN.32 p-M6x30	32	M6	16.5	12	30	3.5	6	10
8658	CWN.40 p-M6x16	40	M6	21	13.5	16	4.5	6.5	11
8662	CWN.40 p-M8x16	40	M8	21	13.5	16	4.5	6.5	12
8663	CWN.40 p-M8x20	40	M8	21	13.5	20	4.5	6.5	14
8664	CWN.40 p-M8x25	40	M8	21	13.5	25	4.5	6.5	17
8665	CWN.40 p-M8x30	40	M8	21	13.5	30	4.5	6.5	20

Stainless Steel-Wing nuts

SPECIFICATION

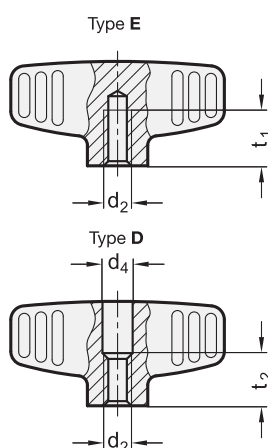
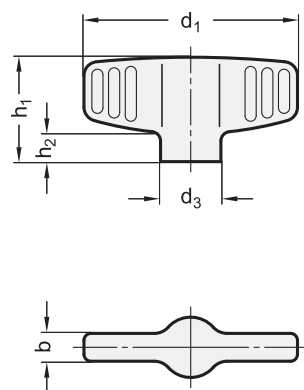
Types

- Type **E**: with threaded blind bore
- Type **D**: with threaded through bore

Stainless Steel AISI CF-8 (Precision casting)
matt shot-blasted **MT**

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



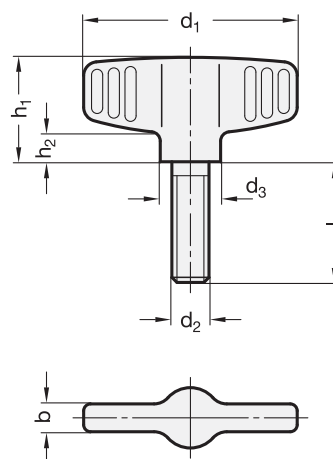
Stainless Steel-Wing screws

SPECIFICATION

Stainless Steel AISI CF-8 (Precision casting)
matt shot-blasted **MT**

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 834

STAINLESS STEEL

Description	d1	d2	d3	d4	b	h1	h2	t1 min.	t2	⚖
GN 834-46-M6-D-MT	46	M 6	13	6.5	6	22.5	6	-	10	38
GN 834-46-M8-D-MT	46	M 8	13	8.5	6	22.5	6	-	13	39
GN 834-58-M8-D-MT	58	M 8	16	8.5	7	26.5	7	-	13	65
GN 834-58-M10-D-MT	58	M 10	16	10.5	7	26.5	7	-	16	55
GN 834-46-M6-E-MT	46	M 6	13	-	6	22.5	6	12	-	41
GN 834-46-M8-E-MT	46	M 8	13	-	6	22.5	6	15	-	39
GN 834-58-M8-E-MT	58	M 8	16	-	7	26.5	7	15	-	73
GN 834-58-M10-E-MT	58	M 10	16	-	7	26.5	7	18	-	60

GN 835

STAINLESS STEEL

Description	d1	d2	l	d3	b	h1	h2	⚖
GN 835-46-M6-16-MT	46	M 6	16	13	6	22.5	6	40
GN 835-46-M6-20-MT	46	M 6	20	13	6	22.5	6	41
GN 835-46-M6-25-MT	46	M 6	25	13	6	22.5	6	42
GN 835-46-M8-16-MT	46	M 8	16	13	6	22.5	6	49
GN 835-46-M8-20-MT	46	M 8	20	13	6	22.5	6	50
GN 835-46-M8-25-MT	46	M 8	25	13	6	22.5	6	52
GN 835-58-M8-20-MT	58	M 8	20	16	7	26.5	7	75
GN 835-58-M8-25-MT	58	M 8	25	16	7	26.5	7	76
GN 835-58-M8-30-MT	58	M 8	30	16	7	26.5	7	77
GN 835-58-M10-20-MT	58	M 10	20	16	7	26.5	7	80
GN 835-58-M10-25-MT	58	M 10	25	16	7	26.5	7	81
GN 835-58-M10-30-MT	58	M 10	30	16	7	26.5	7	82



Wing knobs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

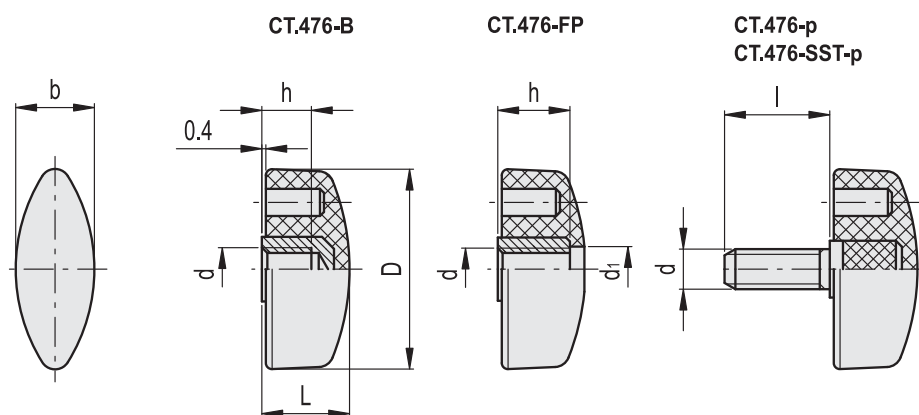
- **CT.476-B:** brass boss, threaded blind hole.
- **CT.476-FP:** brass boss, threaded pass-through hole.
- **CT.476-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).
- **CT.476-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

FEATURES AND APPLICATIONS

These wing knobs allow high tightening torque values.



ELESA Original design



CT.476-B

Code	Description	D	d6H	L	b	h	C# [Nm]	⚖
8252	CT.476/20 B-M4	20	M4	11	9.5	6	6	3
8302	CT.476/25 B-M5	26	M5	13	11	6	8	4
8307	CT.476/25 B-M6	26	M6	13	11	6	10	4
8321	CT.476/30 B-M5	32	M5	15	13	6	8	8
8351	CT.476/30 B-M6	32	M6	15	13	8	15	7
8356	CT.476/30 B-M8	32	M8	15	13	8	20	6
8432	CT.476/40 B-M5	40	M5	17	15.5	6	8	14
8433	CT.476/40 B-M6	40	M6	17	15.5	8	15	12
8452	CT.476/40 B-M8	40	M8	17	15.5	8	24	10
8502	CT.476/48 B-M8	48	M8	19	19	10	30	14
8552	CT.476/56 B-M10	56	M10	23	21	13	32	17

CT.476-FP

Code	Description	D	d6H	L	d1	b	h	C# [Nm]	⚖
8326	CT.476/30 FP-M5	32	M5	15	6.5	13	12	9	8
8358	CT.476/30 FP-M6	32	M6	15	6.5	13	12	15	7
8436	CT.476/40 FP-M5	40	M5	17	9	15.5	12	9	13
8438	CT.476/40 FP-M6	40	M6	17	9	15.5	12	15	12
8458	CT.476/40 FP-M8	40	M8	17	9	15.5	14	22	10
8508	CT.476/48 FP-M8	48	M8	19	9	19	16	24	14
8558	CT.476/56 FP-M10	56	M10	23	11	21	20	30	18

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

CT.476-p

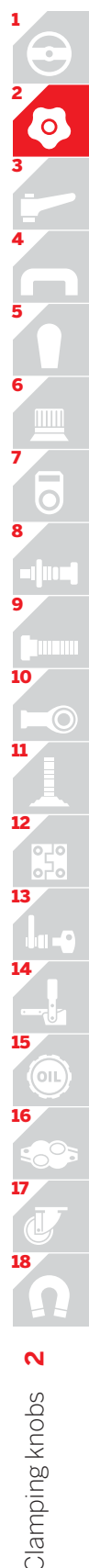
Code	Description	D	d6g	L	I	b	C# [Nm]	⚖
8261	CT.476/20 p-M4x6	20	M4	11	6	9.5	6	4
8262	CT.476/20 p-M4x10	20	M4	11	10	9.5	6	4
8311	CT.476/25 p-M5x10	26	M5	13	10	11	8	6
8312	CT.476/25 p-M5x16	26	M5	13	16	11	8	7
8331	CT.476/30 p-M5x10	32	M5	15	10	13	8	7
8332	CT.476/30 p-M5x16	32	M5	15	16	13	8	9
8333	CT.476/30 p-M5x20	32	M5	15	20	13	8	13
8361	CT.476/30 p-M6x10	32	M6	15	10	13	14	8
8362	CT.476/30 p-M6x16	32	M6	15	16	13	14	10
8363	CT.476/30 p-M6x20	32	M6	15	20	13	14	11
8364	CT.476/30 p-M6x25	32	M6	15	25	13	14	12
8366	CT.476/30 p-M6x30	32	M6	15	30	13	14	13
8365	CT.476/30 p-M6x40	32	M6	15	40	13	14	14
8371	CT.476/30 p-M8x16	32	M8	15	16	13	16	13
8372	CT.476/30 p-M8x25	32	M8	15	25	13	16	16
8373	CT.476/30 p-M8x40	32	M8	15	40	13	16	20
8374	CT.476/30 p-M8x45	32	M8	15	45	13	16	24
8482	CT.476/40 p-M5x10	40	M5	17	10	15.5	8	11
8483	CT.476/40 p-M5x16	40	M5	17	16	15.5	8	12
8485	CT.476/40 p-M5x20	40	M5	17	20	15.5	8	13
8492	CT.476/40 p-M6x16	40	M6	17	16	15.5	14	13
8493	CT.476/40 p-M6x20	40	M6	17	20	15.5	14	14
8494	CT.476/40 p-M6x25	40	M6	17	25	15.5	14	16
8496	CT.476/40 p-M6x30	40	M6	17	30	15.5	14	17
8498	CT.476/40 p-M6x40	40	M6	17	40	15.5	14	19
8462	CT.476/40 p-M8x16	40	M8	17	16	15.5	18	15
8464	CT.476/40 p-M8x25	40	M8	17	25	15.5	18	16
8466	CT.476/40 p-M8x40	40	M8	17	40	15.5	18	22
8472	CT.476/40 p-M10x20	40	M10	17	20	15.5	28	25
8474	CT.476/40 p-M10x30	40	M10	17	30	15.5	28	27
8476	CT.476/40 p-M10x40	40	M10	17	40	15.5	28	31
8521	CT.476/48 p-M8x16	48	M8	19	16	19	20	18
8524	CT.476/48 p-M8x25	48	M8	19	25	19	20	21
8572	CT.476/56 p-M10x20	56	M10	23	20	21	40	35
8574	CT.476/56 p-M10x30	56	M10	23	30	21	40	39

CT.476-SST-p

STAINLESS STEEL

Code	Description	D	d6g	L	I	b	C# [Nm]	⚖
108261	CT.476/20-SST-p-M4x6	20	M4	11	6	9.5	6	4
108262	CT.476/20-SST-p-M4x10	20	M4	11	10	9.5	6	4
108311	CT.476/25-SST-p-M5x10	26	M5	13	10	11	8	6
108312	CT.476/25-SST-p-M5x16	26	M5	13	16	11	8	7
108313	CT.476/25-SST-p-M5x25	26	M5	13	25	11	8	8
108361	CT.476/30-SST-p-M6x10	32	M6	15	10	13	14	8
108362	CT.476/30-SST-p-M6x16	32	M6	15	16	13	14	10
108364	CT.476/30-SST-p-M6x20	32	M6	15	20	13	14	11
108366	CT.476/30-SST-p-M6x25	32	M6	15	25	13	14	12
108367	CT.476/30-SST-p-M6x30	32	M6	15	30	13	14	13
108372	CT.476/30-SST-p-M8x16	32	M8	15	16	13	16	13
108374	CT.476/30-SST-p-M8x20	32	M8	15	20	13	16	14
108375	CT.476/30-SST-p-M8x25	32	M8	15	25	13	16	16
108377	CT.476/30-SST-p-M8x30	32	M8	15	30	13	16	17
108378	CT.476/30-SST-p-M8x40	32	M8	15	40	13	16	20
108462	CT.476/40-SST-p-M8x16	40	M8	17	16	15.5	18	15
108464	CT.476/40-SST-p-M8x25	40	M8	17	25	15.5	18	16
108466	CT.476/40-SST-p-M8x40	40	M8	17	40	15.5	18	22
108521	CT.476/48-SST-p-M8x16	48	M8	19	16	19	20	18
108524	CT.476/48-SST-p-M8x25	48	M8	19	25	19	20	18
108572	CT.476/56-SST-p-M10x20	56	M10	23	20	21	40	35
108574	CT.476/56-SST-p-M10x30	56	M10	23	30	21	40	39

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.



Wing knobs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

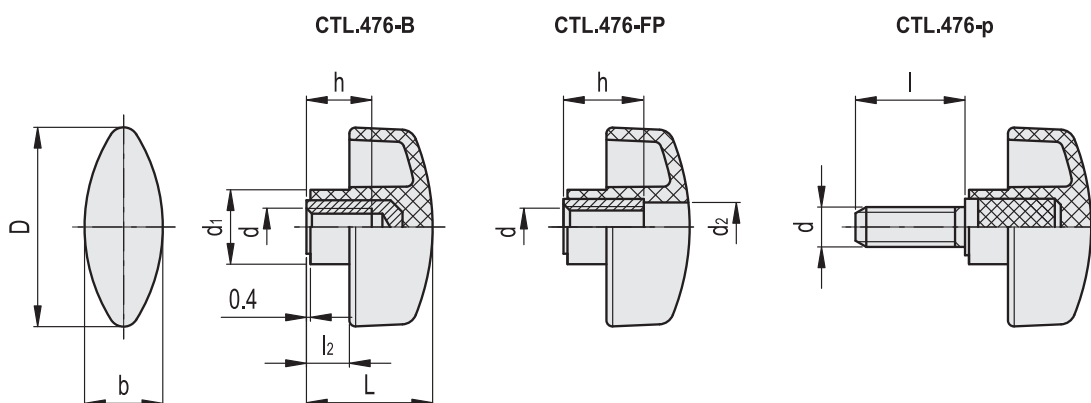
- **CTL.476-B**: brass boss, threaded blind hole.
- **CTL.476-FP**: brass boss, threaded through hole.
- **CTL.476-p**: zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

FEATURES AND APPLICATIONS

These wing knobs allow high tightening torque values and a comfortable grip, thanks to the elongated hub.



ELESA Original design



CTL.476-B

Code	Description	D	d6H	L	d1	l2	b	h	⚖
8711	CTL.476/30 B-M6	32	M6	20	11	5.5	13	10	8
8741	CTL.476/40 B-M8	40	M8	24.5	14	7.5	15.5	15	11
8771	CTL.476/48 B-M8	48	M8	28	17	9	19	20	17
8801	CTL.476/56 B-M10	56	M10	34	18.5	11	21	13	21

CTL.476-FP

Code	Description	D	d6H	L	d1	d2	l2	b	h	⚖
8715	CTL.476/30 FP-M6	32	M6	20	11	6.5	5.5	13	12	7
8745	CTL.476/40 FP-M8	40	M8	24.5	14	9	7.5	15.5	14	10
8775	CTL.476/48 FP-M10	48	M10	28	17	11	9	19	16	17

CTL.476-p

Code	Description	D	d6g	L	d1	l	l2	b	⚖
8721	CTL.476/30 p-M6x10	32	M6	20	11	10	5.5	13	9
8722	CTL.476/30 p-M6x16	32	M6	20	11	16	5.5	13	11
8723	CTL.476/30 p-M6x20	32	M6	20	11	20	5.5	13	13
8751	CTL.476/40 p-M8x16	40	M8	24.5	14	16	7.5	15.5	16
8753	CTL.476/40 p-M8x25	40	M8	24.5	14	25	7.5	15.5	19
8781	CTL.476/48 p-M8x16	48	M8	28	17	16	9	19	21
8783	CTL.476/48 p-M8x25	48	M8	28	17	25	9	19	27
8811	CTL.476/56 p-M10x20	56	M10	34	18.5	20	11	21	29
8813	CTL.476/56 p-M10x30	56	M10	34	18.5	30	11	21	35

Stainless Steel-Wing screws

SPECIFICATION

Head

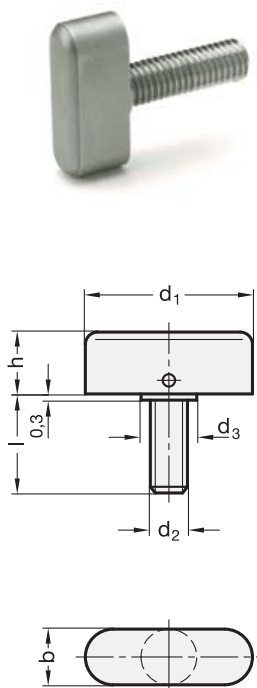
- Stainless Steel AISI 316L (Sintered Steel)
- matt shot-blasted

Threaded bolt

- Stainless Steel AISI 304
- matt shot-blasted
- screwed in and secured by cross-dowel

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



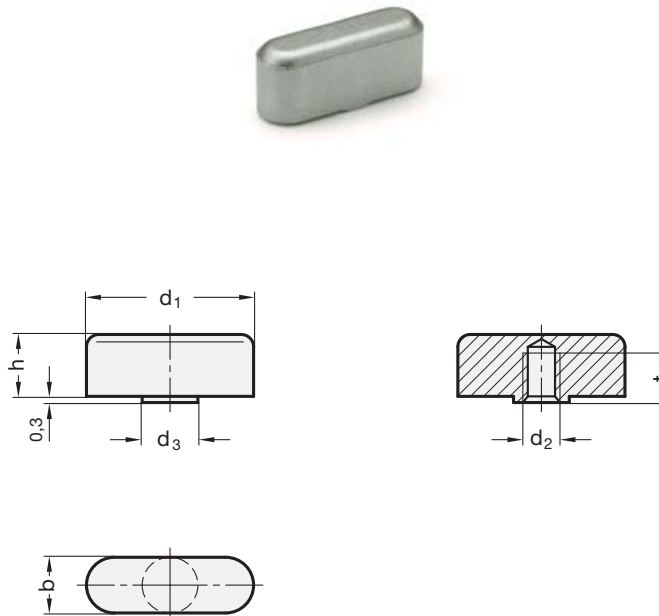
Stainless Steel-Wing nuts

SPECIFICATION

Stainless Steel AISI 316L (Sintered Steel)
matt shot-blasted

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 431

STAINLESS STEEL

Description	d1	d2	l	d3	b	h	⚖
GN 431-25-M6-16	25	M 6	16	8	8	10	14
GN 431-25-M6-20	25	M 6	20	8	8	10	16
GN 431-25-M6-25	25	M 6	25	8	8	10	18
GN 431-30-M6-16	30	M 6	16	10	10	12	21
GN 431-30-M6-20	30	M 6	20	10	10	12	23
GN 431-30-M6-25	30	M 6	25	10	10	12	25
GN 431-30-M8-16	30	M 8	16	10	10	12	27
GN 431-30-M8-20	30	M 8	20	10	10	12	28
GN 431-30-M8-25	30	M 8	25	10	10	12	30
GN 431-30-M8-32	30	M 8	32	10	10	12	32
GN 431-36-M8-16	36	M 8	16	12	12	14.5	44
GN 431-36-M8-20	36	M 8	20	12	12	14.5	45
GN 431-36-M8-25	36	M 8	25	12	12	14.5	47
GN 431-36-M8-32	36	M 8	32	12	12	14.5	49
GN 431-36-M10-20	36	M 10	20	12	12	14.5	51
GN 431-36-M10-30	36	M 10	30	12	12	14.5	53
GN 431-36-M10-40	36	M 10	40	12	12	14.5	55

GN 432

STAINLESS STEEL

Description	d1	d2	d3	b	h	t min.	⚖
GN 432-25-M6	25	M 6	8	8	10	7	10
GN 432-30-M6	30	M 6	10	10	12	7	21
GN 432-30-M8	30	M 8	10	10	12	9	18
GN 432-36-M8	36	M 8	12	12	14.5	9	36
GN 432-36-M10	36	M 10	12	12	14.5	7	33



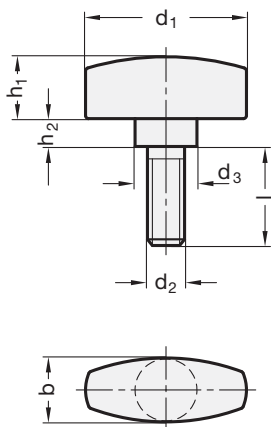
Stainless Steel-Wing screws

SPECIFICATION

Stainless Steel AISI CF-8 (Precision casting)
matt shot-blasted **MT**

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



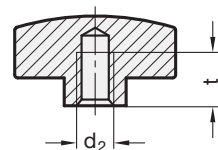
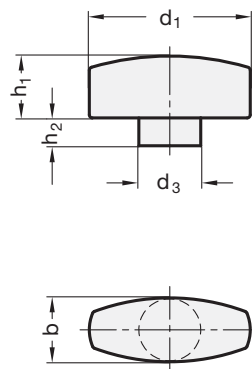
Stainless Steel-Wing nuts

SPECIFICATION

Stainless Steel AISI CF-8 (Precision casting)
matt shot-blasted **MT**

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 433

STAINLESS STEEL

Description	d1	d2	l	d3	b	h1	h2	⚖
GN 433-26-M5-10-MT	26	M 5	10	10	11	10	4.5	20
GN 433-26-M5-16-MT	26	M 5	16	10	11	10	4.5	22
GN 433-26-M6-16-MT	26	M 6	16	10	11	10	4.5	23
GN 433-26-M6-20-MT	26	M 6	20	10	11	10	4.5	24
GN 433-26-M6-25-MT	26	M 6	25	10	11	10	4.5	25
GN 433-34-M6-20-MT	34	M 6	20	12	13	12	5	41
GN 433-34-M6-25-MT	34	M 6	25	12	13	12	5	42
GN 433-34-M6-30-MT	34	M 6	30	12	13	12	5	44
GN 433-34-M8-16-MT	34	M 8	16	12	13	12	5	42
GN 433-34-M8-20-MT	34	M 8	20	12	13	12	5	43
GN 433-34-M8-30-MT	34	M 8	30	12	13	12	5	48

GN 434

STAINLESS STEEL

Description	d1	d2	d3	b	h1	h2	t min.	⚖
GN 434-26-M4-MT	26	M 4	10	11	10	4.5	7	19
GN 434-26-M5-MT	26	M 5	10	11	10	4.5	8	20
GN 434-26-M6-MT	26	M 6	10	11	10	4.5	8	18
GN 434-34-M6-MT	34	M 6	12	13	12	5	10	34
GN 434-34-M8-MT	34	M 8	12	13	12	5	9	32



Adjustable handles

Technopolymer

LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

PUSH BUTTON

Technopolymer in Ergostyle colours, glossy finish.

STANDARD EXECUTIONS

Glass-fibre reinforced technopolymer clamping element with retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.

- **ERX -B:** brass boss, threaded blind hole.
- **ERX-SST:** AISI 303 stainless steel boss, threaded blind hole.
- **ERX-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).
- **ERX-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS

Particularly suitable when the lever turning angle is limited owing to lack of space.

Compared to other types of adjustable handles with metal retaining screw this solution offers:

- absolute electric insulation for the operator
- no visible steel parts subject to rust
- more comfortable lever release.

STRESS RESISTANCE

Adjustable handles are generally used for repetitive clamping operations sometimes with very high-frequency.

Therefore, the stress resistance (i.e. the resistance to repeated tightening cycles) of the handle unit is particularly important and, especially, the strength of the toothed element which transmits the tightening force from the handle to the threaded element (boss or stud).

In fact, the results of several laboratory tests, performed with a special instrument that simulates the most severe use conditions, have shown that e.g. ERX.78 adjustable handle can withstand without yielding more than 100,000 tightening cycles, under the action of a force of 490 N (see graphic).

The special glass-fibre reinforced technopolymer enables the ELESa adjustable handles to guarantee stress resistance values which are much higher than the ones generated under normal working conditions.

OTHER EXECUTIONS AVAILABLE

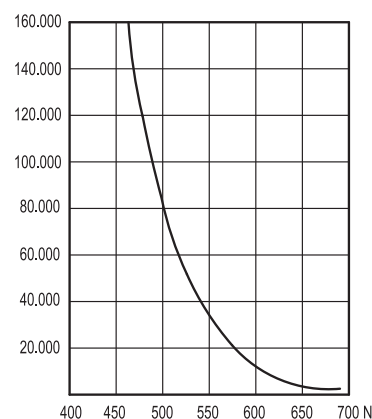
Lever body in orange (C2) with black push button (C1).
Example: code 233061-C2-C1 description ERX.30-C2-B-M3-C1.

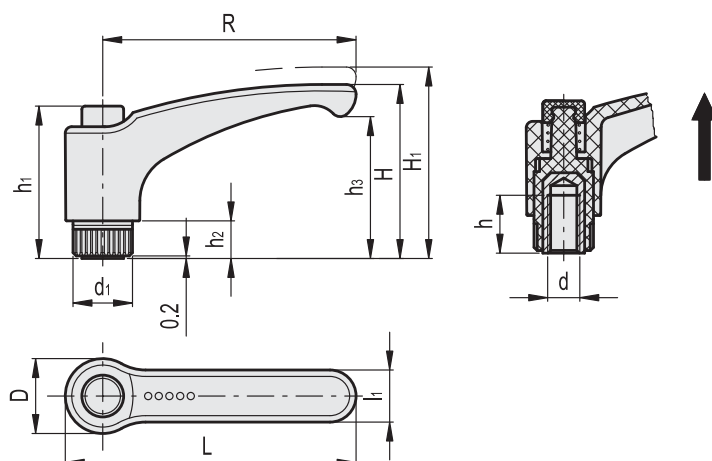
INSTRUCTIONS OF USE

For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.



NUMBER OF TIGHTENINGS



ERX-B
ERX-SST

* Complete with colour index, example: 233061-C2 ERX.30 B-M3-C2

C1 RAL7021 **C2** RAL2004 **C3** RAL7035 **C4** RAL1021 **C5** RAL5024 **C6** RAL3000

ERX-B

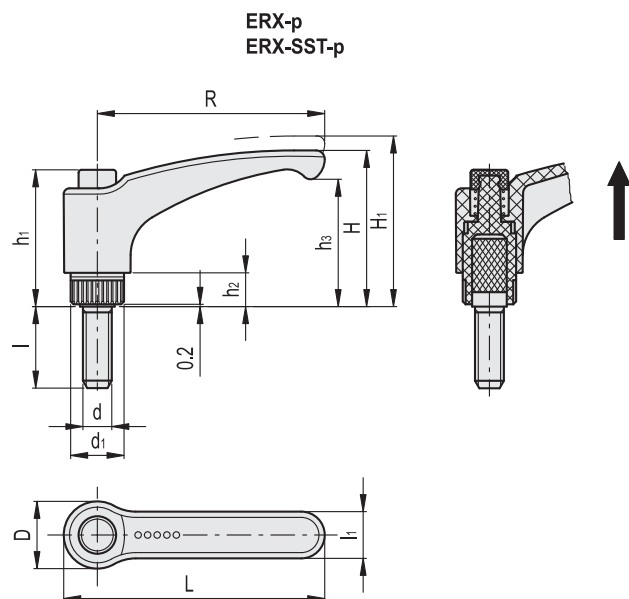
Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	
233061-*	ERX.30 B-M3-*	30	M3	37.5	15.5	30	33.5	10	29.5	6	23	12	9	18	8
233066-*	ERX.30 B-M4-*	30	M4	37.5	15.5	30	33.5	10	29.5	6	23	12	9	18	8
233071-*	ERX.30 B-M5-*	30	M5	37.5	15.5	30	33.5	10	29.5	6	23	12	9	18	7
233076-*	ERX.30 B-M6-*	30	M6	37.5	15.5	30	33.5	10	29.5	6	23	12	9	18	6
233101-*	ERX.44 B-M5-*	44	M5	52	15.5	32.5	36	10	29.5	6	25	12	11	18	10
233106-*	ERX.44 B-M6-*	44	M6	52	15.5	32.5	36	10	29.5	6	25	12	11	18	10
233131-*	ERX.63 B-M6-*	63	M6	73.5	19	43	47	16	37.5	8	34.5	15	13.5	20	21
233136-*	ERX.63 B-M8-*	63	M8	73.5	19	43	47	13	37.5	8	34.5	15	13.5	20	20
233141-*	ERX.63 B-M10-*	63	M10	73.5	19	43	47	13	37.5	8	34.5	15	13.5	20	19
233151-*	ERX.78 B-M8-*	78	M8	90.5	24.5	54	58	20	47	12	44	19	16	24	46
233156-*	ERX.78 B-M10-*	78	M10	90.5	24.5	54	58	18	47	12	44	19	16	24	44
233161-*	ERX.78 B-M12-*	78	M12	90.5	24.5	54	58	17	47	12	44	19	16	24	43
233171-*	ERX.95 B-M10-*	95	M10	109	26.5	64.5	69	20	54.5	13	53	21.5	18	26	52
233176-*	ERX.95 B-M12-*	95	M12	109	26.5	64.5	69	20	54.5	13	53	21.5	18	26	51
233181-*	ERX.95 B-M14-*	95	M14	109	26.5	64.5	69	20	54.5	13	53	21.5	18	26	50
233211-*	ERX.108 B-M12-*	108	M12	123	30	65.5	70	20	54.5	11	52.5	25	20	28	60
233216-*	ERX.108 B-M14-*	108	M14	123	30	65.5	70	20	54.5	11	52.5	25	20	28	59
233221-*	ERX.108 B-M16-*	108	M16	123	30	65.5	70	22	54.5	11	52.5	25	20	28	58

ERX-SST

STAINLESS STEEL

Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	
235071-*	ERX.30 SST-M5-*	30	M5	37.5	15.5	30	33.5	6	29.5	6	23	12	9	18	8
235076-*	ERX.30 SST-M6-*	30	M6	37.5	15.5	30	33.5	10	29.5	6	23	12	9	18	6
235101-*	ERX.44 SST-M5-*	44	M5	52	15.5	32.5	36	6	29.5	6	25	12	11	18	11
235106-*	ERX.44 SST-M6-*	44	M6	52	15.5	32.5	36	10	29.5	6	25	12	11	18	10
235131-*	ERX.63 SST-M6-*	63	M6	73.5	19	43	47	12	37.5	8	34.5	15	13.5	20	22
235136-*	ERX.63 SST-M8-*	63	M8	73.5	19	43	47	13	37.5	8	34.5	15	13.5	20	20
235151-*	ERX.78 SST-M8-*	78	M8	90.5	24.5	54	58	13	47	12	44	19	16	24	46
235156-*	ERX.78 SST-M10-*	78	M10	90.5	24.5	54	58	17	47	12	44	19	16	24	44
235176-*	ERX.95 SST-M12-*	95	M12	109	26.5	64.5	69	20	54.5	13	53	21.5	18	26	52
235191-*	ERX.108 SST-M12-*	108	M12	123	30	65.5	70	20	54.5	11	52.5	25	20	28	60





* Complete with colour index, example: 234001-C2 ERX.30 p-M5x10-C2

C1 RAL7021 C2 RAL2004 C3 RAL7035 C4 RAL1021 C5 RAL5024 C6 RAL3000

ERX-p

Code	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	I	I1	Teeth no.	
234001-*	ERX.30 p-M5x10-*	30	M5	37.5	15.5	30	33.5	29.5	6	23	12	10	9	18	6
234006-*	ERX.30 p-M5x16-*	30	M5	37.5	15.5	30	33.5	29.5	6	23	12	16	9	18	6
234011-*	ERX.30 p-M5x20-*	30	M5	37.5	15.5	30	33.5	29.5	6	23	12	20	9	18	7
234016-*	ERX.30 p-M6x10-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	10	9	18	8
234021-*	ERX.30 p-M6x16-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	16	9	18	9
234026-*	ERX.30 p-M6x20-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	20	9	18	10
234031-*	ERX.30 p-M6x25-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	25	9	18	11
234036-*	ERX.30 p-M6x30-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	30	9	18	12
234046-*	ERX.30 p-M6x40-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	40	9	18	14
234101-*	ERX.44 p-M5x10-*	44	M5	52	15.5	32.5	36	29.5	6	25	12	10	11	18	11
234106-*	ERX.44 p-M5x16-*	44	M5	52	15.5	32.5	36	29.5	6	25	12	16	11	18	12
234111-*	ERX.44 p-M5x20-*	44	M5	52	15.5	32.5	36	29.5	6	25	12	20	11	18	13
234116-*	ERX.44 p-M6x10-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	10	11	18	13
234121-*	ERX.44 p-M6x16-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	16	11	18	14
234126-*	ERX.44 p-M6x20-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	20	11	18	15
234131-*	ERX.44 p-M6x25-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	25	11	18	16
234136-*	ERX.44 p-M6x30-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	30	11	18	17
234146-*	ERX.44 p-M6x40-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	40	11	18	19
234151-*	ERX.44 p-M6x45-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	45	11	18	20
234159-*	ERX.44 p-M8x16-*	44	M8	52	15.5	32.5	36	29.5	6	25	12	16	11	18	17
234161-*	ERX.44 p-M8x20-*	44	M8	52	15.5	32.5	36	29.5	6	25	12	20	11	18	18
234163-*	ERX.44 p-M8x25-*	44	M8	52	15.5	32.5	36	29.5	6	25	12	25	11	18	19
234301-*	ERX.63 p-M6x10-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	10	13.5	20	28
234306-*	ERX.63 p-M6x16-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	16	13.5	20	29
234311-*	ERX.63 p-M6x20-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	20	13.5	20	30
234316-*	ERX.63 p-M6x25-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	25	13.5	20	31
234321-*	ERX.63 p-M6x30-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	30	13.5	20	32
234323-*	ERX.63 p-M6x35-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	35	13.5	20	32
234326-*	ERX.63 p-M6x40-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	40	13.5	20	32
234329-*	ERX.63 p-M6x50-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	50	13.5	20	32
234333-*	ERX.63 p-M8x16-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	16	13.5	20	32
234336-*	ERX.63 p-M8x20-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	20	13.5	20	32
234341-*	ERX.63 p-M8x25-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	25	13.5	20	34
234346-*	ERX.63 p-M8x30-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	30	13.5	20	36
234351-*	ERX.63 p-M8x35-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	35	13.5	20	38
234356-*	ERX.63 p-M8x40-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	40	13.5	20	40
234361-*	ERX.63 p-M8x45-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	45	13.5	20	41
234366-*	ERX.63 p-M8x50-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	50	13.5	20	43
234371-*	ERX.63 p-M8x60-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	60	13.5	20	46
234376-*	ERX.63 p-M8x70-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	70	13.5	20	50
234381-*	ERX.63 p-M10x20-*	63	M10	73.5	19	43	47	37.5	8	34.5	15	20	13.5	20	40
234382-*	ERX.63 p-M10x30-*	63	M10	73.5	19	43	47	37.5	8	34.5	15	30	13.5	20	43



* Complete with colour index, example: 234001-C2 ERX.30 p-M5x10-C2

C1 RAL7021
 C2 RAL2004
 C3 RAL7035
 C4 RAL1021
 C5 RAL5024
 C6 RAL3000

ERX-p

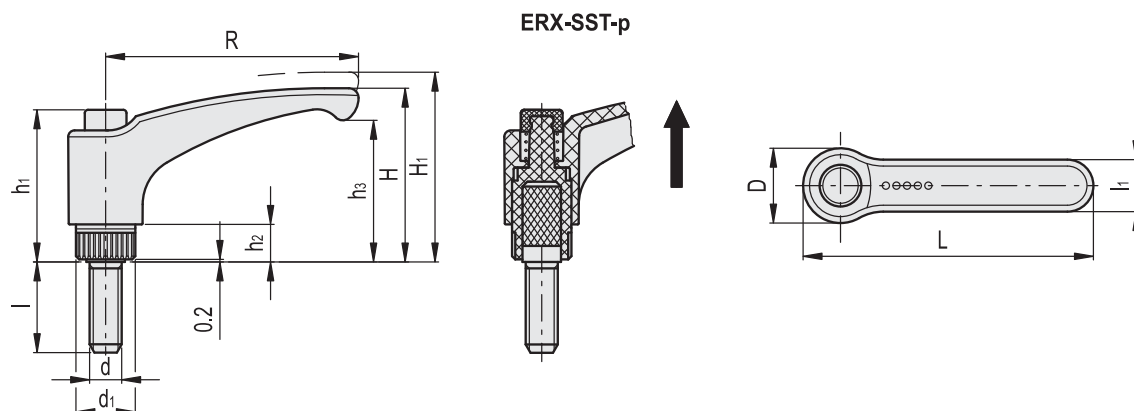
Code	Description	R	d _{6g}	L	D	H	H ₁	h ₁	h ₂	h ₃	d ₁	l	l ₁	Teeth no.	
234498-*	ERX.78 p-M8x20-*	78	M8	90.5	24.5	54	58	47	12	44	19	20	16	24	42
234501-*	ERX.78 p-M8x25-*	78	M8	90.5	24.5	54	58	47	12	44	19	25	16	24	43
234503-*	ERX.78 p-M8x30-*	78	M8	90.5	24.5	54	58	47	12	44	19	30	16	24	44
234506-*	ERX.78 p-M8x40-*	78	M8	90.5	24.5	54	58	47	12	44	19	40	16	24	48
234507-*	ERX.78 p-M8x45-*	78	M8	90.5	24.5	54	58	47	12	44	19	45	16	24	50
234509-*	ERX.78 p-M8x50-*	78	M8	90.5	24.5	54	58	47	12	44	19	50	16	24	52
234511-*	ERX.78 p-M8x55-*	78	M8	90.5	24.5	54	58	47	12	44	19	55	16	24	55
234513-*	ERX.78 p-M8x60-*	78	M8	90.5	24.5	54	58	47	12	44	19	60	16	24	57
234515-*	ERX.78 p-M8x70-*	78	M8	90.5	24.5	54	58	47	12	44	19	70	16	24	60
234516-*	ERX.78 p-M10x20-*	78	M10	90.5	24.5	54	58	47	12	44	19	20	16	24	58
234521-*	ERX.78 p-M10x25-*	78	M10	90.5	24.5	54	58	47	12	44	19	25	16	24	61
234526-*	ERX.78 p-M10x30-*	78	M10	90.5	24.5	54	58	47	12	44	19	30	16	24	64
234531-*	ERX.78 p-M10x35-*	78	M10	90.5	24.5	54	58	47	12	44	19	35	16	24	67
234536-*	ERX.78 p-M10x40-*	78	M10	90.5	24.5	54	58	47	12	44	19	40	16	24	70
234541-*	ERX.78 p-M10x50-*	78	M10	90.5	24.5	54	58	47	12	44	19	50	16	24	76
234546-*	ERX.78 p-M10x60-*	78	M10	90.5	24.5	54	58	47	12	44	19	60	16	24	82
234551-*	ERX.78 p-M10x70-*	78	M10	90.5	24.5	54	58	47	12	44	19	70	16	24	88
234561-*	ERX.78 p-M12x20-*	78	M12	90.5	24.5	54	58	47	12	44	19	20	16	24	70
234566-*	ERX.78 p-M12x25-*	78	M12	90.5	24.5	54	58	47	12	44	19	25	16	24	71
234571-*	ERX.78 p-M12x30-*	78	M12	90.5	24.5	54	58	47	12	44	19	30	16	24	74
234573-*	ERX.78 p-M12x35-*	78	M12	90.5	24.5	54	58	47	12	44	19	35	16	24	75
234576-*	ERX.78 p-M12x40-*	78	M12	90.5	24.5	54	58	47	12	44	19	40	16	24	76
234581-*	ERX.78 p-M12x45-*	78	M12	90.5	24.5	54	58	47	12	44	19	45	16	24	77
234586-*	ERX.78 p-M12x50-*	78	M12	90.5	24.5	54	58	47	12	44	19	50	16	24	78
234591-*	ERX.78 p-M12x60-*	78	M12	90.5	24.5	54	58	47	12	44	19	60	16	24	81
234593-*	ERX.78 p-M12x70-*	78	M12	90.5	24.5	54	58	47	12	44	19	70	16	24	84
234596-*	ERX.78 p-M12x80-*	78	M12	90.5	24.5	54	58	47	12	44	19	80	16	24	86
234726-*	ERX.95 p-M12x30-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	30	18	26	86
234741-*	ERX.95 p-M12x50-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	50	18	26	90
234751-*	ERX.95 p-M12x70-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	70	18	26	94
234901-*	ERX.95 p-M16x30-*	95	M16	109	26.5	64.5	69	54.5	13	53	21.5	30	18	26	104
234911-*	ERX.95 p-M16x50-*	95	M16	109	26.5	64.5	69	54.5	13	53	21.5	50	18	26	110
234921-*	ERX.95 p-M16x70-*	95	M16	109	26.5	64.5	69	54.5	13	53	21.5	70	18	26	116
235001-*	ERX.108 p-M12x30-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	30	20	28	70
235006-*	ERX.108 p-M12x50-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	50	20	28	75
235011-*	ERX.108 p-M12x70-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	70	20	28	80
235016-*	ERX.108 p-M14x30-*	108	M14	123	30	65.5	70	54.5	11	52.5	25	30	20	28	86
235021-*	ERX.108 p-M14x50-*	108	M14	123	30	65.5	70	54.5	11	52.5	25	50	20	28	90
235026-*	ERX.108 p-M14x70-*	108	M14	123	30	65.5	70	54.5	11	52.5	25	70	20	28	95
235036-*	ERX.108 p-M16x30-*	108	M16	123	30	65.5	70	54.5	11	52.5	25	30	20	28	100
235041-*	ERX.108 p-M16x50-*	108	M16	123	30	65.5	70	54.5	11	52.5	25	50	20	28	105
235046-*	ERX.108 p-M16x70-*	108	M16	123	30	65.5	70	54.5	11	52.5	25	70	20	28	110

ERX-SST-p

STAINLESS STEEL

Code	Description	R	d _{6g}	L	D	H	H ₁	h ₁	h ₂	h ₃	d ₁	l	l ₁	Teeth no.	
235061-*	ERX.30-SST-p M5x10-*	30	M5	37.5	15.5	30	33.5	29.5	6	23	12	10	9	18	6
235066-*	ERX.30-SST-p M5x16-*	30	M5	37.5	15.5	30	33.5	29.5	6	23	12	16	9	18	7
235196-*	ERX.30-SST-p M6x10-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	10	9	18	8
235201-*	ERX.30-SST-p M6x16-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	16	9	18	9
235203-*	ERX.30-SST-p M6x20-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	20	9	18	10
235205-*	ERX.30-SST-p M6x25-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	25	9	18	11
235207-*	ERX.30-SST-p M6x30-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	30	9	18	12
235209-*	ERX.44-SST-p M5x10-*	44	M5	52	15.5	32.5	36	29.5	6	25	12	10	11	18	10
235211-*	ERX.44-SST-p M5x16-*	44	M5	52	15.5	32.5	36	29.5	6	25	12	16	11	18	12
235216-*	ERX.44-SST-p M6x10-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	10	11	18	13
235221-*	ERX.44-SST-p M6x16-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	16	11	18	14
235226-*	ERX.44-SST-p M6x20-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	20	11	18	16
235231-*	ERX.44-SST-p M6x25-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	25	11	18	17
235236-*	ERX.44-SST-p M6x30-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	30	11	18	18





* Complete with colour index, example: 235341-C2 ERX.63 SST-p-M6x10-C2

C1 RAL7021
 C2 RAL2004
 C3 RAL7035
 C4 RAL1021
 C5 RAL5024
 C6 RAL3000

ERX-SST-p

STAINLESS STEEL

Code	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	
235341-*	ERX.63 SST-p-M6x10-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	10	13.5	20	30
235351-*	ERX.63 SST-p-M6x20-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	20	13.5	20	31
235421-*	ERX.63 SST-p-M6x30-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	30	13.5	20	32
235426-*	ERX.63 SST-p-M6x40-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	40	13.5	20	33
235431-*	ERX.63 SST-p-M8x16-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	16	13.5	20	31
235436-*	ERX.63 SST-p-M8x20-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	20	13.5	20	32
235441-*	ERX.63 SST-p-M8x25-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	25	13.5	20	33
235446-*	ERX.63 SST-p-M8x30-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	30	13.5	20	37
235451-*	ERX.63 SST-p-M8x35-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	35	13.5	20	38
235456-*	ERX.63 SST-p-M8x40-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	40	13.5	20	41
235461-*	ERX.63 SST-p-M8x45-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	45	13.5	20	42
235466-*	ERX.63 SST-p-M8x50-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	50	13.5	20	44
235471-*	ERX.63 SST-p-M8x60-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	60	13.5	20	47
235476-*	ERX.63 SST-p-M8x70-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	70	13.5	20	52
235601-*	ERX.78 SST-p-M8x20-*	78	M8	90.5	24.5	54	58	47	12	44	19	20	16	24	43
235603-*	ERX.78 SST-p-M8x25-*	78	M8	90.5	24.5	54	58	47	12	44	19	25	16	24	44
235605-*	ERX.78 SST-p-M8x30-*	78	M8	90.5	24.5	54	58	47	12	44	19	30	16	24	45
235607-*	ERX.78 SST-p-M8x40-*	78	M8	90.5	24.5	54	58	47	12	44	19	40	16	24	50
235609-*	ERX.78 SST-p-M8x45-*	78	M8	90.5	24.5	54	58	47	12	44	19	45	16	24	52
235611-*	ERX.78 SST-p-M8x50-*	78	M8	90.5	24.5	54	58	47	12	44	19	50	16	24	54
235617-*	ERX.78 SST-p-M8x70-*	78	M8	90.5	24.5	54	58	47	12	44	19	70	16	24	62
235716-*	ERX.78 SST-p-M10x20-*	78	M10	90.5	24.5	54	58	47	12	44	19	20	16	24	58
235726-*	ERX.78 SST-p-M10x30-*	78	M10	90.5	24.5	54	58	47	12	44	19	30	16	24	64
235731-*	ERX.78 SST-p-M10x35-*	78	M10	90.5	24.5	54	58	47	12	44	19	35	16	24	66
235736-*	ERX.78 SST-p-M10x40-*	78	M10	90.5	24.5	54	58	47	12	44	19	40	16	24	67
235741-*	ERX.78 SST-p-M10x50-*	78	M10	90.5	24.5	54	58	47	12	44	19	50	16	24	68
235746-*	ERX.78 SST-p-M10x60-*	78	M10	90.5	24.5	54	58	47	12	44	19	60	16	24	70
235771-*	ERX.78 SST-p-M12x30-*	78	M12	90.5	24.5	54	58	47	12	44	19	30	16	24	74
235773-*	ERX.78 SST-p-M12x35-*	78	M12	90.5	24.5	54	58	47	12	44	19	35	16	24	76
235781-*	ERX.78 SST-p-M12x40-*	78	M12	90.5	24.5	54	58	47	12	44	19	40	16	24	77
235786-*	ERX.78 SST-p-M12x50-*	78	M12	90.5	24.5	54	58	47	12	44	19	50	16	24	79
235893-*	ERX.78 SST-p-M12x70-*	78	M12	90.5	24.5	54	58	47	12	44	19	70	16	24	82
235901-*	ERX.95 SST-p-M12x30-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	30	18	26	87
235911-*	ERX.95 SST-p-M12x40-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	40	18	26	90
235921-*	ERX.95 SST-p-M12x50-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	50	18	26	93
235941-*	ERX.95 SST-p-M12x70-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	70	18	26	98
236001-*	ERX.108 SST-p-M12x30-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	30	20	28	70
236003-*	ERX.108 SST-p-M12x40-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	40	20	28	73
236006-*	ERX.108 SST-p-M12x50-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	50	20	28	75
236011-*	ERX.108 SST-p-M12x70-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	70	20	28	80

Adjustable handles

Technopolymer chrome-plated

LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, chrome-plated, semi-glossy finish.

PUSH BUTTON

Black technopolymer, glossy finish.

STANDARD EXECUTION

Glass-fibre reinforced technopolymer clamping element with retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring. Brass boss, tapped blind hole.

FEATURES AND APPLICATIONS

Particularly suitable when the lever turning angle is limited owing to lack of space.

Compared to other types of adjustable handles with metal retaining screw this solution offers:

- no visible steel parts subject to rust
- more comfortable lever release.

CHEMICAL AGENTS RESISTANCE

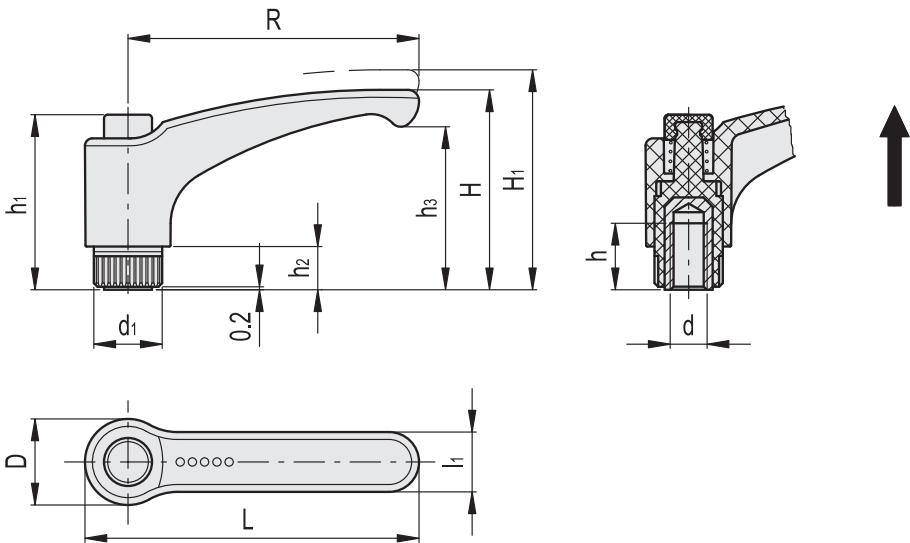
The chrome-plated surface is resistant to wear, scrapes and shocks. In laboratory tests carried out at ambient temperature (23°C), the chrome-plated surface revealed to be resistant to: sea water, detergents, acetone, ethyl alcohol, formic acid, chlorine solutions.

SPECIAL EXECUTIONS ON REQUEST

Bosses with different threadings.

INSTRUCTIONS OF USE

For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.



Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
152301	ERX.44-CR-B-M6	44	M6	52	15.5	32.5	36	10	29.5	6	25	12	11	18	10
152311	ERX.63-CR-B-M8	63	M8	73.5	19	43	47	13	37.5	8	34.5	15	13.5	20	20
152321	ERX.78-CR-B-M10	78	M10	90.5	24.5	54	58	18	47	12	44	19	16	24	44
152341	ERX.95-CR-B-M12	95	M12	109	26.5	64.5	69	20	54.5	13	53	21.5	18	26	51

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Clamping levers

Adjustable handles

Quick assembly, technopolymer

LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

PUSH BUTTON

Technopolymer, RAL 2004 orange colour, glossy finish. On request and for sufficient quantities it can be supplied in one of the other Ergostyle colours.

STANDARD EXECUTIONS

Glass-fibre reinforced technopolymer clamping element with retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring. For quick assembly (ELESA patent) six-lobe socket ISO 10664 to fit TORX® T15 tool (registered trademark of TEXTRON INC.).

- **ERX-AV-B:** brass boss, threaded blind hole.
- **ERX-AV-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS

Even if it has a plastic push button, ERX-AV adjustable handle offers the possibility of a quick initial screwing during assembly by means of electric or pneumatic screwdrivers with controlled tightening torque system.

STRESS RESISTANCE

See ERX. (on page 304).

SPECIAL EXECUTIONS ON REQUEST

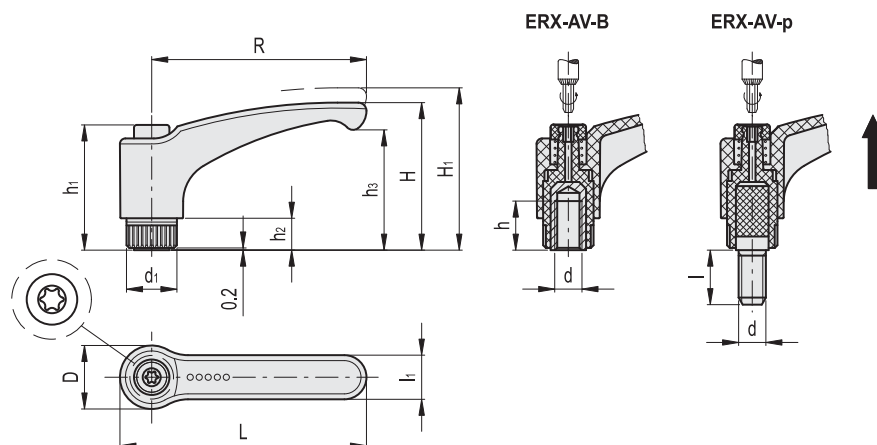
Lever body in orange colour.
Bosses and studs with different threadings.

INSTRUCTIONS OF USE

For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.



ERGOSTYLE®



ERX-AV-B

Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
233158-C2	ERX.78 AV B-M10-C2	78	M10	90.5	24.5	54	58	18	45	12	44	19	16	24	44
233163-C2	ERX.78 AV B-M12-C2	78	M12	90.5	24.5	54	58	17	45	12	44	19	16	24	43

ERX-AV-p

Code	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
234518-C2	ERX.78 AV p-M10x20-C2	78	M10	90.5	24.5	54	58	45	12	44	19	20	16	24	58
234528-C2	ERX.78 AV p-M10x30-C2	78	M10	90.5	24.5	54	58	45	12	44	19	30	16	24	64
234538-C2	ERX.78 AV p-M10x40-C2	78	M10	90.5	24.5	54	58	45	12	44	19	40	16	24	70
234543-C2	ERX.78 AV p-M10x50-C2	78	M10	90.5	24.5	54	58	45	12	44	19	50	16	24	76

Safety adjustable handles

Push action, technopolymer

LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish. Red writing with "PUSH" tampoprinted on the lever body (avoid contact with solvents, alcohol or detergents containing alcohol).

STANDARD EXECUTIONS

Glass-fibre reinforced technopolymer clamping element, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.

- **ERS-A:** black-oxide steel boss, threaded blind hole.
- **ERS-B:** brass boss, threaded blind hole.
- **ERS-p:** black-oxide steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).

STRESS RESISTANCE

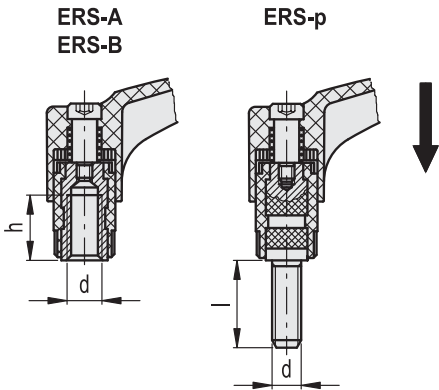
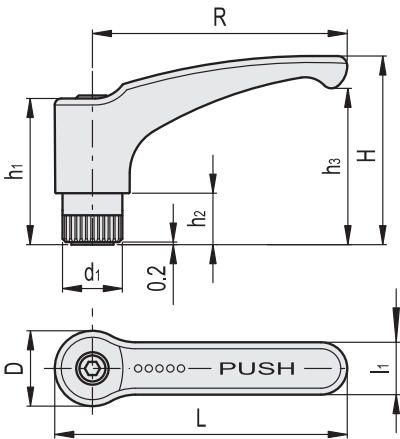
See ERX. (on page 304).

INSTRUCTIONS OF USE

For clamping, push the lever to engage the clamping device toothing and turn it. By releasing the lever, the return spring automatically disengages the toothing and the lever returns to its rest position. In case of accidental shocks, the lever turns freely without affecting the clamping action enabling the operator to manoeuvre in safety.



ERGOSTYLE®



ERS-A
ERS-B

Code	Description	R	d6H	L	D	H	h	h1	h2	h3	d1	l1	Teeth no.	⚖
236902	ERS.44 A-M4	44	M4	52	15.5	36	10	29	9	28	12	11	18	14
236903	ERS.44 A-M5	44	M5	52	15.5	36	10	29	9	28	12	11	18	13
236904	ERS.44 A-M6	44	M6	52	15.5	36	10	29	9	28	12	11	18	12
236913	ERS.63 A-M6	63	M6	73.5	19	48	13	37	12	37	15	13.5	20	25
236914	ERS.63 A-M8	63	M8	73.5	19	48	13	37	12	37	15	13.5	20	24
236935	ERS.63 B-M8	63	M8	73.5	19	48	13	37	12	37	15	13.5	20	24

ERS-p

Code	Description	R	d6g	L	D	H	h1	h2	h3	d1	l	l1	Teeth no.	⚖
236972	ERS.44 p-M6x16	44	M6	52	15.5	36	29	9	28	12	16	11	18	18
236974	ERS.44 p-M6x25	44	M6	52	15.5	36	29	9	28	12	25	11	18	21
237003	ERS.63 p-M8x20	63	M8	73.5	19	48	37	12	37	15	20	13.5	20	38
237005	ERS.63 p-M8x30	63	M8	73.5	19	48	37	12	37	15	30	13.5	20	43



3
Clamping levers

Adjustable handles

Technopolymer, steel or stainless steel clamping element

LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish. Built-in zinc alloy toothed insert for coupling to the metal clamping element.

STANDARD EXECUTIONS

- **ERZ-A:** black-oxide steel clamping element with threaded hole and retaining screw. AISI 302 stainless steel return spring.
- **ERZ-SST:** AISI 303 stainless steel clamping element with threaded hole and retaining screw. AISI 302 stainless steel return spring.
- **ERZ-p:** black-oxide steel clamping element with threaded stud and retaining screw. AISI 302 stainless steel return spring.
- **ERZ-SST-p:** AISI 303 stainless steel clamping element with threaded stud and retaining screw. AISI 302 stainless steel return spring.

Retaining screw with six-lobed socket to fit TORX®.

FEATURES AND APPLICATIONS

Particularly suitable when the lever turning angle is limited owing to lack of space.

The metal teeth of the built-in zinc alloy insert allow the assembly of clamping elements completely made out of metal, which can be easily modified by machining in case of special assembly requirements.

SPECIAL EXECUTIONS ON REQUEST

Lever body in orange colour.

INSTRUCTIONS OF USE

For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.

If the lever cannot make a 360° rotation, the clamping element can be easily screwed by means of the six-lobed socket front head screw (after having disengaged the lever).

* Registered trademark by TEXTRON INC.

ERZ-A

Code	Description	R	d	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
237102	ERZ.44 A-M4	44	M4	52	15.5	30.5	34	8	24.5	3.5	22.5	10	11	18	16
237103	ERZ.44 A-M5	44	M5	52	15.5	30.5	34	8	24.5	3.5	22.5	10	11	18	16
237104	ERZ.44 A-M6	44	M6	52	15.5	30.5	34	8	24.5	3.5	22.5	10	11	18	15
237134	ERZ.63 A-M6	63	M6	73.5	19	38.5	42	10	31	3.5	30	13.5	13.5	24	36
237135	ERZ.63 A-M8	63	M8	73.5	19	38.5	42	10	31	3.5	30	13.5	13.5	24	34
237155	ERZ.78 A-M8	78	M8	90.5	23	45	50.5	14	36	3.5	35	16	16	26	61
237156	ERZ.78 A-M10	78	M10	90.5	23	45	50.5	14	36	3.5	35	16	16	26	55
237175	ERZ.95 A-M10	95	M10	109	26.5	56.5	61.5	17	43	5	45	19	18	28	93
237176	ERZ.95 A-M12	95	M12	109	26.5	56.5	61.5	17	43	5	45	19	18	28	86

ERZ-SST

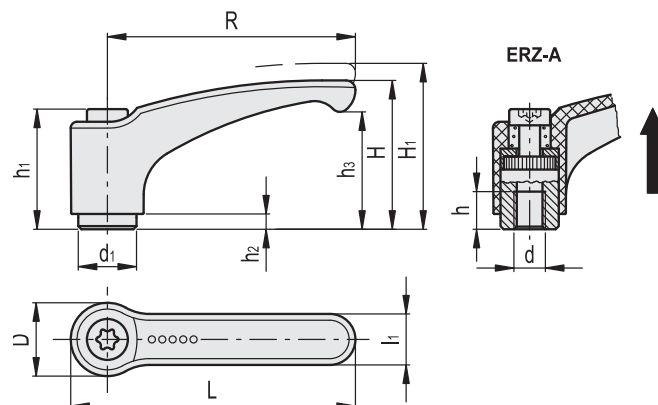
Code	Description	R	d	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
239105	ERZ.44 SST-M5	44	M5	52	15.5	30.5	34	8	24.5	3.5	22.5	10	11	18	16
239106	ERZ.44 SST-M6	44	M6	52	15.5	30.5	34	8	24.5	3.5	22.5	10	11	18	15
239135	ERZ.63 SST-M6	63	M6	73.5	19	38.5	42	10	31	3.5	30	13.5	13.5	24	36
239136	ERZ.63 SST-M8	63	M8	73.5	19	38.5	42	10	31	3.5	30	13.5	13.5	24	34
239155	ERZ.78 SST-M8	78	M8	90.5	23	45	50.5	14	36	3.5	35	16	16	26	61
239156	ERZ.78 SST-M10	78	M10	90.5	23	45	50.5	14	36	3.5	35	16	16	26	55
239175	ERZ.95 SST-M10	95	M10	109	26.5	56.5	61.5	17	43	5	45	19	18	28	93
239176	ERZ.95 SST-M12	95	M12	109	26.5	56.5	61.5	17	43	5	45	19	18	28	86

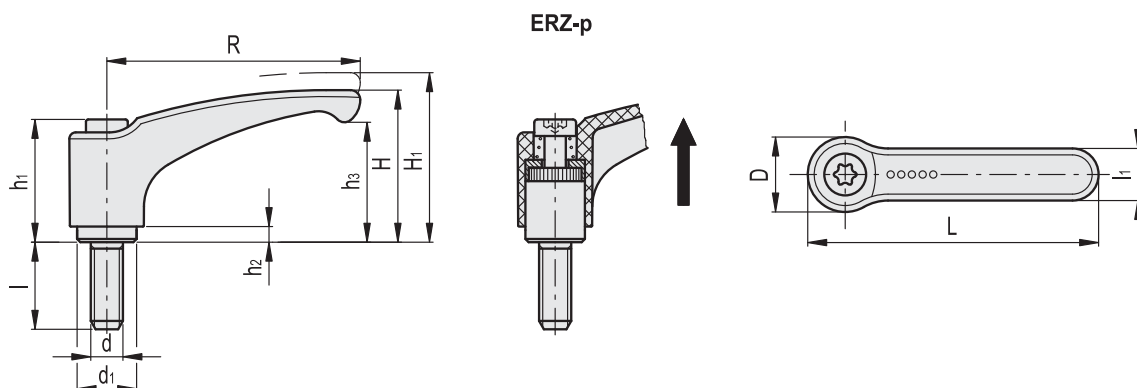
STAINLESS STEEL



ERGOSTYLE®

ERZ-A
ERZ-SST

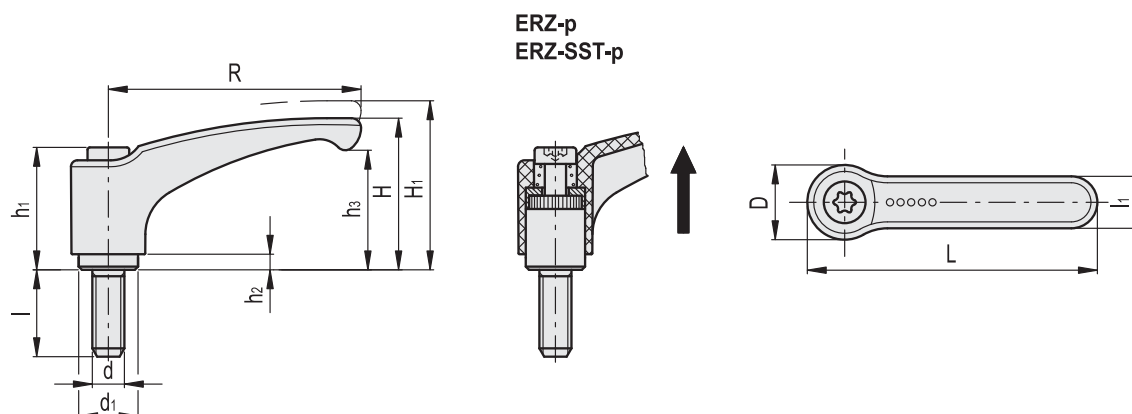




ERZ-p

Code	Description	R	d	L	D	H	H1	h1	h2	h3	d1	l	li	Teeth no.	
238103	ERZ.44 p-M4x12	44	M4	52	15.5	30.5	34	24.5	3.5	22.5	10	12	11	18	15
238105	ERZ.44 p-M4x16	44	M4	52	15.5	30.5	34	24.5	3.5	22.5	10	16	11	18	16
238107	ERZ.44 p-M4x20	44	M4	52	15.5	30.5	34	24.5	3.5	22.5	10	20	11	18	17
238109	ERZ.44 p-M4x25	44	M4	52	15.5	30.5	34	24.5	3.5	22.5	10	25	11	18	18
238111	ERZ.44 p-M4x32	44	M4	52	15.5	30.5	34	24.5	3.5	22.5	10	32	11	18	19
238133	ERZ.44 p-M5x12	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	12	11	18	17
238135	ERZ.44 p-M5x16	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	16	11	18	18
238137	ERZ.44 p-M5x20	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	20	11	18	19
238139	ERZ.44 p-M5x25	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	25	11	18	20
238141	ERZ.44 p-M5x32	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	32	11	18	21
238143	ERZ.44 p-M5x40	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	40	11	18	22
238145	ERZ.44 p-M5x50	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	50	11	18	23
238153	ERZ.44 p-M6x12	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	12	11	18	19
238155	ERZ.44 p-M6x16	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	16	11	18	20
238157	ERZ.44 p-M6x20	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	20	11	18	21
238159	ERZ.44 p-M6x25	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	25	11	18	22
238161	ERZ.44 p-M6x32	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	32	11	18	23
238163	ERZ.44 p-M6x40	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	40	11	18	24
238165	ERZ.44 p-M6x50	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	50	11	18	25
238333	ERZ.63 p-M6x12	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	12	13.5	24	47
238335	ERZ.63 p-M6x16	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	16	13.5	24	49
238337	ERZ.63 p-M6x20	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	20	13.5	24	55
238339	ERZ.63 p-M6x25	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	25	13.5	24	57
238341	ERZ.63 p-M6x32	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	32	13.5	24	61
238343	ERZ.63 p-M6x40	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	40	13.5	24	68
238345	ERZ.63 p-M6x50	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	50	13.5	24	77
238347	ERZ.63 p-M6x63	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	63	13.5	24	79
238351	ERZ.63 p-M8x12	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	12	13.5	24	40
238353	ERZ.63 p-M8x16	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	16	13.5	24	41
238355	ERZ.63 p-M8x20	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	20	13.5	24	42
238357	ERZ.63 p-M8x25	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	25	13.5	24	43
238359	ERZ.63 p-M8x32	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	32	13.5	24	44
238361	ERZ.63 p-M8x40	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	40	13.5	24	46
238363	ERZ.63 p-M8x50	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	50	13.5	24	48
238365	ERZ.63 p-M8x63	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	63	13.5	24	51
238373	ERZ.63 p-M10x20	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	20	13.5	24	42
238375	ERZ.63 p-M10x25	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	25	13.5	24	43
238377	ERZ.63 p-M10x32	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	32	13.5	24	45
238379	ERZ.63 p-M10x40	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	40	13.5	24	47
238381	ERZ.63 p-M10x50	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	50	13.5	24	52
238383	ERZ.63 p-M10x63	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	63	13.5	24	53
238385	ERZ.63 p-M10x80	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	80	13.5	24	57





ERZ-p

Code	Description	R	d	L	D	H	H1	h1	h2	h3	d1	I	li	Teeth no.	
238533	ERZ.78 p-M8x16	78	M8	90.5	23	45	50.5	36	3.5	35	16	16	16	26	70
238535	ERZ.78 p-M8x20	78	M8	90.5	23	45	50.5	36	3.5	35	16	20	16	26	73
238537	ERZ.78 p-M8x25	78	M8	90.5	23	45	50.5	36	3.5	35	16	25	16	26	76
238539	ERZ.78 p-M8x32	78	M8	90.5	23	45	50.5	36	3.5	35	16	32	16	26	81
238541	ERZ.78 p-M8x40	78	M8	90.5	23	45	50.5	36	3.5	35	16	40	16	26	86
238543	ERZ.78 p-M8x50	78	M8	90.5	23	45	50.5	36	3.5	35	16	50	16	26	88
238545	ERZ.78 p-M8x63	78	M8	90.5	23	45	50.5	36	3.5	35	16	63	16	26	94
238547	ERZ.78 p-M8x80	78	M8	90.5	23	45	50.5	36	3.5	35	16	80	16	26	102
238551	ERZ.78 p-M10x16	78	M10	90.5	23	45	50.5	36	3.5	35	16	16	16	26	82
238553	ERZ.78 p-M10x20	78	M10	90.5	23	45	50.5	36	3.5	35	16	20	16	26	85
238555	ERZ.78 p-M10x25	78	M10	90.5	23	45	50.5	36	3.5	35	16	25	16	26	91
238557	ERZ.78 p-M10x32	78	M10	90.5	23	45	50.5	36	3.5	35	16	32	16	26	98
238559	ERZ.78 p-M10x40	78	M10	90.5	23	45	50.5	36	3.5	35	16	40	16	26	108
238561	ERZ.78 p-M10x50	78	M10	90.5	23	45	50.5	36	3.5	35	16	50	16	26	120
238563	ERZ.78 p-M10x63	78	M10	90.5	23	45	50.5	36	3.5	35	16	63	16	26	124
238565	ERZ.78 p-M10x80	78	M10	90.5	23	45	50.5	36	3.5	35	16	80	16	26	127
238573	ERZ.78 p-M12x25	78	M12	90.5	23	45	50.5	36	3.5	35	16	25	16	26	70
238575	ERZ.78 p-M12x32	78	M12	90.5	23	45	50.5	36	3.5	35	16	32	16	26	73
238577	ERZ.78 p-M12x40	78	M12	90.5	23	45	50.5	36	3.5	35	16	40	16	26	75
238579	ERZ.78 p-M12x50	78	M12	90.5	23	45	50.5	36	3.5	35	16	50	16	26	79
238581	ERZ.78 p-M12x63	78	M12	90.5	23	45	50.5	36	3.5	35	16	63	16	26	85
238583	ERZ.78 p-M12x80	78	M12	90.5	23	45	50.5	36	3.5	35	16	80	16	26	88
238723	ERZ.95 p-M10x16	95	M10	109	26.5	56.5	61.5	43	5	45	19	16	18	28	111
238725	ERZ.95 p-M10x20	95	M10	109	26.5	56.5	61.5	43	5	45	19	20	18	28	113
238727	ERZ.95 p-M10x25	95	M10	109	26.5	56.5	61.5	43	5	45	19	25	18	28	115
238729	ERZ.95 p-M10x32	95	M10	109	26.5	56.5	61.5	43	5	45	19	32	18	28	118
238731	ERZ.95 p-M10x40	95	M10	109	26.5	56.5	61.5	43	5	45	19	40	18	28	121
238733	ERZ.95 p-M10x50	95	M10	109	26.5	56.5	61.5	43	5	45	19	50	18	28	128
238735	ERZ.95 p-M10x63	95	M10	109	26.5	56.5	61.5	43	5	45	19	63	18	28	133
238737	ERZ.95 p-M10x80	95	M10	109	26.5	56.5	61.5	43	5	45	19	80	18	28	141
238747	ERZ.95 p-M12x16	95	M12	109	26.5	56.5	61.5	43	5	45	19	16	18	28	113
238749	ERZ.95 p-M12x20	95	M12	109	26.5	56.5	61.5	43	5	45	19	20	18	28	117
238751	ERZ.95 p-M12x25	95	M12	109	26.5	56.5	61.5	43	5	45	19	25	18	28	122
238753	ERZ.95 p-M12x32	95	M12	109	26.5	56.5	61.5	43	5	45	19	32	18	28	125
238755	ERZ.95 p-M12x40	95	M12	109	26.5	56.5	61.5	43	5	45	19	40	18	28	132
238757	ERZ.95 p-M12x50	95	M12	109	26.5	56.5	61.5	43	5	45	19	50	18	28	141
238759	ERZ.95 p-M12x63	95	M12	109	26.5	56.5	61.5	43	5	45	19	63	18	28	151
238761	ERZ.95 p-M12x80	95	M12	109	26.5	56.5	61.5	43	5	45	19	80	18	28	160
238773	ERZ.95 p-M16x25	95	M16	109	26.5	56.5	61.5	43	5	45	19	25	18	28	139
238775	ERZ.95 p-M16x32	95	M16	109	26.5	56.5	61.5	43	5	45	19	32	18	28	146
238777	ERZ.95 p-M16x40	95	M16	109	26.5	56.5	61.5	43	5	45	19	40	18	28	154
238779	ERZ.95 p-M16x50	95	M16	109	26.5	56.5	61.5	43	5	45	19	50	18	28	171
238781	ERZ.95 p-M16x63	95	M16	109	26.5	56.5	61.5	43	5	45	19	63	18	28	184
238783	ERZ.95 p-M16x80	95	M16	109	26.5	56.5	61.5	43	5	45	19	80	18	28	199



ERZ-SST-p

STAINLESS STEEL

Code	Description	R	d	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	
239233	ERZ.44 SST-p-M5x12	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	12	11	18	17
239235	ERZ.44 SST-p-M5x16	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	16	11	18	18
239237	ERZ.44 SST-p-M5x20	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	20	11	18	19
239239	ERZ.44 SST-p-M5x25	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	25	11	18	20
239241	ERZ.44 SST-p-M5x32	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	32	11	18	21
239243	ERZ.44 SST-p-M5x40	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	40	11	18	22
239245	ERZ.44 SST-p-M5x50	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	50	11	18	23
239253	ERZ.44 SST-p-M6x12	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	12	11	18	19
239255	ERZ.44 SST-p-M6x16	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	16	11	18	20
239257	ERZ.44 SST-p-M6x20	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	20	11	18	21
239259	ERZ.44 SST-p-M6x25	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	25	11	18	22
239423	ERZ.44 SST-p-M6x32	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	32	11	18	23
239425	ERZ.44 SST-p-M6x40	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	40	11	18	24
239427	ERZ.44 SST-p-M6x50	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	50	11	18	27
239429	ERZ.63 SST-p-M6x16	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	16	13.5	24	40
239431	ERZ.63 SST-p-M6x20	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	20	13.5	24	41
239433	ERZ.63 SST-p-M6x25	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	25	13.5	24	42
239435	ERZ.63 SST-p-M6x32	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	32	13.5	24	43
239437	ERZ.63 SST-p-M6x40	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	40	13.5	24	44
239439	ERZ.63 SST-p-M6x50	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	50	13.5	24	46
239441	ERZ.63 SST-p-M6x63	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	63	13.5	24	48
239453	ERZ.63 SST-p-M8x16	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	16	13.5	24	42
239455	ERZ.63 SST-p-M8x20	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	20	13.5	24	46
239457	ERZ.63 SST-p-M8x25	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	25	13.5	24	48
239459	ERZ.63 SST-p-M8x32	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	32	13.5	24	50
239643	ERZ.63 SST-p-M8x40	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	40	13.5	24	52
239645	ERZ.63 SST-p-M8x50	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	50	13.5	24	54
239647	ERZ.63 SST-p-M8x63	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	63	13.5	24	58
239673	ERZ.78 SST-p-M8x20	78	M8	90.5	23	45	50.5	36	3.5	35	16	20	16	26	69
239675	ERZ.78 SST-p-M8x25	78	M8	90.5	23	45	50.5	36	3.5	35	16	25	16	26	72
239677	ERZ.78 SST-p-M8x32	78	M8	90.5	23	45	50.5	36	3.5	35	16	32	16	26	76
239679	ERZ.78 SST-p-M8x40	78	M8	90.5	23	45	50.5	36	3.5	35	16	40	16	26	80
239681	ERZ.78 SST-p-M8x50	78	M8	90.5	23	45	50.5	36	3.5	35	16	50	16	26	84
239683	ERZ.78 SST-p-M8x63	78	M8	90.5	23	45	50.5	36	3.5	35	16	63	16	26	89
239685	ERZ.78 SST-p-M8x80	78	M8	90.5	23	45	50.5	36	3.5	35	16	80	16	26	97
239653	ERZ.78 SST-p-M10x20	78	M10	90.5	23	45	50.5	36	3.5	35	16	20	16	26	73
239655	ERZ.78 SST-p-M10x25	78	M10	90.5	23	45	50.5	36	3.5	35	16	25	16	26	76
239657	ERZ.78 SST-p-M10x32	78	M10	90.5	23	45	50.5	36	3.5	35	16	32	16	26	80
239659	ERZ.78 SST-p-M10x40	78	M10	90.5	23	45	50.5	36	3.5	35	16	40	16	26	84
239661	ERZ.78 SST-p-M10x50	78	M10	90.5	23	45	50.5	36	3.5	35	16	50	16	26	88
239663	ERZ.78 SST-p-M10x63	78	M10	90.5	23	45	50.5	36	3.5	35	16	63	16	26	94
239665	ERZ.78 SST-p-M10x80	78	M10	90.5	23	45	50.5	36	3.5	35	16	80	16	26	102
239823	ERZ.95 SST-p-M10x20	95	M10	109	26.5	56.5	61.5	43	5	45	19	20	18	28	113
239825	ERZ.95 SST-p-M10x25	95	M10	109	26.5	56.5	61.5	43	5	45	19	25	18	28	115
239827	ERZ.95 SST-p-M10x32	95	M10	109	26.5	56.5	61.5	43	5	45	19	32	18	28	118
239829	ERZ.95 SST-p-M10x40	95	M10	109	26.5	56.5	61.5	43	5	45	19	40	18	28	121
239831	ERZ.95 SST-p-M10x50	95	M10	109	26.5	56.5	61.5	43	5	45	19	50	18	28	128
239833	ERZ.95 SST-p-M10x63	95	M10	109	26.5	56.5	61.5	43	5	45	19	63	18	28	133
239835	ERZ.95 SST-p-M10x80	95	M10	109	26.5	56.5	61.5	43	5	45	19	80	18	28	141
239849	ERZ.95 SST-p-M12x20	95	M12	109	26.5	56.5	61.5	43	5	45	19	20	18	28	117
239851	ERZ.95 SST-p-M12x25	95	M12	109	26.5	56.5	61.5	43	5	45	19	25	18	28	122
239853	ERZ.95 SST-p-M12x32	95	M12	109	26.5	56.5	61.5	43	5	45	19	32	18	28	125
239855	ERZ.95 SST-p-M12x40	95	M12	109	26.5	56.5	61.5	43	5	45	19	40	18	28	132
239857	ERZ.95 SST-p-M12x50	95	M12	109	26.5	56.5	61.5	43	5	45	19	50	18	28	138
239859	ERZ.95 SST-p-M12x63	95	M12	109	26.5	56.5	61.5	43	5	45	19	63	18	28	148
239861	ERZ.95 SST-p-M12x80	95	M12	109	26.5	56.5	61.5	43	5	45	19	80	18	28	160



3
Clamping levers

Adjustable handles

Zinc alloy, steel or stainless steel clamping element

LEVER BODY

Die cast zinc alloy, epoxy resin coating, orange, red, grey, black colours, matte finish.

STANDARD EXECUTIONS

- **ERM-A:** black-oxide steel clamping element with threaded hole and retaining screw. Steel return spring.
- **ERM-SST:** AISI 303 stainless steel clamping element with threaded hole and retaining screw. AISI 301 stainless steel return spring.
- **ERM-p:** black-oxide steel clamping element with threaded stud and retaining screw. Steel return spring.
- **ERM-SST-p:** AISI 303 stainless steel clamping element with threaded stud and retaining screw. AISI 301 stainless steel return spring.

Retaining screw with six-lobed socket to fit TORX®.

FEATURES AND APPLICATIONS

Particularly suitable when the lever turning angle is limited owing to lack of space.

SPECIAL EXECUTIONS ON REQUEST

- Lever body in different colours.
- Chrome-plated lever.
- Clamping element with plain hole.

INSTRUCTIONS OF USE

For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.

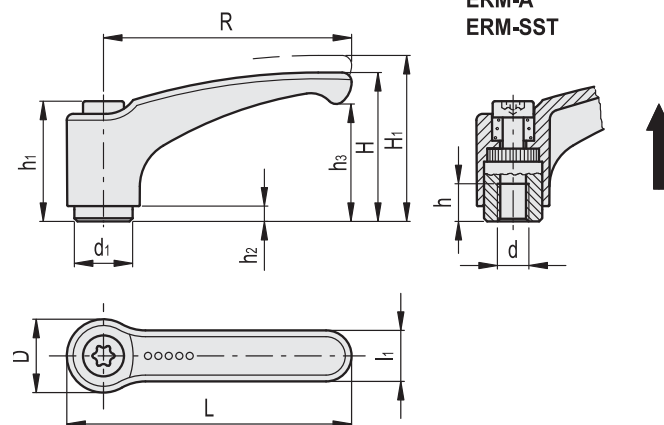
If the lever cannot make a 360° rotation, the clamping element can be easily screwed by means of the six-lobed socket front head screw (after having disengaged the lever).

* Registered trademark by TEXTRON INC.



ERGOSTYLE®

ERM-A
ERM-SST



* Complete with colour index of the lever body, example: 240002-C2 ERM.44 A-M4-C2

C2 RAL2004 C6 RAL3000 C8 RAL9006 C9 RAL9005

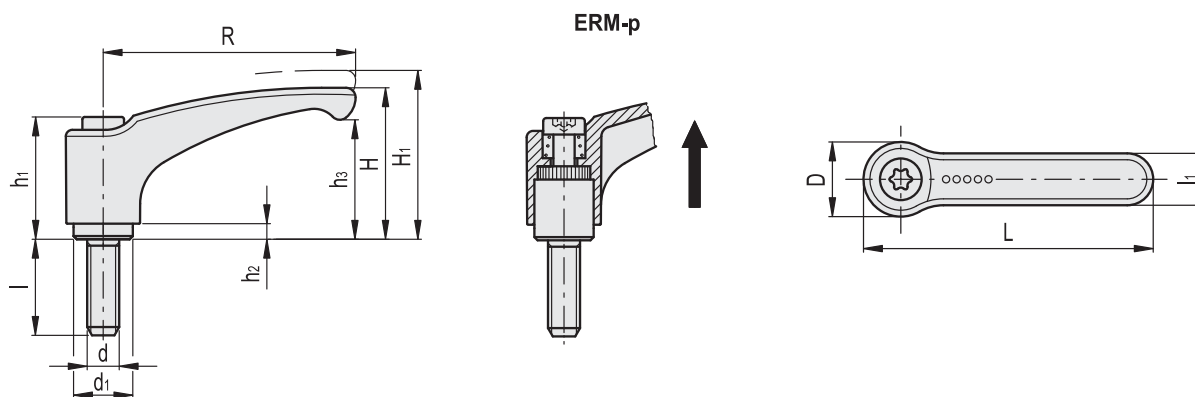
ERM-A

Code	Description	R	d	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	
240002-*	ERM.44 A-M4-*	44	M4	52	14.5	30	33	8	24.5	3.5	20.5	10	11	18	16
240003-*	ERM.44 A-M5-*	44	M5	52	14.5	30	33	8	24.5	3.5	20.5	10	11	18	16
240004-*	ERM.44 A-M6-*	44	M6	52	14.5	30	33	8	24.5	3.5	20.5	10	11	18	15
240014-*	ERM.63 A-M6-*	63	M6	73.5	18	38	41	10	31	3.5	27	13.5	13.5	24	36
240015-*	ERM.63 A-M8-*	63	M8	73.5	18	38	41	10	31	3.5	27	13.5	13.5	24	34
240025-*	ERM.78 A-M8-*	78	M8	90.5	21.5	46	50	14	36	3.5	34.5	16	16	26	61
240026-*	ERM.78 A-M10-*	78	M10	90.5	21.5	46	50	14	36	3.5	34.5	16	16	26	55
240036-*	ERM.95 A-M10-*	95	M10	109	25	56	61	17	43	5	42	19.5	18	28	93
240037-*	ERM.95 A-M12-*	95	M12	109	25	56	61	17	43	5	42	19.5	18	28	86

ERM-SST

STAINLESS STEEL

Code	Description	R	d	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	
241002-*	ERM.44 SST-A-M4-*	44	M4	52	14.5	30	33	8	24.5	3.5	20.5	10	11	18	16
241003-*	ERM.44 SST-A-M5-*	44	M5	52	14.5	30	33	8	24.5	3.5	20.5	10	11	18	15
241014-*	ERM.63 SST-A-M6-*	63	M6	73.5	18	38	41	10	31	3.5	27	13.5	13.5	24	36
241015-*	ERM.63 SST-A-M8-*	63	M8	73.5	18	38	41	10	31	3.5	27	13.5	13.5	24	34
241025-*	ERM.78 SST-A-M8-*	78	M8	90.5	21.5	46	50	14	36	3.5	34.5	16	16	26	61
241026-*	ERM.78 SST-A-M10-*	78	M10	90.5	21.5	46	50	14	36	3.5	34.5	16	16	26	55
241036-*	ERM.95 SST-A-M10-*	95	M10	109	25	56	61	17	43	5	42	19.5	18	28	93
241037-*	ERM.95 SST-A-M12-*	95	M12	109	25	56	61	17	43	5	42	19.5	18	28	86



* Complete with colour index of the lever body, example: 240103-C2 ERM.44 p-M4x12-C2

C2
RAL2004

C6
RAL3000

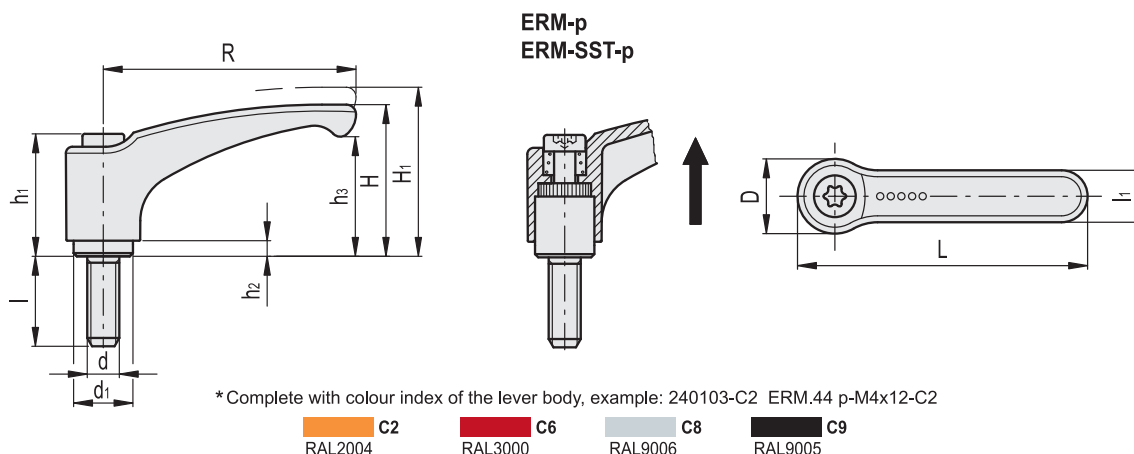
C8
RAL9006

C9
RAL9005

ERM-p

Code	Description	R	d	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	
240103-*	ERM.44 p-M4x12-*	44	M4	52	14.5	30	33	24.5	3.5	20.5	10	12	11	18	15
240105-*	ERM.44 p-M4x16-*	44	M4	52	14.5	30	33	24.5	3.5	20.5	10	16	11	18	16
240107-*	ERM.44 p-M4x20-*	44	M4	52	14.5	30	33	24.5	3.5	20.5	10	20	11	18	17
240109-*	ERM.44 p-M4x25-*	44	M4	52	14.5	30	33	24.5	3.5	20.5	10	25	11	18	18
240111-*	ERM.44 p-M4x32-*	44	M4	52	14.5	30	33	24.5	3.5	20.5	10	32	11	18	19
240133-*	ERM.44 p-M5x12-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	12	11	18	17
240135-*	ERM.44 p-M5x16-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	16	11	18	18
240137-*	ERM.44 p-M5x20-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	20	11	18	19
240139-*	ERM.44 p-M5x25-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	25	11	18	20
240141-*	ERM.44 p-M5x32-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	32	11	18	21
240143-*	ERM.44 p-M5x40-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	40	11	18	22
240145-*	ERM.44 p-M5x50-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	50	11	18	23
240153-*	ERM.44 p-M6x12-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	12	11	18	19
240155-*	ERM.44 p-M6x16-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	16	11	18	20
240157-*	ERM.44 p-M6x20-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	20	11	18	21
240159-*	ERM.44 p-M6x25-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	25	11	18	22
240161-*	ERM.44 p-M6x32-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	32	11	18	23
240163-*	ERM.44 p-M6x40-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	40	11	18	24
240165-*	ERM.44 p-M6x50-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	50	11	18	25
240233-*	ERM.63 p-M6x12-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	12	13.5	24	47
240235-*	ERM.63 p-M6x16-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	16	13.5	24	49
240237-*	ERM.63 p-M6x20-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	20	13.5	24	55
240239-*	ERM.63 p-M6x25-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	25	13.5	24	57
240241-*	ERM.63 p-M6x32-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	32	13.5	24	61
240243-*	ERM.63 p-M6x40-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	40	13.5	24	68
240245-*	ERM.63 p-M6x50-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	50	13.5	24	77
240247-*	ERM.63 p-M6x63-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	63	13.5	24	79
240251-*	ERM.63 p-M8x12-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	12	13.5	24	40
240253-*	ERM.63 p-M8x16-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	16	13.5	24	41
240255-*	ERM.63 p-M8x20-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	20	13.5	24	42
240257-*	ERM.63 p-M8x25-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	25	13.5	24	43
240259-*	ERM.63 p-M8x32-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	32	13.5	24	44
240261-*	ERM.63 p-M8x40-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	40	13.5	24	46
240263-*	ERM.63 p-M8x50-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	50	13.5	24	48
240265-*	ERM.63 p-M8x63-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	63	13.5	24	51
240273-*	ERM.63 p-M10x20-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	20	13.5	24	42
240275-*	ERM.63 p-M10x25-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	25	13.5	24	43
240277-*	ERM.63 p-M10x32-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	32	13.5	24	45
240279-*	ERM.63 p-M10x40-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	40	13.5	24	47
240281-*	ERM.63 p-M10x50-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	50	13.5	24	52
240283-*	ERM.63 p-M10x63-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	63	13.5	24	53
240285-*	ERM.63 p-M10x80-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	80	13.5	24	57





ERM-p

Code	Description	R	d	L	D	H	H1	h1	h2	h3	d1	l	li	Teeth no.	
240333-*	ERM.78 p-M8x16-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	16	16	26	70
240335-*	ERM.78 p-M8x20-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	20	16	26	73
240337-*	ERM.78 p-M8x25-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	25	16	26	76
240339-*	ERM.78 p-M8x32-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	32	16	26	81
240341-*	ERM.78 p-M8x40-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	40	16	26	86
240343-*	ERM.78 p-M8x50-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	50	16	26	88
240345-*	ERM.78 p-M8x63-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	63	16	26	94
240347-*	ERM.78 p-M8x80-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	80	16	26	97
240351-*	ERM.78 p-M10x16-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	16	16	26	82
240353-*	ERM.78 p-M10x20-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	20	16	26	85
240355-*	ERM.78 p-M10x25-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	25	16	26	91
240357-*	ERM.78 p-M10x32-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	32	16	26	98
240359-*	ERM.78 p-M10x40-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	40	16	26	108
240361-*	ERM.78 p-M10x50-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	50	16	26	120
240363-*	ERM.78 p-M10x63-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	63	16	26	124
240365-*	ERM.78 p-M10x80-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	80	16	26	127
240373-*	ERM.78 p-M12x25-*	78	M12	90.5	21.5	46	50	36	3.5	34.5	16	25	16	26	109
240375-*	ERM.78 p-M12x32-*	78	M12	90.5	21.5	46	50	36	3.5	34.5	16	32	16	26	118
240377-*	ERM.78 p-M12x40-*	78	M12	90.5	21.5	46	50	36	3.5	34.5	16	40	16	26	130
240379-*	ERM.78 p-M12x50-*	78	M12	90.5	21.5	46	50	36	3.5	34.5	16	50	16	26	144
240381-*	ERM.78 p-M12x63-*	78	M12	90.5	21.5	46	50	36	3.5	34.5	16	63	16	26	149
240383-*	ERM.78 p-M12x80-*	78	M12	90.5	21.5	46	50	36	3.5	34.5	16	80	16	26	152
240423-*	ERM.95 p-M10x16-*	95	M10	109	25	56	61	43	5	42	19	16	18	28	111
240425-*	ERM.95 p-M10x20-*	95	M10	109	25	56	61	43	5	42	19	20	18	28	113
240427-*	ERM.95 p-M10x25-*	95	M10	109	25	56	61	43	5	42	19	25	18	28	115
240429-*	ERM.95 p-M10x32-*	95	M10	109	25	56	61	43	5	42	19	32	18	28	118
240431-*	ERM.95 p-M10x40-*	95	M10	109	25	56	61	43	5	42	19	40	18	28	121
240433-*	ERM.95 p-M10x50-*	95	M10	109	25	56	61	43	5	42	19	50	18	28	128
240435-*	ERM.95 p-M10x63-*	95	M10	109	25	56	61	43	5	42	19	63	18	28	133
240437-*	ERM.95 p-M10x80-*	95	M10	109	25	56	61	43	5	42	19	80	18	28	141
240447-*	ERM.95 p-M12x16-*	95	M12	109	25	56	61	43	5	42	19	16	18	28	113
240449-*	ERM.95 p-M12x20-*	95	M12	109	25	56	61	43	5	42	19	20	18	28	117
240451-*	ERM.95 p-M12x25-*	95	M12	109	25	56	61	43	5	42	19	25	18	28	122
240453-*	ERM.95 p-M12x32-*	95	M12	109	25	56	61	43	5	42	19	32	18	28	125
240455-*	ERM.95 p-M12x40-*	95	M12	109	25	56	61	43	5	42	19	40	18	28	132
240457-*	ERM.95 p-M12x50-*	95	M12	109	25	56	61	43	5	42	19	50	18	28	141
240459-*	ERM.95 p-M12x63-*	95	M12	109	25	56	61	43	5	42	19	63	18	28	151
240461-*	ERM.95 p-M12x80-*	95	M12	109	25	56	61	43	5	42	19	80	18	28	160
240473-*	ERM.95 p-M16x25-*	95	M16	109	25	56	61	43	5	42	19	25	18	28	139
240475-*	ERM.95 p-M16x32-*	95	M16	109	25	56	61	43	5	42	19	32	18	28	146
240477-*	ERM.95 p-M16x40-*	95	M16	109	25	56	61	43	5	42	19	40	18	28	154
240479-*	ERM.95 p-M16x50-*	95	M16	109	25	56	61	43	5	42	19	50	18	28	171
240481-*	ERM.95 p-M16x63-*	95	M16	109	25	56	61	43	5	42	19	63	18	28	184
240483-*	ERM.95 p-M16x80-*	95	M16	109	25	56	61	43	5	42	19	80	18	28	199

* Complete with colour index of the lever body, example: 241133-C2 ERM.44 SST-p-M5x12-C2

C2
RAL2004

C6
RAL3000

C8
RAL9006

C9
RAL9005

ERM-SST-p

STAINLESS STEEL

Code	Description	R	d	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	
241133-*	ERM.44 SST-p-M5x12-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	12	11	18	17
241135-*	ERM.44 SST-p-M5x16-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	16	11	18	18
241137-*	ERM.44 SST-p-M5x20-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	20	11	18	19
241139-*	ERM.44 SST-p-M5x25-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	25	11	18	20
241141-*	ERM.44 SST-p-M5x32-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	32	11	18	21
241143-*	ERM.44 SST-p-M5x40-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	40	11	18	22
241145-*	ERM.44 SST-p-M5x50-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	50	11	18	23
241153-*	ERM.44 SST-p-M6x12-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	12	11	18	19
241155-*	ERM.44 SST-p-M6x16-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	16	11	18	20
241157-*	ERM.44 SST-p-M6x20-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	20	11	18	21
241159-*	ERM.44 SST-p-M6x25-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	25	11	18	22
241161-*	ERM.44 SST-p-M6x32-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	32	11	18	23
241163-*	ERM.44 SST-p-M6x40-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	40	11	18	24
241165-*	ERM.44 SST-p-M6x50-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	50	11	18	25
241235-*	ERM.63 SST-p-M6x16-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	16	13.5	24	49
241237-*	ERM.63 SST-p-M6x20-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	20	13.5	24	55
241239-*	ERM.63 SST-p-M6x25-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	25	13.5	24	57
241241-*	ERM.63 SST-p-M6x32-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	32	13.5	24	61
241243-*	ERM.63 SST-p-M6x40-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	40	13.5	24	68
241245-*	ERM.63 SST-p-M6x50-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	50	13.5	24	77
241247-*	ERM.63 SST-p-M6x63-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	63	13.5	24	79
241253-*	ERM.63 SST-p-M8x16-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	16	13.5	24	59
241255-*	ERM.63 SST-p-M8x20-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	20	13.5	24	66
241257-*	ERM.63 SST-p-M8x25-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	25	13.5	24	69
241259-*	ERM.63 SST-p-M8x32-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	32	13.5	24	73
241261-*	ERM.63 SST-p-M8x40-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	40	13.5	24	82
241263-*	ERM.63 SST-p-M8x50-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	50	13.5	24	92
241265-*	ERM.63 SST-p-M8x63-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	63	13.5	24	95
241335-*	ERM.78 SST-p-M8x20-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	20	16	26	69
241337-*	ERM.78 SST-p-M8x25-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	25	16	26	75
241339-*	ERM.78 SST-p-M8x32-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	32	16	26	80
241341-*	ERM.78 SST-p-M8x40-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	40	16	26	88
241343-*	ERM.78 SST-p-M8x50-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	50	16	26	98
241345-*	ERM.78 SST-p-M8x63-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	63	16	26	101
241347-*	ERM.78 SST-p-M8x80-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	80	16	26	104
241353-*	ERM.78 SST-p-M10x20-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	20	16	26	85
241355-*	ERM.78 SST-p-M10x25-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	25	16	26	91
241357-*	ERM.78 SST-p-M10x32-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	32	16	26	98
241359-*	ERM.78 SST-p-M10x40-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	40	16	26	108
241361-*	ERM.78 SST-p-M10x50-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	50	16	26	120
241363-*	ERM.78 SST-p-M10x63-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	63	16	26	124
241365-*	ERM.78 SST-p-M10x80-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	80	16	26	127
241425-*	ERM.95 SST-p-M10x20-*	95	M10	109	25	56	61	43	5	42	19	20	18	28	113
241427-*	ERM.95 SST-p-M10x25-*	95	M10	109	25	56	61	43	5	42	19	25	18	28	115
241429-*	ERM.95 SST-p-M10x32-*	95	M10	109	25	56	61	43	5	42	19	32	18	28	118
241431-*	ERM.95 SST-p-M10x40-*	95	M10	109	25	56	61	43	5	42	19	40	18	28	121
241433-*	ERM.95 SST-p-M10x50-*	95	M10	109	25	56	61	43	5	42	19	50	18	28	128
241435-*	ERM.95 SST-p-M10x63-*	95	M10	109	25	56	61	43	5	42	19	63	18	28	133
241437-*	ERM.95 SST-p-M10x80-*	95	M10	109	25	56	61	43	5	42	19	80	18	28	141
241449-*	ERM.95 SST-p-M12x20-*	95	M12	109	25	56	61	43	5	42	19	20	18	28	117
241451-*	ERM.95 SST-p-M12x25-*	95	M12	109	25	56	61	43	5	42	19	25	18	28	122
241453-*	ERM.95 SST-p-M12x32-*	95	M12	109	25	56	61	43	5	42	19	32	18	28	125
241455-*	ERM.95 SST-p-M12x40-*	95	M12	109	25	56	61	43	5	42	19	40	18	28	132
241457-*	ERM.95 SST-p-M12x50-*	95	M12	109	25	56	61	43	5	42	19	50	18	28	141
241459-*	ERM.95 SST-p-M12x63-*	95	M12	109	25	56	61	43	5	42	19	63	18	28	151
241461-*	ERM.95 SST-p-M12x80-*	95	M12	109	25	56	61	43	5	42	19	80	18	28	160



Adjustable hand levers

Zinc die casting, Bushing / Threaded bolt Steel

SPECIFICATION

Handle

Zinc die casting

plastic coated

black, RAL 9005, textured finish **SW**

black, RAL 9011, silk finish **SZ**

orange, RAL 2004, textured finish **OS**

red, RAL 3000, textured finish **RS**

silver, RAL 9006, textured finish **SR**

chrome-plated **CR**

uncoated, slide grinded **RH**

Version with threaded insert

Threaded insert and retaining screw

Steel, blackened

Version with threaded stud

Threaded stud and retaining screw

Steel, blackened

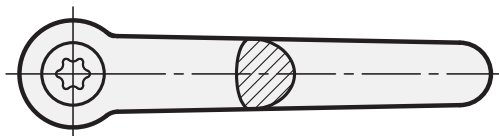
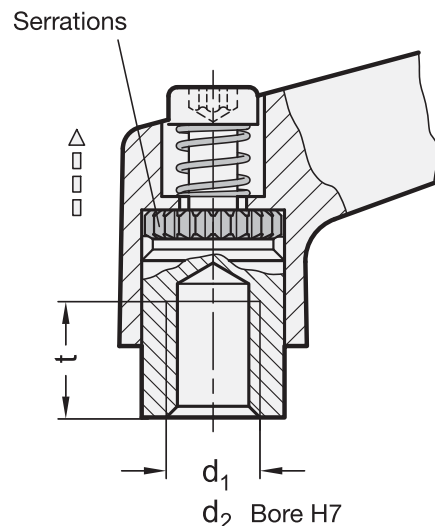
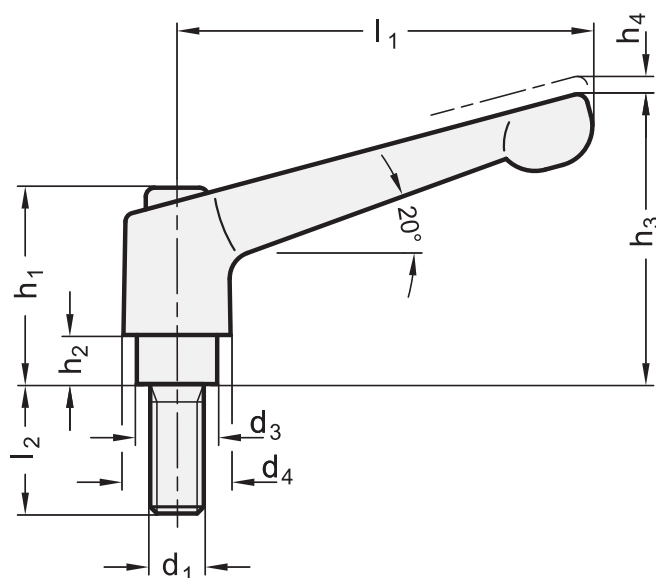
INFORMATION

Adjustable hand levers GN 300 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.

Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



* Complete with colour index of the clamping lever body (SW, SZ, OS, RS, SR, CR or RH)

SW SZ OS RS SR CR RH
 RAL9005 RAL9011 RAL2004 RAL3000 RAL9006 chrome-plated uncoated

GN 300-with threaded insert

Description	l1	d1	d2 H7	d3	d4	h1	h2	h3	h4	t min.	
GN 300-30-B5-*	30	-	B 5	10	13	24.5	4	31	3.5	9	25
GN 300-30-B6-*	30	-	B 6	10	13	24.5	4	31	3.5	9	24
GN 300-30-M3-*	30	M 3	-	10	13	24.5	4	31	3.5	7	27
GN 300-30-M4-*	30	M 4	-	10	13	24.5	4	31	3.5	9	27
GN 300-30-M5-*	30	M 5	-	10	13	24.5	4	31	3.5	9	25
GN 300-30-M6-*	30	M 6	-	10	13	24.5	4	31	3.5	9	24
GN 300-45-B5-*	45	-	B 5	10	13	24.5	4	34	3.5	9	33
GN 300-45-B6-*	45	-	B 6	10	13	24.5	4	34	3.5	9	32
GN 300-45-M4-*	45	M 4	-	10	13	24.5	4	34	3.5	9	34
GN 300-45-M5-*	45	M 5	-	10	13	24.5	4	34	3.5	9	33
GN 300-45-M6-*	45	M 6	-	10	13	24.5	4	34	3.5	9	32
GN 300-63-B8-*	63	-	B 8	13.5	17.5	31	6.5	45	4	11	74
GN 300-63-M6-*	63	M 6	-	13.5	17.5	31	6.5	45	4	11	77
GN 300-63-M8-*	63	M 8	-	13.5	17.5	31	6.5	45	4	11	75
GN 300-78-B8-*	78	-	B 8	16	21	36	8	54	4	14	122
GN 300-78-B10-*	78	-	B 10	16	21	36	8	54	4	14	118
GN 300-78-M8-*	78	M 8	-	16	21	36	8	54	4	14	123
GN 300-78-M10-*	78	M 10	-	16	21	36	8	54	4	14	121
GN 300-92-B12-*	92	-	B 12	19	24	43	11	64	4	17	178
GN 300-92-M10-*	92	M 10	-	19	24	43	11	64	4	17	187
GN 300-92-M12-*	92	M 12	-	19	24	43	11	64	4	17	181
GN 300-108-B12-*	108	-	B 12	23	30	50.5	12	75	5	22	305
GN 300-108-B16-*	108	-	B 16	23	30	50.5	12	75	5	22	291
GN 300-108-M12-*	108	M 12	-	23	30	50.5	12	75	5	22	304
GN 300-108-M14-*	108	M 14	-	23	30	50.5	12	75	5	22	298
GN 300-108-M16-*	108	M 16	-	23	30	50.5	12	75	5	22	290

GN 300-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	
GN 300-30-M3-6-*	30	M 3	6	10	13	24.5	4	31	3.5	21
GN 300-30-M3-8-*	30	M 3	8	10	13	24.5	4	31	3.5	22
GN 300-30-M3-10-*	30	M 3	10	10	13	24.5	4	31	3.5	23
GN 300-30-M3-12-*	30	M 3	12	10	13	24.5	4	31	3.5	24
GN 300-30-M3-16-*	30	M 3	16	10	13	24.5	4	31	3.5	25
GN 300-30-M4-12-*	30	M 4	12	10	13	24.5	4	31	3.5	28
GN 300-30-M4-16-*	30	M 4	16	10	13	24.5	4	31	3.5	28
GN 300-30-M4-20-*	30	M 4	20	10	13	24.5	4	31	3.5	29
GN 300-30-M4-25-*	30	M 4	25	10	13	24.5	4	31	3.5	30
GN 300-30-M4-32-*	30	M 4	32	10	13	24.5	4	31	3.5	31
GN 300-30-M5-12-*	30	M 5	12	10	13	24.5	4	31	3.5	29
GN 300-30-M5-16-*	30	M 5	16	10	13	24.5	4	31	3.5	29
GN 300-30-M5-20-*	30	M 5	20	10	13	24.5	4	31	3.5	29
GN 300-30-M5-25-*	30	M 5	25	10	13	24.5	4	31	3.5	30
GN 300-30-M5-32-*	30	M 5	32	10	13	24.5	4	31	3.5	31
GN 300-30-M5-40-*	30	M 5	40	10	13	24.5	4	31	3.5	32
GN 300-30-M5-50-*	30	M 5	50	10	13	24.5	4	31	3.5	33
GN 300-30-M6-12-*	30	M 6	12	10	13	24.5	4	31	3.5	29
GN 300-30-M6-16-*	30	M 6	16	10	13	24.5	4	31	3.5	30
GN 300-30-M6-20-*	30	M 6	20	10	13	24.5	4	31	3.5	31



* Complete with colour index of the clamping lever body (SW, SZ, OS, RS, SR, CR or RH)

SW SZ OS RS SR CR RH
 RAL9005 RAL9011 RAL2004 RAL3000 RAL9006 chrome-plated uncoated

GN 300-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300-30-M6-25-*	30	M 6	25	10	13	24.5	4	31	3.5	32
GN 300-30-M6-32-*	30	M 6	32	10	13	24.5	4	31	3.5	33
GN 300-30-M6-40-*	30	M 6	40	10	13	24.5	4	31	3.5	35
GN 300-30-M6-50-*	30	M 6	50	10	13	24.5	4	31	3.5	36
GN 300-45-M4-12-*	45	M 4	12	10	13	24.5	4	34	3.5	35
GN 300-45-M4-16-*	45	M 4	16	10	13	24.5	4	34	3.5	39
GN 300-45-M4-20-*	45	M 4	20	10	13	24.5	4	34	3.5	39
GN 300-45-M4-25-*	45	M 4	25	10	13	24.5	4	34	3.5	39
GN 300-45-M4-32-*	45	M 4	32	10	13	24.5	4	34	3.5	40
GN 300-45-M5-12-*	45	M 5	12	10	13	24.5	4	34	3.5	35
GN 300-45-M5-16-*	45	M 5	16	10	13	24.5	4	34	3.5	36
GN 300-45-M5-20-*	45	M 5	20	10	13	24.5	4	34	3.5	37
GN 300-45-M5-25-*	45	M 5	25	10	13	24.5	4	34	3.5	38
GN 300-45-M5-32-*	45	M 5	32	10	13	24.5	4	34	3.5	39
GN 300-45-M5-40-*	45	M 5	40	10	13	24.5	4	34	3.5	40
GN 300-45-M5-50-*	45	M 5	50	10	13	24.5	4	34	3.5	42
GN 300-45-M6-12-*	45	M 6	12	10	13	24.5	4	34	3.5	36
GN 300-45-M6-16-*	45	M 6	16	10	13	24.5	4	34	3.5	37
GN 300-45-M6-20-*	45	M 6	20	10	13	24.5	4	34	3.5	38
GN 300-45-M6-25-*	45	M 6	25	10	13	24.5	4	34	3.5	39
GN 300-45-M6-32-*	45	M 6	32	10	13	24.5	4	34	3.5	41
GN 300-45-M6-40-*	45	M 6	40	10	13	24.5	4	34	3.5	41
GN 300-45-M6-50-*	45	M 6	50	10	13	24.5	4	34	3.5	43
GN 300-63-M6-12-*	63	M 6	12	13.5	17.5	31	6.5	45	4	80
GN 300-63-M6-16-*	63	M 6	16	13.5	17.5	31	6.5	45	4	80
GN 300-63-M6-20-*	63	M 6	20	13.5	17.5	31	6.5	45	4	82
GN 300-63-M6-25-*	63	M 6	25	13.5	17.5	31	6.5	45	4	83
GN 300-63-M6-32-*	63	M 6	32	13.5	17.5	31	6.5	45	4	84
GN 300-63-M6-40-*	63	M 6	40	13.5	17.5	31	6.5	45	4	85
GN 300-63-M6-50-*	63	M 6	50	13.5	17.5	31	6.5	45	4	86
GN 300-63-M6-63-*	63	M 6	63	13.5	17.5	31	6.5	45	4	88
GN 300-63-M8-12-*	63	M 8	12	13.5	17.5	31	6.5	45	4	82
GN 300-63-M8-16-*	63	M 8	16	13.5	17.5	31	6.5	45	4	84
GN 300-63-M8-20-*	63	M 8	20	13.5	17.5	31	6.5	45	4	85
GN 300-63-M8-25-*	63	M 8	25	13.5	17.5	31	6.5	45	4	86
GN 300-63-M8-32-*	63	M 8	32	13.5	17.5	31	6.5	45	4	88
GN 300-63-M8-40-*	63	M 8	40	13.5	17.5	31	6.5	45	4	93
GN 300-63-M8-50-*	63	M 8	50	13.5	17.5	31	6.5	45	4	95
GN 300-63-M8-63-*	63	M 8	63	13.5	17.5	31	6.5	45	4	98
GN 300-63-M10-20-*	63	M 10	20	13.5	17.5	31	6.5	45	4	88
GN 300-63-M10-25-*	63	M 10	25	13.5	17.5	31	6.5	45	4	91
GN 300-63-M10-32-*	63	M 10	32	13.5	17.5	31	6.5	45	4	94
GN 300-63-M10-40-*	63	M 10	40	13.5	17.5	31	6.5	45	4	96
GN 300-63-M10-50-*	63	M 10	50	13.5	17.5	31	6.5	45	4	103
GN 300-63-M10-63-*	63	M 10	63	13.5	17.5	31	6.5	45	4	108
GN 300-63-M10-80-*	63	M 10	80	13.5	17.5	31	6.5	45	4	118
GN 300-78-M8-16-*	78	M 8	16	16	21	36	8	54	4	131
GN 300-78-M8-20-*	78	M 8	20	16	21	36	8	54	4	132
GN 300-78-M8-25-*	78	M 8	25	16	21	36	8	54	4	133
GN 300-78-M8-32-*	78	M 8	32	16	21	36	8	54	4	136
GN 300-78-M8-40-*	78	M 8	40	16	21	36	8	54	4	140

Clamping levers

* Complete with colour index of the clamping lever body (SW, SZ, OS, RS, SR, CR or RH)

SW SZ OS RS SR CR RH
 RAL9005 RAL9011 RAL2004 RAL3000 RAL9006 chrome-plated uncoated

GN 300-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	
GN 300-78-M8-50-*	78	M 8	50	16	21	36	8	54	4	145
GN 300-78-M8-63-*	78	M 8	63	16	21	36	8	54	4	147
GN 300-78-M8-80-*	78	M 8	80	16	21	36	8	54	4	152
GN 300-78-M10-16-*	78	M 10	16	16	21	36	8	54	4	137
GN 300-78-M10-20-*	78	M 10	20	16	21	36	8	54	4	139
GN 300-78-M10-25-*	78	M 10	25	16	21	36	8	54	4	141
GN 300-78-M10-32-*	78	M 10	32	16	21	36	8	54	4	145
GN 300-78-M10-40-*	78	M 10	40	16	21	36	8	54	4	149
GN 300-78-M10-50-*	78	M 10	50	16	21	36	8	54	4	154
GN 300-78-M10-63-*	78	M 10	63	16	21	36	8	54	4	160
GN 300-78-M10-80-*	78	M 10	80	16	21	36	8	54	4	170
GN 300-78-M12-25-*	78	M 12	25	16	21	36	8	54	4	145
GN 300-78-M12-32-*	78	M 12	32	16	21	36	8	54	4	150
GN 300-78-M12-40-*	78	M 12	40	16	21	36	8	54	4	156
GN 300-78-M12-50-*	78	M 12	50	16	21	36	8	54	4	163
GN 300-78-M12-63-*	78	M 12	63	16	21	36	8	54	4	171
GN 300-78-M12-80-*	78	M 12	80	16	21	36	8	54	4	183
GN 300-92-M10-16-*	92	M 10	16	19	24	43	11	64	4	199
GN 300-92-M10-20-*	92	M 10	20	19	24	43	11	64	4	202
GN 300-92-M10-25-*	92	M 10	25	19	24	43	11	64	4	205
GN 300-92-M10-32-*	92	M 10	32	19	24	43	11	64	4	209
GN 300-92-M10-40-*	92	M 10	40	19	24	43	11	64	4	213
GN 300-92-M10-50-*	92	M 10	50	19	24	43	11	64	4	219
GN 300-92-M10-63-*	92	M 10	63	19	24	43	11	64	4	224
GN 300-92-M10-80-*	92	M 10	80	19	24	43	11	64	4	235
GN 300-92-M12-16-*	92	M 12	16	19	24	43	11	64	4	206
GN 300-92-M12-20-*	92	M 12	20	19	24	43	11	64	4	209
GN 300-92-M12-25-*	92	M 12	25	19	24	43	11	64	4	215
GN 300-92-M12-32-*	92	M 12	32	19	24	43	11	64	4	220
GN 300-92-M12-40-*	92	M 12	40	19	24	43	11	64	4	224
GN 300-92-M12-50-*	92	M 12	50	19	24	43	11	64	4	230
GN 300-92-M12-63-*	92	M 12	63	19	24	43	11	64	4	242
GN 300-92-M12-80-*	92	M 12	80	19	24	43	11	64	4	250
GN 300-92-M16-25-*	92	M 16	25	19	24	43	11	64	4	226
GN 300-92-M16-32-*	92	M 16	32	19	24	43	11	64	4	234
GN 300-92-M16-40-*	92	M 16	40	19	24	43	11	64	4	245
GN 300-92-M16-50-*	92	M 16	50	19	24	43	11	64	4	259
GN 300-92-M16-63-*	92	M 16	63	19	24	43	11	64	4	276
GN 300-92-M16-80-*	92	M 16	80	19	24	43	11	64	4	311
GN 300-108-M12-25-*	108	M 12	25	23	30	50.5	12	75	5	350
GN 300-108-M12-32-*	108	M 12	32	23	30	50.5	12	75	5	320
GN 300-108-M12-40-*	108	M 12	40	23	30	50.5	12	75	5	307
GN 300-108-M12-50-*	108	M 12	50	23	30	50.5	12	75	5	340
GN 300-108-M12-63-*	108	M 12	63	23	30	50.5	12	75	5	365
GN 300-108-M12-80-*	108	M 12	80	23	30	50.5	12	75	5	383
GN 300-108-M12-120-*	108	M 12	120	23	30	50.5	12	75	5	410
GN 300-108-M16-25-*	108	M 16	25	23	30	50.5	12	75	5	355
GN 300-108-M16-32-*	108	M 16	32	23	30	50.5	12	75	5	365
GN 300-108-M16-40-*	108	M 16	40	23	30	50.5	12	75	5	376
GN 300-108-M16-50-*	108	M 16	50	23	30	50.5	12	75	5	388
GN 300-108-M16-63-*	108	M 16	63	23	30	50.5	12	75	5	407
GN 300-108-M16-80-*	108	M 16	80	23	30	50.5	12	75	5	429
GN 300-108-M16-120-*	108	M 16	120	23	30	50.5	12	75	5	476



Adjustable hand levers

**Zinc die casting, Bushing / Threaded bolt
Stainless Steel**

SPECIFICATION

Handle

Zinc die casting

plastic coated

black, RAL 9005, textured finish **SW**

black, RAL 9011, silk finish **SZ**

orange, RAL 2004, textured finish **OS**

red, RAL 3000, textured finish **RS**

silver, RAL 9006, textured finish **SR**

chrome-plated **CR**

uncoated, slide grinded **RH**

Version with threaded insert

Threaded insert and retaining screw

Stainless Steel AISI 303

Version with threaded stud

Threaded stud and retaining screw

Stainless Steel AISI 303

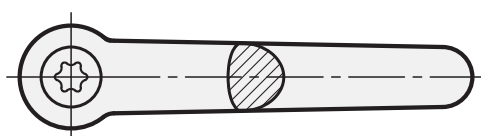
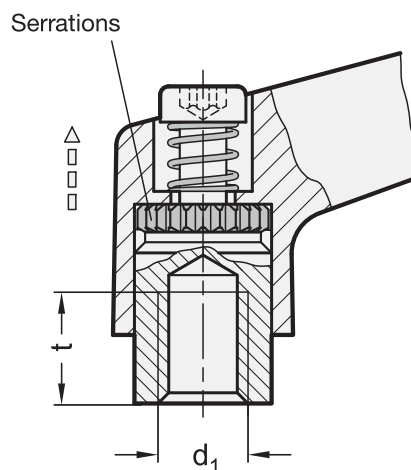
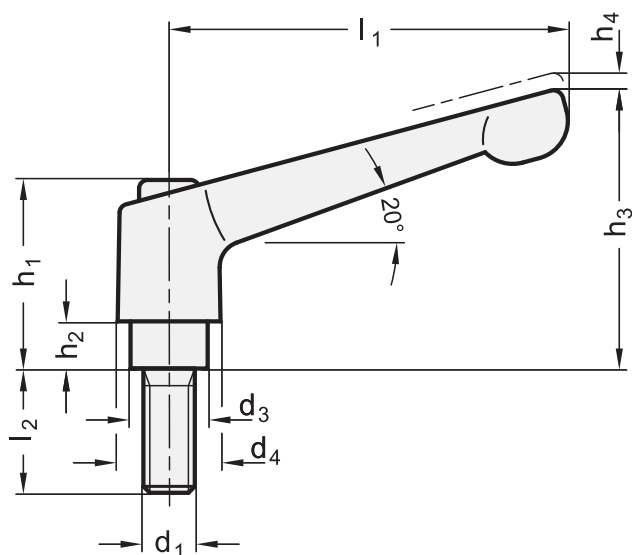
INFORMATION

Adjustable hand levers GN 300.1 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.

Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the clamping lever body (SW, SZ, OS, RS, SR, CR or RH)

SW SZ OS RS SR CR RH
 RAL9005 RAL9011 RAL2004 RAL3000 RAL9006 chrome-plated uncoated

GN 300.1-with threaded insert

Description	l1	d1	d3	d4	h1	h2	h3	h4	t min.	
GN 300.1-30-M3-*	30	M 3	10	13	24.5	4	31	3.5	7	27
GN 300.1-30-M4-*	30	M 4	10	13	24.5	4	31	3.5	8	27
GN 300.1-30-M5-*	30	M 5	10	13	24.5	4	31	3.5	8	26
GN 300.1-30-M6-*	30	M 6	10	13	24.5	4	31	3.5	8	25
GN 300.1-45-M4-*	45	M 4	10	13	24.5	4	34	3.5	8	34
GN 300.1-45-M5-*	45	M 5	10	13	24.5	4	34	3.5	8	33
GN 300.1-45-M6-*	45	M 6	10	13	24.5	4	34	3.5	8	32
GN 300.1-63-M6-*	63	M 6	13.5	17.5	31	6.5	45	4	11	76
GN 300.1-63-M8-*	63	M 8	13.5	17.5	31	6.5	45	4	11	75
GN 300.1-78-M8-*	78	M 8	16	21	36	8	54	4	14	123
GN 300.1-78-M10-*	78	M 10	16	21	36	8	54	4	14	119
GN 300.1-92-M10-*	92	M 10	19	24	43	11	64	4	17	184
GN 300.1-92-M12-*	92	M 12	19	24	43	11	64	4	17	178
GN 300.1-108-M12-*	108	M 12	23	30	50.5	12	75	5	22	306
GN 300.1-108-M16-*	108	M 16	23	30	50.5	12	75	5	22	289

GN 300.1-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	
GN 300.1-30-M3-6-*	30	M 3	6	10	13	24.5	4	31	3.5	27
GN 300.1-30-M3-8-*	30	M 3	8	10	13	24.5	4	31	3.5	28
GN 300.1-30-M3-10-*	30	M 3	10	10	13	24.5	4	31	3.5	28
GN 300.1-30-M3-12-*	30	M 3	12	10	13	24.5	4	31	3.5	30
GN 300.1-30-M3-16-*	30	M 3	16	10	13	24.5	4	31	3.5	30
GN 300.1-30-M4-12-*	30	M 4	12	10	13	24.5	4	31	3.5	28
GN 300.1-30-M4-16-*	30	M 4	16	10	13	24.5	4	31	3.5	28
GN 300.1-30-M4-20-*	30	M 4	20	10	13	24.5	4	31	3.5	29
GN 300.1-30-M4-25-*	30	M 4	25	10	13	24.5	4	31	3.5	30
GN 300.1-30-M4-32-*	30	M 4	32	10	13	24.5	4	31	3.5	31
GN 300.1-30-M5-12-*	30	M 5	12	10	13	24.5	4	31	3.5	29
GN 300.1-30-M5-16-*	30	M 5	16	10	13	24.5	4	31	3.5	29
GN 300.1-30-M5-20-*	30	M 5	20	10	13	24.5	4	31	3.5	29
GN 300.1-30-M5-25-*	30	M 5	25	10	13	24.5	4	31	3.5	30
GN 300.1-30-M5-32-*	30	M 5	32	10	13	24.5	4	31	3.5	31
GN 300.1-30-M5-40-*	30	M 5	40	10	13	24.5	4	31	3.5	32
GN 300.1-30-M5-50-*	30	M 5	50	10	13	24.5	4	31	3.5	33
GN 300.1-30-M6-12-*	30	M 6	12	10	13	24.5	4	31	3.5	29
GN 300.1-30-M6-16-*	30	M 6	16	10	13	24.5	4	31	3.5	30
GN 300.1-30-M6-20-*	30	M 6	20	10	13	24.5	4	31	3.5	31
GN 300.1-30-M6-25-*	30	M 6	25	10	13	24.5	4	31	3.5	32
GN 300.1-30-M6-32-*	30	M 6	32	10	13	24.5	4	31	3.5	33
GN 300.1-30-M6-40-*	30	M 6	40	10	13	24.5	4	31	3.5	34
GN 300.1-30-M6-50-*	30	M 6	50	10	13	24.5	4	31	3.5	35
GN 300.1-45-M4-12-*	45	M 4	12	10	13	24.5	4	34	3.5	35
GN 300.1-45-M4-16-*	45	M 4	16	10	13	24.5	4	34	3.5	36
GN 300.1-45-M4-20-*	45	M 4	20	10	13	24.5	4	34	3.5	35
GN 300.1-45-M4-25-*	45	M 4	25	10	13	24.5	4	34	3.5	37
GN 300.1-45-M4-32-*	45	M 4	32	10	13	24.5	4	34	3.5	38
GN 300.1-45-M5-12-*	45	M 5	12	10	13	24.5	4	34	3.5	35
GN 300.1-45-M5-16-*	45	M 5	16	10	13	24.5	4	34	3.5	36
GN 300.1-45-M5-20-*	45	M 5	20	10	13	24.5	4	34	3.5	37
GN 300.1-45-M5-25-*	45	M 5	25	10	13	24.5	4	34	3.5	38
GN 300.1-45-M5-32-*	45	M 5	32	10	13	24.5	4	34	3.5	38
GN 300.1-45-M5-40-*	45	M 5	40	10	13	24.5	4	34	3.5	39
GN 300.1-45-M5-50-*	45	M 5	50	10	13	24.5	4	34	3.5	43



* Complete with colour index of the clamping lever body (SW, SZ, OS, RS, SR, CR or RH)

SW SZ OS RS SR CR RH
 RAL9005 RAL9011 RAL2004 RAL3000 RAL9006 chrome-plated uncoated

GN 300.1-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300.1-45-M6-12-*	45	M 6	12	10	13	24.5	4	34	3.5	36
GN 300.1-45-M6-16-*	45	M 6	16	10	13	24.5	4	34	3.5	37
GN 300.1-45-M6-20-*	45	M 6	20	10	13	24.5	4	34	3.5	38
GN 300.1-45-M6-25-*	45	M 6	25	10	13	24.5	4	34	3.5	39
GN 300.1-45-M6-32-*	45	M 6	32	10	13	24.5	4	34	3.5	39
GN 300.1-45-M6-40-*	45	M 6	40	10	13	24.5	4	34	3.5	40
GN 300.1-45-M6-50-*	45	M 6	50	10	13	24.5	4	34	3.5	43
GN 300.1-63-M6-16-*	63	M 6	16	13.5	17.5	31	6.5	45	4	80
GN 300.1-63-M6-20-*	63	M 6	20	13.5	17.5	31	6.5	45	4	91
GN 300.1-63-M6-25-*	63	M 6	25	13.5	17.5	31	6.5	45	4	82
GN 300.1-63-M6-32-*	63	M 6	32	13.5	17.5	31	6.5	45	4	83
GN 300.1-63-M6-40-*	63	M 6	40	13.5	17.5	31	6.5	45	4	85
GN 300.1-63-M6-50-*	63	M 6	50	13.5	17.5	31	6.5	45	4	86
GN 300.1-63-M6-63-*	63	M 6	63	13.5	17.5	31	6.5	45	4	88
GN 300.1-63-M8-16-*	63	M 8	16	13.5	17.5	31	6.5	45	4	84
GN 300.1-63-M8-20-*	63	M 8	20	13.5	17.5	31	6.5	45	4	85
GN 300.1-63-M8-25-*	63	M 8	25	13.5	17.5	31	6.5	45	4	87
GN 300.1-63-M8-32-*	63	M 8	32	13.5	17.5	31	6.5	45	4	89
GN 300.1-63-M8-40-*	63	M 8	40	13.5	17.5	31	6.5	45	4	91
GN 300.1-63-M8-50-*	63	M 8	50	13.5	17.5	31	6.5	45	4	93
GN 300.1-63-M8-63-*	63	M 8	63	13.5	17.5	31	6.5	45	4	98
GN 300.1-78-M8-20-*	78	M 8	20	16	21	36	8	54	4	137
GN 300.1-78-M8-25-*	78	M 8	25	16	21	36	8	54	4	138
GN 300.1-78-M8-32-*	78	M 8	32	16	21	36	8	54	4	139
GN 300.1-78-M8-40-*	78	M 8	40	16	21	36	8	54	4	140
GN 300.1-78-M8-50-*	78	M 8	50	16	21	36	8	54	4	144
GN 300.1-78-M8-63-*	78	M 8	63	16	21	36	8	54	4	148
GN 300.1-78-M8-80-*	78	M 8	80	16	21	36	8	54	4	156
GN 300.1-78-M10-20-*	78	M 10	20	16	21	36	8	54	4	139
GN 300.1-78-M10-25-*	78	M 10	25	16	21	36	8	54	4	140
GN 300.1-78-M10-32-*	78	M 10	32	16	21	36	8	54	4	142
GN 300.1-78-M10-40-*	78	M 10	40	16	21	36	8	54	4	149
GN 300.1-78-M10-50-*	78	M 10	50	16	21	36	8	54	4	154
GN 300.1-78-M10-63-*	78	M 10	63	16	21	36	8	54	4	161
GN 300.1-78-M10-80-*	78	M 10	80	16	21	36	8	54	4	166
GN 300.1-92-M10-20-*	92	M 10	20	19	24	43	11	64	4	202
GN 300.1-92-M10-25-*	92	M 10	25	19	24	43	11	64	4	205
GN 300.1-92-M10-32-*	92	M 10	32	19	24	43	11	64	4	209
GN 300.1-92-M10-40-*	92	M 10	40	19	24	43	11	64	4	213
GN 300.1-92-M10-50-*	92	M 10	50	19	24	43	11	64	4	219
GN 300.1-92-M10-63-*	92	M 10	63	19	24	43	11	64	4	225
GN 300.1-92-M10-80-*	92	M 10	80	19	24	43	11	64	4	235
GN 300.1-92-M12-20-*	92	M 12	20	19	24	43	11	64	4	209
GN 300.1-92-M12-25-*	92	M 12	25	19	24	43	11	64	4	215
GN 300.1-92-M12-32-*	92	M 12	32	19	24	43	11	64	4	220
GN 300.1-92-M12-40-*	92	M 12	40	19	24	43	11	64	4	222
GN 300.1-92-M12-50-*	92	M 12	50	19	24	43	11	64	4	233
GN 300.1-92-M12-63-*	92	M 12	63	19	24	43	11	64	4	242
GN 300.1-92-M12-80-*	92	M 12	80	19	24	43	11	64	4	250
GN 300.1-108-M16-32-*	108	M 16	32	23	30	50.5	12	75	5	365
GN 300.1-108-M16-40-*	108	M 16	40	23	30	50.5	12	75	5	376
GN 300.1-108-M16-50-*	108	M 16	50	23	30	50.5	12	75	5	388
GN 300.1-108-M16-63-*	108	M 16	63	23	30	50.5	12	75	5	407
GN 300.1-108-M16-80-*	108	M 16	80	23	30	50.5	12	75	5	429

Adjustable Stainless Steel- Hand levers

matt shot-blasted

SPECIFICATION

Types

- Type **AS**: with external hexagon
- Type **IS**: with internal hexalobular

Handle

Precision casting

- Stainless Steel AISI CF-8
- matt shot-blasted

Version with threaded insert

Threaded bush

Stainless Steel AISI 303

Retaining screw

Stainless Steel AISI 303

Spring

Stainless Steel AISI 301

Version with threaded stud

Threaded stud

Stainless Steel AISI 303

Retaining screw

Stainless Steel AISI 303

Spring

Stainless Steel AISI 301

INFORMATION

Adjustable hand levers GN 300.5 with full Stainless Steel-Handle, correspond to applications where „agressive“ surrounding conditions are given, or where stainless steel materials are prescribed such as in food processing or chemical industry.

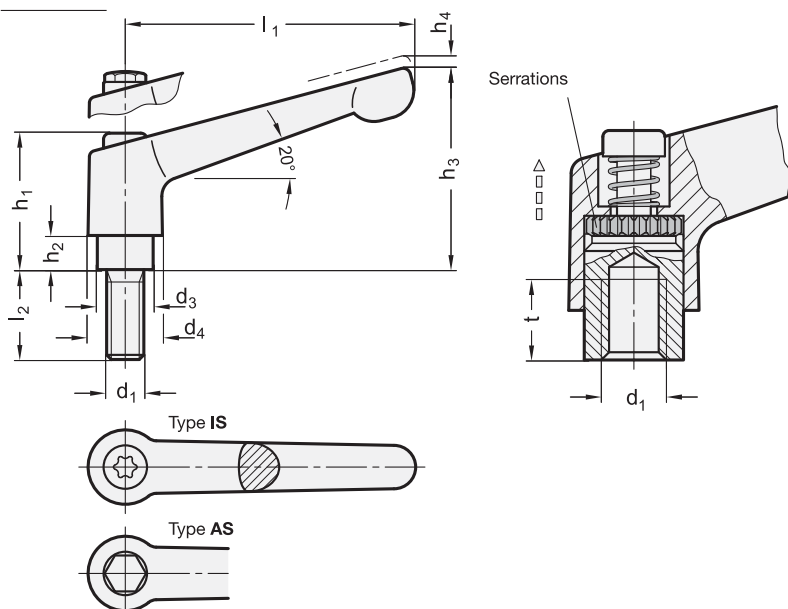
Retaining screws with hexagon head (Type AS) comply with the requirement "prevents water from accumulating".

Adjustable hand levers have proved to be ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.

Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



3
Clamping levers

* Complete with types of the Hand levers (AS or IS)

AS IS
External hexagon Internal hexagon

GN 300.5-with threaded insert

STAINLESS STEEL

Description	l1	d1	d3	d4	h1	h2	h3	h4	t min.	⚖
GN 300.5-30-M3-*	30	M 3	10	13	24.5	4	31	3.5	7	28
GN 300.5-30-M4-*	30	M 4	10	13	24.5	4	31	3.5	8	28
GN 300.5-30-M5-*	30	M 5	10	13	24.5	4	31	3.5	8	27
GN 300.5-30-M6-*	30	M 6	10	13	24.5	4	31	3.5	8	26
GN 300.5-45-M4-*	45	M 4	10	13	24.5	4	34	3.5	8	35
GN 300.5-45-M5-*	45	M 5	10	13	24.5	4	34	3.5	8	34
GN 300.5-45-M6-*	45	M 6	10	13	24.5	4	34	3.5	8	33
GN 300.5-63-M6-*	63	M 6	13.5	17.5	31	6.5	45	4	11	77
GN 300.5-63-M8-*	63	M 8	13.5	17.5	31	6.5	45	4	11	76
GN 300.5-78-M8-*	78	M 8	16	21	36	8	54	4	14	124
GN 300.5-78-M10-*	78	M 10	16	21	36	8	54	4	14	120
GN 300.5-92-M10-*	92	M 10	19	24	43	11	64	4	17	185
GN 300.5-92-M12-*	92	M 12	19	24	43	11	64	4	17	179

GN 300.5-with threaded stud

STAINLESS STEEL

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300.5-30-M3-6-*	30	M 3	6	10	13	24.5	4	31	3.5	28
GN 300.5-30-M3-8-*	30	M 3	8	10	13	24.5	4	31	3.5	28
GN 300.5-30-M3-10-*	30	M 3	10	10	13	24.5	4	31	3.5	29
GN 300.5-30-M3-12-*	30	M 3	12	10	13	24.5	4	31	3.5	30
GN 300.5-30-M3-16-*	30	M 3	16	10	13	24.5	4	31	3.5	31
GN 300.5-30-M4-12-*	30	M 4	12	10	13	24.5	4	31	3.5	29
GN 300.5-30-M4-16-*	30	M 4	16	10	13	24.5	4	31	3.5	30
GN 300.5-30-M4-20-*	30	M 4	20	10	13	24.5	4	31	3.5	30
GN 300.5-30-M4-25-*	30	M 4	25	10	13	24.5	4	31	3.5	32
GN 300.5-30-M4-32-*	30	M 4	32	10	13	24.5	4	31	3.5	30
GN 300.5-30-M5-12-*	30	M 5	12	10	13	24.5	4	31	3.5	30
GN 300.5-30-M5-16-*	30	M 5	16	10	13	24.5	4	31	3.5	30
GN 300.5-30-M5-20-*	30	M 5	20	10	13	24.5	4	31	3.5	31
GN 300.5-30-M5-25-*	30	M 5	25	10	13	24.5	4	31	3.5	31
GN 300.5-30-M5-32-*	30	M 5	32	10	13	24.5	4	31	3.5	32
GN 300.5-30-M5-40-*	30	M 5	40	10	13	24.5	4	31	3.5	33
GN 300.5-30-M5-50-*	30	M 5	50	10	13	24.5	4	31	3.5	34
GN 300.5-30-M6-12-*	30	M 6	12	10	13	24.5	4	31	3.5	30
GN 300.5-30-M6-16-*	30	M 6	16	10	13	24.5	4	31	3.5	31
GN 300.5-30-M6-20-*	30	M 6	20	10	13	24.5	4	31	3.5	32
GN 300.5-30-M6-25-*	30	M 6	25	10	13	24.5	4	31	3.5	33
GN 300.5-30-M6-32-*	30	M 6	32	10	13	24.5	4	31	3.5	34
GN 300.5-30-M6-40-*	30	M 6	40	10	13	24.5	4	31	3.5	35
GN 300.5-30-M6-50-*	30	M 6	50	10	13	24.5	4	31	3.5	36
GN 300.5-45-M4-12-*	45	M 4	12	10	13	24.5	4	34	3.5	35
GN 300.5-45-M4-16-*	45	M 4	16	10	13	24.5	4	34	3.5	36
GN 300.5-45-M4-20-*	45	M 4	20	10	13	24.5	4	34	3.5	37
GN 300.5-45-M4-25-*	45	M 4	25	10	13	24.5	4	34	3.5	38
GN 300.5-45-M4-32-*	45	M 4	32	10	13	24.5	4	34	3.5	39
GN 300.5-45-M5-12-*	45	M 5	12	10	13	24.5	4	34	3.5	39
GN 300.5-45-M5-16-*	45	M 5	16	10	13	24.5	4	34	3.5	40
GN 300.5-45-M5-20-*	45	M 5	20	10	13	24.5	4	34	3.5	40
GN 300.5-45-M5-25-*	45	M 5	25	10	13	24.5	4	34	3.5	40

Weight type AS



* Complete with types of the Hand levers (AS or IS)

AS **IS**
 External hexagon Internal hexagon

GN 300.5-with threaded stud

STAINLESS STEEL

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	
GN 300.5-45-M5-32-*	45	M 5	32	10	13	24.5	4	34	3.5	39
GN 300.5-45-M5-40-*	45	M 5	40	10	13	24.5	4	34	3.5	40
GN 300.5-45-M5-50-*	45	M 5	50	10	13	24.5	4	34	3.5	44
GN 300.5-45-M6-12-*	45	M 6	12	10	13	24.5	4	34	3.5	37
GN 300.5-45-M6-16-*	45	M 6	16	10	13	24.5	4	34	3.5	38
GN 300.5-45-M6-20-*	45	M 6	20	10	13	24.5	4	34	3.5	39
GN 300.5-45-M6-25-*	45	M 6	25	10	13	24.5	4	34	3.5	40
GN 300.5-45-M6-32-*	45	M 6	32	10	13	24.5	4	34	3.5	41
GN 300.5-45-M6-40-*	45	M 6	40	10	13	24.5	4	34	3.5	42
GN 300.5-45-M6-50-*	45	M 6	50	10	13	24.5	4	34	3.5	44
GN 300.5-63-M6-16-*	63	M 6	16	13.5	17.5	31	6.5	45	4	81
GN 300.5-63-M6-20-*	63	M 6	20	13.5	17.5	31	6.5	45	4	82
GN 300.5-63-M6-25-*	63	M 6	25	13.5	17.5	31	6.5	45	4	83
GN 300.5-63-M6-32-*	63	M 6	32	13.5	17.5	31	6.5	45	4	84
GN 300.5-63-M6-40-*	63	M 6	40	13.5	17.5	31	6.5	45	4	86
GN 300.5-63-M6-50-*	63	M 6	50	13.5	17.5	31	6.5	45	4	88
GN 300.5-63-M6-63-*	63	M 6	63	13.5	17.5	31	6.5	45	4	90
GN 300.5-63-M8-16-*	63	M 8	16	13.5	17.5	31	6.5	45	4	85
GN 300.5-63-M8-20-*	63	M 8	20	13.5	17.5	31	6.5	45	4	86
GN 300.5-63-M8-25-*	63	M 8	25	13.5	17.5	31	6.5	45	4	88
GN 300.5-63-M8-32-*	63	M 8	32	13.5	17.5	31	6.5	45	4	90
GN 300.5-63-M8-40-*	63	M 8	40	13.5	17.5	31	6.5	45	4	92
GN 300.5-63-M8-50-*	63	M 8	50	13.5	17.5	31	6.5	45	4	95
GN 300.5-63-M8-63-*	63	M 8	63	13.5	17.5	31	6.5	45	4	100
GN 300.5-78-M8-20-*	78	M 8	20	16	21	36	8	54	4	138
GN 300.5-78-M8-25-*	78	M 8	25	16	21	36	8	54	4	139
GN 300.5-78-M8-32-*	78	M 8	32	16	21	36	8	54	4	140
GN 300.5-78-M8-40-*	78	M 8	40	16	21	36	8	54	4	141
GN 300.5-78-M8-50-*	78	M 8	50	16	21	36	8	54	4	144
GN 300.5-78-M8-63-*	78	M 8	63	16	21	36	8	54	4	149
GN 300.5-78-M8-80-*	78	M 8	80	16	21	36	8	54	4	158
GN 300.5-78-M10-20-*	78	M 10	20	16	21	36	8	54	4	140
GN 300.5-78-M10-25-*	78	M 10	25	16	21	36	8	54	4	141
GN 300.5-78-M10-32-*	78	M 10	32	16	21	36	8	54	4	143
GN 300.5-78-M10-40-*	78	M 10	40	16	21	36	8	54	4	150
GN 300.5-78-M10-50-*	78	M 10	50	16	21	36	8	54	4	155
GN 300.5-78-M10-63-*	78	M 10	63	16	21	36	8	54	4	162
GN 300.5-78-M10-80-*	78	M 10	80	16	21	36	8	54	4	167
GN 300.5-92-M10-20-*	92	M 10	20	19	24	43	11	64	4	203
GN 300.5-92-M10-25-*	92	M 10	25	19	24	43	11	64	4	206
GN 300.5-92-M10-32-*	92	M 10	32	19	24	43	11	64	4	210
GN 300.5-92-M10-40-*	92	M 10	40	19	24	43	11	64	4	214
GN 300.5-92-M10-50-*	92	M 10	50	19	24	43	11	64	4	220
GN 300.5-92-M10-63-*	92	M 10	63	19	24	43	11	64	4	226
GN 300.5-92-M10-80-*	92	M 10	80	19	24	43	11	64	4	230
GN 300.5-92-M12-20-*	92	M 12	20	19	24	43	11	64	4	210
GN 300.5-92-M12-25-*	92	M 12	25	19	24	43	11	64	4	216
GN 300.5-92-M12-32-*	92	M 12	32	19	24	43	11	64	4	221
GN 300.5-92-M12-40-*	92	M 12	40	19	24	43	11	64	4	223
GN 300.5-92-M12-50-*	92	M 12	50	19	24	43	11	64	4	234
GN 300.5-92-M12-63-*	92	M 12	63	19	24	43	11	64	4	243
GN 300.5-92-M12-80-*	92	M 12	80	19	24	43	11	64	4	251

Weight type AS



Clamping levers

Adjustable Stainless Steel- Hand levers

electropolished

SPECIFICATION

Types

- Type **AS**: with external hexagon
- Type **IS**: with internal hexalobular

Handle

Stainless Steel

Precision casting

- Stainless Steel AISI CF-8
- electropolished

Version with threaded insert

Threaded bush

Stainless Steel AISI 303

Retaining screw

Stainless Steel AISI 303

Spring

Stainless Steel AISI 301

Version with threaded stud

Threaded stud

Stainless Steel AISI 303

Retaining screw

Stainless Steel AISI 303

Spring

Stainless Steel AISI 301

INFORMATION

Adjustable hand levers GN 300.6 with full Stainless Steel-Handle, correspond to applications where „agressive“ surrounding conditions are given, or where stainless steel materials are prescribed such as in food processing or chemical industry.

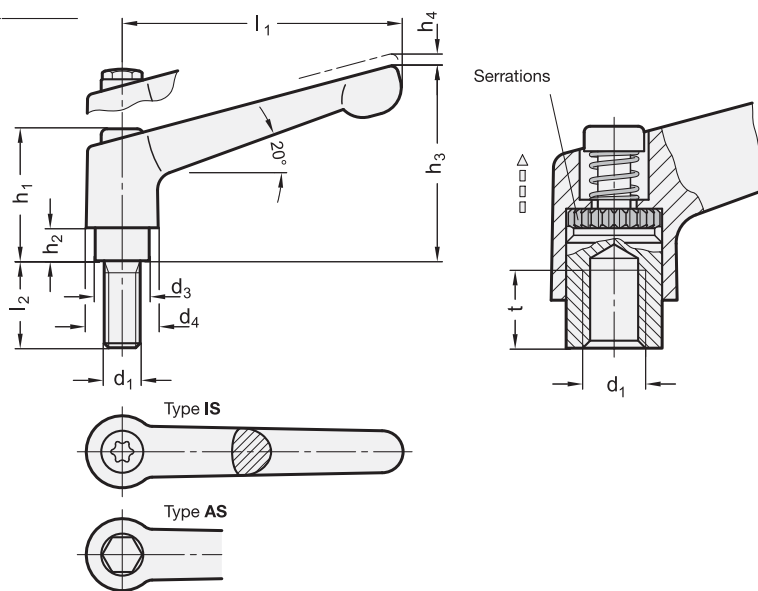
Retaining screws with hexagon head (Type AS) comply with the requirement "prevents water from accumulating".

Adjustable hand levers have proved to be ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.

Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with types of the Hand levers (AS or IS)

AS **IS**
 External hexagon Internal hexagon

GN 300.6-with threaded insert**STAINLESS STEEL**

Description	l1	d1	d3	d4	h1	h2	h3	h4	t min.	⚖
GN 300.6-30-M3-*	30	M 3	10	13	24.5	4	31	3.5	7	28
GN 300.6-30-M4-*	30	M 4	10	13	24.5	4	31	3.5	8	28
GN 300.6-30-M5-*	30	M 5	10	13	24.5	4	31	3.5	8	27
GN 300.6-30-M6-*	30	M 6	10	13	24.5	4	31	3.5	8	26
GN 300.6-45-M4-*	45	M 4	10	13	24.5	4	34	3.5	8	35
GN 300.6-45-M5-*	45	M 5	10	13	24.5	4	34	3.5	8	34
GN 300.6-45-M6-*	45	M 6	10	13	24.5	4	34	3.5	8	33
GN 300.6-63-M6-*	63	M 6	13.5	17.5	31	6.5	45	4	11	77
GN 300.6-63-M8-*	63	M 8	13.5	17.5	31	6.5	45	4	11	76
GN 300.6-78-M8-*	78	M 8	16	21	36	8	54	4	14	124
GN 300.6-78-M10-*	78	M 10	16	21	36	8	54	4	14	120
GN 300.6-92-M10-*	92	M 10	19	24	43	11	64	4	17	185
GN 300.6-92-M12-*	92	M 12	19	24	43	11	64	4	17	179

GN 300.6-with threaded stud**STAINLESS STEEL**

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300.6-30-M3-6-*	30	M 3	6	10	13	24.5	4	31	3.5	28
GN 300.6-30-M3-8-*	30	M 3	8	10	13	24.5	4	31	3.5	28
GN 300.6-30-M3-10-*	30	M 3	10	10	13	24.5	4	31	3.5	30
GN 300.6-30-M3-12-*	30	M 3	12	10	13	24.5	4	31	3.5	31
GN 300.6-30-M3-16-*	30	M 3	16	10	13	24.5	4	31	3.5	103
GN 300.6-30-M4-12-*	30	M 4	12	10	13	24.5	4	31	3.5	29
GN 300.6-30-M4-16-*	30	M 4	16	10	13	24.5	4	31	3.5	30
GN 300.6-30-M4-20-*	30	M 4	20	10	13	24.5	4	31	3.5	30
GN 300.6-30-M4-25-*	30	M 4	25	10	13	24.5	4	31	3.5	31
GN 300.6-30-M4-32-*	30	M 4	32	10	13	24.5	4	31	3.5	32
GN 300.6-30-M5-12-*	30	M 5	12	10	13	24.5	4	31	3.5	30
GN 300.6-30-M5-16-*	30	M 5	16	10	13	24.5	4	31	3.5	30
GN 300.6-30-M5-20-*	30	M 5	20	10	13	24.5	4	31	3.5	31
GN 300.6-30-M5-25-*	30	M 5	25	10	13	24.5	4	31	3.5	31
GN 300.6-30-M5-32-*	30	M 5	32	10	13	24.5	4	31	3.5	32
GN 300.6-30-M5-40-*	30	M 5	40	10	13	24.5	4	31	3.5	33
GN 300.6-30-M5-50-*	30	M 5	50	10	13	24.5	4	31	3.5	34
GN 300.6-30-M6-12-*	30	M 6	12	10	13	24.5	4	31	3.5	30
GN 300.6-30-M6-16-*	30	M 6	16	10	13	24.5	4	31	3.5	31
GN 300.6-30-M6-20-*	30	M 6	20	10	13	24.5	4	31	3.5	32
GN 300.6-30-M6-25-*	30	M 6	25	10	13	24.5	4	31	3.5	33
GN 300.6-30-M6-32-*	30	M 6	32	10	13	24.5	4	31	3.5	34
GN 300.6-30-M6-40-*	30	M 6	40	10	13	24.5	4	31	3.5	35
GN 300.6-30-M6-50-*	30	M 6	50	10	13	24.5	4	31	3.5	36
GN 300.6-45-M4-12-*	45	M 4	12	10	13	24.5	4	34	3.5	39
GN 300.6-45-M4-16-*	45	M 4	16	10	13	24.5	4	34	3.5	36
GN 300.6-45-M4-20-*	45	M 4	20	10	13	24.5	4	34	3.5	37
GN 300.6-45-M4-25-*	45	M 4	25	10	13	24.5	4	34	3.5	38
GN 300.6-45-M4-32-*	45	M 4	32	10	13	24.5	4	34	3.5	40
GN 300.6-45-M5-12-*	45	M 5	12	10	13	24.5	4	34	3.5	36
GN 300.6-45-M5-16-*	45	M 5	16	10	13	24.5	4	34	3.5	40
GN 300.6-45-M5-20-*	45	M 5	20	10	13	24.5	4	34	3.5	40
GN 300.6-45-M5-25-*	45	M 5	25	10	13	24.5	4	34	3.5	40

Weight type AS



* Complete with types of the Hand levers (AS or IS)

AS

IS

External hexagon

Internal hexagon

GN 300.6-with threaded stud

STAINLESS STEEL

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300.6-45-M5-32-*	45	M 5	32	10	13	24.5	4	34	3.5	39
GN 300.6-45-M5-40-*	45	M 5	40	10	13	24.5	4	34	3.5	40
GN 300.6-45-M5-50-*	45	M 5	50	10	13	24.5	4	34	3.5	44
GN 300.6-45-M6-12-*	45	M 6	12	10	13	24.5	4	34	3.5	37
GN 300.6-45-M6-16-*	45	M 6	16	10	13	24.5	4	34	3.5	38
GN 300.6-45-M6-20-*	45	M 6	20	10	13	24.5	4	34	3.5	39
GN 300.6-45-M6-25-*	45	M 6	25	10	13	24.5	4	34	3.5	40
GN 300.6-45-M6-32-*	45	M 6	32	10	13	24.5	4	34	3.5	41
GN 300.6-45-M6-40-*	45	M 6	40	10	13	24.5	4	34	3.5	42
GN 300.6-45-M6-50-*	45	M 6	50	10	13	24.5	4	34	3.5	44
GN 300.6-63-M6-16-*	63	M 6	16	13.5	17.5	31	6.5	45	4	81
GN 300.6-63-M6-20-*	63	M 6	20	13.5	17.5	31	6.5	45	4	82
GN 300.6-63-M6-25-*	63	M 6	25	13.5	17.5	31	6.5	45	4	83
GN 300.6-63-M6-32-*	63	M 6	32	13.5	17.5	31	6.5	45	4	84
GN 300.6-63-M6-40-*	63	M 6	40	13.5	17.5	31	6.5	45	4	80
GN 300.6-63-M6-50-*	63	M 6	50	13.5	17.5	31	6.5	45	4	88
GN 300.6-63-M6-63-*	63	M 6	63	13.5	17.5	31	6.5	45	4	90
GN 300.6-63-M8-16-*	63	M 8	16	13.5	17.5	31	6.5	45	4	85
GN 300.6-63-M8-20-*	63	M 8	20	13.5	17.5	31	6.5	45	4	86
GN 300.6-63-M8-25-*	63	M 8	25	13.5	17.5	31	6.5	45	4	88
GN 300.6-63-M8-32-*	63	M 8	32	13.5	17.5	31	6.5	45	4	90
GN 300.6-63-M8-40-*	63	M 8	40	13.5	17.5	31	6.5	45	4	92
GN 300.6-63-M8-50-*	63	M 8	50	13.5	17.5	31	6.5	45	4	95
GN 300.6-63-M8-63-*	63	M 8	63	13.5	17.5	31	6.5	45	4	100
GN 300.6-78-M8-20-*	78	M 8	20	16	21	36	8	54	4	138
GN 300.6-78-M8-25-*	78	M 8	25	16	21	36	8	54	4	139
GN 300.6-78-M8-32-*	78	M 8	32	16	21	36	8	54	4	140
GN 300.6-78-M8-40-*	78	M 8	40	16	21	36	8	54	4	141
GN 300.6-78-M8-50-*	78	M 8	50	16	21	36	8	54	4	144
GN 300.6-78-M8-63-*	78	M 8	63	16	21	36	8	54	4	149
GN 300.6-78-M8-80-*	78	M 8	80	16	21	36	8	54	4	158
GN 300.6-78-M10-20-*	78	M 10	20	16	21	36	8	54	4	140
GN 300.6-78-M10-25-*	78	M 10	25	16	21	36	8	54	4	141
GN 300.6-78-M10-32-*	78	M 10	32	16	21	36	8	54	4	143
GN 300.6-78-M10-40-*	78	M 10	40	16	21	36	8	54	4	150
GN 300.6-78-M10-50-*	78	M 10	50	16	21	36	8	54	4	155
GN 300.6-78-M10-63-*	78	M 10	63	16	21	36	8	54	4	162
GN 300.6-78-M10-80-*	78	M 10	80	16	21	36	8	54	4	167
GN 300.6-92-M10-20-*	92	M 10	20	19	24	43	11	64	4	203
GN 300.6-92-M10-25-*	92	M 10	25	19	24	43	11	64	4	206
GN 300.6-92-M10-32-*	92	M 10	32	19	24	43	11	64	4	210
GN 300.6-92-M10-40-*	92	M 10	40	19	24	43	11	64	4	214
GN 300.6-92-M10-50-*	92	M 10	50	19	24	43	11	64	4	220
GN 300.6-92-M10-63-*	92	M 10	63	19	24	43	11	64	4	226
GN 300.6-92-M10-80-*	92	M 10	80	19	24	43	11	64	4	230
GN 300.6-92-M12-20-*	92	M 12	20	19	24	43	11	64	4	210
GN 300.6-92-M12-25-*	92	M 12	25	19	24	43	11	64	4	216
GN 300.6-92-M12-32-*	92	M 12	32	19	24	43	11	64	4	221
GN 300.6-92-M12-40-*	92	M 12	40	19	24	43	11	64	4	223
GN 300.6-92-M12-50-*	92	M 12	50	19	24	43	11	64	4	234
GN 300.6-92-M12-63-*	92	M 12	63	19	24	43	11	64	4	243
GN 300.6-92-M12-80-*	92	M 12	80	19	24	43	11	64	4	251

Weight type AS

Zinc die casting / with increased clamping force

Adjustable hand levers

with push button / Zinc die casting, Bushing /
Threaded bolt Steel

SPECIFICATION

Handle

Zinc die casting

plastic coated

black, RAL 9005

textured finish **SW**

Releasing button

Plastic

black, RAL 9005 **S**

orange, RAL 2004 **O**

grey, RAL 7035 **G**

Pin for releasing button

Stainless Steel

Version with threaded insert

Steel, blackened

Version with threaded stud

Steel, blackened

ON REQUEST

Adjustable hand levers GN 303 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be dis-engaged.

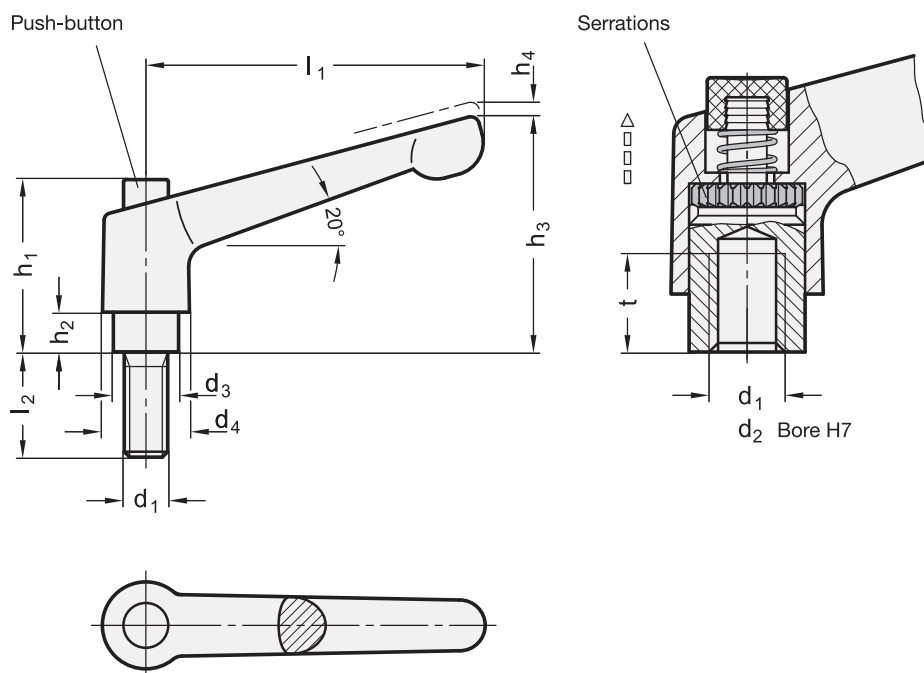
The releasing button is a design element that offers an easy disengagement. Its use is limited to applications where dismantling of the lever for installation is not required.

ON REQUEST

- Handle in colours of GN 300 (see page 320)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



* Complete with colour index of the Push button (S, O or G)

 S
RAL9005

 O
RAL2004

 G
RAL 7035

GN 303-with threaded insert

Description	l1	d1	d2 H7	d3	d4	h1	h2	h3	h4	t min.	⚖
GN 303-30-B5-SW-*	30	-	B 5	10	13	26.5	4	31	3.5	9	26
GN 303-30-B6-SW-*	30	-	B 6	10	13	26.5	4	31	3.5	9	26
GN 303-30-M3-SW-*	30	M 3	-	10	13	26.5	4	31	3.5	7	26
GN 303-30-M4-SW-*	30	M 4	-	10	13	26.5	4	31	3.5	9	26
GN 303-30-M5-SW-*	30	M 5	-	10	13	26.5	4	31	3.5	9	26
GN 303-30-M6-SW-*	30	M 6	-	10	13	26.5	4	31	3.5	9	25
GN 303-45-B5-SW-*	45	-	B 5	10	13	26.5	4	35	3.5	9	32
GN 303-45-B6-SW-*	45	-	B 6	10	13	26.5	4	35	3.5	9	32
GN 303-45-M4-SW-*	45	M 4	-	10	13	26.5	4	35	3.5	9	32
GN 303-45-M5-SW-*	45	M 5	-	10	13	26.5	4	35	3.5	9	32
GN 303-45-M6-SW-*	45	M 6	-	10	13	26.5	4	35	3.5	9	32
GN 303-63-B8-SW-*	63	-	B 8	13.5	17.5	32.5	6.5	45	4	11	72
GN 303-63-M6-SW-*	63	M 6	-	13.5	17.5	32.5	6.5	45	4	11	75
GN 303-63-M8-SW-*	63	M 8	-	13.5	17.5	32.5	6.5	45	4	11	72
GN 303-78-B8-SW-*	78	-	B 8	16	21	37.5	8	55	4	14	119
GN 303-78-B10-SW-*	78	-	B 10	16	21	37.5	8	55	4	14	115
GN 303-78-M8-SW-*	78	M 8	-	16	21	37.5	8	55	4	14	120
GN 303-78-M10-SW-*	78	M 10	-	16	21	37.5	8	55	4	14	118

GN 303-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 303-30-M3-6-SW-*	30	M 3	6	10	13	26.5	4	31	3.5	27
GN 303-30-M3-8-SW-*	30	M 3	8	10	13	26.5	4	31	3.5	27
GN 303-30-M3-10-SW-*	30	M 3	10	10	13	26.5	4	31	3.5	27
GN 303-30-M3-12-SW-*	30	M 3	12	10	13	26.5	4	31	3.5	28
GN 303-30-M3-16-SW-*	30	M 3	16	10	13	26.5	4	31	3.5	28
GN 303-30-M4-12-SW-*	30	M 4	12	10	13	26.5	4	31	3.5	28
GN 303-30-M4-16-SW-*	30	M 4	16	10	13	26.5	4	31	3.5	28
GN 303-30-M4-20-SW-*	30	M 4	20	10	13	26.5	4	31	3.5	28
GN 303-30-M4-25-SW-*	30	M 4	25	10	13	26.5	4	31	3.5	29
GN 303-30-M4-32-SW-*	30	M 4	32	10	13	26.5	4	31	3.5	29
GN 303-30-M5-12-SW-*	30	M 5	12	10	13	26.5	4	31	3.5	29
GN 303-30-M5-16-SW-*	30	M 5	16	10	13	26.5	4	31	3.5	29
GN 303-30-M5-20-SW-*	30	M 5	20	10	13	26.5	4	31	3.5	29
GN 303-30-M5-25-SW-*	30	M 5	25	10	13	26.5	4	31	3.5	30
GN 303-30-M5-32-SW-*	30	M 5	32	10	13	26.5	4	31	3.5	31
GN 303-30-M5-40-SW-*	30	M 5	40	10	13	26.5	4	31	3.5	33
GN 303-30-M5-50-SW-*	30	M 5	50	10	13	26.5	4	31	3.5	33
GN 303-30-M6-12-SW-*	30	M 6	12	10	13	26.5	4	31	3.5	37
GN 303-30-M6-16-SW-*	30	M 6	16	10	13	26.5	4	31	3.5	38
GN 303-30-M6-20-SW-*	30	M 6	20	10	13	26.5	4	31	3.5	39
GN 303-30-M6-25-SW-*	30	M 6	25	10	13	26.5	4	31	3.5	40
GN 303-30-M6-32-SW-*	30	M 6	32	10	13	26.5	4	31	3.5	41
GN 303-30-M6-40-SW-*	30	M 6	40	10	13	26.5	4	31	3.5	42
GN 303-30-M6-50-SW-*	30	M 6	50	10	13	26.5	4	31	3.5	42
GN 303-45-M4-12-SW-*	45	M 4	12	10	13	26.5	4	35	3.5	35
GN 303-45-M4-16-SW-*	45	M 4	16	10	13	26.5	4	35	3.5	35
GN 303-45-M4-20-SW-*	45	M 4	20	10	13	26.5	4	35	3.5	35
GN 303-45-M4-25-SW-*	45	M 4	25	10	13	26.5	4	35	3.5	36
GN 303-45-M4-32-SW-*	45	M 4	32	10	13	26.5	4	35	3.5	36
GN 303-45-M5-12-SW-*	45	M 5	12	10	13	26.5	4	35	3.5	35
GN 303-45-M5-16-SW-*	45	M 5	16	10	13	26.5	4	35	3.5	36
GN 303-45-M5-20-SW-*	45	M 5	20	10	13	26.5	4	35	3.5	36
GN 303-45-M5-25-SW-*	45	M 5	25	10	13	26.5	4	35	3.5	37



* Complete with colour index of the Push button (S, O or G)

S
RAL9005O
RAL2004G
RAL 7035

GN 303-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 303-45-M5-32-SW-*	45	M 5	32	10	13	26.5	4	35	3.5	38
GN 303-45-M5-40-SW-*	45	M 5	40	10	13	26.5	4	35	3.5	39
GN 303-45-M5-50-SW-*	45	M 5	50	10	13	26.5	4	35	3.5	40
GN 303-45-M6-12-SW-*	45	M 6	12	10	13	26.5	4	35	3.5	36
GN 303-45-M6-16-SW-*	45	M 6	16	10	13	26.5	4	35	3.5	37
GN 303-45-M6-20-SW-*	45	M 6	20	10	13	26.5	4	35	3.5	37
GN 303-45-M6-25-SW-*	45	M 6	25	10	13	26.5	4	35	3.5	38
GN 303-45-M6-32-SW-*	45	M 6	32	10	13	26.5	4	35	3.5	40
GN 303-45-M6-40-SW-*	45	M 6	40	10	13	26.5	4	35	3.5	41
GN 303-45-M6-50-SW-*	45	M 6	50	10	13	26.5	4	35	3.5	42
GN 303-63-M6-12-SW-*	63	M 6	12	13.5	17.5	32.5	6.5	45	4	80
GN 303-63-M6-16-SW-*	63	M 6	16	13.5	17.5	32.5	6.5	45	4	80
GN 303-63-M6-20-SW-*	63	M 6	20	13.5	17.5	32.5	6.5	45	4	80
GN 303-63-M6-25-SW-*	63	M 6	25	13.5	17.5	32.5	6.5	45	4	82
GN 303-63-M6-32-SW-*	63	M 6	32	13.5	17.5	32.5	6.5	45	4	82
GN 303-63-M6-40-SW-*	63	M 6	40	13.5	17.5	32.5	6.5	45	4	84
GN 303-63-M6-50-SW-*	63	M 6	50	13.5	17.5	32.5	6.5	45	4	85
GN 303-63-M6-63-SW-*	63	M 6	63	13.5	17.5	32.5	6.5	45	4	87
GN 303-63-M8-12-SW-*	63	M 8	12	13.5	17.5	32.5	6.5	45	4	81
GN 303-63-M8-16-SW-*	63	M 8	16	13.5	17.5	32.5	6.5	45	4	82
GN 303-63-M8-20-SW-*	63	M 8	20	13.5	17.5	32.5	6.5	45	4	75
GN 303-63-M8-25-SW-*	63	M 8	25	13.5	17.5	32.5	6.5	45	4	85
GN 303-63-M8-32-SW-*	63	M 8	32	13.5	17.5	32.5	6.5	45	4	87
GN 303-63-M8-40-SW-*	63	M 8	40	13.5	17.5	32.5	6.5	45	4	89
GN 303-63-M8-50-SW-*	63	M 8	50	13.5	17.5	32.5	6.5	45	4	93
GN 303-63-M8-63-SW-*	63	M 8	63	13.5	17.5	32.5	6.5	45	4	96
GN 303-63-M10-20-SW-*	63	M 10	20	13.5	17.5	32.5	6.5	45	4	87
GN 303-63-M10-25-SW-*	63	M 10	25	13.5	17.5	32.5	6.5	45	4	89
GN 303-63-M10-32-SW-*	63	M 10	32	13.5	17.5	32.5	6.5	45	4	92
GN 303-63-M10-40-SW-*	63	M 10	40	13.5	17.5	32.5	6.5	45	4	97
GN 303-63-M10-50-SW-*	63	M 10	50	13.5	17.5	32.5	6.5	45	4	102
GN 303-63-M10-63-SW-*	63	M 10	63	13.5	17.5	32.5	6.5	45	4	108
GN 303-63-M10-80-SW-*	63	M 10	80	13.5	17.5	32.5	6.5	45	4	117
GN 303-78-M8-16-SW-*	78	M 8	16	16	21	37.5	8	55	4	122
GN 303-78-M8-20-SW-*	78	M 8	20	16	21	37.5	8	55	4	122
GN 303-78-M8-25-SW-*	78	M 8	25	16	21	37.5	8	55	4	124
GN 303-78-M8-32-SW-*	78	M 8	32	16	21	37.5	8	55	4	127
GN 303-78-M8-40-SW-*	78	M 8	40	16	21	37.5	8	55	4	131
GN 303-78-M8-50-SW-*	78	M 8	50	16	21	37.5	8	55	4	134
GN 303-78-M8-63-SW-*	78	M 8	63	16	21	37.5	8	55	4	140
GN 303-78-M8-80-SW-*	78	M 8	80	16	21	37.5	8	55	4	143
GN 303-78-M10-16-SW-*	78	M 10	16	16	21	37.5	8	55	4	133
GN 303-78-M10-20-SW-*	78	M 10	20	16	21	37.5	8	55	4	135
GN 303-78-M10-25-SW-*	78	M 10	25	16	21	37.5	8	55	4	138
GN 303-78-M10-32-SW-*	78	M 10	32	16	21	37.5	8	55	4	141
GN 303-78-M10-40-SW-*	78	M 10	40	16	21	37.5	8	55	4	152
GN 303-78-M10-50-SW-*	78	M 10	50	16	21	37.5	8	55	4	152
GN 303-78-M10-63-SW-*	78	M 10	63	16	21	37.5	8	55	4	158
GN 303-78-M10-80-SW-*	78	M 10	80	16	21	37.5	8	55	4	166
GN 303-78-M12-25-SW-*	78	M 12	25	16	21	37.5	8	55	4	143
GN 303-78-M12-32-SW-*	78	M 12	32	16	21	37.5	8	55	4	148
GN 303-78-M12-40-SW-*	78	M 12	40	16	21	37.5	8	55	4	155
GN 303-78-M12-50-SW-*	78	M 12	50	16	21	37.5	8	55	4	169
GN 303-78-M12-63-SW-*	78	M 12	63	16	21	37.5	8	55	4	171
GN 303-78-M12-80-SW-*	78	M 12	80	16	21	37.5	8	55	4	174

Clamping levers

Adjustable hand levers

with push button/ Zinc die casting, Bushing /
Threaded bolt Stainless Steel

SPECIFICATION

Handle
Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**

Releasing button
Plastic
black, RAL 9005 **S**
orange, RAL 2004 **O**
grey, RAL 7035 **G**

Pin for releasing button
Stainless Steel

Version with threaded insert

Stainless Steel AISI 303

Version with threaded stud

Stainless Steel AISI 303

INFORMATION

Adjustable hand levers GN 303.1 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be dis-engaged.

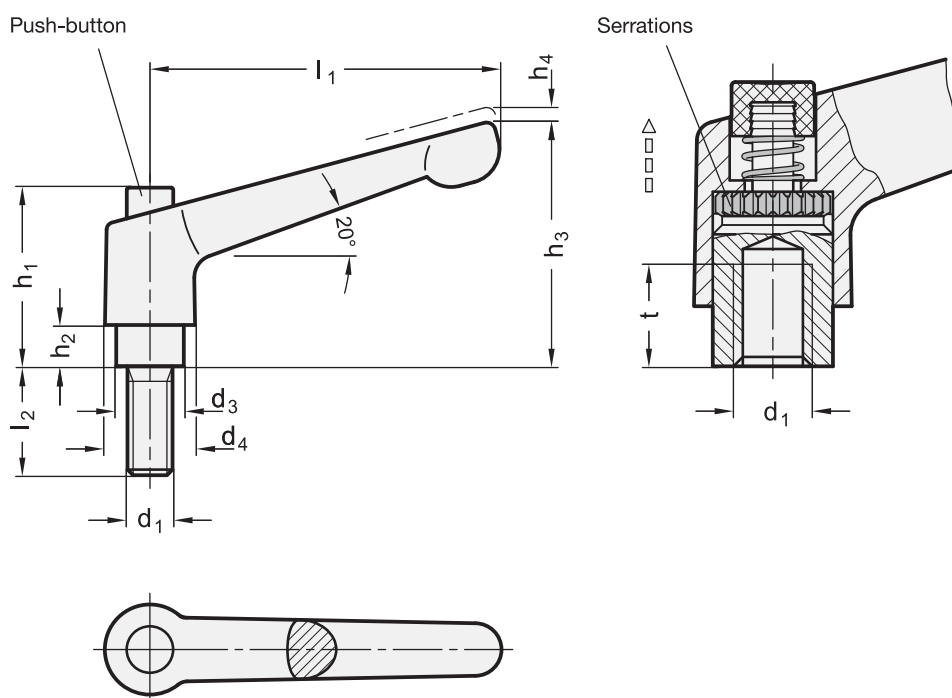
The releasing button is a design element that offers an easy disengagement. Its use is limited to applications where dismantling of the lever for installation is not required.

ON REQUEST

- Handle in colours of GN 300 (see page 320)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



3
Clamping levers

* Complete with colour index of the Push button (S, O or G)

S
RAL9005

O
RAL2004

G
RAL 7035

GN 303.1-with threaded insert

Description	l1	d1	d3	d4	h1	h2	h3	h4	t min.	⚖
GN 303.1-30-M3-SW-*	30	M 3	10	13	26.5	4	31	3.5	7	30
GN 303.1-30-M4-SW-*	30	M 4	10	13	26.5	4	31	3.5	8	26
GN 303.1-30-M5-SW-*	30	M 5	10	13	26.5	4	31	3.5	8	20
GN 303.1-30-M6-SW-*	30	M 6	10	13	26.5	4	31	3.5	8	20
GN 303.1-45-M4-SW-*	45	M 4	10	13	26.5	4	35	3.5	8	38
GN 303.1-45-M5-SW-*	45	M 5	10	13	26.5	4	35	3.5	8	36
GN 303.1-45-M6-SW-*	45	M 6	10	13	26.5	4	35	3.5	8	34
GN 303.1-63-M6-SW-*	63	M 6	13.5	17.5	32.5	6.5	45	4	11	80
GN 303.1-63-M8-SW-*	63	M 8	13.5	17.5	32.5	6.5	45	4	11	73
GN 303.1-78-M8-SW-*	78	M 8	16	21	37.5	8	55	4	14	120
GN 303.1-78-M10-SW-*	78	M 10	16	21	37.5	8	55	4	14	110

GN 303.1-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 303.1-30-M3-6-SW-*	30	M 3	6	10	13	26.5	4	31	3.5	106
GN 303.1-30-M3-8-SW-*	30	M 3	8	10	13	26.5	4	31	3.5	104
GN 303.1-30-M3-10-SW-*	30	M 3	10	10	13	26.5	4	31	3.5	102
GN 303.1-30-M3-12-SW-*	30	M 3	12	10	13	26.5	4	31	3.5	102
GN 303.1-30-M3-16-SW-*	30	M 3	16	10	13	26.5	4	31	3.5	102
GN 303.1-30-M4-12-SW-*	30	M 4	12	10	13	26.5	4	31	3.5	30
GN 303.1-30-M4-16-SW-*	30	M 4	16	10	13	26.5	4	31	3.5	28
GN 303.1-30-M4-20-SW-*	30	M 4	20	10	13	26.5	4	31	3.5	28
GN 303.1-30-M4-25-SW-*	30	M 4	25	10	13	26.5	4	31	3.5	28
GN 303.1-30-M4-32-SW-*	30	M 4	32	10	13	26.5	4	31	3.5	28
GN 303.1-30-M5-12-SW-*	30	M 5	12	10	13	26.5	4	31	3.5	30
GN 303.1-30-M5-16-SW-*	30	M 5	16	10	13	26.5	4	31	3.5	32
GN 303.1-30-M5-20-SW-*	30	M 5	20	10	13	26.5	4	31	3.5	32
GN 303.1-30-M5-25-SW-*	30	M 5	25	10	13	26.5	4	31	3.5	33
GN 303.1-30-M5-32-SW-*	30	M 5	32	10	13	26.5	4	31	3.5	33
GN 303.1-30-M5-40-SW-*	30	M 5	40	10	13	26.5	4	31	3.5	35
GN 303.1-30-M5-50-SW-*	30	M 5	50	10	13	26.5	4	31	3.5	35
GN 303.1-30-M6-12-SW-*	30	M 6	12	10	13	26.5	4	31	3.5	20
GN 303.1-30-M6-16-SW-*	30	M 6	16	10	13	26.5	4	31	3.5	30
GN 303.1-30-M6-20-SW-*	30	M 6	20	10	13	26.5	4	31	3.5	30
GN 303.1-30-M6-25-SW-*	30	M 6	25	10	13	26.5	4	31	3.5	34
GN 303.1-30-M6-32-SW-*	30	M 6	32	10	13	26.5	4	31	3.5	34
GN 303.1-30-M6-40-SW-*	30	M 6	40	10	13	26.5	4	31	3.5	37
GN 303.1-30-M6-50-SW-*	30	M 6	50	10	13	26.5	4	31	3.5	40
GN 303.1-45-M4-12-SW-*	45	M 4	12	10	13	26.5	4	35	3.5	39
GN 303.1-45-M4-16-SW-*	45	M 4	16	10	13	26.5	4	35	3.5	39
GN 303.1-45-M4-20-SW-*	45	M 4	20	10	13	26.5	4	35	3.5	39
GN 303.1-45-M4-25-SW-*	45	M 4	25	10	13	26.5	4	35	3.5	40
GN 303.1-45-M4-32-SW-*	45	M 4	32	10	13	26.5	4	35	3.5	40
GN 303.1-45-M5-12-SW-*	45	M 5	12	10	13	26.5	4	35	3.5	36
GN 303.1-45-M5-16-SW-*	45	M 5	16	10	13	26.5	4	35	3.5	40



* Complete with colour index of the Push button (S, O or G)

 S
RAL9005

 O
RAL2004

 G
RAL 7035

GN 303.1-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	
GN 303.1-45-M5-20-SW-*	45	M 5	20	10	13	26.5	4	35	3.5	40
GN 303.1-45-M5-25-SW-*	45	M 5	25	10	13	26.5	4	35	3.5	40
GN 303.1-45-M5-32-SW-*	45	M 5	32	10	13	26.5	4	35	3.5	40
GN 303.1-45-M5-40-SW-*	45	M 5	40	10	13	26.5	4	35	3.5	40
GN 303.1-45-M5-50-SW-*	45	M 5	50	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-12-SW-*	45	M 6	12	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-16-SW-*	45	M 6	16	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-20-SW-*	45	M 6	20	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-25-SW-*	45	M 6	25	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-32-SW-*	45	M 6	32	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-40-SW-*	45	M 6	40	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-50-SW-*	45	M 6	50	10	13	26.5	4	35	3.5	43
GN 303.1-63-M6-12-SW-*	63	M 6	12	13.5	17.5	32.5	6.5	45	4	83
GN 303.1-63-M6-16-SW-*	63	M 6	16	13.5	17.5	32.5	6.5	45	4	84
GN 303.1-63-M6-20-SW-*	63	M 6	20	13.5	17.5	32.5	6.5	45	4	84
GN 303.1-63-M6-25-SW-*	63	M 6	25	13.5	17.5	32.5	6.5	45	4	86
GN 303.1-63-M6-32-SW-*	63	M 6	32	13.5	17.5	32.5	6.5	45	4	87
GN 303.1-63-M6-40-SW-*	63	M 6	40	13.5	17.5	32.5	6.5	45	4	89
GN 303.1-63-M6-50-SW-*	63	M 6	50	13.5	17.5	32.5	6.5	45	4	90
GN 303.1-63-M6-63-SW-*	63	M 6	63	13.5	17.5	32.5	6.5	45	4	92
GN 303.1-63-M8-12-SW-*	63	M 8	12	13.5	17.5	32.5	6.5	45	4	80
GN 303.1-63-M8-16-SW-*	63	M 8	16	13.5	17.5	32.5	6.5	45	4	80
GN 303.1-63-M8-20-SW-*	63	M 8	20	13.5	17.5	32.5	6.5	45	4	80
GN 303.1-63-M8-25-SW-*	63	M 8	25	13.5	17.5	32.5	6.5	45	4	80
GN 303.1-63-M8-32-SW-*	63	M 8	32	13.5	17.5	32.5	6.5	45	4	80
GN 303.1-63-M8-40-SW-*	63	M 8	40	13.5	17.5	32.5	6.5	45	4	90
GN 303.1-63-M8-50-SW-*	63	M 8	50	13.5	17.5	32.5	6.5	45	4	100
GN 303.1-63-M8-63-SW-*	63	M 8	63	13.5	17.5	32.5	6.5	45	4	100
GN 303.1-63-M10-20-SW-*	63	M 10	20	13.5	17.5	32.5	6.5	45	4	90
GN 303.1-63-M10-25-SW-*	63	M 10	25	13.5	17.5	32.5	6.5	45	4	100
GN 303.1-63-M10-32-SW-*	63	M 10	32	13.5	17.5	32.5	6.5	45	4	100
GN 303.1-63-M10-40-SW-*	63	M 10	40	13.5	17.5	32.5	6.5	45	4	100
GN 303.1-63-M10-50-SW-*	63	M 10	50	13.5	17.5	32.5	6.5	45	4	110
GN 303.1-63-M10-63-SW-*	63	M 10	63	13.5	17.5	32.5	6.5	45	4	117
GN 303.1-78-M8-16-SW-*	78	M 8	16	16	21	37.5	8	55	4	140
GN 303.1-78-M8-20-SW-*	78	M 8	20	16	21	37.5	8	55	4	140
GN 303.1-78-M8-25-SW-*	78	M 8	25	16	21	37.5	8	55	4	140
GN 303.1-78-M8-32-SW-*	78	M 8	32	16	21	37.5	8	55	4	140
GN 303.1-78-M8-40-SW-*	78	M 8	40	16	21	37.5	8	55	4	140
GN 303.1-78-M8-50-SW-*	78	M 8	50	16	21	37.5	8	55	4	150
GN 303.1-78-M8-63-SW-*	78	M 8	63	16	21	37.5	8	55	4	150
GN 303.1-78-M8-80-SW-*	78	M 8	80	16	21	37.5	8	55	4	160
GN 303.1-78-M10-16-SW-*	78	M 10	16	16	21	37.5	8	55	4	128
GN 303.1-78-M10-20-SW-*	78	M 10	20	16	21	37.5	8	55	4	130
GN 303.1-78-M10-25-SW-*	78	M 10	25	16	21	37.5	8	55	4	132
GN 303.1-78-M10-32-SW-*	78	M 10	32	16	21	37.5	8	55	4	142
GN 303.1-78-M10-40-SW-*	78	M 10	40	16	21	37.5	8	55	4	140
GN 303.1-78-M10-50-SW-*	78	M 10	50	16	21	37.5	8	55	4	145
GN 303.1-78-M10-63-SW-*	78	M 10	63	16	21	37.5	8	55	4	152
GN 303.1-78-M10-80-SW-*	78	M 10	80	16	21	37.5	8	55	4	159



Adjustable hand levers

with special tipped threaded studs

SPECIFICATION

Types

- Type **MS**: Brass tipp
- Type **KU**: Plastic tipp
- Type **DZ**: Hardened oval tipp
- Type **ZK**: Spherical end
- Type **KD**: Spherical end with swivel thrust pad

Handle

Zinc die casting

Plastic coated

black, RAL 9005, textured finish **SW**
orange, RAL 2004, textured finish **OS**

red, RAL 3000, textured finish **RS**
silver, RAL 9006, textured finish **SR**

Threaded stud and retaining screw
Steel, blackened

Thrust point

- Type MS: Brass
- Type KU: Plastic (POM)
- Type DZ: Steel, hardened (Oval point)

Thrust pad

Plastic (Polyacetal POM)

- temperature resistant up to 80 °C
- black, matt

INFORMATION

Adjustable hand levers GN 306 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.

Pulling the lever disengages the serrations, allowing it to be swivelled to the ideal clamping position. When the lever is released, the serrations

The brass and plastic tipped studs (Types MS / KU) help to avoid damage to the work piece being clamped.

The hardened tipped stud (Type DZ) provides an oval point-shaped pressure point.

The swivel thrust pad (Type KD) can easily be snapped on and taken off.

Pad is supplied unmounted.

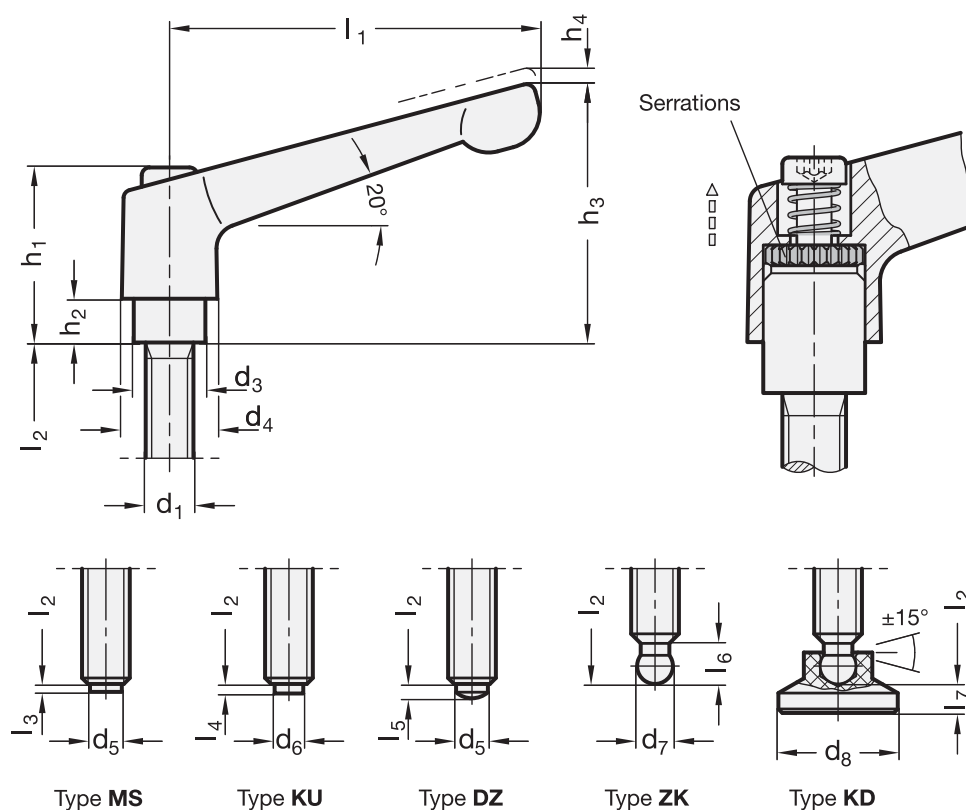
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

ON REQUEST

- with threaded stud in Stainless Steel
- Flat handle GN 302 (see page 360)





* Complete with colour index of the clamping lever body (SW, OS, RS or SR)

SW
RAL9005

OS
RAL2004

RS
RAL3000

SR
RAL9006

GN 306

Description	l1	d1	l2	d3	d4	d5	d6	d7	d8	h1	h2	h3	h4	l3	l4	l5	l6	l7	
GN 306-30-M6-16-DZ-*	30	M 6	16	10	13	4	-	-	-	24.5	4	31	3.5	-	-	1.8	-	-	28
GN 306-30-M6-20-DZ-*	30	M 6	20	10	13	4	-	-	-	24.5	4	31	3.5	-	-	1.8	-	-	29
GN 306-30-M6-25-DZ-*	30	M 6	25	10	13	4	-	-	-	24.5	4	31	3.5	-	-	1.8	-	-	30
GN 306-30-M6-32-DZ-*	30	M 6	32	10	13	4	-	-	-	24.5	4	31	3.5	-	-	1.8	-	-	31
GN 306-30-M6-40-DZ-*	30	M 6	40	10	13	4	-	-	-	24.5	4	31	3.5	-	-	1.8	-	-	33
GN 306-30-M6-50-DZ-*	30	M 6	50	10	13	4	-	-	-	24.5	4	31	3.5	-	-	1.8	-	-	34
GN 306-45-M6-16-DZ-*	45	M 6	16	10	13	4	-	-	-	24.5	4	35	3.5	-	-	1.8	-	-	56
GN 306-45-M6-20-DZ-*	45	M 6	20	10	13	4	-	-	-	24.5	4	35	3.5	-	-	1.8	-	-	57
GN 306-45-M6-25-DZ-*	45	M 6	25	10	13	4	-	-	-	24.5	4	35	3.5	-	-	1.8	-	-	58
GN 306-45-M6-32-DZ-*	45	M 6	32	10	13	4	-	-	-	24.5	4	35	3.5	-	-	1.8	-	-	59
GN 306-45-M6-40-DZ-*	45	M 6	40	10	13	4	-	-	-	24.5	4	35	3.5	-	-	1.8	-	-	61
GN 306-45-M6-50-DZ-*	45	M 6	50	10	13	4	-	-	-	24.5	4	35	3.5	-	-	1.8	-	-	62
GN 306-63-M8-20-DZ-*	63	M 8	20	13.5	17.5	6	-	-	-	31	6.5	45	4	-	-	2.5	-	-	50
GN 306-63-M8-25-DZ-*	63	M 8	25	13.5	17.5	6	-	-	-	31	6.5	45	4	-	-	2.5	-	-	64
GN 306-63-M8-32-DZ-*	63	M 8	32	13.5	17.5	6	-	-	-	31	6.5	45	4	-	-	2.5	-	-	83
GN 306-63-M8-40-DZ-*	63	M 8	40	13.5	17.5	6	-	-	-	31	6.5	45	4	-	-	2.5	-	-	85
GN 306-63-M8-50-DZ-*	63	M 8	50	13.5	17.5	6	-	-	-	31	6.5	45	4	-	-	2.5	-	-	89
GN 306-63-M8-63-DZ-*	63	M 8	63	13.5	17.5	6	-	-	-	31	6.5	45	4	-	-	2.5	-	-	92
GN 306-63-M10-20-DZ-*	63	M 10	20	13.5	17.5	8	-	-	-	31	6.5	45	4	-	-	3.5	-	-	86
GN 306-63-M10-25-DZ-*	63	M 10	25	13.5	17.5	8	-	-	-	31	6.5	45	4	-	-	3.5	-	-	93
GN 306-63-M10-32-DZ-*	63	M 10	32	13.5	17.5	8	-	-	-	31	6.5	45	4	-	-	3.5	-	-	95
GN 306-63-M10-40-DZ-*	63	M 10	40	13.5	17.5	8	-	-	-	31	6.5	45	4	-	-	3.5	-	-	98
GN 306-63-M10-50-DZ-*	63	M 10	50	13.5	17.5	8	-	-	-	31	6.5	45	4	-	-	3.5	-	-	100
GN 306-63-M10-63-DZ-*	63	M 10	63	13.5	17.5	8	-	-	-	31	6.5	45	4	-	-	3.5	-	-	104





* Complete with colour index of the clamping lever body (SW, OS, RS or SR)

SW
RAL9005

OS
RAL2004

RS
RAL3000

SR
RAL9006

GN 306

Description	l1	d1	l2	d3	d4	d5	d6	d7	d8	h1	h2	h3	h4	l3	l4	l5	l6	l7	
GN 306-30-M6-16-KD-*	30	M 6	16	10	13	-	-	-	15	24.5	4	31	3.5	-	-	-	-	3.6	25
GN 306-30-M6-20-KD-*	30	M 6	20	10	13	-	-	-	15	24.5	4	31	3.5	-	-	-	-	3.6	30
GN 306-30-M6-25-KD-*	30	M 6	25	10	13	-	-	-	15	24.5	4	31	3.5	-	-	-	-	3.6	31
GN 306-30-M6-32-KD-*	30	M 6	32	10	13	-	-	-	15	24.5	4	31	3.5	-	-	-	-	3.6	32
GN 306-30-M6-40-KD-*	30	M 6	40	10	13	-	-	-	15	24.5	4	31	3.5	-	-	-	-	3.6	33
GN 306-30-M6-50-KD-*	30	M 6	50	10	13	-	-	-	15	24.5	4	31	3.5	-	-	-	-	3.6	35
GN 306-45-M6-16-KD-*	45	M 6	16	10	13	-	-	-	15	24.5	4	35	3.5	-	-	-	-	3.6	57
GN 306-45-M6-20-KD-*	45	M 6	20	10	13	-	-	-	15	24.5	4	35	3.5	-	-	-	-	3.6	58
GN 306-45-M6-25-KD-*	45	M 6	25	10	13	-	-	-	15	24.5	4	35	3.5	-	-	-	-	3.6	59
GN 306-45-M6-32-KD-*	45	M 6	32	10	13	-	-	-	15	24.5	4	35	3.5	-	-	-	-	3.6	60
GN 306-45-M6-40-KD-*	45	M 6	40	10	13	-	-	-	15	24.5	4	35	3.5	-	-	-	-	3.6	61
GN 306-45-M6-50-KD-*	45	M 6	50	10	13	-	-	-	15	24.5	4	35	3.5	-	-	-	-	3.6	62
GN 306-63-M8-20-KD-*	63	M 8	20	13.5	17.5	-	-	-	18	31	6.5	45	4	-	-	-	-	4.2	85
GN 306-63-M8-25-KD-*	63	M 8	25	13.5	17.5	-	-	-	18	31	6.5	45	4	-	-	-	-	4.2	86
GN 306-63-M8-32-KD-*	63	M 8	32	13.5	17.5	-	-	-	18	31	6.5	45	4	-	-	-	-	4.2	89
GN 306-63-M8-40-KD-*	63	M 8	40	13.5	17.5	-	-	-	18	31	6.5	45	4	-	-	-	-	4.2	91
GN 306-63-M8-50-KD-*	63	M 8	50	13.5	17.5	-	-	-	18	31	6.5	45	4	-	-	-	-	4.2	93
GN 306-63-M8-63-KD-*	63	M 8	63	13.5	17.5	-	-	-	18	31	6.5	45	4	-	-	-	-	4.2	110
GN 306-63-M10-20-KD-*	63	M 10	20	13.5	17.5	-	-	-	21	31	6.5	45	4	-	-	-	-	4.3	84
GN 306-63-M10-25-KD-*	63	M 10	25	13.5	17.5	-	-	-	21	31	6.5	45	4	-	-	-	-	4.3	87
GN 306-63-M10-32-KD-*	63	M 10	32	13.5	17.5	-	-	-	21	31	6.5	45	4	-	-	-	-	4.3	90
GN 306-63-M10-40-KD-*	63	M 10	40	13.5	17.5	-	-	-	21	31	6.5	45	4	-	-	-	-	4.3	94
GN 306-63-M10-50-KD-*	63	M 10	50	13.5	17.5	-	-	-	21	31	6.5	45	4	-	-	-	-	4.3	100
GN 306-63-M10-63-KD-*	63	M 10	63	13.5	17.5	-	-	-	21	31	6.5	45	4	-	-	-	-	4.3	110
GN 306-30-M6-16-KU-*	30	M 6	16	10	13	-	3.5	-	-	24.5	4	31	3.5	-	1.3	-	-	-	27
GN 306-30-M6-20-KU-*	30	M 6	20	10	13	-	3.5	-	-	24.5	4	31	3.5	-	1.3	-	-	-	29
GN 306-30-M6-25-KU-*	30	M 6	25	10	13	-	3.5	-	-	24.5	4	31	3.5	-	1.3	-	-	-	30
GN 306-30-M6-32-KU-*	30	M 6	32	10	13	-	3.5	-	-	24.5	4	31	3.5	-	1.3	-	-	-	31
GN 306-30-M6-40-KU-*	30	M 6	40	10	13	-	3.5	-	-	24.5	4	31	3.5	-	1.3	-	-	-	32
GN 306-30-M6-50-KU-*	30	M 6	50	10	13	-	3.5	-	-	24.5	4	31	3.5	-	1.3	-	-	-	34
GN 306-45-M6-16-KU-*	45	M 6	16	10	13	-	3.5	-	-	24.5	4	35	3.5	-	1.3	-	-	-	40
GN 306-45-M6-20-KU-*	45	M 6	20	10	13	-	3.5	-	-	24.5	4	35	3.5	-	1.3	-	-	-	50
GN 306-45-M6-25-KU-*	45	M 6	25	10	13	-	3.5	-	-	24.5	4	35	3.5	-	1.3	-	-	-	58
GN 306-45-M6-32-KU-*	45	M 6	32	10	13	-	3.5	-	-	24.5	4	35	3.5	-	1.3	-	-	-	59
GN 306-45-M6-40-KU-*	45	M 6	40	10	13	-	3.5	-	-	24.5	4	35	3.5	-	1.3	-	-	-	60
GN 306-45-M6-50-KU-*	45	M 6	50	10	13	-	3.5	-	-	24.5	4	35	3.5	-	1.3	-	-	-	62
GN 306-63-M8-20-KU-*	63	M 8	20	13.5	17.5	-	5	-	-	31	6.5	45	4	-	1.6	-	-	-	78
GN 306-63-M8-25-KU-*	63	M 8	25	13.5	17.5	-	5	-	-	31	6.5	45	4	-	1.6	-	-	-	80
GN 306-63-M8-32-KU-*	63	M 8	32	13.5	17.5	-	5	-	-	31	6.5	45	4	-	1.6	-	-	-	87
GN 306-63-M8-40-KU-*	63	M 8	40	13.5	17.5	-	5	-	-	31	6.5	45	4	-	1.6	-	-	-	88
GN 306-63-M8-50-KU-*	63	M 8	50	13.5	17.5	-	5	-	-	31	6.5	45	4	-	1.6	-	-	-	89
GN 306-63-M8-63-KU-*	63	M 8	63	13.5	17.5	-	5	-	-	31	6.5	45	4	-	1.6	-	-	-	91
GN 306-63-M10-20-KU-*	63	M 10	20	13.5	17.5	-	6.5	-	-	31	6.5	45	4	-	1.9	-	-	-	80
GN 306-63-M10-25-KU-*	63	M 10	25	13.5	17.5	-	6.5	-	-	31	6.5	45	4	-	1.9	-	-	-	84
GN 306-63-M10-32-KU-*	63	M 10	32	13.5	17.5	-	6.5	-	-	31	6.5	45	4	-	1.9	-	-	-	86
GN 306-63-M10-40-KU-*	63	M 10	40	13.5	17.5	-	6.5	-	-	31	6.5	45	4	-	1.9	-	-	-	90
GN 306-63-M10-50-KU-*	63	M 10	50	13.5	17.5	-	6.5	-	-	31	6.5	45	4	-	1.9	-	-	-	96

Clamping levers

* Complete with colour index of the clamping lever body (SW, OS, RS or SR)

SW
RAL9005

OS
RAL2004

RS
RAL3000

SR
RAL9006

GN 306

Description	l1	d1	l2	d3	d4	d5	d6	d7	d8	h1	h2	h3	h4	l3	l4	l5	l6	l7	
GN 306-30-M6-16-MS-*	30	M 6	16	10	13	4	-	-	-	24.5	4	31	3.5	1	-	-	-	-	27
GN 306-30-M6-20-MS-*	30	M 6	20	10	13	4	-	-	-	24.5	4	31	3.5	1	-	-	-	-	29
GN 306-30-M6-25-MS-*	30	M 6	25	10	13	4	-	-	-	24.5	4	31	3.5	1	-	-	-	-	30
GN 306-30-M6-32-MS-*	30	M 6	32	10	13	4	-	-	-	24.5	4	31	3.5	1	-	-	-	-	31
GN 306-30-M6-40-MS-*	30	M 6	40	10	13	4	-	-	-	24.5	4	31	3.5	1	-	-	-	-	33
GN 306-30-M6-50-MS-*	30	M 6	50	10	13	4	-	-	-	24.5	4	31	3.5	1	-	-	-	-	34
GN 306-45-M6-16-MS-*	45	M 6	16	10	13	4	-	-	-	24.5	4	35	3.5	1	-	-	-	-	40
GN 306-45-M6-20-MS-*	45	M 6	20	10	13	4	-	-	-	24.5	4	35	3.5	1	-	-	-	-	50
GN 306-45-M6-25-MS-*	45	M 6	25	10	13	4	-	-	-	24.5	4	35	3.5	1	-	-	-	-	58
GN 306-45-M6-32-MS-*	45	M 6	32	10	13	4	-	-	-	24.5	4	35	3.5	1	-	-	-	-	59
GN 306-45-M6-40-MS-*	45	M 6	40	10	13	4	-	-	-	24.5	4	35	3.5	1	-	-	-	-	60
GN 306-45-M6-50-MS-*	45	M 6	50	10	13	4	-	-	-	24.5	4	35	3.5	1	-	-	-	-	62
GN 306-63-M8-20-MS-*	63	M 8	20	13.5	17.5	6	-	-	-	31	6.5	45	4	1.5	-	-	-	-	80
GN 306-63-M8-25-MS-*	63	M 8	25	13.5	17.5	6	-	-	-	31	6.5	45	4	1.5	-	-	-	-	87
GN 306-63-M8-32-MS-*	63	M 8	32	13.5	17.5	6	-	-	-	31	6.5	45	4	1.5	-	-	-	-	90
GN 306-63-M8-40-MS-*	63	M 8	40	13.5	17.5	6	-	-	-	31	6.5	45	4	1.5	-	-	-	-	91
GN 306-63-M8-50-MS-*	63	M 8	50	13.5	17.5	6	-	-	-	31	6.5	45	4	1.5	-	-	-	-	95
GN 306-63-M8-63-MS-*	63	M 8	63	13.5	17.5	6	-	-	-	31	6.5	45	4	1.5	-	-	-	-	100
GN 306-63-M10-20-MS-*	63	M 10	20	13.5	17.5	8	-	-	-	31	6.5	45	4	2	-	-	-	-	80
GN 306-63-M10-25-MS-*	63	M 10	25	13.5	17.5	8	-	-	-	31	6.5	45	4	2	-	-	-	-	85
GN 306-63-M10-32-MS-*	63	M 10	32	13.5	17.5	8	-	-	-	31	6.5	45	4	2	-	-	-	-	90
GN 306-63-M10-40-MS-*	63	M 10	40	13.5	17.5	8	-	-	-	31	6.5	45	4	2	-	-	-	-	95
GN 306-63-M10-50-MS-*	63	M 10	50	13.5	17.5	8	-	-	-	31	6.5	45	4	2	-	-	-	-	98
GN 306-63-M10-63-MS-*	63	M 10	63	13.5	17.5	8	-	-	-	31	6.5	45	4	2	-	-	-	-	104
GN 306-30-M6-16-ZK-*	30	M 6	16	10	13	-	-	4.5±0.03	-	24.5	4	31	3.5	-	-	-	5.1	-	24
GN 306-30-M6-20-ZK-*	30	M 6	20	10	13	-	-	4.5±0.03	-	24.5	4	31	3.5	-	-	-	5.1	-	29
GN 306-30-M6-25-ZK-*	30	M 6	25	10	13	-	-	4.5±0.03	-	24.5	4	31	3.5	-	-	-	5.1	-	30
GN 306-30-M6-32-ZK-*	30	M 6	32	10	13	-	-	4.5±0.03	-	24.5	4	31	3.5	-	-	-	5.1	-	31
GN 306-30-M6-40-ZK-*	30	M 6	40	10	13	-	-	4.5±0.03	-	24.5	4	31	3.5	-	-	-	5.1	-	32
GN 306-30-M6-50-ZK-*	30	M 6	50	10	13	-	-	4.5±0.03	-	24.5	4	31	3.5	-	-	-	5.1	-	34
GN 306-45-M6-16-ZK-*	45	M 6	16	10	13	-	-	4.5±0.03	-	24.5	4	35	3.5	-	-	-	5.1	-	55
GN 306-45-M6-20-ZK-*	45	M 6	20	10	13	-	-	4.5±0.03	-	24.5	4	35	3.5	-	-	-	5.1	-	56
GN 306-45-M6-25-ZK-*	45	M 6	25	10	13	-	-	4.5±0.03	-	24.5	4	35	3.5	-	-	-	5.1	-	58
GN 306-45-M6-32-ZK-*	45	M 6	32	10	13	-	-	4.5±0.03	-	24.5	4	35	3.5	-	-	-	5.1	-	59
GN 306-45-M6-40-ZK-*	45	M 6	40	10	13	-	-	4.5±0.03	-	24.5	4	35	3.5	-	-	-	5.1	-	60
GN 306-45-M6-50-ZK-*	45	M 6	50	10	13	-	-	4.5±0.03	-	24.5	4	35	3.5	-	-	-	5.1	-	62
GN 306-63-M8-20-ZK-*	63	M 8	20	13.5	17.5	-	-	6.1±0.05	-	31	6.5	45	4	-	-	-	6.2	-	78
GN 306-63-M8-25-ZK-*	63	M 8	25	13.5	17.5	-	-	6.1±0.05	-	31	6.5	45	4	-	-	-	6.2	-	80
GN 306-63-M8-32-ZK-*	63	M 8	32	13.5	17.5	-	-	6.1±0.05	-	31	6.5	45	4	-	-	-	6.2	-	82
GN 306-63-M8-40-ZK-*	63	M 8	40	13.5	17.5	-	-	6.1±0.05	-	31	6.5	45	4	-	-	-	6.2	-	84
GN 306-63-M8-50-ZK-*	63	M 8	50	13.5	17.5	-	-	6.1±0.05	-	31	6.5	45	4	-	-	-	6.2	-	85
GN 306-63-M8-63-ZK-*	63	M 8	63	13.5	17.5	-	-	6.1±0.05	-	31	6.5	45	4	-	-	-	6.2	-	87
GN 306-63-M10-20-ZK-*	63	M 10	20	13.5	17.5	-	-	7.8±0.05	-	31	6.5	45	4	-	-	-	7.3	-	81
GN 306-63-M10-25-ZK-*	63	M 10	25	13.5	17.5	-	-	7.8±0.05	-	31	6.5	45	4	-	-	-	7.3	-	84
GN 306-63-M10-32-ZK-*	63	M 10	32	13.5	17.5	-	-	7.8±0.05	-	31	6.5	45	4	-	-	-	7.3	-	86
GN 306-63-M10-40-ZK-*	63	M 10	40	13.5	17.5	-	-	7.8±0.05	-	31	6.5	45	4	-	-	-	7.3	-	91
GN 306-63-M10-50-ZK-*	63	M 10	50	13.5	17.5	-	-	7.8±0.05	-	31	6.5	45	4	-	-	-	7.3	-	96
GN 306-63-M10-63-ZK-*	63	M 10	63	13.5	17.5	-	-	7.8±0.05	-	31	6.5	45	4	-	-	-	7.3	-	100



Adjustable handles

Technopolymer

LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PUSH BUTTON

Technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

Glass-fibre reinforced technopolymer clamping element with retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.

- **MRX-B:** brass boss, threaded blind hole.
- **MRX-SST:** AISI 303 stainless steel boss, threaded blind hole.
- **MRX-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).
- **MRX-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS

Particularly suitable when the lever turning angle is limited owing to lack of space. Compared to other types of adjustable handles with metal retaining screw this solution offers:

- absolute electric insulation for the operator
- more comfortable lever release.

STRESS RESISTANCE

See ERX. (on page 304).

OTHER EXECUTIONS AVAILABLE

Lever body in orange (C2) with black push button (C1).
Example: code 141131-C2-C1 description MRX.40-C2-B-M5-C1.

SPECIAL EXECUTIONS ON REQUEST

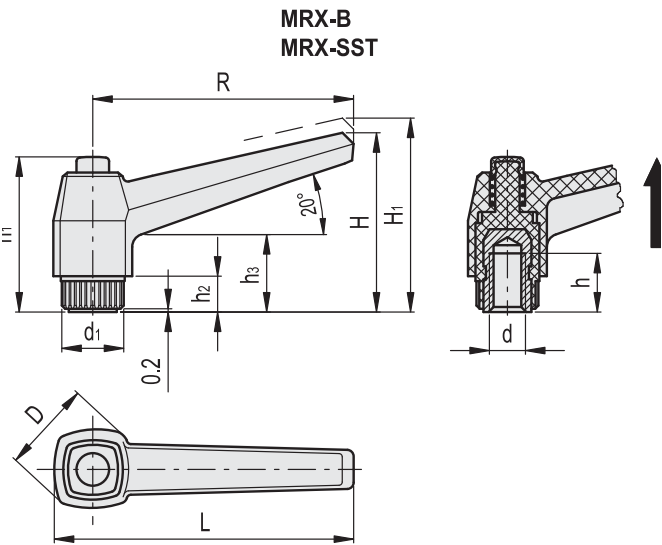
Lever body in RAL 7031 grey.

INSTRUCTIONS OF USE

For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.



ELESA Original design **if** Hammer



MRX-B

Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	Teeth no.	⚖
141131	MRX.40 B-M5	42	M5	50	18	32	35.5	10	29	6	14	12	18	10
141141	MRX.40 B-M6	42	M6	50	18	32	35.5	10	29	6	14	12	18	12
141411	MRX.63 B-M6	63	M6	73	23	43	46.5	16	37	8	17	15	20	21
141421	MRX.63 B-M8	63	M8	73	23	43	46.5	13	37	8	17	15	20	22
141422	MRX.63 B-M10	63	M10	73	23	43	46.5	13	37	8	17	15	20	20
142111	MRX.80 B-M8	80	M8	92	28	54	58.5	20	47	10	22	19	24	41
142121	MRX.80 B-M10	80	M10	92	28	54	58.5	18	47	10	22	19	24	42
142131	MRX.80 B-M12	80	M12	92	28	54	58.5	17	47	10	22	19	24	45
142501	MRX.100 B-M10	100	M10	114	33	65	69.5	20	54	12	25	25	28	70
142511	MRX.100 B-M12	100	M12	114	33	65	69.5	20	54	12	25	25	28	74
142521	MRX.100 B-M14	100	M14	114	33	65	69.5	20	54	12	25	25	28	84
142531	MRX.100 B-M16	100	M16	114	33	65	69.5	22	54	12	25	25	28	81

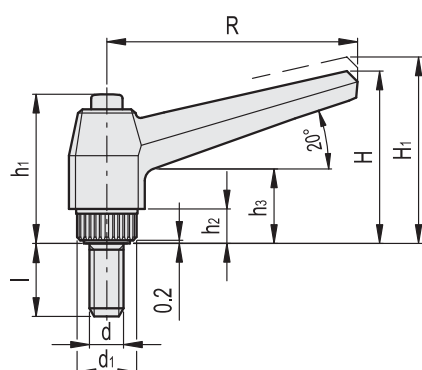
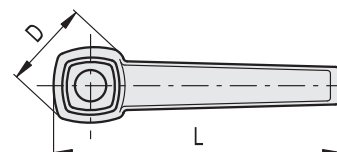
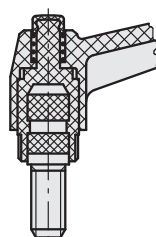
MRX-SST

STAINLESS STEEL

Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	Teeth no.	⚖
141185	MRX.40-SST-M5	42	M5	50	18	32	35.5	6	29	6	14	12	18	14
141191	MRX.40-SST-M6	42	M6	50	18	32	35.5	10	29	6	14	12	18	12
141423	MRX.63-SST-M6	63	M6	73	23	43	46.5	12	37	8	17	15	20	24
141425	MRX.63-SST-M8	63	M8	73	23	43	46.5	13	37	8	17	15	20	22
142155	MRX.80-SST-M8	80	M8	92	28	54	58.5	13	47	10	22	19	24	44
142161	MRX.80-SST-M10	80	M10	92	28	54	58.5	17	47	10	22	19	24	42
142561	MRX.100-SST-M12	100	M12	114	33	65	69.5	20	54	12	25	25	28	75



Clamping levers

MRX-p
MRX-SST-p

MRX-p

Code	Description	R	d _{6g}	L	D	H	H ₁	h ₁	h ₂	h ₃	d ₁	l	Teeth no.	△
141201	MRX.40 p-M5x10	42	M5	50	18	32	35.5	29	6	14	12	10	18	10
141211	MRX.40 p-M5x16	42	M5	50	18	32	35.5	29	6	14	12	16	18	11
141221	MRX.40 p-M5x20	42	M5	50	18	32	35.5	29	6	14	12	20	18	12
141301	MRX.40 p-M6x10	42	M6	50	18	32	35.5	29	6	14	12	10	18	12
141311	MRX.40 p-M6x16	42	M6	50	18	32	35.5	29	6	14	12	16	18	13
141321	MRX.40 p-M6x20	42	M6	50	18	32	35.5	29	6	14	12	20	18	14
141331	MRX.40 p-M6x25	42	M6	50	18	32	35.5	29	6	14	12	25	18	15
141335	MRX.40 p-M6x30	42	M6	50	18	32	35.5	29	6	14	12	30	18	16
141341	MRX.40 p-M6x40	42	M6	50	18	32	35.5	29	6	14	12	40	18	18
141361	MRX.40 p-M8x16	42	M8	50	18	32	35.5	29	6	14	12	16	18	15
141362	MRX.40 p-M8x20	42	M8	50	18	32	35.5	29	6	14	12	20	18	16
141363	MRX.40 p-M8x25	42	M8	50	18	32	35.5	29	6	14	12	25	18	18
141431	MRX.63 p-M6x10	63	M6	73	23	43	46.5	37	8	17	15	10	20	25
141441	MRX.63 p-M6x16	63	M6	73	23	43	46.5	37	8	17	15	16	20	26
141451	MRX.63 p-M6x20	63	M6	73	23	43	46.5	37	8	17	15	20	20	27
141461	MRX.63 p-M6x25	63	M6	73	23	43	46.5	37	8	17	15	25	20	28
141466	MRX.63 p-M6x30	63	M6	73	23	43	46.5	37	8	17	15	30	20	29
141470	MRX.63 p-M6x35	63	M6	73	23	43	46.5	37	8	17	15	35	20	30
141471	MRX.63 p-M6x40	63	M6	73	23	43	46.5	37	8	17	15	40	20	31
141501	MRX.63 p-M8x16	63	M8	73	23	43	46.5	37	8	17	15	16	20	28
141511	MRX.63 p-M8x20	63	M8	73	23	43	46.5	37	8	17	15	20	20	29
141521	MRX.63 p-M8x25	63	M8	73	23	43	46.5	37	8	17	15	25	20	31
141531	MRX.63 p-M8x30	63	M8	73	23	43	46.5	37	8	17	15	30	20	32
141535	MRX.63 p-M8x35	63	M8	73	23	43	46.5	37	8	17	15	35	20	35
141541	MRX.63 p-M8x40	63	M8	73	23	43	46.5	37	8	17	15	40	20	36
141551	MRX.63 p-M8x45	63	M8	73	23	43	46.5	37	8	17	15	45	20	37
141561	MRX.63 p-M8x50	63	M8	73	23	43	46.5	37	8	17	15	50	20	38
141569	MRX.63 p-M8x60	63	M8	73	23	43	46.5	37	8	17	15	60	20	40
141581	MRX.63 p-M10x20	63	M10	73	23	43	46.5	37	8	17	15	20	20	33
141583	MRX.63 p-M10x30	63	M10	73	23	43	46.5	37	8	17	15	30	20	36
141585	MRX.63 p-M10x40	63	M10	73	23	43	46.5	37	8	17	15	40	20	40
141587	MRX.63 p-M10x50	63	M10	73	23	43	46.5	37	8	17	15	50	20	42
141589	MRX.63 p-M10x60	63	M10	73	23	43	46.5	37	8	17	15	60	20	46
142181	MRX.80 p-M8x20	80	M8	92	28	54	58.5	47	10	22	19	20	24	52
142183	MRX.80 p-M8x25	80	M8	92	28	54	58.5	47	10	22	19	25	24	54
142185	MRX.80 p-M8x30	80	M8	92	28	54	58.5	47	10	22	19	30	24	56
142187	MRX.80 p-M8x40	80	M8	92	28	54	58.5	47	10	22	19	40	24	60
142189	MRX.80 p-M8x45	80	M8	92	28	54	58.5	47	10	22	19	45	24	62
142191	MRX.80 p-M8x50	80	M8	92	28	54	58.5	47	10	22	19	50	24	64
142193	MRX.80 p-M8x55	80	M8	92	28	54	58.5	47	10	22	19	55	24	66
142195	MRX.80 p-M8x60	80	M8	92	28	54	58.5	47	10	22	19	60	24	68
142197	MRX.80 p-M8x70	80	M8	92	28	54	58.5	47	10	22	19	70	24	70
142201	MRX.80 p-M10x20	80	M10	92	28	54	58.5	47	10	22	19	20	24	54
142211	MRX.80 p-M10x25	80	M10	92	28	54	58.5	47	10	22	19	25	24	57
142221	MRX.80 p-M10x30	80	M10	92	28	54	58.5	47	10	22	19	30	24	60
142225	MRX.80 p-M10x35	80	M10	92	28	54	58.5	47	10	22	19	35	24	62
142231	MRX.80 p-M10x40	80	M10	92	28	54	58.5	47	10	22	19	40	24	62
142241	MRX.80 p-M10x50	80	M10	92	28	54	58.5	47	10	22	19	50	24	68
142245	MRX.80 p-M10x60	80	M10	92	28	54	58.5	47	10	22	19	60	24	73
142251	MRX.80 p-M10x70	80	M10	92	28	54	58.5	47	10	22	19	70	24	79

MRX-p

Code	Description	R	d _{6g}	L	D	H	H ₁	h ₁	h ₂	h ₃	d ₁	l	Teeth no.	
142301	MRX.80 p-M12x20	80	M12	92	28	54	58.5	47	10	22	19	20	24	62
142311	MRX.80 p-M12x25	80	M12	92	28	54	58.5	47	10	22	19	25	24	67
142321	MRX.80 p-M12x30	80	M12	92	28	54	58.5	47	10	22	19	30	24	68
142325	MRX.80 p-M12x35	80	M12	92	28	54	58.5	47	10	22	19	35	24	82
142331	MRX.80 p-M12x40	80	M12	92	28	54	58.5	47	10	22	19	40	24	75
142335	MRX.80 p-M12x45	80	M12	92	28	54	58.5	47	10	22	19	45	24	80
142341	MRX.80 p-M12x50	80	M12	92	28	54	58.5	47	10	22	19	50	24	83
142351	MRX.80 p-M12x60	80	M12	92	28	54	58.5	47	10	22	19	60	24	92
142361	MRX.80 p-M12x70	80	M12	92	28	54	58.5	47	10	22	19	70	24	98
142365	MRX.80 p-M12x80	80	M12	92	28	54	58.5	47	10	22	19	80	24	105
142601	MRX.100 p-M12x30	100	M12	114	33	65	69.5	54	12	25	25	30	28	96
142651	MRX.100 p-M12x50	100	M12	114	33	65	69.5	54	12	25	25	50	28	112
142701	MRX.100 p-M12x70	100	M12	114	33	65	69.5	54	12	25	25	70	28	127
142801	MRX.100 p-M14x30	100	M14	114	33	65	69.5	54	12	25	25	30	28	112
142831	MRX.100 p-M14x50	100	M14	114	33	65	69.5	54	12	25	25	50	28	132
142851	MRX.100 p-M14x70	100	M14	114	33	65	69.5	54	12	25	25	70	28	152
142901	MRX.100 p-M16x30	100	M16	114	33	65	69.5	54	12	25	25	30	28	138
142951	MRX.100 p-M16x50	100	M16	114	33	65	69.5	54	12	25	25	50	28	163
142981	MRX.100 p-M16x70	100	M16	114	33	65	69.5	54	12	25	25	70	28	190

MRX-SST-p

STAINLESS STEEL

Code	Description	R	d _{6g}	L	D	H	H ₁	h ₁	h ₂	h ₃	d ₁	l	Teeth no.	
141371	MRX.40-SST-p-M6x16	42	M6	50	18	32	35.5	29	6	14	12	16	18	13
141372	MRX.40-SST-p-M6x20	42	M6	50	18	32	35.5	29	6	14	12	20	18	14
141373	MRX.40-SST-p-M6x25	42	M6	50	18	32	35.5	29	6	14	12	25	18	15
141374	MRX.40-SST-p-M6x30	42	M6	50	18	32	35.5	29	6	14	12	30	18	16
141700	MRX.63-SST-p-M8x16	63	M8	73	23	43	46.5	37	8	17	15	16	20	28
141701	MRX.63-SST-p-M8x20	63	M8	73	23	43	46.5	37	8	17	15	20	20	29
141702	MRX.63-SST-p-M8x25	63	M8	73	23	43	46.5	37	8	17	15	25	20	31
141711	MRX.63-SST-p-M8x30	63	M8	73	23	43	46.5	37	8	17	15	30	20	32
141713	MRX.63-SST-p-M8x40	63	M8	73	23	43	46.5	37	8	17	15	40	20	36
141715	MRX.63-SST-p-M8x50	63	M8	73	23	43	46.5	37	8	17	15	50	20	38
142367	MRX.80-SST-p-M8x20	80	M8	92	28	54	58.5	47	10	22	19	20	24	53
142369	MRX.80-SST-p-M8x25	80	M8	92	28	54	58.5	47	10	22	19	25	24	55
142371	MRX.80-SST-p-M8x30	80	M8	92	28	54	58.5	47	10	22	19	30	24	57
142373	MRX.80-SST-p-M8x40	80	M8	92	28	54	58.5	47	10	22	19	40	24	61
142375	MRX.80-SST-p-M8x45	80	M8	92	28	54	58.5	47	10	22	19	45	24	63
142377	MRX.80-SST-p-M8x50	80	M8	92	28	54	58.5	47	10	22	19	50	24	66
142380	MRX.80-SST-p-M8x70	80	M8	92	28	54	58.5	47	10	22	19	70	24	67
142381	MRX.80-SST-p-M10x20	80	M10	92	28	54	58.5	47	10	22	19	20	24	54
142385	MRX.80-SST-p-M10x30	80	M10	92	28	54	58.5	47	10	22	19	30	24	60
142387	MRX.80-SST-p-M10x40	80	M10	92	28	54	58.5	47	10	22	19	40	24	62
142391	MRX.80-SST-p-M12x30	80	M12	92	28	54	58.5	47	10	22	19	30	24	68
142393	MRX.80-SST-p-M12x40	80	M12	92	28	54	58.5	47	10	22	19	40	24	75
142395	MRX.80-SST-p-M12x50	80	M12	92	28	54	58.5	47	10	22	19	50	24	83
143001	MRX.100-SST-p-M12x30	100	M12	114	33	65	69.5	54	12	25	25	30	28	97
143003	MRX.100-SST-p-M12x40	100	M12	114	33	65	69.5	54	12	25	25	40	28	105
143005	MRX.100-SST-p-M12x50	100	M12	114	33	65	69.5	54	12	25	25	50	28	113
143009	MRX.100-SST-p-M12x70	100	M12	114	33	65	69.5	54	12	25	25	70	28	128



Adjustable handles

Technopolymer

LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, black, orange, grey colours, matte finish.

STANDARD EXECUTIONS

Glass-fibre reinforced technopolymer clamping element, black colour, with knurling on the protruding part to make initial tightening easier.

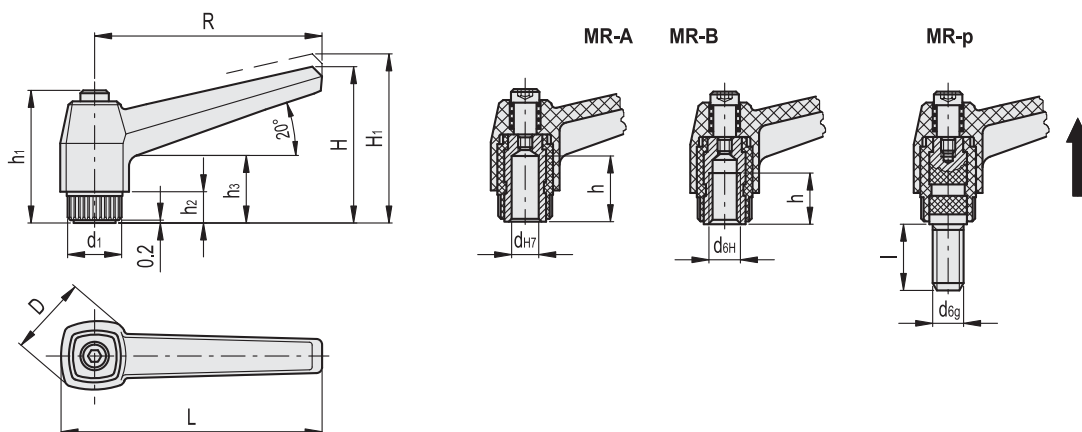
- **MR-A**: black-oxide steel boss, plain or threaded blind hole. Black-oxide steel retaining screw, AISI 302 stainless steel return spring.
- **MR-B**: brass boss, threaded blind hole. Brass retaining screw, AISI 302 stainless steel return spring.
- **MR-p**: black-oxide steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11). Black-oxide steel retaining screw, AISI 302 stainless steel return spring.

STRESS RESISTANCE

See ERX. (on page 304).



ELESA Original design



* Complete with colour index of the lever body, example: (C9, C2, C31)

C9 RAL9005 **C2** RAL2004 **C31** RAL7031

MR-A MR-B

Code C9	Code C2	Code C31	Description	R	dH7	d6H	L	D	H	H1	h	h1	h2	h3	d1	Teeth no.	
41101	41102	41104	MR.40 A-5-*	42	5	-	50	18	32	36.5	10	29	6	14	12	18	14
41121	41122	41124	MR.40 A-M4-*	42	-	M4	50	18	32	36.5	10	29	6	14	12	18	14
41131	41132	41134	MR.40 A-M5-*	42	-	M5	50	18	32	36.5	10	29	6	14	12	18	14
41141	41142	41144	MR.40 A-M6-*	42	-	M6	50	18	32	36.5	10	29	6	14	12	18	13
41171	41172	41174	MR.40 B-M6-*	42	-	M6	50	18	32	36.5	10	29	6	14	12	18	14
41401	41402	41404	MR.63 A-6-*	63	6	-	73	23	43	47	15	36	8	17	15	20	25
41411	41412	41414	MR.63 A-M6-*	63	-	M6	73	23	43	47	12	36	8	17	15	20	27
41421	41422	41424	MR.63 A-M8-*	63	-	M8	73	23	43	47	12	36	8	17	15	20	24
41426	41427	41429	MR.63 B-M8-*	63	-	M8	73	23	43	47	12	36	8	17	15	20	25
42001	42002	42004	MR.80 A-8-*	80	8	-	92	28	54	59.5	20	45	10	22	19	24	56
42111	42112	42114	MR.80 A-M8-*	80	-	M8	92	28	54	59.5	17	45	10	22	19	24	57
42121	42122	42124	MR.80 A-M10-*	80	-	M10	92	28	54	59.5	17	45	10	22	19	24	54
42131	42132	42134	MR.80 A-M12-*	80	-	M12	92	28	54	59.5	17	45	10	22	19	24	48
42151	42152	42154	MR.80 B-M10-*	80	-	M10	92	28	54	59.5	17	45	10	22	19	24	56
42401	42402	42404	MR.100 A-10-*	100	10	-	114	33	65	70.5	25	53	12	25	25	28	114
42501	42502	42504	MR.100 A-M10-*	100	-	M10	114	33	65	70.5	20	53	12	25	25	28	114
42511	42512	42514	MR.100 A-M12-*	100	-	M12	114	33	65	70.5	20	53	12	25	25	28	112
42521	42522	42524	MR.100 A-M14-*	100	-	M14	114	33	65	70.5	20	53	12	25	25	28	104
42531	42532	42534	MR.100 A-M16-*	100	-	M16	114	33	65	70.5	20	53	12	25	25	28	95

* Complete with colour index of the lever body, example: (C9, C2, C31)

 C9	 C2	 C31
RAL9005	RAL2004	RAL7031

MR-p

Code C9	Code C2	Code C31	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	I	Teeth no.	
41201	41202	41204	MR.40 p-M5x10-*	42	M5	50	18	32	36.5	29	6	14	12	10	18	15
41211	41212	41214	MR.40 p-M5x16-*	42	M5	50	18	32	36.5	29	6	14	12	16	18	16
41221	41222	41224	MR.40 p-M5x20-*	42	M5	50	18	32	36.5	29	6	14	12	20	18	17
41301	41302	41304	MR.40 p-M6x10-*	42	M6	50	18	32	36.5	29	6	14	12	10	18	16
41311	41312	41314	MR.40 p-M6x16-*	42	M6	50	18	32	36.5	29	6	14	12	16	18	17
41321	41322	41324	MR.40 p-M6x20-*	42	M6	50	18	32	36.5	29	6	14	12	20	18	18
41331	41332	41334	MR.40 p-M6x25-*	42	M6	50	18	32	36.5	29	6	14	12	25	18	19
41335	41336	41338	MR.40 p-M6x30-*	42	M6	50	18	32	36.5	29	6	14	12	30	18	20
41341	41342	41344	MR.40 p-M6x40-*	42	M6	50	18	32	36.5	29	6	14	12	40	18	21
41357	41358	41360	MR.40 p-M8x20-*	42	M8	50	18	32	36.5	29	6	14	12	20	18	20
41431	41432	41434	MR.63 p-M6x10-*	63	M6	73	23	43	47	36	8	17	15	10	20	31
41441	41442	41444	MR.63 p-M6x16-*	63	M6	73	23	43	47	36	8	17	15	16	20	32
41451	41452	41454	MR.63 p-M6x20-*	63	M6	73	23	43	47	36	8	17	15	20	20	33
41461	41462	41464	MR.63 p-M6x25-*	63	M6	73	23	43	47	36	8	17	15	25	20	34
41466	41467	41469	MR.63 p-M6x30-*	63	M6	73	23	43	47	36	8	17	15	30	20	35
41470	41475	41476	MR.63 p-M6x35-*	63	M6	73	23	43	47	36	8	17	15	35	20	35
41471	41472	41474	MR.63 p-M6x40-*	63	M6	73	23	43	47	36	8	17	15	40	20	36
41501	41502	41504	MR.63 p-M8x16-*	63	M8	73	23	43	47	36	8	17	15	16	20	34
41511	41512	41514	MR.63 p-M8x20-*	63	M8	73	23	43	47	36	8	17	15	20	20	35
41521	41522	41524	MR.63 p-M8x25-*	63	M8	73	23	43	47	36	8	17	15	25	20	37
41531	41532	41534	MR.63 p-M8x30-*	63	M8	73	23	43	47	36	8	17	15	30	20	39
41526	41527	41528	MR.63 p-M8x32-*	63	M8	73	23	43	47	36	8	17	15	32	20	40
41535	41536	41538	MR.63 p-M8x35-*	63	M8	73	23	43	47	36	8	17	15	35	20	41
41541	41542	41544	MR.63 p-M8x40-*	63	M8	73	23	43	47	36	8	17	15	40	20	43
41551	41552	41554	MR.63 p-M8x45-*	63	M8	73	23	43	47	36	8	17	15	45	20	45
41561	41562	41564	MR.63 p-M8x50-*	63	M8	73	23	43	47	36	8	17	15	50	20	47
41569	41570	41572	MR.63 p-M8x60-*	63	M8	73	23	43	47	36	8	17	15	60	20	51
41597	41598	41600	MR.63 p-M10x40-*	63	M10	73	23	43	47	36	8	17	15	40	20	52
42182	42183	42185	MR.80 p-M8x70-*	80	M8	92	28	54	59.5	45	10	22	19	70	24	85
42196	42197	42198	MR.80 p-M10x16-*	80	M10	92	28	54	59.5	45	10	22	19	16	24	70
42201	42202	42204	MR.80 p-M10x20-*	80	M10	92	28	54	59.5	45	10	22	19	20	24	72
42211	42212	42214	MR.80 p-M10x25-*	80	M10	92	28	54	59.5	45	10	22	19	25	24	74
42221	42222	42224	MR.80 p-M10x30-*	80	M10	92	28	54	59.5	45	10	22	19	30	24	77
42216	42217	42218	MR.80 p-M10x32-*	80	M10	92	28	54	59.5	45	10	22	19	32	24	78
42225	42226	42228	MR.80 p-M10x35-*	80	M10	92	28	54	59.5	45	10	22	19	35	24	80
42231	42232	42234	MR.80 p-M10x40-*	80	M10	92	28	54	59.5	45	10	22	19	40	24	82
42241	42242	42244	MR.80 p-M10x50-*	80	M10	92	28	54	59.5	45	10	22	19	50	24	87
42245	42246	42248	MR.80 p-M10x60-*	80	M10	92	28	54	59.5	45	10	22	19	60	24	92
42251	42252	42254	MR.80 p-M10x70-*	80	M10	92	28	54	59.5	45	10	22	19	70	24	97
42301	42302	42304	MR.80 p-M12x20-*	80	M12	92	28	54	59.5	45	10	22	19	20	24	76
42311	42312	42314	MR.80 p-M12x25-*	80	M12	92	28	54	59.5	45	10	22	19	25	24	80
42321	42322	42324	MR.80 p-M12x30-*	80	M12	92	28	54	59.5	45	10	22	19	30	24	84
42325	42326	42328	MR.80 p-M12x35-*	80	M12	92	28	54	59.5	45	10	22	19	35	24	88
42331	42332	42334	MR.80 p-M12x40-*	80	M12	92	28	54	59.5	45	10	22	19	40	24	92
42335	42336	42338	MR.80 p-M12x45-*	80	M12	92	28	54	59.5	45	10	22	19	45	24	92
42341	42342	42344	MR.80 p-M12x50-*	80	M12	92	28	54	59.5	45	10	22	19	50	24	100
42351	42352	42354	MR.80 p-M12x60-*	80	M12	92	28	54	59.5	45	10	22	19	60	24	108
42361	42362	42364	MR.80 p-M12x70-*	80	M12	92	28	54	59.5	45	10	22	19	70	24	116
42365	42366	42368	MR.80 p-M12x80-*	80	M12	92	28	54	59.5	45	10	22	19	80	24	118
42381	42382	42384	MR.80 p-M14x40-*	80	M14	92	28	54	59.5	45	10	22	19	40	24	153
42601	42602	42604	MR.100 p-M12x30-*	100	M12	114	33	65	70.5	53	12	25	25	30	28	138
42651	42652	42654	MR.100 p-M12x50-*	100	M12	114	33	65	70.5	53	12	25	25	50	28	150
42701	42702	42704	MR.100 p-M12x70-*	100	M12	114	33	65	70.5	53	12	25	25	70	28	162
42801	42802	42804	MR.100 p-M14x30-*	100	M14	114	33	65	70.5	53	12	25	25	30	28	142
42805	42806	42808	MR.100 p-M14x35-*	100	M14	114	33	65	70.5	53	12	25	25	35	28	147
42831	42832	42834	MR.100 p-M14x50-*	100	M14	114	33	65	70.5	53	12	25	25	50	28	162
42851	42852	42854	MR.100 p-M14x70-*	100	M14	114	33	65	70.5	53	12	25	25	70	28	182
42901	42902	42904	MR.100 p-M16x30-*	100	M16	114	33	65	70.5	53	12	25	25	30	28	149
42951	42952	42954	MR.100 p-M16x50-*	100	M16	114	33	65	70.5	53	12	25	25	50	28	177
42981	42982	42984	MR.100 p-M16x70-*	100	M16	114	33	65	70.5	53	12	25	25	70	28	205



Adjustable hand levers

Zinc die casting, Bushing / Threaded bolt Steel

SPECIFICATION

Handle

Zinc die casting

plastic coated

black, RAL 9005, textured finish **SW**

orange, RAL 2004, textured finish **OS**

Version with internal thread

Threaded bush and retaining screw

Steel (5.8), blackened

Version with threaded stud

Threaded stud and retaining screw

Steel (5.8), blackened

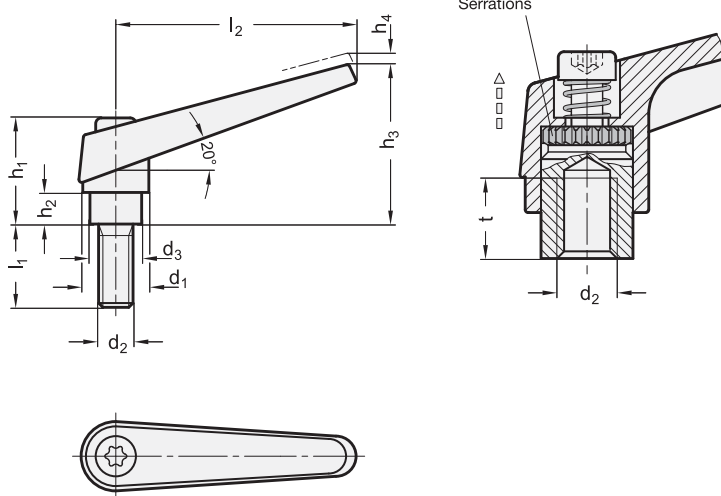
INFORMATION

Adjustable hand levers GN 101 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.

Pulling the lever disengages serrations and allowing to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

ON REQUEST

- with insert in Stainless Steel



* Complete with colour index of the clamping lever body (SW or OS)

SW RAL9005 **OS** RAL2004

GN 101-with internal thread

Description	d1	d2	d3	h1	h2	h3 ≈	h4	l2	t min.	⚖
GN 101-14-M5-*	14	M 5	10	25	4.5	35	3.5	45	9	34
GN 101-18-M6-*	18	M 6	13.5	31	6.5	45	4	62	11	72
GN 101-18-M8-*	18	M 8	13.5	31	6.5	45	4	62	11	69
GN 101-22-M8-*	22	M 8	16	36	8	52	4	74	14	118
GN 101-22-M10-*	22	M 10	16	36	8	52	4	74	14	115
GN 101-25-M10-*	25	M 10	19	43	11	63	4	89	17	176
GN 101-25-M12-*	25	M 12	19	43	11	63	4	89	17	171
GN 101-30-M12-*	30	M 12	23	50.5	12	76	5	108	22	308
GN 101-30-M16-*	30	M 16	23	50.5	12	76	5	108	22	290

* Complete with colour index of the clamping lever body (SW or OS)

 SW
RAL9005

 OS
RAL2004

GN 101-with threaded stud

Description	d1	d2	l1	d3	h1	h2	h3 ≈	h4	l2	
GN 101-14-M5-12-*	14	M 5	12	10	25	4.5	35	3.5	45	37
GN 101-14-M5-16-*	14	M 5	16	10	25	4.5	35	3.5	45	37
GN 101-14-M5-20-*	14	M 5	20	10	25	4.5	35	3.5	45	38
GN 101-14-M5-25-*	14	M 5	25	10	25	4.5	35	3.5	45	39
GN 101-14-M5-32-*	14	M 5	32	10	25	4.5	35	3.5	45	39
GN 101-14-M5-40-*	14	M 5	40	10	25	4.5	35	3.5	45	39
GN 101-14-M5-50-*	14	M 5	50	10	25	4.5	35	3.5	45	40
GN 101-14-M6-12-*	14	M 6	12	10	25	4.5	35	3.5	45	37
GN 101-14-M6-16-*	14	M 6	16	10	25	4.5	35	3.5	45	39
GN 101-14-M6-20-*	14	M 6	20	10	25	4.5	35	3.5	45	38
GN 101-14-M6-25-*	14	M 6	25	10	25	4.5	35	3.5	45	39
GN 101-14-M6-32-*	14	M 6	32	10	25	4.5	35	3.5	45	40
GN 101-14-M6-40-*	14	M 6	40	10	25	4.5	35	3.5	45	41
GN 101-14-M6-50-*	14	M 6	50	10	25	4.5	35	3.5	45	43
GN 101-18-M6-16-*	18	M 6	16	13.5	31	6.5	45	4	62	78
GN 101-18-M6-20-*	18	M 6	20	13.5	31	6.5	45	4	62	78
GN 101-18-M6-25-*	18	M 6	25	13.5	31	6.5	45	4	62	79
GN 101-18-M6-32-*	18	M 6	32	13.5	31	6.5	45	4	62	80
GN 101-18-M6-40-*	18	M 6	40	13.5	31	6.5	45	4	62	82
GN 101-18-M6-50-*	18	M 6	50	13.5	31	6.5	45	4	62	83
GN 101-18-M6-63-*	18	M 6	63	13.5	31	6.5	45	4	62	84
GN 101-18-M8-16-*	18	M 8	16	13.5	31	6.5	45	4	62	79
GN 101-18-M8-20-*	18	M 8	20	13.5	31	6.5	45	4	62	81
GN 101-18-M8-25-*	18	M 8	25	13.5	31	6.5	45	4	62	83
GN 101-18-M8-32-*	18	M 8	32	13.5	31	6.5	45	4	62	84
GN 101-18-M8-40-*	18	M 8	40	13.5	31	6.5	45	4	62	88
GN 101-18-M8-50-*	18	M 8	50	13.5	31	6.5	45	4	62	90
GN 101-18-M8-63-*	18	M 8	63	13.5	31	6.5	45	4	62	93
GN 101-22-M10-20-*	22	M 10	20	16	36	8	52	4	74	134
GN 101-22-M10-25-*	22	M 10	25	16	36	8	52	4	74	136
GN 101-22-M10-32-*	22	M 10	32	16	36	8	52	4	74	140
GN 101-22-M10-40-*	22	M 10	40	16	36	8	52	4	74	143
GN 101-22-M10-50-*	22	M 10	50	16	36	8	52	4	74	149
GN 101-22-M10-63-*	22	M 10	63	16	36	8	52	4	74	152
GN 101-22-M10-80-*	22	M 10	80	16	36	8	52	4	74	160
GN 101-25-M12-25-*	25	M 12	25	19	43	11	63	4	89	204
GN 101-25-M12-32-*	25	M 12	32	19	43	11	63	4	89	209
GN 101-25-M12-40-*	25	M 12	40	19	43	11	63	4	89	215
GN 101-25-M12-50-*	25	M 12	50	19	43	11	63	4	89	223
GN 101-25-M12-63-*	25	M 12	63	19	43	11	63	4	89	230
GN 101-25-M12-80-*	25	M 12	80	19	43	11	63	4	89	240
GN 101-30-M16-32-*	30	M 16	32	23	50.5	12	76	5	108	365
GN 101-30-M16-40-*	30	M 16	40	23	50.5	12	76	5	108	380
GN 101-30-M16-50-*	30	M 16	50	23	50.5	12	76	5	108	390
GN 101-30-M16-63-*	30	M 16	63	23	50.5	12	76	5	108	403
GN 101-30-M16-80-*	30	M 16	80	23	50.5	12	76	5	108	424



Adjustable hand levers

Zinc die casting, Bushing / Threaded bolt
Stainless Steel

SPECIFICATION

Handle

Zinc die casting

plastic coated

black, RAL 9005, textured finish **SW**

orange, RAL 2004, textured finish **OS**

Version with internal thread

Threaded bush and retaining screw

Stainless Steel AISI 303

Version with threaded stud

Threaded stud and retaining screw

Stainless Steel AISI 303

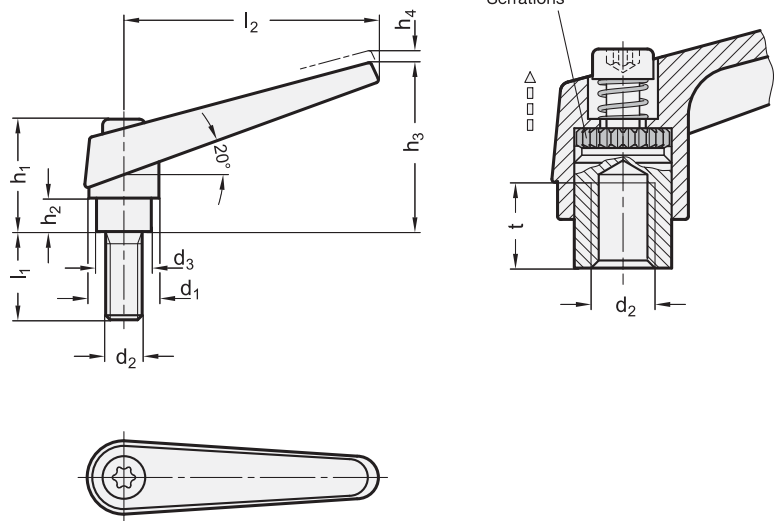
INFORMATION

Adjustable hand levers GN 101.1 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.

Pulling the lever disengages serrations and allowing to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the clamping lever body (SW or OS)

SW RAL9005

OS RAL2004

GN 101.1-with internal thread

STAINLESS STEEL

Description	d1	d2	d3	h1	h2	h3 ≈	h4	l2	t min.	⚖
GN 101.1-14-M5-*	14**	M 5	10	25	4.5	35	3.5	45	9	36
GN 101.1-14-M6-*	14**	M 6	10	25	4.5	35	3.5	45	9	36
GN 101.1-18-M6-*	18**	M 6	13.5	31	6.5	45	4	62	11	71
GN 101.1-18-M8-*	18**	M 8	13.5	31	6.5	45	4	62	11	60
GN 101.1-22-M8-*	22**	M 8	16	36	8	52	4	74	14	116
GN 101.1-22-M10-*	22**	M 10	16	36	8	52	4	74	14	116
GN 101.1-25-M10-*	25**	M 10	19	43	11	63	4	89	17	174
GN 101.1-25-M12-*	25**	M 12	19	43	11	63	4	89	17	168
GN 101.1-30-M12-*	30**	M 12	23	50.5	12	76	5	108	22	290
GN 101.1-30-M16-*	30**	M 16	23	50.5	12	76	5	108	22	273

** not available from stock, requires a minimum order quantity.

* Complete with colour index of the clamping lever body (SW or OS)

 **SW**  **OS**
RAL9005 RAL2004

GN 101.1-with threaded stud

STAINLESS STEEL

Description	d1	d2	l1	d3	h1	h2	h3 ≈	h4	l2	
GN 101.1-14-M5-12-*	14**	M 5	12	10	25	4.5	35	3.5	45	39
GN 101.1-14-M5-16-*	14**	M 5	16	10	25	4.5	35	3.5	45	39
GN 101.1-14-M5-20-*	14**	M 5	20	10	25	4.5	35	3.5	45	39
GN 101.1-14-M5-25-*	14**	M 5	25	10	25	4.5	35	3.5	45	40
GN 101.1-14-M5-32-*	14**	M 5	32	10	25	4.5	35	3.5	45	41
GN 101.1-14-M5-40-*	14**	M 5	40	10	25	4.5	35	3.5	45	42
GN 101.1-14-M5-50-*	14**	M 5	50	10	25	4.5	35	3.5	45	43
GN 101.1-14-M6-12-*	14**	M 6	12	10	25	4.5	35	3.5	45	39
GN 101.1-14-M6-16-*	14**	M 6	16	10	25	4.5	35	3.5	45	40
GN 101.1-14-M6-20-*	14**	M 6	20	10	25	4.5	35	3.5	45	40
GN 101.1-14-M6-25-*	14**	M 6	25	10	25	4.5	35	3.5	45	39
GN 101.1-14-M6-32-*	14**	M 6	32	10	25	4.5	35	3.5	45	43
GN 101.1-14-M6-40-*	14**	M 6	40	10	25	4.5	35	3.5	45	41
GN 101.1-14-M6-50-*	14**	M 6	50	10	25	4.5	35	3.5	45	46
GN 101.1-18-M6-16-*	18**	M 6	16	13.5	31	6.5	45	4	62	77
GN 101.1-18-M6-20-*	18**	M 6	20	13.5	31	6.5	45	4	62	78
GN 101.1-18-M6-25-*	18**	M 6	25	13.5	31	6.5	45	4	62	79
GN 101.1-18-M6-32-*	18**	M 6	32	13.5	31	6.5	45	4	62	79
GN 101.1-18-M6-40-*	18**	M 6	40	13.5	31	6.5	45	4	62	82
GN 101.1-18-M6-50-*	18**	M 6	50	13.5	31	6.5	45	4	62	83
GN 101.1-18-M6-63-*	18**	M 6	63	13.5	31	6.5	45	4	62	85
GN 101.1-18-M8-16-*	18**	M 8	16	13.5	31	6.5	45	4	62	80
GN 101.1-18-M8-20-*	18**	M 8	20	13.5	31	6.5	45	4	62	80
GN 101.1-18-M8-25-*	18**	M 8	25	13.5	31	6.5	45	4	62	83
GN 101.1-18-M8-32-*	18**	M 8	32	13.5	31	6.5	45	4	62	85
GN 101.1-18-M8-40-*	18**	M 8	40	13.5	31	6.5	45	4	62	86
GN 101.1-18-M8-50-*	18**	M 8	50	13.5	31	6.5	45	4	62	90
GN 101.1-18-M8-63-*	18**	M 8	63	13.5	31	6.5	45	4	62	95
GN 101.1-22-M10-20-*	22**	M 10	20	16	36	8	52	4	74	135
GN 101.1-22-M10-25-*	22**	M 10	25	16	36	8	52	4	74	137
GN 101.1-22-M10-32-*	22**	M 10	32	16	36	8	52	4	74	139
GN 101.1-22-M10-40-*	22**	M 10	40	16	36	8	52	4	74	144
GN 101.1-22-M10-50-*	22**	M 10	50	16	36	8	52	4	74	150
GN 101.1-22-M10-63-*	22**	M 10	63	16	36	8	52	4	74	157
GN 101.1-22-M10-80-*	22**	M 10	80	16	36	8	52	4	74	165
GN 101.1-25-M12-25-*	25**	M 12	25	19	43	11	63	4	89	202
GN 101.1-25-M12-32-*	25**	M 12	32	19	43	11	63	4	89	207
GN 101.1-25-M12-40-*	25**	M 12	40	19	43	11	63	4	89	212
GN 101.1-25-M12-50-*	25**	M 12	50	19	43	11	63	4	89	221
GN 101.1-25-M12-63-*	25**	M 12	63	19	43	11	63	4	89	229
GN 101.1-25-M12-80-*	25**	M 12	80	19	43	11	63	4	89	240
GN 101.1-30-M16-32-*	30**	M 16	32	23	50.5	12	76	5	108	349
GN 101.1-30-M16-40-*	30**	M 16	40	23	50.5	12	76	5	108	360
GN 101.1-30-M16-50-*	30**	M 16	50	23	50.5	12	76	5	108	372
GN 101.1-30-M16-63-*	30**	M 16	63	23	50.5	12	76	5	108	391
GN 101.1-30-M16-80-*	30**	M 16	80	23	50.5	12	76	5	108	413

** not available from stock, requires a minimum order quantity.



Adjustable handles

Technopolymer

LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

PUSH BUTTON

Technopolymer in grey-black or orange colours, glossy finish.

STANDARD EXECUTIONS

Glass-fibre reinforced technopolymer clamping element with retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.

- **MRT-B:** brass boss, threaded blind hole.
- **MRT-SST:** AISI 303 stainless steel boss, threaded blind hole.
- **MRT-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).
- **MRT-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS

Flat adjustable handle, open configuration to avoid any deposit of unhygienic residues or scraps and dirt.

Particularly suitable when the lever turning angle is limited owing to lack of space.

Compared to other types of adjustable handles with metal retaining screw this solution offers:

- absolute electric insulation for the operator
- no visible steel parts subject to rust
- more comfortable lever release.

STRESS RESISTANCE

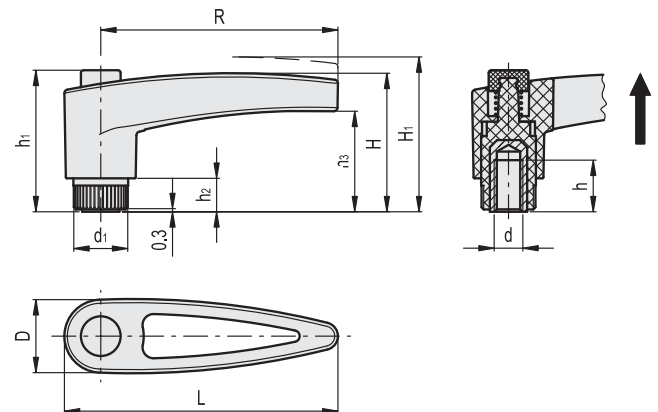
See ERX. (on page 304).

INSTRUCTIONS OF USE

For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.



MRT-B
MRT-SST



* Complete with colour index, example: 140111-C1 MRT.42-B-M5-C1

C1
RAL7021

C2
RAL2004

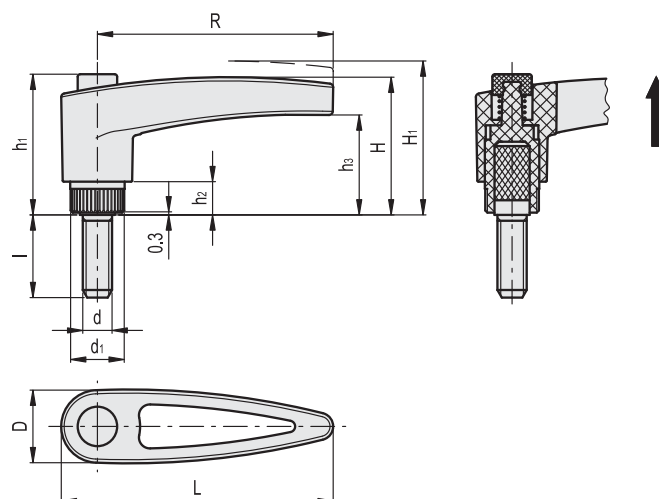
MRT-B

Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	Teeth no.	⚖
140111-*	MRT.42-B-M5-*	43	M5	51	16	28	31.5	10	29	6	21.5	12	18	10
140112-*	MRT.42-B-M6-*	43	M6	51	16	28	31.5	10	29	6	21.5	12	18	9
140121-*	MRT.65-B-M6-*	64.5	M6	74.5	20	37	41	12	38	9	27	15	20	21
140122-*	MRT.65-B-M8-*	64.5	M8	74.5	20	37	41	13	38	9	27	15	20	22
140131-*	MRT.80-B-M8-*	79.5	M8	92	25	45	49	20	47	11	34.5	18.5	24	41
140132-*	MRT.80-B-M10-*	79.5	M10	92	25	45	49	18	47	11	34.5	18.5	24	40
140133-*	MRT.80-B-M12-*	79.5	M12	92	25	45	49	17	47	11	34.5	18.5	24	39

MRT-SST

STAINLESS STEEL

Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	Teeth no.	⚖
140616-*	MRT.42-SST-M6-*	43	M6	51	16	28	31.5	10	29	6	21.5	12	18	9
140622-*	MRT.65-SST-M8-*	64.5	M8	74.5	20	37	41	13	38	9	27	15	20	22
140626-*	MRT.80-SST-M10-*	79.5	M10	92	25	45	49	17	47	11	34.5	18.5	24	40

MRT-p
MRT-SST-p

* Complete with colour index, example: 140291-C1 MRT.42-p-M4x10-C1

C1
RAL7021C2
RAL2004

MRT-p

Code	Description	R	d _{6g}	L	D	H	H1	h1	h2	h3	d1	l	Teeth no.	⚖
140291-*	MRT.42-p-M4x10-*	43	M4	51	16	28	31.5	29	6	21.5	12	10	18	9
140303-*	MRT.42-p-M5x20-*	43	M5	51	16	28	31.5	29	6	21.5	12	20	18	12
140311-*	MRT.42-p-M6x10-*	43	M6	51	16	28	31.5	29	6	21.5	12	10	18	12
140312-*	MRT.42-p-M6x16-*	43	M6	51	16	28	31.5	29	6	21.5	12	16	18	13
140313-*	MRT.42-p-M6x20-*	43	M6	51	16	28	31.5	29	6	21.5	12	20	18	14
140315-*	MRT.42-p-M6x30-*	43	M6	51	16	28	31.5	29	6	21.5	12	30	18	16
140351-*	MRT.65-p-M8x16-*	64.5	M8	74.5	20	37	41	38	9	27	15	16	20	31
140352-*	MRT.65-p-M8x20-*	64.5	M8	74.5	20	37	41	38	9	27	15	20	20	32
140353-*	MRT.65-p-M8x25-*	64.5	M8	74.5	20	37	41	38	9	27	15	25	20	33
140354-*	MRT.65-p-M8x30-*	64.5	M8	74.5	20	37	41	38	9	27	15	30	20	34
140356-*	MRT.65-p-M8x40-*	64.5	M8	74.5	20	37	41	38	9	27	15	40	20	37
140381-*	MRT.80-p-M10x20-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	20	24	54
140383-*	MRT.80-p-M10x30-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	30	24	57
140385-*	MRT.80-p-M10x40-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	40	24	60
140386-*	MRT.80-p-M10x50-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	50	24	63
140403-*	MRT.80-p-M12x30-*	79.5	M12	92	25	45	49	47	11	34.5	18.5	30	24	58
140407-*	MRT.80-p-M12x50-*	79.5	M12	92	25	45	49	47	11	34.5	18.5	50	24	65

MRT-SST-p

STAINLESS STEEL

Code	Description	R	d _{6g}	L	D	H	H1	h1	h2	h3	d1	l	Teeth no.	⚖
140671-*	MRT.42-SST-p-M6x16-*	43	M6	51	16	28	31.5	29	6	21.5	12	16	18	13
140672-*	MRT.42-SST-p-M6x20-*	43	M6	51	16	28	31.5	29	6	21.5	12	20	18	14
140674-*	MRT.42-SST-p-M6x30-*	43	M6	51	16	28	31.5	29	6	21.5	12	30	18	16
140691-*	MRT.65-SST-p-M8x16-*	64.5	M8	74.5	20	37	41	38	9	27	15	16	20	31
140692-*	MRT.65-SST-p-M8x20-*	64.5	M8	74.5	20	37	41	38	9	27	15	20	20	32
140694-*	MRT.65-SST-p-M8x30-*	64.5	M8	74.5	20	37	41	38	9	27	15	30	20	34
140695-*	MRT.65-SST-p-M8x40-*	64.5	M8	74.5	20	37	41	38	9	27	15	40	20	37
140701-*	MRT.80-SST-p-M10x20-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	20	24	54
140702-*	MRT.80-SST-p-M10x30-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	30	24	57
140703-*	MRT.80-SST-p-M10x40-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	40	24	60



Adjustable handles

Flat lever, technopolymer

LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

PUSH BUTTON

Technopolymer in Ergostyle colours, glossy finish.

STANDARD EXECUTIONS

Glass-fibre reinforced technopolymer clamping element with retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.

- **ERW-B**: brass boss, threaded blind hole.
- **ERW-SST**: AISI 303 stainless steel boss, threaded blind hole.
- **ERW-p**: zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical data on page A11).
- **ERW-SST-p**: AISI 303 stainless steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical data on page A11).

FEATURES AND APPLICATIONS

Particularly suitable when the available space and operating mode make it preferable to use a flat lever instead of an inclined lever.

Compared to other types of adjustable handles with metal retaining screw this solution offers some advantages:

- absolute electric insulation for the operator
- no visible steel parts subject to rust
- more comfortable lever release.

STRESS RESISTANCE

Adjustable handles are generally used for repetitive clamping operations sometimes with very high-frequency.

Therefore, the stress resistance (i.e. the resistance to repeated tightening cycles) of the handle unit is particularly important and, especially, the strength of the toothed element which transmits the tightening force from the handle to the threaded element (boss or stud).

The results of several laboratory tests, performed with a special instrument that simulates the stress resistance conditions, have shown that e.g. ERW.78 adjustable handle can withstand without yielding more than 100,000 tightening cycles, under the action of a force of 490 N (see graphic).

The special glass-fibre reinforced technopolymer enables the ELESa adjustable handles to guarantee stress resistance values which are much higher than the ones generated under normal working conditions.

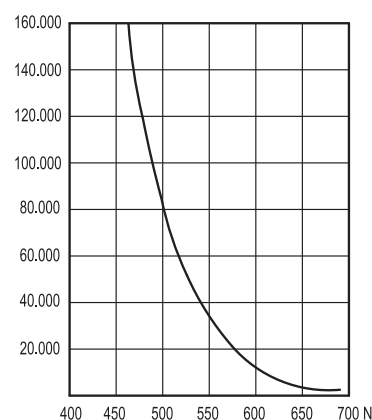
INSTRUCTIONS OF USE

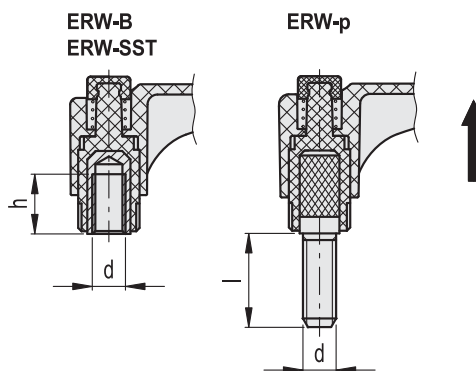
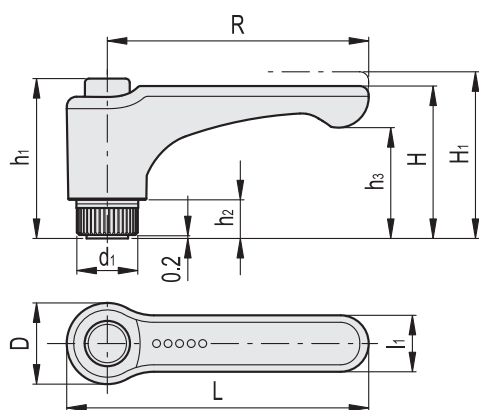
For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.



ERGOSTYLE®

NUMBER OF TIGHTENINGS





* Complete with colour index, example: 253061-C2 ERW.30-B-M3-C2

C1 RAL7021 C2 RAL2004 C3 RAL7035 C4 RAL1021 C5 RAL5024 C6 RAL3000

ERW-B

Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	
253061-*	ERW.30-B-M3-*	30	M3	37.5	15.5	27	30.5	10	29.5	6	20.5	12	9	18	8
253066-*	ERW.30-B-M4-*	30	M4	37.5	15.5	27	30.5	10	29.5	6	20.5	12	9	18	9
253071-*	ERW.30-B-M5-*	30	M5	37.5	15.5	27	30.5	10	29.5	6	20.5	12	9	18	10
253076-*	ERW.30-B-M6-*	30	M6	37.5	15.5	27	30.5	10	29.5	6	20.5	12	9	18	11
253101-*	ERW.44-B-M5-*	44	M5	52	15.5	27	30.5	10	29.5	6	18.5	12	11	18	12
253106-*	ERW.44-B-M6-*	44	M6	52	15.5	27	30.5	10	29.5	6	18.5	12	11	18	16
253131-*	ERW.63-B-M6-*	63	M6	73.5	19	36.5	40	16	37.5	8	26.5	15	13.5	20	22
253136-*	ERW.63-B-M8-*	63	M8	73.5	19	36.5	40	13	37.5	8	26.5	15	13.5	20	31
253139-*	ERW.63-B-M10-*	63	M10	73.5	19	36.5	40	13	37.5	8	26.5	15	13.5	20	29
253151-*	ERW.78-B-M8-*	78	M8	90.5	24.5	42	45.5	20	47	12	30	19	16	24	40
253156-*	ERW.78-B-M10-*	78	M10	90.5	24.5	42	45.5	20	47	12	30	19	16	24	43
253161-*	ERW.78-B-M12-*	78	M12	90.5	24.5	42	45.5	20	47	12	30	19	16	24	46

ERW-SST

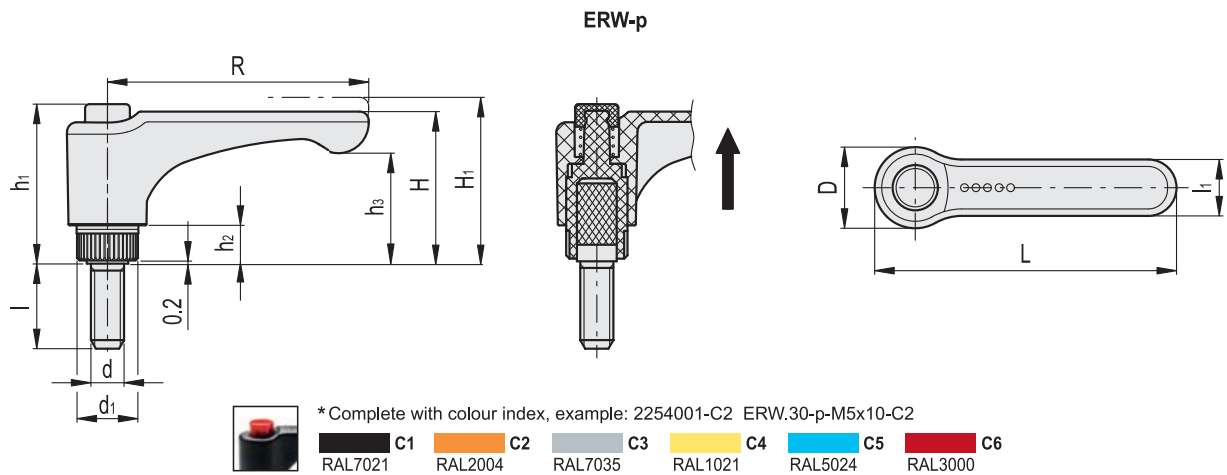
STAINLESS STEEL

Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	
255071-*	ERW.30-SST-M5-*	30	M5	37.5	15.5	27	30.5	6	29.5	6	20.5	12	9	18	10
255076-*	ERW.30-SST-M6-*	30	M6	37.5	15.5	27	30.5	6	29.5	6	20.5	12	9	18	11
255101-*	ERW.44-SST-M5-*	44	M5	52	15.5	27	30.5	6	29.52	6	18.5	12	11	18	12
255106-*	ERW.44-SST-M6-*	44	M6	52	15.5	27	30.5	6	29.5	6	18.5	12	11	18	16
255131-*	ERW.63-SST-M8-*	63	M6	73.5	19	36.5	40	12	37.5	8	26.5	15	13.5	20	63
255136-*	ERW.63-SST-M8-*	63	M8	73.5	19	36.5	40	12	37.5	8	26.5	15	13.5	20	31
255151-*	ERW.78-SST-M8-*	78	M8	90.5	24.5	42	45.5	13	47	12	30	19	16	24	40
255156-*	ERW.78-SST-M10-*	78	M10	90.5	24.5	42	45.5	13	47	12	30	19	16	24	43

ERW-p

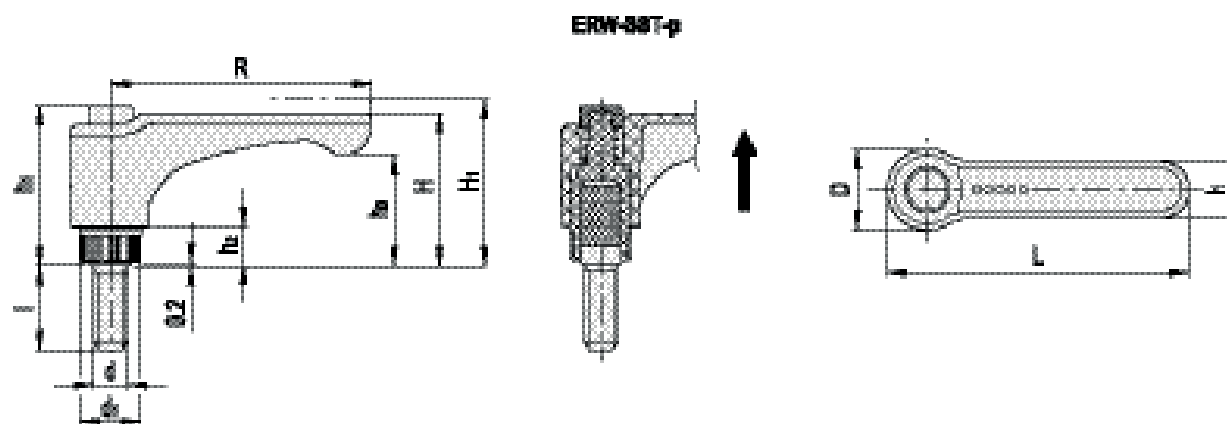
Code	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	
254001-*	ERW.30-p-M5x10-*	30	M5	37.5	15.5	27	30.5	29.5	6	20.5	12	10	9	18	10
254006-*	ERW.30-p-M5x16-*	30	M5	37.5	15.5	27	30.5	29.5	6	20.5	12	16	9	18	11
254011-*	ERW.30-p-M5x20-*	30	M5	37.5	15.5	27	30.5	29.5	6	20.5	12	20	9	18	11
254016-*	ERW.30-p-M6x10-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	10	9	18	11
254021-*	ERW.30-p-M6x16-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	16	9	18	12
254026-*	ERW.30-p-M6x20-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	20	9	18	13
254031-*	ERW.30-p-M6x25-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	25	9	18	14
254036-*	ERW.30-p-M6x30-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	30	9	18	15
254046-*	ERW.30-p-M6x40-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	40	9	18	16
254101-*	ERW.44-p-M5x10-*	44	M5	52	15.5	27	30.5	29.5	6	18.5	12	10	11	18	12
254106-*	ERW.44-p-M5x16-*	44	M5	52	15.5	27	30.5	29.5	6	18.5	12	16	11	18	13
254111-*	ERW.44-p-M5x20-*	44	M5	52	15.5	27	30.5	29.5	6	18.5	12	20	11	18	13
254116-*	ERW.44-p-M6x10-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	10	11	18	13
254121-*	ERW.44-p-M6x16-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	16	11	18	14
254126-*	ERW.44-p-M6x20-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	20	11	18	15
254131-*	ERW.44-p-M6x25-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	25	11	18	16
254136-*	ERW.44-p-M6x30-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	30	11	18	17
254146-*	ERW.44-p-M6x40-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	40	11	18	19
254151-*	ERW.44-p-M6x45-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	45	11	18	20





ERW-p

Code	Description	R	d _{6g}	L	D	H	H1	h1	h2	h3	d1	l	li	Teeth no.	⚖
254301-*	ERW.63-p-M6x10-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	10	13.5	20	23
254306-*	ERW.63-p-M6x16-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	16	13.5	20	24
254311-*	ERW.63-p-M6x20-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	20	13.5	20	25
254316-*	ERW.63-p-M6x25-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	25	13.5	20	26
254321-*	ERW.63-p-M6x30-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	30	13.5	20	27
254323-*	ERW.63-p-M6x35-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	35	13.5	20	29
254326-*	ERW.63-p-M6x40-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	40	13.5	20	31
254333-*	ERW.63-p-M8x16-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	16	13.5	20	29
254336-*	ERW.63-p-M8x20-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	20	13.5	20	30
254341-*	ERW.63-p-M8x25-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	25	13.5	20	31
254346-*	ERW.63-p-M8x30-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	30	13.5	20	33
254351-*	ERW.63-p-M8x35-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	35	13.5	20	35
254356-*	ERW.63-p-M8x40-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	40	13.5	20	37
254361-*	ERW.63-p-M8x45-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	45	13.5	20	38
254366-*	ERW.63-p-M8x50-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	50	13.5	20	39
254371-*	ERW.63-p-M8x60-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	60	13.5	20	42
254376-*	ERW.63-p-M8x70-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	70	13.5	20	45
254391-*	ERW.63-p-M10x20-*	63	M10	73.5	19	36.5	40	37.5	8	26.5	15	20	13.5	20	35
254393-*	ERW.63-p-M10x30-*	63	M10	73.5	19	36.5	40	37.5	8	26.5	15	30	13.5	20	38
254395-*	ERW.63-p-M10x40-*	63	M10	73.5	19	36.5	40	37.5	8	26.5	15	40	13.5	20	42
254397-*	ERW.63-p-M10x50-*	63	M10	73.5	19	36.5	40	37.5	8	26.5	15	50	13.5	20	44
254399-*	ERW.63-p-M10x60-*	63	M10	73.5	19	36.5	40	37.5	8	26.5	15	60	13.5	20	47
254498-*	ERW.78-p-M8x20-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	20	16	24	48
254501-*	ERW.78-p-M8x25-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	25	16	24	49
254503-*	ERW.78-p-M8x30-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	30	16	24	50
254506-*	ERW.78-p-M8x40-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	40	16	24	52
254507-*	ERW.78-p-M8x45-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	45	16	24	53
254509-*	ERW.78-p-M8x50-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	50	16	24	54
254511-*	ERW.78-p-M8x55-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	55	16	24	55
254513-*	ERW.78-p-M8x60-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	60	16	24	56
254515-*	ERW.78-p-M8x70-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	70	16	24	58
254516-*	ERW.78-p-M10x20-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	20	16	24	55
254521-*	ERW.78-p-M10x25-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	25	16	24	58
254526-*	ERW.78-p-M10x30-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	30	16	24	60
254531-*	ERW.78-p-M10x35-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	35	16	24	62
254536-*	ERW.78-p-M10x40-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	40	16	24	65
254541-*	ERW.78-p-M10x50-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	50	16	24	69
254546-*	ERW.78-p-M10x60-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	60	16	24	74
254551-*	ERW.78-p-M10x70-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	70	16	24	79
254561-*	ERW.78-p-M12x20-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	20	16	24	64
254566-*	ERW.78-p-M12x25-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	25	16	24	67
254571-*	ERW.78-p-M12x30-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	30	16	24	70
254573-*	ERW.78-p-M12x35-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	35	16	24	74
254576-*	ERW.78-p-M12x40-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	40	16	24	77
254581-*	ERW.78-p-M12x45-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	45	16	24	80
254586-*	ERW.78-p-M12x50-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	50	16	24	84
254591-*	ERW.78-p-M12x60-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	60	16	24	91
254593-*	ERW.78-p-M12x70-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	70	16	24	98
254596-*	ERW.78-p-M1280-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	80	16	24	105



* Complete with colour index, example: 255061-C2 ERW.30-SST-p-M5x10-C2

 C1 C2 C3 C4 C5 C6
 RAL 7021 RAL 2004 RAL 7035 RAL 1021 RAL 5024 RAL 3000

ERW-SST-p

STAINLESS STEEL

Code	Description	R	d6g	L	D	H	Hl	h1	h2	h3	d1	l	li	Teeth no.	⚙️
255061-*	ERW.30-SST-p-M5x10-*	30	M5	37.5	15.5	27	30.5	29.5	6	20.5	12	10	9	18	10
255066-*	ERW.30-SST-p-M5x16-*	30	M5	37.5	15.5	27	30.5	29.5	6	20.5	12	16	9	18	11
255196-*	ERW.30-SST-p-M6x10-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	10	9	18	11
255201-*	ERW.30-SST-p-M6x16-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	16	9	18	12
255203-*	ERW.30-SST-p-M6x20-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	20	9	18	13
255205-*	ERW.30-SST-p-M6x25-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	25	9	18	14
255207-*	ERW.30-SST-p-M6x30-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	30	9	18	15
255209-*	ERW.44-SST-p-M5x10-*	44	M5	52	15.5	27	30.5	29.5	6	18.5	12	10	11	18	12
255211-*	ERW.44-SST-p-M5x16-*	44	M5	52	15.5	27	30.5	29.5	6	18.5	12	16	11	18	13
255216-*	ERW.44-SST-p-M6x10-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	10	11	18	13
255221-*	ERW.44-SST-p-M6x16-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	16	11	18	14
255226-*	ERW.44-SST-p-M6x20-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	20	11	18	15
255231-*	ERW.44-SST-p-M6x25-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	25	11	18	16
255236-*	ERW.44-SST-p-M6x30-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	30	11	18	17
255341-*	ERW.63-SST-p-M6x10-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	10	13.5	20	23
255351-*	ERW.63-SST-p-M6x20-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	20	13.5	20	25
255421-*	ERW.63-SST-p-M6x30-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	30	13.5	20	27
255426-*	ERW.63-SST-p-M6x40-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	40	13.5	20	31
255431-*	ERW.63-SST-p-M8x16-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	16	13.5	20	29
255436-*	ERW.63-SST-p-M8x20-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	20	13.5	20	30
255441-*	ERW.63-SST-p-M8x25-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	25	13.5	20	31
255446-*	ERW.63-SST-p-M8x30-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	30	13.5	20	33
255451-*	ERW.63-SST-p-M8x35-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	35	13.5	20	35
255456-*	ERW.63-SST-p-M8x40-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	40	13.5	20	37
255461-*	ERW.63-SST-p-M8x45-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	45	13.5	20	38
255466-*	ERW.63-SST-p-M8x50-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	50	13.5	20	39
255471-*	ERW.63-SST-p-M8x60-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	60	13.5	20	42
255476-*	ERW.63-SST-p-M8x70-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	70	13.5	20	45
255601-*	ERW.78-SST-p-M8x-20-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	20	16	24	48
255603-*	ERW.78-SST-p-M8x-25-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	25	16	24	49
255605-*	ERW.78-SST-p-M8x-30-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	30	16	24	50
255607-*	ERW.78-SST-p-M8x-40-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	40	16	24	52
255609-*	ERW.78-SST-p-M8x-45-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	45	16	24	53
255611-*	ERW.78-SST-p-M8x-50-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	50	16	24	54
255617-*	ERW.78-SST-p-M8x-70-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	70	16	24	58
255716-*	ERW.78-SST-p-M10x-20-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	20	16	24	55
255726-*	ERW.78-SST-p-M10x-30-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	30	16	24	61
255731-*	ERW.78-SST-p-M10x-35-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	35	16	24	63
255736-*	ERW.78-SST-p-M10x-40-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	40	16	24	66
255741-*	ERW.78-SST-p-M10x-50-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	50	16	24	70
255746-*	ERW.78-SST-p-M10x-60-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	60	16	24	75
255771-*	ERW.78-SST-p-M12x-30-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	30	16	24	71
255773-*	ERW.78-SST-p-M12x-35-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	35	16	24	75
255781-*	ERW.78-SST-p-M12x-40-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	40	16	24	78
255786-*	ERW.78-SST-p-M12x-50-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	50	16	24	84
255893-*	ERW.78-SST-p-M12x-70-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	70	16	24	99

Adjustable hand levers

Zinc die casting, Bushing / Threaded bolt Steel

SPECIFICATION

Handle

Zinc die casting

plastic coated

black, RAL 9005, textured finish **SW**

orange, RAL 2004, textured finish **OS**

red, RAL 3000, textured finish **RS**

silver, RAL 9006, textured finish **SR**

Version with threaded insert

Threaded bush and retaining screw

Steel, blackened

Version with threaded stud

Threaded stud and retaining screw

Steel (5.8), blackened

INFORMATION

Adjustable hand levers GN 302 have a straight lever, not inclined, being parallel to the clamping space.

Adjustable hand levers are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged

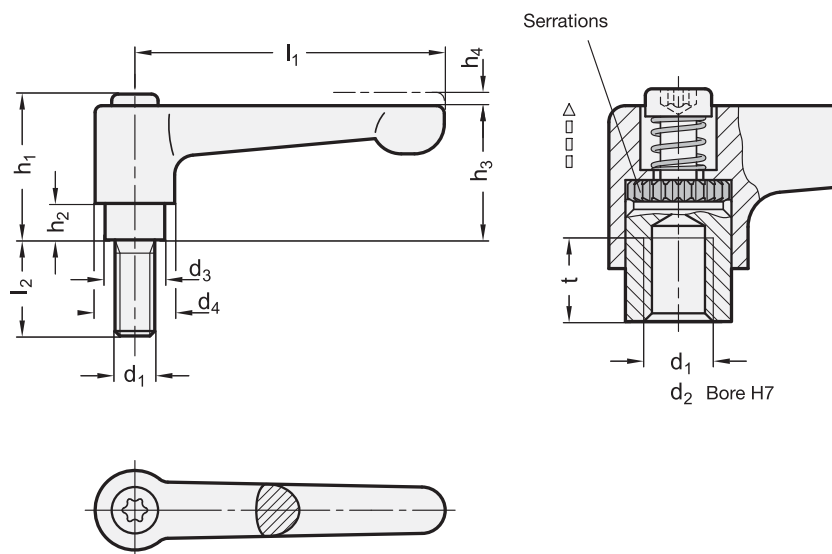
Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

ON REQUEST

- with insert in Stainless Steel
- with push-button



* Complete with colour index of the clamping lever body (SW, OS, RS or SR)

 SW	 OS	 RS	 SR
RAL9005	RAL2004	RAL3000	RAL9006

GN 302-with threaded insert

Description	l1	d1	d2 H7	d3	d4	h1	h2	h3	h4	t min.	
GN 302-30-B5-*	30	-	B 5	10	13	24.5	4	22	3.5	9	24
GN 302-30-B6-*	30	-	B 6	10	13	24.5	4	22	3.5	9	20
GN 302-30-M3-*	30	M 3	-	10	13	24.5	4	22	3.5	7	26
GN 302-30-M4-*	30	M 4	-	10	13	24.5	4	22	3.5	9	26
GN 302-30-M5-*	30	M 5	-	10	13	24.5	4	22	3.5	9	24
GN 302-30-M6-*	30	M 6	-	10	13	24.5	4	22	3.5	9	20
GN 302-45-B5-*	45	-	B 5	10	13	24.5	4	22	3.5	9	31
GN 302-45-B6-*	45	-	B 6	10	13	24.5	4	22	3.5	9	30
GN 302-45-M4-*	45	M 4	-	10	13	24.5	4	22	3.5	9	32
GN 302-45-M5-*	45	M 5	-	10	13	24.5	4	22	3.5	9	32
GN 302-45-M6-*	45	M 6	-	10	13	24.5	4	22	3.5	9	31
GN 302-63-B8-*	63	-	B 8	13.5	17.5	31	6.5	28.5	4	11	72
GN 302-63-M6-*	63	M 6	-	13.5	17.5	31	6.5	28.5	4	11	74
GN 302-63-M8-*	63	M 8	-	13.5	17.5	31	6.5	28.5	4	11	74
GN 302-78-B8-*	78	-	B 8	16	21	36	8	34	4	14	120
GN 302-78-B10-*	78	-	B 10	16	21	36	8	34	4	14	116
GN 302-78-M8-*	78	M 8	-	16	21	36	8	34	4	14	121
GN 302-78-M10-*	78	M 10	-	16	21	36	8	34	4	14	117

GN 302-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	
GN 302-30-M3-6-*	30	M 3	6	10	13	24.5	4	22	3.5	27
GN 302-30-M3-8-*	30	M 3	8	10	13	24.5	4	22	3.5	27
GN 302-30-M3-10-*	30	M 3	10	10	13	24.5	4	22	3.5	27
GN 302-30-M3-12-*	30	M 3	12	10	13	24.5	4	22	3.5	27
GN 302-30-M3-16-*	30	M 3	16	10	13	24.5	4	22	3.5	27
GN 302-30-M4-12-*	30	M 4	12	10	13	24.5	4	22	3.5	28
GN 302-30-M4-16-*	30	M 4	16	10	13	24.5	4	22	3.5	28
GN 302-30-M4-20-*	30	M 4	20	10	13	24.5	4	22	3.5	28
GN 302-30-M4-25-*	30	M 4	25	10	13	24.5	4	22	3.5	29
GN 302-30-M4-32-*	30	M 4	32	10	13	24.5	4	22	3.5	29
GN 302-45-M4-12-*	45	M 4	12	10	13	24.5	4	22	3.5	36
GN 302-45-M4-16-*	45	M 4	16	10	13	24.5	4	22	3.5	37
GN 302-45-M4-20-*	45	M 4	20	10	13	24.5	4	22	3.5	37
GN 302-45-M4-25-*	45	M 4	25	10	13	24.5	4	22	3.5	38
GN 302-45-M4-32-*	45	M 4	32	10	13	24.5	4	22	3.5	39
GN 302-45-M5-12-*	45	M 5	12	10	13	24.5	4	22	3.5	31
GN 302-45-M5-16-*	45	M 5	16	10	13	24.5	4	22	3.5	35
GN 302-45-M5-20-*	45	M 5	20	10	13	24.5	4	22	3.5	40
GN 302-45-M5-25-*	45	M 5	25	10	13	24.5	4	22	3.5	40
GN 302-45-M5-32-*	45	M 5	32	10	13	24.5	4	22	3.5	40
GN 302-45-M5-40-*	45	M 5	40	10	13	24.5	4	22	3.5	50
GN 302-45-M5-50-*	45	M 5	50	10	13	24.5	4	22	3.5	50
GN 302-45-M6-12-*	45	M 6	12	10	13	24.5	4	22	3.5	34
GN 302-45-M6-16-*	45	M 6	16	10	13	24.5	4	22	3.5	35
GN 302-45-M6-20-*	45	M 6	20	10	13	24.5	4	22	3.5	37
GN 302-45-M6-25-*	45	M 6	25	10	13	24.5	4	22	3.5	37
GN 302-45-M6-32-*	45	M 6	32	10	13	24.5	4	22	3.5	40
GN 302-45-M6-40-*	45	M 6	40	10	13	24.5	4	22	3.5	40
GN 302-45-M6-50-*	45	M 6	50	10	13	24.5	4	22	3.5	46





* Complete with colour index of the clamping lever body (SW, OS, RS or SR)

SW
RAL9005
 OS
RAL2004
 RS
RAL3000
 SR
RAL9006

GN 302-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	
GN 302-63-M6-12-*	63	M 6	12	13.5	17.5	31	6.5	28.5	4	78
GN 302-63-M6-16-*	63	M 6	16	13.5	17.5	31	6.5	28.5	4	78
GN 302-63-M6-20-*	63	M 6	20	13.5	17.5	31	6.5	28.5	4	79
GN 302-63-M6-25-*	63	M 6	25	13.5	17.5	31	6.5	28.5	4	80
GN 302-63-M6-32-*	63	M 6	32	13.5	17.5	31	6.5	28.5	4	81
GN 302-63-M6-40-*	63	M 6	40	13.5	17.5	31	6.5	28.5	4	83
GN 302-63-M6-50-*	63	M 6	50	13.5	17.5	31	6.5	28.5	4	84
GN 302-63-M6-63-*	63	M 6	63	13.5	17.5	31	6.5	28.5	4	86
GN 302-63-M8-12-*	63	M 8	12	13.5	17.5	31	6.5	28.5	4	80
GN 302-63-M8-16-*	63	M 8	16	13.5	17.5	31	6.5	28.5	4	82
GN 302-63-M8-20-*	63	M 8	20	13.5	17.5	31	6.5	28.5	4	82
GN 302-63-M8-25-*	63	M 8	25	13.5	17.5	31	6.5	28.5	4	84
GN 302-63-M8-32-*	63	M 8	32	13.5	17.5	31	6.5	28.5	4	86
GN 302-63-M8-40-*	63	M 8	40	13.5	17.5	31	6.5	28.5	4	89
GN 302-63-M8-50-*	63	M 8	50	13.5	17.5	31	6.5	28.5	4	91
GN 302-63-M8-63-*	63	M 8	63	13.5	17.5	31	6.5	28.5	4	96
GN 302-63-M10-20-*	63	M 10	20	13.5	17.5	31	6.5	28.5	4	80
GN 302-63-M10-25-*	63	M 10	25	13.5	17.5	31	6.5	28.5	4	88
GN 302-63-M10-32-*	63	M 10	32	13.5	17.5	31	6.5	28.5	4	93
GN 302-63-M10-40-*	63	M 10	40	13.5	17.5	31	6.5	28.5	4	97
GN 302-63-M10-50-*	63	M 10	50	13.5	17.5	31	6.5	28.5	4	100
GN 302-63-M10-63-*	63	M 10	63	13.5	17.5	31	6.5	28.5	4	110
GN 302-63-M10-80-*	63	M 10	80	13.5	17.5	31	6.5	28.5	4	120
GN 302-78-M8-16-*	78	M 8	16	16	21	36	8	34	4	130
GN 302-78-M8-20-*	78	M 8	20	16	21	36	8	34	4	130
GN 302-78-M8-25-*	78	M 8	25	16	21	36	8	34	4	140
GN 302-78-M8-32-*	78	M 8	32	16	21	36	8	34	4	140
GN 302-78-M8-40-*	78	M 8	40	16	21	36	8	34	4	140
GN 302-78-M8-50-*	78	M 8	50	16	21	36	8	34	4	141
GN 302-78-M8-63-*	78	M 8	63	16	21	36	8	34	4	141
GN 302-78-M8-80-*	78	M 8	80	16	21	36	8	34	4	160
GN 302-78-M10-16-*	78	M 10	16	16	21	36	8	34	4	137
GN 302-78-M10-20-*	78	M 10	20	16	21	36	8	34	4	139
GN 302-78-M10-25-*	78	M 10	25	16	21	36	8	34	4	140
GN 302-78-M10-32-*	78	M 10	32	16	21	36	8	34	4	141
GN 302-78-M10-40-*	78	M 10	40	16	21	36	8	34	4	145
GN 302-78-M10-50-*	78	M 10	50	16	21	36	8	34	4	150
GN 302-78-M10-63-*	78	M 10	63	16	21	36	8	34	4	150
GN 302-78-M10-80-*	78	M 10	80	16	21	36	8	34	4	150
GN 302-78-M12-25-*	78	M 12	25	16	21	36	8	34	4	140
GN 302-78-M12-32-*	78	M 12	32	16	21	36	8	34	4	145
GN 302-78-M12-40-*	78	M 12	40	16	21	36	8	34	4	150
GN 302-78-M12-50-*	78	M 12	50	16	21	36	8	34	4	162
GN 302-78-M12-63-*	78	M 12	63	16	21	36	8	34	4	180
GN 302-78-M12-80-*	78	M 12	80	16	21	36	8	34	4	180

Clamping levers

Adjustable tension levers

Steel, blackened

SPECIFICATION

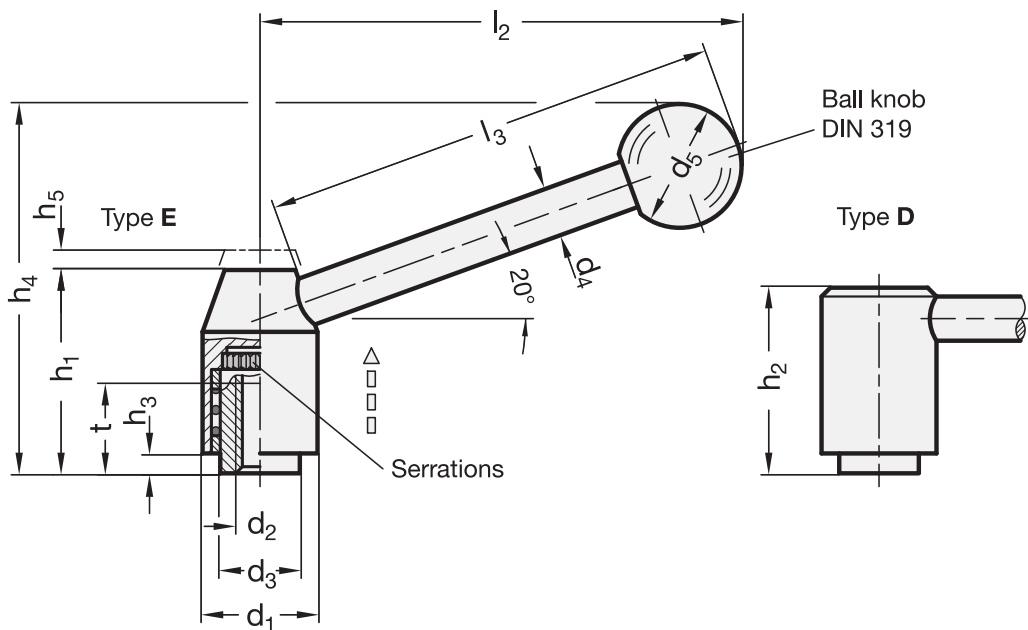
Types

- Type **E**: angled lever
- Type **D**: straight lever

Steel
blackened
Tensile strength class 5.8
Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

INFORMATION

Adjustable tension levers GN 212.3 have proved to be ideal whenever parts have to be clamped in a confined space or a particular lever position is required. The threaded insert is connected with the hub via serrations which can be disengaged. Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever it will automatically re-engage.



* Complete with type of the Adjustable tension levers (E or D)
E Angled lever D Straight lever

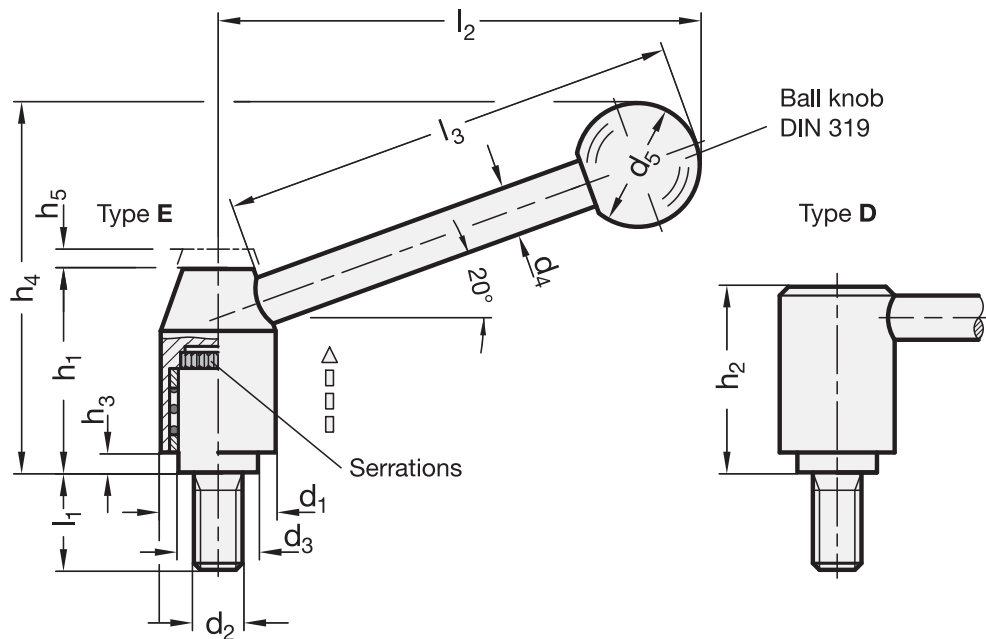
GN 212.3-with threaded insert

Description	d1	d2	d3	d4	d5	h1	h2	h3	h4 ≈ Type E	h4 ≈ Type D	h5	l2 ≈ Type E	l2 ≈ Type D	l3 ≈	t min.	⚖
GN 212.3-21-M6-*	21	M 6	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	11	97
GN 212.3-21-M8-*	21	M 8	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	11	93
GN 212.3-24-M8-*	24	M 8	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	14	161
GN 212.3-24-M10-*	24	M 10	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	14	157
GN 212.3-28-M10-*	28	M 10	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	17	264
GN 212.3-28-M12-*	28	M 12	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	17	258
GN 212.3-33-M12-*	33	M 12	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	22	381
GN 212.3-33-M14-*	33	M 14	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	22	373
GN 212.3-33-M16-*	33	M 16	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	22	364
GN 212.3-40-M16-*	40	M 16	28	14	35	68	64	6	118	71.5	5.5	148	158	138	36	638
GN 212.3-40-M20-*	40	M 20	28	14	35	68	64	6	118	71.5	5.5	148	158	138	36	608

Weight type E



3
Clamping levers



* Complete with type of the Adjustable tension levers (E or D)

E Angled lever
D Straight lever

GN 212.3-with threaded stud

Description	d1	d2	l1	d3	d4	d5	h1	h2	h3	h4 ≈ Type E	h4 ≈ Type D	h5	l2 ≈ Type E	l2 ≈ Type D	l3 ≈	⚖
GN 212.3-21-M8-12-*	21	M 8	12	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	103
GN 212.3-21-M8-16-*	21	M 8	16	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	104
GN 212.3-21-M8-20-*	21	M 8	20	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	105
GN 212.3-21-M8-25-*	21	M 8	25	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	107
GN 212.3-21-M8-32-*	21	M 8	32	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	109
GN 212.3-21-M8-40-*	21	M 8	40	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	112
GN 212.3-21-M8-50-*	21	M 8	50	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	114
GN 212.3-21-M8-63-*	21	M 8	63	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	119
GN 212.3-21-M10-20-*	21	M 10	20	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	108
GN 212.3-21-M10-25-*	21	M 10	25	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	111
GN 212.3-21-M10-32-*	21	M 10	32	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	115
GN 212.3-21-M10-40-*	21	M 10	40	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	117
GN 212.3-21-M10-50-*	21	M 10	50	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	122
GN 212.3-21-M10-63-*	21	M 10	63	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	126
GN 212.3-21-M10-80-*	21	M 10	80	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	136
GN 212.3-24-M10-16-*	24	M 10	16	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	174
GN 212.3-24-M10-20-*	24	M 10	20	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	175
GN 212.3-24-M10-25-*	24	M 10	25	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	177
GN 212.3-24-M10-32-*	24	M 10	32	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	180
GN 212.3-24-M10-40-*	24	M 10	40	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	184
GN 212.3-24-M10-50-*	24	M 10	50	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	190
GN 212.3-24-M10-63-*	24	M 10	63	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	197
GN 212.3-24-M10-80-*	24	M 10	80	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	204

Weight type E

* Complete with type of the Adjustable tension levers (E or D)

E
Angled lever

D
Straight lever

GN 212.3-with threaded stud

Description	d1	d2	l1	d3	d4	d5	h1	h2	h3	h4 ≈ Type E	h4 ≈ Type D	h5	l2 ≈ Type E	l2 ≈ Type D	l3 ≈	
GN 212.3-24-M12-25-*	24	M 12	25	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	183
GN 212.3-24-M12-32-*	24	M 12	32	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	188
GN 212.3-24-M12-40-*	24	M 12	40	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	194
GN 212.3-24-M12-50-*	24	M 12	50	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	201
GN 212.3-24-M12-63-*	24	M 12	63	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	209
GN 212.3-24-M12-80-*	24	M 12	80	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	217
GN 212.3-28-M10-16-*	28	M 10	16	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	277
GN 212.3-28-M10-20-*	28	M 10	20	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	280
GN 212.3-28-M10-25-*	28	M 10	25	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	285
GN 212.3-28-M10-32-*	28	M 10	32	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	289
GN 212.3-28-M10-40-*	28	M 10	40	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	311
GN 212.3-28-M10-50-*	28	M 10	50	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	312
GN 212.3-28-M10-63-*	28	M 10	63	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	312
GN 212.3-28-M12-16-*	28	M 12	16	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	286
GN 212.3-28-M12-20-*	28	M 12	20	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	287
GN 212.3-28-M12-25-*	28	M 12	25	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	292
GN 212.3-28-M12-32-*	28	M 12	32	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	297
GN 212.3-28-M12-40-*	28	M 12	40	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	302
GN 212.3-28-M12-50-*	28	M 12	50	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	309
GN 212.3-28-M12-63-*	28	M 12	63	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	319
GN 212.3-28-M12-80-*	28	M 12	80	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	330
GN 212.3-33-M12-25-*	33	M 12	25	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	428
GN 212.3-33-M12-32-*	33	M 12	32	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	431
GN 212.3-33-M12-40-*	33	M 12	40	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	431
GN 212.3-33-M12-50-*	33	M 12	50	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	438
GN 212.3-33-M12-63-*	33	M 12	63	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	446
GN 212.3-33-M16-32-*	33	M 16	32	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	440
GN 212.3-33-M16-40-*	33	M 16	40	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	451
GN 212.3-33-M16-50-*	33	M 16	50	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	463
GN 212.3-33-M16-63-*	33	M 16	63	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	482
GN 212.3-33-M16-80-*	33	M 16	80	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	504
GN 212.3-40-M16-40-*	40	M 16	40	28	14	35	68	64	6	118	71.5	5.5	148	158	138	743
GN 212.3-40-M16-50-*	40	M 16	50	28	14	35	68	64	6	118	71.5	5.5	148	158	138	757
GN 212.3-40-M16-63-*	40	M 16	63	28	14	35	68	64	6	118	71.5	5.5	148	158	138	772
GN 212.3-40-M16-80-*	40	M 16	80	28	14	35	68	64	6	118	71.5	5.5	148	158	138	797
GN 212.3-40-M20-40-*	40	M 20	40	28	14	35	68	64	6	118	71.5	5.5	148	158	138	777
GN 212.3-40-M20-50-*	40	M 20	50	28	14	35	68	64	6	118	71.5	5.5	148	158	138	780
GN 212.3-40-M20-63-*	40	M 20	63	28	14	35	68	64	6	118	71.5	5.5	148	158	138	824
GN 212.3-40-M20-80-*	40	M 20	80	28	14	35	68	64	6	118	71.5	5.5	148	158	138	856

Weight type E



GN 212.5

Adjustable Stainless Steel-Tension levers

SPECIFICATION

Type

- Type **E**: angled lever

Stainless Steel AISI 303

Hub and shaft matt shot-blasted

Ball knobs DIN 319 (see page 538)

Plastic, Duroplast

black, shiny finish

INFORMATION

Adjustable tension levers GN 212.5 have proved to be ideal whenever parts have to be clamped in a confined space or a particular lever position is required. The threaded insert is connected with the hub via serrations which can be disengaged.

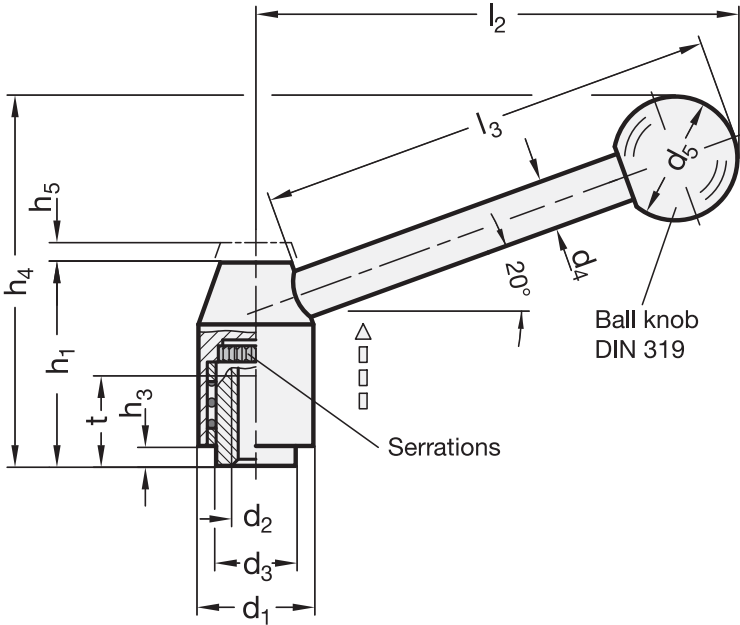
Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever it will automatically re-engage.

ON REQUEST

- straight lever (90°)

TECHNICAL INFORMATION

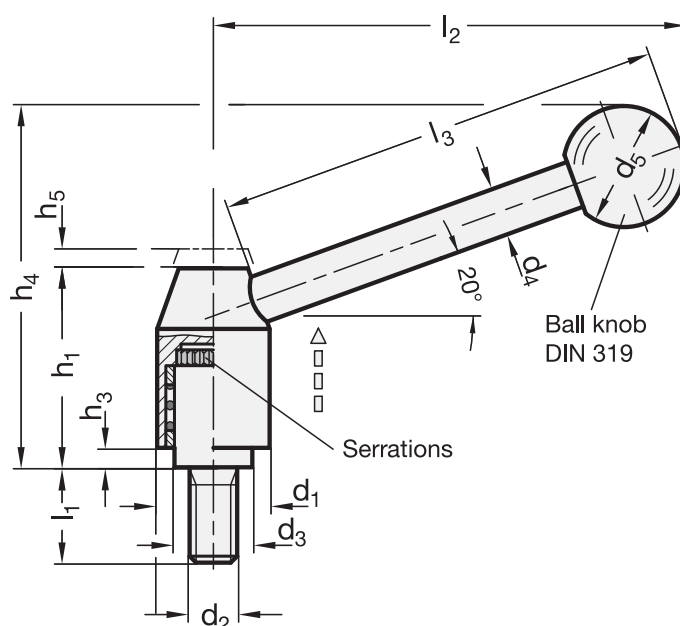
- Stainless Steel characteristics (see page A26)



GN 212.5-with threaded insert

STAINLESS STEEL

Description	d1	d2	d3	d4	d5	h1	h3	h4	h5	l2	l3 ≈	t min.	⚖
GN 212.5-21-M6-E	21	M 6	13.5	8	20	33.5	1	59	4	75	70	11	97
GN 212.5-21-M8-E	21	M 8	13.5	8	20	33.5	1	59	4	75	70	11	93
GN 212.5-24-M8-E	24	M 8	16	10	25	40	2.5	75	4.5	101	96	14	170
GN 212.5-24-M10-E	24	M 10	16	10	25	40	2.5	75	4.5	101	96	14	161
GN 212.5-28-M10-E	28	M 10	19	12	30	48.5	4.5	89	4.5	116	110	17	261
GN 212.5-28-M12-E	28	M 12	19	12	30	48.5	4.5	89	4.5	116	110	17	258



GN 212.5-with threaded stud

STAINLESS STEEL

Description	d1	d2	l1	d3	d4	d5	h1	h3	h4	h5	l2	l3 ≈	Δ
GN 212.5-21-M8-16-E	21	M 8	16	13.5	8	20	33.5	1	59	4	75	70	104
GN 212.5-21-M8-20-E	21	M 8	20	13.5	8	20	33.5	1	59	4	75	70	105
GN 212.5-21-M8-25-E	21	M 8	25	13.5	8	20	33.5	1	59	4	75	70	107
GN 212.5-21-M8-32-E	21	M 8	32	13.5	8	20	33.5	1	59	4	75	70	107
GN 212.5-21-M8-40-E	21	M 8	40	13.5	8	20	33.5	1	59	4	75	70	112
GN 212.5-21-M8-50-E	21	M 8	50	13.5	8	20	33.5	1	59	4	75	70	114
GN 212.5-21-M8-63-E	21	M 8	63	13.5	8	20	33.5	1	59	4	75	70	119
GN 212.5-24-M10-20-E	24	M 10	20	16	10	25	40	2.5	75	4.5	101	96	173
GN 212.5-24-M10-25-E	24	M 10	25	16	10	25	40	2.5	75	4.5	101	96	175
GN 212.5-24-M10-32-E	24	M 10	32	16	10	25	40	2.5	75	4.5	101	96	178
GN 212.5-24-M10-40-E	24	M 10	40	16	10	25	40	2.5	75	4.5	101	96	182
GN 212.5-24-M10-50-E	24	M 10	50	16	10	25	40	2.5	75	4.5	101	96	188
GN 212.5-24-M10-63-E	24	M 10	63	16	10	25	40	2.5	75	4.5	101	96	195
GN 212.5-24-M10-80-E	24	M 10	80	16	10	25	40	2.5	75	4.5	101	96	202
GN 212.5-28-M12-25-E	28	M 12	25	19	12	30	48.5	4.5	89	4.5	116	110	295
GN 212.5-28-M12-32-E	28	M 12	32	19	12	30	48.5	4.5	89	4.5	116	110	300
GN 212.5-28-M12-40-E	28	M 12	40	19	12	30	48.5	4.5	89	4.5	116	110	305
GN 212.5-28-M12-50-E	28	M 12	50	19	12	30	48.5	4.5	89	4.5	116	110	310
GN 212.5-28-M12-63-E	28	M 12	63	19	12	30	48.5	4.5	89	4.5	116	110	322
GN 212.5-28-M12-80-E	28	M 12	80	19	12	30	48.5	4.5	89	4.5	116	110	333



Adjustable clamping levers

PUSH to disengage

SPECIFICATION

Types

- Type **M**: Straight lever
- Type **N**: Angled lever

Steel
blackened

Tensile strength class 5.8

Ball knobs DIN 319 (see page 538)

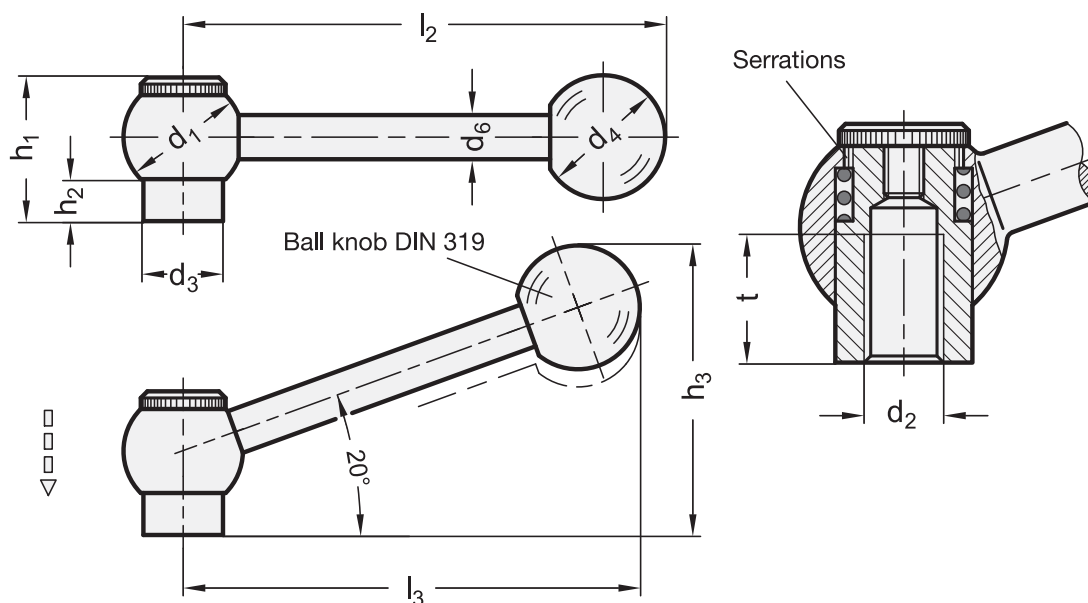
Plastic, Duroplast
black, shiny finish

INFORMATION

Adjustable clamping levers GN 6337.3 have proved to be ideal whenever parts have to be clamped in a confined space or a particular lever position is required. The insert is connected by the lever via serrations in the ball bore which can be disengaged.

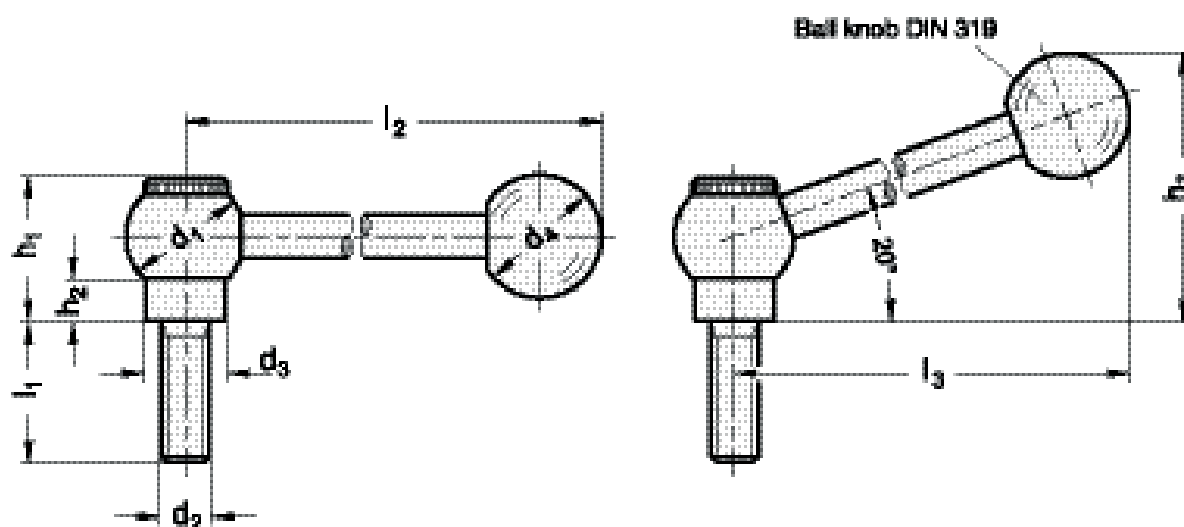
Pushing the lever down, disengages the serrations and the lever can be swivelled to the ideal clamping position. Engagement is achieved by releasing the lever.

Should a rotation of 360° not be possible, the insert can be lightly screwed in (after the lever is disengaged) via a slot in the knurled screw.



GN 6337.3-with threaded insert

Description	d1	d2	d3	d4	d6	h1	h2	h3 ≈	l2	l3 ≈	t min.	⚖
GN 6337.3-20-M6-M	20	M 6	13.5	20	8.5	25	8	-	74	-	12	61
GN 6337.3-20-M8-M	20	M 8	13.5	20	8.5	25	8	-	74	-	12	58
GN 6337.3-25-M8-M	25	M 8	16	25	11	29	8	-	93	-	15	114
GN 6337.3-25-M10-M	25	M 10	16	25	11	29	8	-	93	-	15	111
GN 6337.3-28-M10-M	28	M 10	19	30	13	33.5	10.5	-	116	-	18	189
GN 6337.3-28-M12-M	28	M 12	19	30	13	33.5	10.5	-	116	-	18	183
GN 6337.3-20-M6-N	20	M 6	13.5	20	8.5	25	8	46	-	70	12	61
GN 6337.3-20-M8-N	20	M 8	13.5	20	8.5	25	8	46	-	70	12	58
GN 6337.3-25-M8-N	25	M 8	16	25	11	29	8	58	-	87	15	114
GN 6337.3-25-M10-N	25	M 10	16	25	11	29	8	58	-	87	15	111
GN 6337.3-28-M10-N	28	M 10	19	30	13	33.5	10.5	70.5	-	109	18	189
GN 6337.3-28-M12-N	28	M 12	19	30	13	33.5	10.5	70.5	-	109	18	170



GN 6337.3-with threaded stud

Description	d1	d2	l1	d3	d4	h1	h2	h3 ≈	l2	l3 ≈	⚖
GN 6337.3-20-M8-20-M	20	M 8	20	13.5	20	25	8	-	74	-	69
GN 6337.3-20-M8-25-M	20	M 8	25	13.5	20	25	8	-	74	-	70
GN 6337.3-20-M8-32-M	20	M 8	32	13.5	20	25	8	-	74	-	73
GN 6337.3-20-M8-40-M	20	M 8	40	13.5	20	25	8	-	74	-	75
GN 6337.3-20-M8-50-M	20	M 8	50	13.5	20	25	8	-	74	-	78
GN 6337.3-20-M8-63-M	20	M 8	63	13.5	20	25	8	-	74	-	82
GN 6337.3-25-M10-20-M	25	M 10	20	16	25	29	8	-	93	-	129
GN 6337.3-25-M10-25-M	25	M 10	25	16	25	29	8	-	93	-	132
GN 6337.3-25-M10-32-M	25	M 10	32	16	25	29	8	-	93	-	136
GN 6337.3-25-M10-40-M	25	M 10	40	16	25	29	8	-	93	-	138
GN 6337.3-25-M10-50-M	25	M 10	50	16	25	29	8	-	93	-	144
GN 6337.3-25-M10-63-M	25	M 10	63	16	25	29	8	-	93	-	151
GN 6337.3-28-M12-25-M	28	M 12	25	19	30	33.5	10.5	-	116	-	217
GN 6337.3-28-M12-32-M	28	M 12	32	19	30	33.5	10.5	-	116	-	222
GN 6337.3-28-M12-40-M	28	M 12	40	19	30	33.5	10.5	-	116	-	228
GN 6337.3-28-M12-50-M	28	M 12	50	19	30	33.5	10.5	-	116	-	235
GN 6337.3-28-M12-63-M	28	M 12	63	19	30	33.5	10.5	-	116	-	243
GN 6337.3-28-M12-80-M	28	M 12	80	19	30	33.5	10.5	-	116	-	255
GN 6337.3-20-M8-20-N	20	M 8	20	13.5	20	25	8	46	-	70	69
GN 6337.3-20-M8-25-N	20	M 8	25	13.5	20	25	8	46	-	70	70
GN 6337.3-20-M8-32-N	20	M 8	32	13.5	20	25	8	46	-	70	73
GN 6337.3-20-M8-40-N	20	M 8	40	13.5	20	25	8	46	-	70	75
GN 6337.3-20-M8-50-N	20	M 8	50	13.5	20	25	8	46	-	70	78
GN 6337.3-20-M8-63-N	20	M 8	63	13.5	20	25	8	46	-	70	82
GN 6337.3-25-M10-20-N	25	M 10	20	16	25	29	8	58	-	87	129
GN 6337.3-25-M10-25-N	25	M 10	25	16	25	29	8	58	-	87	132
GN 6337.3-25-M10-32-N	25	M 10	32	16	25	29	8	58	-	87	136
GN 6337.3-25-M10-40-N	25	M 10	40	16	25	29	8	58	-	87	138
GN 6337.3-25-M10-50-N	25	M 10	50	16	25	29	8	58	-	87	144
GN 6337.3-25-M10-63-N	25	M 10	63	16	25	29	8	58	-	87	151
GN 6337.3-28-M12-25-N	28	M 12	25	19	30	33.5	10.5	70.5	-	109	217
GN 6337.3-28-M12-32-N	28	M 12	32	19	30	33.5	10.5	70.5	-	109	222
GN 6337.3-28-M12-40-N	28	M 12	40	19	30	33.5	10.5	70.5	-	109	228
GN 6337.3-28-M12-50-N	28	M 12	50	19	30	33.5	10.5	70.5	-	109	235
GN 6337.3-28-M12-63-N	28	M 12	63	19	30	33.5	10.5	70.5	-	109	243
GN 6337.3-28-M12-80-N	28	M 12	80	19	30	33.5	10.5	70.5	-	109	255

Adjustable Flat tension levers

Steel, blackened

SPECIFICATION

Types

- Type **D**: straight lever
- Type **E**: angled lever

Steel
blackened

Tensile strength class 5.8

Plane surface with natural coloured,
anodized Aluminium-disc

Ball knobs DIN 319 (see page 538)

Plastic, Duroplast
black, shiny finish

INFORMATION

The overall height of tension levers GN 125 is reduced to a minimum. As all other adjustable levers, they are ideal whenever parts have to be clamped in a confined space, or a particular lever position is required. The threaded insert is connected with the hub via serrations which can be disengaged.

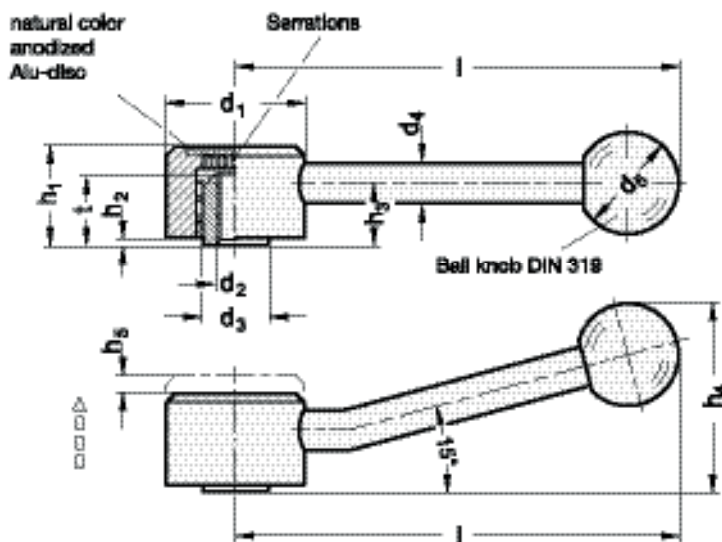
Pulling the lever, disengages the serrations and the lever can be swivelled to the ideal clamping position. On releasing the lever it will automatically re-engage.

ON REQUEST

- with threaded through hole

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



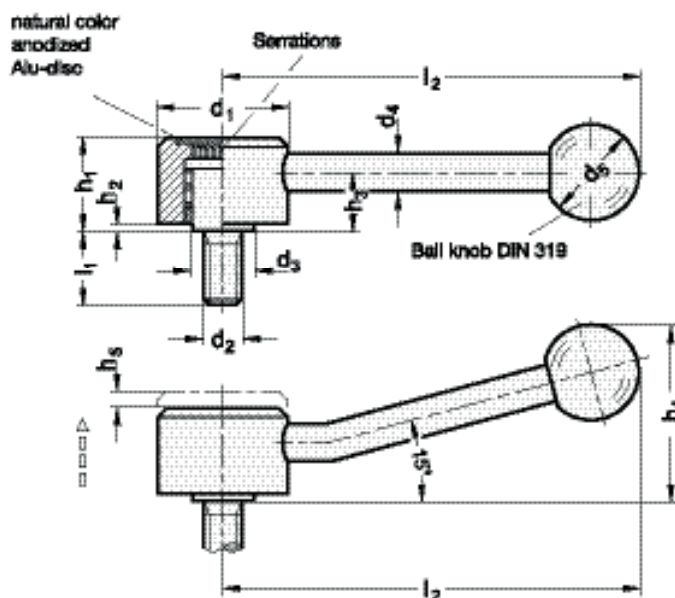
* Complete with type of the Adjustable Flat tension levers (E or D)

D **E**
Straight lever Angled lever

GN 125-with threaded insert

Description	d1	d2	d3	d4	d5	h1	h2	h3	h4 ≈	h5	l	t min.	
GN 125-32-M6-*	32	M 6	13.5	8	20	20.5	1.5	12.5	36	4	100	11	141
GN 125-32-M8-*	32	M 8	13.5	8	20	20.5	1.5	12.5	36	4	100	11	139
GN 125-36-M8-*	36	M 8	16	10	25	24.5	2	15	45	4.5	120	14	223
GN 125-36-M10-*	36	M 10	16	10	25	24.5	2	15	45	4.5	120	14	222
GN 125-36-M12-*	36	M 12	16	10	25	24.5	2	15	45	4.5	120	14	220
GN 125-40-M10-*	40	M 10	19	12	30	26.5	2	16	50	4.5	130	17	307
GN 125-40-M12-*	40	M 12	19	12	30	26.5	2	16	50	4.5	130	17	301
GN 125-45-M12-*	45	M 12	23	12	32	31.5	2	20	60	5	145	23	425
GN 125-45-M14-*	45	M 14	23	12	32	31.5	2	20	60	5	145	23	415
GN 125-45-M16-*	45	M 16	23	12	32	31.5	2	20	60	5	145	23	406

Weight type E



* Complete with type of the Adjustable Flat tension levers (E or D)

D E
Straight lever Angled lever

GN 125-with threaded stud

Description	d1	d2	l1	d3	d4	d5	h1	h2	h3	h4 ≈	h5	l2	Δ
GN 125-32-M8-12-*	32	M 8	12	13.5	8	20	20.5	1.5	12.5	36	4	100	147
GN 125-32-M8-16-*	32	M 8	16	13.5	8	20	20.5	1.5	12.5	36	4	100	148
GN 125-32-M8-20-*	32	M 8	20	13.5	8	20	20.5	1.5	12.5	36	4	100	149
GN 125-32-M8-25-*	32	M 8	25	13.5	8	20	20.5	1.5	12.5	36	4	100	151
GN 125-32-M8-32-*	32	M 8	32	13.5	8	20	20.5	1.5	12.5	36	4	100	153
GN 125-32-M8-40-*	32	M 8	40	13.5	8	20	20.5	1.5	12.5	36	4	100	156
GN 125-32-M8-50-*	32	M 8	50	13.5	8	20	20.5	1.5	12.5	36	4	100	158
GN 125-32-M8-63-*	32	M 8	63	13.5	8	20	20.5	1.5	12.5	36	4	100	163
GN 125-32-M10-20-*	32	M 10	20	13.5	8	20	20.5	1.5	12.5	36	4	100	155
GN 125-32-M10-25-*	32	M 10	25	13.5	8	20	20.5	1.5	12.5	36	4	100	155
GN 125-32-M10-32-*	32	M 10	32	13.5	8	20	20.5	1.5	12.5	36	4	100	159
GN 125-32-M10-40-*	32	M 10	40	13.5	8	20	20.5	1.5	12.5	36	4	100	172
GN 125-32-M10-50-*	32	M 10	50	13.5	8	20	20.5	1.5	12.5	36	4	100	173
GN 125-32-M10-63-*	32	M 10	63	13.5	8	20	20.5	1.5	12.5	36	4	100	173
GN 125-32-M10-80-*	32	M 10	80	13.5	8	20	20.5	1.5	12.5	36	4	100	193
GN 125-36-M10-16-*	36	M 10	16	16	10	25	24.5	2	15	45	4.5	120	235
GN 125-36-M10-20-*	36	M 10	20	16	10	25	24.5	2	15	45	4.5	120	237
GN 125-36-M10-25-*	36	M 10	25	16	10	25	24.5	2	15	45	4.5	120	239
GN 125-36-M10-32-*	36	M 10	32	16	10	25	24.5	2	15	45	4.5	120	242
GN 125-36-M10-40-*	36	M 10	40	16	10	25	24.5	2	15	45	4.5	120	246
GN 125-36-M10-50-*	36	M 10	50	16	10	25	24.5	2	15	45	4.5	120	250
GN 125-36-M10-63-*	36	M 10	63	16	10	25	24.5	2	15	45	4.5	120	259
GN 125-36-M10-80-*	36	M 10	80	16	10	25	24.5	2	15	45	4.5	120	266
GN 125-36-M12-25-*	36	M 12	25	16	10	25	24.5	2	15	45	4.5	120	245
GN 125-36-M12-32-*	36	M 12	32	16	10	25	24.5	2	15	45	4.5	120	250
GN 125-36-M12-40-*	36	M 12	40	16	10	25	24.5	2	15	45	4.5	120	256
GN 125-36-M12-50-*	36	M 12	50	16	10	25	24.5	2	15	45	4.5	120	263
GN 125-36-M12-63-*	36	M 12	63	16	10	25	24.5	2	15	45	4.5	120	271
GN 125-36-M12-80-*	36	M 12	80	16	10	25	24.5	2	15	45	4.5	120	283
GN 125-40-M12-25-*	40	M 12	25	19	12	30	26.5	2	16	50	4.5	130	336
GN 125-40-M12-32-*	40	M 12	32	19	12	30	26.5	2	16	50	4.5	130	342
GN 125-40-M12-40-*	40	M 12	40	19	12	30	26.5	2	16	50	4.5	130	348
GN 125-40-M12-50-*	40	M 12	50	19	12	30	26.5	2	16	50	4.5	130	355
GN 125-40-M12-63-*	40	M 12	63	19	12	30	26.5	2	16	50	4.5	130	364
GN 125-40-M12-80-*	40	M 12	80	19	12	30	26.5	2	16	50	4.5	130	376
GN 125-45-M16-32-*	45	M 16	32	23	12	32	31.5	2	20	60	5	145	488
GN 125-45-M16-40-*	45	M 16	40	23	12	32	31.5	2	20	60	5	145	498
GN 125-45-M16-50-*	45	M 16	50	23	12	32	31.5	2	20	60	5	145	512
GN 125-45-M16-63-*	45	M 16	63	23	12	32	31.5	2	20	60	5	145	529
GN 125-45-M16-80-*	45	M 16	80	23	12	32	31.5	2	20	60	5	145	549

Weight type E



GN 125.5

Adjustable Stainless Steel- Flat tension levers

SPECIFICATION

Types

- Type **D**: straight lever
- Type **E**: angled lever

Stainless Steel AISI 303
matt shot-blasted

Plane surface with natural coloured,
anodized Aluminium-disc

Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

INFORMATION

The overall height of Stainless Steel-tension levers GN 125.5 is reduced to a minimum.

As all other adjustable levers, they are ideal whenever parts have to be clamped in a confined space, or a particular lever position is required. The threaded insert is connected with the hub via serrations which can be disengaged

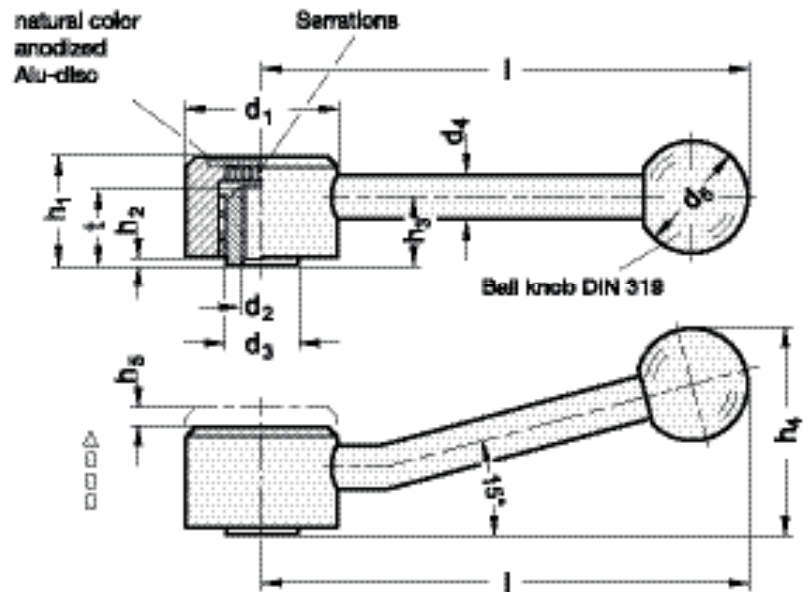
Pulling the lever, disengages the serrations and the lever can be swivelled to the ideal clamping position. On releasing the lever it will automatically re-engage.

ON REQUEST

- with threaded through hole

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with type of the Adjustable Flat tension levers (E or D)

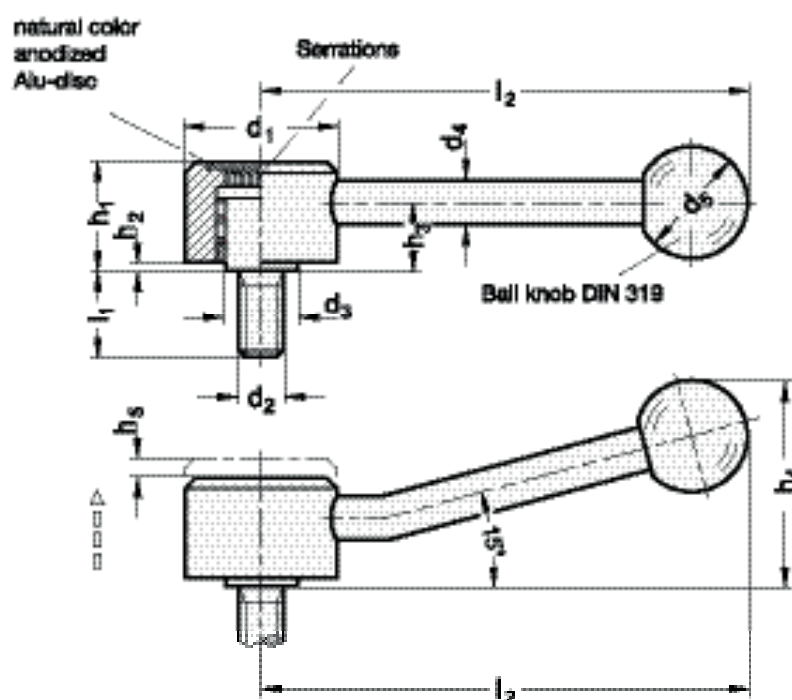
D **E**
Straight lever Angled lever

GN 125.5-with threaded insert

STAINLESS STEEL

Description	d1	d2	d3	d4	d5	h1	h2	h3	h4 ≈	h5	l	t min.	Δ
GN 125.5-32-M6-*	32	M 6	13.5	8	20	20.5	1.5	12.5	36	4	100	11	160
GN 125.5-32-M8-*	32	M 8	13.5	8	20	20.5	1.5	12.5	36	4	100	11	160
GN 125.5-36-M8-*	36	M 8	16	10	25	24.5	2	15	45	4.5	120	14	233
GN 125.5-36-M10-*	36	M 10	16	10	25	24.5	2	15	45	4.5	120	14	228
GN 125.5-40-M10-*	40	M 10	19	12	30	30	4	19	53	4.5	130	17	370
GN 125.5-40-M12-*	40	M 12	19	12	30	30	4	19	53	4.5	130	17	340
GN 125.5-45-M12-*	45	M 12	23	12	32	35.5	4	24	64	5	145	23	495
GN 125.5-45-M16-*	45	M 16	23	12	32	35.5	4	24	64	5	145	23	440

Weight type E



* Complete with type of the Adjustable Flat tension levers (E or D)

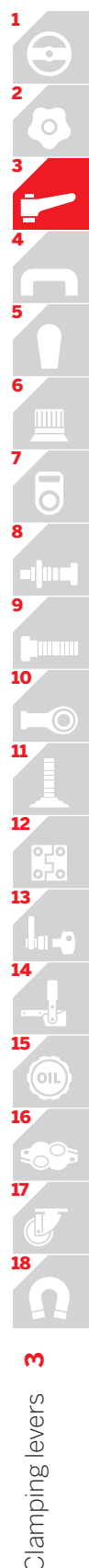
D E
Straight lever Angled lever

GN 125.5-with threaded stud

STAINLESS STEEL

Description	d1	d2	l1	d3	d4	d5	h1	h2	h3	h4 ≈	h5	l2	⚖
GN 125.5-32-M8-12-*	32	M 8	12	13.5	8	20	20.5	1.5	12.5	36	4	100	155
GN 125.5-32-M8-16-*	32	M 8	16	13.5	8	20	20.5	1.5	12.5	36	4	100	160
GN 125.5-32-M8-20-*	32	M 8	20	13.5	8	20	20.5	1.5	12.5	36	4	100	160
GN 125.5-32-M8-25-*	32	M 8	25	13.5	8	20	20.5	1.5	12.5	36	4	100	159
GN 125.5-32-M8-32-*	32	M 8	32	13.5	8	20	20.5	1.5	12.5	36	4	100	160
GN 125.5-32-M8-40-*	32	M 8	40	13.5	8	20	20.5	1.5	12.5	36	4	100	160
GN 125.5-32-M8-50-*	32	M 8	50	13.5	8	20	20.5	1.5	12.5	36	4	100	180
GN 125.5-36-M10-16-*	36	M 10	16	16	10	25	24.5	2	15	45	4.5	120	240
GN 125.5-36-M10-20-*	36	M 10	20	16	10	25	24.5	2	15	45	4.5	120	250
GN 125.5-36-M10-25-*	36	M 10	25	16	10	25	24.5	2	15	45	4.5	120	253
GN 125.5-36-M10-32-*	36	M 10	32	16	10	25	24.5	2	15	45	4.5	120	250
GN 125.5-36-M10-40-*	36	M 10	40	16	10	25	24.5	2	15	45	4.5	120	260
GN 125.5-36-M10-50-*	36	M 10	50	16	10	25	24.5	2	15	45	4.5	120	260
GN 125.5-36-M10-63-*	36	M 10	63	16	10	25	24.5	2	15	45	4.5	120	282
GN 125.5-36-M10-80-*	36	M 10	80	16	10	25	24.5	2	15	45	4.5	120	260
GN 125.5-40-M12-25-*	40	M 12	25	19	12	30	30	4	19	53	4.5	130	280
GN 125.5-40-M12-32-*	40	M 12	32	19	12	30	30	4	19	53	4.5	130	380
GN 125.5-40-M12-40-*	40	M 12	40	19	12	30	30	4	19	53	4.5	130	380
GN 125.5-40-M12-50-*	40	M 12	50	19	12	30	30	4	19	53	4.5	130	380
GN 125.5-40-M12-63-*	40	M 12	63	19	12	30	30	4	19	53	4.5	130	400
GN 125.5-40-M12-80-*	40	M 12	80	19	12	30	30	4	19	53	4.5	130	407
GN 125.5-45-M16-32-*	45	M 16	32	23	12	32	35.5	4	24	64	5	145	540
GN 125.5-45-M16-40-*	45	M 16	40	23	12	32	35.5	4	24	64	5	145	540
GN 125.5-45-M16-50-*	45	M 16	50	23	12	32	35.5	4	24	64	5	145	683
GN 125.5-45-M16-63-*	45	M 16	63	23	12	32	35.5	4	24	64	5	145	580
GN 125.5-45-M16-80-*	45	M 16	80	23	12	32	35.5	4	24	64	5	145	724

Weight type E



Safety tension levers

PUSH to engage

SPECIFICATION

Types

- Type **E**: angled lever
- Type **D**: straight lever

Steel
blackened

Tensile strength class 5.8

Ball knobs DIN 319 (see page 538)

Plastic, Duroplast
black, shiny finish

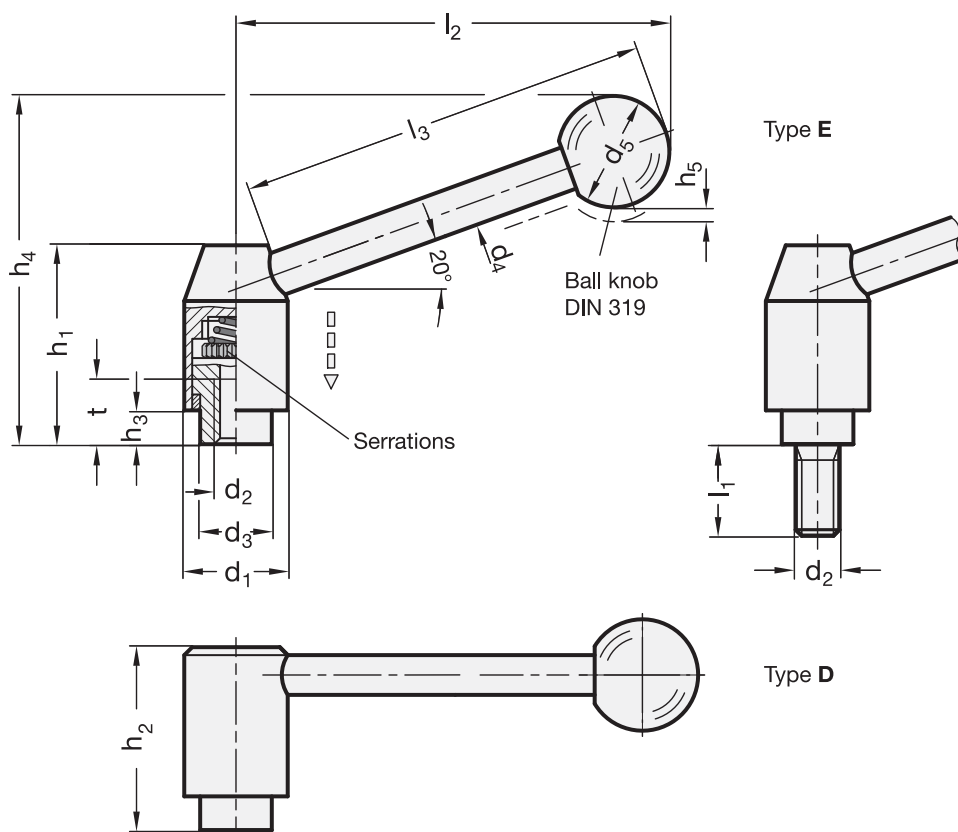
INFORMATION

Safety tension levers GN 312 are used on such applications where a thoughtless or mistaken releasing or re-positioning of the tension lever could lead to an accident.

The lever in its rest position is not connected with the internal spindle and can be rotated unhindered.

The tension lever engages in the serration only after pushing it down, thus allowing clamping or unclamping.

The "freewheel" position is re-established as soon as the handle is released.



* Complete with type of the Safety tension levers (E or D)

E **D**
Angled lever Straight lever

GN 312-with threaded insert

Description	d1	d2	d3	d4	d5	h1	h2	h3	h4 Type E	h4 Type D	h5	l2 Type E	l2 Type D	l3	t min.	⚖
GN 312-21-M6-*	21	M 6	13.5	8	20	37	34.5	4.5	62	39	3	75	39	70	11	101
GN 312-21-M8-*	21	M 8	13.5	8	20	37	34.5	4.5	62	39	3	75	39	70	11	99
GN 312-24-M8-*	24	M 8	16	10	25	44	41	6.5	78	47	3.5	101	47	96	14	165
GN 312-24-M10-*	24	M 10	16	10	25	44	41	6.5	78	47	3.5	101	47	96	14	161
GN 312-28-M10-*	28	M 10	19	12	30	53	49	8.5	93	56	4	116	56	110	17	286
GN 312-28-M12-*	28	M 12	19	12	30	53	49	8.5	93	56	4	116	56	110	17	270
GN 312-33-M12-*	33	M 12	23	12	32	60	56	10.5	105	65	4.5	131	65	124	22	407
GN 312-33-M16-*	33	M 16	23	12	32	60	56	10.5	105	65	4.5	131	65	124	22	390

GN 312-with threaded stud

Description	d1	d2	l1	d3	d4	d5	h1	h2	h3	h4 Type E	h4 Type D	h5	l2 Type E	l2 Type D	l3	⚖
GN 312-21-M8-16-*	21	M 8	16	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	108
GN 312-21-M8-20-*	21	M 8	20	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	109
GN 312-21-M8-25-*	21	M 8	25	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	111
GN 312-21-M8-32-*	21	M 8	32	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	113
GN 312-21-M8-40-*	21	M 8	40	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	116
GN 312-21-M8-50-*	21	M 8	50	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	118
GN 312-21-M8-63-*	21	M 8	63	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	123
GN 312-24-M10-20-*	24	M 10	20	16	10	25	44	41	6.5	78	47	3.5	101	108	96	179
GN 312-24-M10-25-*	24	M 10	25	16	10	25	44	41	6.5	78	47	3.5	101	108	96	181
GN 312-24-M10-32-*	24	M 10	32	16	10	25	44	41	6.5	78	47	3.5	101	108	96	184
GN 312-24-M10-40-*	24	M 10	40	16	10	25	44	41	6.5	78	47	3.5	101	108	96	188
GN 312-24-M10-50-*	24	M 10	50	16	10	25	44	41	6.5	78	47	3.5	101	108	96	194
GN 312-24-M10-63-*	24	M 10	63	16	10	25	44	41	6.5	78	47	3.5	101	108	96	201
GN 312-24-M10-80-*	24	M 10	80	16	10	25	44	41	6.5	78	47	3.5	101	108	96	210
GN 312-28-M12-20-*	28	M 12	20	19	12	30	53	49	8.5	93	56	4	116	124	110	299
GN 312-28-M12-25-*	28	M 12	25	19	12	30	53	49	8.5	93	56	4	116	124	110	304
GN 312-28-M12-32-*	28	M 12	32	19	12	30	53	49	8.5	93	56	4	116	124	110	309
GN 312-28-M12-40-*	28	M 12	40	19	12	30	53	49	8.5	93	56	4	116	124	110	314
GN 312-28-M12-50-*	28	M 12	50	19	12	30	53	49	8.5	93	56	4	116	124	110	321
GN 312-28-M12-63-*	28	M 12	63	19	12	30	53	49	8.5	93	56	4	116	124	110	331
GN 312-28-M12-80-*	28	M 12	80	19	12	30	53	49	8.5	93	56	4	116	124	110	342
GN 312-33-M16-32-*	33	M 16	32	23	12	32	60	56	10.5	105	65	4.5	131	140.5	124	455
GN 312-33-M16-40-*	33	M 16	40	23	12	32	60	56	10.5	105	65	4.5	131	140.5	124	477
GN 312-33-M16-50-*	33	M 16	50	23	12	32	60	56	10.5	105	65	4.5	131	140.5	124	492
GN 312-33-M16-63-*	33	M 16	63	23	12	32	60	56	10.5	105	65	4.5	131	140.5	124	508
GN 312-33-M16-80-*	33	M 16	80	23	12	32	60	56	10.5	105	65	4.5	131	140.5	124	530

Weight type D



Clamping levers with eccentric cam

Contact plate Plastic / Lever Zinc die casting

SPECIFICATION

Types

- Type **A**: Plastic contact plate with setting nut
- Type **B**: Plastic contact plate without setting nut

Lever

Zinc die casting

plastic coated (abrasion proof epoxy resin)

black, RAL 9005 **B**

orange, RAL 2004 **O**

red, RAL 3000 **R**

silver, RAL 9006 **S**

Contact plates

Plastic, glass fibre reinforced

- Type **A**: Polyacetal (POM)

- Type **B**: Polyamide (PA)

Version with threaded insert

Axis, lag nut, setting nut

Steel zinc plated, blue passivated

Version with threaded stud

Axis, lag screw, setting screw

Steel zinc plated, blue passivated

INFORMATION

Clamping levers with eccentric cam GN 927 are used for rapid clamping and releasing. Hereby, contrary to a clamping operation via a thread, these levers permit a **torque-free** clamping.

The lever has been designed to ensure that its movement cannot exceed the max. clamping force.

There are no loose components since they are all assembled and mounted in their correct order.

Type A has the following benefits:

The distance between the lever cam and the clamping surface is adjustable via a fine pitch thread, allowing the clamping position to be set easily with maximum clamping force. Also, the position of the lever relative to the clamping axis can be determined.

With these clamping levers with eccentric cam, clamping forces of up to 8 kN can be reached.

TECHNICAL INFORMATION

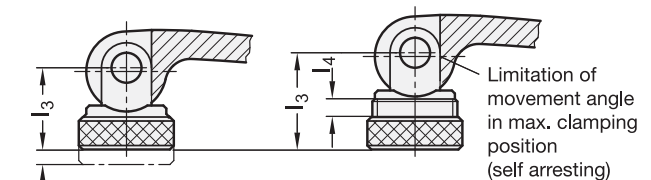
- Plastic characteristics (see page A2)



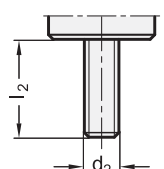
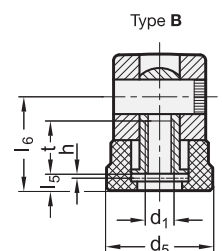
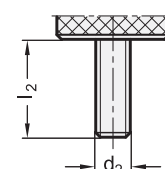
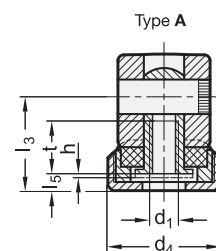
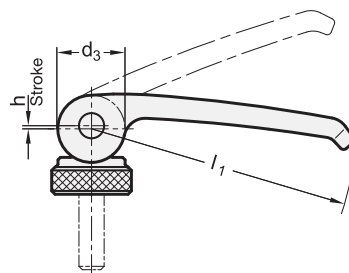
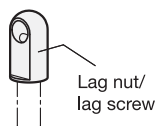
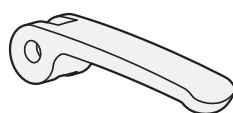
reddot design award

CONSTRUCTIONAL FEATURES (TYPE A) / APPLICATION EXAMPLE

l_3 adjustable by the setting screw for optimum clamping force at the preferred lever position.



l_3 max. must not be exceeded. Otherwise there is the risk that the positioning thread can no longer absorb the clamping force or may be damaged.



* Complete with colour index of the Clamping lever (B, O, R or S)

B O R S
 RAL9005 RAL2004 RAL3000 RAL9006

GN 927-with threaded insert

Description	l1	d1	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	t	⚖
GN 927-63-M5-A-*	63	M 5	16	16	19	-	0.75	16.3	18.8	2.5	3	-	10	56
GN 927-63-M6-A-*	63	M 6	16	16	19	-	0.75	16.3	18.8	2.5	3	-	10	56
GN 927-82-M6-A-*	82	M 6	20	20	25	-	1	19.5	22.5	3	3.7	-	12	110
GN 927-82-M8-A-*	82	M 8	20	20	25	-	1	19.5	22.5	3	3.7	-	12	110
GN 927-101-M8-A-*	101	M 8	25	26	30	-	1.5	25.3	29.3	4	4.8	-	15	218
GN 927-101-M10-A-*	101	M 10	25	26	30	-	1.5	25.3	29.3	4	4.8	-	15	210
GN 927-63-M5-B-*	63	M 5	16	16	-	18.5	0.75	-	-	-	3	16.3	10	52
GN 927-63-M6-B-*	63	M 6	16	16	-	18.5	0.75	-	-	-	3	16.3	10	51
GN 927-82-M6-B-*	82	M 6	20	20	-	22.5	1	-	-	-	3.7	19.5	12	110
GN 927-82-M8-B-*	82	M 8	20	20	-	22.5	1	-	-	-	3.7	19.5	12	96
GN 927-101-M8-B-*	101	M 8	25	26	-	27	1.5	-	-	-	4.8	25.3	15	175
GN 927-101-M10-B-*	101	M 10	25	26	-	27	1.5	-	-	-	4.8	25.3	15	156

GN 927-with threaded stud

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	⚖
GN 927-63-M5-16-A-*	63	M 5	16	16	16	19	-	0.75	16.3	18.8	2.5	3	-	60
GN 927-63-M5-20-A-*	63	M 5	20	16	16	19	-	0.75	16.3	18.8	2.5	3	-	61
GN 927-63-M5-25-A-*	63	M 5	25	16	16	19	-	0.75	16.3	18.8	2.5	3	-	62
GN 927-63-M5-30-A-*	63	M 5	30	16	16	19	-	0.75	16.3	18.8	2.5	3	-	63
GN 927-63-M5-35-A-*	63	M 5	35	16	16	19	-	0.75	16.3	18.8	2.5	3	-	63
GN 927-63-M5-40-A-*	63	M 5	40	16	16	19	-	0.75	16.3	18.8	2.5	3	-	63
GN 927-63-M5-50-A-*	63	M 5	50	16	16	19	-	0.75	16.3	18.8	2.5	3	-	65
GN 927-63-M6-16-A-*	63	M 6	16	16	16	19	-	0.75	16.3	18.8	2.5	3	-	60
GN 927-63-M6-20-A-*	63	M 6	20	16	16	19	-	0.75	16.3	18.8	2.5	3	-	61
GN 927-63-M6-25-A-*	63	M 6	25	16	16	19	-	0.75	16.3	18.8	2.5	3	-	63
GN 927-63-M6-30-A-*	63	M 6	30	16	16	19	-	0.75	16.3	18.8	2.5	3	-	64
GN 927-63-M6-35-A-*	63	M 6	35	16	16	19	-	0.75	16.3	18.8	2.5	3	-	65
GN 927-63-M6-40-A-*	63	M 6	40	16	16	19	-	0.75	16.3	18.8	2.5	3	-	66
GN 927-63-M6-50-A-*	63	M 6	50	16	16	19	-	0.75	16.3	18.8	2.5	3	-	68
GN 927-82-M6-20-A-*	82	M 6	20	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M6-25-A-*	82	M 6	25	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M6-30-A-*	82	M 6	30	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M6-35-A-*	82	M 6	35	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M6-40-A-*	82	M 6	40	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M6-50-A-*	82	M 6	50	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M6-60-A-*	82	M 6	60	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M8-20-A-*	82	M 8	20	20	20	25	-	1	19.5	22.5	3	3.7	-	123
GN 927-82-M8-25-A-*	82	M 8	25	20	20	25	-	1	19.5	22.5	3	3.7	-	122
GN 927-82-M8-30-A-*	82	M 8	30	20	20	25	-	1	19.5	22.5	3	3.7	-	124
GN 927-82-M8-35-A-*	82	M 8	35	20	20	25	-	1	19.5	22.5	3	3.7	-	125
GN 927-82-M8-40-A-*	82	M 8	40	20	20	25	-	1	19.5	22.5	3	3.7	-	125
GN 927-82-M8-50-A-*	82	M 8	50	20	20	25	-	1	19.5	22.5	3	3.7	-	129
GN 927-82-M8-60-A-*	82	M 8	60	20	20	25	-	1	19.5	22.5	3	3.7	-	134
GN 927-101-M8-25-A-*	101	M 8	25	25	26	30	-	1.5	25.3	29.3	4	4.8	-	227
GN 927-101-M8-30-A-*	101	M 8	30	25	26	30	-	1.5	25.3	29.3	4	4.8	-	227
GN 927-101-M8-35-A-*	101	M 8	35	25	26	30	-	1.5	25.3	29.3	4	4.8	-	228
GN 927-101-M8-40-A-*	101	M 8	40	25	26	30	-	1.5	25.3	29.3	4	4.8	-	232
GN 927-101-M8-50-A-*	101	M 8	50	25	26	30	-	1.5	25.3	29.3	4	4.8	-	233
GN 927-101-M8-60-A-*	101	M 8	60	25	26	30	-	1.5	25.3	29.3	4	4.8	-	237





* Complete with colour index of the Clamping lever (B, O, R or S)

B
RAL9005

O
RAL2004

R
RAL3000

S
RAL9006

GN 927-with threaded stud

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	⚖
GN 927-101-M10-20-A-*	101	M 10	20	25	26	30	-	1.5	25.3	29.3	4	4.8	-	230
GN 927-101-M10-25-A-*	101	M 10	25	25	26	30	-	1.5	25.3	29.3	4	4.8	-	231
GN 927-101-M10-30-A-*	101	M 10	30	25	26	30	-	1.5	25.3	29.3	4	4.8	-	233
GN 927-101-M10-35-A-*	101	M 10	35	25	26	30	-	1.5	25.3	29.3	4	4.8	-	237
GN 927-101-M10-40-A-*	101	M 10	40	25	26	30	-	1.5	25.3	29.3	4	4.8	-	238
GN 927-101-M10-50-A-*	101	M 10	50	25	26	30	-	1.5	25.3	29.3	4	4.8	-	245
GN 927-101-M10-60-A-*	101	M 10	60	25	26	30	-	1.5	25.3	29.3	4	4.8	-	250
GN 927-63-M5-16-B-*	63	M 5	16	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M5-20-B-*	63	M 5	20	16	16	-	18.5	0.75	-	-	-	3	16.3	55
GN 927-63-M5-25-B-*	63	M 5	25	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M5-30-B-*	63	M 5	30	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M5-35-B-*	63	M 5	35	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M5-40-B-*	63	M 5	40	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M5-50-B-*	63	M 5	50	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M6-16-B-*	63	M 6	16	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M6-20-B-*	63	M 6	20	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M6-25-B-*	63	M 6	25	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M6-30-B-*	63	M 6	30	16	16	-	18.5	0.75	-	-	-	3	16.3	60
GN 927-63-M6-35-B-*	63	M 6	35	16	16	-	18.5	0.75	-	-	-	3	16.3	60
GN 927-63-M6-40-B-*	63	M 6	40	16	16	-	18.5	0.75	-	-	-	3	16.3	60
GN 927-63-M6-50-B-*	63	M 6	50	16	16	-	18.5	0.75	-	-	-	3	16.3	60
GN 927-82-M6-20-B-*	82	M 6	20	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M6-25-B-*	82	M 6	25	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M6-30-B-*	82	M 6	30	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M6-35-B-*	82	M 6	35	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M6-40-B-*	82	M 6	40	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M6-50-B-*	82	M 6	50	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M6-60-B-*	82	M 6	60	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M8-20-B-*	82	M 8	20	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M8-25-B-*	82	M 8	25	20	20	-	22.5	1	-	-	-	3.7	19.5	100
GN 927-82-M8-30-B-*	82	M 8	30	20	20	-	22.5	1	-	-	-	3.7	19.5	107
GN 927-82-M8-35-B-*	82	M 8	35	20	20	-	22.5	1	-	-	-	3.7	19.5	108
GN 927-82-M8-40-B-*	82	M 8	40	20	20	-	22.5	1	-	-	-	3.7	19.5	110
GN 927-82-M8-50-B-*	82	M 8	50	20	20	-	22.5	1	-	-	-	3.7	19.5	120
GN 927-82-M8-60-B-*	82	M 8	60	20	20	-	22.5	1	-	-	-	3.7	19.5	120
GN 927-101-M8-20-B-*	101	M 8	20	25	26	-	27	1.5	-	-	-	4.8	25.3	200
GN 927-101-M8-25-B-*	101	M 8	25	25	26	-	27	1.5	-	-	-	4.8	25.3	202
GN 927-101-M8-30-B-*	101	M 8	30	25	26	-	27	1.5	-	-	-	4.8	25.3	204
GN 927-101-M8-35-B-*	101	M 8	35	25	26	-	27	1.5	-	-	-	4.8	25.3	204
GN 927-101-M8-40-B-*	101	M 8	40	25	26	-	27	1.5	-	-	-	4.8	25.3	208
GN 927-101-M8-50-B-*	101	M 8	50	25	26	-	27	1.5	-	-	-	4.8	25.3	210
GN 927-101-M8-60-B-*	101	M 8	60	25	26	-	27	1.5	-	-	-	4.8	25.3	213
GN 927-101-M10-20-B-*	101	M 10	20	25	26	-	27	1.5	-	-	-	4.8	25.3	205
GN 927-101-M10-25-B-*	101	M 10	25	25	26	-	27	1.5	-	-	-	4.8	25.3	207
GN 927-101-M10-30-B-*	101	M 10	30	25	26	-	27	1.5	-	-	-	4.8	25.3	209
GN 927-101-M10-35-B-*	101	M 10	35	25	26	-	27	1.5	-	-	-	4.8	25.3	212
GN 927-101-M10-40-B-*	101	M 10	40	25	26	-	27	1.5	-	-	-	4.8	25.3	215
GN 927-101-M10-50-B-*	101	M 10	50	25	26	-	27	1.5	-	-	-	4.8	25.3	219
GN 927-101-M10-60-B-*	101	M 10	60	25	26	-	27	1.5	-	-	-	4.8	25.3	224

Clamping levers

Clamping levers with eccentric cam

Single parts Stainless Steel / Contact plate Plastic /
Lever Zinc die casting

SPECIFICATION

Types

- Type **A**: Plastic contact plate with setting nut
- Type **B**: Plastic contact plate without setting nut

Lever

Zinc die casting

plastic coated (abrasion proof epoxy resin)

black, RAL 9005 **B**

orange, RAL 2004 **O**

red, RAL 3000 **R**

silver, RAL 9006 **S**

Contact plates

Plastic, glass fibre reinforced

- Type A: Polyacetal (POM)
- Type B: Polyamide (PA)

Version with threaded insert

Axis, lag nut, setting nut

Stainless Steel AISI 303

Version with threaded stud

Axis, lag screw, setting screw

Stainless Steel AISI 303

INFORMATION

Clamping levers with eccentric cam GN 927.4 with stainless steel internal thread are used for rapid clamping and releasing. Hereby, contrary to a clamping operation via a thread, these levers permit a **torque-free** clamping.

The lever has been designed to ensure that its movement cannot exceed the max. clamping force.

There are no loose components since they are all assembled and mounted in their correct order.

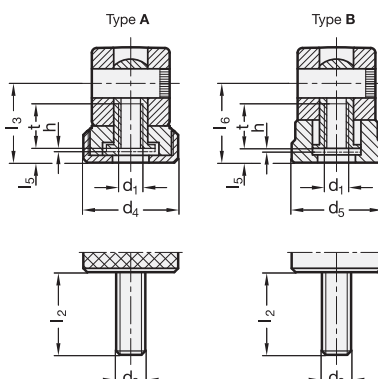
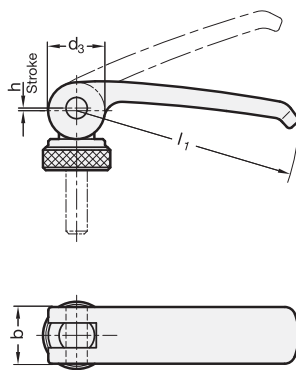
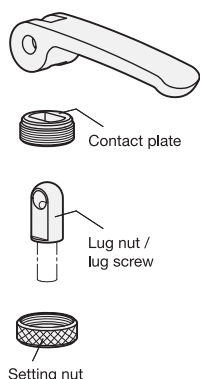
Type A has the following benefits:

The distance between the lever cam and the clamping surface is adjustable via a fine pitch thread, allowing the clamping position to be set easily with maximum clamping force. Also, the position of the lever relative to the clamping axis can be determined.

With these clamping levers with eccentric cam, clamping forces of up to 8 kN can be reached.

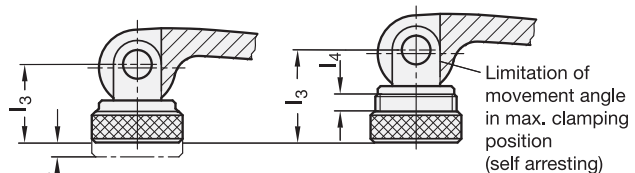
TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



CONSTRUCTIONAL FEATURES (TYPE A) / APPLICATION EXAMPLE

l_3 adjustable by the setting screw for optimum clamping force at the preferred lever position.



l_3 max. must not be exceeded. Otherwise there is the risk that the positioning thread can no longer absorb the clamping force or may be damaged.

* Complete with colour index of the Clamping lever (B, O, R or S)

B
RAL9005O
RAL2004R
RAL3000S
RAL9006

GN 927.4-with threaded insert

Description	l1	d1	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	t	⚖
GN 927.4-63-M5-A-*	63	M 5	16	16	19	-	0.75	16.3	18.8	2.5	3	-	10	57
GN 927.4-63-M6-A-*	63	M 6	16	16	19	-	0.75	16.3	18.8	2.5	3	-	10	56
GN 927.4-82-M6-A-*	82	M 6	20	20	25	-	1	19.5	22.5	3	3.7	-	12	112
GN 927.4-82-M8-A-*	82	M 8	20	20	25	-	1	19.5	22.5	3	3.7	-	12	110
GN 927.4-101-M8-A-*	101	M 8	25	26	30	-	1.5	25.3	29.3	4	4.8	-	15	213
GN 927.4-101-M10-A-*	101	M 10	25	26	30	-	1.5	25.3	29.3	4	4.8	-	15	211
GN 927.4-63-M5-B-*	63	M 5	16	16	-	18.5	0.75	-	-	-	3	16.3	10	51
GN 927.4-63-M6-B-*	63	M 6	16	16	-	18.5	0.75	-	-	-	3	16.3	10	50
GN 927.4-82-M6-B-*	82	M 6	20	20	-	22.5	1	-	-	-	3.7	19.5	12	97
GN 927.4-82-M8-B-*	82	M 8	20	20	-	22.5	1	-	-	-	3.7	19.5	12	98
GN 927.4-101-M8-B-*	101	M 8	25	26	-	27	1.5	-	-	-	4.8	25.3	15	185
GN 927.4-101-M10-B-*	101	M 10	25	26	-	27	1.5	-	-	-	4.8	25.3	15	185

GN 927.4-with threaded stud

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	⚖
GN 927.4-63-M5-16-A-*	63	M 5	16	16	16	19	-	0.75	16.3	18.8	2.5	3	-	60
GN 927.4-63-M5-20-A-*	63	M 5	20	16	16	19	-	0.75	16.3	18.8	2.5	3	-	61
GN 927.4-63-M5-25-A-*	63	M 5	25	16	16	19	-	0.75	16.3	18.8	2.5	3	-	61
GN 927.4-63-M5-30-A-*	63	M 5	30	16	16	19	-	0.75	16.3	18.8	2.5	3	-	63
GN 927.4-63-M5-35-A-*	63	M 5	35	16	16	19	-	0.75	16.3	18.8	2.5	3	-	63
GN 927.4-63-M5-40-A-*	63	M 5	40	16	16	19	-	0.75	16.3	18.8	2.5	3	-	65
GN 927.4-63-M5-50-A-*	63	M 5	50	16	16	19	-	0.75	16.3	18.8	2.5	3	-	65
GN 927.4-63-M6-16-A-*	63	M 6	16	16	16	19	-	0.75	16.3	18.8	2.5	3	-	60
GN 927.4-63-M6-20-A-*	63	M 6	20	16	16	19	-	0.75	16.3	18.8	2.5	3	-	61
GN 927.4-63-M6-25-A-*	63	M 6	25	16	16	19	-	0.75	16.3	18.8	2.5	3	-	62
GN 927.4-63-M6-30-A-*	63	M 6	30	16	16	19	-	0.75	16.3	18.8	2.5	3	-	64
GN 927.4-63-M6-35-A-*	63	M 6	35	16	16	19	-	0.75	16.3	18.8	2.5	3	-	64
GN 927.4-63-M6-40-A-*	63	M 6	40	16	16	19	-	0.75	16.3	18.8	2.5	3	-	65
GN 927.4-63-M6-50-A-*	63	M 6	50	16	16	19	-	0.75	16.3	18.8	2.5	3	-	77
GN 927.4-82-M6-20-A-*	82	M 6	20	20	20	25	-	1	19.5	22.5	3	3.7	-	118
GN 927.4-82-M6-25-A-*	82	M 6	25	20	20	25	-	1	19.5	22.5	3	3.7	-	119
GN 927.4-82-M6-30-A-*	82	M 6	30	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927.4-82-M6-35-A-*	82	M 6	35	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927.4-82-M6-40-A-*	82	M 6	40	20	20	25	-	1	19.5	22.5	3	3.7	-	122
GN 927.4-82-M6-50-A-*	82	M 6	50	20	20	25	-	1	19.5	22.5	3	3.7	-	123
GN 927.4-82-M6-60-A-*	82	M 6	60	20	20	25	-	1	19.5	22.5	3	3.7	-	126
GN 927.4-82-M8-20-A-*	82	M 8	20	20	20	25	-	1	19.5	22.5	3	3.7	-	121
GN 927.4-82-M8-25-A-*	82	M 8	25	20	20	25	-	1	19.5	22.5	3	3.7	-	122
GN 927.4-82-M8-30-A-*	82	M 8	30	20	20	25	-	1	19.5	22.5	3	3.7	-	123
GN 927.4-82-M8-35-A-*	82	M 8	35	20	20	25	-	1	19.5	22.5	3	3.7	-	125
GN 927.4-82-M8-40-A-*	82	M 8	40	20	20	25	-	1	19.5	22.5	3	3.7	-	128
GN 927.4-82-M8-50-A-*	82	M 8	50	20	20	25	-	1	19.5	22.5	3	3.7	-	130
GN 927.4-82-M8-60-A-*	82	M 8	60	20	20	25	-	1	19.5	22.5	3	3.7	-	132
GN 927.4-101-M8-25-A-*	101	M 8	25	25	26	30	-	1.5	25.3	29.3	4	4.8	-	228
GN 927.4-101-M8-30-A-*	101	M 8	30	25	26	30	-	1.5	25.3	29.3	4	4.8	-	230
GN 927.4-101-M8-35-A-*	101	M 8	35	25	26	30	-	1.5	25.3	29.3	4	4.8	-	231
GN 927.4-101-M8-40-A-*	101	M 8	40	25	26	30	-	1.5	25.3	29.3	4	4.8	-	232
GN 927.4-101-M8-50-A-*	101	M 8	50	25	26	30	-	1.5	25.3	29.3	4	4.8	-	235

* Complete with colour index of the Clamping lever (B, O, R or S)

B
RAL9005**O**
RAL2004**R**
RAL3000**S**
RAL9006

GN 927.4-with threaded stud

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	
GN 927.4-101-M8-60-A-*	101	M 8	60	25	26	30	-	1.5	25.3	29.3	4	4.8	-	238
GN 927.4-101-M10-20-A-*	101	M 10	20	25	26	30	-	1.5	25.3	29.3	4	4.8	-	229
GN 927.4-101-M10-25-A-*	101	M 10	25	25	26	30	-	1.5	25.3	29.3	4	4.8	-	232
GN 927.4-101-M10-30-A-*	101	M 10	30	25	26	30	-	1.5	25.3	29.3	4	4.8	-	234
GN 927.4-101-M10-35-A-*	101	M 10	35	25	26	30	-	1.5	25.3	29.3	4	4.8	-	237
GN 927.4-101-M10-40-A-*	101	M 10	40	25	26	30	-	1.5	25.3	29.3	4	4.8	-	240
GN 927.4-101-M10-50-A-*	101	M 10	50	25	26	30	-	1.5	25.3	29.3	4	4.8	-	234
GN 927.4-101-M10-60-A-*	101	M 10	60	25	26	30	-	1.5	25.3	29.3	4	4.8	-	250
GN 927.4-63-M5-16-B-*	63	M 5	16	16	16	-	18.5	0.75	-	-	-	3	16.3	55
GN 927.4-63-M5-20-B-*	63	M 5	20	16	16	-	18.5	0.75	-	-	-	3	16.3	55
GN 927.4-63-M5-25-B-*	63	M 5	25	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927.4-63-M5-30-B-*	63	M 5	30	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927.4-63-M5-35-B-*	63	M 5	35	16	16	-	18.5	0.75	-	-	-	3	16.3	58
GN 927.4-63-M5-40-B-*	63	M 5	40	16	16	-	18.5	0.75	-	-	-	3	16.3	58
GN 927.4-63-M5-50-B-*	63	M 5	50	16	16	-	18.5	0.75	-	-	-	3	16.3	59
GN 927.4-63-M6-16-B-*	63	M 6	16	16	16	-	18.5	0.75	-	-	-	3	16.3	54
GN 927.4-63-M6-20-B-*	63	M 6	20	16	16	-	18.5	0.75	-	-	-	3	16.3	55
GN 927.4-63-M6-25-B-*	63	M 6	25	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927.4-63-M6-30-B-*	63	M 6	30	16	16	-	18.5	0.75	-	-	-	3	16.3	57
GN 927.4-63-M6-35-B-*	63	M 6	35	16	16	-	18.5	0.75	-	-	-	3	16.3	58
GN 927.4-63-M6-40-B-*	63	M 6	40	16	16	-	18.5	0.75	-	-	-	3	16.3	59
GN 927.4-63-M6-50-B-*	63	M 6	50	16	16	-	18.5	0.75	-	-	-	3	16.3	60
GN 927.4-82-M6-20-B-*	82	M 6	20	20	20	-	22.5	1	-	-	-	3.7	19.5	103
GN 927.4-82-M6-25-B-*	82	M 6	25	20	20	-	22.5	1	-	-	-	3.7	19.5	104
GN 927.4-82-M6-30-B-*	82	M 6	30	20	20	-	22.5	1	-	-	-	3.7	19.5	106
GN 927.4-82-M6-35-B-*	82	M 6	35	20	20	-	22.5	1	-	-	-	3.7	19.5	106
GN 927.4-82-M6-40-B-*	82	M 6	40	20	20	-	22.5	1	-	-	-	3.7	19.5	108
GN 927.4-82-M6-50-B-*	82	M 6	50	20	20	-	22.5	1	-	-	-	3.7	19.5	111
GN 927.4-82-M6-60-B-*	82	M 6	60	20	20	-	22.5	1	-	-	-	3.7	19.5	111
GN 927.4-82-M8-20-B-*	82	M 8	20	20	20	-	22.5	1	-	-	-	3.7	19.5	106
GN 927.4-82-M8-25-B-*	82	M 8	25	20	20	-	22.5	1	-	-	-	3.7	19.5	110
GN 927.4-82-M8-30-B-*	82	M 8	30	20	20	-	22.5	1	-	-	-	3.7	19.5	111
GN 927.4-82-M8-35-B-*	82	M 8	35	20	20	-	22.5	1	-	-	-	3.7	19.5	112
GN 927.4-82-M8-40-B-*	82	M 8	40	20	20	-	22.5	1	-	-	-	3.7	19.5	114
GN 927.4-82-M8-50-B-*	82	M 8	50	20	20	-	22.5	1	-	-	-	3.7	19.5	116
GN 927.4-82-M8-60-B-*	82	M 8	60	20	20	-	22.5	1	-	-	-	3.7	19.5	120
GN 927.4-101-M8-20-B-*	101	M 8	20	25	26	-	27	1.5	-	-	-	4.8	25.3	200
GN 927.4-101-M8-25-B-*	101	M 8	25	25	26	-	27	1.5	-	-	-	4.8	25.3	203
GN 927.4-101-M8-30-B-*	101	M 8	30	25	26	-	27	1.5	-	-	-	4.8	25.3	204
GN 927.4-101-M8-35-B-*	101	M 8	35	25	26	-	27	1.5	-	-	-	4.8	25.3	208
GN 927.4-101-M8-40-B-*	101	M 8	40	25	26	-	27	1.5	-	-	-	4.8	25.3	209
GN 927.4-101-M8-50-B-*	101	M 8	50	25	26	-	27	1.5	-	-	-	4.8	25.3	210
GN 927.4-101-M8-60-B-*	101	M 8	60	25	26	-	27	1.5	-	-	-	4.8	25.3	214
GN 927.4-101-M10-20-B-*	101	M 10	20	25	26	-	27	1.5	-	-	-	4.8	25.3	200
GN 927.4-101-M10-25-B-*	101	M 10	25	25	26	-	27	1.5	-	-	-	4.8	25.3	203
GN 927.4-101-M10-30-B-*	101	M 10	30	25	26	-	27	1.5	-	-	-	4.8	25.3	210
GN 927.4-101-M10-35-B-*	101	M 10	35	25	26	-	27	1.5	-	-	-	4.8	25.3	220
GN 927.4-101-M10-40-B-*	101	M 10	40	25	26	-	27	1.5	-	-	-	4.8	25.3	215
GN 927.4-101-M10-50-B-*	101	M 10	50	25	26	-	27	1.5	-	-	-	4.8	25.3	221
GN 927.4-101-M10-60-B-*	101	M 10	60	25	26	-	27	1.5	-	-	-	4.8	25.3	221



Clamping levers with eccentric cam

Contact plate Plastic, Lever Steel

SPECIFICATION

Types

- Type A: Plastic contact plate with setting nut
- Type B: Plastic contact plate without setting nut

Lever

Steel (precision casting)
zinc plated, blue passivated

Contact plates

Plastic, glass fibre reinforced

- Type A: Polyacetal (POM)
- Type B: Polyamide (PA)

Version with threaded insert

Axis, lag nut, setting nut
Steel zinc plated, blue passivated

Version with threaded stud

Axis, lag screw, setting screw
Steel zinc plated, blue passivated

INFORMATION

Clamping levers with eccentric cam GN 927.3 are used for rapid clamping and releasing. Hereby, contrary to a clamping operation via a thread, these levers permit a **torque-free** clamping.

The lever has been designed to ensure that its movement cannot exceed the max. clamping force.

There are no loose components since they are all assembled and mounted in their correct order.

Type A has the following benefits:

The distance between the lever cam and the clamping surface is adjustable via a fine pitch thread, allowing the clamping position to be set easily with maximum clamping force. Also, the position of the lever relative to the clamping axis can be determined.

With these clamping levers with eccentric cam, clamping forces of up to 8 kN can be reached.

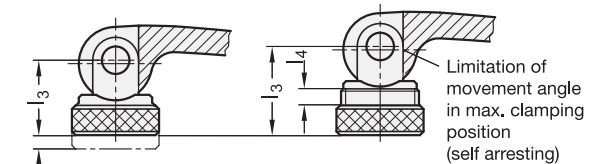
TECHNICAL INFORMATION

- Plastic characteristics (see page A2)

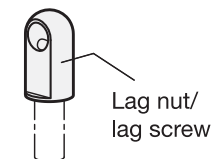
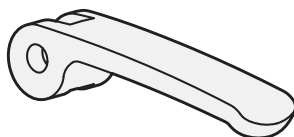


CONSTRUCTIONAL FEATURES (TYPE A) / APPLICATION EXAMPLE

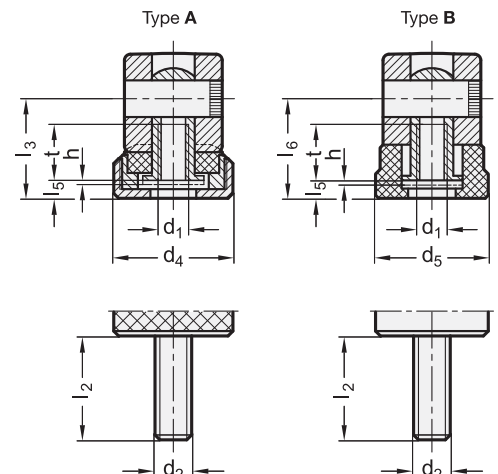
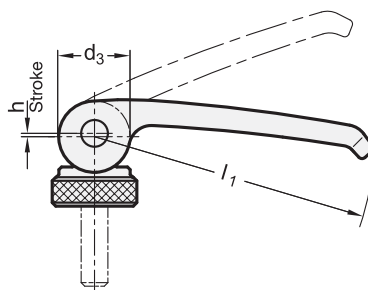
l_3 adjustable by the setting screw for optimum clamping force at the preferred lever position.



l_3 max. must not be exceeded. Otherwise there is the risk that the positioning thread can no longer absorb the clamping force or may be damaged.



Setting nut



* Complete with type of the Clamping lever (A or B)

A
with setting nut

B
without setting nut

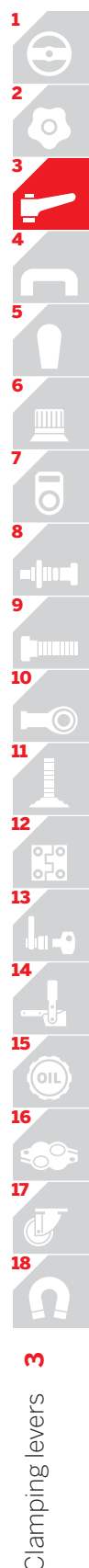
GN 927.3-with threaded insert

Description	l1	d1	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	t	△
GN 927.3-63-M5-*	63	M 5	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	10	63
GN 927.3-63-M6-*	63	M 6	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	10	63
GN 927.3-82-M6-*	82	M 6	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	12	125
GN 927.3-82-M8-*	82	M 8	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	12	123
GN 927.3-101-M8-*	101	M 8	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	15	243
GN 927.3-101-M10-*	101	M 10	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	15	240

GN 927.3-with threaded stud

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	△
GN 927.3-63-M5-16-*	63	M 5	16	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	45
GN 927.3-63-M5-20-*	63	M 5	20	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	66
GN 927.3-63-M5-25-*	63	M 5	25	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	68
GN 927.3-63-M5-30-*	63	M 5	30	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	69
GN 927.3-63-M5-35-*	63	M 5	35	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	69
GN 927.3-63-M5-40-*	63	M 5	40	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.3-63-M5-50-*	63	M 5	50	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	71
GN 927.3-63-M6-16-*	63	M 6	16	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	67
GN 927.3-63-M6-20-*	63	M 6	20	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	67
GN 927.3-63-M6-25-*	63	M 6	25	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	69
GN 927.3-63-M6-30-*	63	M 6	30	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.3-63-M6-35-*	63	M 6	35	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.3-63-M6-40-*	63	M 6	40	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	72
GN 927.3-63-M6-50-*	63	M 6	50	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	76
GN 927.3-82-M6-20-*	82	M 6	20	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	131
GN 927.3-82-M6-25-*	82	M 6	25	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	131
GN 927.3-82-M6-30-*	82	M 6	30	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	132
GN 927.3-82-M6-35-*	82	M 6	35	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	134
GN 927.3-82-M6-40-*	82	M 6	40	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	137
GN 927.3-82-M6-50-*	82	M 6	50	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	137
GN 927.3-82-M6-60-*	82	M 6	60	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	138
GN 927.3-82-M8-20-*	82	M 8	20	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	121
GN 927.3-82-M8-25-*	82	M 8	25	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	124
GN 927.3-82-M8-30-*	82	M 8	30	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	124
GN 927.3-82-M8-35-*	82	M 8	35	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	126
GN 927.3-82-M8-40-*	82	M 8	40	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	126
GN 927.3-82-M8-50-*	82	M 8	50	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	130
GN 927.3-82-M8-60-*	82	M 8	60	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	134
GN 927.3-101-M8-20-*	101	M 8	20	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	255
GN 927.3-101-M8-25-*	101	M 8	25	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	256
GN 927.3-101-M8-30-*	101	M 8	30	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	258
GN 927.3-101-M8-35-*	101	M 8	35	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	260
GN 927.3-101-M8-40-*	101	M 8	40	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	261
GN 927.3-101-M8-50-*	101	M 8	50	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	262
GN 927.3-101-M8-60-*	101	M 8	60	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	266
GN 927.3-101-M10-20-*	101	M 10	20	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	233
GN 927.3-101-M10-25-*	101	M 10	25	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	236
GN 927.3-101-M10-30-*	101	M 10	30	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	238
GN 927.3-101-M10-35-*	101	M 10	35	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	238
GN 927.3-101-M10-40-*	101	M 10	40	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	241
GN 927.3-101-M10-50-*	101	M 10	50	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	257
GN 927.3-101-M10-60-*	101	M 10	60	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	260

Weight type A



Stainless Steel-Clamping levers with eccentric cam

Single parts Stainless Steel / Contact plate Plastic /
Lever Stainless Steel

SPECIFICATION

Types

- Type A: Plastic contact plate with setting nut
- Type B: Plastic contact plate without setting nut

Lever

Stainless Steel AISI CF-8
(precision casting)

Contact plates

Plastic, glass fibre reinforced

- Type A: Polyacetal (POM)
- Type B: Polyamide (PA)

Version with threaded insert

Axis, lag nut, setting nut
Stainless Steel AISI 303

Version with threaded stud

Axis, lag screw, setting screw
Stainless Steel AISI 303

INFORMATION

Clamping levers with eccentric cam GN 927.5 with stainless steel internal thread are used for rapid clamping and releasing. Hereby, contrary to a clamping operation via a thread, these levers permit a **torque-free** clamping.

The lever has been designed to ensure that its movement cannot exceed the max. clamping force.

There are no loose components since they are all assembled and mounted in their correct order.

Type A has the following benefits:

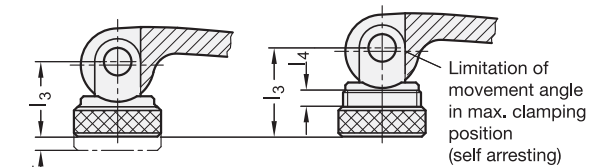
The distance between the lever cam and the clamping surface is adjustable via a fine pitch thread, allowing the clamping position to be set easily with maximum clamping force. Also, the position of the lever relative to the clamping axis can be determined.

With these clamping levers with eccentric cam, clamping forces of up to 8 kN can be reached.

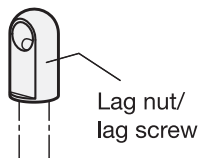
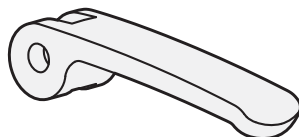


CONSTRUCTIONAL FEATURES (TYPE A) / APPLICATION EXAMPLE

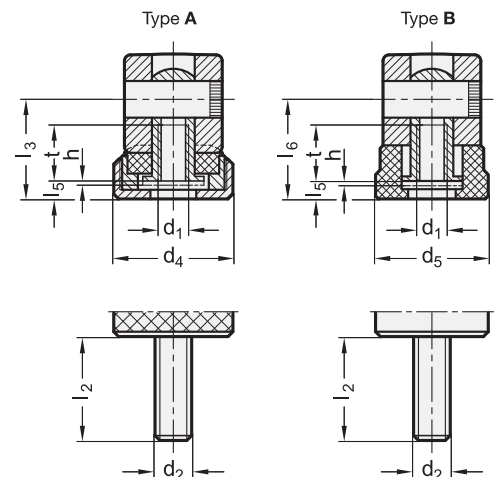
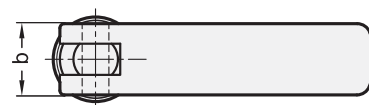
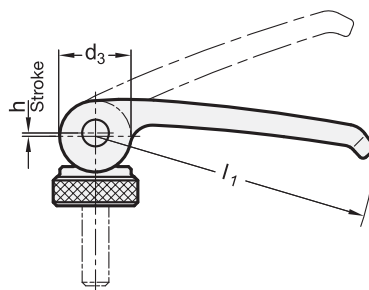
l_3 adjustable by the setting screw for optimum clamping force at the preferred lever position.



l_3 max. must not be exceeded. Otherwise there is the risk that the positioning thread can no longer absorb the clamping force or may be damaged.



Setting nut



* Complete with type of the Clamping lever (A or B)

A with setting nut **B** without setting nut

GN 927.5-with threaded insert

STAINLESS STEEL

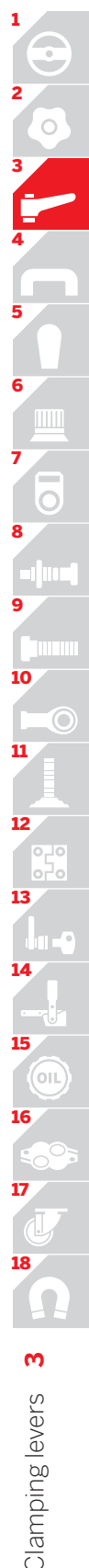
Description	l1	d1	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	t	⚖
GN 927.5-63-M5-*	63	M 5	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	10	57
GN 927.5-63-M6-*	63	M 6	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	10	56
GN 927.5-82-M6-*	82	M 6	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	12	126
GN 927.5-82-M8-*	82	M 8	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	12	124
GN 927.5-101-M8-*	101	M 8	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	15	239
GN 927.5-101-M10-*	101	M 10	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	15	238

GN 927.5-with threaded stud

STAINLESS STEEL

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	⚖
GN 927.5-63-M5-16-*	63	M 5	16	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	66
GN 927.5-63-M5-20-*	63	M 5	20	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	66
GN 927.5-63-M5-25-*	63	M 5	25	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	67
GN 927.5-63-M5-30-*	63	M 5	30	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	67
GN 927.5-63-M5-35-*	63	M 5	35	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	68
GN 927.5-63-M5-40-*	63	M 5	40	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	68
GN 927.5-63-M5-50-*	63	M 5	50	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.5-63-M6-16-*	63	M 6	16	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	60
GN 927.5-63-M6-20-*	63	M 6	20	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	61
GN 927.5-63-M6-25-*	63	M 6	25	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	62
GN 927.5-63-M6-30-*	63	M 6	30	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	63
GN 927.5-63-M6-35-*	63	M 6	35	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	64
GN 927.5-63-M6-40-*	63	M 6	40	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	64
GN 927.5-63-M6-50-*	63	M 6	50	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	66
GN 927.5-82-M6-20-*	82	M 6	20	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	132
GN 927.5-82-M6-25-*	82	M 6	25	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	132
GN 927.5-82-M6-30-*	82	M 6	30	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	133
GN 927.5-82-M6-35-*	82	M 6	35	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	135
GN 927.5-82-M6-40-*	82	M 6	40	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	135
GN 927.5-82-M6-50-*	82	M 6	50	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	137
GN 927.5-82-M6-60-*	82	M 6	60	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	139
GN 927.5-82-M8-20-*	82	M 8	20	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	121
GN 927.5-82-M8-25-*	82	M 8	25	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	123
GN 927.5-82-M8-30-*	82	M 8	30	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	130
GN 927.5-82-M8-35-*	82	M 8	35	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	134
GN 927.5-82-M8-40-*	82	M 8	40	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	134
GN 927.5-82-M8-50-*	82	M 8	50	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	136
GN 927.5-82-M8-60-*	82	M 8	60	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	138
GN 927.5-101-M8-20-*	101	M 8	20	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	228
GN 927.5-101-M8-25-*	101	M 8	25	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	229
GN 927.5-101-M8-30-*	101	M 8	30	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	233
GN 927.5-101-M8-35-*	101	M 8	35	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	234
GN 927.5-101-M8-40-*	101	M 8	40	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	236
GN 927.5-101-M8-50-*	101	M 8	50	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	239
GN 927.5-101-M8-60-*	101	M 8	60	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	241
GN 927.5-101-M10-20-*	101	M 10	20	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	233
GN 927.5-101-M10-25-*	101	M 10	25	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	235
GN 927.5-101-M10-30-*	101	M 10	30	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	238
GN 927.5-101-M10-35-*	101	M 10	35	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	240
GN 927.5-101-M10-40-*	101	M 10	40	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	243
GN 927.5-101-M10-50-*	101	M 10	50	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	248
GN 927.5-101-M10-60-*	101	M 10	60	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	251

Weight type A



Stainless Steel-Clamping levers with eccentric cam

Contact plate, Stainless Steel

SPECIFICATION

Types

- Type A: Stainless Steel contact plate with setting nut
- Type B: Stainless Steel contact plate without setting nut

Lever

Stainless Steel AISI CF-8

Contact plates

Stainless Steel AISI 431
hardened

Version with threaded insert

Axis, lag nut, setting nut

Stainless Steel AISI 303

Version with threaded stud

Axis, lag screw, setting screw

Stainless Steel AISI 303

INFORMATION

Stainless Steel-Clamping levers with eccentric cam GN 927.7 are used for rapid clamping and releasing. Hereby, contrary to a clamping operation via a thread, these levers permit a **torque-free** clamping. The lever has been designed to ensure that its movement cannot exceed the max. clamping force.

There are no loose components since they are all assembled and mounted in their correct order.

Type A has the following benefits:

The distance between the lever cam and the clamping surface is adjustable via a fine pitch thread, allowing the clamping position to be set easily with maximum clamping force. Also, the position of the lever relative to the clamping axis can be determined.

With these clamping levers with eccentric cam, clamping forces of up to 8 kN can be reached.

ON REQUEST

- Clamping surface free of grease

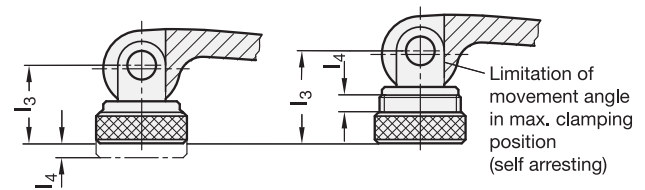
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

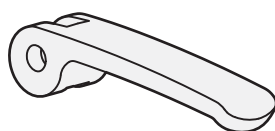


CONSTRUCTIONAL FEATURES (TYPE A) / APPLICATION EXAMPLE

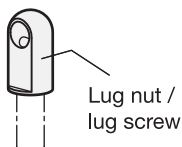
l_3 adjustable by the setting screw for optimum clamping force at the preferred lever position.



l_3 max. must not be exceeded. Otherwise there is the risk that the positioning thread can no longer absorb the clamping force or may be damaged.



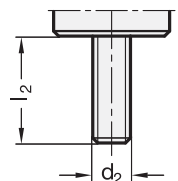
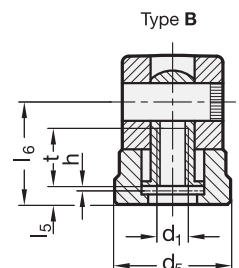
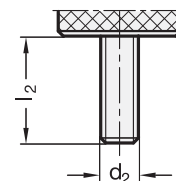
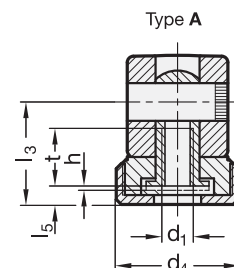
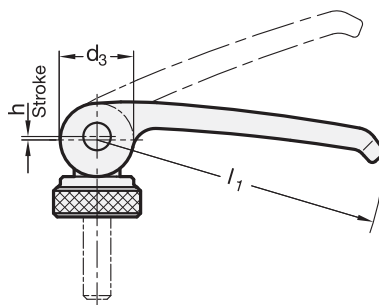
Contact plate



Lug nut / lug screw



Setting nut



* Complete with type of the Clamping lever (A or B)

A **B**
 with setting nut without setting nut

GN 927.7-with threaded insert

STAINLESS STEEL

Description	l1	d1	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	t	⚖
GN 927.7-63-M5-*	63	M 5	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	10	66
GN 927.7-63-M6-*	63	M 6	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	10	65
GN 927.7-82-M6-*	82	M 6	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	12	129
GN 927.7-82-M8-*	82	M 8	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	12	128
GN 927.7-101-M8-*	101	M 8	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	15	250
GN 927.7-101-M10-*	101	M 10	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	15	247

GN 927.7-with threaded stud

STAINLESS STEEL

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	⚖
GN 927.7-63-M5-16-*	63	M 5	16	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	69
GN 927.7-63-M5-20-*	63	M 5	20	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.7-63-M5-25-*	63	M 5	25	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.7-63-M5-30-*	63	M 5	30	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	71
GN 927.7-63-M5-35-*	63	M 5	35	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	71
GN 927.7-63-M5-40-*	63	M 5	40	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	72
GN 927.7-63-M5-50-*	63	M 5	50	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	73
GN 927.7-63-M6-16-*	63	M 6	16	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	69
GN 927.7-63-M6-20-*	63	M 6	20	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.7-63-M6-25-*	63	M 6	25	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	71
GN 927.7-63-M6-30-*	63	M 6	30	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	71
GN 927.7-63-M6-35-*	63	M 6	35	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	72
GN 927.7-63-M6-40-*	63	M 6	40	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	73
GN 927.7-63-M6-50-*	63	M 6	50	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	75
GN 927.7-82-M6-20-*	82	M 6	20	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	135
GN 927.7-82-M6-25-*	82	M 6	25	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	136
GN 927.7-82-M6-30-*	82	M 6	30	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	137
GN 927.7-82-M6-35-*	82	M 6	35	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	138
GN 927.7-82-M6-40-*	82	M 6	40	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	139
GN 927.7-82-M6-50-*	82	M 6	50	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	140
GN 927.7-82-M6-60-*	82	M 6	60	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	142
GN 927.7-82-M8-20-*	82	M 8	20	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	139
GN 927.7-82-M8-25-*	82	M 8	25	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	140
GN 927.7-82-M8-30-*	82	M 8	30	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	141
GN 927.7-82-M8-35-*	82	M 8	35	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	143
GN 927.7-82-M8-40-*	82	M 8	40	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	145
GN 927.7-82-M8-50-*	82	M 8	50	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	146
GN 927.7-82-M8-60-*	82	M 8	60	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	150
GN 927.7-101-M8-20-*	101	M 8	20	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	263
GN 927.7-101-M8-25-*	101	M 8	25	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	265
GN 927.7-101-M8-30-*	101	M 8	30	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	266
GN 927.7-101-M8-35-*	101	M 8	35	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	267
GN 927.7-101-M8-40-*	101	M 8	40	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	266
GN 927.7-101-M8-50-*	101	M 8	50	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	272
GN 927.7-101-M8-60-*	101	M 8	60	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	273
GN 927.7-101-M10-20-*	101	M 10	20	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	267
GN 927.7-101-M10-25-*	101	M 10	25	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	267
GN 927.7-101-M10-30-*	101	M 10	30	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	271
GN 927.7-101-M10-35-*	101	M 10	35	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	272
GN 927.7-101-M10-40-*	101	M 10	40	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	277
GN 927.7-101-M10-50-*	101	M 10	50	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	281
GN 927.7-101-M10-60-*	101	M 10	60	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	286

Weight type A



Cam levers

Technopolymer

CAM LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ROTATING PIN

Glossy zinc-plated steel or AISI 303 stainless steel, with threaded hole or threaded stud.

CONNECTION AND RETENTION ELEMENT BETWEEN THE LEVER AND THE CAM SLIDING BASE

Polyamide based technopolymer (PA), black colour.

CAM SLIDING BASE

Polyamide-based SUPER-technopolymer (PA), black colour.

ADJUSTABLE KNURLED RING-NUT

Polyamide-based SUPER-technopolymer (PA), black colour.

STANDARD EXECUTIONS

- **LAC-B**: positioning without adjustable ring-nut, rotating pin with zinc-plated steel threaded hole.
- **LAC-SST**: positioning without adjustable ring-nut, rotating pin with AISI 303 stainless steel threaded hole.
- **LAC-p**: positioning without adjustable ring-nut, rotating pin with zinc-plated steel threaded stud, chamfered flat end UNI 947: ISO 4753 (see Technical Data on page A11).
- **LAC-SST-p**: positioning without adjustable ring-nut, rotating pin with AISI 303 stainless steel threaded stud, chamfered flat end UNI 947: ISO 4753 (see Technical Data on page A11).
- **LAC-R-B**: positioning with adjustable ring-nut, rotating pin with zinc-plated steel threaded hole.
- **LAC-R-p**: positioning with adjustable ring-nut, rotating pin with zinc-plated steel threaded stud, chamfered flat end UNI 947: ISO 4753 (see Technical Data on page A11).
- **LAC-R-SST**: positioning with adjustable ring-nut, rotating pin with AISI 303 stainless steel threaded hole.
- **LAC-R-SST-p**: positioning with adjustable ring-nut, rotating pin with threaded stud in AISI 303 stainless steel, chamfered flat end UNI 947: ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS

Cam lever is a device which allows a quick and secure clamping. The LAC-R model with adjustable ring-nut (Elesa patent) offers quick and secure clamping. The knurled ring-nut on the base allows to adjust the clamping force applied while locking the lever in the desired position.

RECOMMENDATIONS FOR ASSEMBLY

LAC-B, LAC-SST, LAC-R-B and LAC-R-SST with threaded hole. The screw where the cam lever is mounted must protrude from the assembly surface by a maximum length of h1 max from the end-stop as shown in table and fig.1. The user will notice the h1 max value is reached as the screw rests on the end-stop in the connecting element.

INSTRUCTIONS FOR CLAMPING AND ADJUSTMENT

LAC: lift and rotate the lever clockwise until it stops, then, to complete clamping, lower the lever whose fulcrum is an eccentric cam which controls the base by rotating.

LAC-R: rotate the lever clockwise until it stops.

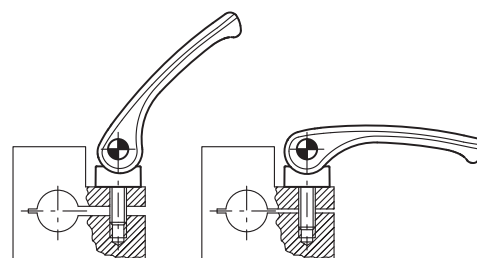
Fine adjustment: rotate clockwise or anti-clockwise the knurled adjustable ring-nut to calibrate the clamping force and put the lever in the desired position. The ring-nut is marked with minimum and maximum adjustment values: half a turn is enough for adjustment.

Clamping: lower the lever whose fulcrum is an eccentric cam which controls the adjusting base by rotating.



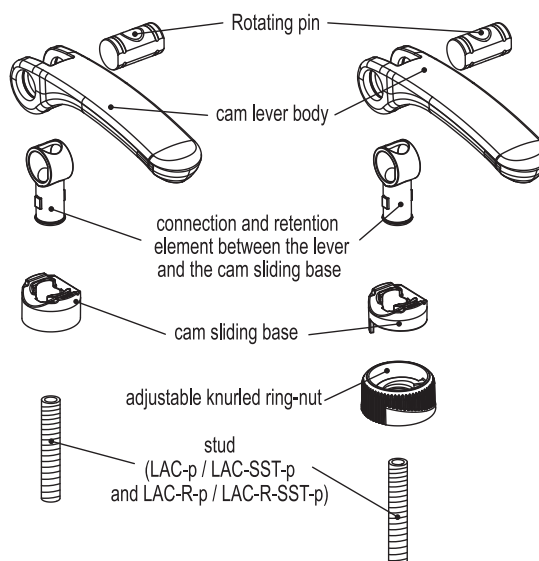
ELESA Original design 2011

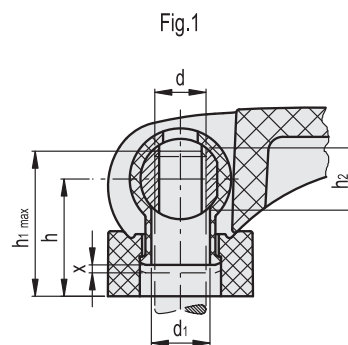
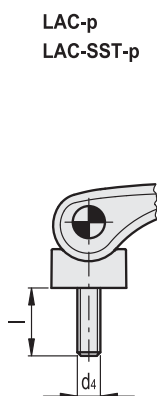
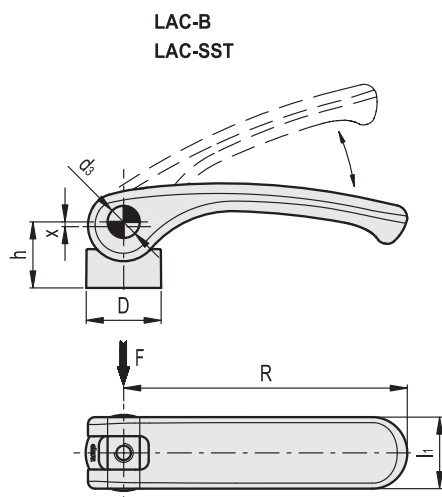
Clamping



LAC

LAC-R





LAC-B

Code	Description	R	d	D	h	h1 max	h2	d1	d3	l1	x	Fmax [N]	⚖
33482	LAC.63 B-M6	63	M6	18	18	20	4	6.1	9	18	0.75	4000	23
33562	LAC.80 B-M8	79	M8	20	21	25.5	7	8.1	11	20	1	7000	32

LAC-SST

STAINLESS STEEL

Code	Description
33487	LAC.63 SST-M6
33567	LAC.80 SST-M8

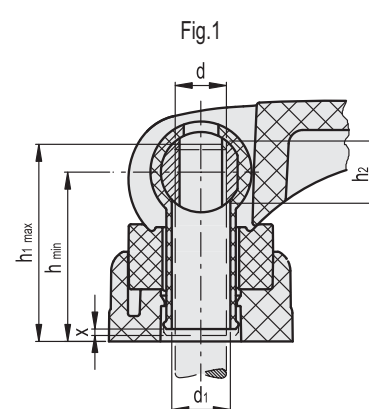
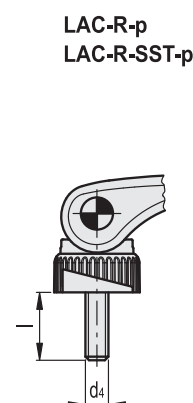
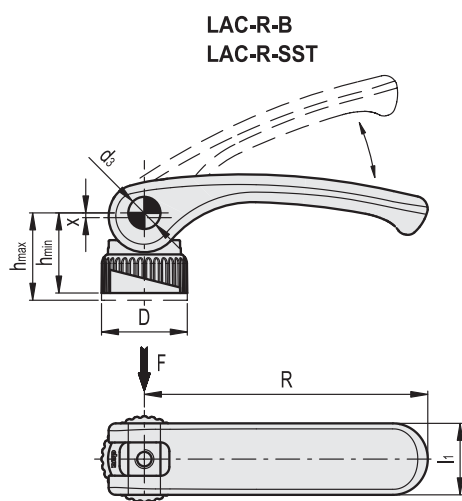
LAC-p

Code	Description	R	d4	D	h	d1	d3	l	l1	x	Fmax [N]	⚖
33492	LAC.63 p-M6x25	63	M6	18	18	6.1	9	25	18	0.75	4000	33
33496	LAC.63 p-M6x50	63	M6	18	18	6.1	9	50	18	0.75	4000	42
33582	LAC.80 p-M8x25	79	M8	20	21	8.1	11	25	20	1	7000	46
33586	LAC.80 p-M8x50	79	M8	20	21	8.1	11	50	20	1	7000	55

LAC-SST-p

STAINLESS STEEL

Code	Description
33497	LAC.63 SST-p-M6x25
33501	LAC.63 SST-p-M6x50
33587	LAC.80 SST-p-M8x25
33591	LAC.80 SST-p-M8x50



LAC-R-B

Code	Description	R	d	D	hmin	hmax	h1 max	h2	d1	d3	l1	x	Fmax [N]	⚖
33462	LAC-R-63 B-M6	63	M6	21	22.5	24	26	4	6.1	9	18	0.75	4000	25
33512	LAC-R-80 B-M8	79	M8	25	26.5	28	32.5	7	8.1	11	20	1	7000	39

LAC-R-SST

STAINLESS STEEL

Code	Description
33467	LAC-R-63 SST-M6
33517	LAC-R-80 SST-M8

LAC-R-p

Code	Description	R	d4	D	hmin	hmax	d1	d3	l	l1	x	Fmax [N]	⚖
33472	LAC-R-63 p-M6x25	63	M6	21	22.5	24	6.1	9	25	18	0.75	4000	35
33476	LAC-R-63 p-M6x50	63	M6	21	22.5	24	6.1	9	50	18	0.75	4000	44
33532	LAC-R-80 p-M8x25	79	M8	25	26.5	28	8.1	11	25	20	1	7000	53
33536	LAC-R-80 p-M8x50	79	M8	25	26.5	28	8.1	11	50	20	1	7000	62

LAC-R-SST-p

STAINLESS STEEL

Code	Description
33477	LAC-R-63 SST-p-M6x25
33481	LAC-R-63 SST-p-M6x50
33537	LAC-R-80 SST-p-M8x25
33541	LAC-R-80 SST-p-M8x50



Lever handles

Technopolymer

MATERIAL

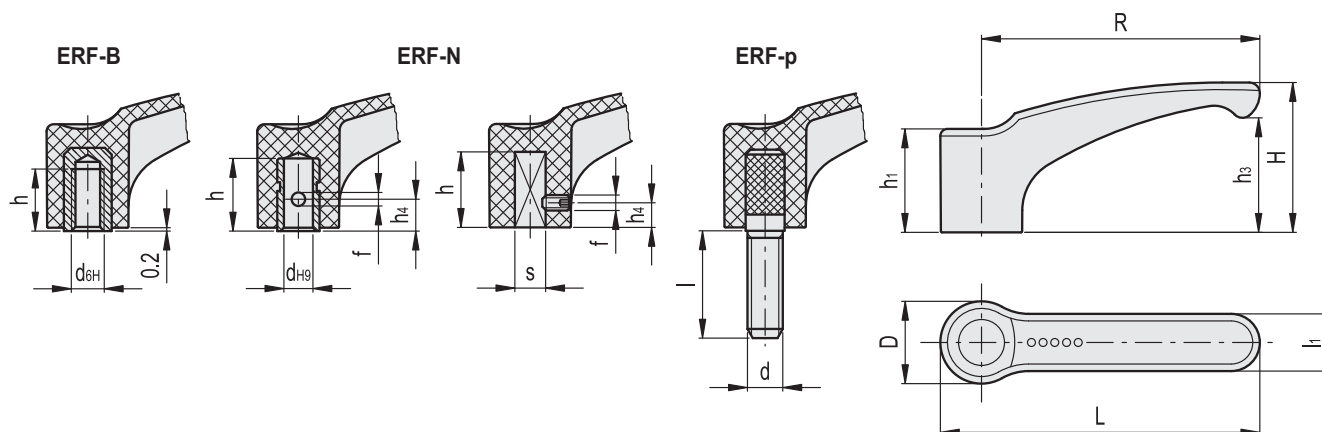
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

STANDARD EXECUTIONS

- **ERF-B:** brass boss, threaded blind hole.
- **ERF-N:**
 - cylindrical blind hole, brass reinforcement and transversal semi-machined hole for pinning to shaft.
 - square blind hole, brass reinforcement with transversal set screw UNI 5929-85 (grub screws with hexagon socket and cup end).
- **ERF-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).



ERGOSTYLE®



ERF-B

Code	Description	R	d _{6H}	L	D	H	h	h ₁	h ₃	l ₁	Δ
232103-C1	ERF.44 B-M5-C1	44	M5	52	15.5	26.5	10	19	19	11	10
232101-C1	ERF.44 B-M6-C1	44	M6	52	15.5	26.5	12	19	19	11	9
232121-C1	ERF.63 B-M8-C1	63	M8	73.5	19	35	13	24.5	26.5	13.5	19
232141-C1	ERF.78 B-M10-C1	78	M10	90.5	23	42	17	29.5	32	16	42
232161-C1	ERF.95 B-M12-C1	95	M12	109	26.5	51.5	20	34	40	18	48

ERF-N

Code	Description	R	d _{H9}	s _{H10}	L	D	H	h	h ₁	h ₃	h ₄	l ₁	f	Δ
232106-C1	ERF.44 N-5x5-C1	44	-	5	52	15.5	26.5	15	19	19	7	11	M4	5
232111-C1	ERF.44 N-6-C1	44	6	-	52	15.5	26.5	15	19	19	7	11	3	5
232126-C1	ERF.63 N-6x6-C1	63	-	6	73.5	19	35	20	24.5	26.5	8	13.5	M4	11
232131-C1	ERF.63 N-8-C1	63	8	-	73.5	19	35	20	24.5	26.5	8	13.5	4	11
232146-C1	ERF.78 N-8x8-C1	78	-	8	90.5	23	42	25	29.5	32	9	16	M5	31
232151-C1	ERF.78 N-10-C1	78	10	-	90.5	23	42	25	29.5	32	9	16	4	31
232166-C1	ERF.95 N-10x10-C1	95	-	10	109	26.5	51.5	30	34	40	10	18	M5	37
232171-C1	ERF.95 N-12-C1	95	12	-	109	26.5	51.5	30	34	40	10	18	5	37

ERF-p

Code	Description	R	d _{6g}	L	D	H	h ₁	h ₃	l	l ₁	Δ
232116-C1	ERF.44 p-M6x16-C1	44	M6	52	15.5	26.5	19	19	16	11	13
232136-C1	ERF.63 p-M8x25-C1	63	M8	73.5	19	35	24.5	26.5	25	13.5	32
232140-C1	ERF.63 p-M8x45-C1	63	M8	73.5	19	35	24.5	26.5	45	13.5	42
232156-C1	ERF.78 p-M10x30-C1	78	M10	90.5	23	42	29.5	32	30	16	61
232176-C1	ERF.95 p-M12x50-C1	95	M12	109	26.5	51.5	34	40	50	18	85

Flat lever handles

Technopolymer

MATERIAL

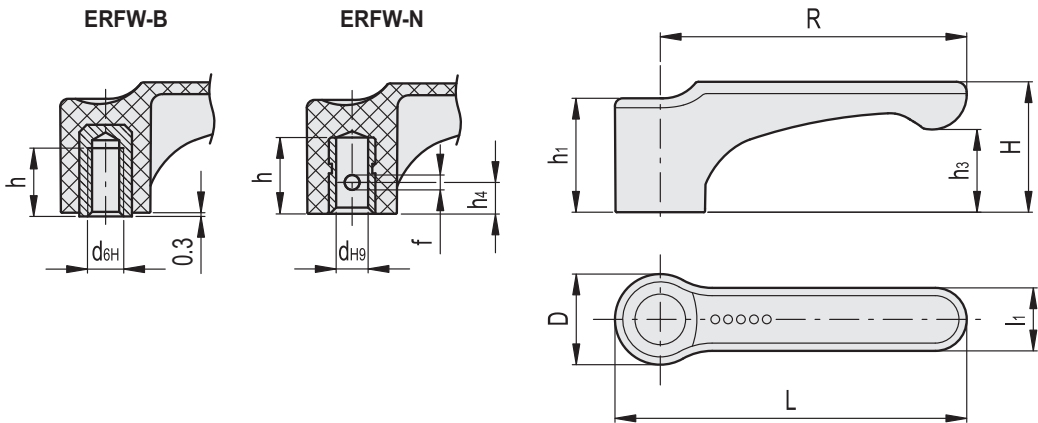
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

STANDARD EXECUTIONS

- **ERFW-B:** brass boss, threaded blind hole.
- **ERFW-N:** cylindrical blind hole, brass reinforcement and transversal semi-machined hole for pinning to shaft.



ERGOSTYLE®



ERFW-B

Code	Description	R	d6H	L	D	H	h	h1	h3	l1	⚖
232301-C1	ERFW.44 B-M6-C1	44	M6	52	15.5	21	12	19	13	11	9
232321-C1	ERFW.63 B-M8-C1	63	M8	73	19	28	13	25	18	13.5	19
232341-C1	ERFW.78 B-M10-C1	78	M10	90.5	23	33	17	30	21	16	42

ERFW-N

Code	Description	R	dH9	L	D	H	h	h1	h3	h4	l1	f	⚖
232311-C1	ERFW.44 N-6-C1	44	6	52	15.5	21	15	19	13	7	11	3	5
232331-C1	ERFW.63 N-8-C1	63	8	73	19	28	20	25	18	8	13.5	4	11
232351-C1	ERFW.78 N-10-C1	78	10	90.5	23	33	25	30	21	9	16	4	31

Lever handles

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

FRONT PLATE

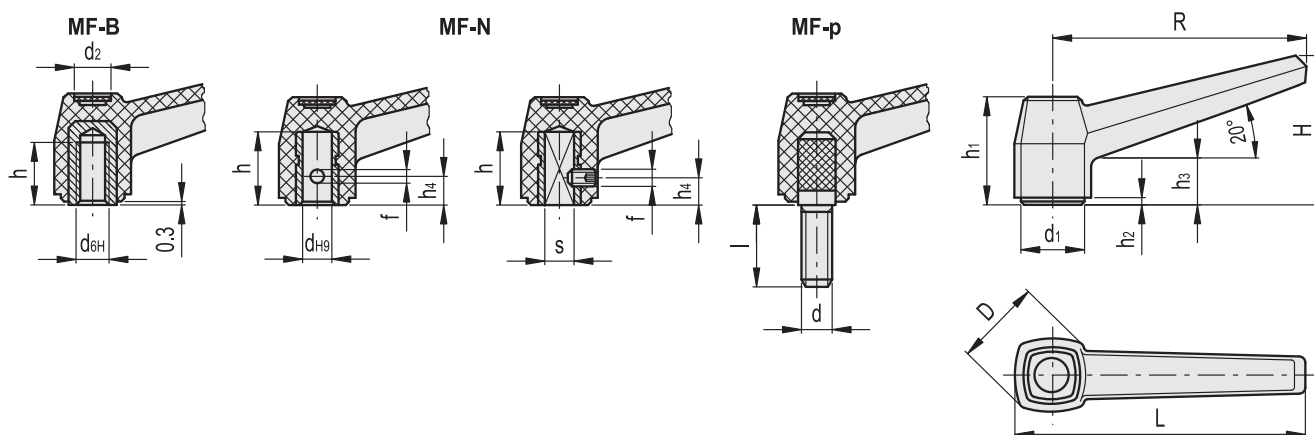
Matte anodised aluminium.

STANDARD EXECUTIONS

- **MF-B:** brass boss, threaded blind hole.
- **MF-N:**
 - cylindrical blind hole, brass reinforcement and transversal semi-machined hole for pinning to shaft.
 - square blind hole, brass reinforcement with transversal set screw UNI 5929-85 (grub screws with hexagon socket and cup end).
- **MF-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).



ELESA Original design stuttgart



MF-B

Code	Description	R	d _{6H}	L	D	H	h	h ₁	h ₂	h ₃	d ₁	d ₂	⚖
39041	MF.40 B-M5	42	M5	50	18	27	10	22	1.8	9	11.5	9	14
39001	MF.40 B-M6	42	M6	50	18	27	12	22	1.8	9	11.5	9	13
39111	MF.63 B-M8	63	M8	73	23	37	13	27	2	11	14.5	9	23
39211	MF.80 B-M10	80	M10	92	28	47	17	34	2.2	14	18.5	11	39
39311	MF.100 B-M12	100	M12	115	35	57	20	40	2.4	16	23.5	13	70

MF-N

Code	Description	R	d _{H9}	s _{H9}	L	D	H	h	h ₁	h ₂	h ₃	h ₄	d ₁	d ₂	f	⚖
39011	MF.40 N-5x5	42	-	5	50	18	27	15	22	1.8	9	7	11.5	9	M4	7
39021	MF.40 N-6	42	6	-	50	18	27	15	22	1.8	9	7	11.5	9	3	7
39121	MF.63 N-6x6	63	-	6	73	23	37	20	27	2	11	8	14.5	9	M4	14
39131	MF.63 N-8	63	8	-	73	23	37	20	27	2	11	8	14.5	9	4	14
39221	MF.80 N-8x8	80	-	8	92	28	47	25	34	2.2	14	9	18.5	11	M5	27
39231	MF.80 N-10	80	10	-	92	28	47	25	34	2.2	14	9	18.5	11	4	27
39321	MF.100 N-10x10	100	-	10	115	35	57	30	40	2.4	16	10	23.5	13	M5	50
39331	MF.100 N-12	100	12	-	115	35	57	30	40	2.4	16	10	23.5	13	5	50

MF-p

Code	Description	R	d _{6g}	L	D	H	h ₁	h ₂	h ₃	d ₁	d ₂	l	⚖
39031	MF.40 p-M6x16	42	M6	50	18	27	22	1.8	9	11.5	9	16	12
39141	MF.63 p-M8x25	63	M8	73	23	37	27	2	11	14.5	9	25	28
39241	MF.80 p-M10x30	80	M10	92	28	47	34	2.2	14	18.5	11	30	51
39341	MF.100 p-M12x50	100	M12	115	35	57	40	2.4	16	23.5	13	50	104

Ratchet spanner

SPECIFICATION

Housing

Steel
plastic coated
black matt, textured finish

Shaft

Stainless Steel AISI 303
matt shot-blasted

Wearing parts hardened

Domes gear knobs I.222 N (see page 537)

Plastic, Duroplast
black, shiny finish

INFORMATION

Ratchet spanners GN 316 are well designed of robust construction and simple to use.

To exchange the inserts remove screw and cover. They are, however, also practical for fixed applications on any machinery and equipment. For example for assembly and repair work. The inserts are easily interchanged and can be supplied individually.

ON REQUEST

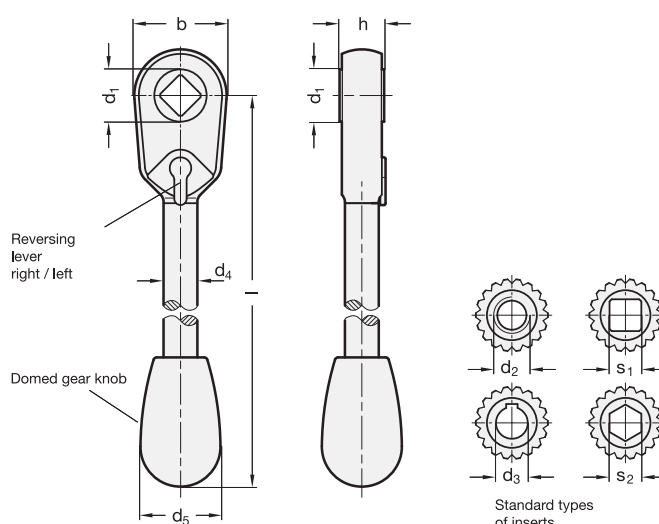
- other inserts

TECHNICAL INFORMATION

- Square DIN 79 (see page A16)
- ISO-Fundamental Tolerances (see page A21)

Function

In order to reverse the operation of this spanner move the cam lever from its middle position either to the left or the right to obtain the function required. In the middle position the ratchet function is eliminated and the spanner can be used in both directions as an ordinary spanner.



GN 316

Description	d1	d2	d3 H7	s1	s2	b	d4	d5	h	l	Max. torque in Nm	⚖
GN 316-12-M8	12	M 8	-	-	-	22	9	20	11	118	40	88
GN 316-12-V8	12	-	-	V 8	-	22	9	20	11	118	40	87
GN 316-17-K10	17	-	K 10	-	-	30	11	26	14	156	70	194
GN 316-17-K12	17	-	K 12	-	-	30	11	26	14	156	70	200
GN 316-17-M10	17	M 10	-	-	-	30	11	26	14	156	70	190
GN 316-17-M12	17	M 12	-	-	-	30	11	26	14	156	70	180
GN 316-17-SK12	17	-	-	-	SK 12*	30	11	26	14	156	70	189
GN 316-17-V10	17	-	-	V 10	-	30	11	26	14	156	70	191
GN 316-22-K14	22	-	K 14	-	-	39.5	14	33	17	187	130	420
GN 316-22-K16	22	-	K 16	-	-	39.5	14	33	17	187	130	375
GN 316-22-M14	22	M 14*	-	-	-	39.5	14	33	17	187	130	97
GN 316-22-M16	22	M 16	-	-	-	39.5	14	33	17	187	130	380
GN 316-22-SK14	22	-	-	-	SK 14*	39.5	14	33	17	187	130	380
GN 316-22-V12	22	-	-	V 12	-	39.5	14	33	17	187	130	380
GN 316-22-V14	22	-	-	V 14	-	39.5	14	33	17	187	130	360
GN 316-26-K18	26	-	K 18	-	-	46	17	33	22	219	180	610
GN 316-26-M20	26	M 20	-	-	-	46	17	33	22	219	180	600
GN 316-26-SK17	26	-	-	-	SK 17*	46	17	33	22	219	180	600
GN 316-26-V17	26	-	-	V 17	-	46	17	33	22	219	180	605

* not available from stock, requires a minimum order quantity.



Control levers

Steel, blackened

SPECIFICATION

Steel
blackened

Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

INFORMATION

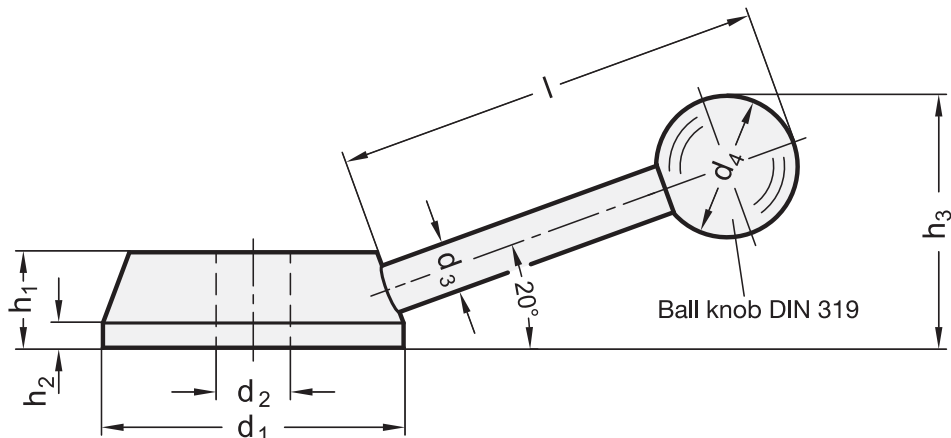
Control levers GN 211 can be used in connection with indexing elements, grooves for angle limitations and such like due to their comparably big hub diameter.

Spring plungers as well as indexing plungers can be used as indexing elements.

Control levers GN 211 can also be supplied as standard with:
Square DIN 79 **V** + Bore-Ø
Keyway DIN 6885 **K** + Bore-Ø

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)



GN 211

Description	d1	d2 H7	d3	d4	h1	h2	h3 ≈	l ≈	⚖
GN 211-50-B12	50	B 12	8	20	17	5	45	82	244
GN 211-55-B14	55	B 14	10	25	18	5	52	96	321
GN 211-65-B16	65	B 16	12	30	20	5	60	110	519
GN 211-80-B20	80	B 20	14	35	24	6	74	138	951

Ball levers

Steel, blackened

SPECIFICATION

Types

- Type **K***: Straight lever with plain bore H7
- Type **L**: Angled lever with plain bore H7
- Type **M***: Straight lever with threaded bore
- Type **N**: Angled lever with threaded bore

* not available from stock, requires a minimum order quantity

Steel

- turned
- blackened

Ball knobs DIN 319 (see page 538)

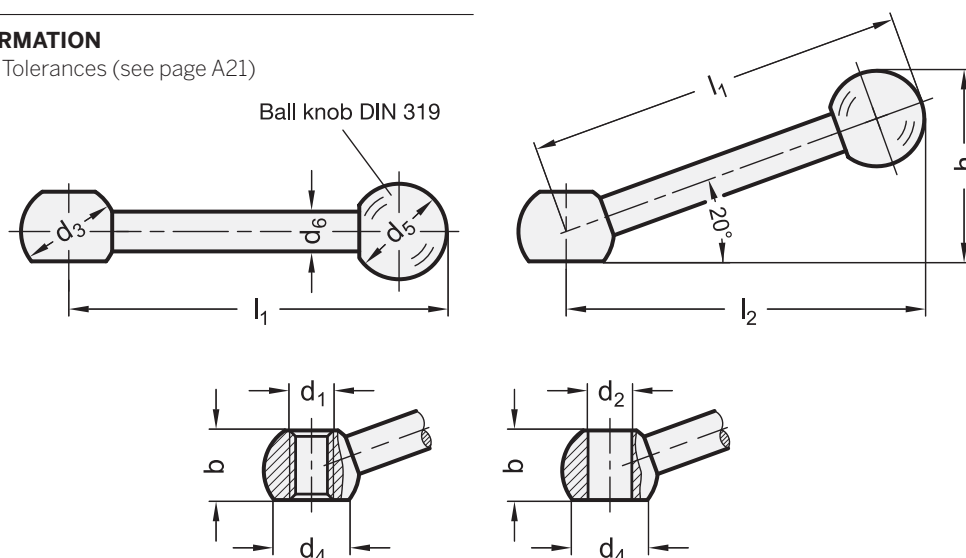
Plastic, black

INFORMATION

The official DIN standard sheet specifies additional sizes 200 - M24 / B24.

TECHNICAL INFORMATION

- ISO Fundamental Tolerances (see page A21)



DIN 6337

Description	l1	d1	d2 H7	b	d3	d4	d5	d6	h ≈	l2 ≈	⚖
DIN 6337-63-B8-K	63*	-	B 8	12	16	12.5	20	8	-	-	32
DIN 6337-80-B10-K	80*	-	B 10	14.5	20	16	20	9	-	-	53
DIN 6337-100-B12-K	100*	-	B 12	18.5	25	20	25	11	-	-	100
DIN 6337-125-B16-K	125*	-	B 16	24	32	25	32	15	-	-	216
DIN 6337-160-B20-K	160*	-	B 20	30	40	31	40	18	-	-	415
DIN 6337-63-B8-L	63	-	B 8	12	16	12.5	20	8	33	60	32
DIN 6337-80-B10-L	80	-	B 10	14.5	20	16	20	9	40	76	53
DIN 6337-100-B12-L	100	-	B 12	18.5	25	20	25	11	50	95	100
DIN 6337-125-B16-L	125	-	B 16	24	32	25	32	15	63	119	216
DIN 6337-160-B20-L	160	-	B 20	30	40	31	40	18	80	152	415
DIN 6337-63-M8-M	63*	M 8	-	12	16	12.5	20	8	-	-	32
DIN 6337-80-M10-M	80*	M 10	-	14.5	20	16	20	9	-	-	54
DIN 6337-100-M12-M	100*	M 12	-	18.5	25	20	25	11	-	-	102
DIN 6337-125-M16-M	125*	M 16	-	24	32	25	32	15	-	-	223
DIN 6337-160-M20-M	160*	M 20	-	30	40	31	40	18	-	-	425
DIN 6337-63-M8-N	63	M 8	-	12	16	12.5	20	8	33	60	32
DIN 6337-80-M10-N	80	M 10	-	14.5	20	16	20	9	40	76	54
DIN 6337-100-M12-N	100	M 12	-	18.5	25	20	25	11	50	95	102
DIN 6337-125-M16-N	125	M 16	-	24	32	25	32	15	63	119	223
DIN 6337-160-M20-N	160	M 20	-	30	40	31	40	18	80	152	425

* not available from stock, requires a minimum order quantity.



Tension levers

Steel / Stainless Steel

SPECIFICATION

Types

- Type **C**: Angled lever with plain bore H7
- Type **E**: Angled lever with threaded bore
- Type **B***: Straight lever with plain bore H7
- Type **D***: Straight lever with threaded bore

* not available from stock, requires a minimum order quantity

Version in Steel, blackened

Ball knobs DIN 319 (see page 538)

Plastic, Duroplast
black, shiny finish

Version in Stainless Steel AISI 303 NI

- matt shot-blasted
- only type E

Ball knobs DIN 319 (see page 538)

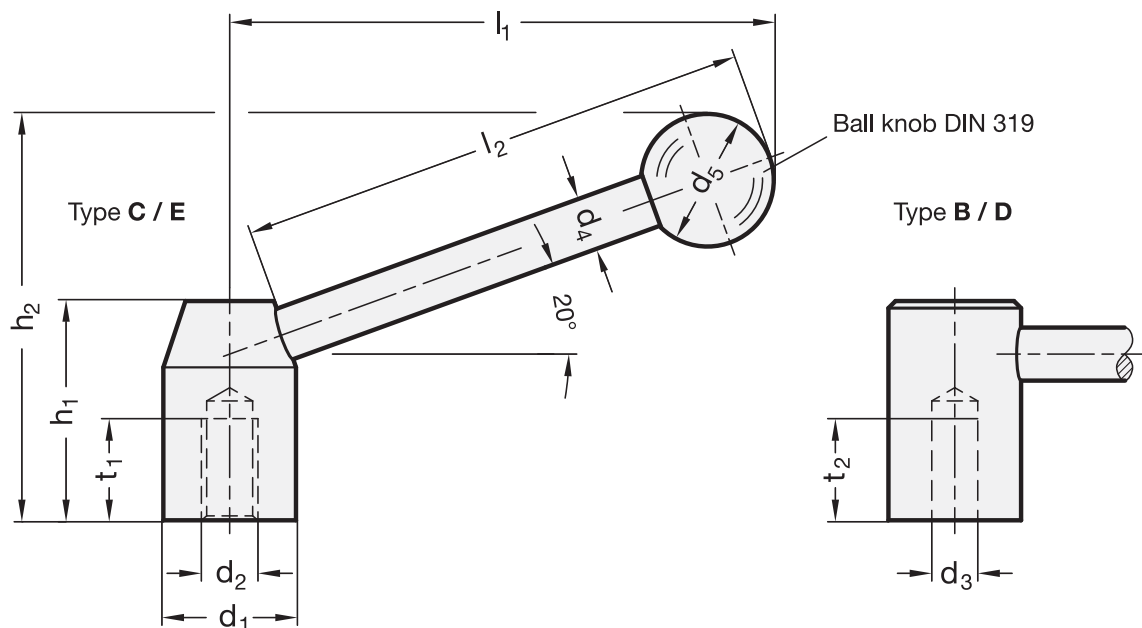
Plastic, Duroplast
black, shiny finish

INFORMATION

Tension levers GN 212 are used as clamping element as well as operating levers.

TECHNCIAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



GN 212-ST

Description	d1	d2	d3 H7	d4	d5	h1	h2 ≈	l1 ≈	l2	t1 min.	t2 min.	⚖
GN 212-22-B10-B	22	-	B 10	8	20	37	40.5	96	85	-	19	127
GN 212-25-B12-B	25	-	B 12	10	25	42	47	107.5	95	-	21	195
GN 212-28-B12-B	28	-	B 12	12	30	47	53	122	108	-	23	294
GN 212-32-B16-B	32	-	B 16	12	32	52	59	142	126	-	28	382
GN 212-36-B16-B	36	-	B 16	14	35	58	64.5	156	138	-	28	580
GN 212-40-B20-B	40	-	B 20	16	40	64	72	174	154	-	30	778
GN 212-22-B10-C	22	-	B 10	8	20	37	67	89.5	85	-	19	114
GN 212-25-B12-C	25	-	B 12	10	25	42	76	100.5	95	-	21	174
GN 212-28-B12-C	28	-	B 12	12	30	47	87	114	108	-	23	275
GN 212-32-B16-C	32	-	B 16	12	32	52	98	133	126	-	28	349
GN 212-36-B16-C	36	-	B 16	14	35	58	108	146	138	-	28	500
GN 212-40-B20-C	40	-	B 20	16	40	64	120	162.5	154	-	30	724
GN 212-22-M10-D	22	M 10	-	8	20	37	40.5	96	85	15	-	131
GN 212-25-M12-D	25	M 12	-	10	25	42	47	107.5	95	18	-	203
GN 212-28-M12-D	28	M 12	-	12	30	47	53	122	108	18	-	296
GN 212-32-M16-D	32	M 16	-	12	32	52	59	142	126	23	-	385
GN 212-36-M16-D	36	M 16	-	14	35	58	64.5	156	138	24	-	503
GN 212-40-M20-D	40	M 20	-	16	40	64	72	174	154	27	-	261
GN 212-22-M10-E	22	M 10	-	8	20	37	67	89.5	85	15	-	118
GN 212-25-M12-E	25	M 12	-	10	25	42	76	100.5	95	18	-	182
GN 212-28-M12-E	28	M 12	-	12	30	47	87	114	108	18	-	274
GN 212-32-M16-E	32	M 16	-	12	32	52	98	133	126	23	-	352
GN 212-36-M16-E	36	M 16	-	14	35	58	108	146	138	24	-	525
GN 212-40-M20-E	40	M 20	-	16	40	64	120	162.5	154	27	-	709

GN 212-NI

STAINLESS STEEL

Description	d1	d2	d4	d5	h1	h2 ≈	l1 ≈	l2	t1 min.	⚖
GN 212-22-M8-E-NI	22	M 8	8	20	37	67	89.5	85	18	121
GN 212-25-M10-E-NI	25	M 10	10	25	42	76	100.5	95	18	186
GN 212-28-M12-E-NI	28	M 12	12	30	47	87	114	108	20	272
GN 212-32-M16-E-NI	32	M 16	12	32	52	98	133	126	25	340



Clamping levers

Steel / Stainless Steel

SPECIFICATION

Types

- Type **K***: Straight lever with plain bore H7 (only $l_1 = 50$ to 160)
- Type **M***: Straight lever with threaded bore H7 (only $l_1 = 50$ to 160)
- Type **L**: Angled lever with plain bore H7
- Type **N**: Angled lever with threaded bore

* only Steel version.

Version in Steel

- turned
- blackened

Version in Stainless Steel

Stainless Steel AISI 303 **NI**
matt shot-blasted

INFORMATION

The official DIN standard sheet specifies additional sizes
40 - M5 / B5.

ON REQUEST

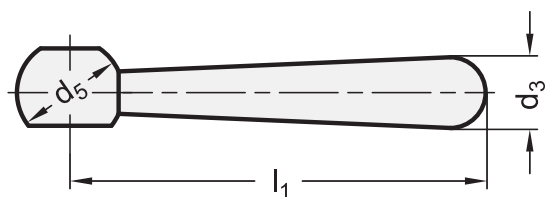
Stainless Steel-Lever handles with straight lever

TECHNICAL INFORMATION

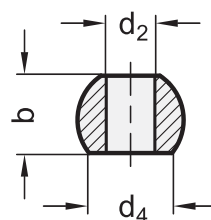
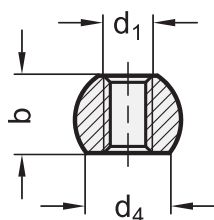
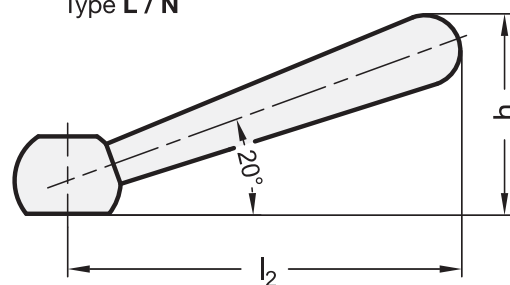
- ISO Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



Type K / M



Type L / N



DIN 99

Description	l1	d1	d2 H7	b	d3	d4 ≈	d5 -0.2	h ≈	l2 ≈	
DIN 99-50-B6-K	50	-	B 6	9.5	8	7.5	12	-	-	17
DIN 99-63-B8-K	63	-	B 8	12	10	11	16	-	-	36
DIN 99-80-B10-K	80	-	B 10	14.5	13	15	20	-	-	74
DIN 99-100-B12-K	100	-	B 12	18.5	16	19	25	-	-	139
DIN 99-125-B16-K	125	-	B 16	24	20	23.5	32	-	-	283
DIN 99-160-B20-K	160	-	B 20	30	25	29.5	40	-	-	545
DIN 99-50-B6-L	-	-	B 6	9.5	8	7.5	12	24	48	17
DIN 99-63-B8-L	-	-	B 8	12	10	11	16	30	60	36
DIN 99-80-B10-L	-	-	B 10	14.5	13	15	20	38	76	74
DIN 99-100-B12-L	-	-	B 12	18.5	16	19	25	47	95	139
DIN 99-125-B16-L	-	-	B 16	24	20	23.5	32	59.5	119	283
DIN 99-160-B20-L	-	-	B 20	30	25	29.5	40	76	152	545
DIN 99-200-B24-L	-	-	B 24	40	32	33	50	97	190	1128
DIN 99-50-M6-M	50	M 6	-	9.5	8	7.5	12	-	-	17
DIN 99-63-M8-M	63	M 8	-	12	10	11	16	-	-	37
DIN 99-80-M10-M	80	M 10	-	14.5	13	15	20	-	-	73
DIN 99-100-M12-M	100	M 12	-	18.5	16	19	25	-	-	141
DIN 99-125-M16-M	125	M 16	-	24	20	23.5	32	-	-	287
DIN 99-160-M20-M	160	M 20	-	30	25	29.5	40	-	-	569
DIN 99-50-M6-N	-	M 6	-	9.5	8	7.5	12	24	48	17
DIN 99-63-M8-N	-	M 8	-	12	10	11	16	30	60	37
DIN 99-80-M10-N	-	M 10	-	14.5	13	15	20	38	76	73
DIN 99-100-M12-N	-	M 12	-	18.5	16	19	25	47	95	141
DIN 99-125-M16-N	-	M 16	-	24	20	23.5	32	59.5	119	280
DIN 99-160-M20-N	-	M 20	-	30	25	29.5	40	76	152	569
DIN 99-200-M24-N	-	M 24	-	40	32	33	50	97	190	1116

DIN 99-NI

STAINLESS STEEL

Description	l1	d1	d2 H7	b	d3	d4 ≈	d5 -0.2	h ≈	l2 ≈	
DIN 99-63-B8-L-NI	63	-	B 8	12	10	11	16	30.5	60	36
DIN 99-80-B10-L-NI	80	-	B 10	14.5	13	15	20	38	76	77
DIN 99-100-B12-L-NI	100	-	B 12	18.5	16	19	25	47	95	139
DIN 99-50-M6-N-NI	50	M 6	-	9.5	8	7.5	12	24	48	17
DIN 99-63-M8-N-NI	63	M 8	-	12	10	11	16	30.5	60	37
DIN 99-80-M10-N-NI	80	M 10	-	14.5	13	15	20	38	76	73
DIN 99-100-M12-N-NI	100	M 12	-	18.5	16	19	25	47	95	130
DIN 99-125-M16-N-NI	125	M 16	-	24	20	23.5	32	59.5	119	287



Clamping levers

PUSH to disengage

SPECIFICATION

Types

- Type **M**: Straight lever
- Type **N**: Angled lever

Steel
blackened

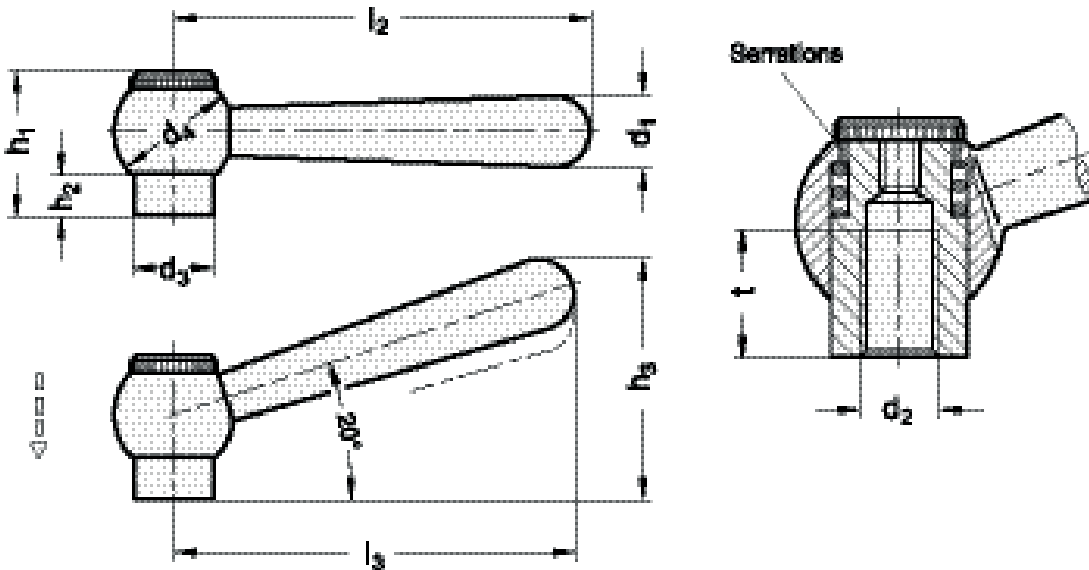
Version with threaded stud
Tensile strength class 5.8

INFORMATION

Clamping levers GN 99.2 are known for their small dimensions. They are for use in applications where either the clamping range is limited or where a specific lever position is required. The serrated bore in the spherical hub is fitted with a threaded bolt insert which engages in the hub with its own serrations.

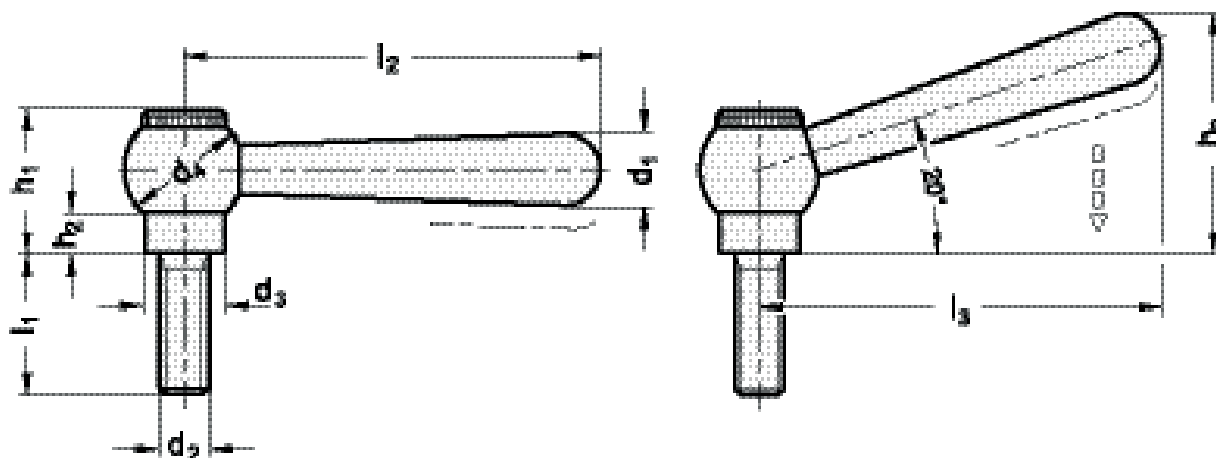
By depressing the clamping lever the serrations are disengaged freeing it for re-positioning in the most convenient position. When releasing the lever the serrations will re-engage automatically.

Should a rotation of 360° not be possible the insert can be slightly screwed in (after the lever has been disengaged) by means of the slotted knurled screw.



GN 99.2-with threaded insert

Description	d1	d2	d3	d4	h1	h2	h3 ≈	l2	l3 ≈	t min.	⚖
GN 99.2-10-M6-M	10	M 6	13.5	20	25	8	-	63	-	12	61
GN 99.2-10-M8-M	10	M 8	13.5	20	25	8	-	63	-	12	59
GN 99.2-13-M8-M	13	M 8	16	25	29	8	-	80	-	15	122
GN 99.2-13-M10-M	13	M 10	16	25	29	8	-	80	-	15	118
GN 99.2-16-M10-M	16	M 10	19	28	33.5	10.5	-	100	-	18	192
GN 99.2-16-M12-M	16	M 12	19	28	33.5	10.5	-	100	-	18	195
GN 99.2-10-M6-N	10	M 6	13.5	20	25	8	39.5	-	60	12	61
GN 99.2-10-M8-N	10	M 8	13.5	20	25	8	39.5	-	60	12	59
GN 99.2-13-M8-N	13	M 8	16	25	29	8	49.5	-	76	15	122
GN 99.2-13-M10-N	13	M 10	16	25	29	8	49.5	-	76	15	118
GN 99.2-16-M10-N	16	M 10	19	28	33.5	10.5	60.5	-	95	18	200
GN 99.2-16-M12-N	16	M 12	19	28	33.5	10.5	60.5	-	95	18	192



GN 99.2-with threaded stud

Description	d1	d2	l1	d3	d4	h1	h2	h3 ≈	l2	l3 ≈	⚖
GN 99.2-10-M8-20-M	10	M 8	20	13.5	20	25	8	-	63	-	69
GN 99.2-10-M8-25-M	10	M 8	25	13.5	20	25	8	-	63	-	71
GN 99.2-10-M8-32-M	10	M 8	32	13.5	20	25	8	-	63	-	73
GN 99.2-10-M8-40-M	10	M 8	40	13.5	20	25	8	-	63	-	75
GN 99.2-10-M8-50-M	10	M 8	50	13.5	20	25	8	-	63	-	81
GN 99.2-10-M8-63-M	10	M 8	63	13.5	20	25	8	-	63	-	85
GN 99.2-13-M10-20-M	13	M 10	20	16	25	29	8	-	80	-	130
GN 99.2-13-M10-25-M	13	M 10	25	16	25	29	8	-	80	-	130
GN 99.2-13-M10-32-M	13	M 10	32	16	25	29	8	-	80	-	143
GN 99.2-13-M10-40-M	13	M 10	40	16	25	29	8	-	80	-	147
GN 99.2-13-M10-50-M	13	M 10	50	16	25	29	8	-	80	-	153
GN 99.2-13-M10-63-M	13	M 10	63	16	25	29	8	-	80	-	159
GN 99.2-16-M12-25-M	16	M 12	25	19	28	33.5	10.5	-	100	-	220
GN 99.2-16-M12-32-M	16	M 12	32	19	28	33.5	10.5	-	100	-	226
GN 99.2-16-M12-40-M	16	M 12	40	19	28	33.5	10.5	-	100	-	232
GN 99.2-16-M12-50-M	16	M 12	50	19	28	33.5	10.5	-	100	-	238
GN 99.2-16-M12-63-M	16	M 12	63	19	28	33.5	10.5	-	100	-	247
GN 99.2-16-M12-80-M	16	M 12	80	19	28	33.5	10.5	-	100	-	250
GN 99.2-10-M8-20-N	10	M 8	20	13.5	20	25	8	39.5	-	60	65
GN 99.2-10-M8-25-N	10	M 8	25	13.5	20	25	8	39.5	-	60	71
GN 99.2-10-M8-32-N	10	M 8	32	13.5	20	25	8	39.5	-	60	73
GN 99.2-10-M8-40-N	10	M 8	40	13.5	20	25	8	39.5	-	60	75
GN 99.2-10-M8-50-N	10	M 8	50	13.5	20	25	8	39.5	-	60	81
GN 99.2-10-M8-63-N	10	M 8	63	13.5	20	25	8	39.5	-	60	85
GN 99.2-13-M10-20-N	13	M 10	20	16	25	29	8	49.5	-	76	137
GN 99.2-13-M10-25-N	13	M 10	25	16	25	29	8	49.5	-	76	139
GN 99.2-13-M10-32-N	13	M 10	32	16	25	29	8	49.5	-	76	140
GN 99.2-13-M10-40-N	13	M 10	40	16	25	29	8	49.5	-	76	147
GN 99.2-13-M10-50-N	13	M 10	50	16	25	29	8	49.5	-	76	153
GN 99.2-13-M10-63-N	13	M 10	63	16	25	29	8	49.5	-	76	159
GN 99.2-16-M12-25-N	16	M 12	25	19	28	33.5	10.5	60.5	-	95	220
GN 99.2-16-M12-32-N	16	M 12	32	19	28	33.5	10.5	60.5	-	95	226
GN 99.2-16-M12-40-N	16	M 12	40	19	28	33.5	10.5	60.5	-	95	232
GN 99.2-16-M12-50-N	16	M 12	50	19	28	33.5	10.5	60.5	-	95	238
GN 99.2-16-M12-63-N	16	M 12	63	19	28	33.5	10.5	60.5	-	95	247
GN 99.2-16-M12-80-N	16	M 12	80	19	28	33.5	10.5	60.5	-	95	250

Clamp nuts

SPECIFICATION

Steel
zinc plated, blue passivated
Shaft butt-welded to nut

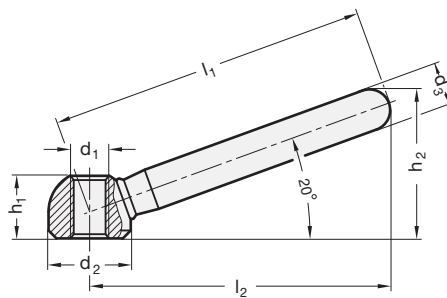
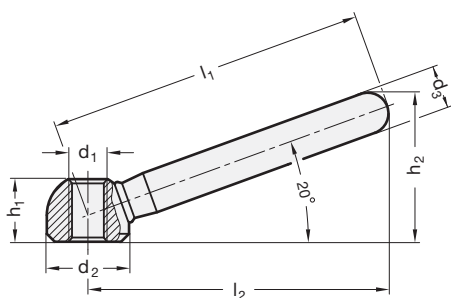
Stainless Steel-Clamp nuts

SPECIFICATION

Stainless Steel
- AISI 304
- AISI 316L **A4**
- matt shot-blasted
Shaft butt-welded to nut

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 99.5

Description	l1	d1	d2	d3	h1	h2 ≈	l2 ≈	△△
GN 99.5-63-M8	63	M 8	16	10	12.5	30.5	60	39
GN 99.5-80-M10	80	M 10	20	12	15	37	76	82
GN 99.5-100-M12	100	M 12	25	14	19	46	95	149
GN 99.5-125-M16	125	M 16	32	18	25	58.5	119	309
GN 99.5-160-M20	160	M 20	40	20	31	73	152	522

GN 99.6

STAINLESS STEEL

Description	l1	d1	d2	d3	h1	h2 ≈	l2 ≈	△△
GN 99.6-63-M8-A4	63	M 8	16	10	12.5	30.5	60	45
GN 99.6-80-M10-A4	80	M 10	20	12	15	37	76	75
GN 99.6-100-M12-A4	100	M 12	25	14	19	46	95	149
GN 99.6-63-M8	63	M 8	16	10	12.5	30.5	60	45
GN 99.6-80-M10	80	M 10	20	12	15	37	76	75
GN 99.6-100-M12	100	M 12	25	14	19	46	95	149
GN 99.6-125-M16	125	M 16	32	18	25	58.5	119	309
GN 99.6-160-M20	160	M 20	40	20	31	73	152	526

Short clamping levers

SPECIFICATION

Types

- Type **N**: Angled lever with threaded bore
- Type **L**: Angled lever with plain bore H7

Steel

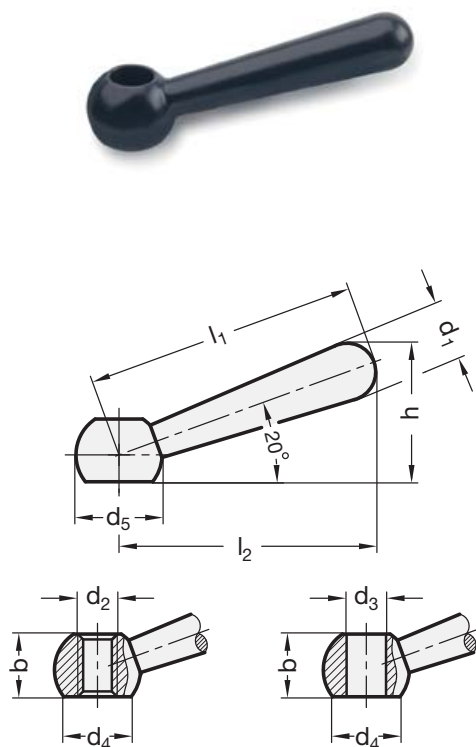
- turned
- blackened

ON REQUEST

- Short clamping levers with straight lever

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



Control levers

Steel, blackened

SPECIFICATION

Steel

blackened

Ball knobs DIN 319 (see page 538)

Plastic, Duroplast

black, shiny finish

INFORMATION

Control levers GN 223 can also be supplied as standard with:

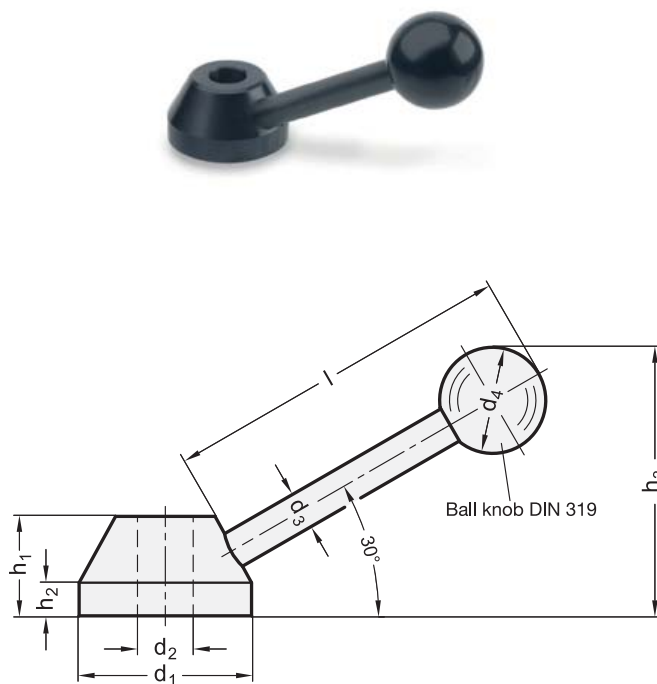
Square DIN 79 **V** + Bore-Ø

Keyway DIN 6885 **K** + Bore-Ø

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)

- ISO-Fundamental Tolerances (see page A21)



GN 204

Description	d1	d2	d3 H7	b	d4 ≈	d5	h ≈	l1	l2 ≈	△
GN 204-13-B10-L	13	-	B 10	14	16	20	32	63	60	61
GN 204-16-B12-L	16	-	B 12	17.5	20	25	40	80	76	180
GN 204-20-B16-L	20	-	B 16	23	25	32	51	100	95	220
GN 204-10-M8-N	10	M 8	-	11	12.5	16	26	50	48	30
GN 204-13-M10-N	13	M 10	-	14	16	20	32	63	60	60
GN 204-16-M12-N	16	M 12	-	17.5	20	25	40	80	76	120
GN 204-20-M16-N	20	M 16	-	23	25	32	51	100	95	232
GN 204-25-M20-N	25	M 20	-	30	31	40	63.5	125	119	445

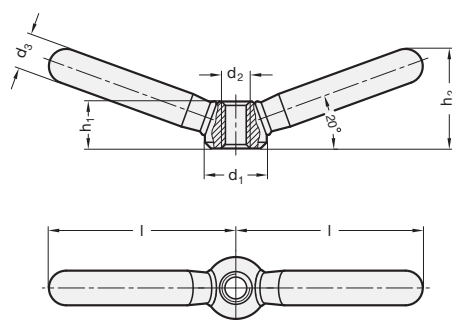
GN 223

Description	d1	d2 H7	d3	d4	h1	h2	h3 ≈	l ≈	△
GN 223-25-B8	25	B 8	6	16	14	5	35	45	50
GN 223-32-B10	32	B 10	8	20	18	6.5	48	62	103
GN 223-40-B12	40	B 12	10	30	22	8.5	77	95	214
GN 223-52-B16	52	B 16	14	40	28	11	96	136	503

Clamp nuts with double lever

SPECIFICATION

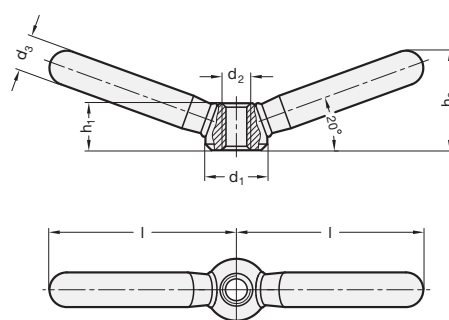
Steel
zinc plated, blue passivated
Shaft butt-welded to nut



Stainless Steel-Clamp nuts with double lever

SPECIFICATION

Stainless Steel
- AISI 304
- AISI 316L **A4**
- matt shot-blasted
Shaft butt-welded to nut



GN 99.7

Description	d1	d2	d3	h1	h2 ≈	l ≈	⚖
GN 99.7-16-M8	16	M 8	10	12.5	26	47.5	55
GN 99.7-20-M10	20	M 10	12	15	32	59.5	110
GN 99.7-25-M12	25	M 12	14	19	40	75.5	210
GN 99.7-32-M16	32	M 16	18	25	52	94.5	432
GN 99.7-40-M20	40	M 20	20	31	62	118	716

GN 99.8

STAINLESS STEEL

Description	d1	d2	d3	h1	h2 ≈	l ≈	⚖
GN 99.8-16-M8-A4	16	M 8	10	12.5	26	47.5	50
GN 99.8-20-M10-A4	20	M 10	12	15	32	59.5	102
GN 99.8-25-M12-A4	25	M 12	14	19	40	75.5	213
GN 99.8-16-M8	16	M 8	10	12.5	26	47.5	50
GN 99.8-20-M10	20	M 10	12	15	32	59.5	102
GN 99.8-25-M12	25	M 12	14	19	40	75.5	211
GN 99.8-32-M16	32	M 16	18	25	52	94.5	435
GN 99.8-40-M20	40	M 20	20	31	62	118	710

Clamp nuts

Cast iron / Stainless Steel

SPECIFICATION

Version in malleable cast iron

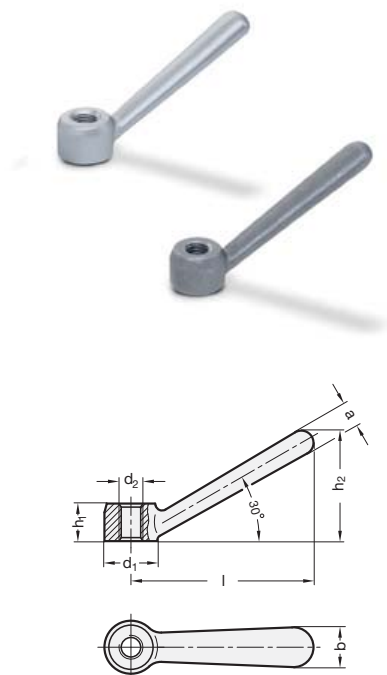
- fettled
- Contact face machined

Version in Stainless Steel precision casting AISI CF-8 NI

- fettled
- Contact face machined

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 206

Description	d1	d2	a	b	h1	h2 ≈	l ≈	
GN 206-16-M8	16	M 8	7	12	12	34	56	34
GN 206-20-M10	20	M 10	9	14	14	42.5	70	63
GN 206-25-M12	25	M 12	11	18	18	53	87	125
GN 206-32-M16	32	M 16	15	22	22	66.5	109	248
GN 206-40-M20	40	M 20	18	28	28	84.5	140	518

GN 206-NI

STAINLESS STEEL

Description	d1	d2	a	b	h1	h2 ≈	l ≈	
GN 206-16-M8-NI	16	M 8	7	12	12	34	56	30
GN 206-20-M10-NI	20	M 10	9	14	14	42.5	70	62
GN 206-25-M12-NI	25	M 12	11	18	18	53	87	125
GN 206-32-M16-NI	32	M 16	15	22	22	66.5	109	248
GN 206-40-M20-NI	40	M 20	18	28	28	84.5	140	491

Clamp nuts with double lever

Cast iron / Stainless Steel

SPECIFICATION

Version in malleable cast iron

- fettled
- Contact faces machined

Version in Stainless Steel NI

Stainless Steel-Precision casting

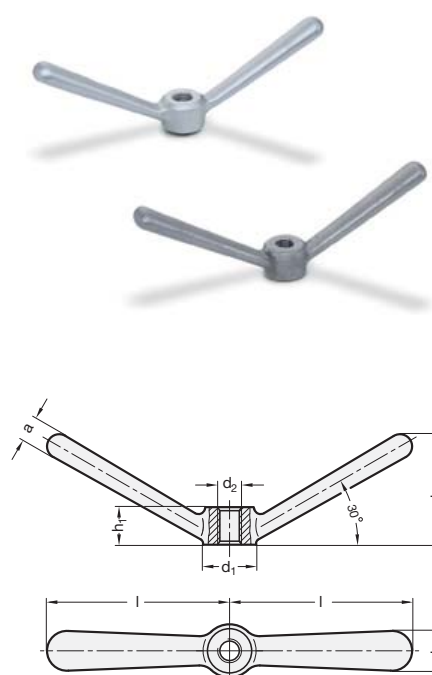
- AISI CF-8
- fettled
- Contact faces machined

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ON REQUEST

- Clamp nuts with double lever GN 206.1, plastic coated



GN 206.1

Description	d1	d2	a	b	h1	h2 ≈	l ≈	
GN 206.1-16-M8	16	M 8	7	12	12	34	56	61
GN 206.1-20-M10	20	M 10	9	14	14	42.5	70	104
GN 206.1-25-M12	25	M 12	11	18	18	53	87	220
GN 206.1-32-M16	32	M 16	15	22	22	66.5	109	400
GN 206.1-40-M20	40	M 20	18	28	28	84.5	140	760

GN 206.1-NI

STAINLESS STEEL

Description	d1	d2	a	b	h1	h2 ≈	l ≈	
GN 206.1-16-M8-NI	16	M 8	7	12	12	34	56	53
GN 206.1-20-M10-NI	20	M 10	9	14	14	42	70	98
GN 206.1-25-M12-NI	25	M 12	11	18	18	53	87	196
GN 206.1-32-M16-NI	32	M 16	15	22	22	66	109	396
GN 206.1-40-M20-NI	40	M 20	18	28	28	84	140	720



3
Clamping levers

Split hubs

SPECIFICATION

Sintered Steel
black oxidised with vapor
Cylinder head screw
Steel, black

INFORMATION

Split hubs GN 150 are distinguished by the method of simple clamping to any shaft.
This can be achieved without prior machining of the shaft, eliminating clamping parts and assembly work.
A further advantage is the positioning of the lever arm to any required position.
The shaft tolerance should be within h_{11} ; to transmit higher torques the hub can be supplied with a keyway.

Stainless Steel-Split hubs

SPECIFICATION

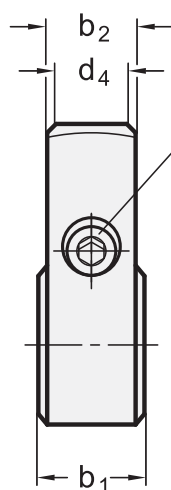
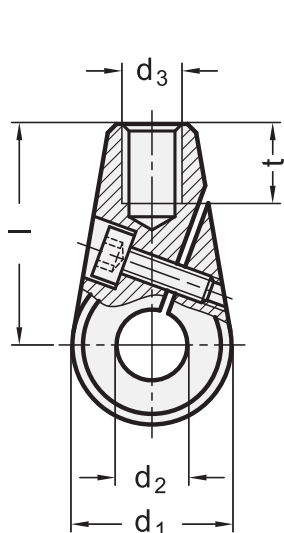
Stainless Steel (Sintered Steel) AISI 316L
Cylinder head screw
Stainless Steel AISI 304

INFORMATION

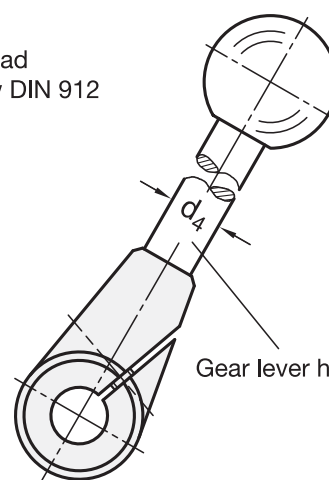
Split hubs GN 150.5 are distinguished by the method of simple clamping to any shaft.
This can be achieved without prior machining of the shaft, eliminating clamping parts and assembly work.
A further advantage is the positioning of the lever arm to any required position.
The shaft tolerance should be within h_1 ; to transmit higher torques the hub can be supplied with a keyway.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Socket head
cap screw DIN 912



Gear lever handle GN 310

GN 150

Description	d1	d2	b1 ±0.2	b2	d3	d4	l	t min.	△
GN 150-24-B10	24	B 10	15.5	13	M 8	10	36	11	64
GN 150-24-B12	24	B 12	15.5	13	M 8	10	36	11	64
GN 150-28-B12	28	B 12	17.5	15	M 10	12	41	14	100
GN 150-28-B14	28	B 14	17.5	15	M 10	12	41	14	94
GN 150-32-B14	32	B 14	19.5	17	M 12	14	45	16	140
GN 150-32-B16	32	B 16	19.5	17	M 12	14	45	16	137

GN 150.5

STAINLESS STEEL

Description	d1	d2	b1 ±0.2	b2	d3	d4	l	t min.	△
GN 150.5-24-B10	24	B 10	15.5	13	M 8	10	36	11	64
GN 150.5-24-B12	24	B 12	15.5	13	M 8	10	36	11	61
GN 150.5-28-B12	28	B 12	17.5	15	M 10	12	41	14	94
GN 150.5-28-B14	28	B 14	17.5	15	M 10	12	41	14	90
GN 150.5-32-B14	32	B 14	19.5	17	M 12	14	45	16	140
GN 150.5-32-B16	32	B 16	19.5	17	M 12	14	45	16	132

Tommy screws

with fixed bar

SPECIFICATION

Types

- Type **E**: without thrust pad
- Type **F**: with thrust pad DIN 6311 (see page 938)

Steel
Tensile strength class 5.8

- blackened
- Thrust point hardened

INFORMATION

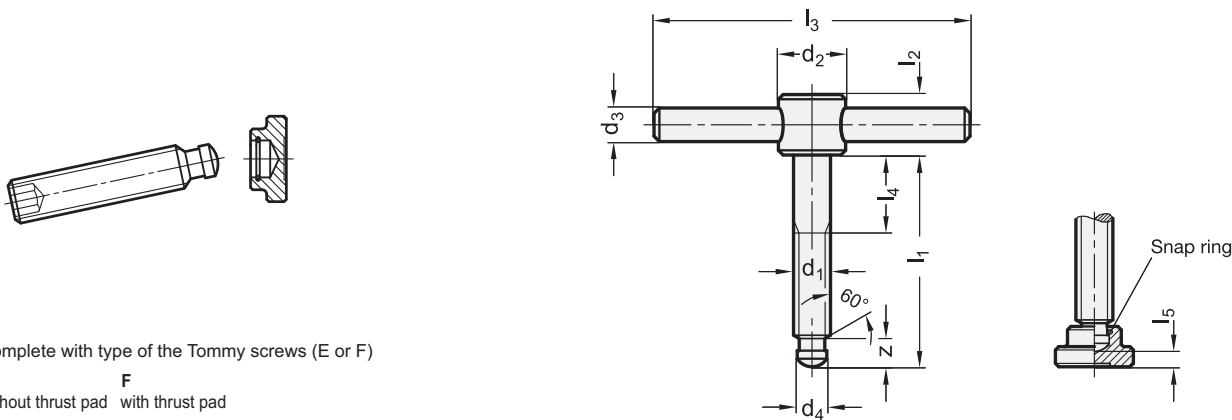
The thrust point of these screws DIN 6304 is designed to be used with or without a thrust pad for clamping.
The snap ring is a simple and quick method to connect the thrust pad to the tommy screw.
Instead of DIN 6311 (see page 938) a thrust pad GN 6311.1 (see page 939) can be used. In that case the tommy screw and the thrust pad have to be ordered separately .

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

HINT FOR INSTALLATION (TYPE F)

The thrust pad has to be held at an angle allowing the circlip to drop to the bottom of its groove with the split end downwards. The thrust point is then offered up tp the spit end of the circlip at the lowest possible angle and pressed home.



* Complete with type of the Tommy screws (E or F)

E without thrust pad **F** with thrust pad

DIN 6304

Description	d1	l1	d2	d3	d4 h11	l2	l3	l4	l5 ≈	z ≈	⚖
DIN 6304-M6-40-*	M 6	40	12	5	4.5	10	50	10	2.2	5.4	26
DIN 6304-M6-50-*	M 6	50	12	5	4.5	10	50	10	2.2	5.4	27
DIN 6304-M8-50-*	M 8	50	14	6	6	12	60	15	3	6.8	49
DIN 6304-M8-60-*	M 8	60	14	6	6	12	60	15	3	6.8	52
DIN 6304-M10-60-*	M 10	60	18	8	8	14	80	20	3.6	8.2	100
DIN 6304-M10-70-*	M 10	70	18	8	8	14	80	20	3.6	8.2	105
DIN 6304-M12-70-*	M 12	70	20	10	8	18	100	20	4.5	8.6	171
DIN 6304-M12-80-*	M 12	80	20	10	8	18	100	20	4.5	8.6	179
DIN 6304-M16-75-*	M 16	75	24	12	12	20	120	20	5.3	10.6	260
DIN 6304-M16-90-*	M 16	90	24	12	12	20	120	20	5.3	10.6	324
DIN 6304-M16-110-*	M 16	110	24	12	12	20	120	20	5.3	10.6	354
DIN 6304-M20-75-*	M 20	75	30	16	15.5	28	140	20	5.6	12.4	475
DIN 6304-M20-90-*	M 20	90	30	16	15.5	28	140	20	5.6	12.4	602
DIN 6304-M20-110-*	M 20	110	30	16	15.5	28	140	20	5.6	12.4	644

Weight type F



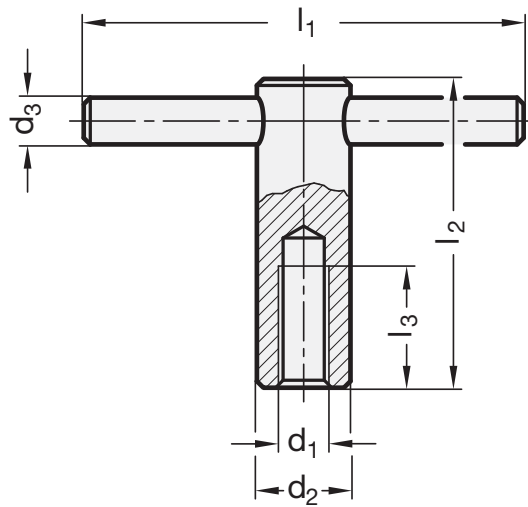
3
Clamping levers

Tommy nuts

with fixed bar

SPECIFICATION

Steel
Tensile strength class 5
blackened



DIN 6305

Description	d1	d2	d3	l1	l2	l3 min.	⚖
DIN 6305-M10	M 10	18	8	80	60	20	129
DIN 6305-M12	M 12	20	10	100	70	25	194
DIN 6305-M16	M 16	24	12	120	85	35	322
DIN 6305-M20	M 20	30	16	140	95	40	589

Tommy screws
with movable bar

SPECIFICATION

Types

- Type **D**: without thrust pad
- Type **E**: with thrust pad DIN 6311 (see page 938)

Steel
Tensile strength class 5.8

- blackened
- Thrust point hardened

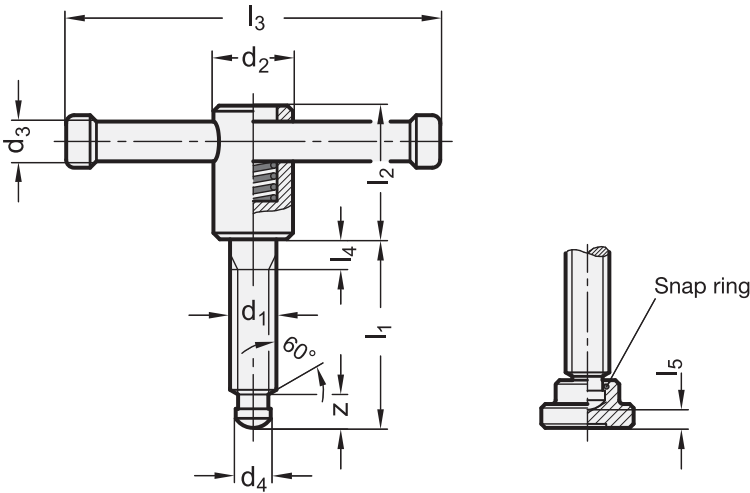
Bar end caps
Plastic, grey

INFORMATION

The thrust point of these screws DIN 6306 is designed to be used with or without the thrust pad for clamping.
The snap ring is a simple and quick method to connect the thrust pad to the tommy screw.
Instead of DIN 6311 (see page 938) a thrust pad GN 6311.1 (see page 939) can be used. In that case the tommy screw and the thrust pad have to be ordered separately.
The movable bar of the tommy screw DIN 6306 is held in any position by the pressure spring.
The end caps are pressed on to the bar and thus limit the bar travel, they can also be supplied separately should the bar be plated first.
The official DIN standard sheets provides for steel rings at this point.

TECHNCIAL INFORMATION

- Thrust pads DIN 6311 (see page 938)
- ISO-Fundamental Tolerances (see page A21)



* Complete with type of the Tommy screws (D or E)
D without thrust pad **E** with thrust pad

DIN 6306

Description	d1	l1	d2	d3	d4 H11	l2	l3	l4	l5 ≈	z ≈	⚖
DIN 6306-M10-40-*	M 10	40	18	8	8	32	80	10	3.6	8.2	103
DIN 6306-M10-50-*	M 10	50	18	8	8	32	80	10	3.6	8.2	109
DIN 6306-M12-50-*	M 12	50	20	10	8	35	100	10	4.5	8.6	177
DIN 6306-M12-60-*	M 12	60	20	10	8	35	100	10	4.5	8.6	184
DIN 6306-M16-55-*	M 16	55	24	13	12	40	120	10	5.3	10.6	346
DIN 6306-M16-70-*	M 16	70	24	13	12	40	120	10	5.3	10.6	367
DIN 6306-M16-90-*	M 16	90	24	13	12	40	120	10	5.3	10.6	359
DIN 6306-M20-55-*	M 20	55	30	16	15.5	45	140	10	5.6	12.4	607
DIN 6306-M20-70-*	M 20	70	30	16	15.5	45	140	10	5.6	12.4	637
DIN 6306-M20-90-*	M 20	90	30	16	15.5	45	140	10	5.6	12.4	657

Weight type E

1

2

3

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18

3

Clamping levers

Tommy nuts

with moveable bar

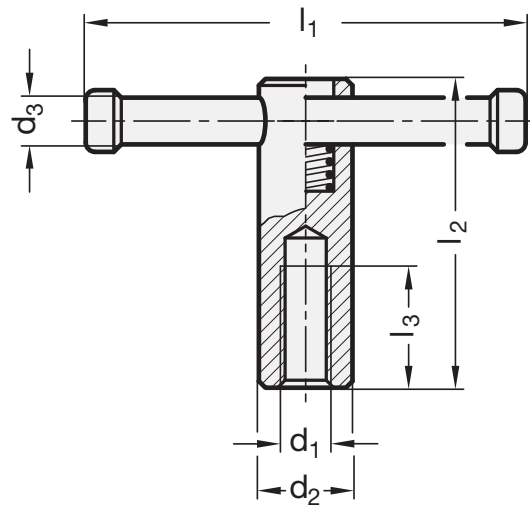
SPECIFICATION

Steel
Tensile strength class 5
blackened

Bar end caps
Plastic, grey

INFORMATION

The movable bar of the tommy nut DIN 6307 is held in any position by the pressure spring. The plastic end caps limit the travel distance. They are pressed on with form-lock and may be supplied separately if the parts are to be electro-plated. The official DIN standard sheets provides for steel rings at this point.



DIN 6307

Description	d1	d2	d3	l1	l2	l3 min.	⚖
DIN 6307-M10	M 10	18	8	80	60	20	110
DIN 6307-M12	M 12	20	10	100	70	25	173
DIN 6307-M16	M 16	24	13	120	85	35	320
DIN 6307-M20	M 20	30	16	140	95	40	568

Quick release toggle nuts

SPECIFICATION

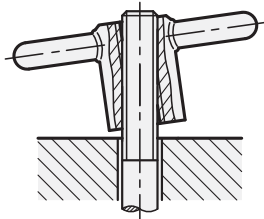
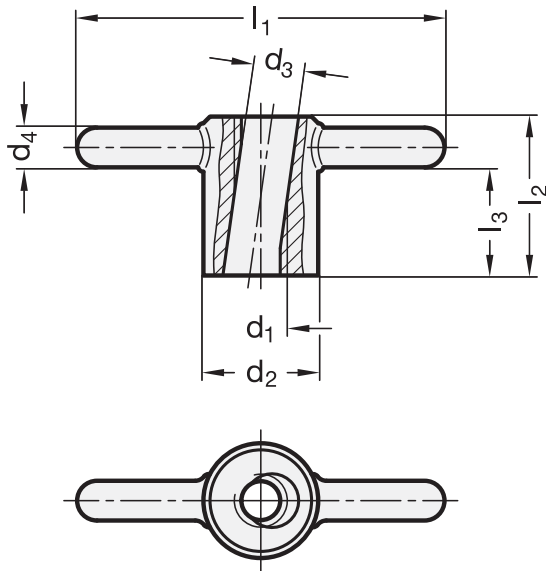
Steel
zinc plated, blue passivated
Butt-welded-toggle

INFORMATION

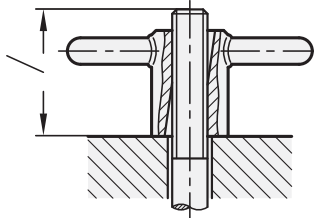
Quick release toggle nuts GN 6305.1 are used in such applications where the knob has to be completely removed after the releasing operation and refitted rapidly for re-clamping.
Plug the toggle nut onto the threaded bolt at an oblique angle. During the clamping action, it engages into the threads of the bolt.

ON REQUEST

- in Stainless Steel

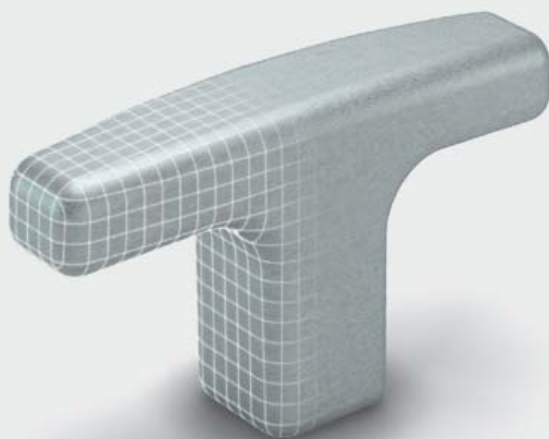


Threaded
bolt > l₂



GN 6305.1

Description	d1	d2	d3	d4	l1 ≈	l2	l3 ≈	⚖
GN 6305.1-M10-ST	M 10	24	10.5	8	68	30	20	100
GN 6305.1-M12-ST	M 12	26	13	9	82	36	24.5	138
GN 6305.1-M16-ST	M 16	32	17	10	98	45	32	240



T-Handles

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, matte finish.

STANDARD EXECUTIONS

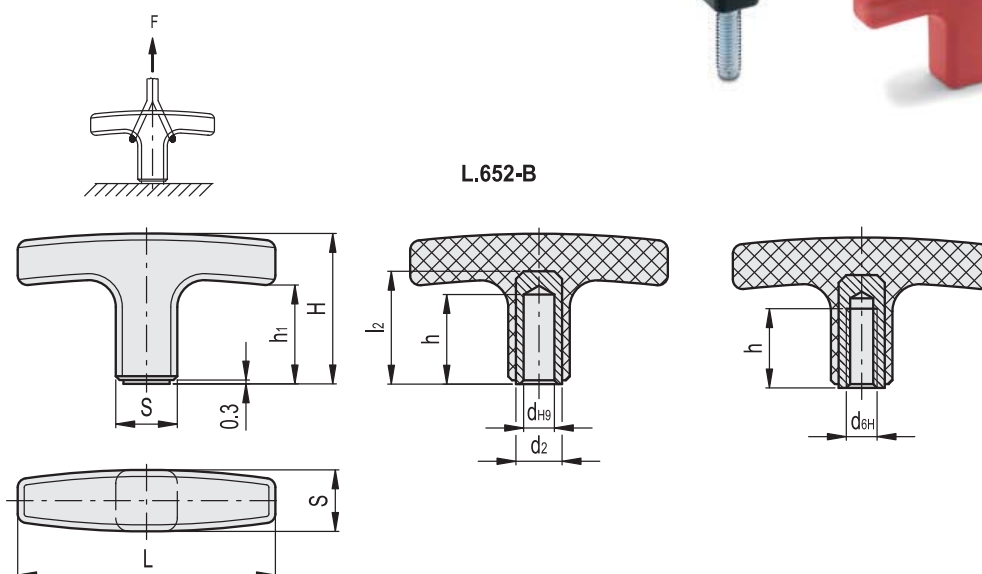
- **L.652-B:** brass boss, plain or threaded blind hole. Black, orange, red colours, matte finish.
- **L.652-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).

TECHNICAL DATA

Tensile stress: F values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.



ELESA Original design



* Complete with colour index, example: 32447 L.652/67 B-M8-C2

C9
RAL9005
 C2
RAL2004
 C6
RAL3000

L.652-B

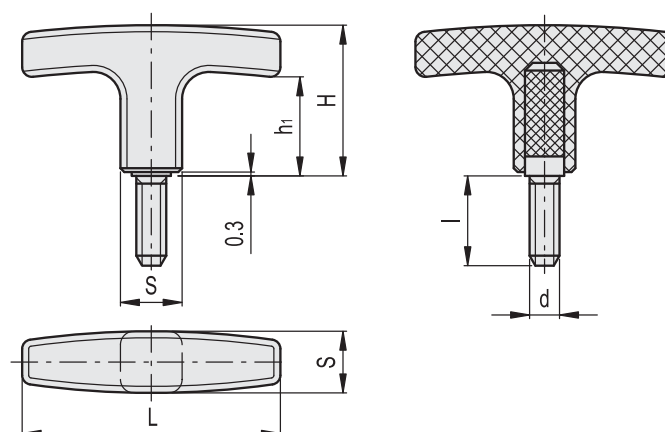
Code C9	Code C2	Code C6	Description	L	dH9	d6H	S	H	d2	h	h1	l2	F [N]	△
32420	-	-	L.652/40 B-M5-*	41	-	M5	13	28	-	16	18.5	-	2400	17
32421	-	-	L.652/40 B-6-*	41	6	-	13	28	9	18	18.5	23	2500	16
32426	-	32428	L.652/40 B-M6-*	41	-	M6	13	28	-	16	18.5	-	2500	16
32430	-	-	L.652/55 B-M5-*	56.5	-	M5	15	33	-	15	21.5	-	2400	28
32431	-	-	L.652/55 B-6-*	56.5	6	-	15	33	10	18	21.5	27	3300	27
32436	-	32438	L.652/55 B-M6-*	56.5	-	M6	15	33	-	18	21.5	-	3300	27
32432	-	-	L.652/55 B-M8-*	56.5	-	M8	15	33	-	20	21.5	-	3300	28
32441	-	-	L.652/67 B-6-*	68.5	6	-	16.5	37	11	20	24.5	30	4500	38
32443	-	-	L.652/67 B-8-*	68.5	8	-	16.5	37	11	20	24.5	30	4500	36
32446	32447	32448	L.652/67 B-M8-*	68.5	-	M8	16.5	37	-	20	24.5	-	4500	36
32452	-	-	L.652/67 B-M10-*	68.5	-	M10	16.5	37	-	20	24.5	-	5000	34
32451	-	-	L.652/80 B-6-*	82	6	-	20	41.5	13	25	25	33	7000	58
32453	-	-	L.652/80 B-8-*	82	8	-	20	41.5	13	25	25	33	7000	52
32456	-	-	L.652/80 B-M8-*	82	-	M8	20	41.5	-	25	25	-	7000	50
32458	32459	32457	L.652/80 B-M10-*	82	-	M10	20	41.5	-	25	25	-	7000	56
32460	-	-	L.652/80 B-M12-*	82	-	M12	20	41.5	-	18	25	-	7000	62
32471	-	-	L.652/95 B-6-*	94	6	-	21	46	13	25	28.5	33	8000	74
32478	-	-	L.652/95 B-M10-*	94	-	M10	21	46	-	25	28.5	-	8000	70
32480	-	-	L.652/95 B-M12-*	94	-	M12	21	46	-	18	28.5	-	8000	66



5

Fixed and Revolving Handles

L.652-p



L.652-p

Code	Description	L	d6g	S	H	h1	l	F [N]	⚖
32425	L.652/40 p-M5x16	41	M5	13	28	18.5	16	2500	15
32423	L.652/40 p-M5x20	41	M5	13	28	18.5	20	2500	16
32429	L.652/40 p-M6x20	41	M6	13	28	18.5	20	2500	17
32424	L.652/40 p-M6x25	41	M6	13	28	18.5	25	2500	18
32433	L.652/55 p-M6x20	56.5	M6	15	33	21.5	20	2500	26
32434	L.652/55 p-M6x25	56.5	M6	15	33	21.5	25	3000	27
32439	L.652/55 p-M8x20	56.5	M8	15	33	21.5	20	3300	28
32437	L.652/55 p-M8x25	56.5	M8	15	33	21.5	25	3300	29
32440	L.652/67 p-M8x20	68.5	M8	16.5	37	24.5	20	3300	36
32449	L.652/67 p-M8x25	68.5	M8	16.5	37	24.5	25	3300	38
32442	L.652/67 p-M8x30	68.5	M8	16.5	37	24.5	30	3300	40
32444	L.652/67 p-M10x20	68.5	M10	16.5	37	24.5	20	5000	41
32445	L.652/67 p-M10x30	68.5	M10	16.5	37	24.5	30	5000	44
32461	L.652/80 p-M10x20	82	M10	20	41.5	25	20	5000	52
32462	L.652/80 p-M10x30	82	M10	20	41.5	25	30	5000	58
32943	L.652/95 p-M12x30	94	M12	21	46	28.5	30	6000	68

Safety T-Handles

Technopolymer, push action

MATERIAL

Glass-fibre reinforced polyamide based (PA), black colour, matte finish, technopolymer with "PUSH" tampoprinted in grey colour. Avoid contact with solvents, alcohol or detergents containing alcohol to prevent deterioration of the tampoprinted inscription.

CENTRE CAP

Technopolymer, black colour. On request and for sufficient quantities, it can be supplied in yellow RAL 1021 (safety) or in other colours, with customised graphic symbols, marks or writing.

STANDARD EXECUTIONS

Glass-fibre reinforced technopolymer clamping element with toothing and retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.

- **L.652-S-B:** brass boss, threaded blind hole.
- **L.652-S-p:** zinc-plated steel threaded stud, chamfered flat end
UNI 947 : ISO 4753 (see Technical data on page A11).

FEATURES AND APPLICATIONS

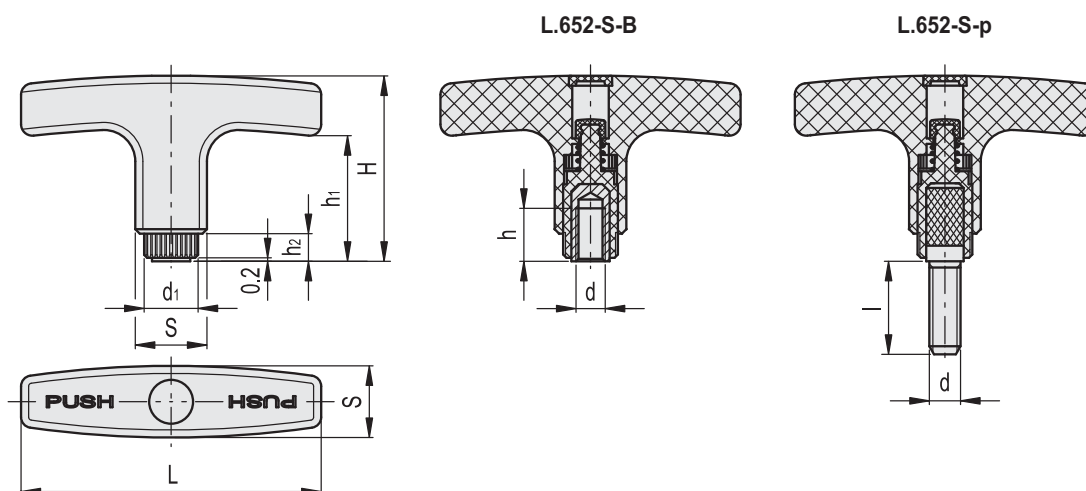
Particularly suitable where the handle needs to turn freely to avoid that clamping may be accidentally affected.

INSTRUCTIONS OF USE

Press the handle to engage the toothing and turn it. By releasing the handle the spring releases the toothing, thus the handle returns to the rest position.



ELESA Original design



L.652-S-B

Code	Description	L	d6H	S	H	d1	h	h1	h2	Teeth no.	
32531	L.652-S/67 B-M5	67	M5	16	41	12	10	29	4	18	34
32533	L.652-S/67 B-M6	67	M6	16	41	12	10	29	4	18	32
32563	L.652-S/80 B-M6	80	M6	20	47	15	16	31.5	5.5	20	46
32565	L.652-S/80 B-M8	80	M8	20	47	15	13	31.5	5.5	20	44

L.652-S-p

Code	Description	L	d6g	S	H	d1	h1	h2	l	Teeth no.	
32541	L.652-S/67 p-M5x10	67	M5	16	41	12	29	4	10	18	23
32542	L.652-S/67 p-M5x16	67	M5	16	41	12	29	4	16	18	25
32552	L.652-S/67 p-M6x16	67	M6	16	41	12	29	4	16	18	27
32553	L.652-S/67 p-M6x25	67	M6	16	41	12	29	4	25	18	30
32571	L.652-S/80 p-M8x20	80	M8	20	47	15	31.5	5.5	20	20	43
32572	L.652-S/80 p-M8x25	80	M8	20	47	15	31.5	5.5	25	20	45
32582	L.652-S/80 p-M10x30	80	M10	20	47	15	31.5	5.5	30	20	51

Adjustable T-Handles

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

CENTRE CAP

Technopolymer, black colour.

STANDARD EXECUTIONS

Glass-fibre reinforced technopolymer clamping element with toothing and retaining pin, black colour. AISI 302 stainless steel return spring.

- **L.652-X-B:** brass boss, threaded blind hole.
- **L.652-X-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947: ISO 4753 (see Technical data on page A11).

FEATURES AND APPLICATIONS

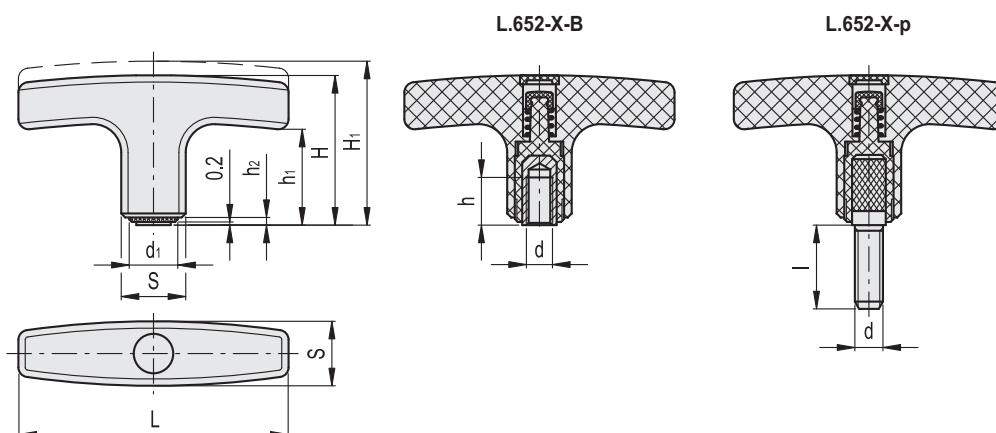
Particularly suitable when clamping operations are limited owing to lack of space and the hand of the operator cannot make a complete rotation.

INSTRUCTIONS OF USE

For clamping, lift the handle to disengage the clamping device toothing and bring it back to start position. By releasing the handle, the return spring automatically engages the toothing.



ELESA Original design



L.652-X-B

Code	Description	L	d6H	S	H	H1	d1	h	h1	h2	Teeth no.	⚖
32731	L.652-X/67 B-M5	67	M5	16	39	42	12	10	26	1	18	34
32733	L.652-X/67 B-M6	67	M6	16	39	42	12	10	26	1	18	32
32763	L.652-X/80 B-M6	80	M6	20	42	46	15	16	27	1	20	46
32765	L.652-X/80 B-M8	80	M8	20	42	46	15	13	27	1	20	44

L.652-X-p

Code	Description	L	d6g	S	H	H1	d1	h1	h2	l	Teeth no.	⚖
32741	L.652-X/67 p-M5x10	67	M5	16	39	42	12	26	1	10	18	23
32742	L.652-X/67 p-M5x16	67	M5	16	39	42	12	26	1	16	18	25
32752	L.652-X/67 p-M6x16	67	M6	16	39	42	12	26	1	16	18	27
32753	L.652-X/67 p-M6x25	67	M6	16	39	42	12	26	1	25	18	30
32771	L.652-X/80 p-M8x20	80	M8	20	42	46	15	27	1	20	20	43
32772	L.652-X/80 p-M8x25	80	M8	20	42	46	15	27	1	25	20	45
32782	L.652-X/80 p-M10x30	80	M10	20	42	46	15	27	1	30	20	51

T-Handles

Aluminium

SPECIFICATION

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

silver, RAL 9006, textured finish **SR**

blank **BL**

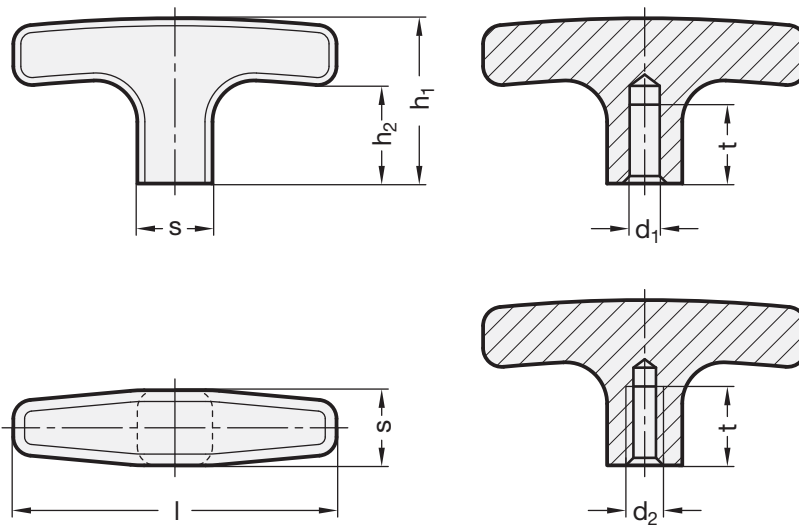
tumbled, flash mark not visible

INFORMATION

T-Handles GN 563.2 can be used as either operating handles or for clamping purposes, producing high clamping forces.

T-Handles are produced using a stamping process which yields a high density material of high strength and a smooth surface.

An original ELESA-Design, produced in metal with permission of ELESA s. p. a.



* Complete with colour index of the T-Handles (SW, SR or BL)

SW **SR** **BL**
RAL9005 RAL9006 blank

GN 563.2

Description	l	d1 H7	d2	h1	h2	s	t min.	⚖
GN 563.2-55-B6-*	55	B 6	-	33	22	14	12	30
GN 563.2-67-B8-*	67	B 8	-	37	25	16	16	45
GN 563.2-80-B8-*	80	B 8	-	41	26	20	16	80
GN 563.2-55-M6-*	55	-	M 6	33	22	14	12	29
GN 563.2-55-M8-*	55	-	M 8	33	22	14	12	40
GN 563.2-67-M8-*	67	-	M 8	37	25	16	16	45
GN 563.2-80-M8-*	80	-	M 8	41	26	20	16	80
GN 563.2-80-M10-*	80	-	M 10	41	26	20	16	61

Tapered handles

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer, six standard colours: black, orange, grey, yellow, light-blue, red, glossy finish.

STANDARD EXECUTION

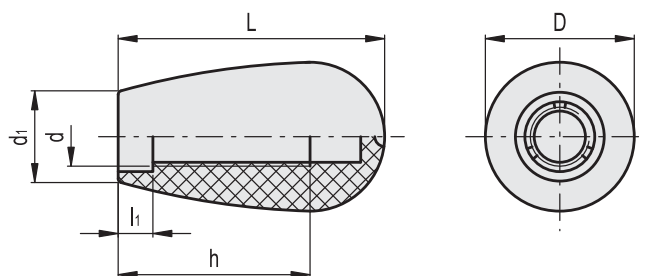
Threaded blind hole.

SPECIAL EXECUTIONS ON REQUEST

Different RAL colours.



ELESA Original design



* Complete with colour index, example: 120912 I.622/25-M6-C2

C9 C2 C3 C4 C5 C6
 RAL9005 RAL2004 RAL7035 RAL1021 RAL5024 RAL3000

Code C9	Code C2	Code C3	Code C4	Code C5	Code C6	Description	D	L	d	d1	h	l1	⚖
120911	120912	120913	120914	120915	120916	I.622/25-M6-*	16	25	M6	12	16	3.5	4
120951	120952	120953	120954	120955	120956	I.622/30-M8-*	20	32	M8	14	20	3.5	7
120991	120992	120993	120994	120995	120996	I.622/40-M8-*	26	42	M8	17	30	5	18
121001	121002	121003	121004	121005	121006	I.622/40-M10-*	26	42	M10	17	30	5	16
121061	121062	121063	121064	121065	121066	I.622/55-M10-*	34	54.5	M10	21	35	8	34
121071	121072	121073	121074	121075	121076	I.622/55-M12-*	34	54.5	M12	21	35	8	32



5

Fixed and Revolving Handles

Tapered handles

Technopolymer

MATERIAL

High-resilience polyamide based (PA) technopolymer.

STANDARD EXECUTIONS

Plain blind hole.

- **I.622-N**: black or red colour, glossy finish.

- **I.622-N-CLEAN**: white similar RAL 9002, glossy finish.

The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

FEATURES AND APPLICATIONS

This handle, thanks to its white colour and glossy finish, is particularly suitable for applications on medical and hospital equipment and on food processing machines whose parts, for hygienic reasons, must be frequently cleaned. Its solid shape without cavities prevents unhealthy residues from depositing.

SPECIAL EXECUTIONS ON REQUEST

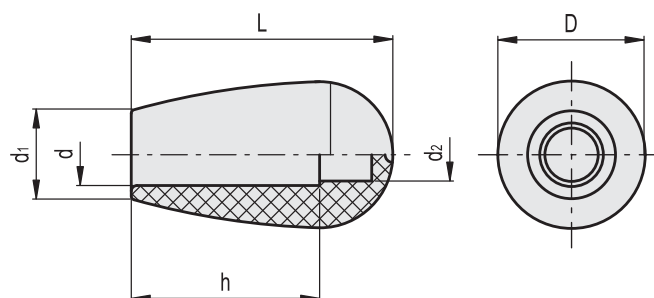
Different RAL colours.

ASSEMBLY INSTRUCTIONS

Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.



ELESA Original design



C9 RAL9005 C6 RAL3000

I.622 N

Code	Description	D	L	d	d2	d1	h	
120941	I.622/25 N-6-C9	16	25	6	4	12	17	4
120946	I.622/25 N-6-C6	16	25	6	4	12	17	4
120971	I.622/30 N-8-C9	20	32	8	6	14	21	7
120976	I.622/30 N-8-C6	20	32	8	6	14	21	7
121021	I.622/40 N-8-C9	26	42	8	6	17	25	16
121026	I.622/40 N-8-C6	26	42	8	6	17	25	16
121031	I.622/40 N-10-C9	26	42	10	7.5	17	30	14
121036	I.622/40 N-10-C6	26	42	10	7.5	17	30	14
121091	I.622/55 N-10-C9	34	54.5	10	5.5	21	40	38
121096	I.622/55 N-10-C6	34	54.5	10	5.5	21	40	38
121101	I.622/55 N-12-C9	34	54.5	12	5.5	21	40	36
121106	I.622/55 N-12-C6	34	54.5	12	5.5	21	40	36

I.622-N-CLEAN

Code	Description	D	L	d	d2	d1	h	
151202	I.622/25 N-6 CLEAN	16	25	6	4	12	17	4
151212	I.622/30 N-8 CLEAN	20	32	8	6	14	21	7
151222	I.622/40 N-10 CLEAN	26	42	10	7.5	17	30	14
151232	I.622/55 N-10 CLEAN	34	54.5	10	5.5	21	40	38
151242	I.622/55 N-12 CLEAN	34	54.5	12	5.5	21	40	36

Tapered handles

Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS

- **I.222:** threaded blind hole.
- **I.222-N:** glass-fibre reinforced polyamide based (PA) technopolymer self-locking boss, plain blind hole. The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

ALTERNATIVE PRODUCTS

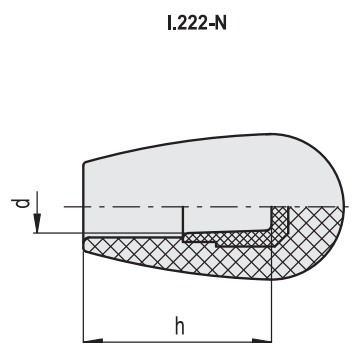
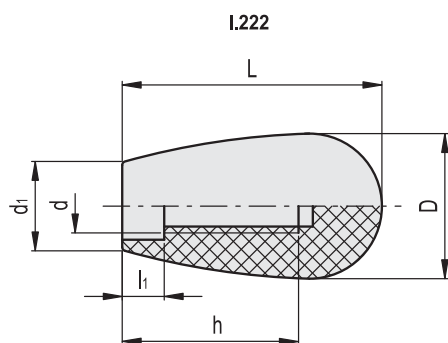
For handles with dimensions smaller or equal to I.222/55, we suggest the new series I.622 (see page 535) and I-622 N (see page 536) with excellent performance and lower price. The handles with bigger dimensions (70-90 mm) are only available in this series (I.222), due to technical reasons.

ASSEMBLY INSTRUCTIONS (I.222-N)

Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.



ELESA Original design



I.222

Code	Description	D	L	d	d1	h	li	⚖
20901	I.222/25-M6	15	25	M6	12	16	3.5	5
21001	I.222/30-M8	20	31	M8	14	20	3.5	9
21101	I.222/40-M8	26	42	M8	17	23	5	22
21102	I.222/40-M10	26	42	M10	17	30	5	20
21201	I.222/55-M10	33	54	M10	20	35	8	42
21202	I.222/55-M12	33	54	M12	20	35	8	40
21301	I.222/70-M12	38	68	M12	23	45	11	73
21401	I.222/90-M14	41	87	M14	25	55	14	111
21402	I.222/90-M16	41	87	M16	25	55	14	109

I.222-N

Code	Description	D	L	d	d1	h	⚖
20911	I.222/25 N-6	15	25	6	12	17	5
21011	I.222/30 N-8	20	31	8	14	21	9
21111	I.222/40 N-10	26	42	10	17	30	18
21211	I.222/55 N-10	33	54	10	20	37	42
21212	I.222/55 N-12	33	54	12	20	40	40
21311	I.222/70 N-14	38	68	14	23	50	68
21411	I.222/90 N-16	41	87	16	25	58	106



5

Fixed and Revolving Handles

Ball knobs

Plastic / Steel / Aluminium / Stainless Steel

SPECIFICATION

Version in Plastic

Types

- Type **C**: with tapped hole, no bush
- Type **E**: with tapped bush

Plastic **KU**

Duroplast (Phenolic PF)

- Flash removed and polished
- black
- red **RT**, similar RAL 3003: add RT on order code

Bush (Type E)

- Steel, zinc plated
- Brass **MS** add MS on order code (only in black version)

Plastic **KT**

Technopolymer (Polyamide PA)

- shock resistant
- black, matt finish
- red **RT**, similar RAL 3003: add RT on order code

Version in Steel

Types

- Type **C**: with tapped hole
- Type **K**: with plain hole H7

Steel **ST**

polished

Version in Aluminium

Types

- Type **C**: with tapped hole
- Type **K**: with plain hole H7

Aluminium **AL**

polished

Version in Stainless Steel

Types

- Type **C**: with tapped hole
- Type **K**: with plain hole H7

Stainless Steel AISI 303 **NI**

matt shot-blasted

Version in Plastic (Press on type)

Types

- Type **L**: with tolerance ring
- Type **M**: with tapered bore

Type L

Plastic **KU**

Duroplast (Phenolic PF)

black, shiny finish

Tolerance ring

spring steel

Type M

Plastic **KT**

Technopolymer (Polyamide PA)

- shock resistant
- black, matt finish
- Ball knobs press on type in red



INFORMATION

When ball knobs DIN 319 (Press on type) type L and M are used the shaft does not require a thread.

During mounting, easy blows with a soft hammer are sufficient to drive the knob into place, the shaft end should be slightly rounded or chamfered (30°).

Before the assembly of the knobs, type L the tolerance ring is to be inserted into the drilling. Further it is to be noted that the button is put on perpendicular and / or axially parallel. Otherwise the knob may break.

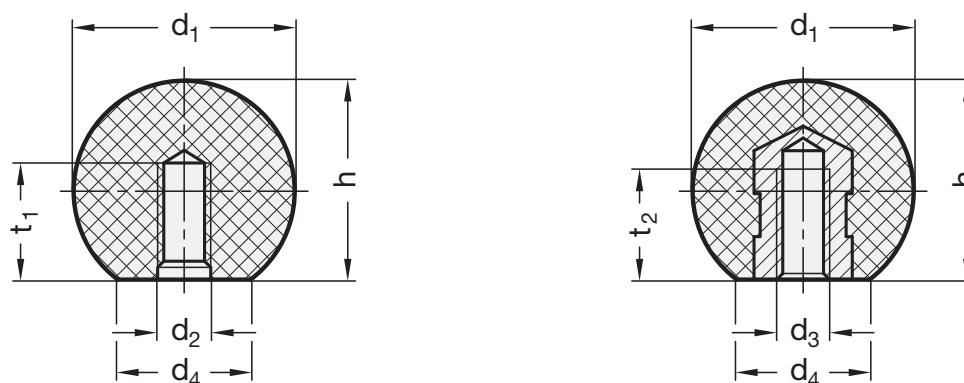
Type M ball knobs are a cheaper solution, however, the pulling off force is less predictable.

ON REQUEST

- Ball knobs press on type in red

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics - Duroplast (see page A2)
- Plastic characteristics - Technopolymer (see page A2)



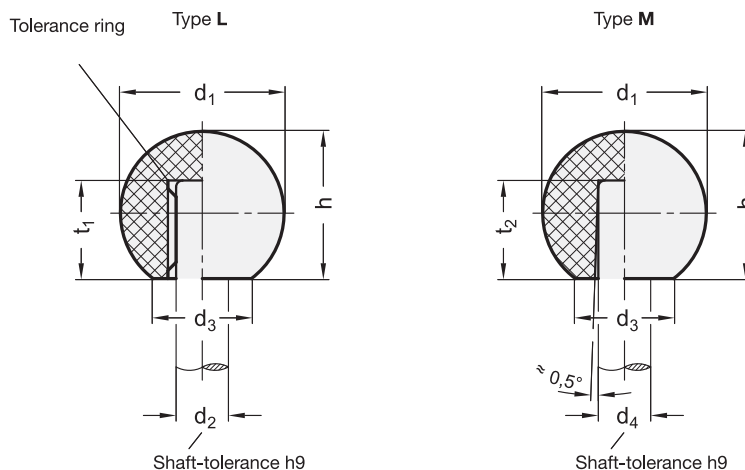
DIN 319-KU

Description	d1	d2	d3	d4 ≈	h	t1 min.	t2 min.	⚖
DIN 319-KU-12-M4-C	12	M 4	-	6	11.2	6	-	1
DIN 319-KU-16-M4-C	16	M 4	-	8	15	6	-	2
DIN 319-KU-16-M5-C	16	M 5	-	8	15	6	-	2
DIN 319-KU-20-M5-C	20	M 5	-	12	18	7.5	-	5
DIN 319-KU-20-M6-C	20	M 6	-	12	18	7.5	-	5
DIN 319-KU-25-M5-C	25	M 5	-	15	22.5	9	-	10
DIN 319-KU-25-M6-C	25	M 6	-	15	22.5	9	-	10
DIN 319-KU-25-M8-C	25	M 8	-	15	22.5	9	-	10
DIN 319-KU-30-M8-C	30	M 8	-	15	28	12	-	19
DIN 319-KU-32-M6-C	32	M 6	-	18	29	12	-	23
DIN 319-KU-32-M8-C	32	M 8	-	18	29	12	-	22
DIN 319-KU-32-M10-C	32	M 10	-	18	29	12	-	22
DIN 319-KU-35-M10-C	35	M 10	-	18	32.5	15	-	27
DIN 319-KU-40-M8-C	40	M 8	-	22	37	15	-	40
DIN 319-KU-40-M10-C	40	M 10	-	22	37	15	-	39
DIN 319-KU-40-M12-C	40	M 12	-	22	37	15	-	39
DIN 319-KU-50-M12-C	50	M 12	-	28	46	18	-	89
DIN 319-KU-20-M5-E	20	-	M 5	12	18	-	7.5	10
DIN 319-KU-25-M6-E	25	-	M 6	15	22.5	-	9	14
DIN 319-KU-32-M8-E	32	-	M 8	18	29	-	12	30
DIN 319-KU-40-M10-E	40	-	M 10	22	37	-	15	53
DIN 319-KU-50-M12-E	50	-	M 12	28	46	-	18	105

DIN 319-KT

Description	d1	d2	d3	d4 ≈	h	t1 min.	t2 min.	⚖
DIN 319-KT-16-M4-C	16	M 4	-	8	15	6	-	3
DIN 319-KT-16-M5-C	16	M 5	-	8	15	6	-	2
DIN 319-KT-20-M5-C	20	M 5	-	12	18	7.5	-	5
DIN 319-KT-20-M6-C	20	M 6	-	12	18	7.5	-	5
DIN 319-KT-25-M8-C	25	M 8	-	15	22.5	9	-	10
DIN 319-KT-32-M8-C	32	M 8	-	18	29	12	-	25
DIN 319-KT-32-M10-C	32	M 10	-	18	29	12	-	22
DIN 319-KT-40-M10-C	40	M 10	-	22	37	15	-	41
DIN 319-KT-40-M12-C	40	M 12	-	22	37	15	-	40
DIN 319-KT-20-M5-E	20	-	M 5	12	18	-	7.5	8
DIN 319-KT-32-M8-E	32	-	M 8	18	29	-	12	28



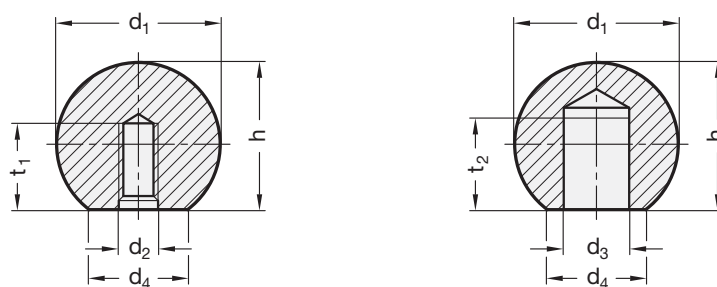


DIN 319-KU Press on type

Description	d1	d2	t1	d3 ≈	h	⚖
DIN 319-KU-16-B4-L	16	B 4	11	8	15	2
DIN 319-KU-20-B5-L	20	B 5	13	12	18	5
DIN 319-KU-25-B6-L	25	B 6	16	15	22.5	9
DIN 319-KU-25-B8-L	25	B 8	15	15	22.5	9
DIN 319-KU-25-B10-L	25	B 10	15	15	22.5	9
DIN 319-KU-32-B8-L	32	B 8	15	18	29	20
DIN 319-KU-32-B10-L	32	B 10	20	18	29	20
DIN 319-KU-32-B12-L	32	B 12	20	18	29	19
DIN 319-KU-40-B10-L	40	B 10	25	22	37	39
DIN 319-KU-40-B12-L	40	B 12	23	22	37	38
DIN 319-KU-50-B12-L	50	B 12	20	28	46	86
DIN 319-KU-50-B16-L	50	B 16	23	28	46	83

DIN 319-KT Press on type

Description	d1	d4	t2	d3 ≈	h	⚖
DIN 319-KT-16-B4-M	16	B 4	9	8	15	3
DIN 319-KT-20-B5-M	20	B 5	12	12	18	5
DIN 319-KT-20-B6-M	20	B 6	12	12	18	5
DIN 319-KT-25-B6-M	25	B 6	16	15	22.5	10
DIN 319-KT-25-B8-M	25	B 8	16	15	22.5	10
DIN 319-KT-32-B8-M	32	B 8	17	18	29	20
DIN 319-KT-32-B10-M	32	B 10	17	18	29	20
DIN 319-KT-40-B10-M	40	B 10	22	22	37	41
DIN 319-KT-40-B12-M	40	B 12	22	22	37	41



* Complete with material of the Ball knobs (ST, AL or NI)

ST AL NI
Steel Aluminium Stainless Steel

DIN 319

STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h	t1 min.	t2 min.	⚖
DIN 319-*-16-B6-K	16	-	B 6	8	15	7	9	6
DIN 319-*-20-B8-K	20	-	B 8	12	18	9	11	10
DIN 319-*-25-B10-K	25	-	B 10	15	22.5	11	14	18
DIN 319-*-32-B12-K	32	-	B 12	18	29	14.5	17	41
DIN 319-*-40-B16-K	40	-	B 16	22	37	18	22	75
DIN 319-*-50-B20-K	50	-	B 20	27	46	21	28	80
DIN 319-*-16-M4-C	16	M 4	-	8	15	7	9	7
DIN 319-*-20-M5-C	20	M 5	-	12	18	9	11	11
DIN 319-*-25-M6-C	25	M 6	-	15	22.5	11	14	22
DIN 319-*-32-M8-C	32	M 8	-	18	29	14.5	17	45
DIN 319-*-40-M10-C	40	M 10	-	22	37	18	22	87
DIN 319-*-50-M12-C	50**	M 12	-	27	46	21	28	95

** This size is only available in Steel and Aluminium.

Revolving ball knobs

Shaft Steel

SPECIFICATION

Types

- Type **A**: with male thread
- Type **B**: with female thread

Plastic
Duroplast (Phenolic PF)

- temperature resistant up to 110 °C
- black, shiny finish

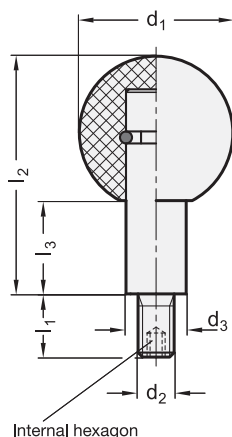
Shaft Steel
zinc plated, blue passivated

INFORMATION

Revolving ball knobs GN 319.2 can be utilized instead of revolving handles i.e. with handwheels.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



GN 319.2

Description	d1	d2	d3	l1	l2 ±1	l3 ±1	A/F	t min.	Δ
GN 319.2-25-M6-A	25	M 6	10	11	37.5	15	-	-	29
GN 319.2-32-M8-A	32	M 8	13	13	48	19	-	-	63
GN 319.2-40-M10-A	40	M 10	16	14	61	24	-	-	119
GN 319.2-50-M12-A	50	M 12	20	21	78	31	-	-	237
GN 319.2-25-M6-B	25	M 6	10	-	37.5	15	8	10	24
GN 319.2-32-M8-B	32	M 8	13	-	48	19	10	12	51
GN 319.2-40-M10-B	40	M 10	16	-	61	24	14	16	99
GN 319.2-50-M12-B	50	M 12	20	-	78	31	17	16	198

Revolving ball knobs

Shaft Stainless Steel

SPECIFICATION

Types

- Type **A**: with male thread
- Type **B**: with female thread

Plastic
Duroplast (Phenolic PF)

- temperature resistant up to 110 °C
- black, shiny finish

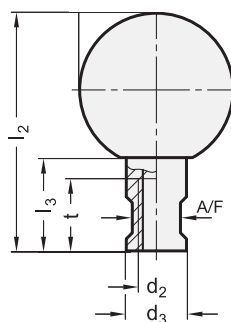
Shaft
Stainless Steel AISI 303
matt shot-blasted

INFORMATION

Revolving ball knobs GN 319.5 can be utilized instead of revolving handles i.e. with handwheels.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



GN 319.5

STAINLESS STEEL

Description	d1	d2	d3	l1	l2 ±1	l3 ±1	A/F	t min.	Δ
GN 319.5-25-M6-A	25	M 6	10	11	37.5	15	8	-	29
GN 319.5-32-M8-A	32	M 8	13	13	48	19	10	-	63
GN 319.5-40-M10-A	40	M 10	16	14	61	24	14	-	120
GN 319.5-50-M12-A	50	M 12	20	21	78	31	17	-	190
GN 319.5-25-M6-B	25	M 6	10	-	37.5	15	8	10	24
GN 319.5-32-M8-B	32	M 8	13	-	48	19	10	12	52
GN 319.5-40-M10-B	40	M 10	16	-	61	24	14	16	100
GN 319.5-50-M12-B	50	M 12	20	-	78	31	17	16	200



Spherical handles

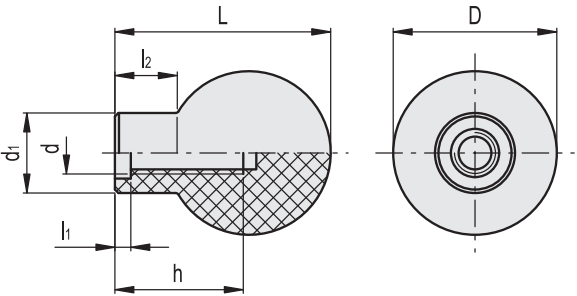
Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Threaded blind hole.



Code	Description	D	L	d	d1	h	l1	l2	⚖
45971	P.111/37-M8	37	47	M8	18	16	4	13	38
45991	P.111/47-M10	47	62	M10	23	26	5	17	80

Spherical handles

Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish with equatorial groove.

MAGNIFYING LENS

Transparent polyamide based (PA-T) technopolymer. Press-fit assembly. It improves the visibility of the labels.

STANDARD EXECUTION

Glass-fibre reinforced polyamide based (PA) technopolymer self-locking boss, plain blind hole.
The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

ACCESSORIES ON REQUEST

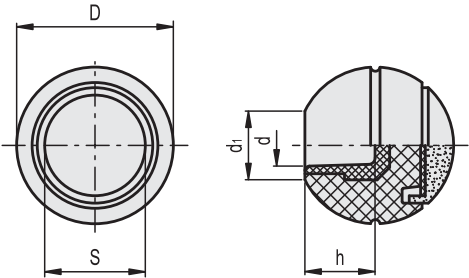
Self-adhesive labels MA. (on page 551) with standard marks and symbols to be ordered separately.

ASSEMBLY INSTRUCTIONS

1. Fit the handle, without the magnifying lens, onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.
2. Stick the self-adhesive label (printed on the adhesive side) to the inner surface of the magnifying lens by pressing from the centre to the external side to avoid air bubbles. Assemble the magnifying lens to the handle face recess by gently tapping with a wooden or plastic mallet, until firmly in place. The label is therefore protected by the watertight magnifying lens.



ELESA Original design



Code	Description	D	d	S	d1	h	⚖
55001	SH.35 N-8	35	8	20	15	14	27
55011	SH.35 N-10	35	10	20	15	18	26
55101	SH.40 N-10	40	10	25	18	18	40
55111	SH.40 N-12	40	12	25	18	21	38
55201	SH.45 N-12	45	12	25	21	21	60
55211	SH.45 N-14	45	14	25	21	24	58

Tapered handles

Technopolymer

MATERIAL

High-resilience polyamide based (PA) technopolymer, black colour, matte finish.

MAGNIFYING LENS

Transparent polyamide based (PA-T) technopolymer. Press-fit assembly. It improves the visibility of the labels.

STANDARD EXECUTION

Plain blind hole.
The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

ACCESSORIES ON REQUEST

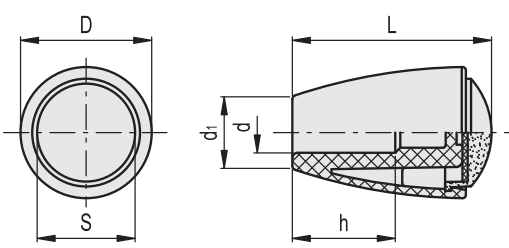
Self-adhesive labels MA. (see page 551) with standard marks and symbols to be ordered separately.

ASSEMBLY INSTRUCTIONS

1. Fit the handle, without the magnifying lens, onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.
2. Stick the self-adhesive label (printed on the adhesive side) to the inner surface of the magnifying lens by pressing from the centre to the external side to avoid air bubbles. Assemble the magnifying lens to the handle face recess by gently tapping with a wooden or plastic mallet, until firmly in place. The label is therefore protected by the watertight magnifying lens.



ELESA Original design



Code	Description	D	L	d	S	d1	h	Δ
27001	IH.40 N-8	27	42	8	20	15	24	10
27101	IH.50 N-10	32	49	10	25	18	25	20

Mushroom handles

“Soft-touch” technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

MAGNIFYING LENS

Transparent polyamide based (PA-T) technopolymer. Press-fit assembly. It improves the visibility of the labels.

STANDARD EXECUTION

Plain blind hole.
The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

ACCESSORIES ON REQUEST

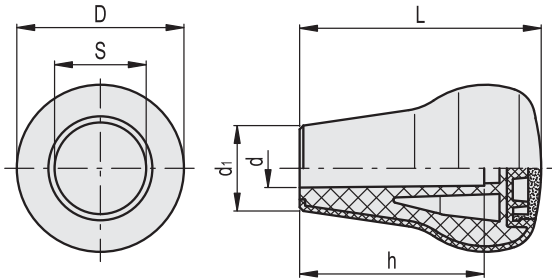
Self-adhesive labels MA. (on page 551) with standard marks and symbols to be ordered separately.

ASSEMBLY INSTRUCTIONS

1. Fit the handle, without the magnifying lens, onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.
2. Stick the self-adhesive label (printed on the adhesive side) to the inner surface of the magnifying lens by pressing from the centre to the external side to avoid air bubbles. Assemble the magnifying lens to the handle face recess by gently tapping with a wooden or plastic mallet, until firmly in place. The label is therefore protected by the watertight magnifying lens.



ELESA Original design



Code	Description	D	L	d	S	d1	h	⚖
26672	IEL.65 N-10-H SOFT	45	65	10	25	23	50	56
26671	IEL.65 N-12-H SOFT	45	65	12	25	23	50	55

Mushroom handles

“Soft-touch” technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.

The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTION

Plain blind hole.

The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

FEATURES AND APPLICATIONS

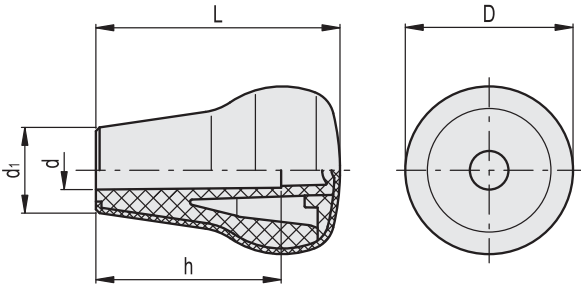
The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.

ASSEMBLY INSTRUCTIONS

Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.



ELESA Original design



Code	Description	D	L	d	d1	h	⚖
26642	IEL.47 N-12 SOFT	45	47	12	28	34	48
26661	IEL.65 N-10 SOFT	45	65	10	23	50	56
26662	IEL.65 N-12 SOFT	45	65	12	23	50	55
26663	IEL.65 N-14 SOFT	45	65	14	23	30	55

Mushroom lobe handles

“Soft-touch” technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

CENTRE CAP

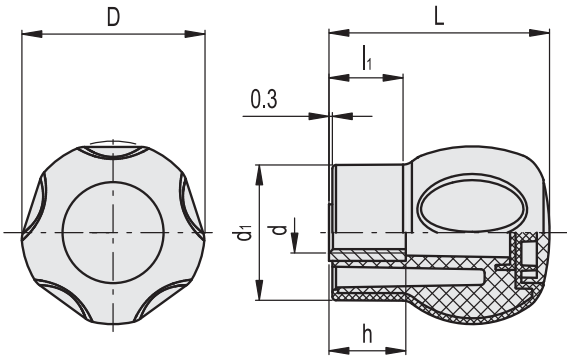
Polypropylene based (PP) technopolymer, in Ergostyle colours, matte finish, press-fit assembly.

STANDARD EXECUTION

Brass boss, threaded hole.

FEATURES AND APPLICATIONS

The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.



* Complete with colour index, example: 245103-C2 EBK.43 B-M8-C-SOFT-C2

C2	C3	C4	C5	C6
RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

Code	Description	D	L	d6H	d1	h	l1	⚖
245103-*	EBK.43 B-M8-C-SOFT-*	43	53.5	M8	32.5	18	17.5	72
245105-*	EBK.43 B-M10-C-SOFT-*	43	53.5	M10	32.5	18	17.5	71
245203-*	EBK.50 B-M8-C-SOFT-*	50	60	M8	37	20	20	85
245205-*	EBK.50 B-M10-C-SOFT-*	50	60	M10	37	20	20	82
245207-*	EBK.50 B-M12-C-SOFT-*	50	60	M12	37	20	20	80

Mushroom lobe handles

"Soft-touch" technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.

The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTIONS

- **EBK-B-SOFT:** brass boss, threaded blind hole.
- **EBK-p-SOFT:** zinc-plated steel threaded stud, chamfered flat end
UNI 947 : ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS

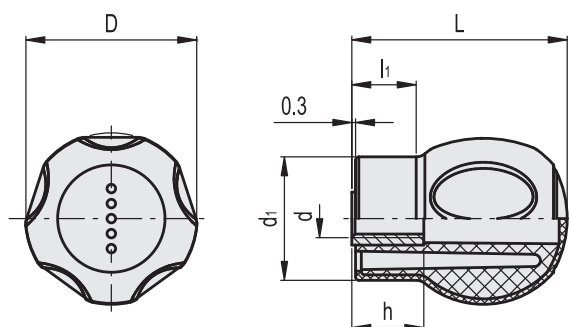
The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.



ERGOSTYLE®

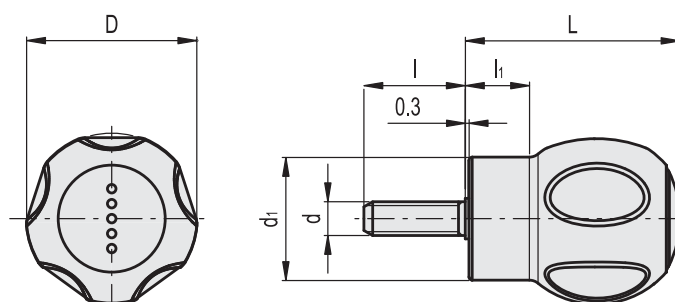
Good Design
GOOD DESIGN AWARD 2007
by JUDPO Japan

product
design
award
2007



EBK-B-SOFT

Code	Description	D	L	d6H	d1	h	l1	△
245101-C1	EBK.43 B-M6-SOFT-C1	43	55	M6	32.5	18	17.5	74
245103-C1	EBK.43 B-M8-SOFT-C1	43	55	M8	32.5	18	17.5	72
245105-C1	EBK.43 B-M10-SOFT-C1	43	55	M10	32.5	18	17.5	71
245203-C1	EBK.50 B-M8-SOFT-C1	50	64	M8	37	26	20	86
245205-C1	EBK.50 B-M10-SOFT-C1	50	64	M10	37	26	20	83
245207-C1	EBK.50 B-M12-SOFT-C1	50	64	M12	37	26	20	79



EBK-p-SOFT

Code	Description	D	L	d6g	d1	l	l1	⚖
245121-C1	EBK.43 p-M6x16-C1-SOFT	43	55	M6	32.5	16	17.5	74
245123-C1	EBK.43 p-M6x20-C1-SOFT	43	55	M6	32.5	20	17.5	76
245125-C1	EBK.43 p-M6x25-C1-SOFT	43	55	M6	32.5	25	17.5	78
245131-C1	EBK.43 p-M8x16-SOFT-C1	43	55	M8	32.5	16	17.5	80
245133-C1	EBK.43 p-M8x20-SOFT-C1	43	55	M8	32.5	20	17.5	81
245135-C1	EBK.43 p-M8x25-SOFT-C1	43	55	M8	32.5	25	17.5	83
245137-C1	EBK.43 p-M8x30-SOFT-C1	43	55	M8	32.5	30	17.5	85
245143-C1	EBK.43 p-M10x20-SOFT-C1	43	55	M10	32.5	20	17.5	83
245144-C1	EBK.43 p-M10x25-SOFT-C1	43	55	M10	32.5	25	17.5	86
245147-C1	EBK.43 p-M10x30-SOFT-C1	43	55	M10	32.5	30	17.5	89
245151-C1	EBK.43 p-M10x50-SOFT-C1	43	55	M10	32.5	50	17.5	98
245231-C1	EBK.50 p-M8x16-SOFT-C1	50	64	M8	37	16	20	80
245233-C1	EBK.50 p-M8x20-SOFT-C1	50	64	M8	37	20	20	86
245235-C1	EBK.50 p-M8x25-SOFT-C1	50	64	M8	37	25	20	91
245237-C1	EBK.50 p-M8x30-SOFT-C1	50	64	M8	37	30	20	97
245243-C1	EBK.50 p-M10x20-SOFT-C1	50	64	M10	37	20	20	110
245244-C1	EBK.50 p-M10x25-SOFT-C1	50	64	M10	37	25	20	116
245247-C1	EBK.50 p-M10x30-SOFT-C1	50	64	M10	37	30	20	122
245251-C1	EBK.50 p-M10x50-SOFT-C1	50	64	M10	37	50	20	143



Mushroom lobe handles

“Soft-touch” technopolymer with magnifying lens

MATERIAL

High resilience polypropylene based (PP) technopolymer, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

MAGNIFYING LENS

Transparent polyamide based (PA-T) technopolymer. Resistant to solvents, oils, greases, petrol and other chemical agents (avoid contact with alcohol). Press-fit assembly. It improves the visibility of the labels.

STANDARD EXECUTION

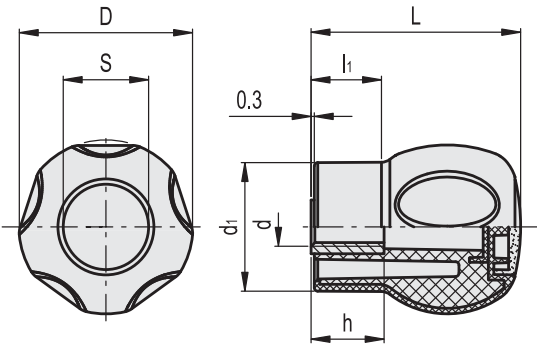
Brass boss, threaded hole.

ACCESSORIES ON REQUEST

Self-adhesive labels MA. on page 551 with standard marks and symbols to be ordered separately.

LABEL ASSEMBLY INSTRUCTIONS

Stick the self-adhesive label (printed on the adhesive side) to the inner surface of the magnifying lens by pressing from the centre to the external side to avoid air bubbles. Assemble the magnifying lens to the handle face recess by gently tapping with a wooden or plastic mallet, until firmly in place. The label is therefore protected by the watertight magnifying lens.



Code	Description	D	L	d6H	S	d1	h	l1	⚖
245104	EBK.43 B-M8-H-SOFT	43	53.5	M8	20	32.5	18	17.5	72
245106	EBK.43 B-M10-H-SOFT	43	53.5	M10	20	32.5	18	17.5	71
245204	EBK.50 B-M8-H-SOFT	50	60	M8	25	37	20	20	85
245206	EBK.50 B-M10-H-SOFT	50	60	M10	25	37	20	20	82
245208	EBK.50 B-M12-H-SOFT	50	60	M12	25	37	20	20	80

Labels with marks and symbols

Self-adhesive vinyl film

MATERIAL

Self-adhesive vinyl film, suitable for sticking to the inner surface of the magnifying lens of all the following handles: SH.N (see page 543), IH.N (see page 544), IEL.N-H SOFT (see page 545), EBK-H SOFT (see page 550).

STANDARDIZED GRAPHIC SYMBOLS

According to ISO 3287 regulations, printed on the adhesive side; 21 standard models.

The visibility of the symbol is improved by the magnifying effect of the lens provided with the handle.

ASSEMBLY INSTRUCTIONS

Stick the self-adhesive label (printed on the adhesive side) to the inner surface of the magnifying lens by pressing from the centre to the external side to avoid air bubbles.

Code	Description	Figure
33601	MA.20-ISO 3287-P1	1
33602	MA.20-ISO 3287-P2	2
33603	MA.20-ISO 3287-P3	3
33604	MA.20-ISO 3287-P4	4
33605	MA.20-ISO 3287-P5	5
33606	MA.20-ISO 3287-P6	6
33607	MA.20-ISO 3287-P7	7
33608	MA.20-ISO 3287-P8	8
33609	MA.20-ISO 3287-P9	9
33610	MA.20-ISO 3287-P10	10
33611	MA.20-ISO 3287-P11	11
33612	MA.20-ISO 3287-P12	12
33613	MA.20-ISO 3287-P13	13
33614	MA.20-ISO 3287-P14	14
33615	MA.20-ISO 3287-P15	15
33616	MA.20-P16	16
33617	MA.20-P17	17
33618	MA.20-P18	18
33619	MA.20-P19	19
33620	MA.20-P20	20
33621	MA.20-P21	21
33701	MA.25-ISO 3287-P1	1
33702	MA.25-ISO 3287-P2	2
33703	MA.25-ISO 3287-P3	3
33704	MA.25-ISO 3287-P4	4
33705	MA.25-ISO 3287-P5	5
33706	MA.25-ISO 3287-P6	6
33707	MA.25-ISO 3287-P7	7
33708	MA.25-ISO 3287-P8	8
33709	MA.25-ISO 3287-P9	9
33710	MA.25-ISO 3287-P10	10
33711	MA.25-ISO 3287-P11	11
33712	MA.25-ISO 3287-P12	12
33713	MA.25-ISO 3287-P13	13
33714	MA.25-ISO 3287-P14	14
33715	MA.25-ISO 3287-P15	15
33716	MA.25-P16	16
33717	MA.25-P17	17
33718	MA.25-P18	18
33719	MA.25-P19	19
33720	MA.25-P20	20
33721	MA.25-P21	21



ELESA Original design



5

Fixed and Revolving Handles

Knurled grip knobs

Technopolymer

MATERIAL

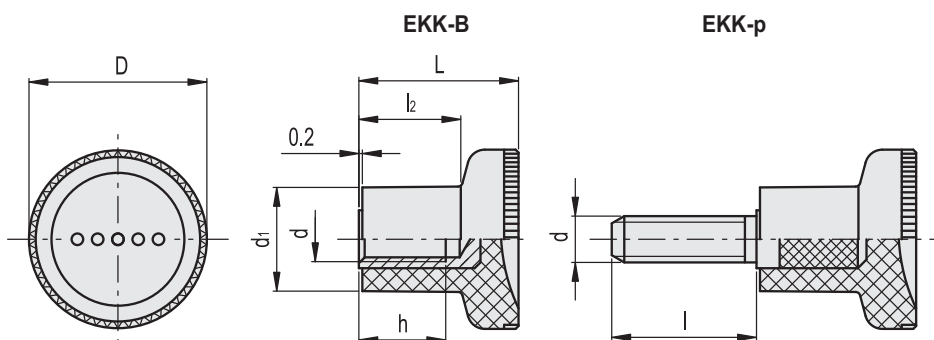
Glass-fibre reinforced polyamide based (PA) technopolymer.

STANDARD EXECUTIONS

- **EKK-B:** brass boss, tapped blind hole.
Ergostyle colours, matte finish.
- **EKK-p:** zinc-plated steel threaded stud, chamfered end UNI 947 :
ISO 4753 (see Technical Data on page A11).
Colour grey-black, matte finish.

SPECIAL EXECUTIONS ON REQUEST

The knurled grip knobs EKK-p can be provided in one of the other Ergostyle colours.



* Complete with colour index, example: 242081-C2 EKK.16 B-M3-C2

C1 C2 C3 C4 C5 C6
RAL7021 RAL2004 RAL7035 RAL1021 RAL5024 RAL3000

EKK-B

Code	Description	D	L	d6H	d1	h	l2	Δ
242081-*	EKK.16 B-M3-*	16	13	M3	8.5	6	8.5	7
242091-*	EKK.18 B-M4-*	18	15.5	M4	10.5	6	10.5	6
242111-*	EKK.21 B-M4-*	21	18	M4	12.5	10	10.5	8
242121-*	EKK.21 B-M5-*	21	18	M5	12.5	10	10.5	7
242211-*	EKK.25 B-M6-*	25	22.5	M6	14.5	12	14	11
242221-*	EKK.25 B-M8-*	25	22.5	M8	14.5	12	14	10
242311-*	EKK.31 B-M8-*	31	27	M8	18.5	15	17	20
242321-*	EKK.31 B-M10-*	31	27	M10	18.5	17	17	19

EKK-p

Code	Description	D	L	d6g	d1	l	l2	Δ
243001-C1	EKK.16-p M3x10-C1	16	13	M3	8.5	10	8.5	8
243006-C1	EKK.16-p M3x16-C1	16	13	M3	8.5	16	8.5	9
243111-C1	EKK.18-p M4x10-C1	18	15.5	M4	10.5	10	10.5	9
243116-C1	EKK.18-p M4x16-C1	18	15.5	M4	10.5	16	10.5	10
243121-C1	EKK.21 p-M5x10-C1	21	18	M5	12.5	10	10.5	10
243126-C1	EKK.21 p-M5x16-C1	21	18	M5	12.5	16	10.5	11
243131-C1	EKK.21 p-M5x20-C1	21	18	M5	12.5	20	10.5	12
243146-C1	EKK.21 p-M6x16-C1	21	18	M6	12.5	16	10.5	11
243151-C1	EKK.21 p-M6x20-C1	21	18	M6	12.5	20	10.5	12
243161-C1	EKK.21 p-M6x30-C1	21	18	M6	12.5	30	10.5	14
243226-C1	EKK.25 p-M6x16-C1	25	22.5	M6	14.5	16	14	13
243231-C1	EKK.25 p-M6x20-C1	25	22.5	M6	14.5	20	14	14
243236-C1	EKK.25 p-M6x25-C1	25	22.5	M6	14.5	25	14	15
243241-C1	EKK.25 p-M6x30-C1	25	22.5	M6	14.5	30	14	16
243251-C1	EKK.25-p M8x20-C1	25	22.5	M8	14.5	20	14	15
243256-C1	EKK.25-p M8x25-C1	25	22.5	M8	14.5	25	14	16
243261-C1	EKK.25-p M8x30-C1	25	22.5	M8	14.5	30	14	17
243271-C1	EKK.25-p M8x40-C1	25	22.5	M8	14.5	40	14	19
243326-C1	EKK.31 p-M8x20-C1	31	27	M8	18.5	20	17	26
243331-C1	EKK.31 p-M8x25-C1	31	27	M8	18.5	25	17	28
243336-C1	EKK.31 p-M8x30-C1	31	27	M8	18.5	30	17	30
243346-C1	EKK.31 p-M8x40-C1	31	27	M8	18.5	40	17	32
243361-C1	EKK.31 p-M10x30-C1	31	27	M10	18.5	30	17	34
243371-C1	EKK.31 p-M10x40-C1	31	27	M10	18.5	40	17	40



Knobs

SPECIFICATION

Types

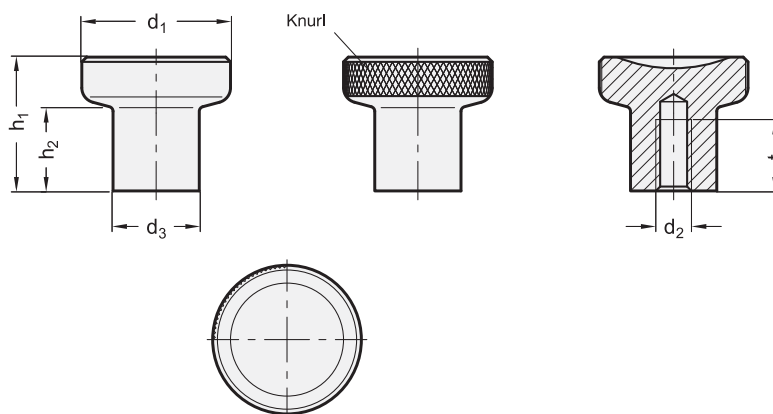
- Type **A**: without knurl
- Type **B**: with knurl

Steel
blackened

INFORMATION

Knobs GN 676.1 are used in applications where a push or pull movement is required. Their concave top gives a more comfortable thumb grip.

The knurled model (Type B) can be used as an attractively shaped knurled knob with a threaded blind hole.



GN 676.1

Description	d1	d2	d3	h1	h2	t min.	⚖
GN 676.1-21-M4-A	21	M 4	12.5	18	10.5	10	26
GN 676.1-21-M5-A	21	M 5	12.5	18	10.5	10	26
GN 676.1-25-M6-A	25	M 6	14.5	22.5	14	12	42
GN 676.1-25-M8-A	25	M 8	14.5	22.5	14	12	42
GN 676.1-31-M8-A	31	M 8	18.5	27	17	15	75
GN 676.1-31-M10-A	31	M 10	18.5	27	17	17	75
GN 676.1-21-M4-B	21	M 4	12.5	18	10.5	10	20
GN 676.1-21-M5-B	21	M 5	12.5	18	10.5	10	20
GN 676.1-25-M6-B	25	M 6	14.5	22.5	14	12	40
GN 676.1-25-M8-B	25	M 8	14.5	22.5	14	12	40
GN 676.1-31-M8-B	31	M 8	18.5	27	17	15	75
GN 676.1-31-M10-B	31	M 10	18.5	27	17	17	75

Stainless Steel-Knobs

SPECIFICATION

Types

- Type **A**: without knurl
- Type **B**: with knurl

Stainless Steel
AISI 303
matt shot-blasted

INFORMATION

Knobs GN 676.5 are used in applications where a push or pull movement is required. Their concave top gives a more comfortable thumb grip.

The knurled model (Type B) can be used as an attractively shaped knurled knob with a threaded blind hole.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

GN 676.5

STAINLESS STEEL

Description	d1	d2	d3	h1	h2	t min.	⚖
GN 676.5-21-M4-A	21	M 4	12.5	18	10.5	10	26
GN 676.5-21-M5-A	21	M 5	12.5	18	10.5	10	26
GN 676.5-25-M6-A	25	M 6	14.5	22.5	14	12	42
GN 676.5-25-M8-A	25	M 8	14.5	22.5	14	12	42
GN 676.5-31-M8-A	31	M 8	18.5	27	17	15	80
GN 676.5-31-M10-A	31	M 10	18.5	27	17	17	75
GN 676.5-21-M4-B	21	M 4	12.5	18	10.5	10	26
GN 676.5-21-M5-B	21	M 5	12.5	18	10.5	10	20
GN 676.5-25-M6-B	25	M 6	14.5	22.5	14	12	40
GN 676.5-25-M8-B	25	M 8	14.5	22.5	14	12	40
GN 676.5-31-M8-B	31	M 8	18.5	27	17	15	79
GN 676.5-31-M10-B	31	M 10	18.5	27	17	17	79



5

Fixed and Revolving Handles

Mushroom knobs

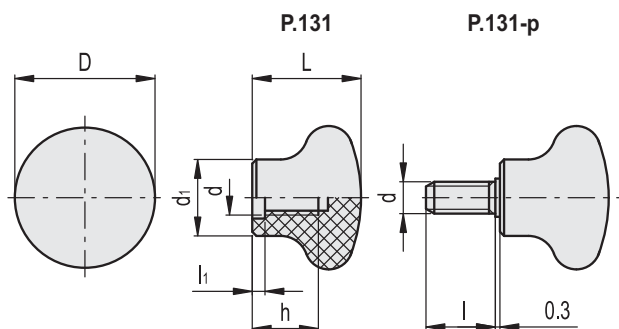
Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS

- **P.131:** threaded blind hole.
- **P.131-p:** zinc-plated steel stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).



P.131

Code	Description	D	L	d	d1	h	l1	⚖
46401	P.131/35-M8	34	24.5	M8	19	15	3.5	16
46501	P.131/45-M10	44	34	M10	24	20	4	36

P.131-p

Code	Description	D	L	d6g	d1	l	⚖
46411	P.131/35 p-M8x25	34	24.5	M8	19	25	36
46511	P.131/45 p-M10x20	44	34	M10	24	20	58

Mushroom knobs

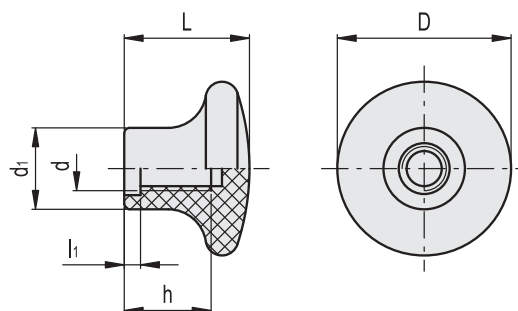
Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Threaded blind hole.



Code	Description	D	L	d	d1	h	l	⚖
20201	I.150/25-M5	25	19	M5	12	10	3	6
20202	I.150/25-M6	25	19	M6	12	10	3	5
20211	I.150/30-M6	32	23	M6	15	16	3	13
20212	I.150/30-M8	32	23	M8	15	19	3	12

Waist shaped knobs

SPECIFICATION

Types

- Type **D**: with female thread
- Type **E**: with threaded rod

Steel

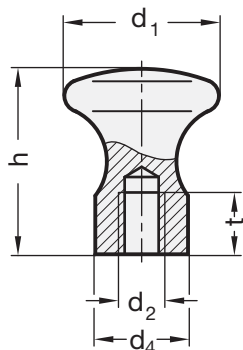
fine turned
blackened

INFORMATION

Waist shaped knobs GN 75 boast a compact and timeless design.

ON REQUEST

- Steel, zinc plated



Stainless Steel- Waist shaped knobs

SPECIFICATION

Types

- Type **D**: with female thread
- Type **E**: with threaded rod

Stainless Steel

- AISI 304
- matt shot-blasted **MT**
- highly polished **PL****

** Version PL is not available from stock, requires a minimum order quantity.

INFORMATION

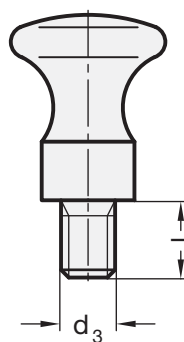
Waist shaped knobs GN 75.5 boast a compact and timeless design. They are made of high-grade stainless steel which makes them the first choice when it comes to applications requiring high standards of hygiene. The favourably designed and non-scooped geometry helps to prevent damp and the related risk of dirt collecting.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ON REQUEST

- Steel, zinc plated
- Stainless Steel (A4 quality)



* Complete with finish index of the Waist shaped knobs (MT or PL)

MT

Matt shot-blasted

PL

Highly polished

GN 75

Description	d1	d2	d3	d4	h	l	t min.	
GN 75-16-M5-D	16	M 5	-	10	18	-	7	10
GN 75-20-M6-D	20	M 6	-	12	24	-	9	21
GN 75-25-M6-D	25	M 6	-	14	29	-	9	41
GN 75-32-M8-D	32	M 8	-	18	37	-	12	82
GN 75-36-M10-D	36	M 10	-	20	42	-	15	110
GN 75-16-M6-E	16	-	M 6	10	18	10	-	14
GN 75-20-M8-E	20	-	M 8	12	24	12	-	28
GN 75-25-M8-E	25	-	M 8	14	29	14	-	46
GN 75-32-M10-E	32	-	M 10	18	37	16	-	87
GN 75-36-M12-E	36	-	M 12	20	42	18	-	138

GN 75.5

STAINLESS STEEL

Description	d1	d2	d3	d4	h	l	t min.	
GN 75.5-16-M5-D-*	16**	M 5	-	10	18	-	7	12
GN 75.5-20-M6-D-*	20**	M 6	-	12	24	-	9	23
GN 75.5-25-M6-D-*	25**	M 6	-	14	29	-	9	43
GN 75.5-32-M8-D-*	32**	M 8	-	18	37	-	12	83
GN 75.5-36-M10-D-*	36**	M 10	-	20	42	-	15	119
GN 75.5-16-M6-E-*	16**	-	M 6	10	18	10	-	15
GN 75.5-20-M8-E-*	20**	-	M 8	12	24	12	-	30
GN 75.5-25-M8-E-*	25**	-	M 8	14	29	14	-	51
GN 75.5-32-M10-E-*	32**	-	M 10	18	37	16	-	83
GN 75.5-36-M12-E-*	36**	-	M 12	20	42	18	-	144

** Version PL is not available from stock, requires a minimum order quantity

Tapered handles

Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Plain blind hole.

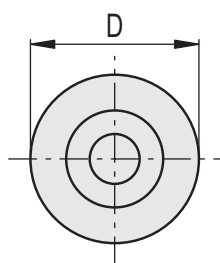
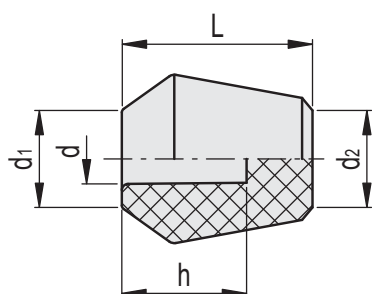
The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

ASSEMBLY INSTRUCTIONS

Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.



ELESA Original design



Tapered handles

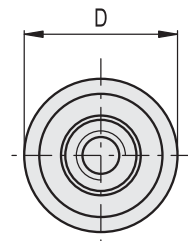
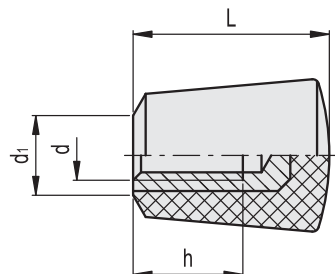
Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Brass boss, tapped blind hole.



Code	Description	D	L	d	d1	d2	h	⚖
47011	P.390/25-8	25	28	8	15	16	13	12
47111	P.390/30-10	30	34	10	18	19	18	20
47211	P.390/35-12	35	39	12	20	22	20	32
47311	P.390/40-14	40	45	14	23	25	24	47

Code	Description	D	L	d6H	d1	h	⚖
23801	I.307/20 B-M5	15	20	M5	7	12	6
23901	I.307/25 B-M6	20	26	M6	10	16	12
23902	I.307/25 B-M8	20	26	M8	10	15	14
24001	I.307/30 B-M10	25	32	M10	13	17	25

Knurled handle

“Soft-touch” technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer coated with "soft-touch" thermoplastic elastomer (TPE), hardness 90 Shore A, black colour. matte finish. The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTION

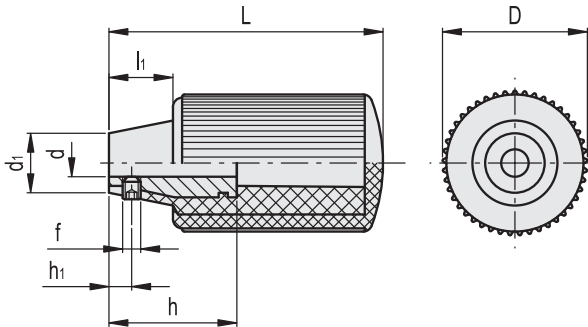
Brass boss, plain blind hole.
Fitting to the shaft by means of a black-oxide steel socket set screw according to ISO 4029 (grub screws with hexagon socket and cup end).

FEATURES AND APPLICATIONS

The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.



ELESA Original design



Code	Description	D	L	dH7	d1	h	h1	l1	f	⚖
120402	I.168/60 B-6-SOFT	30	60	6	13	28	5	14	M4	59

I.137



I.218



Tapered handles

Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Threaded blind hole.

Shaped handle

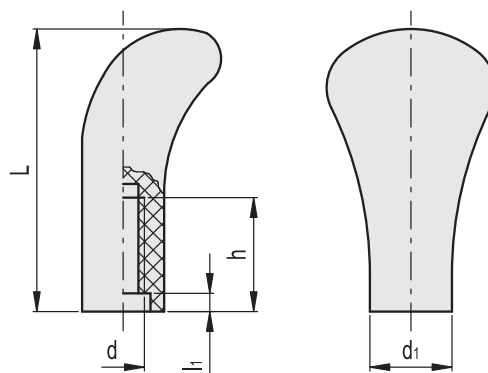
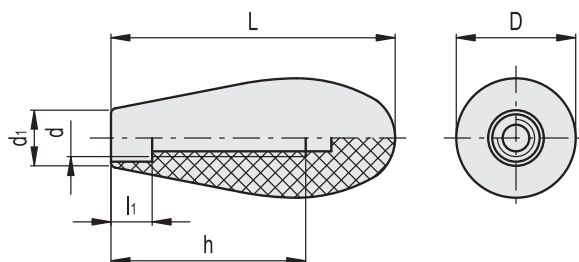
Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Threaded blind hole.



Code	Description	D	L	d	d1	h	l1	△
19301	I.137/70-M8	29	69	M8	14	45	10	37
19302	I.137/70-M10	29	69	M10	14	45	15	35
19401	I.137/80-M12	35	79	M12	17	55	12	60

Code	Description	L	d	d1	h	l1	△
20801	I.218/60-M10	62	M10	18	25	4	32

I.142



I.195



Tapered handles

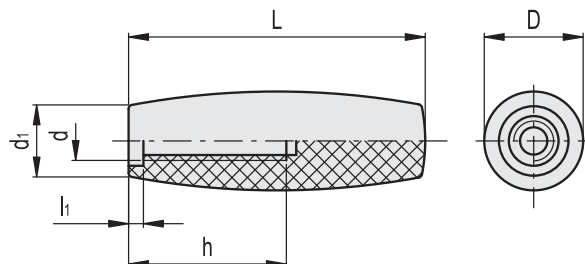
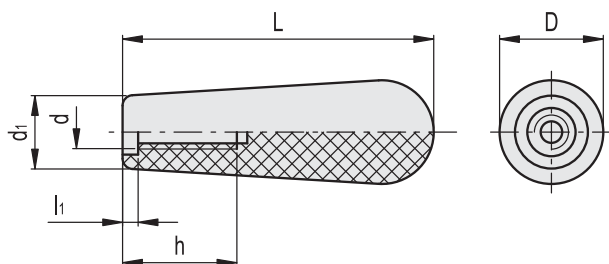
Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Threaded blind hole.



Code	Description	D	L	d	d1	h	l1	△
19701	I.142/60-M8	20	60	M8	14	20	3	17

Code	Description	D	L	d	d1	h	l1	△
20401	I.195/60-M8	20	60	M8	14	30	4	18



5

Fixed and Revolving Handles

Tapered handles

Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Threaded blind hole.

Tapered handles

Duroplast

MATERIAL

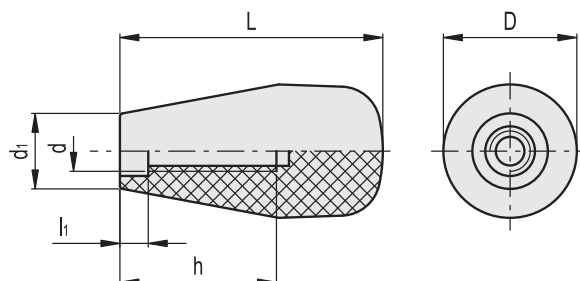
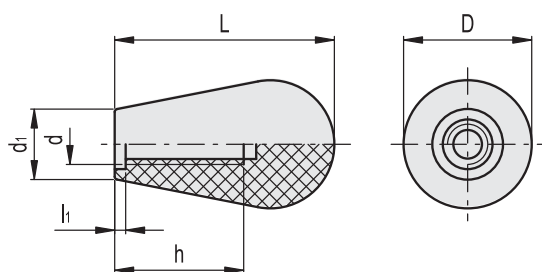
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Threaded blind hole.



ELESA Original design



Code	Description	D	L	d	d1	h	l1	
19801	I.147/40-M6	24	40	M6	14	25	3	16
19802	I.147/40-M8	24	40	M8	14	28	3.5	14
19901	I.147/50-M8	29	47	M8	16	28	3.5	25
19902	I.147/50-M10	29	47	M10	16	28	3.5	24
20001	I.147/60-M10	35	60	M10	19	35	8	46
20002	I.147/60-M12	35	60	M12	19	35	8	44
20101	I.147/75-M14	39	77	M14	22	45	6	72

Code	Description	D	L	d	d1	h	l1	
120035	I.149/65-M10	34	67	M10	19	40	8	56
120055	I.149/85-M10	34	86	M10	20	48	7	72

Cylindrical handles

Technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

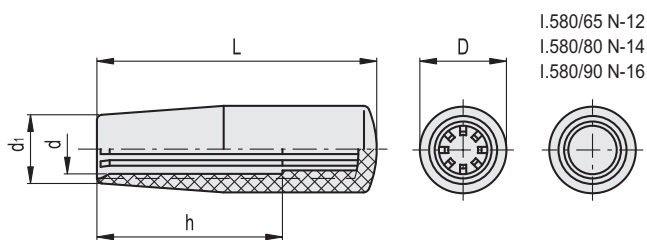
STANDARD EXECUTION

Blind hole.

The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

ASSEMBLY INSTRUCTIONS

Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.



Code	Description	D	L	d	d1	h	ti
24821	I.580/40 N-8	18	40	8	15	28	8
24831	I.580/50 N-10	21	50	10	17	35	10
24846	I.580/65 N-10	23	65	10	19	45	17
24848	I.580/65 N-12*	23	65	12	19	45	16
24861	I.580/80 N-12	26	80	12	21	50	25
24863	I.580/80 N-14*	26	80	14	21	50	24
24875	I.580/90 N-15	28	90	15	22	60	33
24876	I.580/90 N-16*	28	90	16	22	60	32

* The assembly holes marked with * are cylindrical holes without fins.

Cylindrical handles

"Soft-touch" technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolyme, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.

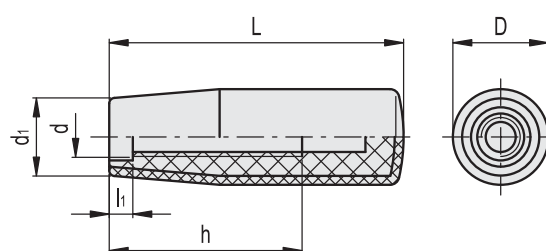
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTION

Threaded blind hole.

FEATURES AND APPLICATIONS

The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.



Code	Description	D	L	d	d1	h	ti
124861	I.680/65-M8 SOFT	24.5	65	M8	20.5	30	7
124862	I.680/65-M10 SOFT	24.5	65	M10	20.5	40	7
124864	I.680/80-M8 SOFT	26.5	80	M8	21	40	7
124865	I.680/80-M10 SOFT	26.5	80	M10	21	55	7
124866	I.680/80-M12 SOFT	26.5	80	M12	21	55	7
124871	I.680/90-M10 SOFT	28.5	90	M10	22	56	7
124872	I.680/90-M12 SOFT	28.5	90	M12	22	58	10

ELESA Original design



5

Fixed and Revolving Handles

Cylindrical lobe handle

"Soft-touch" technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.

The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTION

Plain blind hole.

The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

FEATURES AND APPLICATIONS

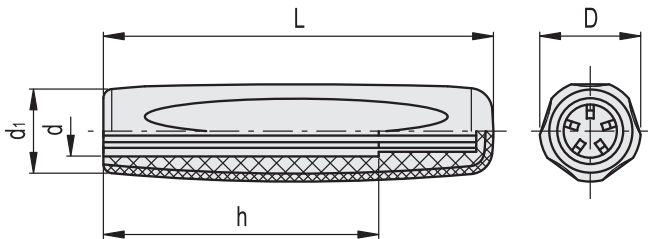
The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.

ASSEMBLY INSTRUCTIONS

Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.



ERGOSTYLE®



Code	Description	D	L	d	d1	h	⚖
286151-C1	EGH.85 N-8-C1-SOFT	22	85	8	18	60	30

I.780



Cylindrical handles

Technopolymer

MATERIAL

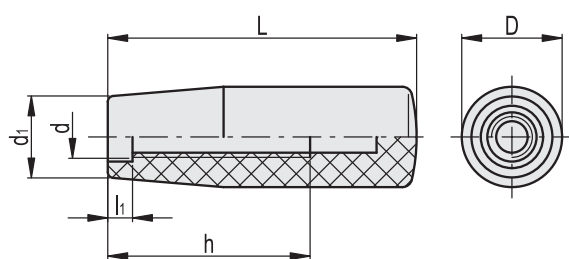
Glass-fibre reinforced polyamide based (PA) technopolymer, black or red colour, matte finish.

ASSEMBLY

Threaded blind hole.



ELESA Original design



C9 C6
 RAL9005 RAL3000

Code	Description	D	L	d	d1	h	l1	△
124791	I.780/65-M8-C9	24.5	65	M8	20.5	30	7	34
124792	I.780/65-M10-C9	24.5	65	M10	20.5	40	7	34
124806	I.780/80-M8-C9	26.5	80	M8	21	40	7	45
124807	I.780/80-M10-C9	26.5	80	M10	21	55	7	45
124808	I.780/80-M12-C9	26.5	80	M12	21	55	7	45
124817	I.780/90-M10-C9	28.5	90	M10	22.5	55	7	50
124818	I.780/90-M12-C9	28.5	90	M12	22.5	58	7	50
124801	I.780/65-M8-C6	24.5	65	M8	20.5	30	7	34
124812	I.780/80-M10-C6	26.5	80	M10	21	55	7	45
124822	I.780/90-M12-C6	28.5	90	M12	22.5	58	7	50

I.167 p



Tapered handles

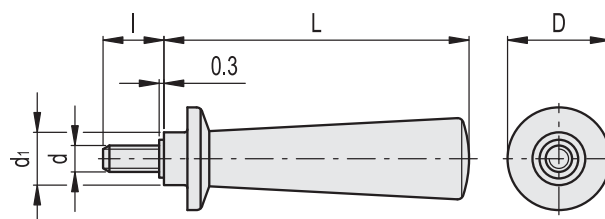
Duroplast

MATERIAL

Phenolic based (PF) Duroplast body, polyamide based (PA) technopolymer flange, black colour, glossy finish.

STANDARD EXECUTION

Zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).



Code	Description	D	L	d6g	d1	l	△
20306	I.167/103 p-M8x16	35	104	M8	18	16	90
20311	I.167/103 p-M8x25	35	104	M8	18	25	94



5

Fixed and Revolving Handles

Cylindrical handles

with protection, technopolymer

MATERIAL

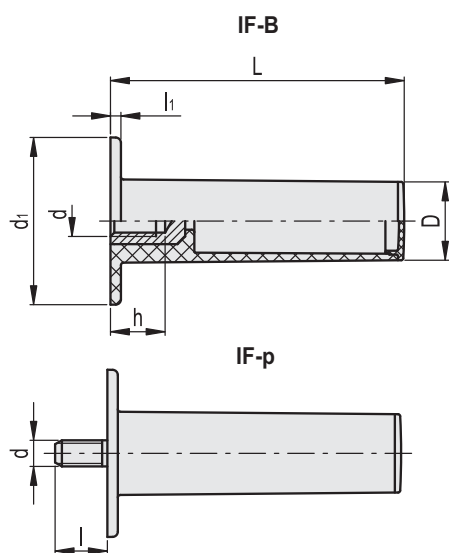
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **IF-B**: brass boss, threaded blind hole.
- **IF-p**: zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).



ELESA Original design



IF-B

Code	Description	D	L	d6H	d1	h	l1	⚖
26801	IF.112 B-M8	30	112	M8	64	20	4	73
26802	IF.112 B-M10	30	112	M10	64	18	4	75

IF-p

Code	Description	D	L	d6g	d1	l	l1	⚖
26824	IF.112 p-M8x20	30	112	M8	64	20	4	78
26834	IF.112 p-M10x20	30	112	M10	64	20	4	87

Cylindrical handles

with double protection, technopolymer

MATERIAL

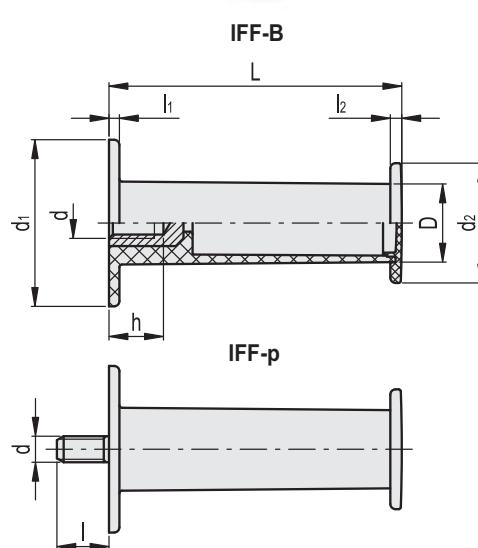
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **IFF-B**: brass boss, threaded blind hole.
- **IFF-p**: zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).



ELESA Original design



IFF-B

Code	Description	D	L	d6H	d1	d2	h	l1	l2	⚖
26901	IFF.112 B-M8	30	112	M8	64	46	20	4	4	78
26902	IFF.112 B-M10	30	112	M10	64	46	18	4	4	80

IFF-p

Code	Description	D	L	d6g	d1	d2	l	l1	l2	⚖
26924	IFF.112 p-M8x20	30	112	M8	64	46	20	4	4	83
26934	IFF.112 p-M10x20	30	112	M10	64	46	20	4	4	92

Fixed handles

SPECIFICATION

Types

- Type **D**: with plain shaft
- Type **E**: with threaded shaft

Version in Steel

Steel **ST**
zinc plated, blue passivated

Version in Stainless Steel

Stainless Steel AISI 316L **A4**

Version in Plastic

Plastic **KT**
Technopolymer (Polyamide PA)

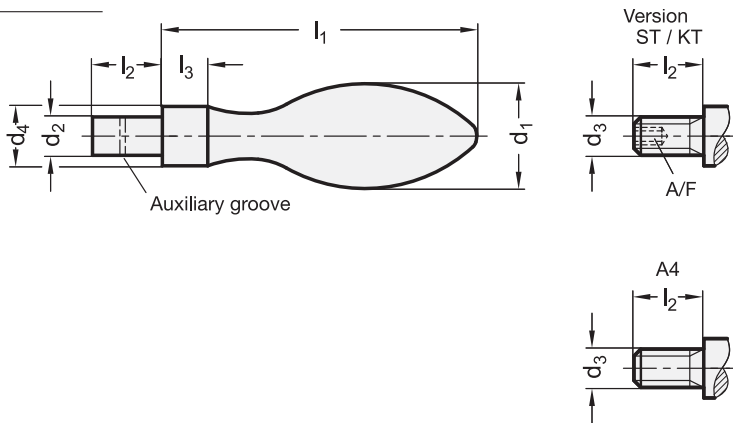
- temperature resistant up to 100 °C
- black, matt finish
- threaded bolt Steel, blackened

INFORMATION

On the official DIN standard sheet you can find the additional sizes 10 and 13.
For reasons of hygiene, no hexagonal recess is used in type A4.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



DIN 39

Description	d1	d2 h8	d3	d4 h13	l1 ≈	l2	l3	A/F	⚖
DIN 39-ST-16-D	16	7	-	10	50	11	7	-	43
DIN 39-ST-20-D	20	8	-	13	64	13	8	-	92
DIN 39-ST-25-D	25	10	-	16	80	14	10	-	182
DIN 39-ST-32-D	32	13	-	20	100	21	13	-	368
DIN 39-ST-36-D	36	16	-	22	112	26	14	-	512
DIN 39-ST-16-E	16	-	M 6	10	50	11	7	3	42
DIN 39-ST-20-E	20	-	M 8	13	64	13	8	4	89
DIN 39-ST-25-E	25	-	M 10	16	80	14	10	5	174
DIN 39-ST-32-E	32	-	M 12	20	100	21	13	6	350
DIN 39-ST-36-E	36	-	M 16	22	112	26	14	8	503

DIN 39-KT

Description	d1	d3	d4 h13	l1 ≈	l2	l3	A/F	⚖
DIN 39-KT-20-E	20	M 8	13	64	13	8	4	27
DIN 39-KT-25-E	25	M 10	16	80	14	10	5	40
DIN 39-KT-32-E	32	M 12	20	100	21	13	6	100

DIN 39-A4

STAINLESS STEEL

Description	d1	d3	d4 h13	l1 ≈	l2	l3	⚖
DIN 39-A4-16-E	16	M 6	10	50	11	7	44
DIN 39-A4-20-E	20	M 8	13	64	13	8	90
DIN 39-A4-25-E	25	M 10	16	80	14	10	177

Gear lever handles

Steel, Zinc plated / Stainless Steel

SPECIFICATION

Version in Steel

Types

- Type **A**: Ball knob DIN 319 (see page 538)
- Type **D**: Domed gear knob I.222 (see page 537)
- Type **E**: Cylindrical knob I.280 (see page 568)

Shafts

Steel zinc plated, blue passivated **ZB**

Knobs

Plastic

Duroplast (Phenolic PF)

- black, shiny finish
- screwed on

Version in Stainless Steel

Types

- Type **A**: Ball knob DIN 319 (see page 538)
- Type **D**: Domed gear knob I.222 (see page 537)
- Type **E**: Cylindrical knob I.280 (see page 568)

Shafts

Stainless Steel AISI 303 **NI**

matt shot-blasted

Knobs

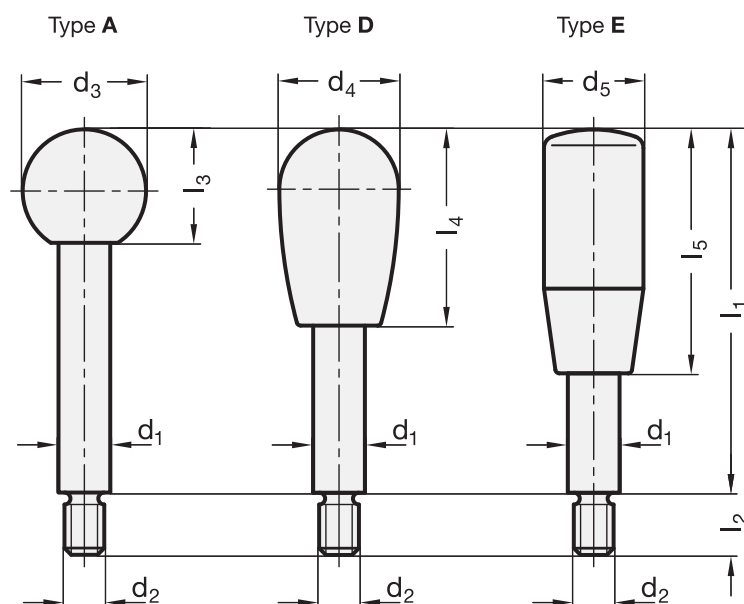
Plastic

Duroplast (Phenolic PF)

- black, shiny finish
- screwed on

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



* Complete with types of the Gear lever handles (A, D or E)

A **D** **E**
Ball knobs Domed gear knobs Cylindrical knobs

GN 310

Description	d1	l1	d2	d3	d4	d5	l2	l3	l4	l5	⚖
GN 310-8-63-*-ZB	8	63	M 6	20	20	18	9	18	32	40	28
GN 310-8-80-*-ZB	8	80	M 6	20	20	18	9	18	32	40	36
GN 310-8-100-*-ZB	8	100	M 6	20	20	18	9	18	32	40	40
GN 310-10-80-*-ZB	10	80	M 8	25	26	21	11	22.5	42	50	54
GN 310-10-100-*-ZB	10	100	M 8	25	26	21	11	22.5	42	50	63
GN 310-10-125-*-ZB	10	125	M 8	25	26	21	11	22.5	42	50	78
GN 310-12-100-*-ZB	12	100	M 10	32	33	23	14	29	55	65	93
GN 310-12-125-*-ZB	12	125	M 10	32	33	23	14	29	55	65	123
GN 310-12-160-*-ZB	12	160	M 10	32	33	23	14	29	55	65	154
GN 310-14-125-*-ZB	14	125	M 12	35	33	26	16	32.5	55	80	159
GN 310-14-160-*-ZB	14	160	M 12	35	33	26	16	32.5	55	80	202
GN 310-14-200-*-ZB	14	200	M 12	35	33	26	16	32.5	55	80	240
GN 310-16-160-*-ZB	16	160	M 14	40	38	28	18	37	69	90	271
GN 310-16-200-*-ZB	16	200	M 14	40	38	28	18	37	69	90	331
GN 310-16-250-*-ZB	16	250	M 14	40	38	28	18	37	69	90	410

GN 310-NI

STAINLESS STEEL

Description	d1	l1	d2	d3	d4	d5	l2	l3	l4	l5	⚖
GN 310-8-63-*-NI	8	63	M 6	20	20	18	9	18	32	40	26
GN 310-8-80-*-NI	8	80	M 6	20	20	18	9	18	32	40	32
GN 310-8-100-*-NI	8	100	M 6	20	20	18	9	18	32	40	44
GN 310-10-80-*-NI	10	80	M 8	25	26	21	11	22.5	42	50	55
GN 310-10-100-*-NI	10	100	M 8	25	26	21	11	22.5	42	50	63
GN 310-10-125-*-NI	10	125	M 8	25	26	21	11	22.5	42	50	78
GN 310-12-100-*-NI	12	100	M 10	32	33	23	14	29	55	65	103
GN 310-12-125-*-NI	12	125	M 10	32	33	23	14	29	55	65	123
GN 310-12-160-*-NI	12	160	M 10	32	33	23	14	29	55	65	147
GN 310-14-125-*-NI	14	125	M 12	35	33	26	16	32.5	55	80	159
GN 310-14-160-*-NI	14	160	M 12	35	33	26	16	32.5	55	80	190
GN 310-14-200-*-NI	14	200	M 12	35	33	26	16	32.5	55	80	250
GN 310-16-160-*-NI	16	160	M 14	40	38	28	18	37	69	90	271
GN 310-16-200-*-NI	16	200	M 14	40	38	28	18	37	69	90	331
GN 310-16-250-*-NI	16	250	M 14	40	38	28	18	37	69	90	410

Weight type A



Cylindrical handles

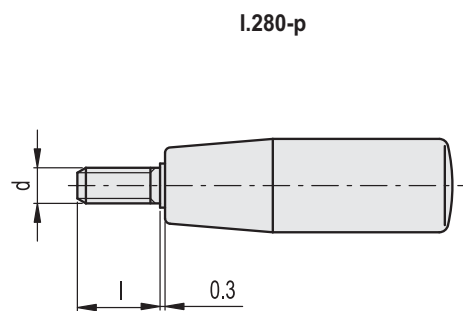
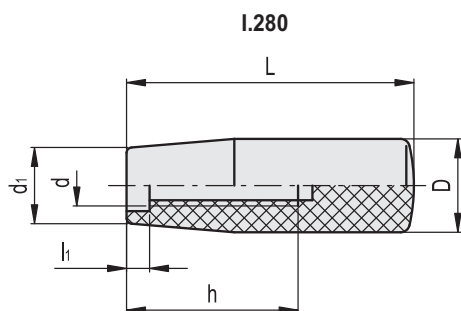
Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS

- **I.280:** threaded blind hole.
- **I.280-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).



I.280

Code	Description	D	L	d	d1	h	li	Δ
21501	I.280/28-M5	14	28	M5	11	12	1.5	5
21601	I.280/40-M6	18	40	M6	15	25	3.5	12
21602	I.280/40-M8	18	40	M8	15	25	3.5	12
21701	I.280/50-M6	21	50	M6	17	25	3.5	21
21702	I.280/50-M8	21	50	M8	17	35	7.5	20
21801	I.280/65-M8	23	65	M8	19	30	7.5	33
21802	I.280/65-M10	23	65	M10	19	40	7.5	30
21803	I.280/65-M12	23	65	M12	19	40	7.5	28
21900	I.280/80-M8	26	80	M8	21	45	8	45
21901	I.280/80-M10	26	80	M10	21	55	7	47
21902	I.280/80-M12	26	80	M12	21	55	10	45
22000	I.280/90-M8	28	90	M8	22	55	15	62
22001	I.280/90-M10	28	90	M10	22	55	7	64
22002	I.280/90-M12	28	90	M12	22	58	8	62
22101	I.280/100-M12	31	102	M12	25	58	8	90
22102	I.280/100-M14	31	102	M14	25	65	5	85
22201	I.280/115-M12	29	116	M12	23	58	8	88

I.280-p

Code	Description	D	L	d6g	d1	I	Δ
21611	I.280/40 p-M6x16	18	40	M6	15	16	18
21711	I.280/50 p-M8x16	21	50	M8	17	16	38
21712	I.280/50 p-M8x25	21	50	M8	17	25	40
21811	I.280/65 p-M10x16	23	65	M10	19	16	60
21812	I.280/65 p-M10x30	23	65	M10	19	30	67
21911	I.280/80 p-M10x16	26	80	M10	21	16	80
21912	I.280/80 p-M10x30	26	80	M10	21	30	87
22011	I.280/90 p-M12x16	28	90	M12	22	16	113
22012	I.280/90 p-M12x30	28	90	M12	22	30	122
22111	I.280/100 p-M12x16	31	102	M12	25	16	142
22112	I.280/100 p-M12x30	31	102	M12	25	30	150

Cylindrical revolving handles

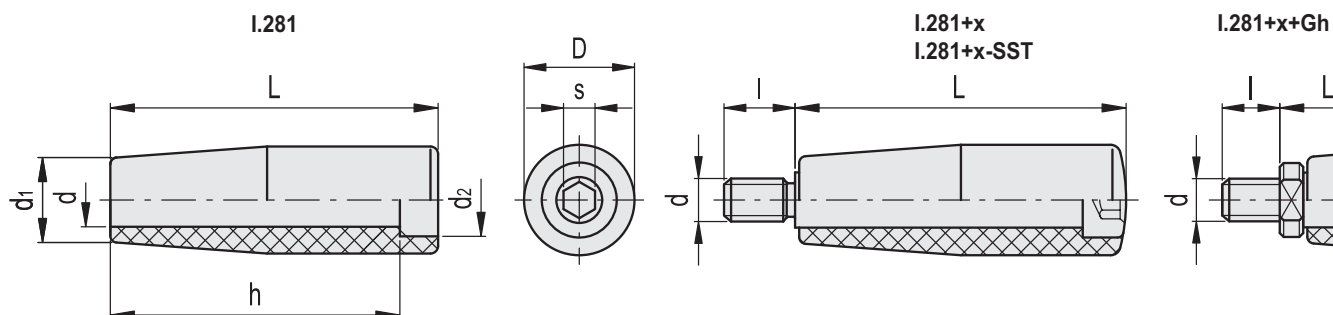
Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

- **I.281**: plain pass-through hole.
- **I.281+x**: matte chrome-plated steel shank, cylindrical-head with hexagon socket.
- **I.281+x-SST**: AISI 304 stainless steel shank, cylindrical-head with hexagon socket.
- **I.281+x+Gh**: matte chrome-plated steel shank and locking nut, cylindrical-head with hexagon socket.



I.281

Code	Description	D	L	d	d1	d2	h	△
22301	I.281/40	18	39	8	15	12	35	10
22401	I.281/50	21	49	10	17	14	43	16
22501	I.281/65	23	64	12	19	16	56	22
22601	I.281/80	26	79	13	21	17	70	37
22701	I.281/90	28	89	14	22	19	79	49
22801	I.281/100	31	100	16	25	20	89	66

I.281+x

Code	Description	D	L	d6g	d1	l	s	△
22311	I.281/40+x-M6	18	40	M6	15	13	4	28
22411	I.281/50+x-M8	21	50	M8	17	15	5	52
22511	I.281/65+x-M8	23	65	M8	19	17	6	86
22512	I.281/65+x-M10	23	65	M10	19	17	6	90
22611	I.281/80+x-M10	26	80	M10	21	18	6	132
22711	I.281/90+x-M10	28	90	M10	22	18	8	170
22811	I.281/100+x-M12	31	102	M12	25	20	8	245
22812	I.281/100+x-M14	31	102	M14	25	20	8	248

I.281+x-SST

STAINLESS STEEL

Code	Description	D	L	d6g	d1	l	s	△
22312	I.281/40+x-M6-SST	18	40	M6	15	13	4	28
22412	I.281/50+x-M8-SST	21	50	M8	17	15	5	52
22513	I.281/65+x-M8-SST	23	65	M8	19	17	6	87
22514	I.281/65+x-M10-SST	23	65	M10	19	17	6	91
22612	I.281/80+x-M10-SST	26	80	M10	21	18	6	133
22712	I.281/90+x-M10-SST	28	90	M10	22	18	8	172
22813	I.281/100+x-M12-SST	31	102	M12	25	20	8	247
22814	I.281/100+x-M14-SST	31	102	M14	25	20	8	250

I.281+x+Gh

Code	Description	D	L	d6g	d1	l	s	△
22321	I.281/40+x-M6+Gh	18	45	M6	15	8	4	33
22421	I.281/50+x-M8+Gh	21	55	M8	17	10	5	56
22521	I.281/65+x-M8+Gh	23	70	M8	19	12	6	90
22522	I.281/65+x-M10+Gh	23	71	M10	19	12	6	98
22621	I.281/80+x-M10+Gh	26	86	M10	21	12	6	143
22721	I.281/90+x-M10+Gh	28	96	M10	22	12	8	180
22821	I.281/100+x-M12+Gh	31	109	M12	25	13	8	256
22822	I.281/100+x-M14+Gh	31	109	M14	25	13	8	262



Spherical revolving handle

Technopolymer

MATERIAL

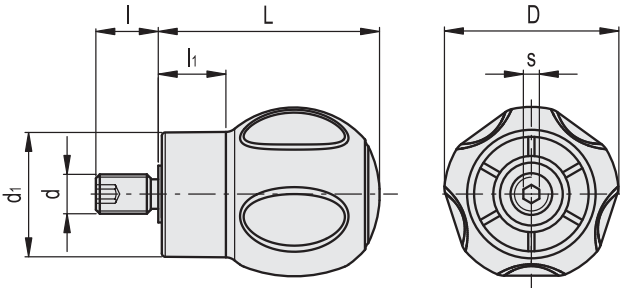
High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

STANDARD EXECUTION

Zinc-plated steel shank, hexagon socket at threaded end.



ERGOSTYLE®



Code	Description	D	L	d6g	d1	l	li	s	⚖
245292	EBK.50+x-M10	50	62	M10	36	17	19	5	90

Spherical revolving handle

Technopolymer

MATERIAL

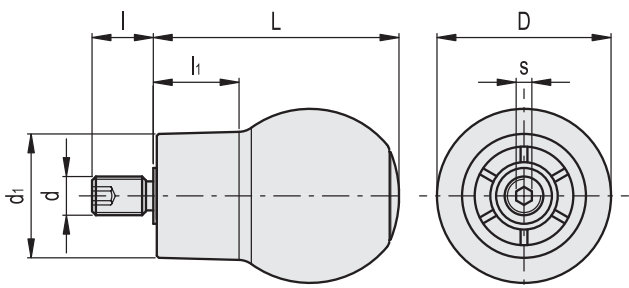
High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

STANDARD EXECUTION

Zinc-plated steel shank, hexagon socket at threaded end.



ERGOSTYLE®



Code	Description	D	L	d6g	d1	l	li	s	⚖
247011	EBS.45+x-M10	45	63	M10	32	17	21.5	5	89

Spherical revolving handle

"Soft-touch" technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.

The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTION

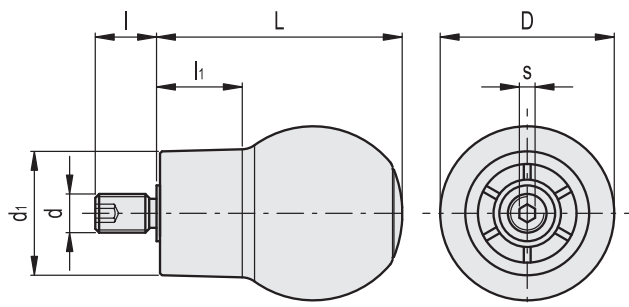
Zinc-plated steel shank, hexagon socket at threaded end.

FEATURES AND APPLICATIONS

The coating, with "Soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.



ERGOSTYLE®



Code	Description	D	L	d6g	d1	I	l1	s	△
247051	EBS.48 SOFT+x-M10	48	66	M10	35	17	23	5	100

Spherical revolving handles

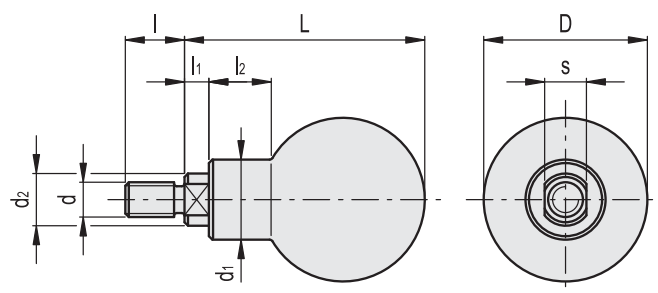
Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Zinc-plated steel threaded shank, two flat faces for fitting with 12 mm spanner.



Code	Description	D	L	d6g	d1	d2	I	l1	l2	s	△
45981	P.111/37+x-M8	37	54	M8	18	15	15	7	13	12	55
46011	P.111/47+x-M10	47	69	M10	23	15	17	7	17	12	130



Mushroom revolving handles

“Soft-touch” technopolymer

MATERIAL

High resilience polypropylene based (PP) technopolymer, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTIONS

- Zinc-plated steel shank, hexagon socket at threaded end.
- IEL+x: without ring.
 - IEL+x-A: with matte anodised aluminium ring (ELESA original design).

FEATURES AND APPLICATIONS

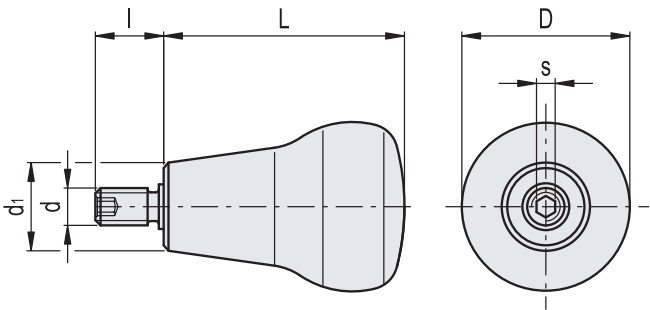
The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.

SPECIAL EXECUTIONS ON REQUEST

IEL+x-H: with magnifying lens for labels with marks and symbols.



ELESA Original design



Code	Description	D	L	d6g	d1	I	s	⌀
26651	IEL.47+x-M10 SOFT	45	47	M10	28	17	5	80
26679	IEL.65+x-M8 SOFT	45	65	M8	23	17	5	102
26681	IEL.65+x-M10 SOFT	45	65	M10	23	17	5	99
26691	IEL.65+x-M10-A SOFT	45	65	M10	23	17	5	99

Cylindrical Revolving handles

Spindle Steel, zinc plated

SPECIFICATION

Steel **ST**

Plastic coated

black, textured finish

Spindle Steel

zinc plated, blue passivated

INFORMATION

Steel revolving handles GN 598 are mainly used on safety handwheels to increase imbalance and thus avoid free wheeling.

Tapered handle

Technopolymer with antimicrobial protection

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer with silver ions on an inorganic ceramic base, black colour, matte finish.

STANDARD EXECUTION

Zinc-plated steel shank, hexagon socket at threaded end.

FEATURES

The special antimicrobial material, I.644 is made out of, stops any deposit of bacteria, mildew and fungi, offering a sanitized effect on the surface.

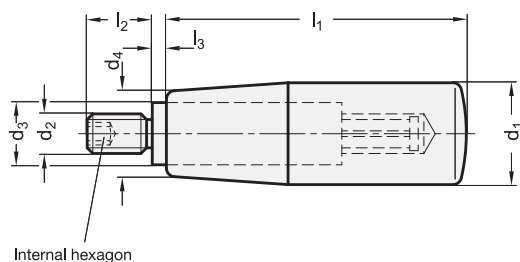
Tests carried out on material samples confirmed the stability of the antimicrobial action after several cleaning cycles at high temperatures with soap and solvents.

The great resistance to high temperatures of the antimicrobial additive allows this handle to reach sterilisation temperatures (130°C).

APPLICATIONS

I.644 handle is suitable for applications where hygienic and sanitary elements are required:

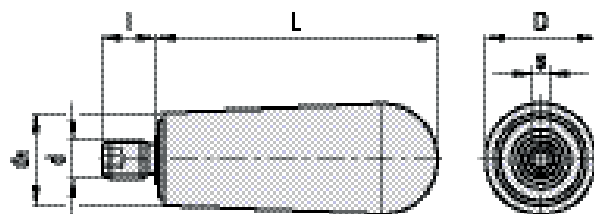
- medical and hospital equipment
- disability aids
- machines for food processing and pharmaceutical industry
- equipment for catering service
- urban and public fittings.



ELESA Original design

GN 598

Description	d1	d2	d3	d4	l1	l2	l3	⚖
GN 598-ST-18-M6	18	M 6	10	15	40	12	2.5	71
GN 598-ST-21-M6	21	M 6	10	17	50	13	2.5	120
GN 598-ST-21-M8	21	M 8	10	17	50	13	2.5	122
GN 598-ST-23-M8	23	M 8	13	19	65	14	2.5	188
GN 598-ST-23-M10	23	M 10	13	19	65	14	2.5	190
GN 598-ST-26-M8	26	M 8	13	21	80	16	2.5	295
GN 598-ST-26-M10	26	M 10	13	21	80	16	2.5	298
GN 598-ST-28-M10	28	M 10	13	22	90	16	2.5	390
GN 598-ST-31-M12	31	M 12	14	25	102	20	2.5	563



Code	Description	D	L	d	d1	l	s	⚖
122701	I.644/90+x-M8 SAN	36	90	M8	30	16	4	130



Cylindrical revolving handles

Duroplast and technopolymer

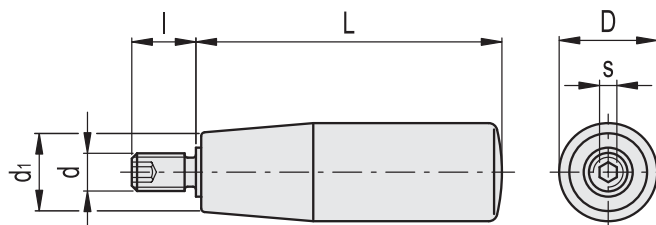
MATERIAL

Phenolic based (PF) Duroplast.

Handle I.301+x with length L = 28, polyamide based (PA) technopolymer, black colour, glossy finish.

STANDARD EXECUTIONS

- **I.301+x:** zinc-plated steel shank, hexagon socket at threaded end.
- **I.301+x-SST:** AISI 303 stainless steel shank, hexagon socket at threaded end.



I.301+x

Code	Description	D	L	d6g	d1	l	s	⚖
23001	I.301/28+x-M6	14	28	M6	11	10	3	13
23101	I.301/40+x-M6	18	40	M6	15	13	3	27
23201	I.301/50+x-M6	21	50	M6	17	13	3	37
23202	I.301/50+x-M8	21	50	M8	17	13	4	38
23301	I.301/65+x-M8	23	65	M8	19	15	4	75
23302	I.301/65+x-M10	23	65	M10	19	17	5	77
23401	I.301/80+x-M8	26	80	M8	21	15	4	95
23402	I.301/80+x-M10	26	80	M10	21	17	5	98
23501	I.301/90+x-M10	28	90	M10	22	17	5	118
23601	I.301/100+x-M10	31	102	M10	25	17	5	143
23602	I.301/100+x-M12	31	102	M12	25	20	5	160
23701	I.301/115+x-M10	29	116	M10	23	17	5	143

I.301+x-SST

STAINLESS STEEL

Code	Description	D	L	d6g	d1	l	s	⚖
23205	I.301/50+x-M6-SST	21	50	M6	17	13	3	37
23305	I.301/65+x-M8-SST	23	65	M8	19	15	4	75
23505	I.301/90+x-M10-SST	28	90	M10	22	17	5	118

Cylindrical revolving handles

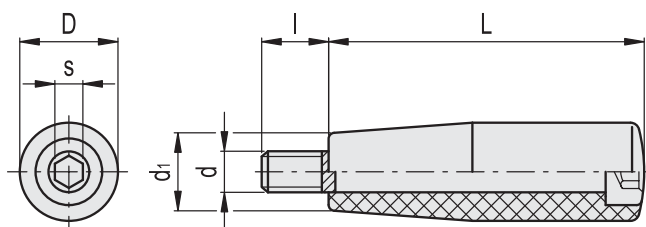
Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Black-oxide steel shoulder screw, cylindrical-head with hexagon socket. A knurling acts as obstruction when the handle is fully screwed into its hole which must be slightly chamfered.



Code	Description	D	L	d6g	d1	I	s	△
24551	I.481/40+x-M6	18	40	M6	15	13	5	25
24601	I.481/50+x-M6	21	50	M6	17	13	5	35
24651	I.481/65+x-M8	23	65	M8	19	15	6	62
24701	I.481/80+x-M8	26	80	M8	21	15	6	85

Cylindrical revolving handles

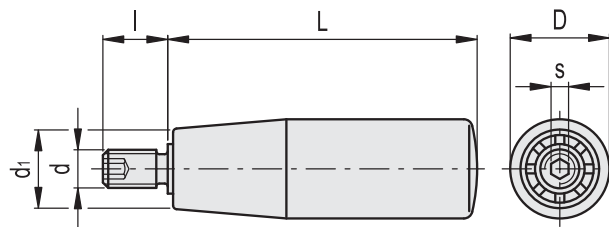
Technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **I.601+x:** zinc-plated steel shank, hexagon socket at threaded end.
- **I.601+x-SST:** AISI 303 stainless steel shank, hexagonal socket at threaded end.



I.601+x

Code	Description	D	L	d6g	d1	I	s	△
24921	I.601/40+x-M6	18	40	M6	15	13	3	25
24931	I.601/50+x-M6	21	50	M6	17	13	3	35
24941	I.601/56+x-M6	22	56	M6	18	13	3	40
24951	I.601/65+x-M8	23	65	M8	19	15	4	68
24952	I.601/65+x-M10	23	65	M10	19	17	5	70
24961	I.601/80+x-M8	26	80	M8	21	15	4	75
24962	I.601/80+x-M10	26	80	M10	21	17	5	78
24971	I.601/90+x-M10	28	90	M10	22	17	5	85
24972	I.601/90+x-M12	28	90	M12	22	20	5	100

I.601+x-SST

STAINLESS STEEL

Code	Description	D	L	d6g	d1	I	s	△
24925	I.601/40+x-M6-SST	18	40	M6	15	13	3	25
24935	I.601/50+x-M6-SST	21	50	M6	17	13	3	35
24955	I.601/65+x-M8-SST	23	65	M8	19	15	4	68
24965	I.601/80+x-M10-SST	26	80	M10	21	17	5	78
24975	I.601/90+x-M10-SST	28	90	M10	22	17	5	85

Revolving handles

Technopolymer

MATERIAL

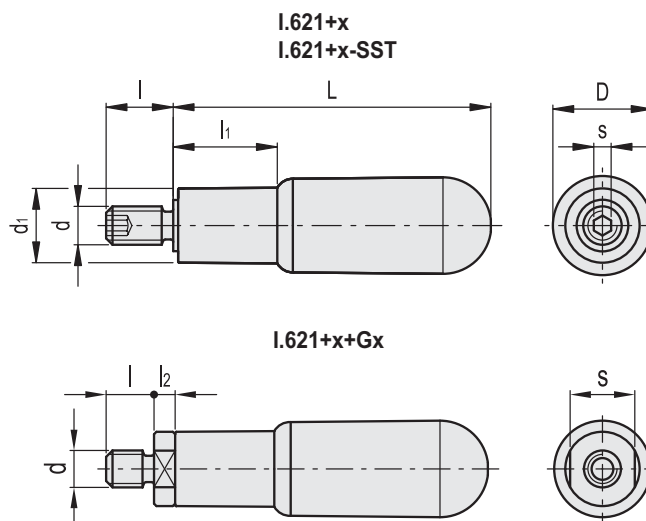
Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **I.621+x**: zinc-plated steel shank, hexagon socket at threaded end.
- **I.621+x+SST**: AISI 303 stainless steel shank, hexagonal socket at threaded end.
- **I.621+Gx**: zinc-plated steel threaded shank, with two large and flat faces for frontal fastening.



ELESA Original design



I.621+x

Code	Description	D	L	d6g	d1	l	l1	s	Δ
120601	I.621/35+x-M5	14	35	M5	11	10	10.5	3	23
120611	I.621/35+x-M6	14	35	M6	11	10	10.5	3	25
120621	I.621/45+x-M6	15.5	45	M6	13	13	15	3	27
120622	I.621/45+x-M8	15.5	45	M8	13	13	15	4	30
120631	I.621/60+x-M6	18	60	M6	14.5	13	19	3	32
120632	I.621/60+x-M8	18	60	M8	14.5	13	19	4	35
120641	I.621/65+x-M8	22	65	M8	18	15	21	4	80
120642	I.621/65+x-M10	22	65	M10	18	15	21	4	82
120646	I.621/73+x-M8	23	73	M8	19	15	24	4	85
120647	I.621/73+x-M10	23	73	M10	19	15	24	4	87
120651	I.621/80+x-M8	24	80	M8	19	15	27	4	88
120652	I.621/80+x-M10	24	80	M10	19	15	27	4	100
120661	I.621/90+x-M10	25	90	M10	19.5	17	30	5	120
120671	I.621/100+x-M10	27	101	M10	22	17	34	5	125

I.621+x-SST

STAINLESS STEEL

Code	Description	D	L	d6g	d1	l	l1	s	Δ
120623	I.621/45+x-M6-SST	15.5	45	M6	13	13	15	3	27
120624	I.621/45+x-M8-SST	15.5	45	M8	13	13	15	4	30
120633	I.621/60+x-M6-SST	18	60	M6	14.5	13	19	3	32
120634	I.621/60+x-M8-SST	18	60	M8	14.5	13	19	4	35
120643	I.621/65+x-M8-SST	22	65	M8	18	15	21	4	80
120644	I.621/65+x-M10-SST	22	65	M10	18	15	21	4	82
120648	I.621/73+x-M8-SST	23	73	M8	19	15	24	4	85
120649	I.621/73+x-M10-SST	23	73	M10	19	15	24	4	87
120653	I.621/80+x-M8-SST	24	80	M8	19	15	27	4	88
120654	I.621/80+x-M10-SST	24	80	M10	19	15	27	4	100
120663	I.621/90+x-M10-SST	25	90	M10	19.5	17	30	5	120
120673	I.621/100+x-M10-SST	27	101	M10	22	17	34	5	125

I.621+Gx

Code	Description	D	L	d6g	d1	l	l1	l2	s	Δ
120741	I.621/65+Gx-M8	22	65	M8	18	12	21	6.5	16	93
120752	I.621/80+Gx-M10	24	80	M10	18.5	12	27	6.5	16	103
120772	I.621/100+Gx-M12	27	101	M12	22	13	34	7.5	19	155

Cylindrical Revolving handles

Spindle steel, zinc plated

SPECIFICATION

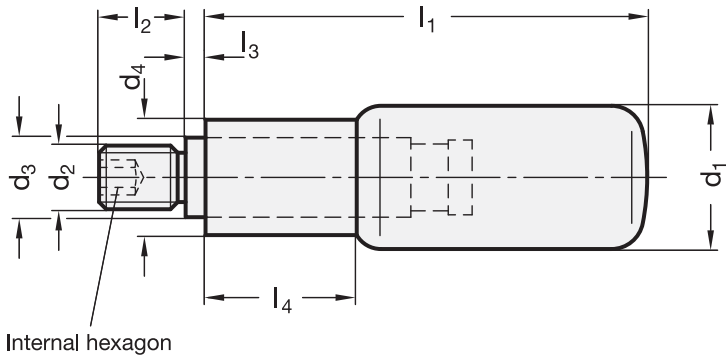
- Plastic **KT**
Technopolymer
 - temperature resistant up to 90 °C
 - black, matt finish
- Aluminium **AL**
polished
- Spindle Steel
zinc plated, blue passivated

INFORMATION

Typical in design are the revolving handles GN 798 with their stepped shape consisting of two cylinders giving the operator a better grip.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



*Complete with material of the Revolving handles (KT or AL)
KT Plastic AL Aluminium

GN 798

Description	d1	d2	d3	d4	l1	l2	l3	l4	⚖
GN 798-*-16-M6	16	M 6	10	13	41,5	12	25	15	40
GN 798-*-18-M6	18	M 6	10	14.5	56	13	25	19	50
GN 798-*-18-M8	18	M 8	10	14.5	56	13	25	19	40
GN 798-*-22-M10	22	M 10	14	18.5	59	14	25	21	103
GN 798-*-22-M6	22	M 6	14	18.5	59	14	25	21	100
GN 798-*-22-M8	22	M 8	14	18.5	59	14	25	21	101
GN 798-*-24-M10	24	M 10	14	18.5	74	16	25	27	115
GN 798-*-24-M8	24	M 8	14	18.5	74	16	25	27	120
GN 798-*-25-M10	25	M 10	16	20	84	16	25	30	150

Weight AL

Revolving Stainless Steel-Handles

SPECIFICATION

Stainless Steel **NI**

- AISI 303
- matt, shot-blasted

Spindle

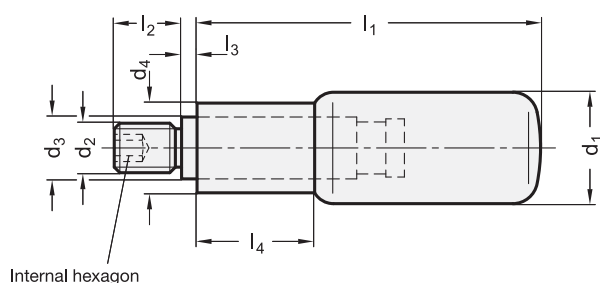
Stainless Steel AISI 303

INFORMATION

Typical in design are the revolving handles GN 798.1 with their stepped shape consisting of two cylinders giving the operator a better grip.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 798.1

STAINLESS STEEL

Description	d1	d2	d3	d4	l1	l2	l3	≈	l4	⚖
GN 798.1-NI-18-M6	18	M 6	10	14.5	56	13	2.5	19	95	
GN 798.1-NI-18-M8	18	M 8	10	14.5	56	13	2.5	19	97	
GN 798.1-NI-22-M8	22	M 8	14	18.5	59	14	2.5	21	163	
GN 798.1-NI-22-M10	22	M 10	14	18.5	59	14	2.5	21	165	
GN 798.1-NI-24-M8	24	M 8	14	18.5	74	16	2.5	27	210	
GN 798.1-NI-24-M10	24	M 10	14	18.5	74	16	2.5	27	212	

Cylindrical Revolving handles

Spindle Steel, zinc plated / with female

SPECIFICATION

Plastic **KT**

Technopolymer (Polyamide PA)

- temperature resistant up to 90 °C
- black, matt finish

Spindle Steel

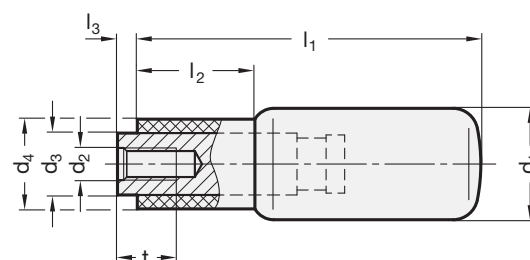
zinc plated, blue passivated

INFORMATION

Typical in design are the revolving handles GN 798.2 with their stepped shape consisting of two cylinders giving the operator a better grip.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



GN 798.2

Description	d1	d2	d3	d4	l1	l2	l3	t	⚖
GN 798.2-KT-16-M5	16	M 5	10	13	41.5	12	2.5	10	20
GN 798.2-KT-18-M5	18	M 5	10	14.5	56	13	2.5	10	28
GN 798.2-KT-22-M6	22	M 6	14	18.5	59	14	2.5	12	75
GN 798.2-KT-24-M6	24	M 6	14	18.5	74	16	2.5	12	86
GN 798.2-KT-25-M8	25	M 8	16	20	84	16	2.5	14	116

Revolving handles

SPECIFICATION

Types

- Type D: with plain shaft
- Type E: with threaded shaft

Steel **ST**
zinc plated, blue passivated

Aluminium **AL**
glossy finish

Plastic **KT**
Technopolymer (Polyamide PA)
- temperature resistant up to 110 °C
- black, matt finish

Spindle Steel
zinc plated, blue passivated

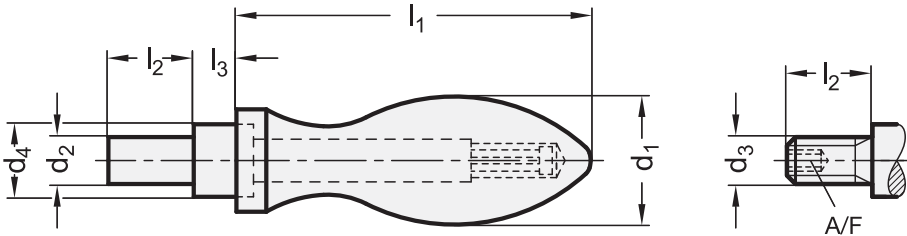


INFORMATION

This handle is supplied unassembled so that the shaft can be press fitted or screwed into a tapped blind bore prior to assembly.
During mounting, easy blows with a soft hammer are sufficient to drive the handle into place.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)



* Complete with material of the Revolving handles (ST, AL or KT)

ST	AL	KT
Steel	Aluminium	Plastic

DIN 98

Description	d1	d2 h8	d3	d4 h13	l1 ≈	l2	l3	A/F	⚖
DIN 98-*-16-D	16	7	-	10	49	11	5.5	3	33
DIN 98-*-20-D	20	8	-	13	61	13	6	4	63
DIN 98-*-25-D	25	10	-	16	75	14	8	5	110
DIN 98-*-32-D	32	13	-	20	95	21	10.5	6	217
DIN 98-*-36-D	36	16	-	22	106	26	11	8	321
DIN 98-*-16-E	16	-	M 6	10	49	11	5.5	3	33
DIN 98-*-20-E	20	-	M 8	13	61	13	6	4	50
DIN 98-*-25-E	25	-	M 10	16	75	14	8	5	110
DIN 98-*-32-E	32	-	M 12	20	95	21	10.5	6	240
DIN 98-*-36-E	36	-	M 16	22	106	26	11	8	299

Weight AL



Revolving handle

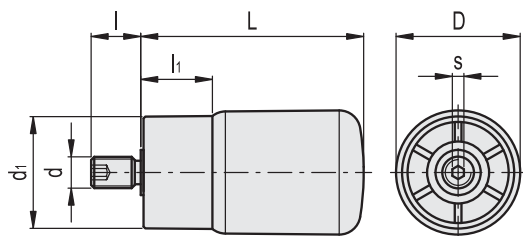
Technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

STANDARD EXECUTION

Zinc-plated steel shank, hexagon socket at threaded end.



Code	Description	D	L	d6g	d1	l	l1	s	
122622	I.631/65+x-M10	35	63	M10	32	17	19	5	79

Revolving handles

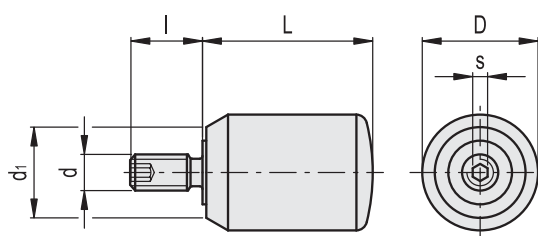
Technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION

Zinc-plated steel shank, hexagon socket at threaded end.



Code	Description	D	L	d6g	d1	l	s	
24974	I.701/20+x-M4	13.5	20	M4	11	8	2	7
24979	I.701/20+x-M5	13.5	20	M5	11	10	2.5	10
24980	I.701/23+x-M5	16	23	M5	12.5	10	2.5	12

Revolving handles

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION

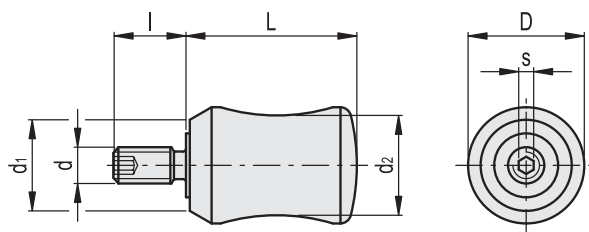
Zinc-plated steel shank, hexagon socket at threaded end.

ERGONOMY

The grooves cut into the cylindrical surface allow the optimization of the grip with the tips of the fingers, due to the small size of the handle.



ELESA Original design



Code	Description	D	L	d6g	d1	d2	I	s	⚖
24990	I.731/20+x-M4	13.5	20	M4	11	11	8	2	6
24991	I.731/20+x-M5	13.5	20	M5	11	11	10	2.5	9
24995	I.731/23+x-M5	16	23	M5	12.5	13	10	2.5	11

Revolving handles

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION

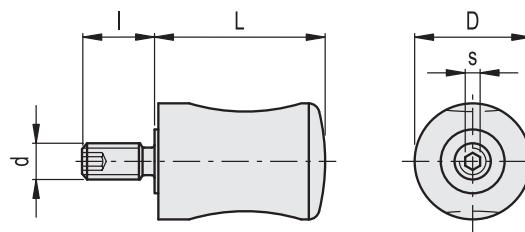
Zinc-plated steel shank, hexagon socket at threaded end.

FEATURES AND APPLICATIONS

The grooves cut into the cylindrical surface allow an effective and ergonomic grip, though necessarily limited to the fingertips, due to the small size of the handle.



ELESA Original design



Code	Description	D	L	d6g	I	s	⚖
25004	I.741/20+x-M4	12	20	M4	8	2	8.5
25005	I.741/20+x-M5	12	20	M5	10	2.5	9
25014	I.741/23-1+x-M4	13	23	M4	8	2	9.5
25015	I.741/23-1+x-M5	13	23	M5	10	2.5	10
25017	I.741/23-2+x-M5	14.5	23	M5	10	2.5	11



Tapered flanged handles

Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Plain pass-through hole with polyamide based (PA) technopolymer guide bosses in both ends.



Revolving handles

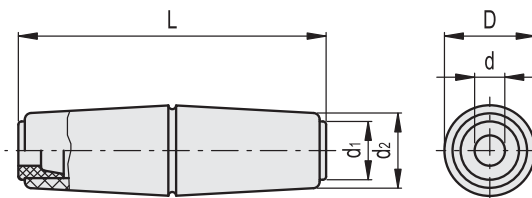
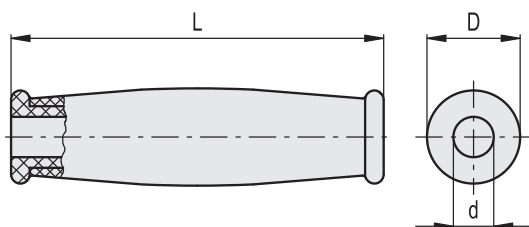
Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, matte finish with equatorial groove.

STANDARD EXECUTION

Plain pass-through hole with polyamide based (PA) technopolymer guide bosses in both ends.



Code	Description	D	L	d	⚖
19001	I.135/120-10	30	120	10	77
19002	I.135/120-11	30	120	11	76
19003	I.135/120-13	30	120	13	74

Code	Description	D	L	d	d1	d2	⚖
55701	SI.134/105-6	29	105	6	18	23	52
55711	SI.134/105-7	29	105	7	18	23	52
55721	SI.134/105-8	29	105	8	18	23	51
55731	SI.134/105-10	29	105	10	18	23	50

Fold-away handles

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer handle, black colour, matte finish.

STANDARD EXECUTION

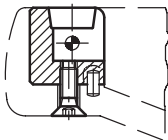
Black-oxide steel stud, sintered and oxidised steel flat base for embedded mounting, black-oxide steel screw.

FEATURES AND APPLICATIONS

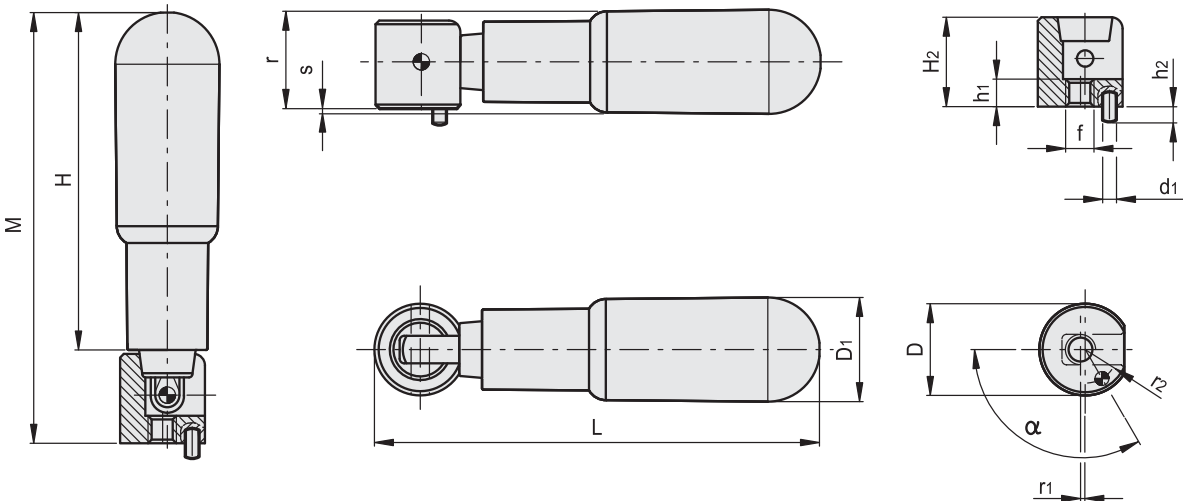
Handle pivots freely during operation: a system of coaxial bushings compensates return spring load.
This series of fold-away handles has been designed for all those applications for which, owing to lack of space or for safety reasons, the handle must be folded-away once the operation has been completed.



Normal assembly example
with embedded base



ERGOSTYLE®



Code	Description	H	D	L	M	D1	H2	r	r1	s	f	h1	d1	h2-0.2	r2	α	⚖
285151-R	EFH.620/60 S.D.16	60	16	78	76	18	15	17.5	1	1	M4	5	3	3	5.5	90°	38
285161-R	EFH.620/65 S.D.16	65	16	83.5	81	22	15	19.5	1	2	M4	5	3	3	5.5	90°	75
285166-R	EFH.620/65 S.D.20	65	20	90.5	86	22	19.5	21.5	0.6	0.5	M6	6	3	3	7	120°	110
285171-R	EFH.620/80 S.D.20	80	20	105	101	24	19.5	22.5	0.6	1.5	M6	6	3	3	7	120°	120
285181-R	EFH.620/90 S.D.20	90	20	115	111	25	19.5	23	0.6	2	M6	6	3	3	7	120°	136

Fold-away handles

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer handle, black colour, matte finish.

STANDARD EXECUTIONS

- IR.620:** black-oxide steel stud, sintered and oxidised steel flat base for embedded mounting, black-oxide steel screw.
- IR.620-SST:** AISI 303 stainless steel stud, sintered AISI 303 stainless steel flat base for embedded mounting, AISI 303 stainless steel screw.

FEATURES AND APPLICATIONS

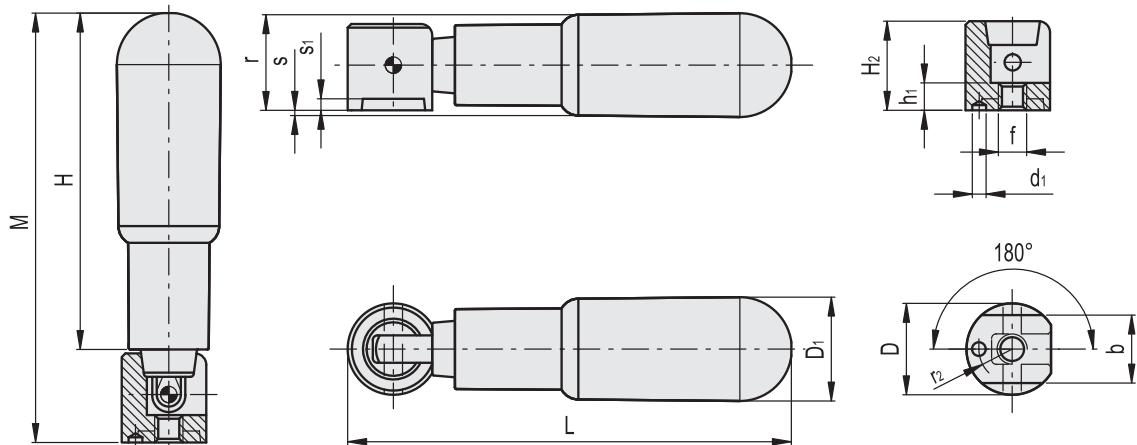
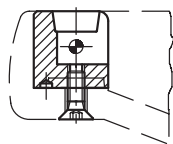
Handle pivots freely during operation: a system of coaxial bushings compensates return spring load.

This series of fold-away handles has been designed for all those applications for which, owing to lack of space or for safety reasons, the handle must be folded-away once the operation has been completed.



ELESA Original design

Normal assembly example
with embedded base



IR.620

Code	Description	H	D	L	M	D1	H2	r	s	s1	b	f	h1	d1	r2	Δ
128442	IR.620/45 S.D.16	45	16	63	60	15.5	14	15	0.5	1.7	10	M4	4	3	5.5	36
128444	IR.620/60 S.D.16	60	16	78	74	18	14	16.5	1.5	1.7	10	M4	4	3	5.5	38
128445	IR.620/65 S.D.16	65	16	89.5	80.5	22	14	20.5	1.5	1.7	10	M4	4	3	5.5	74
128446	IR.620/65 S.D.20	65	20	91.5	85	22	18.5	20.5	1.5	2.3	14	M6	5	3	7	78
128447	IR.620/73 S.D.20	73	20	99	93	23	18.5	21	2	2.3	14	M6	5	3	7	86
128448	IR.620/80 S.D.20	80	20	106	100	24	18.5	21.5	2.5	2.3	14	M6	5	3	7	90
128449	IR.620/90 S.D.20	90	20	115.5	110	25	18.5	24.5	0.5	2.3	14	M6	5	3	7	118
128450	IR.620/90 S.D.26	90	26	119	114	25	23	24.5	0.5	2.3	18	M6	7	3	9	145

IR.620-SST

STAINLESS STEEL

Code	Description	H	D	L	M	D1	H2	r	s	s1	b	f	h1	d1	r2	Δ
128462	IR.620/45-SST-S.D.16	45	16	63	60	15.5	14	15	0.5	1.7	10	M5	4	3	5.5	36
128464	IR.620/60-SST-S.D.16	60	16	78	74	18	14	16.5	1.5	1.7	10	M4	4	3	5.5	38
128465	IR.620/65-SST-S.D.16	65	16	89.5	80.5	22	14	20.5	1.5	1.7	10	M4	4	3	5.5	74
128466	IR.620/65-SST-S.D.20	65	20	91.5	85	22	18.5	20.5	1.5	2.3	14	M6	5	3	7	78
128467	IR.620/73-SST-S.D.20	73	20	99	93	23	18.5	21	2	2.3	14	M6	5	3	7	86
128468	IR.620/80-SST-S.D.20	80	20	106	100	24	18.5	21.5	2.5	2.3	14	M6	5	3	7	90
128469	IR.620/90-SST-S.D.20	90	20	115.5	110	25	18.5	24.5	0.5	2.3	14	M6	5	3	7	118
128470	IR.620/90-SST-S.D.26	90	26	119	114	25	23	24.5	0.5	2.3	18	M6	7	3	9	145

Retractable handles

Retractable mechanism Steel, with hold in both positions

SPECIFICATION

Handle
Plastic **KU**
Duroplast (Phenolic PF)

- temperature resistant up to 110 °C
- black, shiny finish
- revolving

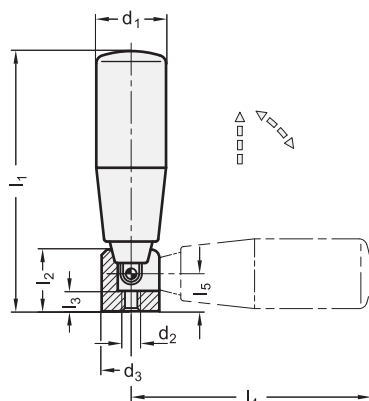
Retractable mechanism
Steel, blackened

INFORMATION

Retractable handles with hold in both positions GN 598.3 are suitable when the handle must be withdrawn during automatic operations.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



GN 598.3

Description	d1	d2	d3	l1 ≈	l2	l3	l4 ≈	l5	⚖
GN 598.3-KU-18	18	M 5	16	57	15	5	52	9.5	50
GN 598.3-KU-21	21	M 5	16	67	15	5	62	9.5	58
GN 598.3-KU-22	22	M 5	16	73	15	5	68	9.5	63
GN 598.3-KU-23	23	M 6	20	87	19.5	6	80	10.5	106
GN 598.3-KU-26	26	M 6	20	102	19.5	6	95	10.5	130
GN 598.3-KU-28	28	M 8	26	118	26	10	106	16	230

Retractable handles

Retractable mechanism Stainless Steel, with hold in both positions

SPECIFICATION

Handle
Plastic **KU**
Duroplast (Phenolic PF)

- temperature resistant up to 110 °C
- black, shiny finish
- revolving

Retractable mechanism
Stainless Steel AISI 303

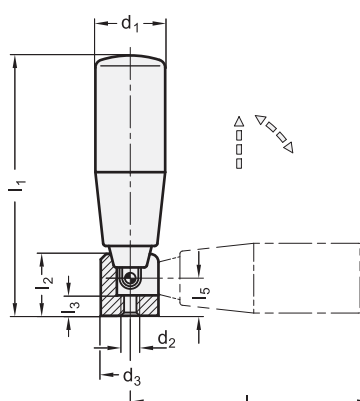
- Stud AISI 303
- Flat base Sintered Steel 316L

INFORMATION

Retractable handles GN 598.5 are suitable when the handle must be withdrawn during automatic operations.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



GN 598.5

STAINLESS STEEL

Description	d1	d2	d3	l1 ≈	l2	l3	l4 ≈	l5	⚖
GN 598.5-KU-23	23	M 6	20	87	19.5	6	80	10.5	102
GN 598.5-KU-26	26	M 6	20	102	19.5	6	95	10.5	134
GN 598.5-KU-28	28	M 8	26	118	26	10	106	16	214

Retractable handles

Retractable mechanism Steel, with hold in both positions

SPECIFICATION

Handle

Plastic **KT**

Technopolymer (Polyamide PA)

- temperature resistant up to 90 °C
- black, matt finish
- revolving

Retractable mechanism
Steel, blackened

INFORMATION

Typical in design are the retractable handles GN 798.3 with their stepped shape consisting of two cylinders giving the operator a better grip, especially when pulling the handle out from its locked position before it can be folded back into the rest position. Retractable handles GN 798.3 are suitable when the handle must be withdrawn during automatic operations.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)

Retractable handles

Retractable mechanism Stainless Steel, with hold in both positions

SPECIFICATION

Handle

Plastic **KT**

Technopolymer (Polyamide PA)

- temperature resistant up to 90 °C
- black, matt finish
- revolving

Retractable mechanism
Stainless Steel AISI 303

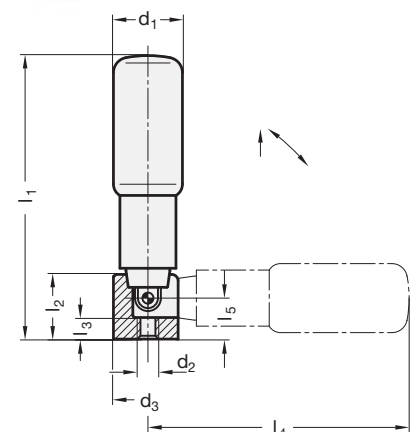
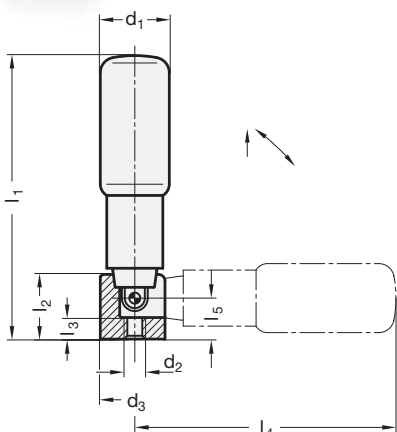
- Axle parts AISI 303
- Flat base Sintered Steel 316L

INFORMATION

Typical in design are the retractable handles GN 798.5 with their stepped shape consisting of two cylinders giving the operator a better grip, especially when pulling the handle out from its locked position before it can be folded back into the rest position. Retractable handles GN 798.5 are suitable when the handle must be withdrawn during automatic operations.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



GN 798.3

Description	d1	d2	d3	l1 ≈	l2	l3	l4 ≈	l5	l6
GN 798.3-KT-16	16	M 5	16	58	15	5	52.5	9.5	35
GN 798.3-KT-18	18	M 5	16	72.5	15	5	67	9.5	41
GN 798.3-KT-22	22	M 6	20	80.5	19.5	6	74	10.5	78
GN 798.3-KT-24	24	M 6	20	95.5	19.5	6	89	10.5	90
GN 798.3-KT-25	25	M 6	20	105.5	19.5	6	98.5	10.5	110

GN 798.5

STAINLESS STEEL

Description	d1	d2	d3	l1 ≈	l2	l3	l4 ≈	l5	l6
GN 798.5-KT-16	16	M 5	16	58	15	5	52.5	9.5	35
GN 798.5-KT-18	18	M 5	16	72.5	15	5	67	9.5	45
GN 798.5-KT-22	22	M 6	20	80.5	19.5	6	74	10.5	84
GN 798.5-KT-24	24	M 6	20	95.5	19.5	6	89	10.5	95
GN 798.5-KT-25	25	M 6	20	105.5	19.5	6	98.5	10.5	110

Safety retractable handles
automatic return to the retracted position

SPECIFICATION

Handle
Plastic **KT**
Technopolymer (Polyamide PA)
- temperature resistant up to 90 °C
- black, matt finish
- revolving
Retractable mechanism
Steel, blackened

INFORMATION

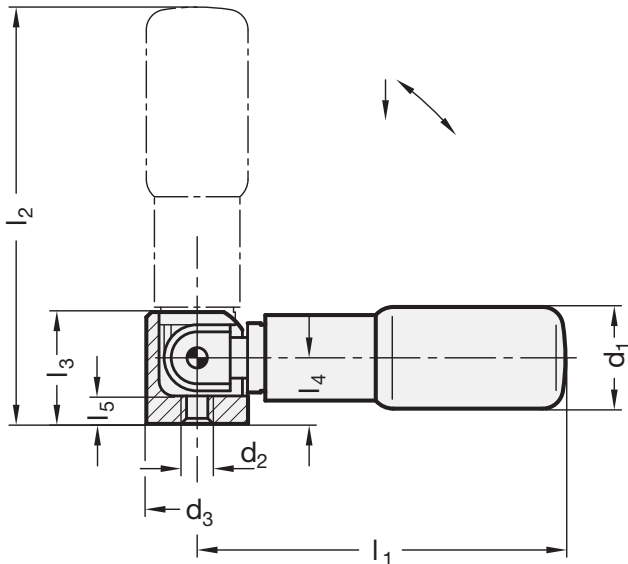
Safety retractable handles GN 798.7 are suitable for applications where the handle must not remain in the operating position. In order to bring the handle into the operating position it has to be turned first through 90° to a stop against a torsion spring and then it is pushed against spring pressure into its hold position. By maintaining the forward thrust on the handle, the handwheel can easily be rotated. When "releasing" the handle, the springs return it back to the retracted position.

ON REQUEST

- Stainless Steel-Safety retractable handles

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



GN 798.7

Description	d1	d2	d3	l1	l2 ≈	l3	l4	l5	⚖
GN 798.7-KT-22	22	M 6	20	73	82	22	13	5.5	81
GN 798.7-KT-24	24	M 6	20	88	97	22	13	5.5	91
GN 798.7-KT-25	25	M 6	20	98	107	22	13	5.5	101



Safety fold-away handles

Technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer handle, black colour, matte finish.

STANDARD EXECUTIONS

- IRS.802:** black-oxide steel double guide stud, sintered and oxidised steel flat base for embedded mounting, black-oxide steel screw.
- IRS.802-SST:** AISI 303 stainless steel double guide stud, sintered AISI 303 stainless steel flat base for embedded mounting, AISI 303 stainless steel screw.

FEATURES AND APPLICATIONS

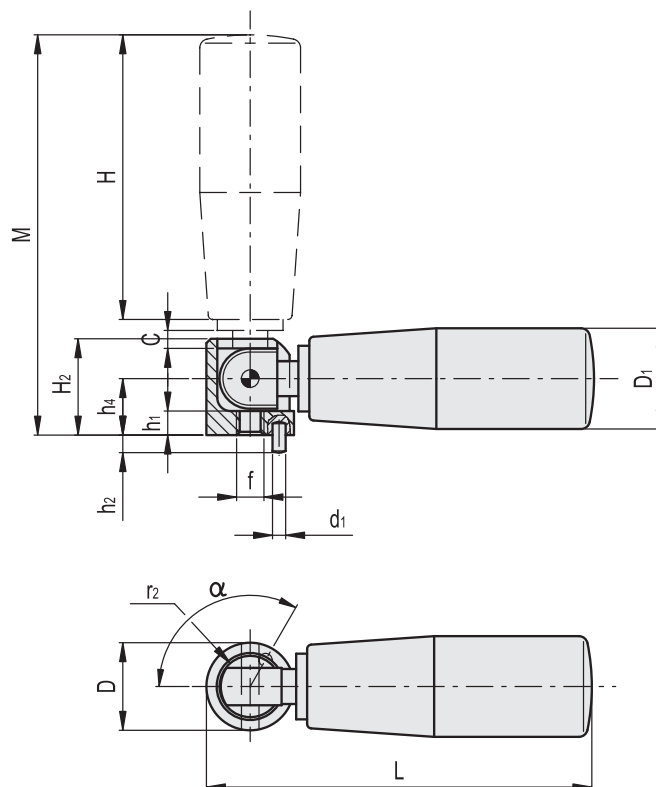
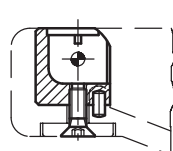
Handle pivots freely during operation: a system of coaxial bushings compensates return spring load.

The safety fold-away handle (ELESA patent) is provided with a special return mechanism "Fold-O-matic"® which automatically folds the handle into the retracted position when the operation has been completed. A light pressure on the handle in the direction of the handwheel axes is enough to bring it in the operation position allowing the operator to turn the handwheel freely.



ELESA Original design

Normal assembly example with embedded base



IRS.802

Code	Description	H	D	L	M	D1	H2	C	f	h1	h4	d1	h2-0.2	r2	α	Δ
28471	IRS.802/65 FOLD-O-MATIC	65	20	88	91	23	22	4	M6	5.5	13	3	3	7	120°	90
28475	IRS.802/80 FOLD-O-MATIC	80	20	104	107	26	22	4	M6	5.5	13	3	3	7	120°	100
28481	IRS.802/90 FOLD-O-MATIC	90	20	114	117	28	22	4	M6	5.5	13	3	3	7	120°	110

IRS.802-SST

STAINLESS STEEL

Code	Description	H	D	L	M	D1	H2	C	f	h1	h4	d1	h2-0.2	r2	α	Δ
28477	IRS.802/80-FOLD-O-MATIC-SST	80	20	104	107	26	22	4	M6	5.5	13	3	3	7	120°	101
28483	IRS.802/90-FOLD-O-MATIC-SST	90	20	114	117	28	22	4	M6	5.5	13	3	3	7	120°	111

Safety fold-away handles

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer handle, black colour, matte finish.

STANDARD EXECUTIONS

- **IRS.820:** black-oxide steel stud, glass-fibre reinforced technopolymer flat base for embedded mounting, black colour, black-oxide steel screw.
- **IRS.820-SST:** AISI 303 stainless steel double guide stud, glass-fibre reinforced technopolymer flat base for embedded mounting, black colour, AISI 303 stainless steel screw.

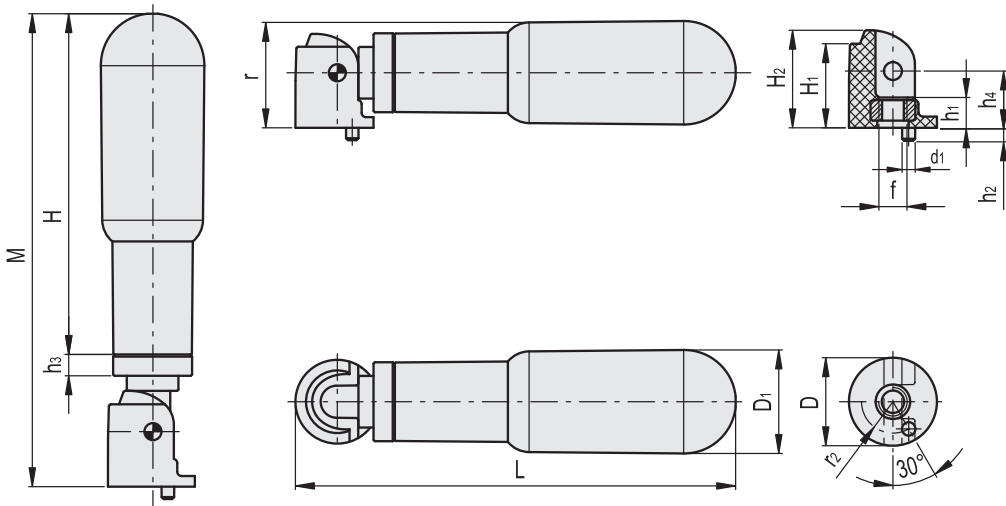
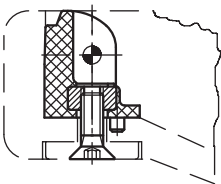
FEATURES AND APPLICATIONS

Handle pivots freely during operation: a system of coaxial bushings compensates return spring load. The safety fold-away handle (ELESA patent) is provided with a special return mechanism "Fold-O-matic"® which automatically folds the handle into the retracted position when the operation has been completed. A light pressure on the handle in the direction of the handwheel axes is enough to bring it in the operation position allowing the operator to turn the handwheel freely.



ELESA Original design

Normal assembly example with embedded base



IRS.820

Code	Description	H	D	L	M	D1	H1	H2	r	f	h1	h2	h3	h4	d1	r2	⚖
28491	IRS.820/65 FOLD-O-MATIC	65	20	88	95	22	19	22	24	M6	7	3	4	13	3	7	73
28492	IRS.820/80 FOLD-O-MATIC	80	20	103	110	24	19	22	25	M6	7	3	4	13	3	7	80
28493	IRS.820/90 FOLD-O-MATIC	90	20	112	119	25	19	22	26	M6	7	3	4	13	3	7	87

IRS.820-SST

STAINLESS STEEL

Code	Description	H	D	L	M	D1	H1	H2	r	f	h1	h2	h3	h4	d1	r2	⚖
28496	IRS.820/65 FOLD-O-MATIC-SST	65	20	88	95	22	19	22	24	M6	7	3	4	13	3	7	73
28497	IRS.820/80 FOLD-O-MATIC-SST	80	20	103	110	24	19	22	25	M6	7	3	4	13	3	7	80
28498	IRS.820/90 FOLD-O-MATIC-SST	90	20	112	119	25	19	22	26	M6	7	3	4	13	3	7	87



Scale rings

SPECIFICATION

Types

Type **MCR**: matt chrome plated

Type **MCRS**: matt chrome plated, standard scale 0...90,

100 graduations, acc. scale scheme d₁/100 A RA 0-10-20...90/10

Bore codes

- Version **B**: without friction ring
- Version **R**: with friction ring

Steel

- Knurl milled
- Scale lug d₁ fine turned
- blank (standard version)
- matt chrome plated **MCR**
- matt chrome plated with standard scale **MCRS**

Scale

engraved with laser precision, black

Clamp ring Rubber

Friction ring Polyamide

INFORMATION

The non-wearing friction ring ensures perfect engagement of the scale ring when re-aligning the spindle. In addition it allows the setting of the scale ring on a static shaft.

Also this scale rings can be supplied with any type of graduation.

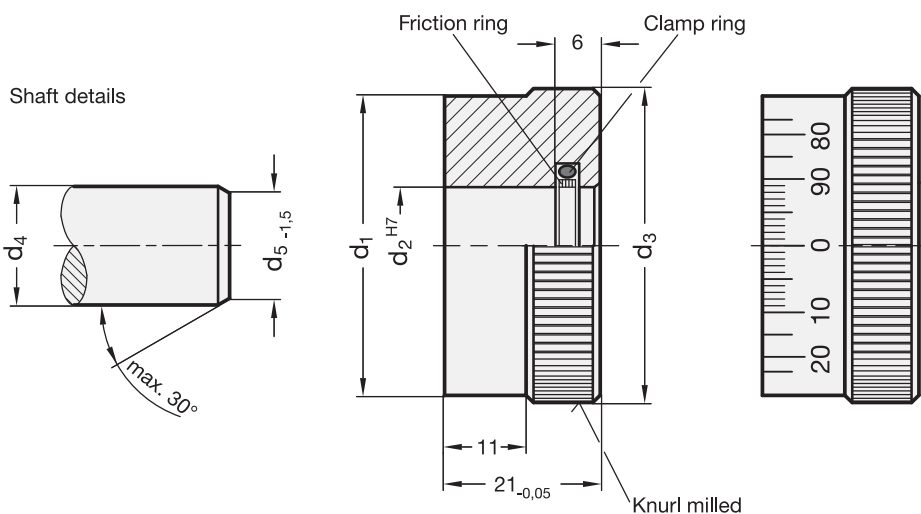
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 164

Description	d1 ±0.02	d2 H7	d3	d4 -0.02/-0.05	d5	⚖
GN 164-30-B12	30	12	31.7	12	10.5	98
GN 164-30-B14	30	14	31.7	14	10.5	90
GN 164-40-B14	40	14	41.3	14	12.5	180
GN 164-40-B16	40	16	41.3	16	12.5	172
GN 164-50-B16	50	16	51.8	16	14.5	292
GN 164-50-B18	50	18	51.8	18	14.5	282
GN 164-60-B18	60	18	61.4	18	16.5	420
GN 164-60-B20	60	20	61.4	20	16.5	413
GN 164-30-R12	30	12	31.7	12	10.5	100
GN 164-30-R14	30	14	31.7	12	10.5	92
GN 164-40-R14	40	14	41.3	14	12.5	182
GN 164-40-R16	40	16	41.3	16	12.5	174
GN 164-50-R16	50	16	51.8	16	14.5	293
GN 164-50-R18	50	18	51.8	18	14.5	283
GN 164-60-R18	60	18	61.4	18	16.5	424
GN 164-60-R20	60	20	61.4	20	16.5	413

GN 164-MCR/MCRS

Description	d1 ±0.02	d2 H7	d3	d4 -0.02/-0.05	d5	⚖
GN 164-30-B12-MCR	30	12	31.7	12	10.5	98
GN 164-30-B14-MCR	30	14	31.7	14	10.5	90
GN 164-40-B14-MCR	40	14	41.3	14	12.5	180
GN 164-40-B16-MCR	40	16	41.3	16	12.5	172
GN 164-50-B16-MCR	50	16	51.8	16	14.5	292
GN 164-50-B18-MCR	50	18	51.8	18	14.5	281
GN 164-60-B18-MCR	60	18	61.4	18	16.5	422
GN 164-60-B20-MCR	60	20	61.4	20	16.5	413
GN 164-30-B12-MCRS	30	12	31.7	12	10.5	98
GN 164-30-B14-MCRS	30	14	31.7	14	10.5	90
GN 164-40-B14-MCRS	40	14	41.3	14	12.5	180
GN 164-40-B16-MCRS	40	16	41.3	16	12.5	172
GN 164-50-B16-MCRS	50	16	51.8	16	14.5	292
GN 164-50-B18-MCRS	50	18	51.8	18	14.5	281
GN 164-60-B18-MCRS	60	18	61.4	18	16.5	422
GN 164-60-B20-MCRS	60	20	61.4	20	16.5	413
GN 164-30-R12-MCR	30	12	31.7	12	10.5	100
GN 164-30-R14-MCR	30	14	31.7	14	10.5	92
GN 164-40-R14-MCR	40	14	41.3	14	12.5	184
GN 164-40-R16-MCR	40	16	41.3	16	12.5	174
GN 164-50-R16-MCR	50	16	51.8	16	14.5	293
GN 164-50-R18-MCR	50	18	51.8	18	14.5	285
GN 164-60-R18-MCR	60	18	61.4	18	16.5	424
GN 164-60-R20-MCR	60	20	61.4	20	16.5	413
GN 164-30-R12-MCRS	30	12	31.7	12	10.5	100
GN 164-30-R14-MCRS	30	14	31.7	14	10.5	92
GN 164-40-R14-MCRS	40	14	41.3	14	12.5	162
GN 164-40-R16-MCRS	40	16	41.3	16	12.5	174
GN 164-50-R16-MCRS	50	16	51.8	16	14.5	293
GN 164-50-R18-MCRS	50	18	51.8	18	14.5	283
GN 164-60-R18-MCRS	60	18	61.4	18	16.5	424
GN 164-60-R20-MCRS	60	20	61.4	20	16.5	413



Graduations

"How to order"

Graduations can be laser-engraved on the plain surface of the control knobs and on plain flanges with high-precision and perfect readability. The graduations, consisting of marks and numbers, are available as indicated in the diagram here below.

All the graduations are available for minimum quantities that depend on the size of the knob and on the type of graduation chosen. These quantities are determined during the quotation analysis.

Graduations can be engraved on the following elements:

- GN 164 (see page 592)
- GN 726.1 (see page 600)
- GN 726.2 (see page 601)
- IZP. (see page 608)
- IZN.380 (see page 606)
- F.N - F.K. -F.GS (see page 609)
- GN 264 (see page 597)
- GN 436.1 (see page 603)
- GN 723.4 (see page 604)
- GN 736.1 (see page 617)
- GN 727 (see page 620)
- GN 200 (see page 622)
- GN 700 (see page 624)

To create graduations on other elements, special graduations, symbols or personalisations, please contact the ELESa+GANTER sales departments.

Order example

How to order a graduation on a scale ring GN 164 knob with:

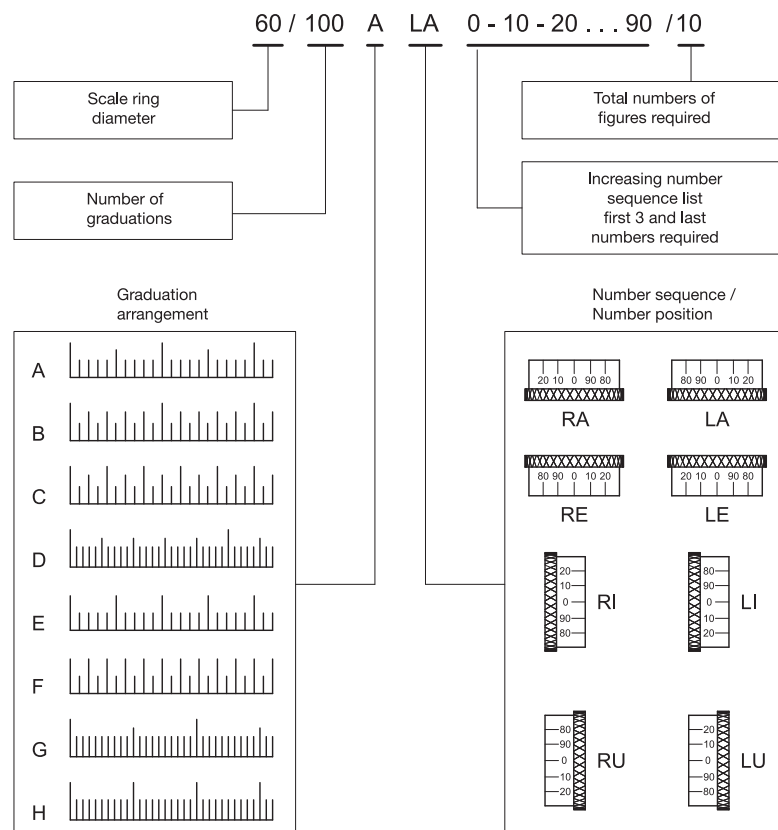
- diameter 60 mm
- 100 marks
- graduation type A
- sequence/graduation position type LA
- figures engraved from 0 to 90 for a total of 10 numbers.

Information

The size of numbers and length of graduations depend on the number of graduations, quantity of numbers and the scale ring diameter.

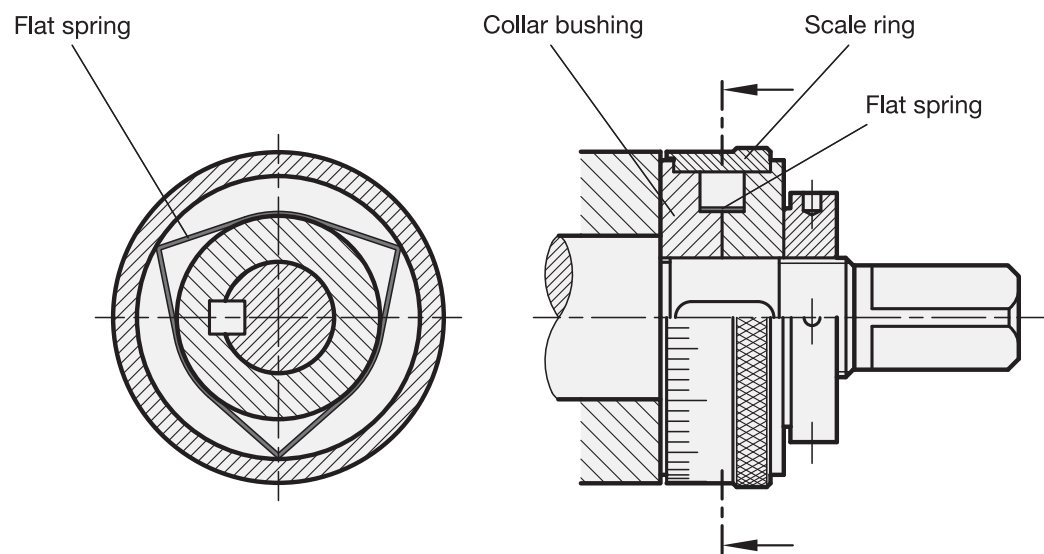


Graduation examples



Scaling sets

Assembly and installation example



A complete scale set is composed of:

1 Scale ring	2 Collar bushings	3 Flat springs
GN 264-30	GN 268-24-K12	GN 374-0,3-10
GN 264-40	GN 268-32-K12	GN 374-0,4-10
GN 264-40	GN 268-32-K14	GN 374-0,4-10
GN 264-40	GN 268-32-K16	GN 374-0,4-10
GN 264-60	GN 268-50-K12	GN 374-0,6-10
GN 264-60	GN 268-50-K16	GN 374-0,6-10
GN 264-60	GN 268-50-K20	GN 374-0,6-10
GN 264-60	GN 268-50-K28	GN 374-0,6-10
GN 264-80	GN 268-68-K12	GN 374-0,8-10
GN 264-80	GN 268-68-K14	GN 374-0,8-10
GN 264-80	GN 268-68-K16	GN 374-0,8-10
GN 264-80	GN 268-68-K22	GN 374-0,8-10

Information

The scale set is used for the precision setting of all machine components which are adjustable via spindles.

All individual parts are made of steel. The flat springs are a perfect and virtually non-wearing connecting link between scale ring and spindle or collar bushings. When adjusting the spindle, they ensure that the scale ring is safely driven without impairing the setting options of the ring when the shaft is at rest.

The individual parts belonging to a scale set must be ordered separately.



6
Control elements

Flat springs

Accessories for scaling sets

SPECIFICATION

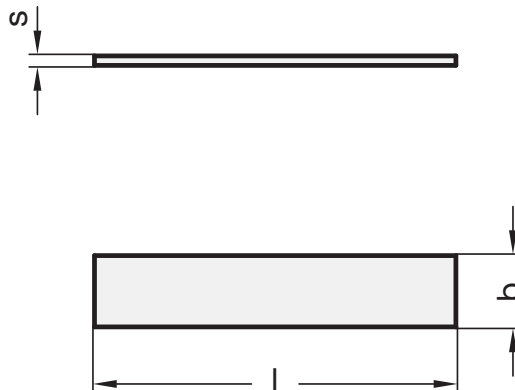
Steel
blank

INFORMATION

Flat springs GN 374 present an ideal and practical connection piece between scale ring and shaft resp. collar bushes.
When adjusting the shaft, the flat springs guarantee the move of the scale ring without affecting the possibility of adjustment of the scale ring when the shaft does not turn.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 374

Description	s	b	l	
GN 374-0,3-10	0.3	10	21	1
GN 374-0,4-10	0.4	10	29	1
GN 374-0,6-10	0.6	10	45	3
GN 374-0,8-10	0.8	10	60	4

Graduated rings

Steel, matt chrome plated / blank

SPECIFICATION

Types

- Type **MCR**: matt chrome plated
- Type **MCRS**: matt chrome plated, standard scale 0...90, 100 graduations, acc. scale scheme d1/100 A RA 0-10-20...90/10
- Steel
- Scale lug d1 fine turned
- blank (standard version)
- matt chrome plated **MCR**
- matt chrome plated with standard scale **MCRS**

Scale
engraved with laser precision, black

INFORMATION

Besides the standard scale (Type MCRS) the scale rings can be supplied with any type of graduation. It is suggested to use the matt chrome plated version (MCR) so that a nice discrepancy in colour is given.

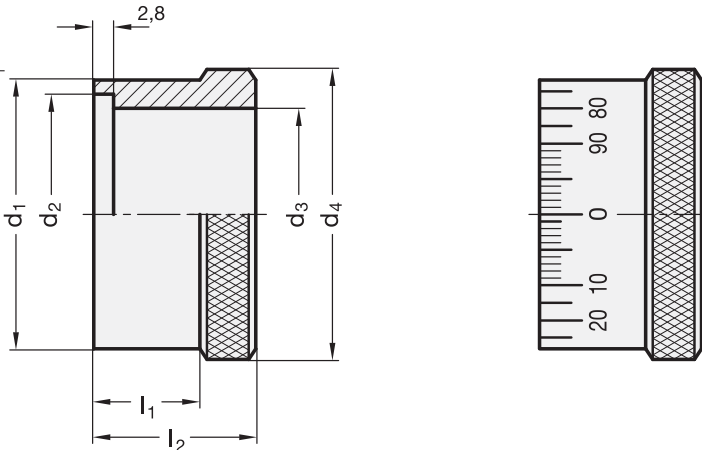
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order Graduations" (see page 594).

ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 264

Description	d1	d2	d3 H7	d4	l1	l2	Scaling set consists of: 1 Scale ring 2 Collar bushes	Scaling set consists of: 1 Scale ring 3 Flat springs	⚖
GN 264-30	30	27	24	33	16	23.7	GN 268-24-K...	GN 374-0.3-10	49
GN 264-40	40	36	32	43	16	23.7	GN 268-32-K...	GN 374-0.4-10	86
GN 264-60	60	55	50	63	16	25.7	GN 268-50-K...	GN 374-0.6-10	177
GN 264-80	80	75	68	83	16	25.7	GN 268-68-K...	GN 374-0.8-10	282

GN 264-MCR/MCRS

Description	d1	d2	d3 H7	d4	l1	l2	Scaling set consists of: 1 Scale ring 2 Collar bushes	Scaling set consists of: 1 Scale ring 3 Flat springs	⚖
GN 264-30-MCR	30	27	24	33	16	23.7	GN 268-24-K...	GN 374-0.3-10	58
GN 264-30-MCRS	30	27	24	33	16	23.7	GN 268-24-K...	GN 374-0.3-10	58
GN 264-40-MCR	40	36	32	43	16	23.7	GN 268-32-K...	GN 374-0.4-10	86
GN 264-40-MCRS	40	36	32	43	16	23.7	GN 268-32-K...	GN 374-0.4-10	86
GN 264-60-MCR	60	55	50	63	16	25.7	GN 268-50-K...	GN 374-0.6-10	177
GN 264-60-MCRS	60	55	50	63	16	25.7	GN 268-50-K...	GN 374-0.6-10	177
GN 264-80-MCR	80	75	68	83	16	25.7	GN 268-68-K...	GN 374-0.8-10	282
GN 264-80-MCRS	80	75	68	83	16	25.7	GN 268-68-K...	GN 374-0.8-10	282

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Control elements

Collar bushes

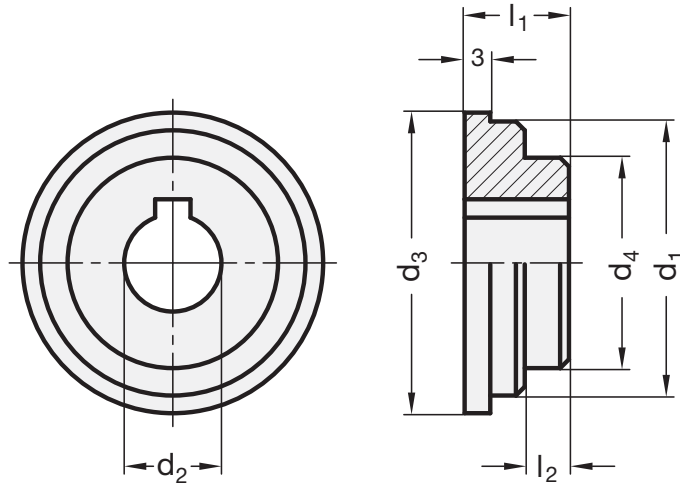
Accessories for scaling sets

SPECIFICATION

Steel
blank

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)



GN 268

Description	d1 f7	d2 H7	d3	d4	l1	l2	Scaling set consists of: 2 Collar bushes 1 Scale ring	Scaling set consists of: 2 Collar bushes 3 Flat springs	
GN 268-24-K12	24	K 12	26.7	18	13.5	5.5	GN 264-30	GN 374-0.3-10	28
GN 268-32-K12	32	K 12	35.7	25	13.5	5.5	GN 264-40	GN 374-0.4-10	61
GN 268-32-K14	32	K 14	35.7	25	13.5	5.5	GN 264-40	GN 374-0.4-10	57
GN 268-32-K16	32	K 16	35.7	25	13.5	5.5	GN 264-40	GN 374-0.4-10	51
GN 268-50-K12	50	K 12	54.7	38	14.5	5.5	GN 264-60	GN 374-0.6-10	180
GN 268-50-K16	50	K 16	54.7	38	14.5	5.5	GN 264-60	GN 374-0.6-10	169
GN 268-50-K20	50	K 20	54.7	38	14.5	5.5	GN 264-60	GN 374-0.6-10	153
GN 268-50-K28	50	K 28	54.7	38	14.5	5.5	GN 264-60	GN 374-0.6-10	119
GN 268-68-K12	68	K 12	74.7	50	14.5	5.5	GN 264-80	GN 374-0.8-10	334
GN 268-68-K14	68	K 14	74.7	50	14.5	5.5	GN 264-80	GN 374-0.8-10	332
GN 268-68-K16	68	K 16	74.7	50	14.5	5.5	GN 264-80	GN 374-0.8-10	325
GN 268-68-K22	68	K 22	74.7	50	14.5	5.5	GN 264-80	GN 374-0.8-10	304

Knurled Control knobs

Aluminium

SPECIFICATION

Types

- Type **N**: Cover neutral
- Type **M**: Cover with indicator point

Identification no.

- No. **1**: with grub screw
- No. **2**: with collet

Aluminium
anodized, black

Cover
Plastic, light grey

Collet / hexagon nut
Brass

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

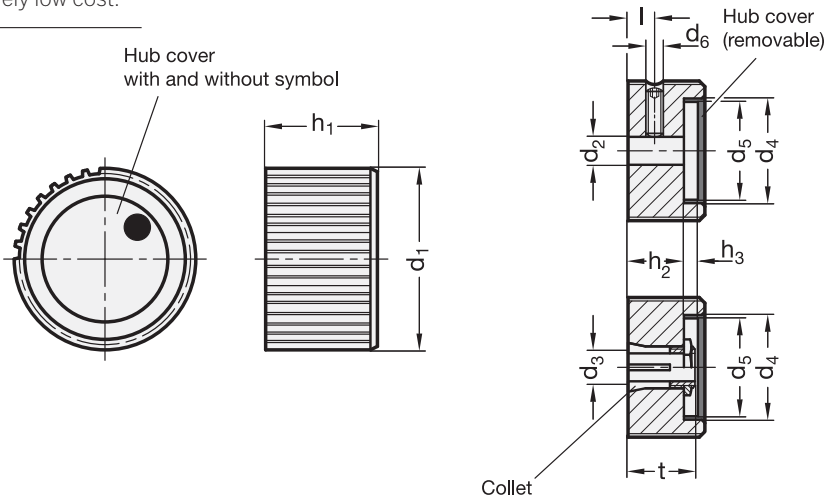


INFORMATION

The light grey cover of the control knobs GN 726 shrouds the fixing components as well as the shaft end. The cover also lends itself for a logo or other symbols.
Made from an aluminum extrusion allows the manufacture of **customized solutions** in existing diameters at relatively low cost.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 726

Description	d1	d2 H8	d3	d4	d5	d6	h1	h2	h3	l	t	Δ
GN 726-22-B5-N-1	22	B 5	-	16	14	M 4	15	9	4.3	5	-	11
GN 726-27-B6-N-1	27	B 6	-	20	18	M 4	17	11	4.3	5.5	-	21
GN 726-34-B6-N-1	34	B 6	-	25	23	M 5	20	14	4.2	7	-	39
GN 726-34-B8-N-1	34	B 8	-	25	23	M 5	20	14	4.2	7	-	38
GN 726-42-B8-N-1	42	B 8	-	32	30	M 5	23	17	4	8.5	-	69
GN 726-42-B10-N-1	42	B 10	-	32	30	M 5	23	17	4	8.5	-	67
GN 726-22-B5-M-1	22	B 5	-	16	14	M 4	15	9	4.3	5	-	11
GN 726-27-B6-M-1	27	B 6	-	20	18	M 4	17	11	4.3	5.5	-	21
GN 726-34-B6-M-1	34	B 6	-	25	23	M 5	20	14	4.2	7	-	39
GN 726-34-B8-M-1	34	B 8	-	25	23	M 5	20	14	4.2	7	-	38
GN 726-42-B8-M-1	42	B 8	-	32	30	M 5	23	17	4	8.5	-	69
GN 726-42-B10-M-1	42	B 10	-	32	30	M 5	23	17	4	8.5	-	67
GN 726-27-Z6-N-2	27	-	Z 6	20	18	-	17	11	4.3	-	14	23
GN 726-34-Z8-N-2	34	-	Z 8	25	23	-	20	14	4.2	-	17	42
GN 726-42-Z10-N-2	42	-	Z 10	32	30	-	23	17	4	-	20	73
GN 726-27-Z6-M-2	27	-	Z 6	20	18	-	17	11	4.3	-	14	23
GN 726-34-Z8-M-2	34	-	Z 8	25	23	-	20	14	4.2	-	17	42
GN 726-42-Z10-M-2	42	-	Z 10	32	30	-	23	17	4	-	20	73

Knurled Control knobs

Aluminium

SPECIFICATION

Types

- Type **A**: with arrow
- Type **B**: neutral, without indicator point or scale
- Type **S**: with scale 0...9, 20 graduations

Identification no.

- No. **1**: with grub screw
- No. **2**: with collet

Aluminium
anodized, black

Scale (Type S) and arrow (Type A)
white, engraved with laser precision

Cover
Plastic, light grey

Collet / hexagon nut
Brass

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point



INFORMATION

The light grey cover of the control knobs GN 726.1 shrouds the fixing components as well as the shaft end. The cover also lends itself for a logo or other symbols.

The collet version permits a simple adjustment of the types with scale or arrow.

Scale and arrow on the control knobs are indelibly marked and easily legible.

Besides the standard scale (Type S) the control knobs can be supplied with any type of graduation.

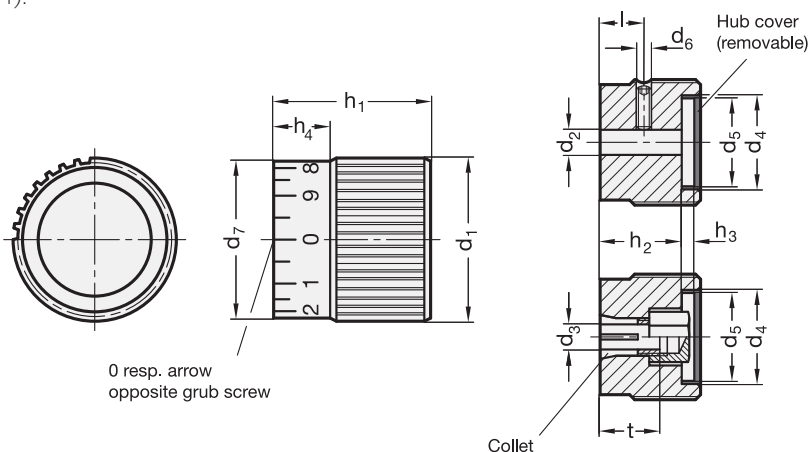
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



* Complete with types of the Knurled Control knobs (A, B or S)

A with arrow **B** neutral **S** with scale

0 resp. arrow
opposite grub screw

GN 726.1

Description	d1	d2 H8	d3	d4	d5	d6	d7	h1	h2	h3	h4	l	t	⚖
GN 726.1-22-B5-*-1	22	B 5	-	16	14	M 4	20	22	16	4.3	8	12.5	-	17
GN 726.1-27-B6-*-1	27	B 6	-	20	18	M 4	25	26	20	4.3	9	14	-	32
GN 726.1-34-B6-*-1	34	B 6	-	25	23	M 5	32	30	24	4.2	10	15	-	59
GN 726.1-34-B8-*-1	34	B 8	-	25	23	M 5	32	30	24	4.2	10	15	-	58
GN 726.1-42-B8-*-1	42	B 8	-	32	30	M 5	40	34	28	4	11	16	-	102
GN 726.1-42-B10-*-1	42	B 10	-	32	30	M 5	40	34	28	4	11	16	-	101
GN 726.1-27-Z6-*-2	27	-	Z 6	20	18	-	25	26	20	4.3	9	14	14	37
GN 726.1-34-Z8-*-2	34	-	Z 8	25	23	-	32	30	24	4.2	10	15	17	65
GN 726.1-42-Z10-*-2	42	-	Z 10	32	30	-	40	34	28	4	11	16	20	112

Knurled Control knobs

Aluminum

SPECIFICATION

Types

- Type **A**: with arrow
- Type **B**: neutral, without indicator point or scale
- Type **S**: with scale 0...9, 20 graduations

Identification no.

- No. **1**: with grub screw
- No. **2**: with collet

Aluminium
anodized, black

Scale ring
Plastic, black
pressed on

Arrow (Type A)
and scale (Type S)
white, engraved with laser precision

Cover
Plastic, light grey

Collet / hexagon nut
Brass

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

INFORMATION

The light grey cover of the control knobs GN 726.2 shrouds the fixing components as well as the shaft end. The cover also lends itself for a logo or other symbols.

The collet version permits a simple adjustment of the types with scale or arrow.

Besides the standard scale (Type S) the control knobs can be supplied with any type of graduation.

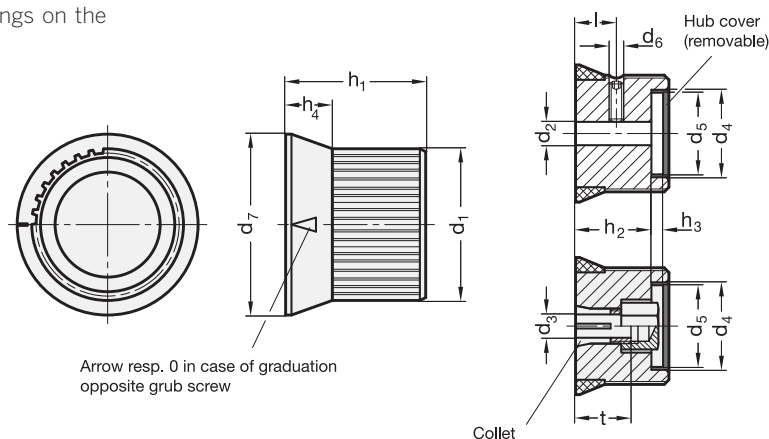
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



* Complete with types of the Knurled Control knobs (A, B or S)

A with arrow
B neutral
S with scale

GN 726.2

Description	d1	d2 H8	d3	d4	d5	d6	d7	h1	h2	h3	h4	l	t	
GN 726.2-22-B5-*-1	22	B 5	-	16	14	M 4	27.5	22	16	4.3	8	12.5	-	20
GN 726.2-27-B6-*-1	27	B 6	-	20	18	M 4	33.5	26	20	4.3	9	14	-	36
GN 726.2-34-B6-*-1	34	B 6	-	25	23	M 5	41	30	24	4.2	10	15	-	64
GN 726.2-34-B8-*-1	34	B 8	-	25	23	M 5	41	30	24	4.2	10	15	-	63
GN 726.2-42-B8-*-1	42	B 8	-	32	30	M 5	50	34	28	4	11	16	-	109
GN 726.2-42-B10-*-1	42	B 10	-	32	30	M 5	50	34	28	4	11	16	-	108
GN 726.2-27-Z6-*-2	27	-	Z 6	20	18	-	33.5	26	20	4.3	9	-	14	41
GN 726.2-34-Z8-*-2	34	-	Z 8	25	23	-	41	30	24	4.2	10	-	17	70
GN 726.2-42-Z10-*-2	42	-	Z 10	32	30	-	50	34	28	4	11	-	20	119

Stainless Steel-Control knobs

SPECIFICATION

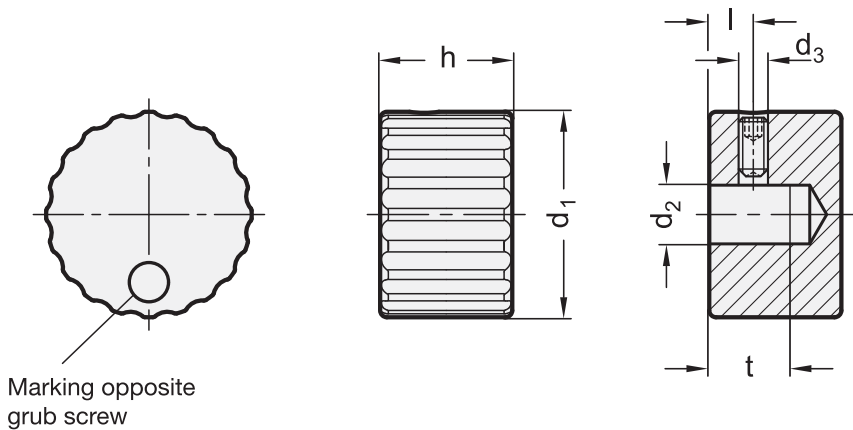
Types

- Type **N**: without indicator point
- Type **M**: with indicator point

Stainless Steel AISI 304
matt shot-blasted **MT**

Indicator point (Type M)
engraved with laser precision

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point



GN 436

STAINLESS STEEL

Description	d1	d2 H8	d3	h	l	t min.	⚖
GN 436-24-B5-N-MT	24	B 5	M 4	16	4	10	53
GN 436-24-B6-N-MT	24	B 6	M 4	16	4	10	52
GN 436-28-B6-N-MT	28	B 6	M 4	18	4	11	80
GN 436-28-B8-N-MT	28	B 8	M 4	18	4	11	78
GN 436-24-B5-M-MT	24	B 5	M 4	16	4	10	53
GN 436-24-B6-M-MT	24	B 6	M 4	16	4	10	52
GN 436-28-B6-M-MT	28	B 6	M 4	18	4	11	80
GN 436-28-B8-M-MT	28	B 8	M 4	18	4	11	78

Stainless Steel-Knurled Control knobs

SPECIFICATION

Types

- Type **A**: with arrow
- Type **B**: neutral, without arrow or scale
- Type **S**: with standard scale 0...9, 20 graduations

Stainless Steel AISI 304

matt shot-blasted **MT**

Scale (Type S) and arrow (Type A)
engraved with laser precision

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

INFORMATION

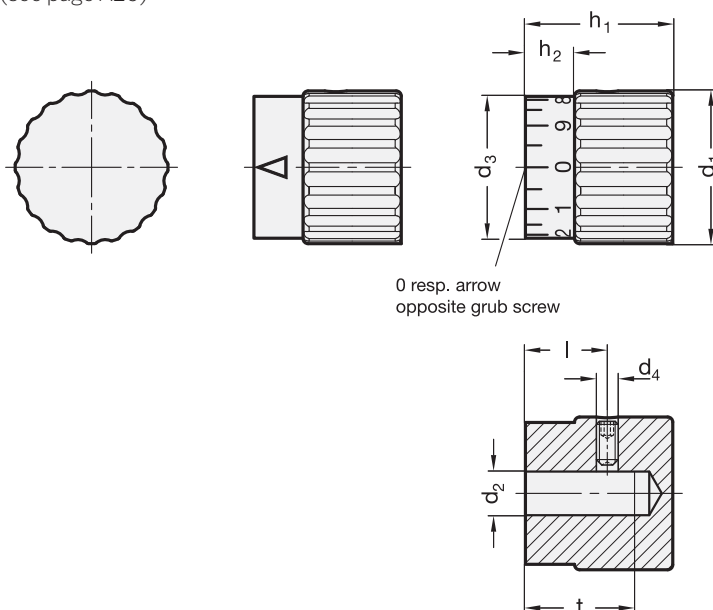
Scale and arrow on the Stainless Steel-control knobs GN 436.1 are indelibly marked and easily legible.

Besides the standard scale (Type S) the control knobs can be supplied with any type of graduation.

Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale knobs on the order sheet "How to order graduations" (see page 594).

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



GN 436.1

STAINLESS STEEL

Description	d1	d2 H8	d3	d4	h1	h2	l	t min.	⚖
GN 436.1-24-B5-A-MT	24	B 5	22	M 4	24	8	12	18	80
GN 436.1-24-B6-A-MT	24	B 6	22	M 4	24	8	12	18	80
GN 436.1-28-B6-A-MT	28	B 6	26	M 4	27	9	13	20	116
GN 436.1-28-B8-A-MT	28	B 8	26	M 4	27	9	13	20	115
GN 436.1-24-B5-B-MT	24	B 5	22	M 4	24	8	12	18	80
GN 436.1-24-B6-B-MT	24	B 6	22	M 4	24	8	12	18	79
GN 436.1-28-B6-B-MT	28	B 6	26	M 4	27	9	13	20	116
GN 436.1-28-B8-B-MT	28	B 8	26	M 4	27	9	13	20	114
GN 436.1-24-B5-S-MT	24	B 5	22	M 4	24	8	12	18	84
GN 436.1-24-B6-S-MT	24	B 6	22	M 4	24	8	12	18	83
GN 436.1-28-B6-S-MT	28	B 6	26	M 4	27	9	13	20	120
GN 436.1-28-B8-S-MT	28	B 8	26	M 4	27	9	13	20	119



Knurled Control knobs

Aluminium

SPECIFICATION

Types

- Type **N**: neutral
- Type **M**: with arrow
- Type **S**: with scale 0...9, 20 graduations

Aluminium
anodized, natural colour

Scale (Type S) and arrow (Type M)
engraved with laser precision

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

INFORMATION

Control knobs GN 723.4 can be combined with reference flanges GN 723.3 which offer the following advantages:

- they are provided with a reference mark relating to the scale on the control knobs
- they give additional support to the control shaft.
- the version with a friction ring prevents unexpected movement through vibration.

Scale and arrow on the control knobs are indelibly marked and easily legible. Besides the standard scale (Type S) they can be supplied with any type of graduation.

Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale knobs on the order sheet "How to order graduations" (see page 594).

ACCESSORY

- Reference flanges GN 723.3 (see page 605) are to be ordered separately)

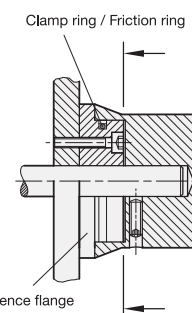
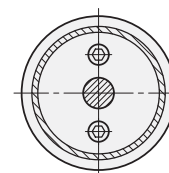
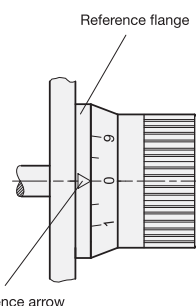
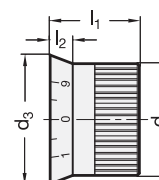
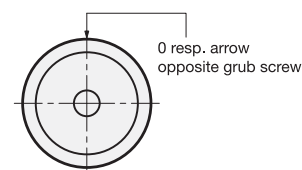
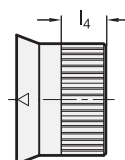
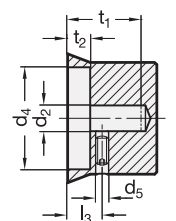
ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

CONTROL KNOB GN 723.4 COMBINED WITH A REFERENCE FLANGE GN 723.3



* Complete with types of the Knurled Control knobs (N, M or S)

N **M** **S**
neutral with arrow with scale

GN 723.4

Description	d1	d2 H8	d3 -0.2	d4	d5	l1	l2	l3	l4	t1	t2	Weight
GN 723.4-27-B6-*	27	B 6	33.5	23.5	M 4	25.5	7.5	10.5	12.5	23.5	7.5	38
GN 723.4-34-B6-*	34	B 6	41	29.5	M 5	29.5	9.5	13.5	13	26.5	9.5	60
GN 723.4-34-B8-*	34	B 8	41	29.5	M 5	29.5	9.5	13.5	13	26.5	9.5	53
GN 723.4-42-B8-*	42	B 8	50	37.5	M 5	33.5	10.5	15.5	15	30.5	11.5	100
GN 723.4-42-B10-*	42	B 10	50	37.5	M 5	33.5	10.5	15.5	15	30.5	11.5	99

Reference flanges

for control knobs GN 723.4

SPECIFICATION

Types

- Type **A**: with friction ring
- Type **B**: without friction ring

Aluminium
anodized, black

Reference arrow
white, engraved with laser precision

Clamping ring

Rubber

Friction ring

Polyamide

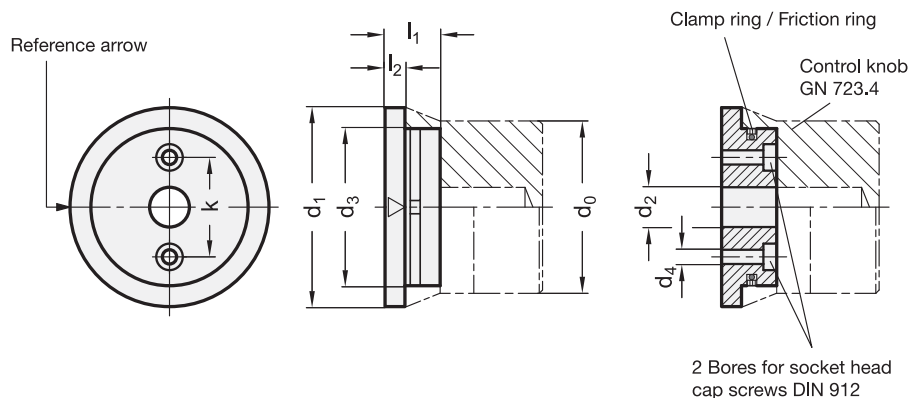
INFORMATION

Reference flanges GN 723.3 are used together with control knobs GN 723.4 which offer the following advantages:

- they have a reference mark to line up with the control knob scale,
- they offer additional support for the control shaft.
- the version with friction ring prevents an unexpected movement of the control knob by vibration.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 723.3

Description	d0	d1	d2 H8	d3 -0.1	d4	k	l1	l2	⚖
GN 723.3-33,5-B6-A	27	33.5	B 6	23.3	3.4	13	11.2	4	16
GN 723.3-41-B6-A	34	41	B 6	29.3	3.4	18	14.2	5	33
GN 723.3-41-B8-A	34	41	B 8	29.3	3.4	18	14.2	5	32
GN 723.3-50-B8-A	42	50	B 8	37.3	4.5	24	16.2	5	63
GN 723.3-50-B10-A	42	50	B 10	37.3	4.5	24	16.2	5	55
GN 723.3-33,5-B6-B	27	33.5	B 6	23.3	3.4	13	11.2	4	15
GN 723.3-41-B6-B	34	41	B 6	29.3	3.4	18	14.2	5	31
GN 723.3-41-B8-B	34	41	B 8	29.3	3.4	18	14.2	5	30
GN 723.3-50-B8-B	42	50	B 8	37.3	4.5	24	16.2	5	55
GN 723.3-50-B10-B	42	50	B 10	37.3	4.5	24	16.2	5	51



Knurled control knobs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.

BOSS CAP

Acetal resin based (POM) technopolymer, light-grey colour, push-fit assembly, removable by pressing on the outer edge (ELESA original design).

STANDARD EXECUTIONS

- Black-oxide steel boss, H7 reamed hole.
Assembly by means of a keyway or a transversal pin in the semi-machined hole f or a set screw (redrill and tap hole f).
- **IZN.380:** plain knob.
 - **IZN.380+K:** knob with matte anodised aluminium flange, triangular black index.
 - **IZN.380+FGS:** knob with matte anodised aluminium flange, black graduation (marks and numbers).
 - FGS 10/40 = 40 marks, numbering from 0 to 9 increases as the knob is turned clockwise.
 - FGS 10/100 = 100 marks, numbering from 0 to 9 increases as the knob is turned clockwise.

For other numbering (see Graduations on page 594).

ACCESSORIES ON REQUEST

Ball and spring for clicking operation to be fitted in the assembly hole for knobs with diameter D ≥ 48 mm, available only for IZN.380, (see ball and spring MS. on page 610).

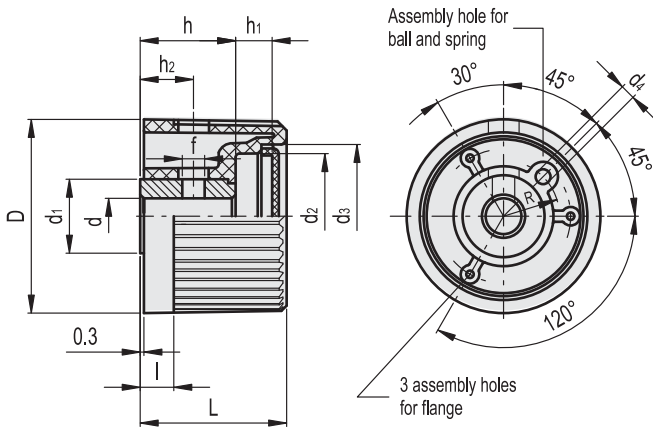
SPECIAL EXECUTIONS ON REQUEST

On the surface of the boss cap words, marks, graphic symbols, etc... can be tampoprinted in colours.



ELESA Original design

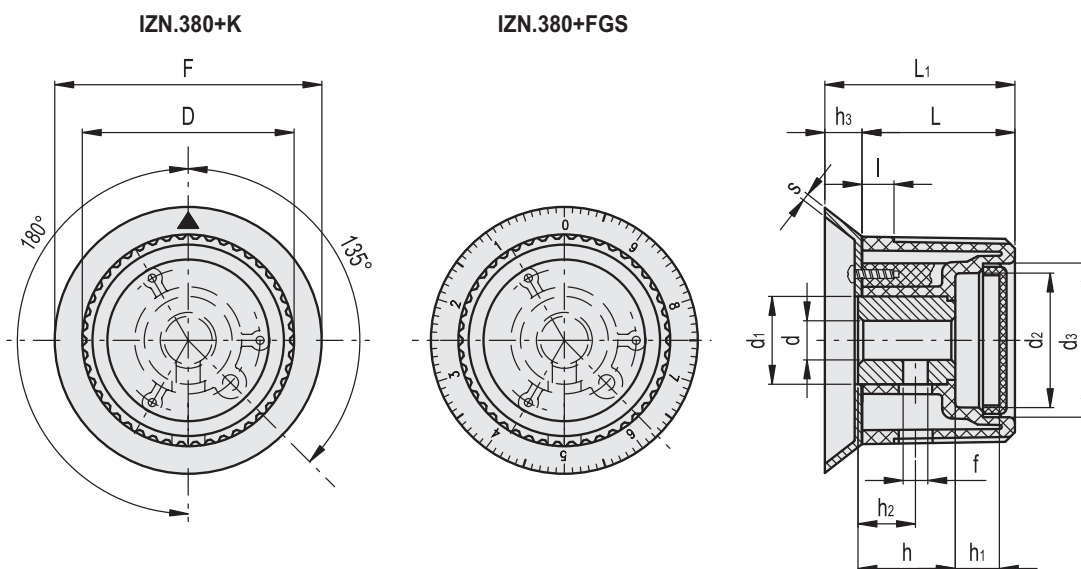
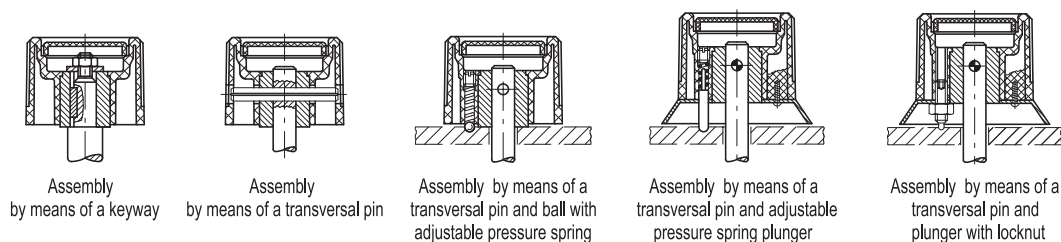
IZN.380



IZN.380

Code	Description	D	dH7	L	I	d1	d2	d3	d4	h	h1	h2	f	R	⚖
29001	IZN.380/32 A-6	32	6	26	5	15	19	21	-	16	8	9	3	-	28
30001	IZN.380/36 A-6	37	6	29	6	15	25	27	-	16	10	10	3	-	34
30101	IZN.380/40 A-8	42	8	32	7	18	29	31	-	17	11	11	4	-	48
30201	IZN.380/45 A-8	48	8	35	8	22	32	34	3.2	22	10	14	4	14	86
30301	IZN.380/50 A-10	52	10	39	9	22	37	39	4.2	22	13	14	4	15	90
30331	IZN.380/50 A-12	52	12	39	9	22	37	39	4.2	22	13	14	4	15	85
30401	IZN.380/56 A-12	58	12	41	10	26	42	44	5.2	27	11	16	5	17	130
30451	IZN.380/63 A-10	63	10	44	11	26	48	50	6.2	30	10	16	5	19	155
30466	IZN.380/63 A-12	63	12	44	11	26	48	50	6.2	30	10	16	5	19	150
30501	IZN.380/63 A-14	63	14	44	11	26	48	50	6.2	30	10	16	5	19	145
30601	IZN.380/80 A-16	80	16	48	12	26	59	62	6.2	30	13	17	5	24	175

Assembly examples



IZN.380+K

Code	Description	D	dh7	L	L1	F	I	d1	d2	d3	h	h1	h2	h3	f	s	Δ
29021	IZN.380/32 A-6+K	32	6	26	32	38	5	15	19	21	16	8	9	6	3	0.8	32
30021	IZN.380/36 A-6+K	37	6	29	36	45	6	15	25	27	16	10	10	7	3	1	40
30121	IZN.380/40 A-8+K	42	8	32	39	50	7	18	29	31	17	11	11	7	4	1	54
30221	IZN.380/45 A-8+K	48	8	35	43	55	8	22	32	34	22	10	14	8	4	1	93
30321	IZN.380/50 A-10+K	52	10	39	48	63	9	22	37	39	22	13	14	9	4	1	100
30421	IZN.380/56 A-12+K	58	12	41	52	70	10	26	42	44	27	11	16	9	5	1	140
30461	IZN.380/63 A-10+K	63	10	44	57	78	11	26	48	50	30	10	16	13	5	1	172
30476	IZN.380/63 A-12+K	63	12	44	57	78	11	26	48	50	30	10	16	13	5	1	167
30521	IZN.380/63 A-14+K	63	14	44	57	78	11	26	48	50	30	10	16	13	5	1	162

IZN.380+FGS

Code	Description	D	dh7	L	L1	F	I	d1	d2	d3	h	h1	h2	h3	f	s	Δ
29016	IZN.380/32 A-6+FGS-10/40	32	6	26	32	38	5	15	19	21	16	8	9	6	3	0.8	32
30016	IZN.380/36 A-6+FGS-10/40	37	6	29	36	45	6	15	25	27	16	10	10	7	3	1	40
30116	IZN.380/40 A-8+FGS-10/40	42	8	32	39	50	7	18	29	31	17	11	11	7	4	1	54
30216	IZN.380/45 A-8+FGS-10/100	48	8	35	43	55	8	22	32	34	22	10	14	8	4	1	93
30316	IZN.380/50 A-10+FGS-10/100	52	10	39	48	63	9	22	37	39	22	13	14	9	4	1	100
30416	IZN.380/56 A-12+FGS-10/100	58	12	41	52	70	10	26	42	44	27	11	16	11	5	1	140
30458	IZN.380/63 A-10+FGS-10/100	63	10	44	57	78	11	26	48	50	30	10	16	13	5	1	172
30473	IZN.380/63 A-12+FGS-10/100	63	12	44	57	78	11	26	48	50	30	10	16	13	5	1	167
30516	IZN.380/63 A-14+FGS-10/100	63	14	44	57	78	11	26	48	50	30	10	16	13	5	1	162



Knurled control knobs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

SELF-ADHESIVE FRONT PLATE

Anodised aluminium

STANDARD EXECUTIONS

Plain blind hole. Assembly by means of a supplied stainless steel transversal grub screw UNI 5929 (grub screw with hexagon socket and cup end).

- **IZP.**: plain knob.
- **IZP+K**: knob with triangular index.
- **IZP+GS**: knob with standard graduation, 20 marks, numbering from 0 to 9 increases as the knob is turned clockwise. Laser-engraved precision graduations.

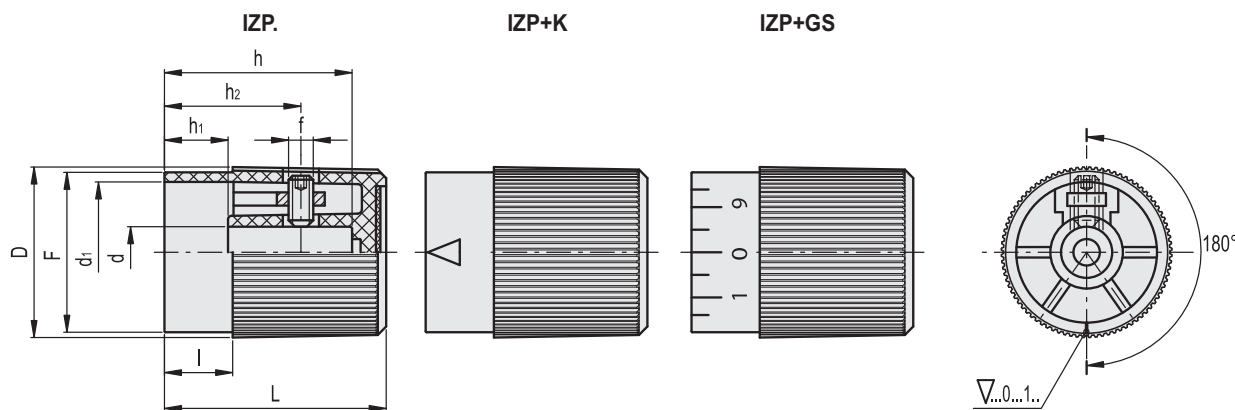
SPECIAL EXECUTIONS ON REQUEST

The front plate can be customized with words, marks, graphic symbols, etc.

On the plain surface of the knob high precision graduations (see Graduations on page 594) can be laser-engraved.



ELESA Original design



IZP.

Code	Description	D	dH10	L	F	l	d1	h	h1	h2	f	⚖
31011	IZP.25 N-6	27	6	30	25	12	22	24	12	18	M4	10
31111	IZP.30 N-8	32	8	38	30	13	25	30	13	23	M4	20
31211	IZP.35 N-10	35	10	45	33	15	28	37	15	27	M5	25
31311	IZP.40 N-12	40	12	52	38	16	33	44	16	32	M5	33

IZP+K

Code	Description	D	dH10	L	F	l	d1	h	h1	h2	f	⚖
31031	IZP.25 N-6+K	27	6	30	25	12	22	24	12	18	M4	10
31131	IZP.30 N-8+K	32	8	38	30	13	25	30	13	23	M4	20
31231	IZP.35 N-10+K	35	10	45	33	15	28	37	15	27	M5	25
31331	IZP.40 N-12+K	40	12	52	38	16	33	44	16	32	M5	33

IZP+GS

Code	Description	D	dH10	L	F	l	d1	h	h1	h2	f	⚖
31021	IZP.25 N-6+GS-10/20	27	6	30	25	12	22	24	12	18	M4	10
31121	IZP.30 N-8+GS-10/20	32	8	38	30	13	25	30	13	23	M4	20
31221	IZP.35 N-10+GS-10/20	35	10	45	33	15	28	37	15	27	M5	25
31321	IZP.40 N-12+GS-10/20	40	12	52	38	16	33	44	16	32	M5	33

Flanges for graduations

for IZN. 380 control knobs

MATERIAL

Matte anodised aluminium.

MOUNTING

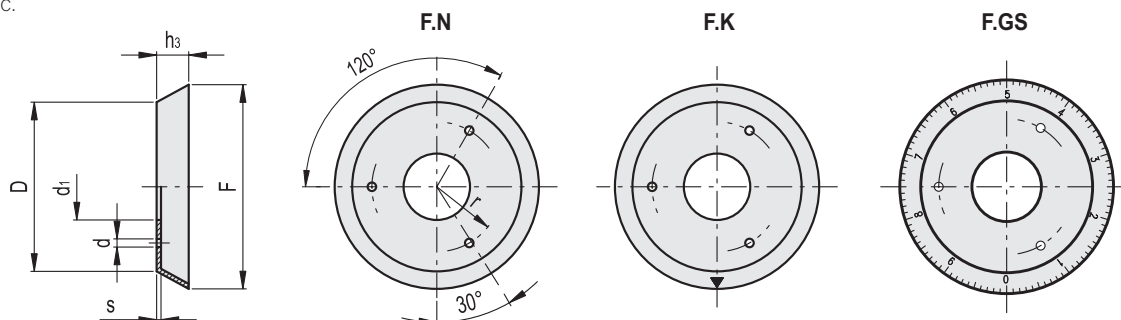
By means of three supplied self-tapping rivets for fitting to control knobs IZN.380 (see page 606).

STANDARD EXECUTIONS

- **F.N**: plain flange.
- **F.K**: flange with triangular black index.
- **F.GS**: flange with black graduation (marks and numbers).
 - **F.36 GS e F.40 GS**: 40 marks, numbering 0, 1, 2 9 increases as the knob is turned clockwise.
 - **F.45, 50, 56, 63 GS**: 100 marks, numbering 0, 1, 2 9 increases as the knob is turned clockwise.

SPECIAL EXECUTIONS ON REQUEST

On the surface of the flanges other kinds of precision graduations can be laser-engraved (see Graduations on page 594), numbers, graphic symbols, etc.



F.N

Code	Description	D	F	d	dl	h3	s	r	⚖
29002	F.32 N	32	38	2.1	15	6	0.8	9.5	3
30002	F.36 N	37	45	2.1	15	7	1	12	5
30102	F.40 N	42	50	3	18	7	1	14	7
30202	F.45 N	48	55	2.7	22	7	1	15.8	8
30302	F.50 N	52	63	2.7	22	9	1	18.1	10
30402	F.56 N	58	70	2.7	26	11	1	20.6	12
30452	F.63 N	63	78	2.7	26	13	1	22.7	16
30002	F.36 N	37	45	2.1	15	7	1	12	5
30102	F.40 N	42	50	3	18	7	1	14	7
30202	F.45 N	48	55	2.7	22	7	1	15.8	8
30302	F.50 N	52	63	2.7	22	9	1	18.1	10
30402	F.56 N	58	70	2.7	26	11	1	20.6	12
30452	F.63 N	63	78	2.7	26	13	1	22.7	16

F.K

Code	Description	D	F	d	dl	h3	s	r	⚖
30004	F.36 K	37	45	2.1	15	7	1	12	5
30104	F.40 K	42	50	3	18	7	1	14	7
30204	F.45 K	48	55	2.7	22	7	1	15.8	8
30304	F.50 K	52	63	2.7	22	9	1	18.1	10
30404	F.56 K	58	70	2.7	26	11	1	20.6	12
30454	F.63 K	63	78	2.7	26	13	1	22.7	16

F.GS

Code	Description	D	F	d	dl	h3	s	r	⚖
30003	F.36 GS-10/40	37	45	2.1	15	7	1	12	5
30103	F.40 GS-10/40	42	50	3	18	7	1	14	7
30203	F.45 GS-10/100	48	55	2.7	22	7	1	15.8	8
30303	F.50 GS-10/100	52	63	2.7	22	9	1	18.1	10
30403	F.56 GS-10/100	58	70	2.7	26	11	1	20.6	12
30453	F.63 GS-10/100	63	78	2.7	26	13	1	22.7	16

1

 2

Ball and spring

 for control elements, stainless steel

3

SPRING

 AISI 302 stainless steel.

4

BALL

 AISI 420 stainless steel.

5

FEATURES AND APPLICATIONS

 MS. group is indicated for fitting on the following operating and control knobs where clicking operation is required:

 - IZN.380 (see page 606)

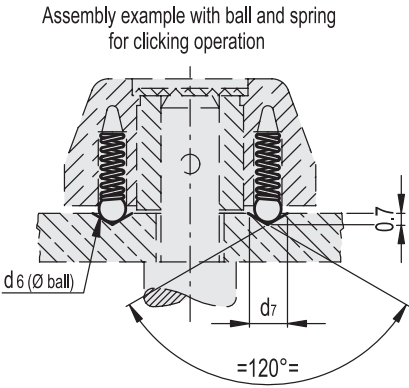
 - EGK.SOFT (see page 615)

 - LBR (see page 628)

 - LBR-N (see page 628)

 - ELC (see page 630)

 - ELCR. (see page 632)



STAINLESS STEEL

Code	Description	d6	d7-0.3
35001	MS.D3	3	2
35051	MS.D4	4	3.0
35101	MS.D5	5	4.0
35201	MS.D6	6	5.5
35301	MS.D8	8	7.0
35401	MS.D10	10	8.5

Indicator knobs

Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

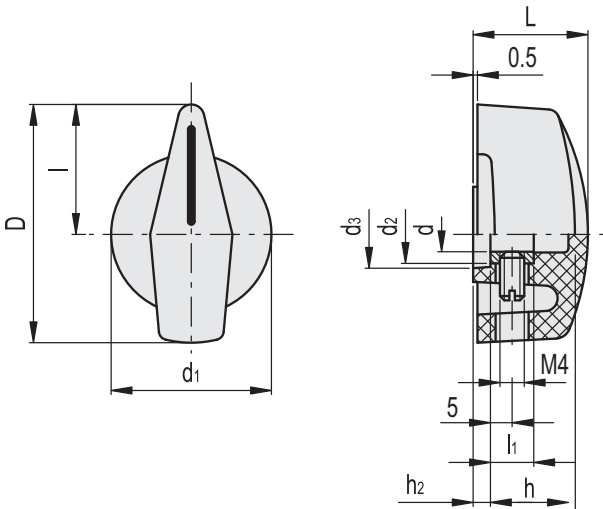
INDEX

White line.

STANDARD EXECUTION

Brass boss, plain blind hole. Assembly by means of a supplied transversal screw.

- D=45: ISO 7436 (grub screw with screwdriver slotted head and cup end).
- D=55: ISO 4762 (cylindrical-head screw with hexagon socket and cup end).



Code	Description	D	db9	L	l	l1	d1	d2	d3	h	h2	⚖
40201	MI.204/45 B-6	45	6	25	24	10	35	10	15	15	7	19
40202	MI.204/45 B-8	45	8	25	24	10	35	12	12	18	3	19
40301	MI.204/55 B-6	55	6	26	30	10	37	12	12	18	3	28
40302	MI.204/55 B-8	55	8	26	30	10	37	15	15	18	3	30

Lobe knobs

with flange and pointer, Duroplast

MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

FLANGE WITH POINTER

Polyamide based (PA) technopolymer, with white indicator line.

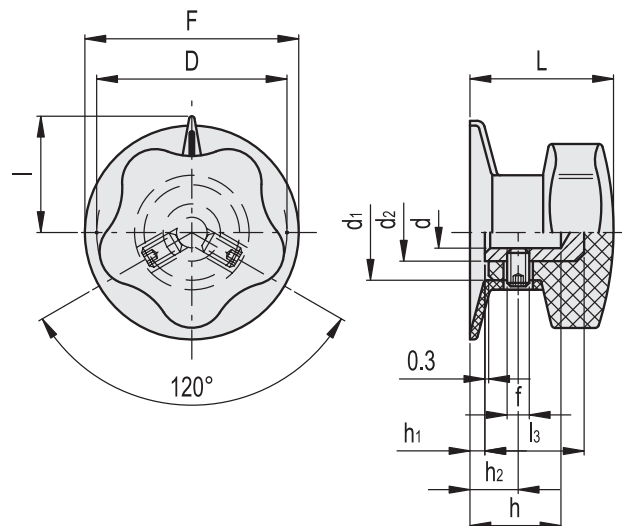
STANDARD EXECUTIONS

- **VC.192-B+F**: brass boss, plain blind hole.
- **VC.192-A+F**: black-oxide steel boss, plain blind hole.

Assembly by means of supplied transversal grub screws UNI 5929-85 (grub screws with hexagon socket and cup end).



ELESA Original design



Code	Description	D	dH9	L	F	I	l3	d1	d2	h	h1	h2	f	⚖
66211	VC.192/30 B-6+F	32	6	27	36	19	19	19	14	22	3	9	M4	30
66311	VC.192/40 B-6+F	40	6	30	45	24	19	21	14	22	3	9	M4	46
66421	VC.192/50 A-8+F	50	8	36	56	30	25	25	15	23	3	10	M5	70
66521	VC.192/60 A-8+F	60	8	42	70	37	25	27	15	25	5	12	M5	105
66621	VC.192/70 A-10+F	70	10	48	80	42	31	30	18	30	5	16	M6	152

Lobe knobs
with pointer, Duroplast

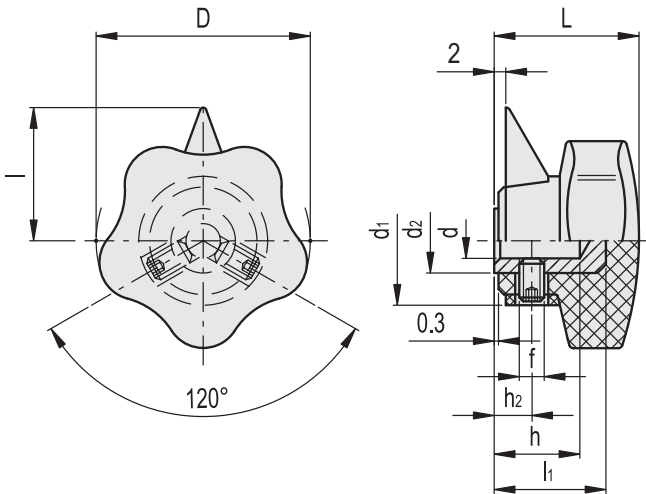
MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

INDEX
Polyamide based (PA) technopolymer.

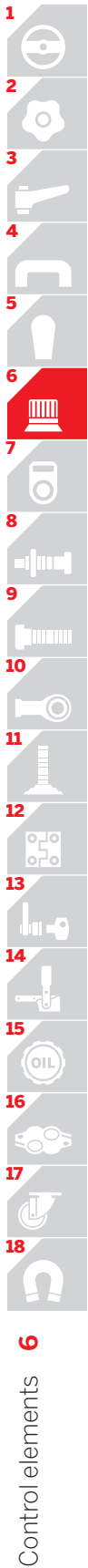
STANDARD EXECUTIONS
- **VC.192-B+IN:** brass boss, plain blind hole.
- **VC.192-A+IN:** black-oxide steel boss, plain blind hole.
Assembly by means of supplied transversal grub screws UNI 5929-85 (grub screws with hexagon socket and cup end).



ELESA Original design



Code	Description	D	dH9	L	l	l1	d1	d2	h	h2	f	⚖
66321	VC.192/40 B-6+IN	40	6	27	25	17	25	14	14	6	M4	37
66431	VC.192/50 A-8+IN	50	8	33	31	25	30	15	20	7	M5	70
66531	VC.192/60 A-8+IN	60	8	37	38	25	32	15	20	7	M5	105
66631	VC.192/70 A-10+IN	70	10	44	45	31	35	18	25	11	M6	150
66711	VC.192/85 A-10+IN	85	10	55	50	38	41	22	25	14	M6	250



Control elements

Control knobs

Aluminium

SPECIFICATION

Aluminium
anodized, black

Indexing line
white, engraved with laser precision

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

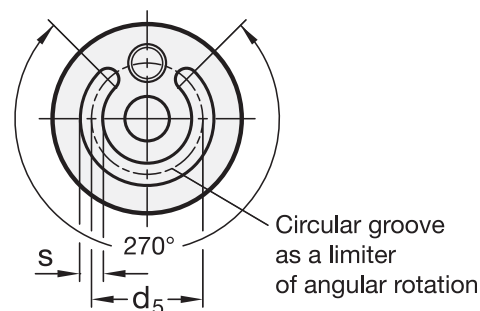
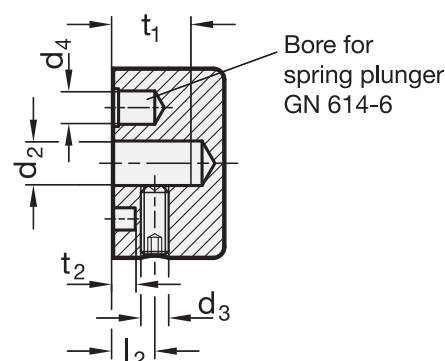
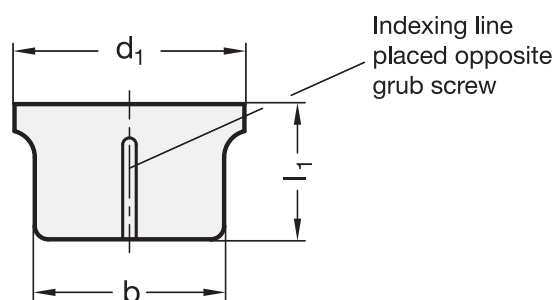
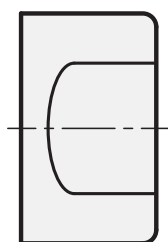
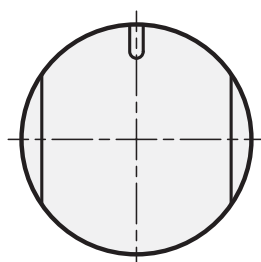
INFORMATION

Control knobs GN 729 are usually selected for applications which require a limited movement within 180°.

With the aid of limiting pins which protrude into the circular groove the angle of rotation can be restricted. The bore d_4 is for a spring plunger GN 614 (see page 847) to act as a simple detent. The indexing line is indelible and visible from two sides.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 729

Description	d1	d2 H8	b	d3	d4	d5	l1	l2	t1 min.	t2 +0.2	$s^{+0.3/+0.1}$	Δ
GN 729-34-B6	34	B 6	28	M 5	6	20	20	7.5	14	4	4	43
GN 729-34-B8	34	B 8	28	M 5	6	20	20	7.5	14	4	4	41
GN 729-42-B8	42	B 8	35	M 5	6	30	22	7.5	16	4	4	72
GN 729-42-B10	42	B 10	35	M 5	6	30	22	7.5	16	4	4	69

Grip knobs

arranged for clicking operation

MATERIAL

High-resilience technopolymer coated with "soft-touch" thermoplastic elastomer (TPE), grey-black colour, matte finish.

CENTRE CAP

Glass-fibre reinforced polyamide based (PA) technopolymer in Ergostyle colours, matte finish. Provided with the supply, push-fit assembly, removable by a screwdriver.

Available also as accessory sold separately (see table ECB.).

Code	Description	Closing cap for
29672-*	ECB.G2-*	EGK.50
29673-*	ECB.G3-*	EGK.63

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTIONS

Assembly by means of a keyway or a transversal pin in the semi-machined hole f or a set screw (redrill and tap hole f).

- **EGK.SOFT**: black-oxide steel boss, H7 reamed hole.
- **EGK-SST-SOFT**: AISI 303 stainless steel boss, H7 reamed hole.

FEATURES AND APPLICATIONS

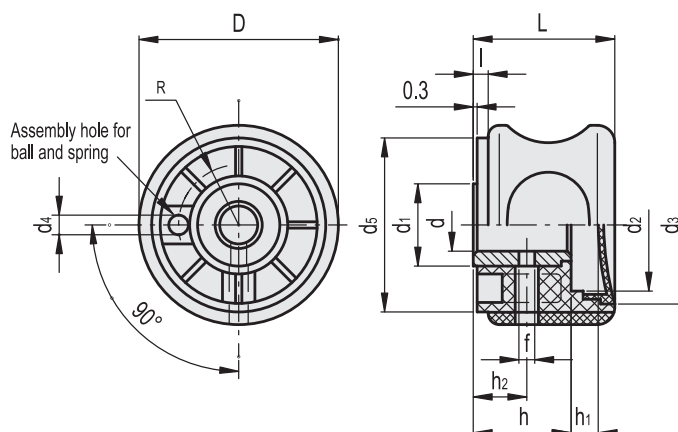
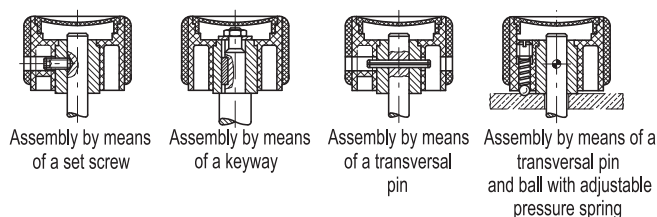
The special four-concave-mark shape of the knob and the "soft-touch" elastomer coating allow the best grip during clicking operation even in the presence of oils, grease and sweat from the hand. Particularly suitable for fitness machines, disability aids, tools and machines for gardening and high-precision instruments.

ACCESSORIES ON REQUEST

Ball and spring for clicking operation to be fitted in the assembly hole (see ball and spring MS. on page 610).



Assembly examples



* Complete with colour index, example: 215161-C2 EGK.50 A-10-C2

C1 RAL7021 C2 RAL2004 C3 RAL7035 C4 RAL1021 C5 RAL5024 C6 RAL3000

EGK.SOFT

Code	Description	D	dh7	L	I	d1	d2	d3	d4	d5	h	h1	h2	f	R	⚖
215161-*	EGK.50 A-10-SOFT-*	50	10	38	3.5	22	28	40	4.2	43	22	12	14	4	15	95
215181-*	EGK.63 A-12-SOFT-*	63	12	44	3.5	26	42	49.5	6.2	55	30	9	16	5	19	185

EGK-SST-SOFT

STAINLESS STEEL

Code	Description	D	dh7	L	I	d1	d2	d3	d4	d5	h	h1	h2	f	R	⚖
215189-*	EGK.50-SST-6-SOFT-*	50	6	38	3.5	22	28	40	4.2	43	22	12	14	4	15	100
215191-*	EGK.50-SST-8-SOFT-*	50	8	38	3.5	22	28	40	4.2	43	22	12	14	4	15	97
215196-*	EGK.63-SST-10-SOFT-*	63	10	44	3.5	26	42	49.5	6.2	55	30	9	16	5	19	180

Control handwheels

Aluminium black, anodized

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **Z**: with collet

Aluminium
anodized, black

Hub cover
Plastic, light grey

Collet / Hexagon nut
Brass

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

Revolving cylindrical handles
Plastic, Technopolymer
black, matt



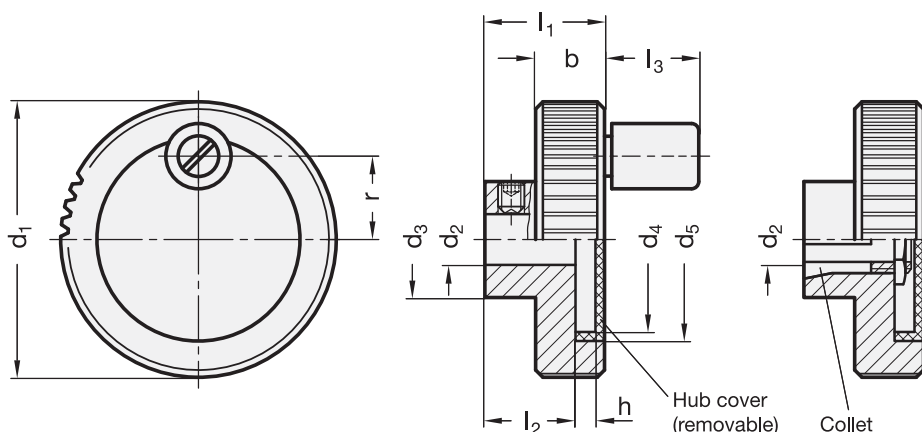
INFORMATION

Control handwheels GN 736 are used for setting operations with low torque.

Coarse setting is made by means of the cylindrical handle (fingertip grip) followed by fine setting using the knurled rim of the handwheel.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)



GN 736

Description	d1	d2 H8	d3	d4	d5	b -0.5	h	l1	l2	l3 ≈	r	Ø Handle	⚖
GN 736-52-B10-A	52	10	22	37	39.5	13	3.8	23	17	-	15.5	-	56
GN 736-52-K10-A	52	10	22	37	39.5	13	3.8	23	17	-	15.5	-	59
GN 736-52-Z10-A	52	10	22	37	39.5	13	3.8	23	17	-	15.5	-	65
GN 736-62-B10-A	62	10	25	47	49.5	13	3.8	23	17	-	20.5	-	76
GN 736-62-K10-A	62	10	25	47	49.5	13	3.8	23	17	-	20.5	-	82
GN 736-62-Z10-A	62	10	25	47	49.5	13	3.8	23	17	-	20.5	-	100
GN 736-52-B10-D	52	10	22	37	39.5	13	3.8	23	17	19	15.5	13	69
GN 736-52-K10-D	52	10	22	37	39.5	13	3.8	23	17	19	15.5	13	71
GN 736-52-Z10-D	52	10	22	37	39.5	13	3.8	23	17	19	15.5	13	77
GN 736-62-B10-D	62	10	25	47	49.5	13	3.8	23	17	21	20.5	14	90
GN 736-62-K10-D	62	10	25	47	49.5	13	3.8	23	17	21	20.5	14	94
GN 736-62-Z10-D	62	10	25	47	49.5	13	3.8	23	17	21	20.5	14	112

Control handwheels with scale lug

Aluminium black, anodized

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **Z**: with collet

Coding

- Coding **S**: with standard scale 0...90, 100 graduations acc. scale scheme di/100 A RA 0-10 20...90/10 (only for bore code Z)

Aluminium

anodized, black

Hub cover

Plastic, light grey

Collet / Hexagon nut

Brass

Revolving cylindrical handles

Plastic, Technopolymer

black, matt

INFORMATION

Control handwheels GN 736.1 are used for setting operations with low torque. Coarse setting is made by means of the cylindrical handle (fingertip grip) followed by fine setting using the knurled rim of the knob.

The model fitted with collet offers an absolutely reliable mounting on the shaft and at the same time allows an easy setting of the adjustable scale ring wheel. The scale is wear resistant and easily legible since the engraved alu coloured numbers contrast with the black anodized surface. Besides the standard scale (Coding S) the control handwheels can be supplied with any type of graduation.

Full details of the available graduations, numbering sequence, number position and type of scale see under "How to order graduations" (see page 594).

* Complete with type of the Control handwheel (A or D)

A without handle
D with revolving handle

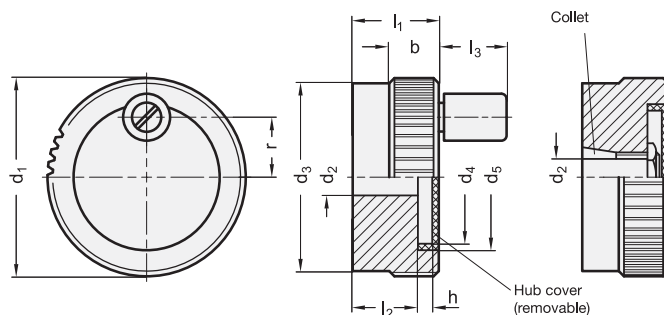
GN 736.1

Description	d1	d2 H8	d3	d4	d5	b -0.5	h	l1	l2	l3 ≈	r	Ø Handle	⚖
GN 736.1-52-B10-*	52	10	50	37	39.5	13	3.8	23	17	19	15.5	13	100
GN 736.1-52-K10-*	52	10	50	37	39.5	13	3.8	23	17	19	15.5	13	99
GN 736.1-52-Z10-*	52	10	50	37	39.5	13	3.8	23	17	19	15.5	13	111
GN 736.1-62-B10-*	62	10	60	47	49.5	13	3.8	23	17	21	20.5	14	142
GN 736.1-62-K10-*	62	10	60	47	49.5	13	3.8	23	17	21	20.5	14	141
GN 736.1-62-Z10-*	62	10	60	47	49.5	13	3.8	23	17	21	20.5	14	154

GN 736.1-S

Description	d1	d2 H8	d3	d4	d5	b -0.5	h	l1	l2	l3 ≈	r	Ø Handle	⚖
GN 736.1-52-Z10-*-S	52	10	37	50	39.5	13	3.8	23	17	19	15.5	13	110
GN 736.1-62-Z10-*-S	62	10	47	60	49.5	13	3.8	23	17	21	20.5	14	154

Weight type A



Control elements

Diamond cut knurled control knobs

with revolving handle, technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

COLOURED CENTRE CAP

Technopolymer, matte finish.

To order, add the index of the desired colour (C9, ..., C6) to the code and the description.

On request and for sufficient quantities, it can be supplied in other colours or with customised graphic symbols, marks or writings.

REVOLVING HANDLE

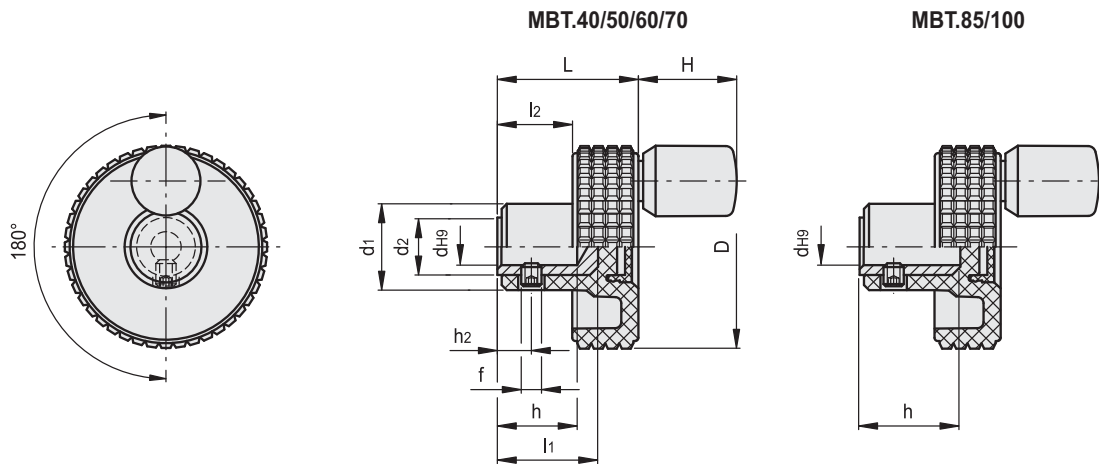
I.701+x (see page 580) in technopolymer.

STANDARD EXECUTION

Brass boss, plain hole. Assembly by means of a supplied transversal grub screw UNI 5929-85 (grub screw with hexagon socket and cup end).



ELESA Original design 



* Complete with colour index, example: 34398-C2 MBT.40+I B-6-C2

 C9 RAL9005
  C2 RAL2004
  C3 RAL7035
  C4 RAL1021
  C5 RAL5024
  C6 RAL3000

Code	Description	D	dH9	L	l1	l2	d1	d2	h	h2	f	H	⚖
34398-*	MBT.40+I B-6-*	39.5	6	26.5	17	12.5	17	12	14	4	M4	20	34
34498-*	MBT.50+I B-6-*	50	6	33	23	16	20	15	18	5	M5	20	54
34598-*	MBT.60+I B-8-*	61	8	39	25	18.5	23	15	20	6	M5	23	65
34698-*	MBT.70+I B-10-*	70	10	42	30	20.5	24	16	25	6	M5	23	73
34798-*	MBT.85+I B-10-*	85	10	30.5	-	10.5	29	16	22	6	M5	23	84
34898-*	MBT.100+I B-10-*	100	10	31	-	11	35	16	22	6	M5	23	102

Control handwheels
with revolving handle, Duroplast

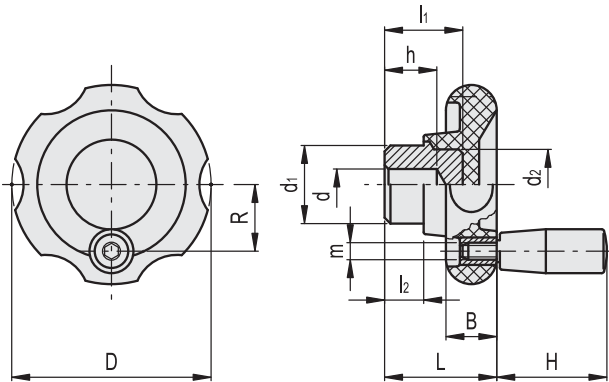
MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

REVOLVING HANDLE
l.281+x (see page 569) in Duroplast.

STANDARD EXECUTION
Black-oxide steel hub, with pre-drilled blind hole.



ELESA Original design



Code	Description	D	dH9	d-0.1	L	B	l1	l2	d1	d2	h	H	m	R	⚖
74431	VL.140/80+I	82	-	6	40	19	23	12	24	20	15	40	M6	26	180
74521	VL.140/100+I	99	8	-	44	20	31	14	36	30	22	50	M8	32	385
74621	VL.140/130+I	129	8	-	47	22	30	13	40	40	20	65	M8	43	585



Control knobs with adjustable spindle

SPECIFICATION

Types

- Type **A**: Fixing hole parallel to the spindle axle
- Type **B**: Fixing hole vertical to the spindle axle
- Type **S1**: Mounting with hexagon head screw

Coding

- Version **SR**: with scale 0,1...0,9, 50 graduations ascending, clockwise
- Version **SL**: with scale 0,1...0,9, 50 graduations ascending, anti-clockwise

Body
Steel
matt chrome plated

Spindle
Steel
blank

Control knob
Aluminium
anodized, black

Hexagon head screw
Steel, zinc plated, blue passivated

Scales engraved with laser precision

Cover
Plastic, light grey

INFORMATION

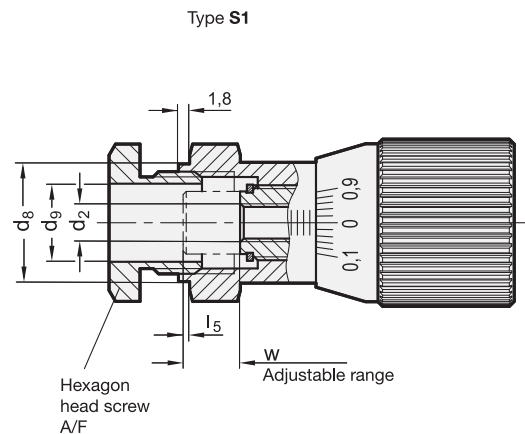
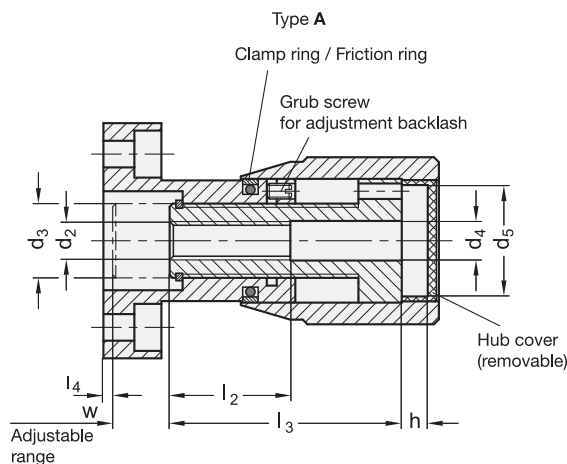
Control knobs with adjustable spindle GN 727 allow precise adjustment or aligning i. e. of a positive stop. The spindle thread is without backlash.

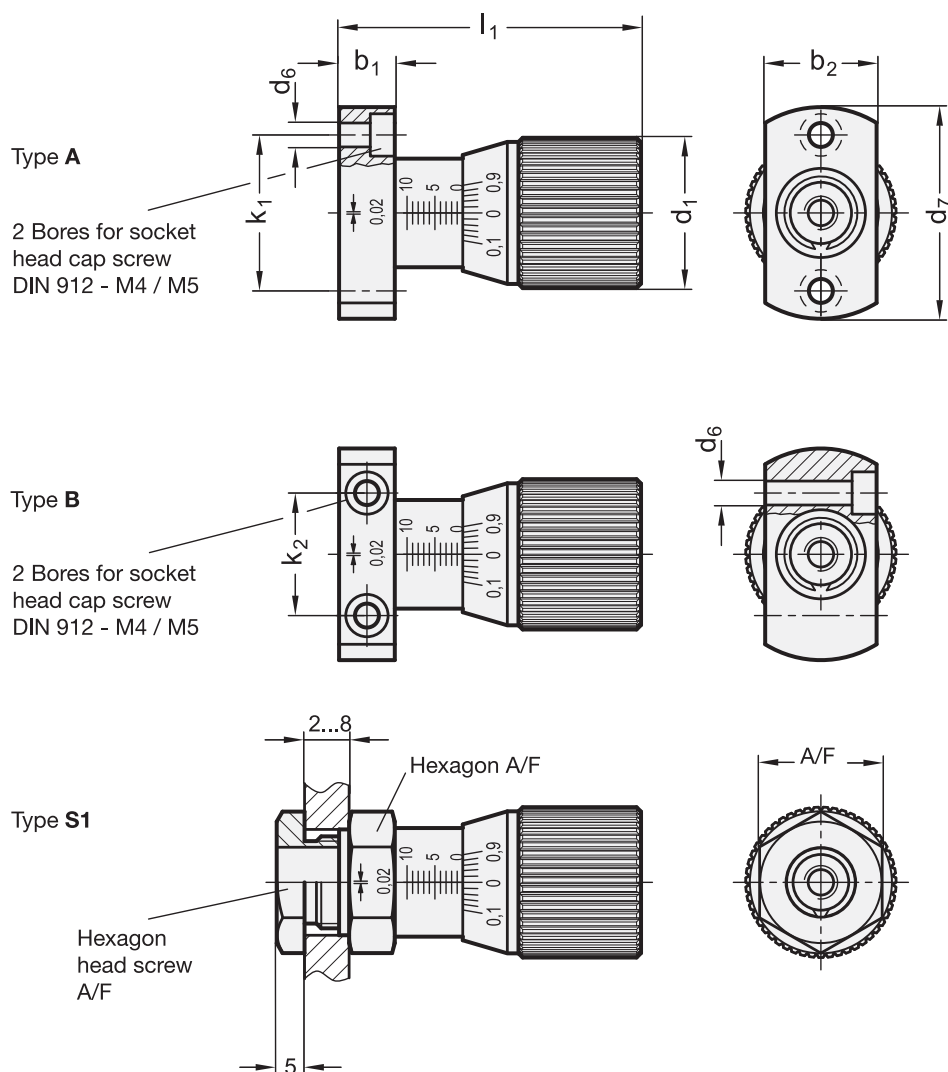
The graduations on the control knob are non-abrasive and well legible.

The light grey cover shrouds the fixing components as well as the shaft end.

Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

COMPLEMENTARY DIMENSIONS WITH TECHNICAL DETAILS





GN 727

Description	d1	d2	d3	d4	d5	d6	d7	d8 -0.05	d9	b1	b2	h	k1	k2	l1 +0.2	l2	l3	l4	l5	A/F	w	⚖
GN 727-27-A-SR	27	M 6	M 12 x 1	6.4	18	-	38	-	-	10	20	4.3	28	-	54	19.5	37.5	0.5	-	-	10	103
GN 727-27-A-SL	27	M 6	M 12 x 1	6.4	18	-	38	-	-	10	20	4.3	28	-	54	19.5	37.5	0.5	-	-	10	103
GN 727-34-A-SR	34	M 8	M 16 x 1	8.5	23	-	50	-	-	11	25	4.2	36	-	67	23.5	45.5	0.5	-	-	15	210
GN 727-34-A-SL	34	M 8	M 16 x 1	8.5	23	-	50	-	-	11	25	4.2	36	-	67	23.5	45.5	0.5	-	-	15	210
GN 727-27-B-SR	27	M 6	M 12 x 1	6.4	18	4.3	-	-	-	10	20	4.3	-	22	54	19.5	37.5	0.5	-	-	10	103
GN 727-27-B-SL	27	M 6	M 12 x 1	6.4	18	4.3	-	-	-	10	20	4.3	-	22	54	19.5	37.5	0.5	-	-	10	103
GN 727-34-B-SR	34	M 8	M 16 x 1	8.5	23	5.3	-	-	-	11	25	4.2	-	30	67	23.5	45.5	0.5	-	-	15	206
GN 727-34-B-SL	34	M 8	M 16 x 1	8.5	23	5.3	-	-	-	11	25	4.2	-	30	67	23.5	45.5	0.5	-	-	15	205
GN 727-27-S1-SR	27	M 6	M 12 x 1	6.4	18	-	-	20	14	10	-	4.3	-	-	54	19.5	37.5	0.5	1	22	10	113
GN 727-27-S1-SL	27	M 6	M 12 x 1	6.4	18	-	-	20	14	10	-	4.3	-	-	54	19.5	37.5	0.5	1	22	10	113
GN 727-34-S1-SR	34	M 8	M 16 x 1	8.5	23	-	-	24	18	11	-	4.2	-	-	67	23.5	45.5	0.5	1	27	15	182
GN 727-34-S1-SL	34	M 8	M 16 x 1	8.5	23	-	-	24	18	11	-	4.2	-	-	67	23.5	45.5	0.5	1	27	15	182



Indexing mechanisms

Steel / Stainless Steel

SPECIFICATION

Version in Steel

Types

- Type **A**: Control knob, blackened, without scale
- Type **AS**: Control knob, matt chrome plated, with scale 0...50, 60 graduations
- Type **B**: with 1 tension lever
- Type **C**: with 2 tension levers

Steel
blackened

Type **AS**:
Control knob matt chrome plated

- Scale engraved with laser precision, black
- Reference line on location ring

Fixed cylindrical handles I.280 (see page 568)

Plastic, Technopolymer
black, shiny finish

Version in Stainless Steel

Types

- Type **A**: without scale
- Type **AS**: with scale 0...50, 60 graduations

Stainless Steel AISI 303 **NI**

Type **AS**:

- Scale engraved with laser precision
- Reference line on locating ring

Keyway P9 DIN 6885 for bore > K 10 (Steel and Stainless Steel)

INFORMATION

Indexing mechanisms GN 200 replace and simplify complicated indexing and safety mechanisms.

Besides the standard scale (Type AS) the control knob version may be supplied with any scale. In such cases, it is recommended to use the matt chrome plated version since the colour contrast is better).

Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- Special graduations see "How to order graduations" (see page 594)



TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

Applications

With these indexing mechanisms, shaft and lead screws can be turned and positioned in steps of 6° or multiples of it.

Description

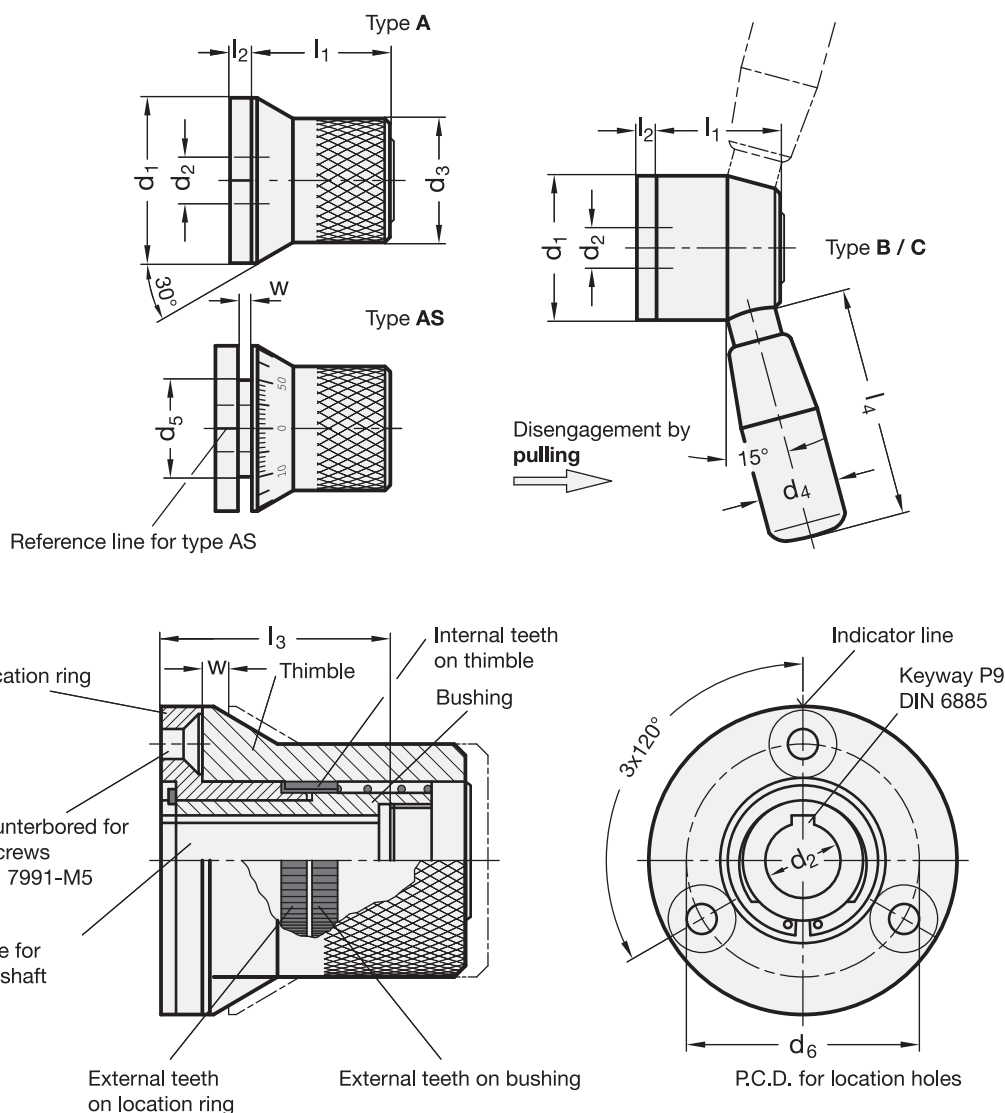
The indexing mechanism is a selfcontained unit, all the adjusting and securing components are housed in the smallest possible space. The unit consists of three main parts:

- Bushing – can be connected to the shaft with a key or crossdowel.
- Location ring – is screwed and doweled to the machine or equipment. The bushing is also a bearing for the location ring.
- Knurled housing – providing engagement between the locating ring and the shaft which can be turned or positioned.

In the locked position, the knurled housing via the internal teeth (60) connects the locating ring and the bush (both via external teeth), the latter being connected to the shaft. To turn the shaft, the knurled housing is pulled out against the spring pressure, disengaging from the location ring, but still engaged with the bush.

More information

- With 60 teeth, the following divisions can be achieved: 2, 3, 4, 5, 6, 10, 20, 30. A simple method provides indexing of the shaft to limited number of positions only, i.e. every 120°. For this purpose, the location ring is manufactured with a dowel which allows engagement only when the bushing is provided with a corresponding hole (see assembly examples). This hole can be manufactured oversize as the dowel is for rough positioning only. Accurate positioning is maintained via the teeth. Knurled housing and tension levers can be supplied with scales and symbols. With teeth, a more accurate and wear-resistant indexing mechanism is obtained than with single dowel locations. When a very high torque is to be transmitted, engaging and disengaging of the teeth is made difficult due to the small clearance, i.e. the friction between them. In such cases, indexing levers GN 215 are recommended.



* Complete with type index of the indexing mechanisms (A, AS, B or C)

A Blackened, without scale **AS** Matt chrome plated, with scale **B** with 1 tension lever **C** with 2 tension levers

GN 200

Description	d1 -0.5	d2 H7	d3	d4	d5	d6	l1	l2	l3	l4	w	⚖
GN 200-44-K10-*	44	K 10	33	23	23	33	37	6	31	75	4	309
GN 200-44-K12-*	44	K 12	33	23	23	33	37	6	31	75	4	300
GN 200-52-K12-*	52	K 12	42	26	31.5	41.8	37.5	6	31.5	90	4	478
GN 200-52-K14-*	52	K 14	42	26	31.5	41.8	37.5	6	31.5	90	4	467
GN 200-52-K16-*	52	K 16	42	26	31.5	41.8	37.5	6	31.5	90	4	455

* Complete with type index of the indexing mechanisms (A or AS)

A Blackened, without scale **AS** Matt chrome plated, with scale

GN 200-NI

STAINLESS STEEL

Description	d1 -0.5	d2 H7	d3	d5	d6	l1	l2	l3	w	⚖
GN 200-44-K10-*.NI	44	K 10	33	23	33	37	6	31	4	309
GN 200-44-K12-*.NI	44	K 12	33	23	33	37	6	31	4	300
GN 200-52-K12-*.NI	52	K 12	42	31.5	41.8	37.5	6	31.5	4	478
GN 200-52-K14-*.NI	52	K 14	42	31.5	41.8	37.5	6	31.5	4	467
GN 200-52-K16-*.NI	52	K 16	42	31.5	41.8	37.5	6	31.5	4	455

Weight type A



Adjustable knobs

with stepless positioning

SPECIFICATION

Types

- Type **A**: with arrow
- Type **B**: neutral, without arrow or scale
- Type **S**: with standard scale 0...9, 100 graduations
- Type **KS**: with customized scale

Attachment part and bush

Steel

blackened

Blocking mechanism

Steel

hardened and ground

Scale ring and rotating knob

Aluminium

black anodized

Scale / arrow

- engraved with laser precision
- centered between two mounting holes

INFORMATION

With this adjustable knob GN 700 a shaft can be infinitely adjusted in both directions. The anti-backlash mechanism with a max. load of 15 Nm ensures the firm locking of the shaft in any position.

This mechanism prevents any uncontrolled movement of the shaft. The locking action is a safety feature to prevent unwanted re-adjustments caused by backlash and vibration.

Scale and arrow on the control knobs are indelibly marked and easily legible.

Besides the standard scale (Type AS) the control knob version may be supplied with any other scale (Type KS).

Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- special graduations see "How to order graduations" (see page 594)



TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

Description

The anti-backlash mechanism which operates on the principle of a bidirectional freewheeling and antireversing basis allows the transfer of movement in both directions without backlash. The adjustable knob is not suitable for applications on machines or equipments which are exposed to vibrations.

The **bush** is connected by the key and keyway to the revolving shaft. The **location ring** remains static and centrally positioned by the bushing and the two pinch rollers, fixed to the machine frame or housing by three screws.

The **rotating knob** with the knurled barrel is carried by the bush. The **scale ring** is firmly anchored to the bush and the driven shaft by two countersunk screws.

If the knob is repositioned, one of the follower pins – depending on the direction of rotation – pushes the pinch roller against the spring into an idling position which releases the bush and shaft to rotate freely.

The second follower pin on the opposite side reduces the movement of its pinch roller and ensures at the same time a firm grip and forward movement of the bush while the first pinch roller remains in an idling position.

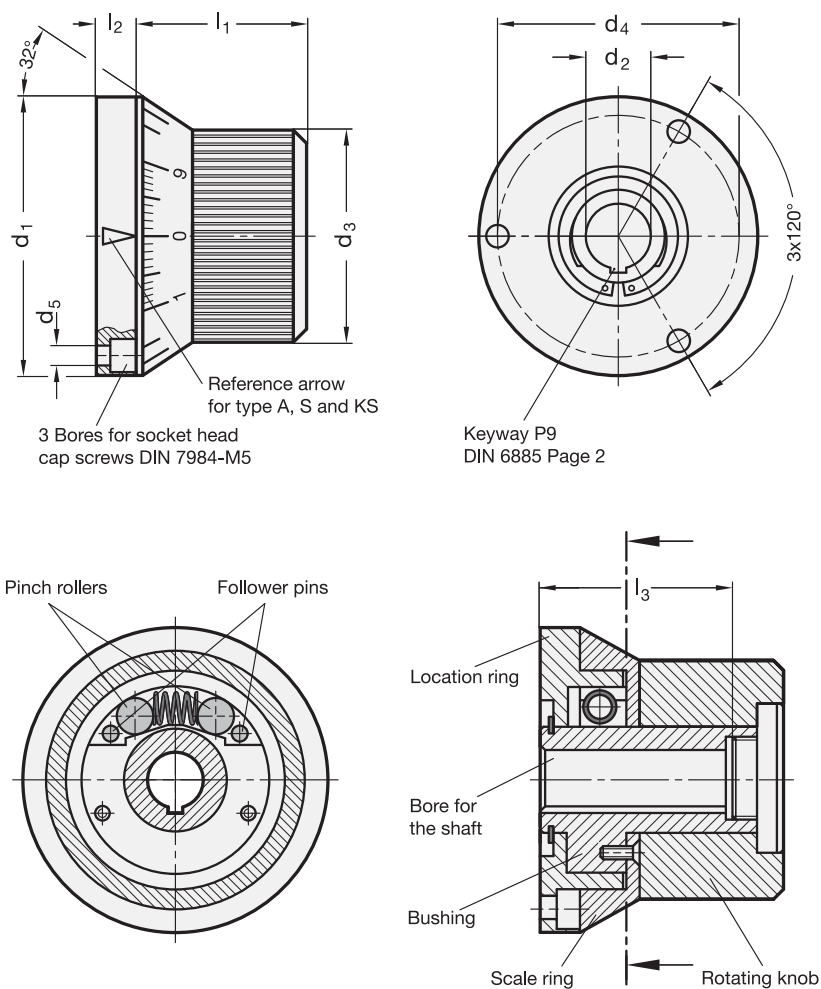
When releasing the knob, the spring will push the pinch roller back into the grip position, thus linking the bush again with the static section.

The scale ring is connected firmly with the bush and any readjustment of the shaft can be accurately controlled.

This infinitely adjustable knob cannot, however, be used in such cases where the shaft to be adjusted runs ahead of the adjustment. The anti-backlash mechanism in this knob cannot be used as a bearing for the driven shaft.

Hints for installation

A perfect functioning can only be guaranteed if the shaft of the machine is positioned at a perfect right angle to the contact surface of the static part.



GN 700

Description	d1	d2 H7	d3	d4 -0.2	d5	l1	l2	l3	⚖
GN 700-66-K12-A	66	K 12	52	55	5.5	44	9	40	600
GN 700-66-K14-A	66	K 14	52	55	5.5	44	9	40	540
GN 700-66-K12-B	66	K 12	52	55	5.5	44	9	40	580
GN 700-66-K14-B	66	K 14	52	55	5.5	44	9	40	560
GN 700-66-K12-S	66	K 12	52	55	5.5	44	9	40	580
GN 700-66-K14-S	66	K 14	52	55	5.5	44	9	40	560
GN 700-66-K12-KS	66	K 12	52	55	5.5	44	9	40	580
GN 700-66-K14-KS	66	K 14	52	55	5.5	44	9	40	560



Control levers

Steel, blackened

SPECIFICATION

Types

- Type **M**: Cover with indicator point
- Type **N**: Cover plain

Steel
blackened

Cover
Plastic, light grey

Cylindrical knobs
Plastic, Duroplast
black

INFORMATION

The cover hides fasteners (see assembly instructions) and provides a printing facility for any symbol or logo.

On assembly, the cover is pushed in by hand and can be removed with a screw driver via a suitable slot.

Control levers GN 750 can also be supplied as standard with:

- Square DIN 79 **V** + Bore diameter
- Keyway DIN 6885 **K** + Bore diameter

ON REQUEST

- Control lever versions of the assembly examples

TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerance (see page A21)

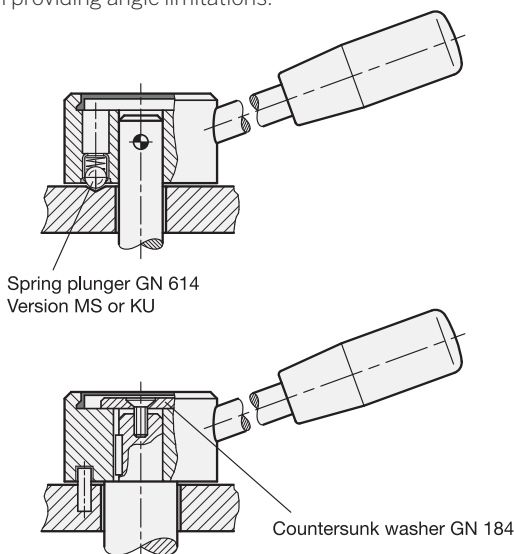
ASSEMBLY EXAMPLES

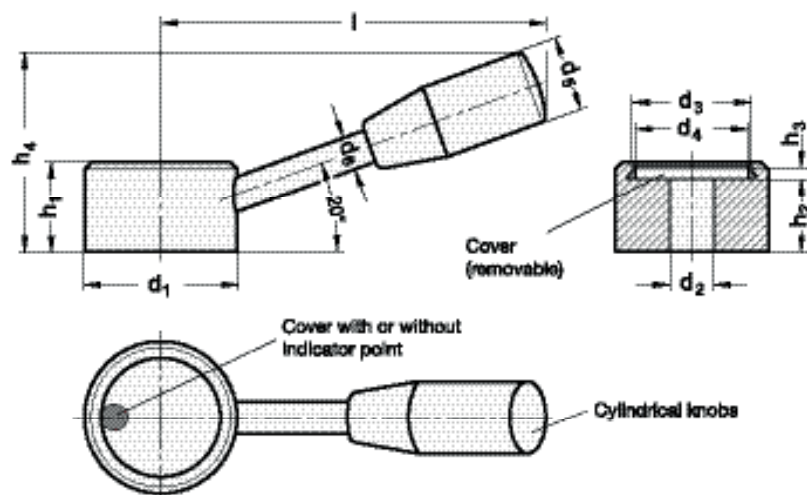
Control lever GN 750 with spring-loaded ball, GN 614 (see page 847) version brass (MS) or plastic (KU), fitted to the shaft with a dowel pin.

The spring-loaded ball provides a simple indexing assembly, the location indent can be spotted through the control lever hub.

The shaft end and the screw of the indexing ball are hidden by the plastic cover.

Control lever GN 750 with keyway and countersunk washer GN 184 (see page 971) for positive lateral location and with a radial slot and dowel pin providing angle limitations.





GN 750

Description	d1	d2 h7	d3	d4	d5	d6	h1	h2	h3	h4 ≈	l	⚖
GN 750-32-B10-M	32	B 10	25	23	18	8	21	15	4.2	43	84	123
GN 750-40-B10-M	40	B 10	32	30	21	9	25	19	4	54	106	239
GN 750-40-B12-M	40	B 12	32	30	21	9	25	19	4	54	106	232
GN 750-50-B14-M	50	B 14	40	37.5	23	11	28	22	3.8	63	130	412
GN 750-50-B16-M	50	B 16	40	37.5	23	11	28	22	3.8	63	130	406
GN 750-32-B10-N	32	B 10	25	23	18	8	21	15	4.2	43	84	123
GN 750-40-B10-N	40	B 10	32	30	21	9	25	19	4	54	106	239
GN 750-40-B12-N	40	B 12	32	30	21	9	25	19	4	54	106	232
GN 750-50-B14-N	50	B 14	40	37.5	23	11	28	22	3.8	63	130	412
GN 750-50-B16-N	50	B 16	40	37.5	23	11	28	22	3.8	63	130	406
GN 750-32-V10-M	32	V 10	25	23	18	8	21	15	4.2	43	84	116
GN 750-40-V10-M	40	V 10	32	30	21	9	25	19	4	54	106	232
GN 750-40-V12-M	40	V 12	32	30	21	9	25	19	4	54	106	225
GN 750-50-V14-M	50	V 14	40	37.5	23	11	28	22	3.8	63	130	412
GN 750-50-V16-M	50	V 16	40	37.5	23	11	28	22	3.8	63	130	406
GN 750-32-V10-N	32	V 10	25	23	18	8	21	15	4.2	43	84	116
GN 750-40-V10-N	40	V 10	32	30	21	9	25	19	4	54	106	232
GN 750-50-V14-N	50	V 14	40	37.5	23	11	28	22	3.8	63	130	412
GN 750-50-V16-N	50	V 16	40	37.5	23	11	28	22	3.8	63	130	403
GN 750-32-K10-M	32	K 10	25	23	18	8	21	15	4.2	43	84	121
GN 750-40-K10-M	40	K 10	32	30	21	9	25	19	4	54	106	236
GN 750-40-K12-M	40	K 12	32	30	21	9	25	19	4	54	106	229
GN 750-50-K14-M	50	K 14	40	37.5	23	11	28	22	3.8	63	130	408
GN 750-50-K16-M	50	K 16	40	37.5	23	11	28	22	3.8	63	130	402
GN 750-32-K10-N	32	K 10	25	23	18	8	21	15	4.2	43	84	121
GN 750-40-K10-N	40	K 10	32	30	21	9	25	19	4	54	106	236
GN 750-40-K12-N	40	K 12	32	30	21	9	25	19	4	54	106	229
GN 750-50-K14-N	50	K 14	40	37.5	23	11	28	22	3.8	63	130	408
GN 750-50-K16-N	50	K 16	40	37.5	23	11	28	22	3.8	63	130	402



Control levers

arranged for clicking operation, technopolymer

LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.

LEVER ARM

Matte chrome-plated steel with cylindrical handle l.280 (see page 568) in Duroplast.

SELF-ADHESIVE FRONT PLATE

Matte anodised aluminium to be fitted after the assembly of the lever.

STANDARD EXECUTIONS

- **LBR-A:** black-oxide steel boss, H7 reamed hole.
 - **LBR-N:** without boss, with plain hole and flat face.
- LBR.45 N and LBR.54 N: flat face opposite to the arm.
LBR.75 N: flat face in correspondance of the arm.

MANOEUVRE ANGLE LIMITATION

A limited manoeuvre angle is possible by fitting stop pins in the rear guide slot.

ACCESSORIES ON REQUEST

- Axial retaining washer GN 184 (see page 971).
- Ball and spring for clicking operation to be fitted into the two holes d3 drilled at 180° (see ball and spring MS. on page 610).

SPECIAL EXECUTIONS ON REQUEST

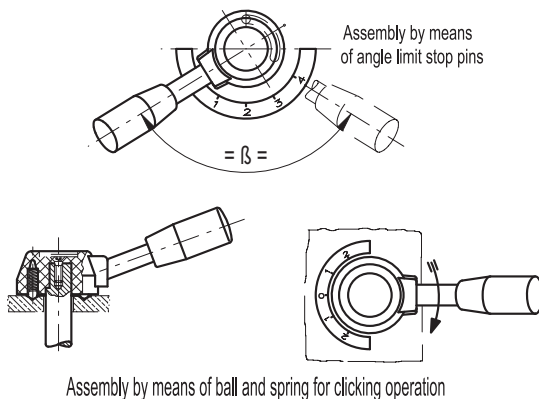
- Different arm lengths and handle shapes.
- Front plate with words, marks, symbols, graphics.

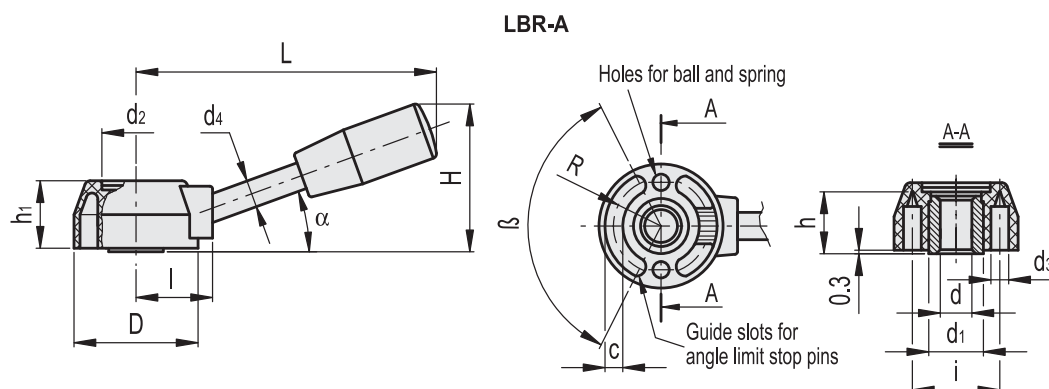


ELESA Original design

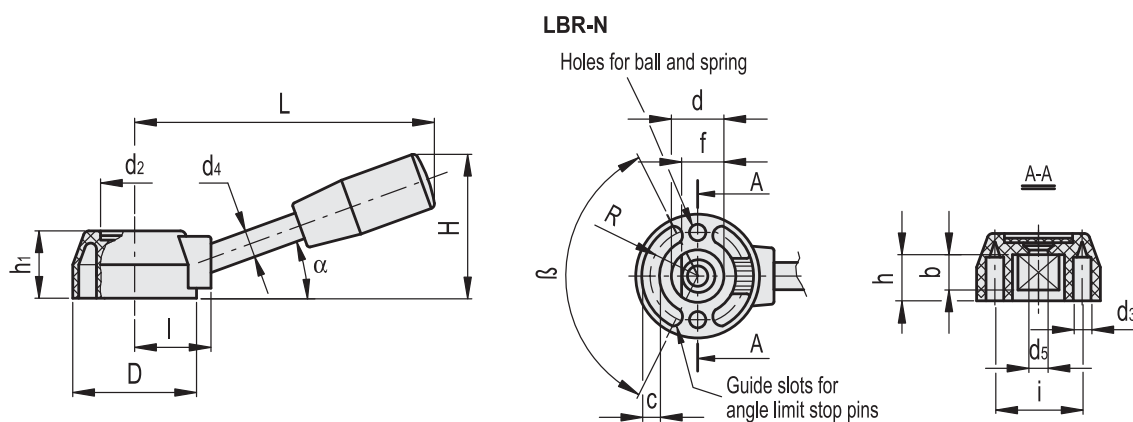


Assembly examples



**LBR-A**

Code	Description	D	dh7	L	H	h	h1	d1	d2	d3	d4	i	I	R	c	α	β	Δ
33101	LBR.37/85 A-8	37	8	81	46	17	20	18	21	5	10	26	22	13.8	4.3	25°	125±1°	75
33102	LBR.37/85 A-10	37	10	81	46	17	20	18	21	5	10	26	22	13.8	4.3	25°	125±1°	71
33103	LBR.37/85 A-12	37	12	81	46	17	20	18	21	5	10	26	22	13.8	4.3	25°	125±1°	66
33201	LBR.45/110 A-8	45	8	108	52	22	25	22	25	6	10	32	28	17.5	7	20°	125±1°	132
33202	LBR.45/110 A-12	45	12	108	52	22	25	22	25	6	10	32	28	17.5	7	20°	125±1°	120
33203	LBR.45/110 A-15	45	15	108	52	22	25	22	25	6	10	32	28	17.5	7	20°	125±1°	105
33301	LBR.54/130 A-10	54	10	127	61	27	30	26	31	8	12	39	34	20.2	7.3	20°	125±1°	213
33302	LBR.54/130 A-14	54	14	127	61	27	30	26	31	8	12	39	34	20.2	7.3	20°	125±1°	198
33303	LBR.54/130 A-18	54	18	127	61	27	30	26	31	8	12	39	34	20.2	7.3	20°	125±1°	175
33401	LBR.75/170 A-18	75	18	170	80	34	38	30	42	10	14	55	45	26	15	20°	105±1°	360

**LBR-N**

Code	Description	D	dh8	L	H	h	h1	d2	d3	d4	d5	i	I	R	c	α	β	f+0.05	b	Δ
33211	LBR.45/110 N-16	45	16	108	52	16	25	25	6	10	6.5	32	28	17.5	7	20°	125±1°	13	12	80
33311	LBR.54/130 N-22	54	22	125	66	21	30	31	8	12	6.5	39	34	20.2	7.3	25°	125±1°	19	16	130
33411	LBR.75/170 N-25	75	25	170	80	26	38	42	10	14	8.5	55	45	26	15	20°	105±1°	22	21	255

Control levers

arranged for clicking operation, technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

BOSS CAP

Technopolymer, matte finish, push-fit assembly, removable by a screwdriver, included in the supply.

Available also as accessory sold separately (see table ECB.).

Code	Description	Boss cap for
29551-*	ECB.T1-*	ELC.67
29552-*	ECB.T2-*	ELC.85
29553-*	ECB.T3-*	ELC.110
29554-*	ECB.T4-*	ELC.140

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTIONS

- **ELC:** black-oxide steel boss, H7 reamed hole, cap in the Ergostyle colours.
- **ELC-FC3:** black-oxide steel boss, H7 reamed hole, cap in RAL 7035 light grey colour, with arrow indicator.
- **ELC-SST:** AISI 303 stainless steel boss, H7 reamed hole, cap in the Ergostyle colours.
- **ELC-SST-FC3:** AISI 303 stainless steel boss, H7 reamed hole, cap in RAL 7035 light grey colour, with arrow indicator.

ERGONOMY

Rotations are performed smoothly and powerfully thanks to the heavy-duty arm of the lever, while the enlarged and sunken semispherical end offers an effective grip.

MANOEUVRE ANGLE LIMITATION

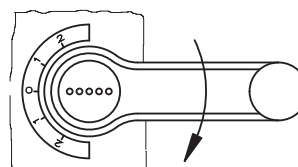
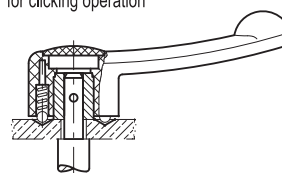
A limited manoeuvre angle is possible by fitting stop pins in the rear guide slot.

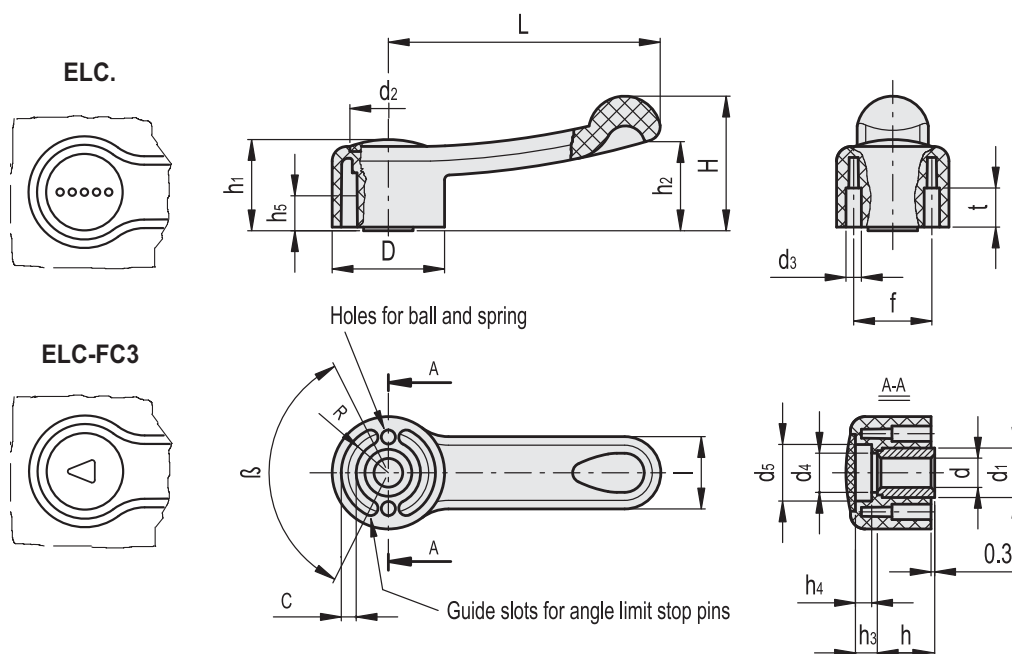
- Axial retaining washer GN 184 (see page 971).
- Ball and spring for clicking operation to be fitted into the two holes d3 drilled at 180° (see ball and spring MS. on page 610).



Assembly example

by means of ball and spring for clicking operation





* Complete with colour index, example: 212121-C2 ELC.67 A-6-C2

C1 RAL7021
 C2 RAL2004
 C3 RAL7035
 C4 RAL1021
 C5 RAL5024
 C6 RAL3000

ELC.

Code	Description	D	dh7	L	H	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	△
212121-*	ELC.67 A-6-*	32	6	67	35	16	24	24	5	3	10	15	22.5	4	10	16	20	12	9	4	125±1°	24	50
212131-*	ELC.85 A-8-*	37	8	85	41	17.5	27	27	7.5	5	10	18	26	5	13.5	20	23	13.8	12.5	4.3	125±1°	26	63
212141-*	ELC.110 A-12-*	46	12	110	54	22	35	36	10	8	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	129
212151-*	ELC.140 A-14-*	54	14	140	60	27	38	38	8.5	6	10	26	36	8	21	31	34	20.2	16	7	125±1°	39	145

ELC-FC3

Code	Description	D	dh7	L	H	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	△
212121-FC3	ELC.67 A-6-FC3	32	6	67	35	16	24	24	5	3	10	15	22.5	4	10	16	20	12	9	4	125±1°	24	50
212131-FC3	ELC.85 A-8-FC3	37	8	85	41	17.5	27	27	7.5	5	10	18	26	5	13.5	20	23	13.8	12.5	4.3	125±1°	26	63
212141-FC3	ELC.110 A-12-FC3	46	12	110	54	22	35	36	10	8	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	129
212151-FC3	ELC.140 A-14-FC3	54	14	140	60	27	38	38	8.5	6	10	26	36	8	21	31	34	20.2	16	7	125±1°	39	145

ELC-SST

STAINLESS STEEL

Code	Description	D	dh7	L	H	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	△
212161-*	ELC.67-SST-6-*	32	6	67	35	16	24	24	5	3	10	15	22.5	4	10	16	20	12	9	4	125±1°	24	50
212171-*	ELC.85-SST-8-*	37	8	85	41	17.5	27	27	7.5	5	10	18	26	5	13.5	20	23	13.8	12.5	4.3	125±1°	26	63
212181-*	ELC.110-SST-12-*	46	12	110	54	22	35	36	10	8	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	129
212191-*	ELC.140-SST-14-*	54	14	140	60	27	38	38	8.5	6	10	26	36	8	21	31	34	20.2	16	7	125±1°	39	145

ELC-SST-FC3

STAINLESS STEEL

Code	Description	D	dh7	L	H	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	△
212161-FC3	ELC.67-SST-6-FC3	32	6	67	35	16	24	24	5	3	10	15	22.5	4	10	16	20	12	9	4	125±1°	24	50
212171-FC3	ELC.85-SST-8-FC3	37	8	85	41	17.5	27	27	7.5	5	10	18	26	5	13.5	20	23	13.8	12.5	4.3	125±1°	26	63
212181-FC3	ELC.110-SST-12-FC3	46	12	110	54	22	35	36	10	8	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	129
212191-FC3	ELC.140-SST-14-FC3	54	14	140	60	27	38	38	8.5	6	10	26	36	8	21	31	34	20.2	16	7	125±1°	39	145



Control lever

arranged for clicking operation, technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

BOSS CAP

Technopolymer in the Ergostyle colours, matte finish. Supplied, push-fit assembly, removable by a screwdriver.

Available also as accessory sold separately (see table ECB.).

Code	Description	Boss cap for
29553-*	ECB.T3-*	ELCR.118

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTION

Black-oxide steel boss, H7 reamed hole

FEATURES AND APPLICATIONS

Control levers ELCR. have a straight lever, parallel to the clamping surface. Particularly suitable when the lever turning angle is limited owing to lack of space.

ERGONOMY

Rotations are performed smoothly and powerfully thanks to the heavy-duty arm of the lever, while the enlarged end offers an effective grip.

MANOEUVRE ANGLE LIMITATION

A limited manoeuvre angle is possible by fitting stop pins in the rear guide slot.

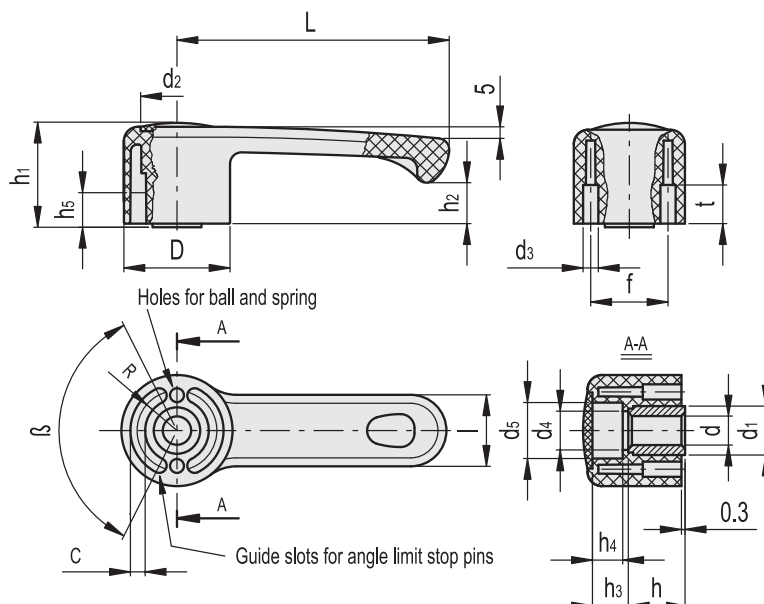
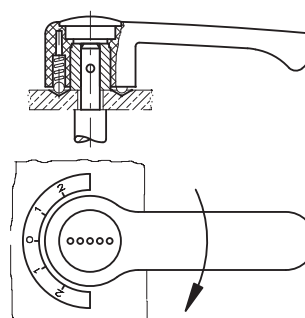
ACCESSORIES ON REQUEST

- Axial retaining washer GN 184 (see page 971).
- Ball and spring for clicking operation to be fitted into the two holes d3 drilled at 180° (see ball and spring MS. on page 610).



ERGOSTYLE®

Assembly example
by means of ball and spring
for clicking operation



* Complete with colour index, example: 212241-C2 ELCR.118 A-12-C2

					
C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

Code	Description	D	dh7	L	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	△
212241-*	ELCR.118 A-12-*	46	12	118	22	44	18.5	19	17	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	135



6
Control elements

Indexing levers

SPECIFICATION

Types

- Type **A**: without serrations
- Type **B**: with 30 serrations

Steel
blackened

Cover Plastic
black, with inserted Alu-disc
matt anodized, natural colour

Keyway for bore
K10: 3 P9 x 1.1
K12 ... K16: DIN 6885/2

Ball knob DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

INFORMATION

With indexing levers GN 215 shafts can be turned through a predetermined angle and positively locked. To index, lift the lever against spring pressure from serrations (one hand control).

The **bush** is connected to the shaft via keyway.

The **location flange** is bolted to the machine with two socket head cap screws (M5).

The **lever**, via the location pin, provides the connection between shaft and location flange).

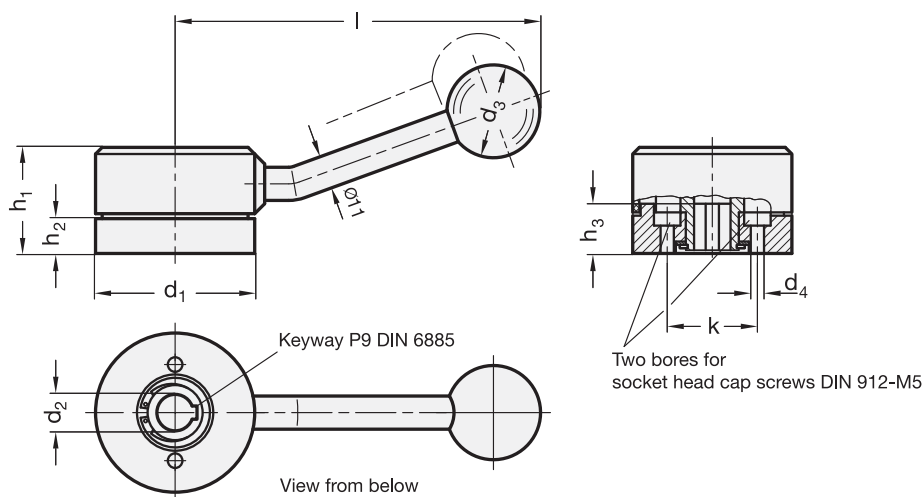
The serrations are protected from swarf and similar particles by the cover. This cover can be inserted by hand (elastic segments engage into a groove) and removed with a screw driver.

ON REQUEST

- Serrations, restricted angle to drawing

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 215

Description	d1	d2 H7	d3	d4	d5	h1	h2	h3 max.	k	l	w +0.5°	⚖
GN 215-54-K10-A	54	K 10	32	5.2	44.5	37	13	16.5	30	122	22°	470
GN 215-54-K12-A	54	K 12	32	5.2	44.5	37	13	16.5	30	122	22°	466
GN 215-60-K14-A	60	K 14	32	5.2	50	39	15	18.5	36	125	19°	619
GN 215-60-K16-A	60	K 16	32	5.2	50	39	15	18.5	36	125	19°	597
GN 215-54-K10-B	54	K 10	32	5.2	44.5	37	13	16.5	30	122	22°	461
GN 215-54-K12-B	54	K 12	32	5.2	44.5	37	13	16.5	30	122	22°	457
GN 215-60-K14-B	60	K 14	32	5.2	50	39	15	18.5	36	125	19°	608
GN 215-60-K16-B	60	K 16	32	5.2	50	39	15	18.5	36	125	19°	580

TECHNICAL AND ASSEMBLY INSTRUCTIONS

The location pin is a wedge-type as standard, which guarantees backlash-free positioning and also achieving easy engagement and disengagement. Special serrations and dowel pins which restrict the indexing angle can be produced to customers requirement. Please ask for a quotation.

If backlash-free positioning is not required, a dowel pin (made from a grub screw) can be used. The serrations can be made square or with dowels and suitable holes. Such holes have to be made large enough to ensure that the dowel is not restricted on engagement (lever swivel radius).

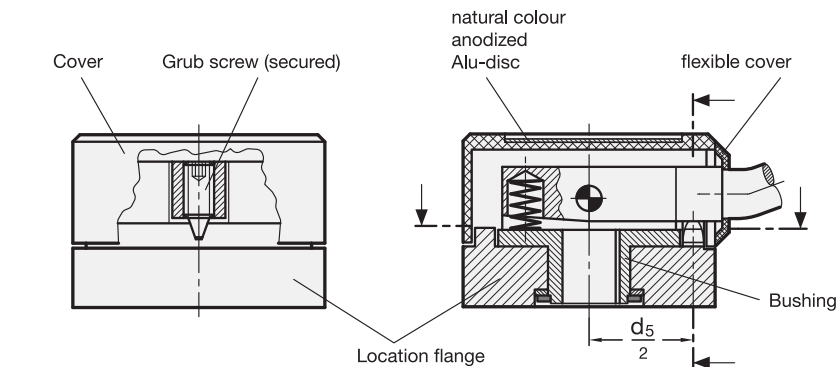
Smallest available angle for special serrations:

Size 54 - 11°

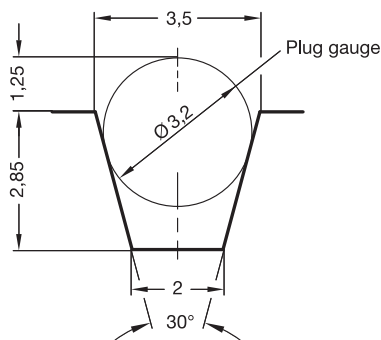
Size 60 - 9°

Smaller angles can be achieved with suitable serrations and dowels.

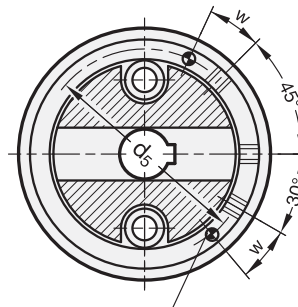
Milling cutter for standard serrations can be supplied.



Enlargement of serrations
with plug gauge to aid checking



Example with
three serrations and restricted indexing angle



Dowel pin ISO 8750 Ø 3,5 x 7 mm protruding
(only applicable when restricted indexing angle is required)
w = angle from serration (lever position)

Rulers

self-adhesive

SPECIFICATION

Types

- Type **W**: Figures horizontally arranged (Figure sequence L, M, R)
- Type **S**: Figure vertically arranged (Figure sequence U, M, O)

Stainless Steel **NI**

- Thickness 0.6 mm
- Scale etched

Plastic **KUS**

- Thickness 0.3 mm
- highlighted in silver
- Scale printed



INFORMATION

To stick the ruler GN 711 remove the protective strip at the back.
 The engraved side of Stainless Steel-Rulers is also protected by a strip.

Figure sequence **L**

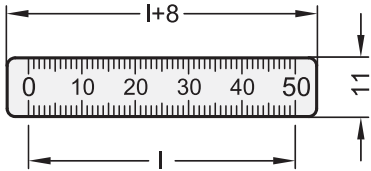


Figure sequence **M**

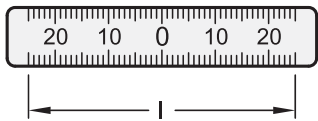


Figure sequence **R**



Figure sequence **U**

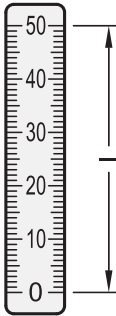


Figure sequence **M**

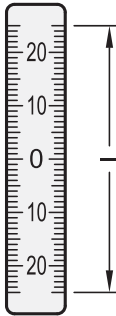
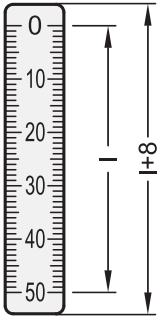


Figure sequence **O**



* Complete with material of the Rulers (NI or KUS)

NI	KUS
Stainless Steel	Plastic, silver

GN 711

STAINLESS STEEL

Description	L	⚖
GN 711-*-50-W-L	50	3
GN 711-*-50-W-M	50	3
GN 711-*-50-W-R	50	3
GN 711-*-50-S-M	50	3
GN 711-*-50-S-U	50	3
GN 711-*-50-S-O	50	3

* Complete with material of the Rulers (NI or KUS)

NI	KUS
Stainless Steel	Plastic, silver

GN 711

STAINLESS STEEL

Description	l	
GN 711-*-100-W-L	100	5
GN 711-*-100-W-M	100	5
GN 711-*-100-W-R	100	5
GN 711-*-100-S-M	100	5
GN 711-*-100-S-U	100	5
GN 711-*-100-S-O	100	5
GN 711-*-150-W-L	150	7
GN 711-*-150-W-M	150	7
GN 711-*-150-W-R	150	7
GN 711-*-150-S-M	150	7
GN 711-*-150-S-U	150	7
GN 711-*-150-S-O	150	7
GN 711-*-200-W-L	200	9
GN 711-*-200-W-M	200	9
GN 711-*-200-W-R	200	9
GN 711-*-200-S-M	200	9
GN 711-*-200-S-U	200	9
GN 711-*-200-S-O	200	9
GN 711-*-300-W-L	300	13
GN 711-*-300-W-M	300	13
GN 711-*-300-W-R	300	13
GN 711-*-300-S-M	300	13
GN 711-*-300-S-U	300	13
GN 711-*-300-S-O	300	13
GN 711-*-400-W-L	400	18
GN 711-*-400-W-M	400	18
GN 711-*-400-W-R	400	18
GN 711-*-400-S-M	400	18
GN 711-*-400-S-U	400	18
GN 711-*-400-S-O	400	18
GN 711-*-500-W-L	500	22
GN 711-*-500-W-M	500	22
GN 711-*-500-W-R	500	22
GN 711-*-500-S-M	500	22
GN 711-*-500-S-U	500	22
GN 711-*-500-S-O	500	22
GN 711-*-750-W-L	750**	33
GN 711-*-750-W-M	750**	33
GN 711-*-750-W-R	750**	33
GN 711-*-750-S-M	750**	33
GN 711-*-750-S-U	750**	33
GN 711-*-750-S-O	750**	33
GN 711-*-1000-W-L	1000**	44
GN 711-*-1000-W-M	1000**	44
GN 711-*-1000-W-R	1000**	44
GN 711-*-1000-S-M	1000**	44
GN 711-*-1000-S-U	1000**	44
GN 711-*-1000-S-O	1000**	44

** The NI-version of this length consists of 2 parts.



Rulers

with mounting holes $\varnothing 3.3$

SPECIFICATION

Types

- Type **W**: Figures horizontally arranged (Figure sequence L, M, R)
- Type **S**: Figures vertically arranged (Figure sequence U, M, O)

Identification No.

No. **1**: with mounting holes $\varnothing 3.3$

Aluminium **AL**

natural colour anodized

black imprint with numbers and scale
etched (i.e., aluminium coloured)

Imprint resistant to weak acids and lye
solutions, and against solvents in the event
of brief contact

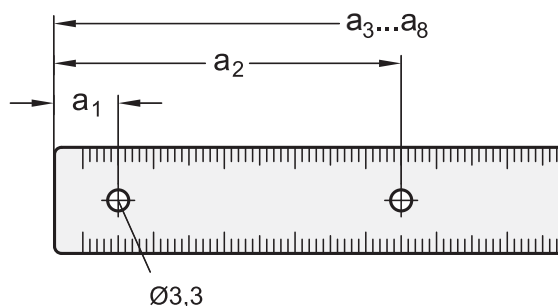
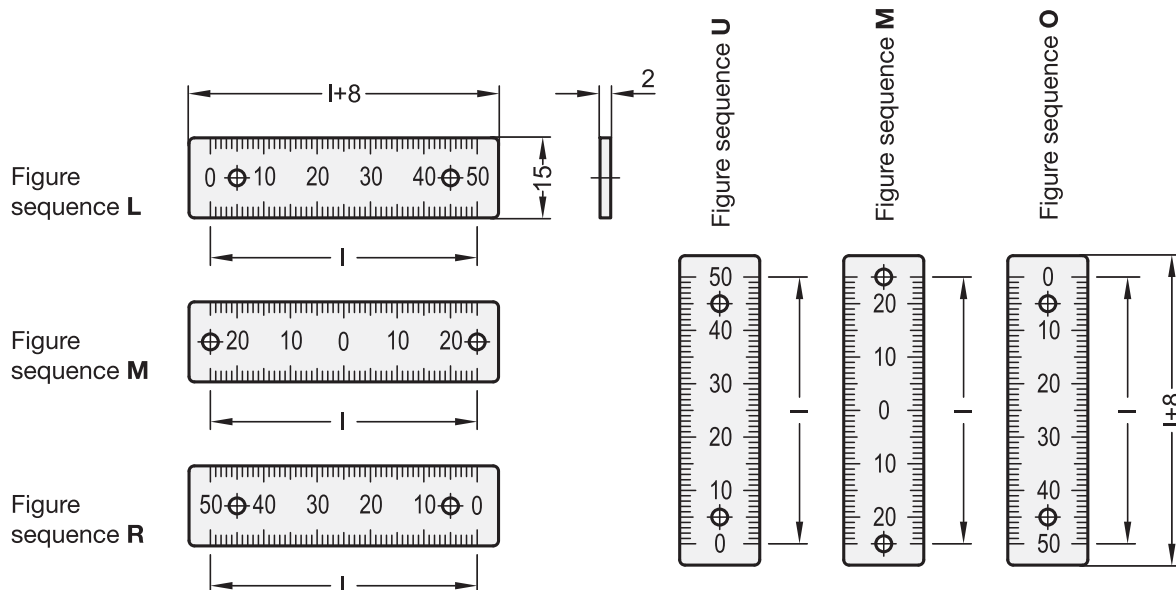


INFORMATION

- Rulers GN 711 (Stainless Steel, Plastic, self-adhesive)
(see page 636)

ON REQUEST

- self-adhesive version



GN 711.2

Description	l	Number	a1 ±0.1	a2 ±0.1	a3 ±0.1	a4 ±0.1	a5 ±0.1	a6 ±0.1	a7 ±0.1	a8 ±0.1	⚖
GN 711.2-AL-50-W-L-1	50	2	9	49	-	-	-	-	-	-	4
GN 711.2-AL-50-W-M-1	50	2	4	54	-	-	-	-	-	-	4
GN 711.2-AL-50-W-R-1	50	2	9	49	-	-	-	-	-	-	4
GN 711.2-AL-100-W-L-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-100-W-M-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-100-W-R-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-150-W-L-1	150	2	9	149	-	-	-	-	-	-	12
GN 711.2-AL-150-W-M-1	150	2	4	154	-	-	-	-	-	-	12
GN 711.2-AL-150-W-R-1	150	2	9	149	-	-	-	-	-	-	12
GN 711.2-AL-200-W-L-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-200-W-M-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-200-W-R-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-300-W-L-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-300-W-M-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-300-W-R-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-400-W-L-1	400	4	9	139	269	399	-	-	-	-	34
GN 711.2-AL-400-W-M-1	400	4	9	139	269	399	-	-	-	-	34
GN 711.2-AL-400-W-R-1	400	4	9	139	269	399	-	-	-	-	34
GN 711.2-AL-500-W-L-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-500-W-M-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-500-W-R-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-750-W-L-1	750*	8	9	129	249	369	389	509	629	749	60
GN 711.2-AL-750-W-M-1	750*	9	4	124	254	374	394	504	634	754	60
GN 711.2-AL-750-W-R-1	750*	8	9	129	249	369	389	509	629	749	60
GN 711.2-AL-1000-W-L-1	1000*	8	9	169	339	499	519	679	839	999	81
GN 711.2-AL-1000-W-M-1	1000*	8	9	169	499	499	514	679	839	999	81
GN 711.2-AL-1000-W-R-1	1000*	8	9	169	339	499	519	679	839	999	81
GN 711.2-AL-50-S-M-1	50	2	9	54	-	-	-	-	-	-	4
GN 711.2-AL-50-S-U-1	50	2	9	49	-	-	-	-	-	-	4
GN 711.2-AL-50-S-O-1	50	2	9	49	-	-	-	-	-	-	4
GN 711.2-AL-100-S-M-1	100	2	4	99	-	-	-	-	-	-	8
GN 711.2-AL-100-S-U-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-100-S-O-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-150-S-M-1	150	2	4	154	-	-	-	-	-	-	12
GN 711.2-AL-150-S-U-1	150	2	9	149	-	-	-	-	-	-	12
GN 711.2-AL-150-S-O-1	150	2	9	149	-	-	-	-	-	-	12
GN 711.2-AL-200-S-M-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-200-S-U-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-200-S-O-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-300-S-M-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-300-S-U-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-300-S-O-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-400-S-M-1	400	4	9	139	269	399	-	-	-	-	30
GN 711.2-AL-400-S-U-1	400	4	9	139	269	399	-	-	-	-	30
GN 711.2-AL-400-S-O-1	400	4	9	139	269	399	-	-	-	-	30
GN 711.2-AL-500-S-M-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-500-S-U-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-500-S-O-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-750-S-M-1	750*	8	4	124	254	374	394	504	634	754	60
GN 711.2-AL-750-S-U-1	750*	8	9	129	249	364	389	509	829	749	60
GN 711.2-AL-750-S-O-1	750*	8	9	129	249	364	389	509	829	749	60
GN 711.2-AL-1000-S-M-1	1000*	8	9	169	339	499	519	679	839	999	81
GN 711.2-AL-1000-S-U-1	1000*	8	9	169	329	499	519	679	839	999	81
GN 711.2-AL-1000-S-O-1	1000*	8	9	169	329	499	519	679	839	999	81

* These lengths consist of 2 parts.



Indicator arrows for rulers

self-adhesive

SPECIFICATION

Stainless Steel **NI**

- Thickness 0.6 mm
- Scale etched

Plastic **KUS**

- Thickness 0.3 mm
- highlighted in silver
- Scale printed

Plastic **KUT**

- Thickness 0.3 mm
- transparent
- Scale printed

Indicator arrow scale for GN 711.2

with mounting holes $\varnothing 3.3$

SPECIFICATION

Identification No.

No. **1**: with mounting holes $\varnothing 3.3$

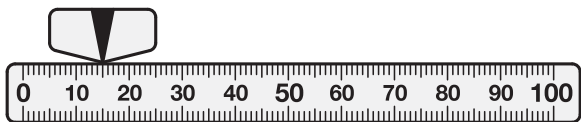
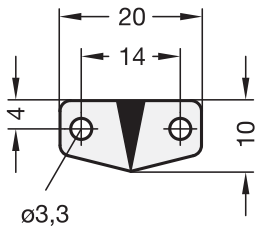
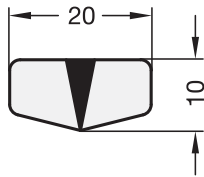
Aluminium **AL**

natural colour anodized

black imprint with arrow

etched (i.e., aluminium coloured)

Imprint resistant to weak acids and lye solutions, and against solvents in the event of brief contact



GN 711.1

STAINLESS STEEL

Description	
GN 711.1-NI	6
GN 711.1-KUS	1
GN 711.1-KUT	3

GN 711.3

Description	
GN 711.3-AL-1	1

Adjustable slide units

Description

The adjustable slide units GN 900 (see page 664) are a work holding system which can accommodate almost any type of application.

Four standard sizes are available with different slide widths i.e. 30, 50, 80 and 120 mm which again cover almost a full specific range of applications.

As standard for each slide width there are externally guided slides with different openings. The design of these adjustable slide units can accommodate outsize components.

These adjustable slide units can be combined with a range of adaptor components to bring the adjustable slide unit into any required position whether horizontal, vertical or any other angular position for machining operations. A unique clamping technique allows simple and rapid workpiece clamping.

All components are in aluminium, stainless steel and plastic material which makes the adjustable slide units with control knob (Type D) a corrosion free unit.

A range of different operating features with or without digital position indicators is also available. In addition there is a range of other accessories.

Other features

- slides in anodized aluminium
- high load ratings
- favourable friction values
- high quality slideways by virtue of the anodized surface hardness
- backlash free shaft adjustment
- fine adjustment to 0.05 mm
- scale rings with zero position
- adjustable clamping levers to suit the positioning of the slides

Application examples

- Precision positioning of soldering / welding heads
- Adjustment of inkjet printers
- Adjustment of measurement cameras
- Adjustment of laser heads
- Re-adjustment of back stops
- Adjustment of sensors



Specifications with control knob (Type D)



Specifications with control knob and position indicator (Type DN / DR)



Specifications with handwheel (Type H)



Specifications with handwheel and position indicator (Type HN / HR)



Specifications without adjustable spindle (Type S) for manual or pneumatic operation

Adjustable slide units

The manually operated rotary table GN 900.6 (see page 677) is a positioner which extends the range of applications for the adjustable slide units considerably. This rotary table can, of course, also be used without the adjustable slide units.



The adjustable assembly X-Y consisting of two adjustable slide units GN 900 (see page 668) and an X-Y connecting set GN 900.2 (see page 673) with a mounting plate GN 900.4 (see page 675).



The adjustable assembly X-Y-Z consisting of three adjustable slide units GN 900 (see page 668), X- and Z-axis with position indicator, plus rotary table GN 900.6 (see page 677) mounted on Z-axis, assembled on mounting plate GN 900.4 (see page 675).



The adjustable assembly X-Y consisting of two adjustable slide units GN 900 (see page 668), Y-axis with rotary plate GN 900.5 (see page 676) positioned at a horizontal cross angle of 120°.



Special execution

Adjustable slide unit type S with a mounted pneumatic cylinder.



6
Control elements

Adjustable slide units

Features

The outer slide is made of a press formed block of anodized aluminium extrusion which is usually the moving part. As a standard there is usually one outer slide size for each outside slide length on which the connecting sets GN 900.2 (see page 673) and mounting plates GN 900.4 (see page 675) and rotary plates GN 900.5 (see page 676) can be mounted. Special lengths can be supplied.

The inner slide is also made of a press formed block of anodized aluminium extrusion which is the carrier. The guides are made of two high grade shafts in stainless steel.

High load ratings and favourable friction values is achieved by the anodized hard guide surfaces.

The length of the inner slide is determined by the length of the outer slide by adding the stroke.

The backlash free drive unit consists of an end plate and a preloaded stainless steel spindle, ball bearing mounted, and a preloaded plastic nut (temperature resistant from -20 °C up to +80 °C).

The thread pitches are:

Slide size b = 30 : 0.5 mm

Slide size b = 50, 80, 120 : 1.0 mm

For positioning a scale is used (one graduation line = 0.05 mm adjustable range) which can be reset to „0“.

Permissible load values of the adjustable slide units GN 900

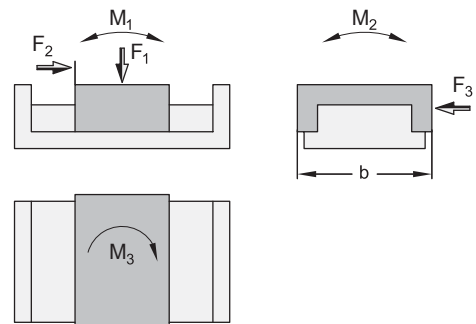
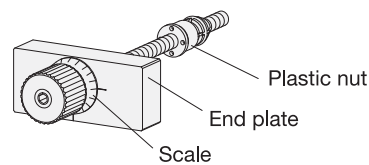
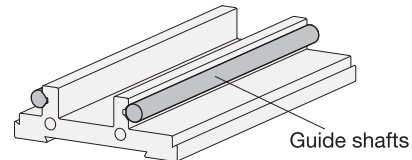
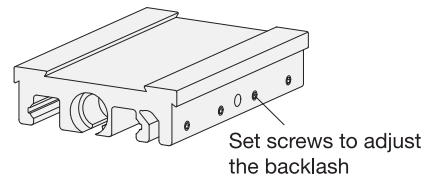
b	F ₁ in N	F ₂ * in N	F ₃ in N	M ₁ in Nm	M ₂ in Nm	M ₃ in Nm
30	150	40	65	45	2	1
50	300	120	215	70	5	3
80	500	150	365	120	10	6
120	1000	300	700	160	20	12

* F₂ is the max/permissible sliding thrust

Fastening units GN 900.1 (see page 672) consist to two mounting rails. On the latter, the adjustable slide unit is mounted on a base plate from the operator's side.

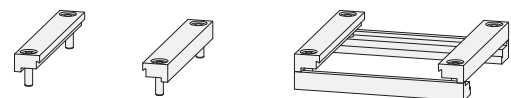
Connecting sets GN 900.2 (see page 673) consist of four rails. With the latter, two adjustable slide units are combined to form an adjustable assembly X-Y (or Y-Z).

Connecting sets GN 900.3 (see page 674) consist of two plates. With the latter two adjustable slide units combined to form an adjustable assembly X-Z (or Y-Z). If this slide has to be parallel to the reference axis this is achieved by using an additional plate (Type P).



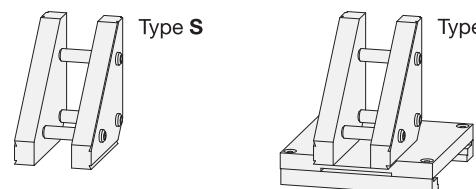
GN 900.1

GN 900.2



Type S

Type P



Adjustable slide units

Features

Mounting plates GN 900.4 (see page 675) serve as an adaptor plate to be machined on the side which is required for mounting. By using a machined mounting plate further work on the actual slide can be eliminated.

The plate is fixed with the fastening unit GN 900.1 (see page 672) on the adjustable slide unit.

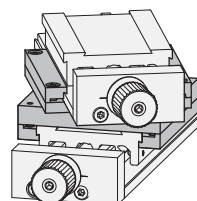
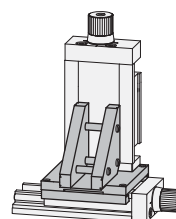
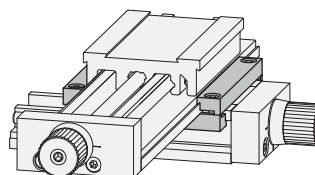
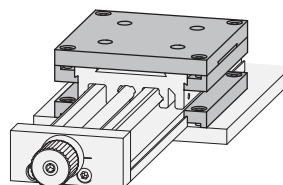
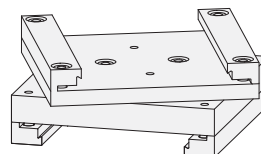
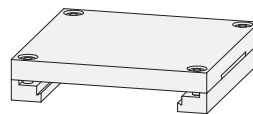
The rotary plate GN 900.5 (see page 676) allows oblique positioning of the adjustable slide unit at any angle.

Adjustable slide unit with mounting plate GN 900.4 (see page 675) fitted to the base plate by using fastening unit GN 900.1 (see page 672).

Adjustable slide unit X-Y, adjustable slide unit is fitted to the base plate using connecting set GN 900.2 (see page 673).

Adjustable slide unit X-Z, adjustable slide unit is connected together using the connecting set GN 900.3 (see page 674).

Adjustable slide unit X-Y, Y-slide with rotary plate GN 900.5 (see page 676) set shown in an angular position.



6
Control elements

Adjustable slide units

SPECIFICATION

Types

- Type **D**: with Control knob
- Type **H**: with handwheel (from size 50 upwards)
- Type **DN**: with control knob and digital position indicator DD51 (from size 50 upwards) (see page 718)
- Type **DR**: with control knob and digital position indicator DD51 (from size 50 upwards) (see page 718)
- Type **HN**: with handwheel and digital position indicator DD51 (from size 50 upwards) (see page 718)
- Type **HR**: with handwheel and digital position indicator DD51 (from size 50 upwards) (see page 718)
- Type **S**: without adjustable spindle and operating element (i. e. for mounting a pneumatic cylinder)

Identification No.

- No. **1**: without adjustable hand lever
- No. **2**: with adjustable hand lever (only from b=50)

Slides / end plates
Aluminium press formed
anodized extrusion, natural colour

Guide shafts
Stainless Steel

Drive

- Lead spindle / ball bearing Stainless Steel
- Lead nut Plastic

Fixing screws
Stainless Steel

Control knob / Scale ring
Aluminium, black anodized

INFORMATION

Adjustable slide units GN 900 can be combined with a range of adaptors to give various axis configurations. These fastening units and connecting sets (GN 900.1, GN 900.2, GN 900.3) can be clamped to the adjustable slide units in a rapid and simple way.

For fine adjustment there is a scale ring graduated in increments of 0.05 mm, with digital position indicator 0.02 mm.

Furthermore this adjustable slide units (Type D, with control knob) is rust proof.

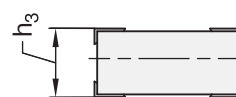
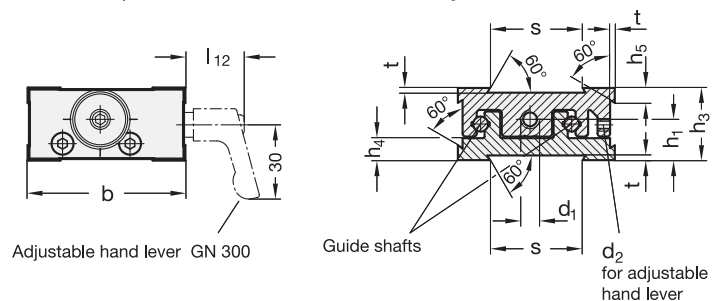
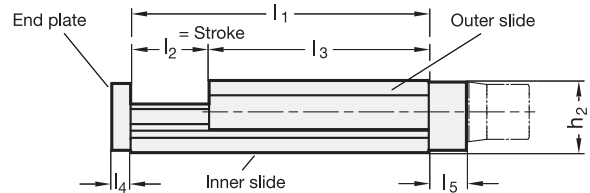
* Complete with identification no. of the adjustable slide unit (1 or 2)

- | | |
|-------------------------------|----------------------------|
| 1 | 2 |
| without adjustable hand lever | with adjustable hand lever |



TECHNICAL INFORMATION

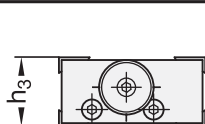
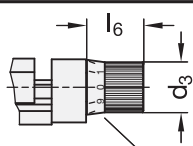
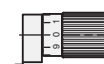
- Disc handwheels VDN.FP (see page 162)



GN 900-S

Description	b	l1 - l2	d1	d2	h1	h2	h3	h5	l3	l4	l5	l12	s	t	⚖
GN 900-50-95-25-S-*	50	95-25	M6 x 1	M 4	13	22.5	23	4.5	70	6	12	36	30	1.5	252
GN 900-50-120-50-S-*	50	120-50	M6 x 1	M 4	13	22.5	23	4.5	70	6	12	36	30	1.5	276
GN 900-50-145-75-S-*	50	145-75	M6 x 1	M 4	13	22.5	23	4.5	70	6	12	36	30	1.5	306
GN 900-50-170-100-S-*	50	170-100	M6 x 1	M 4	13	22.5	23	4.5	70	6	12	36	30	1.5	340
GN 900-80-145-25-S-*	80	145-25	M8 x 1	M 5	20.5	35.5	36	10	120	8	16	25	50	2	950
GN 900-80-170-50-S-*	80	170-50	M8 x 1	M 5	20.5	35.5	36	10	120	8	16	25	50	2	1000
GN 900-80-195-75-S-*	80	195-75	M8 x 1	M 5	20.5	35.5	36	10	120	8	16	25	50	2	1080
GN 900-80-220-100-S-*	80	220-100	M8 x 1	M 5	20.5	35.5	36	10	120	8	16	25	50	2	1250
GN 900-120-185-25-S-*	120	185-25	M10 x 1	M 5	26.3	45	46	10	160	10	18	25	80	2	2500
GN 900-120-210-50-S-*	120	210-50	M10 x 1	M 5	26.3	45	46	10	160	10	18	25	80	2	2785
GN 900-120-235-75-S-*	120	235-75	M10 x 1	M 5	26.3	45	46	10	160	10	18	25	80	2	2952
GN 900-120-260-100-S-*	120	260-100	M10 x 1	M 5	26.3	45	46	10	160	10	18	25	80	2	3457

Weight identification no. 1

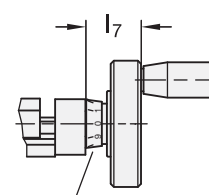
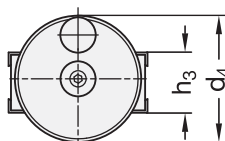
Type of control knob
for size 50 / 80 / 120Adjustable
scale ringType of control knob
for size 30

GN 900-D

Description	b	l1 - l2	d1	d2	d3	h1	h2	h3	h4	h5	l3	l4	l5	l6	l12	s	t	⚖️
GN 900-30-50-5-D-1	30	50-5	M4 x 0.5	M3	14	9.3	16	17	4	3	45	4	6	20	-	16	1	80
GN 900-30-55-10-D-1	30	55-10	M4 x 0.5	M3	14	9.3	16	17	4	3	45	4	6	20	-	16	1	80
GN 900-30-60-15-D-1	30	60-15	M4 x 0.5	M3	14	9.3	16	17	4	3	45	4	6	20	-	16	1	85
GN 900-30-65-20-D-1	30	65-20	M4 x 0.5	M3	14	9.3	16	17	4	3	45	4	6	20	-	16	1	97
GN 900-50-95-25-D-1	50	95-25	M6 x 1	M4	14	13	22.5	23	7	4.5	70	6	12	20	-	30	1.5	300
GN 900-50-120-50-D-1	50	120-50	M6 x 1	M4	17	13	22.5	23	7	4.5	70	6	12	20	-	30	1.5	340
GN 900-50-145-75-D-1	50	145-75	M6 x 1	M4	17	13	22.5	23	7	4.5	70	6	12	20	-	30	1.5	366
GN 900-50-170-100-D-1	50	170-100	M6 x 1	M4	17	13	22.5	23	7	4.5	70	6	12	20	-	30	1.5	400
GN 900-80-145-25-D-1	80	145-25	M8 x 1	M5	22	20.5	35.5	36	10	10	120	8	16	24	-	50	2	1060
GN 900-80-170-50-D-1	80	170-50	M8 x 1	M5	22	20.5	35.5	36	10	10	120	8	16	24	-	50	2	1100
GN 900-80-195-75-D-1	80	195-75	M8 x 1	M5	22	20.5	35.5	36	10	10	120	8	16	24	-	50	2	1220
GN 900-80-220-100-D-1	80	220-100	M8 x 1	M5	22	20.5	35.5	36	10	10	120	8	16	24	-	50	2	1300
GN 900-120-185-25-D-1	120	185-25	M10 x 1	M5	34	26.3	45	46	13.8	10	160	10	18	34	-	80	2	2800
GN 900-120-210-50-D-1	120	210-50	M10 x 1	M5	34	26.3	45	46	13.8	10	160	10	18	34	-	80	2	2950
GN 900-120-235-75-D-1	120	235-75	M10 x 1	M5	34	26.3	45	46	13.8	10	160	10	18	34	-	80	2	3118
GN 900-120-260-100-D-1	120	260-100	M10 x 1	M5	34	26.3	45	46	13.8	10	160	10	18	34	-	80	2	7000
GN 900-50-95-25-D-2	50	95-25	M6 x 1	M4	17	13	22.5	23	7	4.5	70	6	12	20	36	30	1.5	220
GN 900-50-120-50-D-2	50	120-50	M6 x 1	M4	17	13	22.5	23	7	4.5	70	6	12	20	36	30	1.5	360
GN 900-50-145-75-D-2	50	145-75	M6 x 1	M4	17	13	22.5	23	7	4.5	70	6	12	20	36	30	1.5	400
GN 900-50-170-100-D-2	50	170-100	M6 x 1	M4	17	13	22.5	23	7	4.5	70	6	12	20	36	30	1.5	430
GN 900-80-145-25-D-2	80	145-25	M8 x 1	M5	17	20.5	35.5	36	10	10	120	8	16	24	25	50	2	1080
GN 900-80-170-50-D-2	80	170-50	M8 x 1	M5	22	20.5	35.5	36	10	10	120	8	16	24	25	50	2	1160
GN 900-80-195-75-D-2	80	195-75	M8 x 1	M5	22	20.5	35.5	36	10	10	120	8	16	24	25	50	2	1250
GN 900-80-220-100-D-2	80	220-100	M8 x 1	M5	34	20.5	35.5	36	10	10	120	8	16	24	25	50	2	1300
GN 900-120-185-25-D-2	120	185-25	M10 x 1	M5	34	26.3	45	46	13.8	10	160	10	18	34	25	80	2	2800
GN 900-120-210-50-D-2	120	210-50	M10 x 1	M5	34	26.3	45	46	13.8	10	160	10	18	34	25	80	2	2900
GN 900-120-235-75-D-2	120	235-75	M10 x 1	M5	34	26.3	45	46	13.8	10	160	10	18	34	25	80	2	3000
GN 900-120-260-100-D-2	120	260-100	M10 x 1	M5	34	26.3	45	46	13.8	10	160	10	18	34	25	80	2	3320

* Complete with identification no. of the adjustable slide unit (1 or 2)

1 without adjustable hand lever
2 with adjustable hand lever



Adjustable scale ring

GN 900-H

Description	b	l1 - l2	d1	d2	d4	h1	h2	h3	h4	h5	l3	l4	l5	l7	l12	s	t	
GN 900-50-95-25-H-*	50	95-25	M6 x 1	M 4	50	13	22.5	23	7	4.5	70	6	12	22	36	30	1.5	355
GN 900-50-120-50-H-*	50	120-50	M6 x 1	M 4	50	13	22.5	23	7	4.5	70	6	12	22	36	30	1.5	380
GN 900-50-145-75-H-*	50	145-75	M6 x 1	M 4	50	13	22.5	23	7	4.5	70	6	12	22	36	30	1.5	421
GN 900-50-170-100-H-*	50	170-100	M6 x 1	M 4	50	13	22.5	23	7	4.5	70	6	12	22	36	30	1.5	500
GN 900-80-145-25-H-*	80	145-25	M8 x 1	M 5	80	20.5	35.5	36	10	10	120	8	16	31	25	50	2	1200
GN 900-80-170-50-H-*	80	170-50	M8 x 1	M 5	80	20.5	35.5	36	10	10	120	8	16	31	25	50	2	1260
GN 900-80-195-75-H-*	80	195-75	M8 x 1	M 5	80	20.5	35.5	36	10	10	120	8	16	31	25	50	2	1380
GN 900-80-220-100-H-*	80	220-100	M8 x 1	M 5	80	20.5	35.5	36	10	10	120	8	16	31	25	50	2	1500
GN 900-120-185-25-H-*	120	185-25	M10 x 1	M 5	100	26.3	45	46	13.8	10	160	10	18	40	25	80	2	3100
GN 900-120-210-50-H-*	120	210-50	M10 x 1	M 5	100	26.3	45	46	13.8	10	160	10	18	40	25	80	2	3180
GN 900-120-235-75-H-*	120	235-75	M10 x 1	M 5	100	26.3	45	46	13.8	10	160	10	18	40	25	80	2	3400
GN 900-120-260-100-H-*	120	260-100	M10 x 1	M 5	100	26.3	45	46	13.8	10	160	10	18	40	25	80	2	3480

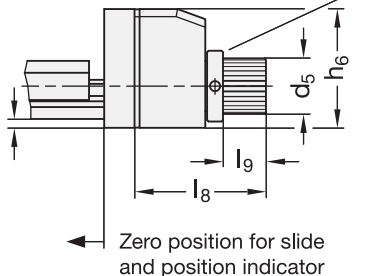
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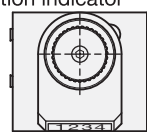


Type DN
Figure in front
of decimal point refers
to the movement in mm

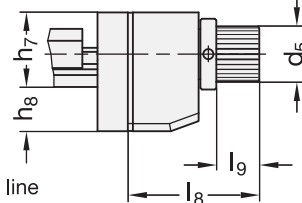
3,5 mm
protruding
on size 50



Set ring to re-adjust
zero position of
the position indicator

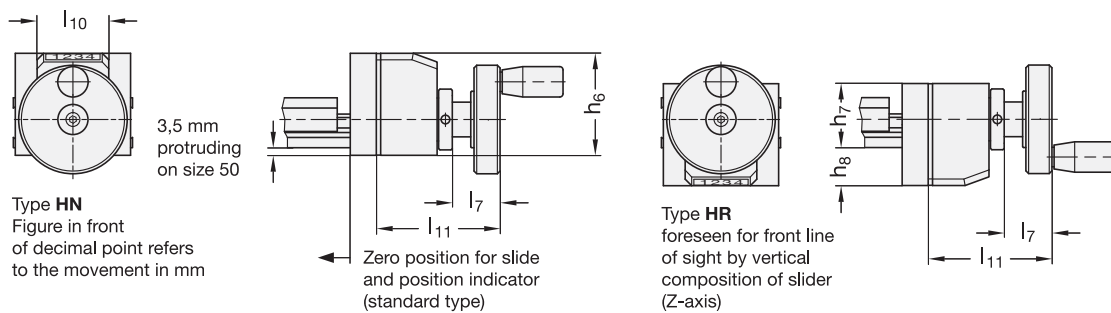


Type DR
foreseen for front line
of sight by vertical
composition of slider



GN 900-DN/DR

Description	b	l1 - l2	d1	d2	d5	h1	h2	h3	h4	h5	h6	h7	h8	l3	l4	l5	l8	l9	l10	l12	s	t	⚖
GN 900-50-95-25-DN-1	50	95-25	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	-	30	1.5	370
GN 900-50-120-50-DN-1	50	120-50	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	-	30	1.5	450
GN 900-50-145-75-DN-1	50	145-75	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	-	30	1.5	500
GN 900-50-170-100-DN-1	50	170-100	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	-	30	1.5	520
GN 900-80-145-25-DN-1	80	145-25	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	-	50	2	1200
GN 900-80-170-50-DN-1	80	170-50	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	-	50	2	1250
GN 900-80-195-75-DN-1	80	195-75	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	-	50	2	1340
GN 900-80-220-100-DN-1	80	220-100	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	-	50	2	1400
GN 900-120-185-25-DN-1	120	185-25	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	-	80	2	3500
GN 900-120-210-50-DN-1	120	210-50	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	-	80	2	3400
GN 900-120-235-75-DN-1	120	235-75	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	-	80	2	3400
GN 900-120-260-100-DN-1	120	260-100	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	-	80	2	3400
GN 900-50-95-25-DR-1	50	95-25	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	-	30	1.5	420
GN 900-50-120-50-DR-1	50	120-50	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	-	30	1.5	700
GN 900-50-145-75-DR-1	50	145-75	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	-	30	1.5	800
GN 900-50-170-100-DR-1	50	170-100	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	-	30	1.5	900
GN 900-80-145-25-DR-1	80	145-25	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	-	50	2	1180
GN 900-80-170-50-DR-1	80	170-50	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	-	50	2	1263
GN 900-80-195-75-DR-1	80	195-75	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	-	50	2	1330
GN 900-80-220-100-DR-1	80	220-100	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	-	50	2	1415
GN 900-120-185-25-DR-1	120	185-25	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	-	80	2	2900
GN 900-120-210-50-DR-1	120	210-50	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	-	80	2	3074
GN 900-120-235-75-DR-1	120	235-75	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	-	80	2	3240
GN 900-120-260-100-DR-1	120	260-100	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	-	80	2	3420
GN 900-50-95-25-DN-2	50	95-25	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	36	30	1.5	440
GN 900-50-120-50-DN-2	50	120-50	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	36	30	1.5	500
GN 900-50-145-75-DN-2	50	145-75	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	36	30	1.5	770
GN 900-50-170-100-DN-2	50	170-100	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	36	30	1.5	958
GN 900-80-145-25-DN-2	80	145-25	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	25	50	2	1220
GN 900-80-170-50-DN-2	80	170-50	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	25	50	2	1280
GN 900-80-195-75-DN-2	80	195-75	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	25	50	2	1360
GN 900-80-220-100-DN-2	80	220-100	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	25	50	2	1460
GN 900-120-185-25-DN-2	120	185-25	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	25	80	2	2900
GN 900-120-210-50-DN-2	120	210-50	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	25	80	2	3140
GN 900-120-235-75-DN-2	120	235-75	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	25	80	2	3300
GN 900-120-260-100-DN-2	120	260-100	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	25	80	2	3500
GN 900-50-95-25-DR-2	50	95-25	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	36	30	1.5	460
GN 900-50-120-50-DR-2	50	120-50	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	36	30	1.5	500
GN 900-50-145-75-DR-2	50	145-75	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	36	30	1.5	540
GN 900-50-170-100-DR-2	50	170-100	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	36	30	1.5	680
GN 900-80-145-25-DR-2	80	145-25	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	25	50	2	1200
GN 900-80-170-50-DR-2	80	170-50	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	25	50	2	1289
GN 900-80-195-75-DR-2	80	195-75	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	25	50	2	1360
GN 900-80-220-100-DR-2	80	220-100	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	25	50	2	1444
GN 900-120-185-25-DR-2	120	185-25	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	25	80	2	2938
GN 900-120-210-50-DR-2	120	210-50	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	25	80	2	3100
GN 900-120-235-75-DR-2	120	235-75	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	25	80	2	3273
GN 900-120-260-100-DR-2	120	260-100	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	25	80	2	3453



GN 900-HN/HR

Description	b	l1 - l2	d1	d2	d4	h1	h2	h3	h4	h5	h6	h7	h8	l3	l4	l5	l6	l7	l10	l11	l12	s	t	⚖
GN 900-50-95-25-HN-1	50	95-25	M6 x1	M4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	-	30	1.5	480
GN 900-50-120-50-HN-1	50	120-50	M6 x1	M4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	-	30	1.5	500
GN 900-50-145-75-HN-1	50	145-75	M6 x1	M4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	-	30	1.5	540
GN 900-50-170-100-HN-1	50	170-100	M6 x1	M4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	-	30	1.5	580
GN 900-80-145-25-HN-1	80	145-25	M8 x1	M5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	-	50	2	1344
GN 900-80-170-50-HN-1	80	170-50	M8 x1	M5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	-	50	2	1350
GN 900-80-195-75-HN-1	80	195-75	M8 x1	M5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	-	50	2	1550
GN 900-80-220-100-HN-1	80	220-100	M8 x1	M5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	-	50	2	1560
GN 900-120-185-25-HN-1	120	185-25	M10 x1	M5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	-	80	2	1835
GN 900-120-210-50-HN-1	120	210-50	M10 x1	M5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	-	80	2	2400
GN 900-120-235-75-HN-1	120	235-75	M10 x1	M5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	-	80	2	3400
GN 900-120-260-100-HN-1	120	260-100	M10 x1	M5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	-	80	2	3660
GN 900-50-95-25-HR-1	50	95-25	M6 x1	M4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	-	30	1.5	480
GN 900-50-120-50-HR-1	50	120-50	M6 x1	M4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	-	30	1.5	540
GN 900-50-145-75-HR-1	50	145-75	M6 x1	M4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	-	30	1.5	550
GN 900-50-170-100-HR-1	50	170-100	M6 x1	M4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	20	22	33	57	-	30	1.5	570
GN 900-80-145-25-HR-1	80	145-25	M8 x1	M5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	20	31	33	66	-	50	2	1320
GN 900-80-170-50-HR-1	80	170-50	M8 x1	M5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	20	31	33	66	-	50	2	1400
GN 900-80-195-75-HR-1	80	195-75	M8 x1	M5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	20	31	33	66	-	50	2	1500
GN 900-80-220-100-HR-1	80	220-100	M8 x1	M5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	20	31	33	66	-	50	2	1560
GN 900-120-185-25-HR-1	120	185-25	M10 x1	M5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	20	40	33	75	-	80	2	3122
GN 900-120-210-50-HR-1	120	210-50	M10 x1	M5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	20	40	33	75	-	80	2	3300
GN 900-120-235-75-HR-1	120	235-75	M10 x1	M5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	20	40	33	75	-	80	2	3457
GN 900-120-260-100-HR-1	120	260-100	M10 x1	M5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	24	40	33	75	-	80	2	3750
GN 900-50-95-25-HN-2	50	95-25	M6 x1	M4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	36	30	1.5	500
GN 900-50-120-50-HN-2	50	120-50	M6 x1	M4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	36	30	1.5	550
GN 900-50-145-75-HN-2	50	145-75	M6 x1	M4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	36	30	1.5	580
GN 900-50-170-100-HN-2	50	170-100	M6 x1	M4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	36	30	1.5	600
GN 900-80-145-25-HN-2	80	145-25	M8 x1	M5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	25	50	2	1100
GN 900-80-170-50-HN-2	80	170-50	M8 x1	M5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	25	50	2	1460
GN 900-80-195-75-HN-2	80	195-75	M8 x1	M5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	25	50	2	1520
GN 900-80-220-100-HN-2	80	220-100	M8 x1	M5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	25	50	2	1600
GN 900-120-185-25-HN-2	120	185-25	M10 x1	M5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	25	80	2	3150
GN 900-120-210-50-HN-2	120	210-50	M10 x1	M5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	25	80	2	3330
GN 900-120-235-75-HN-2	120	235-75	M10 x1	M5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	25	80	2	3500
GN 900-120-260-100-HN-2	120	260-100	M10 x1	M5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	25	80	2	3800
GN 900-50-95-25-HR-2	50	95-25	M6 x1	M4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	36	30	1.5	510
GN 900-50-120-50-HR-2	50	120-50	M6 x1	M4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	36	30	1.5	560
GN 900-50-145-75-HR-2	50	145-75	M6 x1	M4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	36	30	1.5	580
GN 900-50-170-100-HR-2	50	170-100	M6 x1	M4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	36	30	1.5	620
GN 900-80-145-25-HR-2	80	145-25	M8 x1	M5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	-	31	33	66	25	50	2	1340
GN 900-80-170-50-HR-2	80	170-50	M8 x1	M5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	-	31	33	66	25	50	2	1400
GN 900-80-195-75-HR-2	80	195-75	M8 x1	M5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	-	31	33	66	25	50	2	1500
GN 900-80-220-100-HR-2	80	220-100	M8 x1	M5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	20	31	33	66	25	50	2	1600
GN 900-120-185-25-HR-2	120	185-25	M10 x1	M5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	20	40	33	75	25	80	2	3140
GN 900-120-210-50-HR-2	120	210-50	M10 x1	M5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	20	40	33	75	25	80	2	3320
GN 900-120-235-75-HR-2	120	235-75	M10 x1	M5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	20	40	33	75	25	80	2	3500
GN 900-120-260-100-HR-2	120	260-100	M10 x1	M5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	24	40	33	75	25	80	2	3660

Fastening units

for adjustable slide units GN 900

SPECIFICATION

Types

- Type **A**: with bore for cap screw
- Type **B**: with threaded bore d_2

Aluminium

anodized, natural colour

Socket head cap screw DIN 912

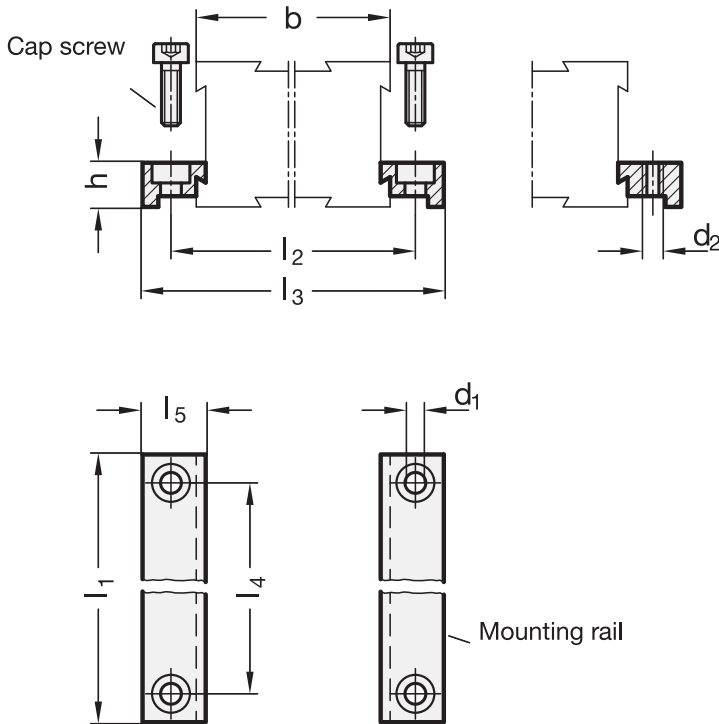
Stainless Steel

INFORMATION

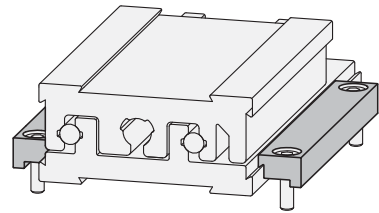
Fastening units GN 900.1 are fitted to the base of the adjustable slide units GN 900 (see page 668) from the operator's side.

The mounting is made on the outside ledge of the slide so that the inner slide can still be moved.

A fastening unit GN 900.1 consists of two mounting rails. Four Stainless Steel-cap screws are included.



Mounting example



GN 900.1

Description	b Size of the slide	l ₁	d ₁	d ₂	h	l ₂	l ₃	l ₄	l ₅	
GN 900.1-30-41-A	30	41	2.7	M 2.5	4.2	35.4	41	35.4	6.5	7
GN 900.1-50-67-A	50	67	3.3	M 3	7	58	67	58	10	20
GN 900.1-80-105-A	80	105	4.5	M 4	12.5	92	105	92	14.5	84
GN 900.1-120-145-A	120	145	5.5	M 5	13.8	131.8	145	131.8	14.5	134
GN 900.1-30-41-B	30	41	2.7	M 2.5	4.2	35.4	41	35.4	6.5	8
GN 900.1-50-67-B	50	67	3.3	M 3	7	58	67	58	10	24
GN 900.1-80-105-B	80	105	4.5	M 4	12.5	92	105	92	14.5	87
GN 900.1-120-145-B	120	145	5.5	M 5	13.8	131.8	145	131.8	14.5	138

Connecting sets X-Y
for adjustable slide units GN 900

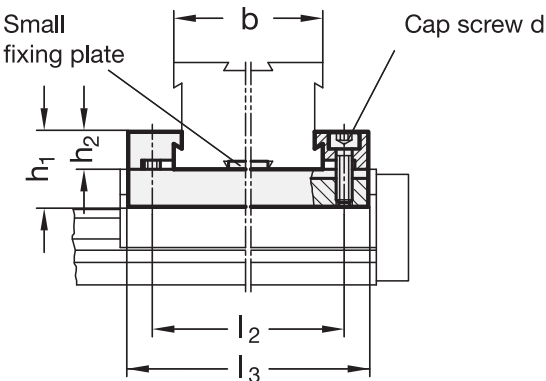
SPECIFICATION

Aluminium
anodized, natural colour
Socket head cap screws DIN 912
Stainless Steel

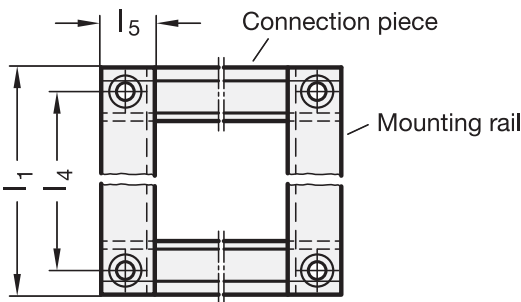
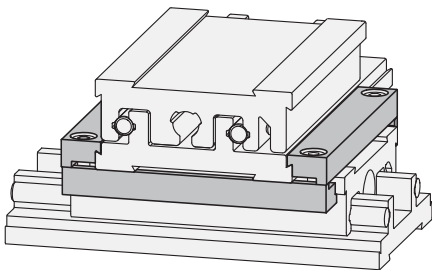
INFORMATION

With connecting sets GN 900.2 two adjustable slide units GN 900 (see page 668) can be combined to produce an X-Y axis configuration.

This combination is achieved with a clamping system which eliminates the use of any kind of fixing holes in the slide.
The stationary base of the second adjustable slide unit is clamped on to the slide of the first unit to give the X-Y configuration. The slides on both units together give the X-Y movement.
The small fixing plate serves for the 90° alignment and fine adjustment of the XY-axis configuration.
All parts required to make up a set are included.



Mounting example



GN 900.2

Description	b Size of the slide	l1	d	h1	h2	l2	l3	l4	l5	△
GN 900.2-30-41	30	41	M 2.5	8.4	4.2	35.4	41	35.4	6.5	12
GN 900.2-50-67	50	67	M 3	14	7	58	67	58	10	49
GN 900.2-80-105	80	105	M 4	25	12.5	92	105	92	14.5	186
GN 900.2-120-145	120	145	M 5	27.6	13.8	131.8	145	131.8	14.5	323

Connecting sets X-Z

for adjustable slide units GN 900

SPECIFICATION

Types

- Type **P**: Mounting the Z-axis via connecting plate and additional plate
- Type **S**: Direct mounting of the Z-axis via connecting plate

Aluminium
anodized, natural colour

Grub screw DIN 913
Steel, zinc plated

Socket head cap screws DIN 912
Stainless Steel



INFORMATION

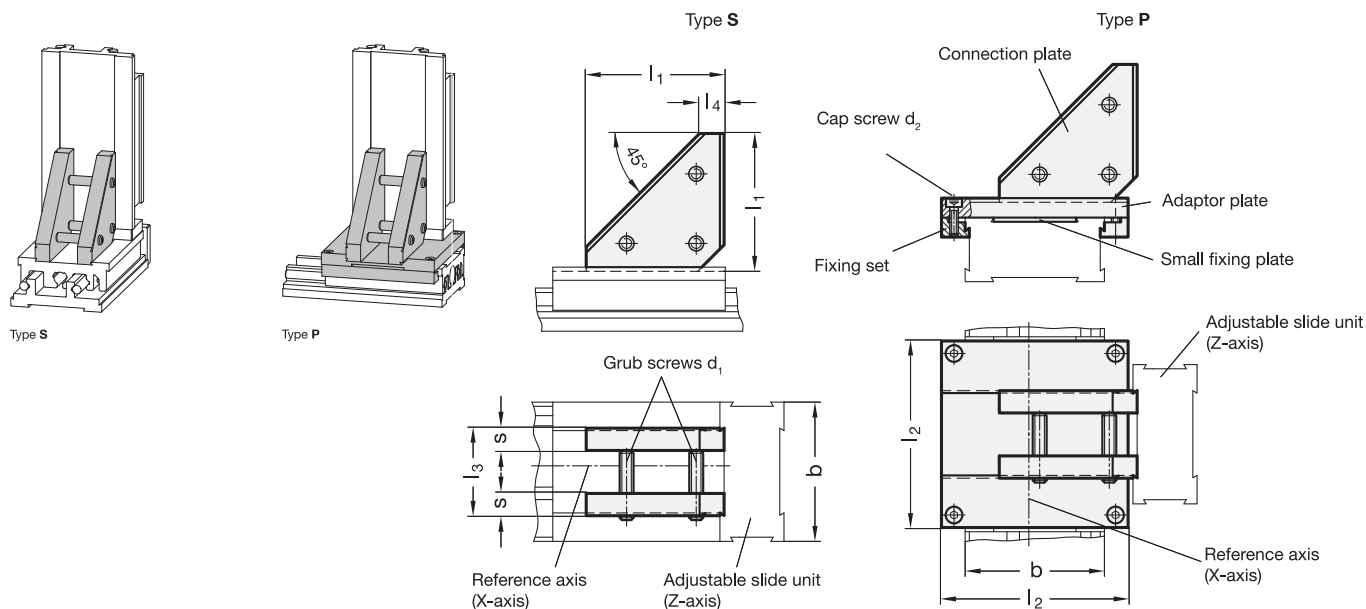
With connecting sets GN 900.3 two adjustable slide units GN 900 (see page 668) can be combined to produce an X-Z axis configuration. The combination is created by using two connection plates which eliminate any type of fixing holes in the slides. At the same time the adjustable slide unit with the Z-axis can, to a limited extent (vertically to the Z-axis), still be adjusted.

In the case of a slide configuration of the Z-axis parallel to the reference axis (type P) an adaptor plate (complete with a fastening set, small fixing plates and socket head cap screws) is required which is included in the set.

The small fixing plates serves for the 90° alignment of the Z-axis and fine adjustment of the adaptor plate (Type P).

All parts required to make up a set are included.

INSTALLATION EXAMPLE



GN 900.3

Description	b Size of the slide	l1	d1	d2	l2	l3	l4	s	⚖
GN 900.3-30-30-P	30	30	M 4	M 2.5	41	17	6	6	47
GN 900.3-50-50-P	50	50	M 5	M 3	67	32	8	8	185
GN 900.3-80-80-P	80	80	M 6	M 4	105	52	13	12	680
GN 900.3-120-120-P	120	120	M 8	M 5	145	82	13	16	1770
GN 900.3-30-30-S	30	30	M 4	M 2.5	41	17	6	6	50
GN 900.3-50-50-S	50	50	M 5	M 3	67	32	8	8	76
GN 900.3-80-80-S	80	80	M 6	M 4	105	52	13	12	278
GN 900.3-120-120-S	120	120	M 8	M 5	145	82	13	16	779

Mounting plates

for adjustable slide units GN 900

SPECIFICATION

Types

- Type **A**: without retaining bores
- Type **B**: with retaining bores for rotary tables

Aluminium
anodized, natural colour

Socket head cap screws DIN 912
Stainless Steel

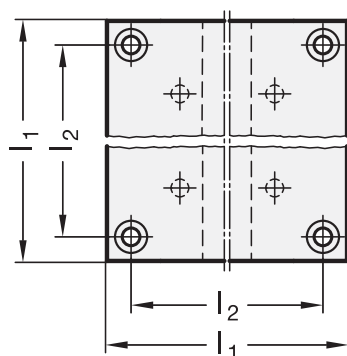
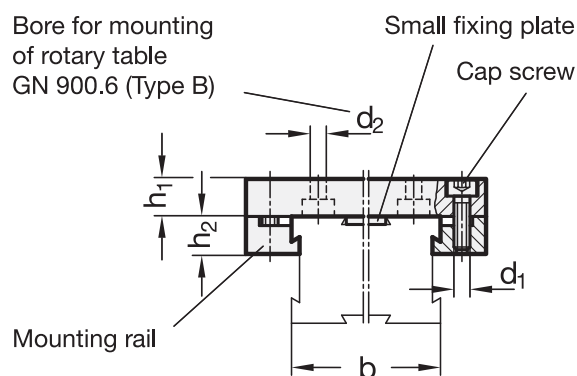
INFORMATION

Mounting plates GN 900.4 type A are used for installing fixtures on the operator's side. Type B is used for installing a rotary table GN 900.6 (see page 677).

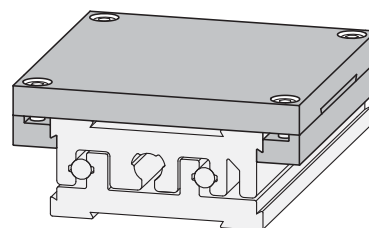
The mounting plate can be simply clamped on to the slide and no additional drilled holes are required.

The small fixing plates serves as an additional fine adjustment of the mounting plate with the adjustable slide unit.

All parts required to make up a set are included.



Mounting example



GN 900.4

Description	b Size of the slide	l ₁	d ₁	d ₂	h ₁	h ₂	l ₂	For rotary tables	⚖
GN 900.4-30-41-A	30	41	M 2.5	-	5	4.2	35.4	-	29
GN 900.4-50-67-A	50	67	M 3	-	8	7	58	-	120
GN 900.4-80-105-A	80	105	M 4	-	12	12.5	92	-	441
GN 900.4-120-145-A	120	145	M 5	-	16	13.8	131.8	-	1100
GN 900.4-50-67-B	50	67	M 3	5.5	8	7	58	GN 900.6-55	125
GN 900.4-80-105-B	80	105	M 4	5.5	12	12.5	92	GN 900.6-80	430
GN 900.4-120-145-B	120	145	M 5	5.5	16	13.8	131.8	GN 900.6-80	1055



Rotary plates

for adjustable slide units GN 900

SPECIFICATION

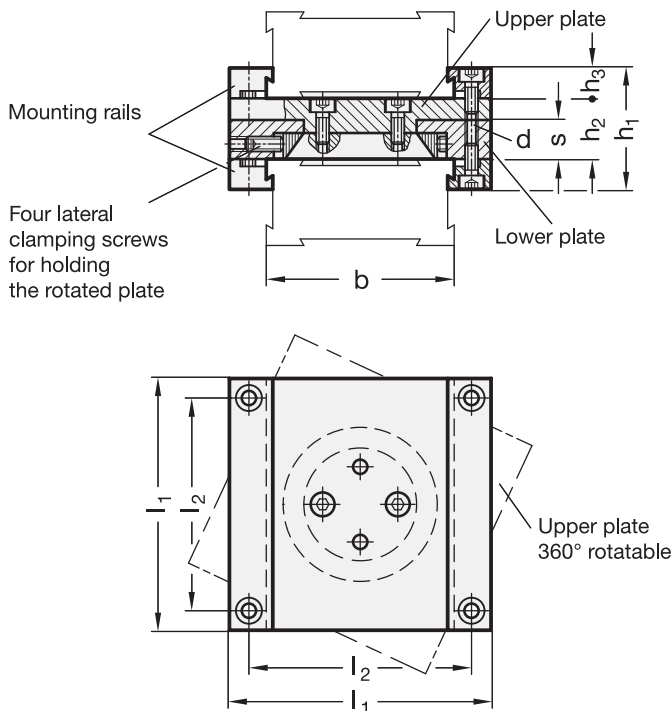
Aluminium
anodized, natural colour

Socket head screws DIN 912
Stainless Steel

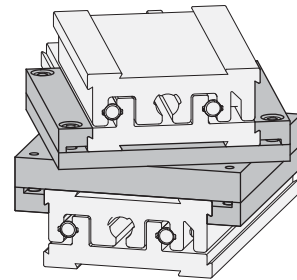
INFORMATION

Rotary plates GN 900.5 allow rotation of one of the adjustable slide units at an off-set angle to the other. This possibility offers an additional axis configuration.

The alternative adaptor consists of two plates connected together in the center so they may be rotated. The lower plate is clamped to the lower sliding part, while the upper one is clamped to the stationary base of the upper sliding unit. All parts required are included.



Mounting example



GN 900.5

Description	b Size of the slide	l ₁	d	h ₁	h ₂	h ₃	l ₂	s	Δ
GN 900.5-30-41	30	41	M 2.5	18.4	10	4.2	35.4	6	60
GN 900.5-50-67	50	67	M 3	28	14	7	58	9	209
GN 900.5-80-105	80	105	M 4	39	14	12.5	92	9	568
GN 900.5-120-145	120	145	M 5	47.6	20	13.8	131.8	12	1398

Rotary tables

SPECIFICATION

Rotary disc
Stainless Steel AISI 303
all other parts
Steel (some zinc plated)
ad/ or Brass
Control knob
Aluminium
black anodized

INFORMATION

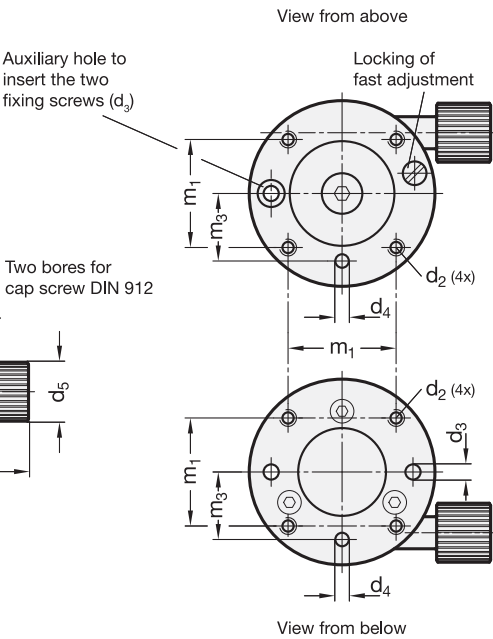
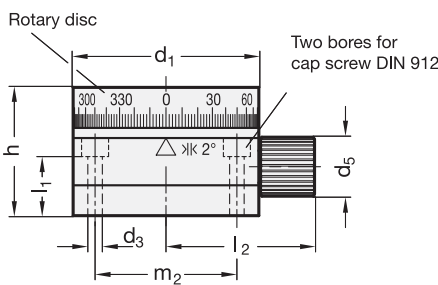
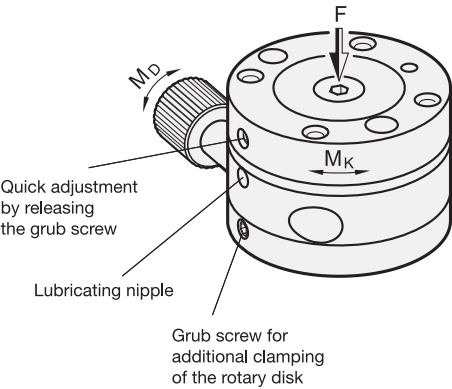
Rotary tables GN 900.6 is a turning unit for manual operation. To get the turning movement we use a high quality worm gear. The rotary table is also fitted with a fastadjustment and for this purpose a grub screw on the side of the rotary disc has to be released. In addition the rotary disc can also be clamped via an easily accessible grub screw. In both cases internal conically shaped arresting components come into use.

- Adjustable slide units GN 900 (see page 668)
- Mounting plate GN 900.4 (for clamping to an adjustable slide unit) (see page 675)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

FURTHER TECHNICAL INFORMATION



d ₁	Rotating range	Concentricity tolerance	circular runout tolerance	max. entry torque M _D	max. load capacity of rotary disc unclamped	max. load capacity of rotary disc clamped M _K	F max. in Newton
55	0°	± 0.02	± 0.02	1.5 Nm	5 Nm	10 Nm	50
80	0°	± 0.03	± 0.03	2.5 Nm	5 Nm	10 Nm	100

GN 900.6

Description	d1 h7	d2	d3 Screw	d4 H7	d5	h	l1	l2	m1	m2	m3 ±0.02	Useable for mounting plates GN 900.4 Size	⚖
GN 900.6-55	55	M 5 - 8	M 4	4 - 10	17	38	17.5	44	32	42	20	50	662
GN 900.6-80	80	M 5 - 8	M 5	4 - 10	23	45	24	59	40	60	30	80 120	1800

Bull's eye levels and screw-on levels

Technical information

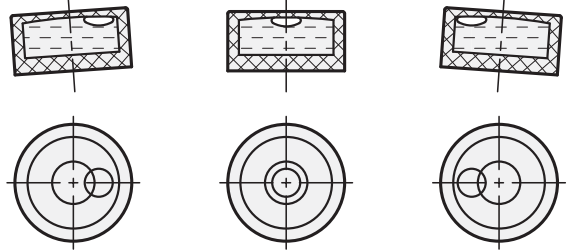
Definition of terms

A spirit level is hollow body filled with a fluid and a gas bubble which is used to check the horizontal position of an object. The position of the gas bubble in the fluid shows the angle and the direction at which the object is inclined in relation to the horizontal level.

The function

The hollow body containing the fluid and the gas bubble has a defined radius at its top side, causing the gas bubble to float by its buoyancy always to the highest point.

The transparent upper section normally carries markings or a circle centric to the bubble position. If the gas bubble is centered precisely inside the marking and if the air level is properly adjusted, the object to be checked is in the horizontal position.



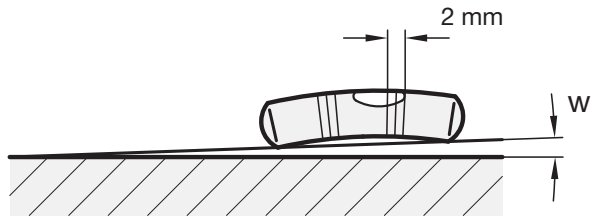
Types of spirit levels

Spirit levels are available as bull's eye levels or screw-on levels.

Bull's eye levels simultaneously measure the angle of inclination and the angular position, e.g. of a certain level, whereas screw-on levels indicate the angle of inclination in one dimension only along the axis of the level.

Sensitivity

The sensitivity of spirit levels is given as angle of inclination, e.g. 30 angular minutes or 0.5 degrees. This is the angle of inclination by which the spirit level must be tilted to make the bubble move by 2 mm. A spirit level with a sensitivity of 6 angular minutes therefore has a higher sensitivity than a spirit level with a sensitivity of 30 angular minutes.



Angle of inclination and difference in altitude

Sensitivity is sometimes also given in millimetre per metre, i.e. as difference in altitude per unit of the length.

See also the reference table opposite.

Difference in altitude in millimetre per metre	Angle w	
	in angular minutes	Degree, decimal
0.3	1	0.0167
0.9	3	0.0500
1.7	6	0.1000
2.9	10	0.1667
5.8	20	0.3333
8.7	30	0.5000
11.6	40	0.6667
14.5	50	0.8333
17.5	60	1.0000

Adjustment plates

for bull's eye levels GN 2277

SPECIFICATION

Stainless AISI 303 **NI**

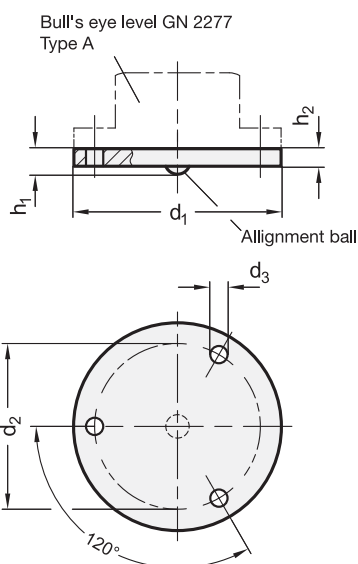
INFORMATION

Adjustment plates GN 2277.1 are used in combination with bull's eye levels GN 2277 (Type A) (see page 680).

The mounting bore holes offset by 120° allow the bull's eye levels and the mounting plate to be aligned in relation to the mounting surface. An alignment ball at the bottom surface of the adjustment plate serves as tilting point. Specific tightening torques of the bolts allow to be achieved, so that the bubble is located inside the marking ring once the horizontal alignment is reached.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Bull's eye levels

for insertion into bore holes

SPECIFICATION

Sensitivity

Type **30**: Angle minutes, bubble move by 2mm

Housing

Aluminium

anodized, natural colour **ALN**

anodized, black **ALS**

Spirit level element

Glass plastic body

Filling

colourless-transparent **K**

Casting compound

mineral-based

INFORMATION

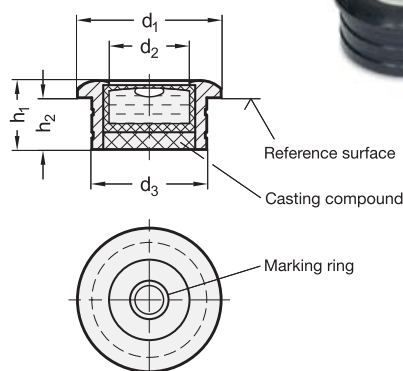
Bull's eye levels GN 2278 are used to check the horizontal position of jigs, machines, devices, appliances and instruments.

The housing is grooved at its lower diameter d3, making it easier to mount in place, e.g. by gluing.

The spirit levels are aligned in relation to the reference or contact surface, so that the bubble is located inside the marking ring once the horizontal position of the contact surface is reached.

ON REQUEST

- Filling, green-transparent
- Other sensitivities
- Housing in brass or Stainless Steel



GN 2278

Description	d1	d2	d3 -0.05/ -0.15	h1	h2	⚖
GN 2278-ALN-20-K-30	20	12	18	10	8	4
GN 2278-ALS-20-K-30	20	12	18	10	8	4
GN 2278-ALN-25-K-30	25	14	20	12	9	4
GN 2278-ALS-25-K-30	25	14	20	12	9	4
GN 2278-ALN-30-K-30	30	20	28	13	10	7
GN 2278-ALS-30-K-30	30	20	28	13	10	7

GN 2277.1

STAINLESS STEEL

Description	d1	d2	d3	h1	h2	⚖
GN 2277.1-NI-20	20	17	1.8	3.2	1.2	3
GN 2277.1-NI-25	25	21	2.2	3.2	1.2	5
GN 2277.1-NI-30	30	24	3.2	3.2	1.2	7
GN 2277.1-NI-40	40	34.5	3.2	3.2	1.2	12
GN 2277.1-NI-50	50	43	3.2	3.2	1.2	19

Bull's eye levels

with mounting flange

SPECIFICATION

Sensitivity

Type **30**: Angle minutes, bubble move by 2mm

Types

- Type **A**: Mounting flange, for bolting surface
- Type **B**: Mounting flange, for inserting (collar)

Housing

Aluminium

anodized, natural colour **ALN**

anodized, black **ALS**

Spirit level element

Glass plastic body

Filling

colourless-transparent **K**

Casting compound

mineral-based

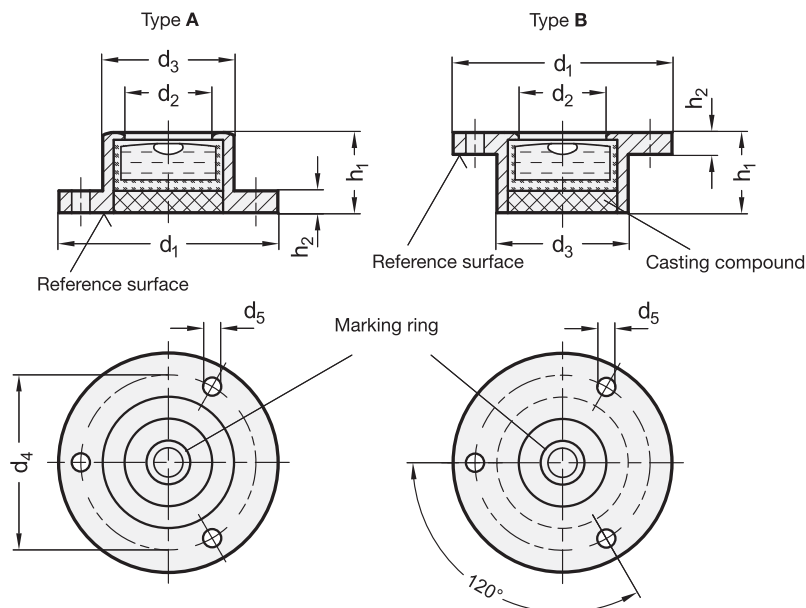
INFORMATION

Bull's eye levels GN 2277 are used to check the horizontal position of jigs, machines, devices, appliances and instruments.

The spirit levels are aligned in relation to the reference surface so that the bubble is located inside the marking ring when the horizontal position of the contact surface is achieved.

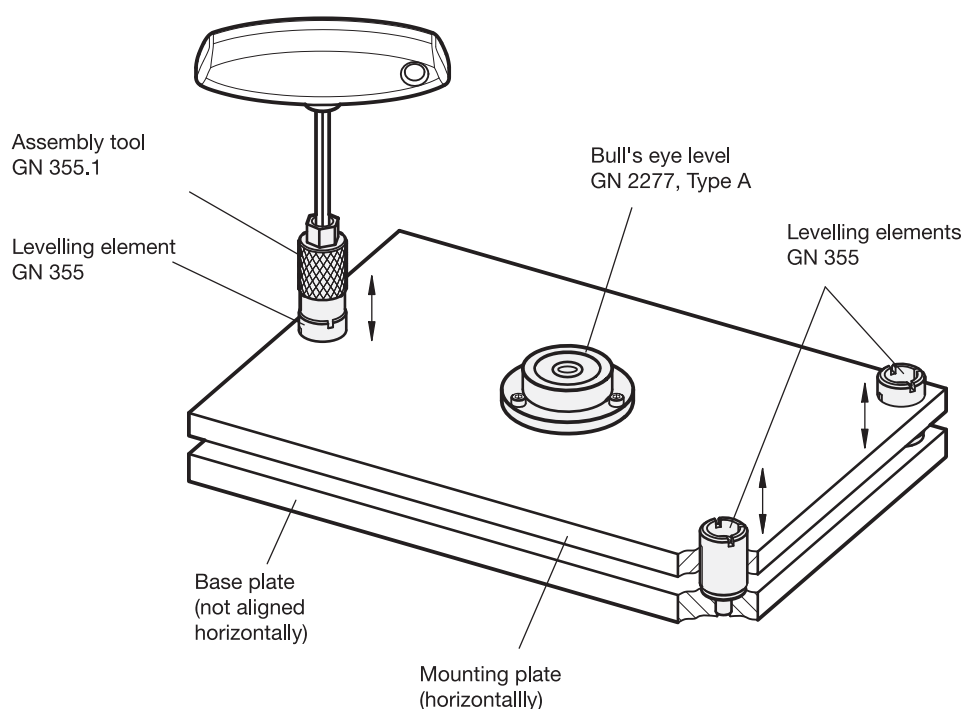
ON REQUEST

- Filling, green-transparent
- Other sensitivities
- Housing in brass or Stainless Steel



Installation example

Bull's eye levels and levelling elements - in this example, levelling elements GN 355 (see page 1314) and assembly tool GN 355.1 (see page 1315) - are ideal to use when a holding plate is to be brought into an exact horizontal position. Even after the initial adjustment, the bull's eye level remains in the unit so that the correct alignment can be checked and adjusted again.

**GN 2277**

Description	d1	d2	d3	d4	d5	h1	h2	⚖
GN 2277-ALN-20-K-30-A	20	10	14	17	1.8	10	1.8	3
GN 2277-ALS-20-K-30-A	20	10	14	17	1.8	10	1.8	3
GN 2277-ALN-25-K-30-A	25	12	17	21	2.2	10	2	5
GN 2277-ALS-25-K-30-A	25	12	17	21	2.2	10	2	5
GN 2277-ALN-30-K-30-A	30	12	18	24	3.2	11	3	7
GN 2277-ALS-30-K-30-A	30	12	18	24	3.2	11	3	7
GN 2277-ALN-40-K-30-A	40	20	28	34.5	3.2	14	4	14
GN 2277-ALS-40-K-30-A	40	20	28	34.5	3.2	14	4	14
GN 2277-ALN-50-K-30-A	50	25	34	43	3.2	15	5	25
GN 2277-ALS-50-K-30-A	50	25	34	43	3.2	15	5	25
GN 2277-ALN-20-K-30-B	20	10	14	17	1.8	10	1.8	3
GN 2277-ALS-20-K-30-B	20	10	14	17	1.8	10	1.8	3
GN 2277-ALN-25-K-30-B	25	12	17	21	2.2	10	2	5
GN 2277-ALS-25-K-30-B	25	12	17	21	2.2	10	2	5
GN 2277-ALN-30-K-30-B	30	12	18	24	3.2	11	3	7
GN 2277-ALS-30-K-30-B	30	12	18	24	3.2	11	3	7
GN 2277-ALN-40-K-30-B	40	20	28	34.5	3.2	14	4	14
GN 2277-ALS-40-K-30-B	40	20	28	34.5	3.2	14	4	14
GN 2277-ALN-50-K-30-B	50	25	34	43	3.2	15	5	25
GN 2277-ALS-50-K-30-B	50	25	34	43	3.2	15	5	25



Bull's eye levels

for surface mounting

SPECIFICATION

Sensitivity

Type **30**: Angle minutes, bubble move by 2 mm

Types

- Type **A**: with smooth reference surface
- Type **B**: with mounting thread

Housing

Aluminium

anodized, natural colour **ALN**

anodized, black **ALS**

Spirit level element

Glass plastic body

Filling

colourless-transparent **K**

Casting compound

mineral-based

INFORMATION

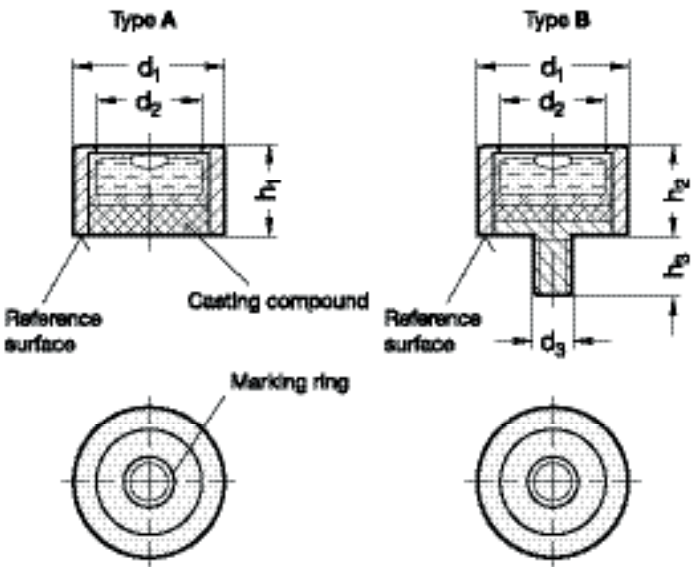
Bull's eye levels GN 2279 are used to check the horizontal position of jigs, machines, devices, appliances and instruments.

Type A is used if the spirit level is to be used as a tool, e.g. at different measuring points.

The spirit levels are aligned in relation to the reference or contact surface, such that the bubble is located inside the marking the horizontal position of the contact surface is reached.

ON REQUEST

- Filling, green-transparent
- Other sensitivities
- Housing in brass or Stainless Steel



GN 2279

Description	d1	d2	d3	h1	h2	h3	⚖
GN 2279-ALN-14-K-30-A	14	10	M 4	9.5	7.7	5	2
GN 2279-ALS-14-K-30-A	14	10	M 4	9.5	7.7	5	2
GN 2279-ALN-20-K-30-A	20	14	M 5	13	13	6	4
GN 2279-ALS-20-K-30-A	20	14	M 5	13	13	6	4
GN 2279-ALN-30-K-30-A	30	21	M 6	15	15	7.5	7
GN 2279-ALS-30-K-30-A	30	21	M 6	15	15	7.5	7
GN 2279-ALN-14-K-30-B	14	10	M 4	9.5	7.7	5	2
GN 2279-ALS-14-K-30-B	14	10	M 4	9.5	7.7	5	2
GN 2279-ALN-20-K-30-B	20	14	M 5	13	13	6	4
GN 2279-ALS-20-K-30-B	20	14	M 5	13	13	6	4
GN 2279-ALN-30-K-30-B	30	21	M 6	15	15	7.5	14
GN 2279-ALS-30-K-30-B	30	21	M 6	15	15	7.5	14

Bull´s eye levels
adjustable

SPECIFICATION

Sensitivity

Type **30**: Angle minutes, bubble move by 2mm

Housing

Aluminium

anodized, natural colour **ALN**

anodized, black **ALS**

Spirit level element

Glass plastic body

Filling

colourless-transparent **K**

Casting compound

mineral-based

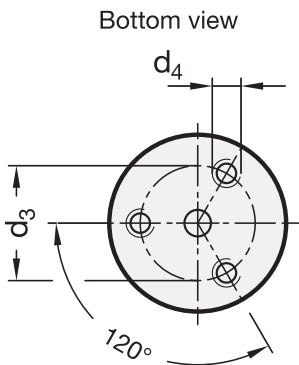
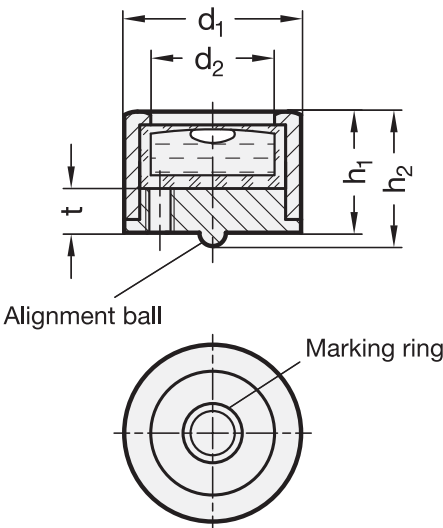
INFORMATION

Bull´s eye levels GN 2280 are used to check the horizontal position of jigs, machines, devices, appliances and instruments.

The mounting threads offset by 120° allow the spirit levels to be aligned in relation to the mounting surface. An alignment ball at the bottom surface of the adjustment plate serves as tilting point. Specific tightening torques of the bolts allow to be achieved, so that the bubble is located inside the marking ring once the horizontal alignment is reached.

ON REQUEST

- Filling, green-transparent
- Other sensitivities
- Housing in brass or Stainless Steel



GN 2280

Description	d1	d2	d3	d4	h1	h2	t	⚖
GN 2280-ALN-17-K-30	17	13	12	M 3	13	14.5	5	6
GN 2280-ALS-17-K-30	17	13	12	M 3	13	14.5	5	6
GN 2280-ALN-20-K-30	20	13	14	M 3	15	17	5	8
GN 2280-ALS-20-K-30	20	13	14	M 3	15	17	5	8
GN 2280-ALN-24-K-30	24	15	16	M 3	17	20	5	12
GN 2280-ALS-24-K-30	24	15	16	M 3	17	20	5	12

Bull's eye levels

for installation in plates and housings

SPECIFICATION

Sensitivity

- Type **10**: Angle minutes, bubble move by 2mm (only Version ALS)
- Type **40**: Angle minutes, bubble move by 2mm (only Version KT)

Identification no.

- No. **1**: without contrast ring
- No. **2**: with contrast ring (only version KT for d=12...18)

Housing

Aluminium, anodized, natural colour **ALS** /
Viewing window, glass

Plastic, white **KT** /
Viewing window, transparent

Filling

- colourless-transparent **K**
- green-transparent **G** (only Version KT)

INFORMATION

Due to their cylindrical design, bull's eye levels GN 2281 are suitable for installation in plates and housings where they serve to check the horizontal position of jigs, machines and devices.

Bull's eye levels are not aligned, i.e. there is no reference to the external outline of the level. The vertical position must be ensured by aligning the holding building element.

The black housing of the version ALS creates a reflection at the edge of the bubble which significantly improves the readability. Version KT is available with contrast ring inside the air level housing (Identification no. 2) which creates the same effect.

Alternatively, the contrast can also be improved by a dark surface inside the mounting bore hole.

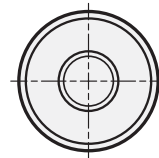
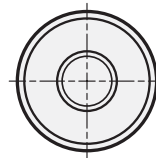
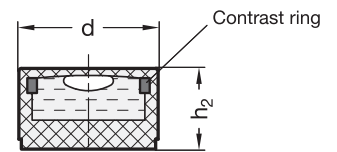
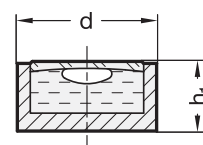
ON REQUEST

- Other sensitivities



Version **ALS**

Version **KT**



GN 2281

Description	d	h1	h2	⚖
GN 2281-KT-10-G-40-1	10	-	6	1
GN 2281-KT-10-K-40-1	10	-	6	1
GN 2281-KT-12-G-40-1	12	-	7	1
GN 2281-KT-12-G-40-2	12	-	7	1
GN 2281-KT-12-K-40-1	12	-	7	1
GN 2281-KT-12-K-40-2	12	-	7	1
GN 2281-KT-14-G-40-1	14	-	8	1
GN 2281-KT-14-G-40-2	14	-	8	1
GN 2281-KT-14-K-40-1	14	-	8	1
GN 2281-KT-14-K-40-2	14	-	8	1
GN 2281-KT-15-G-40-1	15	-	8	1
GN 2281-KT-15-G-40-2	15	-	8	1
GN 2281-KT-15-K-40-1	15	-	8	1
GN 2281-KT-15-K-40-2	15	-	8	1
GN 2281-KT-18-G-40-1	18	-	9	2
GN 2281-KT-18-G-40-2	18	-	9	2
GN 2281-KT-18-K-40-1	18	-	9	2
GN 2281-KT-18-K-40-2	18	-	9	2

GN 2281

Description	d	h1	h2	⚖
GN 2281-ALS-10-K-10-1	10	6.9	-	1
GN 2281-ALS-12-K-10-1	12	6.4	-	2
GN 2281-ALS-14-K-10-1	14	6.2	-	2
GN 2281-ALS-15-K-10-1	15	7.4	-	3
GN 2281-ALS-18-K-10-1	18	7.3	-	4

Screw-on levels
for mounting with screws

SPECIFICATION

Sensitivity

- Type **6**: Angle minutes, bubble move by 2mm
- Type **50**: Angle minutes, bubble move by 2mm

Identification no.

- No. **1**: Viewing window top
- No. **2**: Viewing window top - front
- No. **3**: Viewing window top - front - back

Housing brass

plastic coated, textured finish

black, RAL 9005 **MSW**

silver, RAL 9006 **MSR**

Spirit lever element

Glass plastic body

Filling

green-transparent **G**

Casting compound

mineral-based



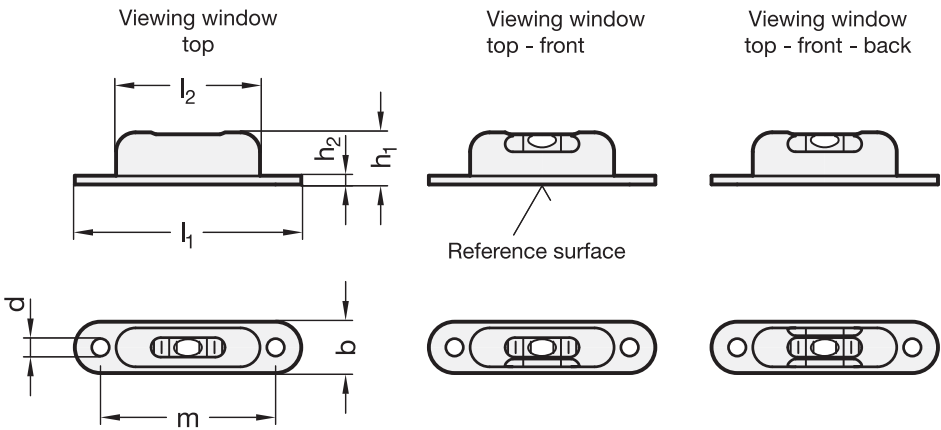
INFORMATION

Screw-on levels GN 2282 are used to check the horizontal position of jigs, machines, devices, appliances and instruments.

The spirit levels are aligned in relation to the finished reference surface so that the bubble is centered in the middle of the marking lines once the horizontal position of the contact surface in the longitudinal direction is reached.

ON REQUEST

- Filling, colourless-transparent
- Other sensitivities
- Other colours



GN 2282

Description	l1	b	d	h1	h2	l2	m	⚖
GN 2282-MSW-57-G-6-1	57	12	4.5	13	1	37	45	13
GN 2282-MSR-57-G-6-1	57	12	4.5	13	1	37	45	13
GN 2282-MSW-57-G-6-2	57	12	4.5	13	1	37	45	12
GN 2282-MSR-57-G-6-2	57	12	4.5	13	1	37	45	12
GN 2282-MSW-57-G-6-3	57	12	4.5	13	1	37	45	12
GN 2282-MSR-57-G-6-3	57	12	4.5	13	1	37	45	12
GN 2282-MSW-57-G-50-1	57	12	4.5	13	1	37	45	13
GN 2282-MSR-57-G-50-1	57	12	4.5	13	1	37	45	13
GN 2282-MSW-57-G-50-2	57	12	4.5	13	1	37	45	12
GN 2282-MSR-57-G-50-2	57	12	4.5	13	1	37	45	12
GN 2282-MSW-57-G-50-3	57	12	4.5	13	1	37	45	12
GN 2282-MSR-57-G-50-3	57	12	4.5	13	1	37	45	12



Control elements



ELESA-CLAYTON position indicators

General features

ELESA-CLAYTON rotary controls are used to set and regulate a wide variety of machine functions.

In general these indicators are used to regulate flows, capacities, strokes, setting of speed variators, etc.

Each device consists of:

- a handwheel/knob, to manoeuvre the control spindle, thus changing the position of the machine element
- a position indicator, which provides the position of the machine element.

Position indicators

ELESA-CLAYTON position indicators can be classified according to the type of reading or movement.

The indicators are normally supplied separately from their relative handwheels/knobs, except for integral models, whose indicator is fitted in during the production.

Type of reading

Analogue: the reading is displayed by means of two rotating pointers over a graduated dial.

Digital-Analogue: the reading is directly displayed by means of a roller counter and a rotating pointer over a graduated dial.

Digital: the reading is directly displayed by means of a roller counter.

LCD Digital: the reading is directly displayed by means of a digital electronic display.

The analogue indicators are normally provided with a graduated dial and two pointers which indicate the number of turns and part of a turn made by the control spindle starting from an initial position zero.

The indicators with digital-analogue, digital and LCD digital reading are provided with a roller counter or a display which indicates the linear displacement of the machine element connected to the control spindle from the initial position zero.

Type of functioning

Gravity Movement: is used when the handwheel spindle is horizontal or max 60° inclined. The rotation of the handwheel with the indicator makes the pointers move while the dial, appropriately counterbalanced, is kept still by the gravity force.

Positive drive Movement: is used on spindles in any position. The rotation of the handwheel with the indicator makes the pointers move while the dial is kept still by an anchor pin fitted to the machine.

Direct drive Movement: is used on control spindles in any position, the indicator is directly mounted on the control spindle and is kept in position by means of a referring back pin.

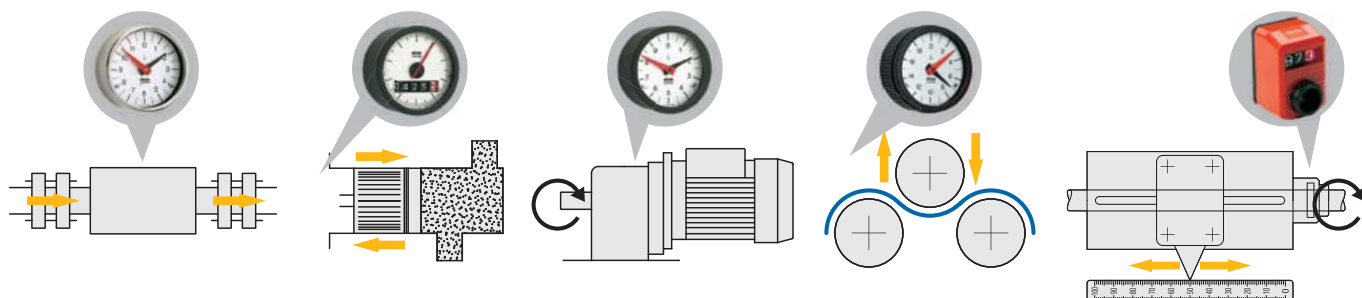
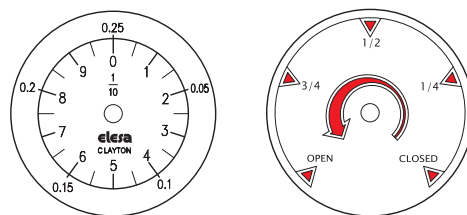
How to select the position indicators

- Establish if it is necessary to display a number of turns or a linear displacement. For the first application choose an analogue indicator. For the second one choose a digital-analogue, digital or LCD digital indicator.
- Establish the indicator and the spindle position on which depends the choice of the requested movement: gravity, positive drive or direct drive.
- Establish the required ratio for analogue types or the reading after one revolution for the following types: digital-analogue, digital and LCD digital.
- Establish the direction of rotation.
For clockwise increasing readings (right) = D.
For anticlockwise increasing readings (left) = S.
- Consider the conditions of use of the handwheel i.e. outdoors, vibrations, corrosive environments, etc. See the complete data on the page of the chosen indicator.
- Choose the appropriate handwheel/knob for the application considering the diameter and the grip required to transmit the necessary torque. Other factors to take into consideration are the control spindle diameter and whether a handle is required for quick operations.

Special executions

ELESA-CLAYTON position indicators standard range available on this catalogue satisfies most applications. Changes to adapt the indicator to particular applications are possible, for example:

- special dials for indicators with analogue or digital-analogue reading, to be developed on the customer's indications
- stainless steel metal parts for application on machines and equipment where laws or particular hygienic and environmental factors make it mandatory to use corrosion resistant materials
- gravity indicators with analogue reading with glycerine-filling for high vibration applications, which may interfere with the reading, and for avoiding condensation on the indicator window
- special ratios on the customer's request and for sufficient quantities, developed by ELESA Technical Department.



Type of reading	Type of Functioning	Type of indicator	
Analogue	Gravity	GA01 - GA02 - GA05 metal case page 694	
		GA11 - GA12 plastic case page 695	
		MBT-GA indicator fitted in the plastic knob page 696	
	Positive drive	PA01 - PA02 - PA05 metal case page 699	
		PA11 - PA12 plastic case page 700	
Digital-analogue	Gravity	GW12 plastic case page 697	
		MBT-GW indicator fitted in the plastic knob page 698	
	Positive drive	PW12 plastic case page 701	
Digital	Direct drive	DD50 page 716	
		DD51 page 718	
		DD52R page 721	
LCD digital	Direct drive	DD51-E page 724	
		DD52R-E page 726	
		DE51 page 728	
		MPI-15 page 732	



7
Rotary controls

Gravity position indicators

Features

Suitable for use on control spindles with horizontal or max 60° inclined position.

The movement is housed in a sealed case (fig. 1). It consists of a counterweight system, fitted on a precision ballrace, which rotates on a central spindle integral with the indicator case, fitted on the handwheel/knob. At the end of the spindle there is a red pointer, which rotates with the handwheel/knob. A series of gears with different ratios transmits the rotation of the spindle to a black pointer. On the counterweight, a graduated dial is also fixed. If the indicator is fitted on spindles with horizontal position (or max 60° inclined) the dial is kept still by the gravity force and the pointers rotate over it when the handwheel/knob turns.

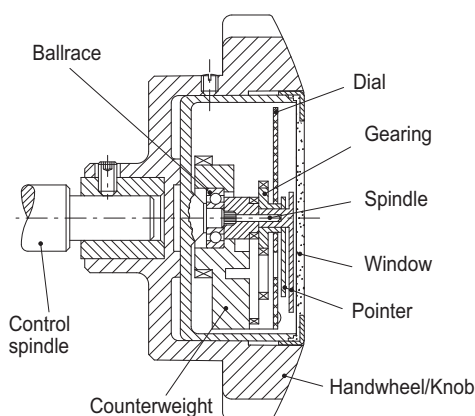


figure 1

Ratios

Each complete turn of the big pointer (red) corresponds to a fraction of turn of the small pointer (black). The number of turns of the red pointer, to make the black pointer to carry out one complete turn, is the ratio of the indicator.

Example: a ratio of 12:1 means that 12 turns of the red pointer correspond to a complete turn of the black pointer (fig. 2). 12 turns of the handwheel cover the entire setting range. For each turn of the handwheel, the black pointer indicates 1/12 of the entire dial.



figure 2

Choice of the indicator ratio

- Set the control spindle to the initial or referring position.
- Count the number of turns of the control spindle to cover the entire setting range.
- The result of this operation is the ratio. Should it not correspond to a standard ratio, choose the next highest one.
- For an optimal dial reading, and therefore for a more precise reading, we recommend to choose a ratio which is as near as

possible to the handwheel turns required to cover the entire setting range. For instance, if 11 turns are required, the ratio 12:1 is the most convenient, because 11/12 of the available graduation will be used. If 24:1 ratio would be chosen, only 11/24 of the graduation would be used and reading would be less accurate.

- Indicators with standard ratios are normally on stock to suit most requirements.

Dials

Dials are available for all standard ratios in both clockwise (D) or anticlockwise (S) configurations.

Standard dials give a number which can be translated, by means of conversion tables, to the value of the set-up executed.

On request and for sufficient quantities, special dials with marks or customised graduations can be supplied to have a direct reading.

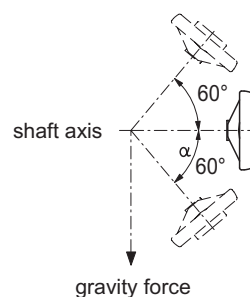


figure 3

Accuracy

The gravity indicator is more accurate when used on horizontal control spindles. It can be however used on spindles max 60° inclined, but the accuracy decreases as the angle of inclination α increases (fig. 3).

Assembly instructions

Assembly of the indicators to handwheels/knobs:

- couple the handwheel to the control spindle by means of a pin or a grub screw.
- set the control spindle to the initial or referring position, by rotating the handwheel.
- turn the indicator, by keeping it in the hands, until the pointers are in zero position.
- fit the zeroed indicator into the handwheel/knob and uniformly tighten the radial securing screws with a moderate torque to prevent distortion of the indicator case and thus locking the movement.

Assembly of integral indicators (built-in in the handwheel):

- set the control spindle to the initial or referring position.
- turn the indicator, by keeping it in the hands, until the pointers are in zero position.
- couple the integral indicator to the control spindle by tightening the grub screw, after checking that spindle and indicator are in zero position.

Possible assembly

Handwheels - Knobs		Gravity Indicators					
							
		GA01	GA02 page 694	GA05	GA11	GA12 page 695	GW12 page 697
	IZN-XX page 702	•	•		•	•	•
	MBT-XX page 703	•	•		•	•	•
	VHT-XX page 704	•	•		•	•	•
	VC.792-XX page 705	•	•		•	•	•
	VDSC-XX page 706		•			•	•
	VDN-XX page 709			•			
	VDC-XX page 710	•	•	•	•	•	•
	VRTP-XX page 712		•			•	•
	VAD-XX page 713	•	•	•	•	•	•



Rotary controls 7

Positive drive indicators

Features

Suitable for use on control spindles in any position. The movement is housed in a sealed case (fig.1). The handwheel/knob, containing the indicator, is coupled to the control spindle. On the rear of the handwheel/knob, a flange with internal crown gear wheel (shrouded) is fitted to the machine frame by means of an anchor pin (or similar). By so doing, during handwheel rotation, the flange is integral with the machine. The rotation of the handwheel causes the planet pinion to rotate, transmitting in this way the movement inside the indicator case. The rotation is then transmitted to both pointers by means of a gearing, while the graduated dial remains still, thanks to the fixing to the machine frame, by means of the anchor pin.

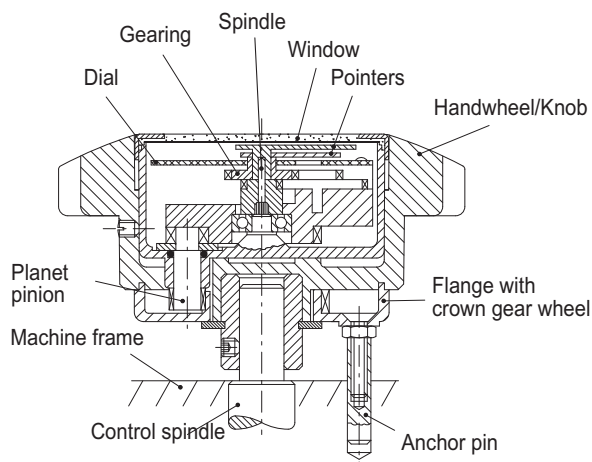


figure 1

Ratios

Each complete turn of the big pointer (red) corresponds to a fraction of turn of the small pointer (black). The number of turns of the red pointer, to make the black pointer to carry out one complete turn, is the ratio of the indicator.

Example: a ratio of 12:1 means that 12 turns of the red pointer correspond to a complete turn of the black pointer (fig. 2). 12 turns of the handwheel cover the entire setting range.

For each turn of the handwheel, the black pointer indicates 1/12 of the entire dial.



figure 2

Choice of the indicator ratio

- Set the control spindle to the initial or referring position.
- Count the number of turns of the control spindle to cover the entire setting range.
- The result of this operation is the ratio. Should it not correspond to a standard ratio, choose the next highest one.
- For an optimal dial reading, and therefore for a more precise reading, we recommend to choose a ratio which is as near as possible to the handwheel turns required to cover the entire setting range. For instance, if 11 turns are required, the ratio 12:1 is the most convenient, because 11/12 of the available graduation will be used. If 24:1 ratio would be chosen, only 11/24 of the graduation would be used and reading would be less accurate.
- Indicators with standard ratios are normally on stock to suit most requirements.

Dials

Dials are available for all standard ratios in both clockwise (D) or anticlockwise (S) configurations.

Standard dials give a number which can be translated, by means of conversion tables, to the value of the set-up executed.

On request and for sufficient quantities, special dials with marks or customised graduations can be supplied to have a direct reading.

Assembly instructions

- Drill a bore in the machine frame for the rear anchor pin of the flange.
- Set the control spindle to the initial or referring position.
- Remove the black protection cap of the planet pinion, turn the latter until the pointers are in zero position.
- Take the chosen handwheel/knob and mount the supplied anchor pin on the screw protruding from the rear flange. Be sure that the hole for the indicator planet pinion is at 12 o'clock. Turn the rear flange and position the anchor pin in line with the referring bore drilled on the machine.
- Gently fit the zeroed indicator into the handwheel/knob, inserting the planet pinion smoothly into the corresponding hole. To make the fitting of the indicator easier, gently turn by some degrees the rear flange until the planet pinion is geared to the internal crown gear wheel. Check that the indicator is zeroed and that the screw for the anchor pin is in the correct position.
- Uniformly tighten the lateral grub screws for fixing the indicator case with a moderate torque, to prevent distortion of the case itself and thus locking the movement.
- Adjust the height of the anchor pin so that no undue strain is caused to the flange and tighten the locknut.
- Couple the handwheel with the indicator to the zeroed control spindle. Be sure that the indicator pointers are in zero position and that the anchor pin is in line with the referring bore on the machine.
- Pin the handwheel on the spindle.
- Check the right functioning of the indicator over all the rotation range.

Possible assembly

Handwheels - Knobs		Positive drive indicators					
							
		PA01	PA02 page 699	PA05	PA11 page 700	PA12	PW12 page 701
	MBT-XX page 703	•	•		•	•	•
	VHT-XX page 704	•	•		•	•	•
	VC.792-XX page 705	•	•		•	•	•
	EWW-XX page 708		•			•	•
	VDC-XX page 710	•	•		•	•	•
	VAD-XX page 713	•	•	•	•	•	•

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7
Rotary controls

Position indicators

gravity drive, steel

CASE

Zinc-plated steel.

BEZEL

AISI 303 stainless steel.

WINDOW

Glass.

DIAL

Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

READING

The black pointer indicates the number of turns of the spindle from the start position (0); the red pointer indicates the fractions of turn.
Ballrace rotation: maximum reading accuracy.

RATIO

To choose the ratio see "Gravity position indicators introduction" (on page 690).

FEATURES AND APPLICATIONS

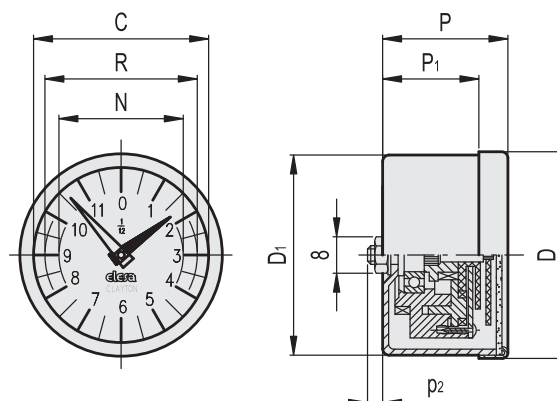
The knobs with integral gravity position indicator are suitable on spindles with horizontal or max 60° inclined axis.
To choose the handwheel see the table "Handwheels/knobs-possible assembly with indicators" (on page 691).

SPECIAL EXECUTIONS ON REQUEST

- Special dial with logo or customized graduations
- Special ratios
- Liquid filled
- Single pointer
- Window in plexiglass instead of glass.



ELESA Original design



Series	D	P	D1	P1	p2	C	R	N	⚖
GA01	49.6	30	48.3	20.5	1.6	42	37	30	140
GA02	68.4	32	67.0	19.3	1.0	60	51	44	210
GA05	112.7	32	111.0	18.8	1.0	102	89	76	420

Example of description for ordering

GA01 - 0002 - D

Series

Ratio

Graduation

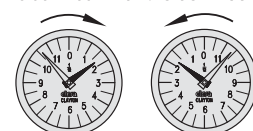
Increasing graduation

clockwise **D** anti-clockwise **S**



Ratio	Description	Ratio	Description	Ratio	Description	Ratio	Description
2	0002	12	0012	36	0036	100	0100
4	0004	15	0015	40	0040	120	0120
5	0005	16	0016	48	0048	150 *	0150
6	0006	20	0020	50	0050	200 *	0200
8	0008	24	0024	60	0060		
10	0010	30	0030	72	0072		

* Available only for GA02 and GA05



Position indicators

gravity drive, technopolymer

CASE

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Moulded-in spindle.

BEZEL

Technopolymer. Moulded over the window.

WINDOW

Transparent polyamide based (PA-T) technopolymer (practically unbreakable).
Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DIAL

Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

READING

The black pointer indicates the number of turns of the spindle from the start position (0); the red pointer indicates the fractions of turn.
Ballrace rotation: maximum reading accuracy.

RATIO

To choose the ratio see "Gravity position indicators introduction" (on page 690).

IP PROTECTION

The ultrasonic welding of the window to the case guarantees the complete sealing with IP 67 protection class, see EN 60529 table (on page A23).

FEATURES AND APPLICATIONS

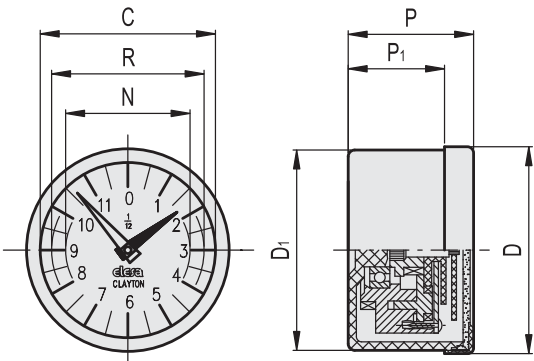
The knobs with integral gravity position indicator are suitable on spindles with horizontal or max 60° inclined axis.
To choose the handwheel see the table "Handwheels/knobs-possible assembly with indicators" (on page 691).

SPECIAL EXECUTIONS ON REQUEST

- Special dial with logo or customized graduations
- Special ratios
- Liquid filled
- Single pointer



ELESA Original design



Series	D	P	D1	P1	C	R	N	⚖
GA11	49.8	30	48.2	23	42	37	30	75
GA12	68.5	32	67.0	25	60	51	44	125

Example of description for ordering

GA11

GA12

Series

Ratio

Graduation

Ratio	Description	Ratio	Description	Ratio	Description	Ratio	Description
2	0002	12	0012	36	0036	100	0100
4	0004	15	0015	40	0040	120	0120
5	0005	16	0016	48	0048	150 *	0150
6	0006	20	0020	50	0050	200 *	0200
8	0008	24	0024	60	0060		
10	0010	30	0030	72	0072		

Increasing graduation

clockwise D anti-clockwise S

* Available only for GA12

Knobs with integral indicator

gravity drive, technopolymer

DIAMOND CUT KNURLED KNOB

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Moulded-in spindle.

BEZEL

Technopolymer. Moulded over the window.

WINDOW

Transparent polyamide based (PA-T) technopolymer (practically unbreakable).
Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DIAL

Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

STANDARD EXECUTION

Black-oxide steel boss, H7 reamed blind hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.

READING

The black pointer indicates the number of turns of the spindle from the start position (0); the red pointer indicates the fractions of turn.
Ballrace rotation: maximum reading accuracy.

RATIO

To choose the ratio see "Gravity position indicators introduction" (on page 690).

IP PROTECTION

The ultrasonic welding of the window to the case guarantees the complete sealing with IP 67 protection class, see EN 60529 table (on page A23).

FEATURES AND APPLICATIONS

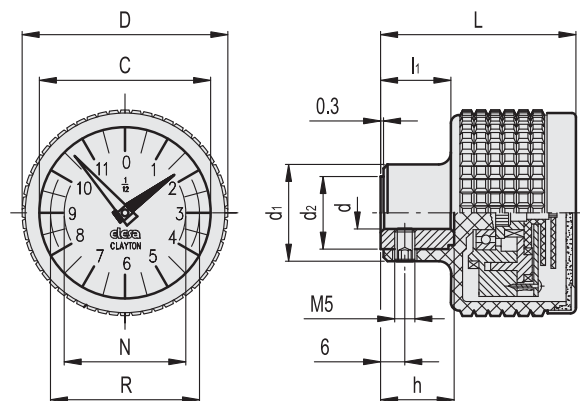
The knobs with integral gravity position indicator are suitable on spindles with horizontal or max 60° inclined axis.

SPECIAL EXECUTIONS ON REQUEST

- special dial with logo or customized graduations
- special ratios
- liquid filled
- single pointer.



ELESA Original design

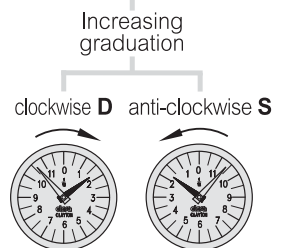


Series	D	L	d1	d2	l1	dH7	h	C	R	N	⚖
MBT.50-GA11	51	48	24	18	16.5	8	17	42	37	30	120
MBT.70-GA12	70	52	28	22	19	10	22	60	51	44	200

Example of description for ordering

Series		Ratio		Graduation	
MBT.50-GA11	-	0002	-	D	
MBT.50-GA11	MBT.70-GA12	Ratio	Description	Ratio	Description
		2	0002	12	0012
		4	0004	15	0015
		5	0005	16	0016
		6	0006	20	0020
		8	0008	24	0024
		10	0010	30	0030
				36	0036
				40	0040
				48	0048
				50	0050
				60	0060
				72	0072
				100	0100
				120	0120
				150 *	0150
				200 *	0200

* Available only for MBT.70-GA12



Digital-analogue position indicators

gravity drive, technopolymer

CASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Moulded-in spindle.

BEZEL
Technopolymer. Moulded over the window.

WINDOW
Transparent polyamide based (PA-T) technopolymer (practically unbreakable).
Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DIAL
Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

READING
Five-digits roller counter and one red pointer which turns on the graduated dial. The digit of the red roll shows the decimal values, while the pointer shows the hundredth.
The display indicates the displacement of the mechanism controlled by the spindle from the start position (0). One complete turn of the machine spindle corresponds to a turn of the handwheel/knob and consequently to a turn of the red pointer. A turn of the red pointer corresponds to a determinate reading on the counter (see "reading on the counter after one revolution of the red pointer" in the table).
Ballrace rotation: maximum reading accuracy.

IP PROTECTION
The ultrasonic welding of the window to the case guarantees the complete sealing with IP 67 protection class, see EN 60529 table (on page A23).

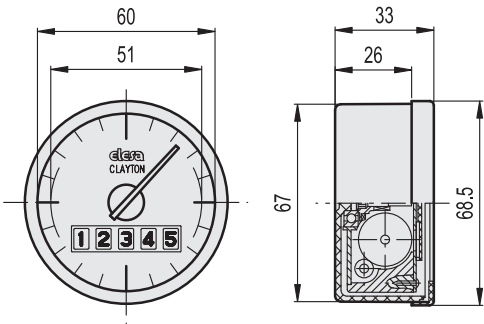
FEATURES AND APPLICATIONS
The knobs with integral gravity position indicator are suitable on spindles with horizontal or max 60° inclined axis.
To choose the handwheel see the table "Handwheels/knobs-possible assembly with indicators" (on page 691).



ELESA Original design

- SPECIAL EXECUTIONS ON REQUEST**
- No pointer
 - Plain dial
 - Special dial with logo or customized graduations
 - Special readings after one revolution.

INSTRUCTIONS OF USE
These indicators are supplied with a screw on the rear case to prevent the mechanism from rotating during transportation, avoiding any displacement of reading. Before assembling the indicator into the handwheel, remove the screw from the back and fit the self-adhesive element supplied to guarantee IP 67 sealing.



Example of description for ordering

GW12 - 00002 - D

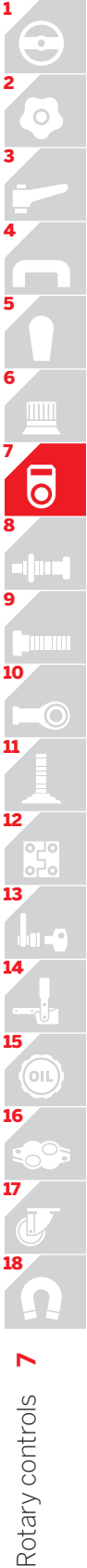
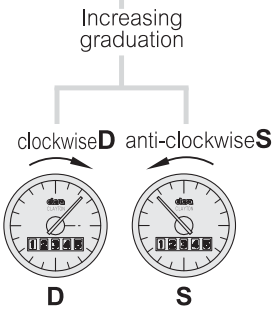
Reading on the counter after one revolution of the red pointer			
0 0 0 0 2	0 0 0 0 2	0 0 0 0 2	0 0 0 0 2
00002	0000.2	000.02	00.002
00005	0000.5	000.05	00.005
00008	0000.8	000.08	00.008
00010	0001.0	000.10	00.010
00012	0001.2	000.12	00.012
00012(5)	0001.2(5)	000.12(5)	00.012(5)
00020	0002.0	000.20	00.020
00025	0002.5	000.25	00.025
00030	0003.0	000.30	00.030
00035	0003.5	000.35	00.035
00040	0004.0	000.40	00.040
00050	0005.0	000.50	00.050

Dial Graduation Number
20
50
40
100
60
100
40
50
60
70
80
100

Graduated dial resolution

Divide the reading of the counter for the number of graduations of the dial.

Example:
00002 / 20 = 0.1



Rotary controls

Knobs with digital-analogue position indicator

gravity drive, technopolymer

DIAMOND CUT KNURLED KNOB

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Moulded-in spindle.

BEZEL

Technopolymer. Moulded over the window.

WINDOW

Transparent polyamide based (PA-T) technopolymer (practically unbreakable).
Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DIAL

Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

STANDARD EXECUTION

Black-oxide steel boss, H7 reamed blind hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.

READING

Five-digits roller counter and one red pointer which turns on the graduated dial. The digit of the red roll shows the decimal values, while the pointer shows the hundredth.
The display indicates the displacement of the mechanism controlled by the spindle from the start position (0). One complete turn of the machine spindle corresponds to a turn of the knob and consequently to a turn of the red pointer. A turn of the red pointer corresponds to a determinate reading on the counter (see "reading on the counter after one revolution of the red pointer" in the table).
Ballrace rotation: maximum reading accuracy.

IP PROTECTION

The ultrasonic welding of the window to the case guarantees the complete sealing with IP 67 protection class, see EN 60529 (on page A23).

FEATURES AND APPLICATIONS

The knobs with integral gravity position indicator are suitable on spindles with horizontal or max 60° inclined axis.



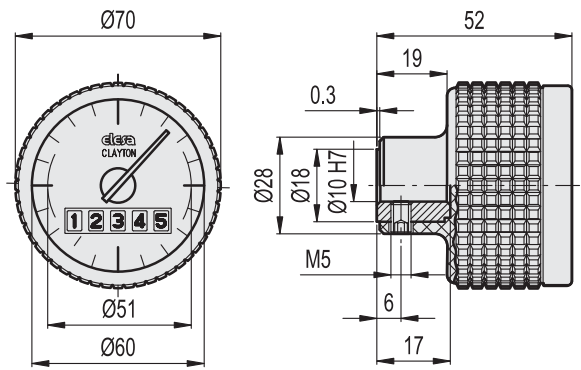
ELESA Original design

SPECIAL EXECUTIONS ON REQUEST

- No pointer
- Plain dial
- Special dial with logo or customized graduations
- Special readings after one revolution.

INSTRUCTIONS OF USE

See GW12 (on page 697).



Example of description for ordering

MBT.70-GW12 - 00002 - D

Reading on the counter after one revolution of the red pointer

0 0 0 0 2	0 0 0 0 2	0 0 0 0 2	0 0 0 0 2
00002	0000.2	000.02	00.002
00005	0000.5	000.05	00.005
00008	0000.8	000.08	00.008
00010	0001.0	000.10	00.010
00012	0001.2	000.12	00.012
00012(5)	0001.2(5)	000.12(5)	00.012(5)
00020	0002.0	000.20	00.020
00025	0002.5	000.25	00.025
00030	0003.0	000.30	00.030
00035	0003.5	000.35	00.035
00040	0004.0	000.40	00.040
00050	0005.0	000.50	00.050

Graduation

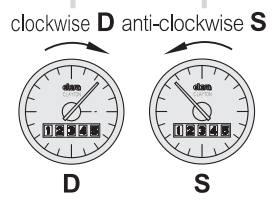
Dial Graduation Number
20
50
40
100
60
100
40
50
60
70
80
100

Graduated dial resolution

Divide the reading of the counter for the number of graduations of the dial.

Example: 00002 / 20=0.1

Increasing graduation



Rotary controls 7

Position indicators

positive drive, steel

CASE

Zinc-plated steel.

BEZEL

AISI 303 stainless steel.

WINDOW

Glass.

DIAL

Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

READING

The black pointer indicates the number of turns of the spindle from the start position (0); the red pointer indicates the fractions of turn.

RATIO

To choose the ratio see "Positive drive indicators introduction" (on page 692).

FEATURES AND APPLICATIONS

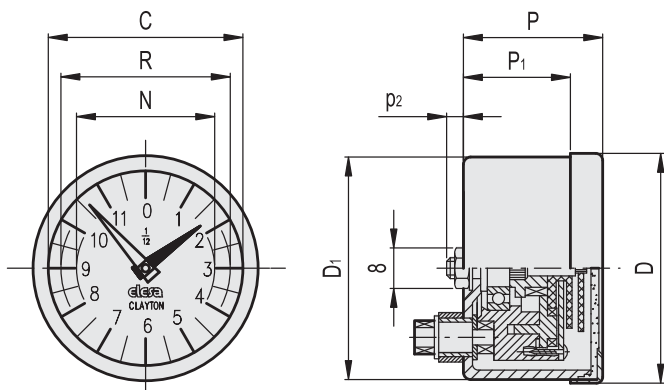
Digital-analogue positive drive indicators are suitable with spindles in any position.
To choose the handwheel see the table "Handwheels/knobs-possible assembly with indicators" (on page 693).

SPECIAL EXECUTIONS ON REQUEST

- Special dial with logo or customized graduations
- Special ratios
- Single pointer
- Window in plexiglass instead of glass.



ELESA Original design



Series	D	P	D1	P1	p2	C	R	N	⚖
PA01	49.6	30	48.3	20.5	1.6	42	37	30	145
PA02	68.4	32	67.0	19.3	1.0	60	51	44	215
PA05	112.7	32	111.0	18.8	1.0	102	89	76	425

Example of description for ordering

PA01 - 0002 - D

Series

PA01 PA02 PA05

Ratio

Ratio	Description	Ratio	Description	Ratio	Description	Ratio	Description
2	0002	12	0012	36	0036	100	0100
4	0004	15	0015	40	0040	120	0120
5	0005	16	0016	48	0048	150 *	0150
6	0006	20	0020	50	0050	200 *	0200
8	0008	24	0024	60	0060		
10	0010	30	0030	72	0072		

Graduation

Increasing graduation

clockwise D anti-clockwise S

* Available only for PA02 and PA05

Position indicators

positive drive, technopolymer

CASE

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Moulded-in spindle.

BEZEL

Technopolymer. Moulded over the window.

WINDOW

Transparent polyamide based (PA-T) technopolymer (practically unbreakable).
Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DIAL

Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

READING

The black pointer indicates the number of turns of the spindle from the start position (0); the red pointer indicates the fractions of turn.

RATIO

To choose the ratio see "Positive drive indicators introduction" (on page 692).

IP PROTECTION

The ultrasonic welding of the window to the case guarantees the complete sealing with IP 65 protection class, see EN 60529 (on page A23).

FEATURES AND APPLICATIONS

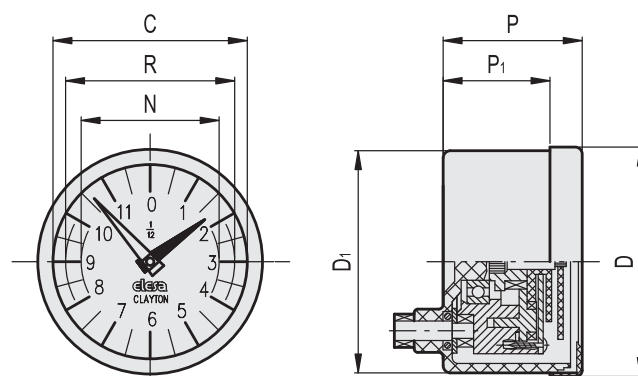
Digital-analogue positive drive indicators are suitable with spindles in any position.
To choose the handwheel see the table "Handwheels/knobs-possible assembly with indicators" (on page 693).

SPECIAL EXECUTIONS ON REQUEST

- Special dial with logo or customized graduations
- Special ratios
- Single pointer



ELESA Original design



Series	D	P	D1	P1	C	R	N	⚖
PA11	49.8	30	48.2	23	42	37	30	80
PA12	68.5	32	67.0	25	60	51	44	130

Example of description for ordering

PA11 - **0002** - **D**

Series

Ratio

Graduation

Increasing graduation



Ratio	Description	Ratio	Description	Ratio	Description	Ratio	Description
2	0002	12	0012	36	0036	100	0100
4	0004	15	0015	40	0040	120	0120
5	0005	16	0016	48	0048	150 *	0150
6	0006	20	0020	50	0050	200 *	0200
8	0008	24	0024	60	0060		
10	0010	30	0030	72	0072		

* Available only for PA12



clockwise **D** anti-clockwise **S**

Digital-analogue
position indicators
positive drive, technopolymer

CASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Moulded-in spindle.

BEZEL
Technopolymer. Moulded over the window.

WINDOW
Transparent polyamide based (PA-T) technopolymer (practically unbreakable).
Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DIAL
Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

READING
Five-digits roller counter and one red pointer which turns on the graduated dial. The digit of the red roll shows the decimal values, while the pointer shows the hundredth.
The display indicates the displacement of the mechanism controlled by the spindle from the start position (0). One complete turn of the machine spindle corresponds to a turn of the handwheel/knob and consequently to a turn of the red pointer. A turn of the red pointer corresponds to a determinate reading on the counter (see "reading on the counter after one revolution of the red pointer" in the table).

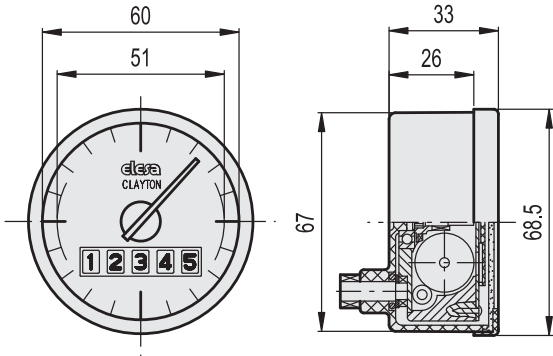
IP PROTECTION
The ultrasonic welding of the window to the case guarantees the complete sealing with IP 65 protection class, see table EN 60529 (on page A23).

FEATURES AND APPLICATIONS
Digital-analogue positive drive indicators are suitable with spindles in any position.
To choose the handwheel see the table "Handwheels/knobs-possible assembly with indicators" (on page 693).

- SPECIAL EXECUTIONS ON REQUEST**
- No pointer
 - Plain dial
 - Special dial with logo or customized graduations
 - Special readings after one revolution.



ELESA Original design



Example of description for ordering

PW12 - 00002 - D

Reading on the counter after one revolution of the red pointer

0 0 0 0 2			
00002	0000.2	000.02	00.002
00005	0000.5	000.05	00.005
00008	0000.8	000.08	00.008
00010	0001.0	000.10	00.010
00012	0001.2	000.12	00.012
00012(5)	0001.2(5)	000.12(5)	00.012(5)
00020	0002.0	000.20	00.020
00025	0002.5	000.25	00.025
00030	0003.0	000.30	00.030
00035	0003.5	000.35	00.035
00040	0004.0	000.40	00.040
00050	0005.0	000.50	00.050

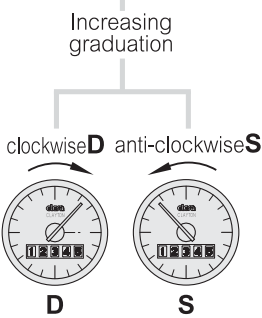
Graduation

Dial Graduation Number
20
50
40
100
60
100
40
50
60
70
80
100

Graduated dial resolution

Divide the reading of the counter for the number of graduations of the dial.

Example:
00002 / 20=0.1



Rotary controls 7

Knurled grip knobs for position indicators

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.

STANDARD EXECUTION

Black-oxide steel boss, H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)

IZN-XX knurled grip knobs can be used with analogue and digital-analogue gravity indicators.

To choose the indicator see the table below for possible assembly with indicators.

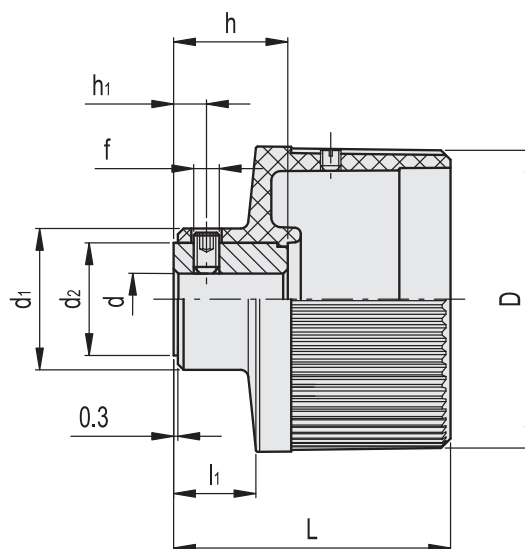
See also "Assembly instructions" (on page 690) for gravity indicators type G.

ACCESSORIES ON REQUEST

Cover CP-XX (see page 715) for fitting instead of the indicator.



ELESA Original design



Code	Description	D	L	dH7	h	d1	d2	f	h1	l1	⚖	Handwheel indicator combinations
CE.30101	IZN.60-GXX1 A-10	59	53	10	22	27	22	M5	6	15	110	GA01-GA11
CE.30201	IZN.80-GXX2 A-12	79	57	12	24	33	26	M5	6	17	190	GA02-GA12-GW12

Diamond cut knurled knobs
for position indicators

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

Black-oxide steel boss, H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.
- **MBT-GXX**: for gravity indicators.
- **MBT-PXX**: for positive drive indicators.
Rear flange with internal crown gear wheel in acetal resin based (POM) technopolymer. Black-oxide steel screw and anchor pin.

ERGONOMY AND DESIGN

The particular knurling on the outside rim of the knob, provided with a structure of very fine pitch, allows a safe and comfortable grip, offering the operator the possibility of operating under the most different working conditions in a sensitive and ergonomic way and simplifying the adjustment of the knob during rapid rotation (or screwing) without any unpleasant angular work for the hand and wrist.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)

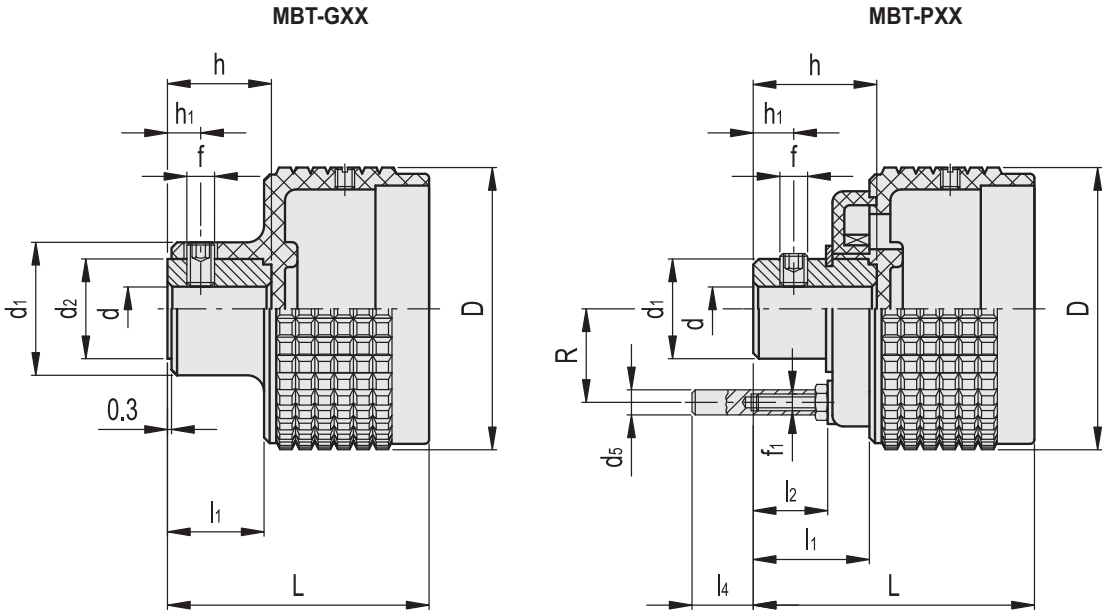
To choose the indicator see the table below for possible assembly with indicators.
See also "Assembly instructions" (on page 690) for gravity indicators or positive indicators type G or positive drive indicators type P (on page 692).

ACCESSORIES ON REQUEST

Cover CP-XX (see page 715) for fitting instead of the indicator.



ELESA Original design



MBT-GXX

Code	Description	D	L	dH7	h	d1	d2	f	h1	l1	Δ	Handwheel indicator combinations
CE.30001-R	MBT.60-GXX1 A-8	58	52.5	8	17	24	18	M5	6	17	72	GA01 - GA11
CE.30051-R	MBT.80-GXX2 A-10	77	61	10	22	28	22	M5	6	22	130	GA02 - GA12 - GW12

MBT-PXX

Code	Description	D	L	dH7	h	d1	d5	f	f1	h1	l1	l2	l4	R	Δ	Handwheel indicator combinations
CE.30002-R	MBT.60-PXX1 A-8	58	55	8	20.5	18	6	M5	M4	5	18.5	10.5	14.5	19	87	PA01 - PA11
CE.30052-R	MBT.80-PXX2 A-10	77	59	10	22	30	6	M5	M4	6	20	12	13	28.5	218	PA02 - PA12 - PW12

Lobe knobs for position indicators

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

Boss H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.

- **VHT-GXX**: for gravity indicators.

Black-oxide steel boss.

- **VHT-GXX-SST**: for gravity indicators.

AISI 303 stainless steel boss.

- **VHT-PXX**: for positive drive indicators.

Rear flange with internal crown gear wheel in acetal resin based (POM) technopolymer. Black-oxide steel screw and anchor pin.

Black-oxide steel boss.

FEATURES AND APPLICATIONS

The lobed shape with no cavities prevents unhealthy residues from depositing. Particularly suitable for applications on machines and equipment whose parts must be frequently cleaned by using water jets or steam.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)

To choose the indicator see the table below for possible assembly with indicators.

See also "Assembly instructions" for gravity indicators type G (on page 690) or positive drive indicators type P (on page 692).

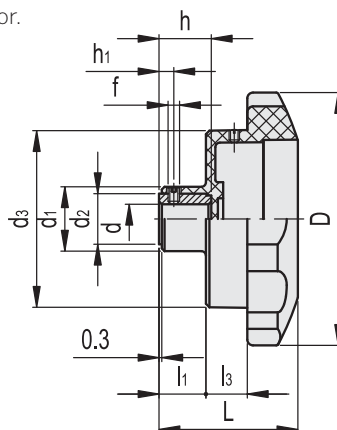
ACCESSORIES ON REQUEST

Cover CP-XX (see page 715) for fitting instead of the indicator.

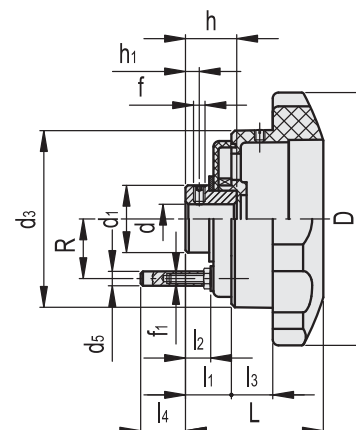


ELESA Original design

VHT-GXX
VHT-GXX-SST



VHT-PXX



VHT-GXX

Code	Description	D	L	dH7	h	d1	d2	d3	f	h1	l1	l3	⚖	Handwheel indicator combinations
CE.30251	VHT.85-GXX1 A-10	85	51	10	17	24	18	58	M5	6	15.5	18	110	GA01 - GA11
CE.30351	VHT.110-GXX2 A-12	110	58	12	22	28	22	77	M5	6	20	18	180	GA02 - GA12 - GW12

VHT-GXX-SST

STAINLESS STEEL

Code	Description	D	L	dH7	h	d1	d2	d3	f	h1	l1	l3	⚖	Handwheel indicator combinations
CE.30255	VHT.85-GXX1-SST-10	85	51	10	17	24	18	58	M5	6	15.5	18	110	GA01 - GA11
CE.30355	VHT.110-GXX2-SST-12	110	58	12	22	28	22	77	M5	6	20	18	180	GA02 - GA12 - GW12

VHT-PXX

Code	Description	D	L	dH7	h	d1	d3	d5	f	f1	h1	l1	l2	l3	l4	R	⚖	Handwheel indicator combinations
CE.30252	VHT.85-PXX1 A-10	85	55	10	20.5	18	58	6	M5	M4	5	18.5	10.5	18	14.5	19	130	PA01 - PA11
CE.30352	VHT.110-PXX2 A-12	110	58	12	22	30	77	6	M5	M4	6	20	12	18	13.1	28.5	290	PA02 - PA12 - PW12

Lobe knobs for position indicators

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

Black-oxide steel boss, H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.

- **VC.792-GXX**: for gravity indicators.

- **VC.792-PXX**: for positive drive indicators.

Rear flange with internal crown gear wheel in acetal resin based (POM) technopolymer. Black-oxide steel screw and anchor pin.

FEATURES AND APPLICATIONS

The ergonomic design enables an effective grip. The lobed shape with no cavities prevents unhealthy residues from depositing and guarantees perfect cleaning. Particularly suitable for applications on machines and equipment whose parts must be frequently cleaned by using water jets or steam.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)

To choose the indicator see the table below for possible assembly with indicators.

See also "Assembly instructions" for gravity indicators type G (on page 690) or positive drive indicators type P (on page 692).

ACCESSORIES ON REQUEST

Cover CP-XX (see page 715) for use without the indicator.

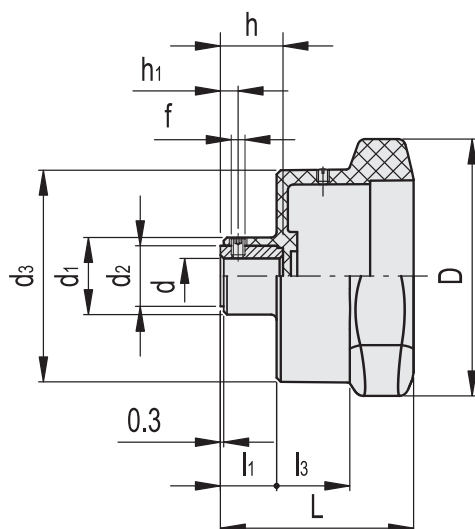
SPECIAL EXECUTIONS ON REQUEST

Knob with stainless steel boss.

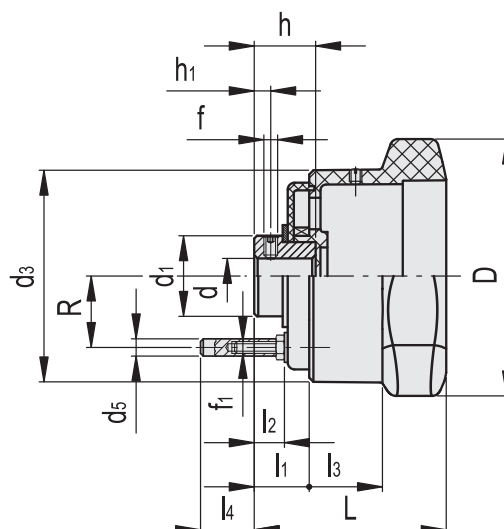


ELESA Original design

VC.792-GXX



VC.792-PXX



VC.792-GXX

Code	Description	D	L	dH7	h	d1	d2	d3	f	h1	l1	l3	⚖	Handwheel indicator combinations
CE.30071	VC.792/72-GXX1 A-10	72	52	10	17	24	18	56	M5	6	15.9	19	79	GA01 - GA11
CE.30081	VC.792/98-GXX2 A-12	98	58	12	22	27.5	22	76.5	M5	6	20.5	19	147	GA02 - GA12 - GW12

VC.792-PXX

Code	Description	D	L	dH7	h	d1	d3	d5	f	f1	h1	l1	l2	l3	l4	R	⚖	Handwheel indicator combinations
CE.30073	VC.792/72-PXX1 A-10	72	55	10	20.5	18	56	6	M5	M4	5	18.5	10.5	19	14.5	19	85	PA01 - PA11
CE.30083	VC.792/98-PXX2 A-12	98	58	12	22	30	76.5	6	M5	M4	6	20	12	19	13.1	28.5	207	PA02 - PA12 - PW12

Handwheels for positions indicators

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION

Boss H7 reamed through hole.

- **VDSC-GXX2+I**: with revolving handle I.621+x (see page 576) in polyamide based (PA) technopolymer, black colour, matte finish. Black-oxide steel boss.

- **VDSC-GXX2-SST+I**: with revolving handle I.621+x-SST (see page 576) in polyamide based (PA) technopolymer, black colour, matte finish. AISI 303 stainless steel boss.

- **VDSC-GXX2+IR**: with fold-away handle IR.620 (see page 584) in polyamide based (PA) technopolymer, black colour, matte finish. Black-oxide steel boss.

- **VDSC-GXX2-SST+IR**: with fold-away handle IR.620-SST (see page 584) in polyamide based (PA) technopolymer, black colour, matte finish. AISI 303 stainless steel boss.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)

VDSC-XX solid handwheels can be used with analogue and digital-analogue gravity indicators.

To choose the indicator see the table below for possible assembly with indicators.

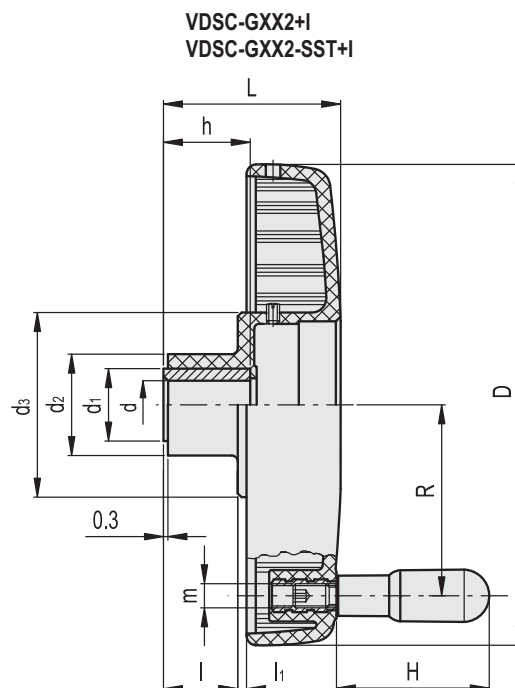
See also "Assembly instructions" for gravity indicators type G (on page 690).

ACCESSORIES ON REQUEST

Cover CP-XX (see page 715) for fitting instead of the indicator.



ELESA Original design



VDSC-GXX2+I

Code	Description	D	L	dH7	h	d1	d2	d3	I	l1	H	m	R		Handwheel indicator combinations
CE.34015	VDSC.125-GXX2 A-8+I	125	63	8	22	22	35	76	22	14	65	M8	48.5	292	GA02 - GA12 - GW12
CE.34021	VDSC.125-GXX2 A-10+I	125	63	10	22	22	35	76	22	14	65	M8	48.5	290	GA02 - GA12 - GW12
CE.34075	VDSC.200-GXX2 A-16+I	200	70.5	16	34	30	42	76	30	2	90	M10	80	684	GA02 - GA12 - GW12
CE.34081	VDSC.200-GXX2 A-20+I	200	70.5	20	34	30	42	76	30	2	90	M10	80	680	GA02 - GA12 - GW12

VDSC-GXX2-SST+I

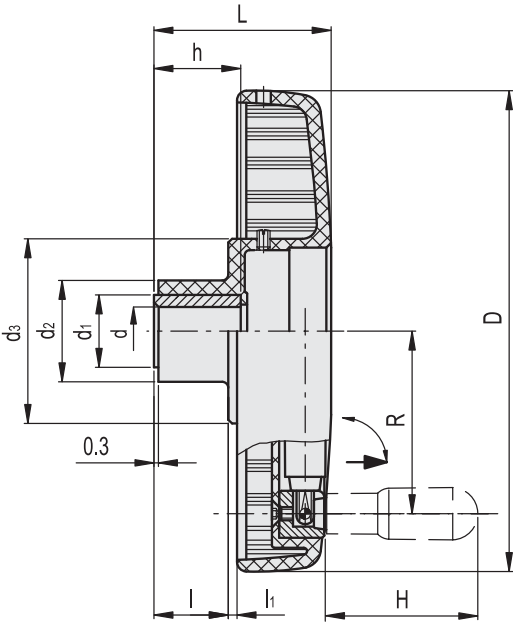
STAINLESS STEEL

Code	Description	D	L	d _{H7}	h	d ₁	d ₂	d ₃	l	l ₁	H	m	R		Handwheel indicator combinations
CE.34017	VDSC.125-GXX2 SST-8+I	125	63	8	22	22	35	76	22	14	65	M8	48.5	293	GA02 - GA12 - GW12
CE.34023	VDSC.125-GXX2 SST-10+I	125	63	10	22	22	35	76	22	14	65	M8	48.5	291	GA02 - GA12 - GW12
CE.34077	VDSC.200-GXX2 SST-16+I	200	70.5	16	34	30	42	76	30	2	90	M10	80	685	GA02 - GA12 - GW12
CE.34083	VDSC.200-GXX2 SST-20+I	200	70.5	20	34	30	42	76	30	2	90	M10	80	681	GA02 - GA12 - GW12



7
Rotary controls

VDSC-GXX2+IR
VDSC-GXX2-SST+IR



VDSC-GXX2+IR

Code	Description	D	L	dH7	h	d1	d2	d3	l	l1	H	R	⚖	Handwheel indicator combinations
CE.34045	VDSC.160-GXX2 A-10+IR	160	66	10	30	26	38.5	77	25.5	7.5	60	63	437	GA02 - GA12 - GW12
CE.34051	VDSC.160-GXX2 A-12+IR	160	66	12	30	26	38.5	77	25.5	7.5	60	63	435	GA02 - GA12 - GW12
CE.34085	VDSC.200-GXX2 A-16+IR	200	77	16	36	40	49	77	35	4	80	77	784	GA02 - GA12 - GW12
CE.34091	VDSC.200-GXX2 A-20+IR	200	77	20	36	40	49	77	35	4	80	77	780	GA02 - GA12 - GW12

VDSC-GXX2-SST+IR

STAINLESS STEEL

Code	Description	D	L	dH7	h	d1	d2	d3	l	l1	H	R	⚖	Handwheel indicator combinations
CE.34047	VDSC.160-GXX2 SST-10+IR	160	66	10	30	26	38.5	77	25.5	7.5	60	63	438	GA02 - GA12 - GW12
CE.34053	VDSC.160-GXX2 SST-12+IR	160	66	12	30	26	38.5	77	25.5	7.5	60	63	436	GA02 - GA12 - GW12
CE.34087	VDSC.200-GXX2 SST-16+IR	200	77	16	36	40	49	77	35	4	80	77	785	GA02 - GA12 - GW12
CE.34093	VDSC.200-GXX2 SST-20+IR	200	77	20	36	40	49	77	35	4	80	77	781	GA02 - GA12 - GW12

Handwheel for position indicators

Technopolymer

MATERIAL

Glass-fibre reinforced polypropylene based (PP) technopolymer, grey-black colour, matte finish.

REVOLVING HANDLE

IEL+x-SOFT (see page 572) in technopolymer coated with "soft-touch" thermoplastic elastomer (TPE), black colour, matte finish.

STANDARD EXECUTION

Black-oxide steel hub, H7 reamed hole.

Rear flange with internal crown gear wheel in acetal resin based (POM) technopolymer. Black-oxide steel screw and anchor pin.

FEATURES AND APPLICATIONS

This steering handwheel has been designed to be mounted on control shafts of machines or equipment and especially for guiding lift trucks and handling vehicles.

ERGONOMY AND DESIGN

The lowered profile of the steering handwheel makes it suitable for flush mounting on the control panel, thus reducing protruding parts to a minimum.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)

The steering handwheel can be used with a position indicator PA02 (see page 699), PA12 (see page 700) or PW12 (see page 701) to read steering positions.

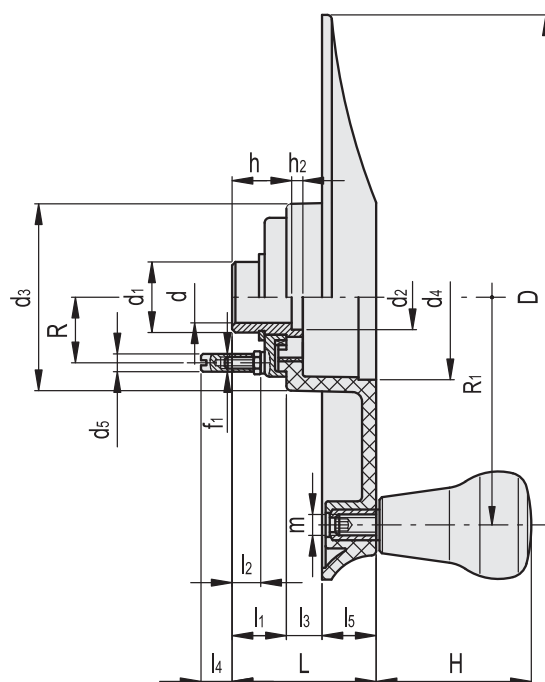
See also "Assembly instructions" (on page 692) for positive drive indicators type P.

ACCESSORIES ON REQUEST

- Axial retaining washer GN 184 (see page 971).
- Cover CP-XX (see page 715) for fitting instead of the indicator.

SPECIAL EXECUTIONS ON REQUEST

EWW-XX steering handwheel is suitable also for using with gravity indicators.



Code	Description	D	L	d _{H7}	h	d ₁	d ₂	d ₃	d ₄	d ₅	f ₁	h ₂	l ₁	l ₂	l ₃	l ₄	l ₅	H	m	R	R ₁		
208141-C0	EWV.240-PXX2+EL-A20-C0	240	59	20	24	30	25.5	79	68.5	6	M4	4	21	13	15	13	23	65	M10	28.5	97	810	

Solid handwheels
for position indicators

Duroplast

MATERIAL

High-strength, reinforced phenolic based (PF) Duroplast, black colour, glossy finish.

INDICATOR HOUSING

SC-XX (see page 715) made out of glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

REVOLVING HANDLE

I.301+x (see page 574) made out of Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Black-oxide steel hub, not drilled.
See table for the values of max d diameter and max p depth for drilling.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)

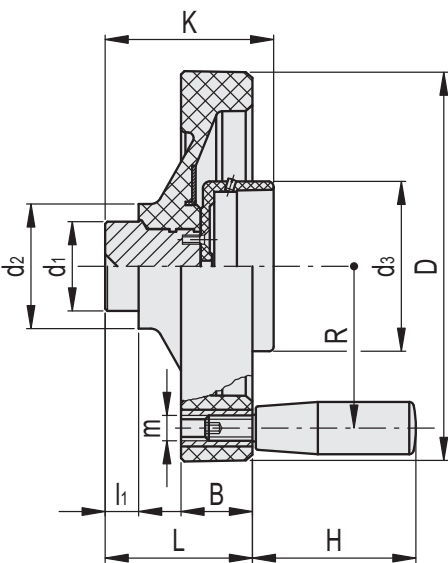
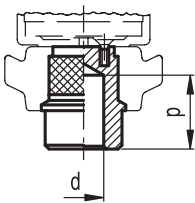
VDN-XX solid handwheels can be used with analogue gravity indicators GA05 (on page 694).
See also "Assembly instructions" for gravity indicators (on page 690).

SPECIAL EXECUTIONS ON REQUEST

Execution with hand reset: the indicator reading can be reset in any position within the positioning range, so that further readings can be referred to the reset point. To reset the reading turn the indicator housing until the two pointers reach the zero position, by keeping the indicator body still. By so doing the relevant position (phase) between the indicator and the handwheel can be changed by a small effort, but enough to avoid any accidental phase displacement.



ELESA Original design



Code	Description	D	L	d _{max}	p _{max}	d ₁	d ₂	d ₃	l ₁	B	K	H	m	R	⚖
CE.32121	VDN.250-GXX5+I	249	76	34	25	49	70	122	15	36	86	90	M10	106	2100
CE.32126	VDN.300-GXX5+I	301	87	42	35	58	82	122	18	36	98	90	M10	132	3138
CE.32131	VDN.350-GXX5+I	350	92	42	35	58	90	122	18	38	98	102	M10	157	4243

Handwheels for positions indicators

Duroplast

MATERIAL

High-resistance reinforced phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS

Black-oxide steel hub.

- **VDC-GXX**: for gravity indicators.

Not drilled hub, see table for maximum permissible boring diameters d' and d'' .

- **VDC-GXX+I**: for gravity indicators.

Not drilled hub, see table for maximum permissible boring diameters d' and d'' .

Revolving handle I.301+x (see page 574) in Duroplast, black colour, glossy finish.

- **VDC-PXX+I**: for positive drive indicators.

Rear flange with internal crown gear wheel in acetal resin based (POM) technopolymer. Black-oxide steel screw and anchor pin.

Hub with H7 reamed through hole.

Revolving handle I.301+x (see page 574) in Duroplast, black colour, glossy finish.

ERGONOMY

The rim with internal rear scallops (for models with diameter $D \geq 125$ mm) makes the grip and the manoeuvre of the handwheel easier especially in the versions without handle.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)

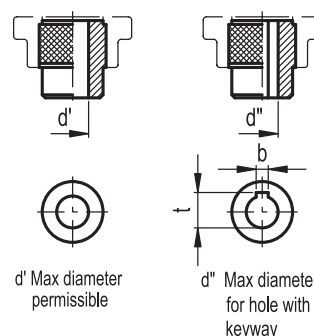
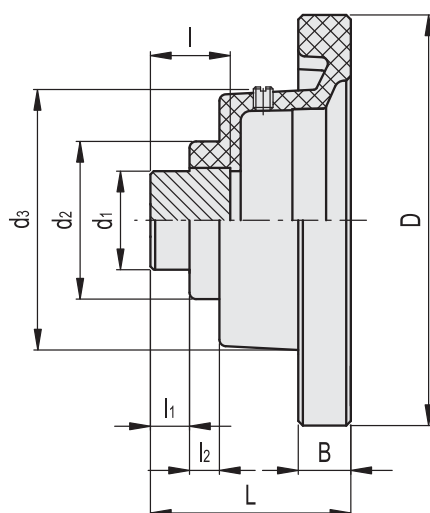
To choose the indicator see the table below for possible assembly with indicators.

See also "Assembly instructions" for gravity indicators type G (on page 690) or positive drive indicators type P (on page 692).



ELESA Original design

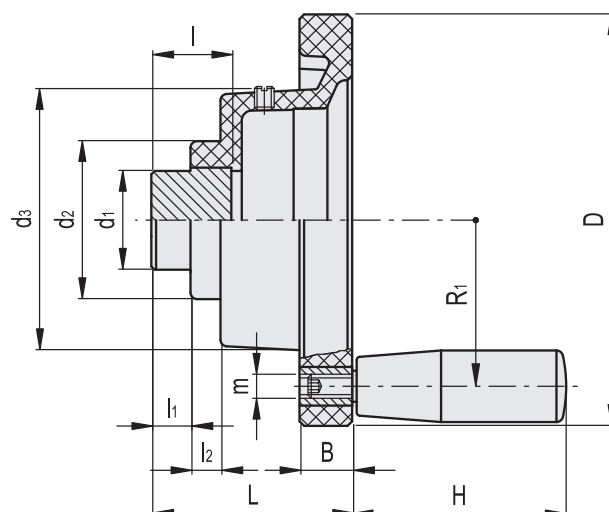
VDC-GXX



VDC-GXX

Code	Description	D	L	d'	d''	t	b	d1	d2	d3	l	l1	l2	B	⚖	Handwheel indicator combinations
CE.30501	VDC.125-GXX2	125	61	25	20	22.8	6	30	48	82	25	12	9	16	400	GA02 - GA12 - GW12
CE.30601	VDC.140-GXX2	140	65	25	20	22.8	6	30	50	82	25	12	9	17	470	GA02 - GA12 - GW12
CE.30701	VDC.160-GXX2	160	72	30	24	27.3	8	35	53	84	30	15	10	18	650	GA02 - GA12 - GW12
CE.30901	VDC.160-GXX5	160	71	31	25	28.3	8	36	53	123	34	14	11	18	730	GA05
CE.31001	VDC.180-GXX5	180	78	31	25	28.3	8	36	56	127	34	14	12	19	940	GA05
CE.31101	VDC.200-GXX5	200	79	35	29	32.3	8	40	59	127	34	13	15	20	1080	GA05

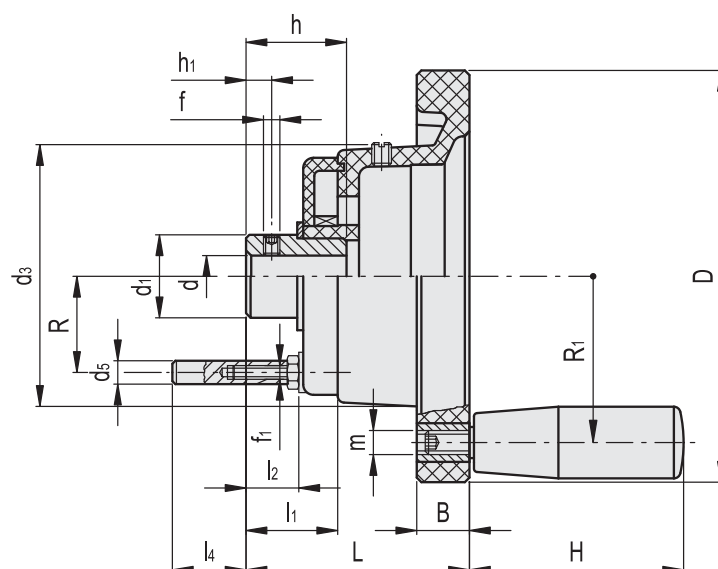
VDC-GXX+I



VDC-GXX+I

Code	Description	D	L	d'	d''	t	b	d ₁	d ₂	d ₃	l	l ₁	l ₂	B	H	m	R ₁		Handwheel indicator combinations
CE.30461	VDC.80-GXX1+I	87	57	20	16	18.3	5	25	40	58	23	11	8.5	14	40	M6	34.5	245	GA01 - GA11
CE.30481	VDC.100-GXX2+I	108	60	25	20	22.8	6	30	46	79	25	12	9.5	14	50	M6	45	375	GA02 - GA12 - GW12
CE.30511	VDC.125-GXX2+I	125	61	25	20	22.8	6	30	48	82	25	12	9	16	65	M8	53	480	GA02 - GA12 - GW12
CE.30611	VDC.140-GXX2+I	140	65	25	20	22.8	6	30	50	82	25	12	9	17	65	M8	60	540	GA02 - GA12 - GW12
CE.30711	VDC.160-GXX2+I	160	72	30	24	27.3	8	35	53	84	30	15	10	18	80	M8	68	750	GA02 - GA12 - GW12
CE.30811	VDC.180-GXX2+I	180	78	30	24	27.3	8	35	56	85	30	15	10	19	80	M10	77.5	890	GA02 - GA12 - GW12
CE.30911	VDC.160-GXX5+I	160	71	31	25	28.3	8	36	53	123	34	14	11	18	80	M8	68	825	GA05
CE.31011	VDC.180-GXX5+I	180	78	31	25	28.3	8	36	56	127	34	14	12	19	80	M10	77.5	1010	GA05
CE.31111	VDC.200-GXX5+I	200	79	35	29	32.3	8	40	59	127	34	13	15	20	80	M10	87	1180	GA05

VDC-PXX+I



VDC-PXX+I

Code	Description	D	L	d _{H7}	h	d ₁	d ₃	d ₅	f	f ₁	h ₁	l ₁	l ₂	l ₄	B	H	m	R	R ₁		Handwheel indicator combinations
CE.30462	VDC.80-PXX1+I A-8	87	57	8	23	18	58	6	M5	M4	5	19	11	14.1	14	40	M6	19	34.5	230	PA01 - PA11
CE.30482	VDC.100-PXX2+I A-10	108	60	10	25	30	78	6	M5	M4	6	21	13	12.1	14	50	M6	28.5	45	390	PA02 - PA12 - PW12

Handwheels for positions indicators

Technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

INDICATOR HOUSING

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

Black-oxide steel boss, H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.

- **VRTP-GXX2**: without handle.

- **VRTP-GXX2+I**: with revolving handle 1.621+x (see page 576) in polyamide based (PA) technopolymer, black colour, matte finish.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)

VRTP-XX two-spoke handwheels can be used with analogue and digital-analogue gravity indicators.

To choose the indicator see the table below for possible assembly with indicators.

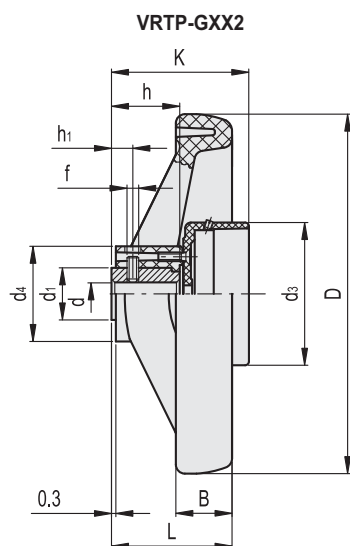
See also "Assembly instructions" for gravity indicators type G (on page 690).

SPECIAL EXECUTIONS ON REQUEST

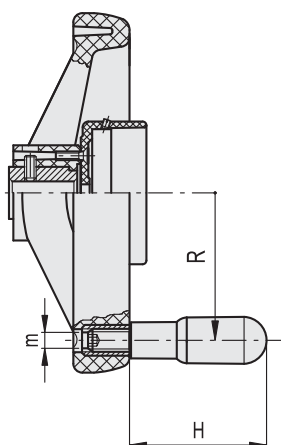
Execution with hand reset: the indicator reading can be reset in any position within the positioning range, so that further readings can be referred to the reset point. To reset the reading turn the indicator housing until the two pointers reach the zero position, by keeping the indicator body still. By so doing the relevant position (phase) between the indicator and the handwheel can be changed by a small effort, but enough to avoid any accidental phase displacement.



ELESA Original design



VRTP-GXX2+I



VRTP-GXX2

Code	Description	D	L	d _{H7}	h	d ₁	d ₃	d ₄	f	h ₁	B	K	⚖	Handwheel indicator combinations
CE.33111-R	VRTP.160-GXX2 A-14	160	51	14	27	26	76	40	M8	12	25	63	340	GA02 - GA12 - GW12
CE.33211-R	VRTP.200-GXX2 A-16	200	61	16	34	30	76	48.5	M8	12	28	70	540	GA02 - GA12 - GW12
CE.33311-R	VRTP.250-GXX2 A-20	250	70	20	38	35	76	58	M8	12	32	74	790	GA02 - GA12 - GW12

VRTP-GXX2+I

Code	Description	D	L	d _{H7}	h	d ₁	d ₃	d ₄	f	h ₁	B	K	H	m	R	⚖	Handwheel indicator combinations
CE.33121-R	VRTP.160-GXX2 A-14+I	160	51	14	27	26	76	40	M8	12	25	63	80	M8	65	425	GA02 - GA12 - GW12
CE.33221-R	VRTP.200-GXX2 A-16+I	200	61	16	34	30	76	48.5	M8	12	28	70	80	M8	84	625	GA02 - GA12 - GW12
CE.33321-R	VRTP.250-GXX2 A-20+I	250	70	20	38	35	76	58	M8	12	32	74	90	M10	105	890	GA02 - GA12 - GW12

Handwheels for position indicators

Aluminium

MATERIAL

Aluminium, epoxy resin coating, black colour, matte finish.

STANDARD EXECUTIONS

H7 reamed through hole.

Revolving handle (for +I versions) I.621+x (see page 576) in polyamide based (PA) technopolymer, black colour, matte finish.

- **VAD-GXX:** for gravity indicators, without handle.
- **VAD-GXX+I:** for gravity indicators, with handle.
- **VAD-PXX:** for positive drive indicators, without handle.
- **VAD-PXX+I:** for positive drive indicators, with handle.

Rear flange with internal crown gear wheel in acetal resin based (POM) technopolymer. Black-oxide steel screw and anchor pin.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)

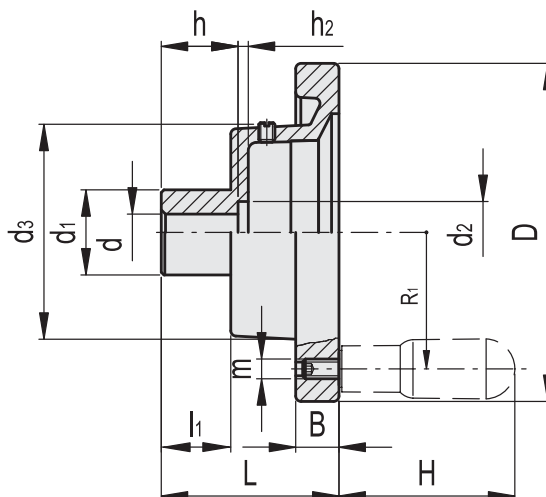
To choose the indicator see the table below for possible assembly with indicators.

See also "Assembly instructions" for gravity indicators type G (on page 690) or positive drive indicators type P (on page 692).



ELESA Original design

VAD-GXX
VAD-GXX+I



VAD-GXX

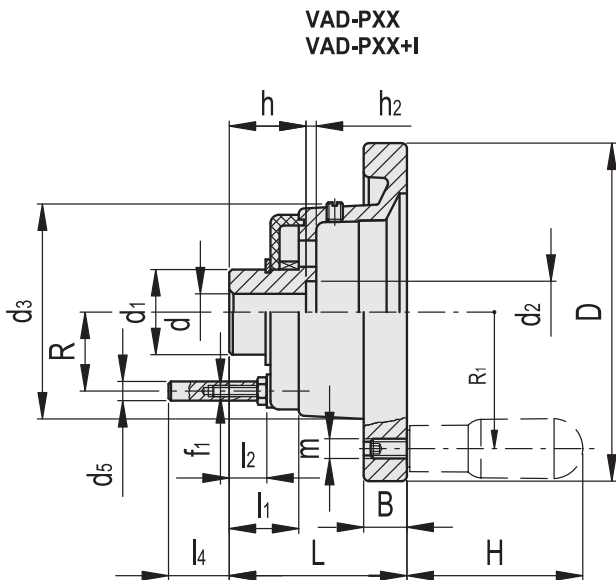
Code	Description	D	L	dH7	h	d1	d2	d3	h2	l1	B	Handwheel indicator combinations
CE.28501	VAD.80-GXX1 A-10	80	48	10	16	26	20.5	56	3.5	15.5	13	175 GA01 - GA11
CE.28551	VAD.100-GXX1 A-10	100	58	10	17	28	20.5	56	3.5	17.5	14	235 GA01 - GA11
CE.28601	VAD.125-GXX2 A-12	125	61	12	18	31	25.5	76	4	18	15	370 GA02 - GA12 - GW12
CE.28651	VAD.160-GXX2 A-14	160	68	14	20	36	29	78	4	19	18	625 GA02 - GA12 - GW12
CE.28701	VAD.160-GXX5 A-14	160	64	14	23.5	36	25.5	120	4	20	18	760 GA05
CE.28721	VAD.200-GXX2 A-18	200	75	18	24	42	33	79	4.5	21	20.5	980 GA02 - GA12 - GW12
CE.28731	VAD.250-GXX2 A-22	250	81.5	22	28	48	37	80	4.5	24.5	23	1500 GA02 - GA12 - GW12

VAD-GXX+I

Code	Description	D	L	dH7	h	d1	d2	d3	h2	l1	B	H	m	R1	Handwheel indicator combinations
CE.28511	VAD.80-GXX1 A-10+I	80	48	10	16	26	20.5	56	3.5	15.5	13	45	M6	33.5	200 GA01 - GA11
CE.28561	VAD.100-GXX1 A-10+I	100	58	10	17	28	20.5	56	3.5	17.5	14	45	M6	42.5	270 GA01 - GA11
CE.28611	VAD.125-GXX2 A-12+I	125	61	12	18	31	25.5	76	4	18	15	65	M8	54	440 GA02 - GA12 - GW12
CE.28661	VAD.160-GXX2 A-14+I	160	68	14	20	36	28	78	4	19	18	80	M10	71	705 GA02 - GA12 - GW12
CE.28711	VAD.160-GXX5 A-14+I	160	64	14	23.5	36	25.5	120	4	20	18	80	M10	71	840 GA05
CE.28726	VAD.200-GXX2 A-18+I	200	75	18	24	42	33	79	4.5	21	20.5	90	M10	89	1065 GA02 - GA12 - GW12
CE.28736	VAD.250-GXX2 A-22+I	250	81.5	22	28	48	37	80	4.5	24.5	23	90	M10	113	1595 GA02 - GA12 - GW12



Rotary controls 7



VAD-PXX

Code	Description	D	L	dH7	h	d1	d2	d3	d5	f1	h2	l1	l2	l4	B	R	⚖	Handwheel indicator combinations
CE.28502	VAD.80-PXX1 A-10	80	55	10	22.5	20	20.5	56	6	M4	3.5	18.5	11.5	13.6	13	19	205	PA01 - PA11
CE.28552	VAD.100-PXX1 A-10	100	63.5	10	22.5	20	20.5	56	6	M4	3.5	18.5	11.5	13.6	14	19	265	PA01 - PA11
CE.28602	VAD.125-PXX2 A-12	125	65.5	12	22.5	32	22.5	76	6	M4	4	19	12	13.1	15	28.5	450	PA02 - PA12 - PW12
CE.28652	VAD.160-PXX2 A-14	160	71.5	14	23.5	32	25.5	78	6	M4	4	20	13	12.1	18	28.5	680	PA02 - PA12 - PW12
CE.28702	VAD.160-PXX5 A-14	160	64	14	23.5	32	25.5	120	6	M4	4	20	13	12.1	18	28.5	760	PA05

VAD-PXX+I

Code	Description	D	L	dH7	h	d1	d2	d3	d5	f1	h2	l1	l2	l4	B	H	m	R	R1	⚖	Handwheel indicator combinations
CE.28512	VAD.80-PXX1 A-10+I	80	55	10	22.5	20	20.5	56	6	M4	3.5	18.5	11.5	13.6	13	45	M6	19	33.5	230	PA01 - PA11
CE.28562	VAD.100-PXX1 A-10+I	100	63.5	10	22.5	20	20.5	56	6	M4	3.5	18.5	11.5	13.6	14	45	M6	19	42.5	300	PA01 - PA11
CE.28612	VAD.125-PXX2 A-12+I	125	65.5	12	22.5	32	22.5	76	6	M4	4	19	12	13.1	15	65	M8	28.5	54	520	PA02 - PA12 - PW12
CE.28662	VAD.160-PXX2 A-14+I	160	71.5	14	23.5	32	25.5	78	6	M4	4	20	13	12.1	18	80	M10	28.5	71	760	PA02 - PA12 - PW12
CE.28712	VAD.160-PXX5 A-14+I	160	64	14	23.5	32	25.5	120	6	M4	4	20	13	12.1	18	80	M10	28.5	71	840	PA05

Housings

for position indicator, technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

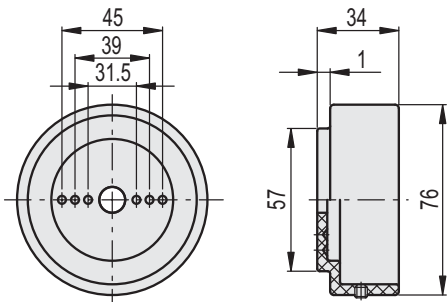
- **SC.GXX2:** three couples of dimples on the bottom of the housing (to drill according to the type of indicator) and two supplied M4x14 countersunk head screws.
- **SC.GXX5:** two holes for supplied M4x14 countersunk head screws.

APPLICATIONS

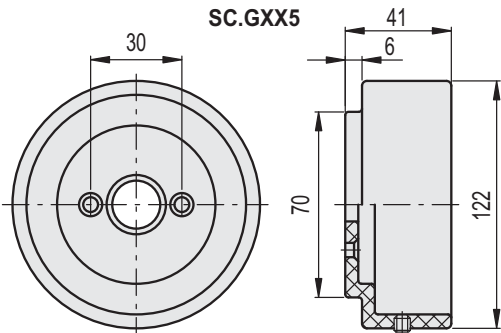
SC-XX housings are suitable with gravity indicators on any handwheel or other control devices.



SC.GXX2



SC.GXX5



Code	Description	⚖	Handwheel indicator combinations
CE.40002	SC.GXX2	72	GA02 - GA12 - GW12
CE.40005	SC.GXX5	191	GA05

Covers

Technopolymer

MATERIAL

Polyester based (PBT) technopolymer, light grey colours, matte finish.

MOUNTING

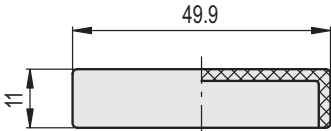
Push-fit. The cover can be removed by using a screwdriver in the proper cavity.

APPLICATIONS

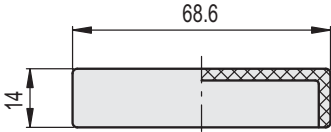
CP-XX covers are suitable for closing the indicator housing when the indicator is not required.



CP.X1



CP.X2



Code	Description	⚖	Handwheels/knobs combinations
CE.40101	CP.X1	6	IZN.60-MBT.60-VHT.85
CE.40102	CP.X2	11	IZN.80-MBT.80-VHT.110-VDSC-XX - EWW-XX



6
Rotary controls

Digital position indicators

direct drive, 3-digit counter, technopolymer

BASE AND CASE

High-resistance polyamide based (PA) technopolymer.
Black base.

Case in the following colours:

- **C2:** RAL 2004 orange, glossy finish.
- **C3:** RAL 7035 grey, glossy finish.
- **C1:** RAL 7021 grey-black, glossy finish.

The ultrasonically welding between the base and the case prevents separation and avoids dust penetration.

WINDOW

Transparent polyamide based (PA-T) technopolymer, moulded over the case and with a perfect seal. Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DISPLAY

It indicates the displacement of the mechanism controlled by the spindle from the start position (0).

Three-digit roller counter. The digits of red rolls show the decimal values.

The display can be in different positions (see "Table of the possible combinations").

- **AN:** inclined display, counter in upper position.
- **AR:** inclined display, counter in lower position.
- **FN:** front display, counter in upper position.
- **FR:** front display, counter in lower position.

INTERNAL GASKET

O-ring front sealing in NBR synthetic rubber, between the case and the bushing.

REAR GASKET

Foam polyethylene, supplied.

STANDARD EXECUTION

Boss with $\varnothing 10$ mm H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end, included in the supply.

- **DD50:** black-oxide steel boss.
- **DD50-SST:** AISI 303 stainless steel boss.

DIRECTION OF ROTATION

- **D:** clockwise. Increasing values with clockwise rotation of the boss.
- **S:** anti-clockwise. Increasing values with anti-clockwise rotation of the boss.

WEIGHT

22 grams.

ERGONOMY AND DESIGN

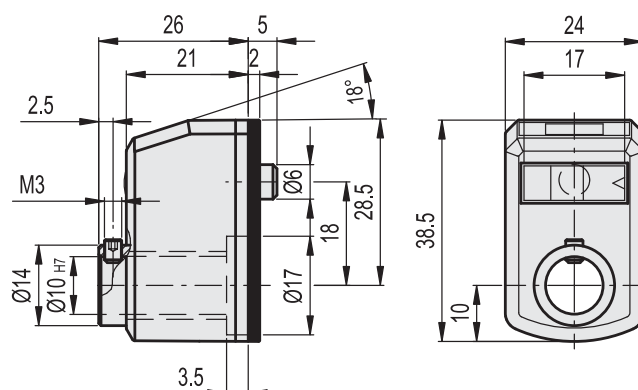
Compact roller counter, ergonomically designed digits for rapid reading. The readability of the counter is increased by the magnifying window.

ASSEMBLY INSTRUCTIONS

1. Drill a $\varnothing 6$ mm by 10 mm hole in the body of the machine with a 18 mm centre distance from the spindle to fit the rear referring pin.
2. Set the spindle to the start or referring position.
3. Fit the indicator with the zeroed roller counter onto the spindle and make sure that the referring pin fit the hole.
4. Clamp the bushing to the spindle by tightening the grub screw with hexagon socket and cup end, according to UNI 5929-85.

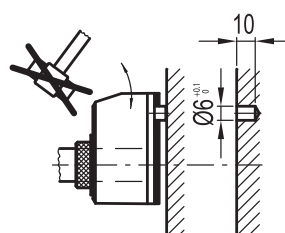
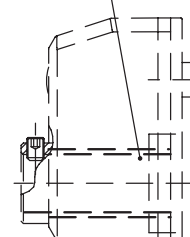
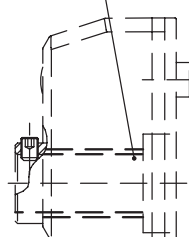


ELESA Original design



DD50

DD50-SST



SPECIAL EXECUTIONS ON REQUEST

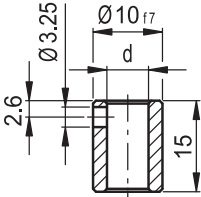
- Special readings after one revolution.
- Case in different colours.
- Completely sealed digital position indicators with IP 67 protection class, see table EN 60529 (on page A23) obtained by means of a brass bushing with double seal ring inside the rear cavity of the base.

FEATURES AND APPLICATIONS

Direct drive digital position indicators can be assembled on passing through spindles in any position to give direct reading of the positioning of a machine component. They are suitable also for motor driven applications (see "Example of description for ordering").

ACCESSORIES ON REQUEST (TO BE ORDERED SEPARATELY)

- **RB50**: black-oxide steel reduction sleeves.
- **RB50-SST**: AISI 304 stainless steel reduction sleeves.



RB50

Code	Description	dH7
CE.80940	RB50-6	6
CE.80950	RB50-8	8

RB50-SST

STAINLESS STEEL

Code	Description	dH7
CE.90940	RB50-6-SST	6
CE.90950	RB50-8-SST	8

Example of description for ordering

DD50

-

AN

-

003

-

D

-

C2

-

SST

Series

Display position

Reading of the counter after one revolution

Increasing numbering

Colour

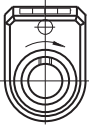
Stainless steel boss

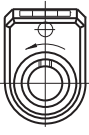

AN


AR


FN


FR


D
clockwise


S
anti-clockwise


C2
RAL 2004


C3
RAL 7035


C1
RAL 7021


To add only for the version with stainless steel boss

003	003	003	Pitch	Speed (rpm) *
003	00.3	0.03	0.3	1500
010	01.0	0.10	1.0	1500
020	02.0	0.20	2.0	1250
030	03.0	0.30	3.0	830
040	04.0	0.40	4.0	625
050	05.0	0.50	5.0	500
100	10.0	1.00	10	250

* The maximum rotation speed (rpm) of the spindle reported in the table corresponds to a maximum rotation of 25000 units of the last roll on the right of the counter.
Rotational speed tests have been performed in our laboratory under standard operating conditions. Small misalignments (not compromising the correct reading) of counter digits can occur due to high tolerances between gear teeth, designed to prevent damage from sudden acceleration or stop.



Rotary controls

Digital position indicators

direct drive, 4-digit counter, technopolymer

BASE AND CASE

High-resistance polyamide based (PA) technopolymer.
Black base.

Case in the following colours:

- **C2:** RAL 2004 orange, glossy finish.
- **C3:** RAL 7035 grey, glossy finish.
- **C1:** RAL 7021 grey-black, glossy finish.

The ultrasonically welding between the base and the case prevents separation and avoids dust penetration.

WINDOW

Transparent polyamide based (PA-T) technopolymer, moulded over the case and with a perfect seal (avoid contact with alcohol during cleaning operations).

DISPLAY

It indicates the displacement of the mechanism controlled by the spindle from the start position (0).

Four-digit roller counter. The digits of red rolls show the decimal values. An additional graduated scale next to the last decimal digit offers further accuracy of reading.

The display can be in different positions (see "Table of the possible combinations").

- **AN:** inclined display, counter in upper position.
- **AR:** inclined display, counter in lower position.
- **FN:** front display, counter in upper position.
- **FR:** front display, counter in lower position.

INTERNAL GASKET

O-ring front sealing in NBR synthetic rubber, between the case and the boss.

REAR GASKET

Foam polyethylene, supplied.

STANDARD EXECUTIONS

Boss with Ø 14 mm H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end, included in the supply.

- **DD51:** black-oxide steel boss.
- **DD51-SST:** AISI 303 stainless steel boss.

DIRECTION OF ROTATION

- **D:** clockwise. Increasing values with clockwise rotation of the boss.
- **S:** anti-clockwise. Increasing values with anti-clockwise rotation of the boss.

WEIGHT

42 grams.

FEATURES AND APPLICATIONS

Direct drive digital position indicators can be assembled on passing through spindles in any position to give direct reading of the positioning of a machine component. They are suitable also for motor driven applications (see "Example of description for ordering").

ERGONOMY AND DESIGN

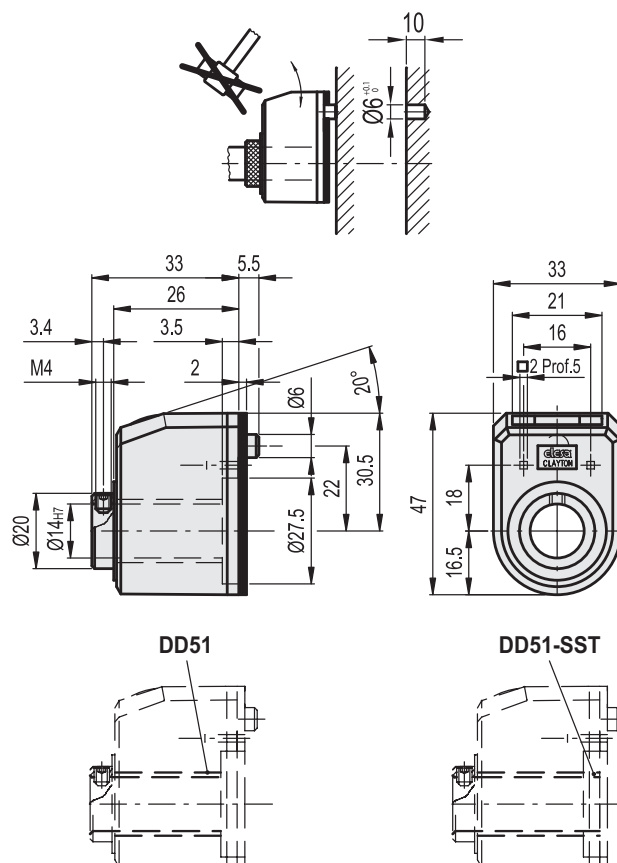
Compact roller counter, ergonomically designed digits for rapid reading. The readability of the counter is increased by the magnifying window.



ELESA Original design

ASSEMBLY INSTRUCTIONS

1. Drill a Ø 6 mm by 10 mm hole in the body of the machine with a 22 mm centre distance from the spindle to fit the rear referring pin.
2. Set the spindle to the start or referring position.
3. Fit the indicator with the zeroed roller counter onto the spindle and make sure that the referring pin fit the hole.
4. Clamp the bushing to the spindle by tightening the grub screw with hexagon socket and cup end, according to UNI 5929-85.



Example of description for ordering

DD51

-

AN

-

0004

-

D

-

C2

-

SST

Series

Display position

Reading of the counter after one revolution

Increasing numbering

Colour

Stainless steel boss


AN


AR


FN


FR

The internal mechanism counts also the figures between brackets (even if they do not appear on the display).


D
clockwise


S
anti-clockwise


C2
RAL 2004


C3
RAL 7035


C1
RAL 7021


To add only for the version with stainless steel boss



0 0 0 4	0 0 0 . 4	0 0 . 0 4	0 . 0 0 4	Pitch	Speed (rpm) *
0004	000.4	00.04	0.004	0.4	1500
0010	001.0	00.10	0.010	1.0	1500
0012(5)	001.2(5)	00.12(5)	0.012(5)	1.25	1500
0015	001.5	00.15	0.015	1.5	1500
0015(7)	001.5(7)	00.15(7)	0.015(7)	1.57	1500
0017(5)	001.7(5)	00.17(5)	0.017(5)	1.75	1420
0020	002.0	00.20	0.020	2.0	1250
0020(83)	002.0(83)	00.20(83)	0.020(83)	2.083	1200
0025	002.5	00.25	0.025	2.5	1000
0030	003.0	00.30	0.030	3.0	830
0040	004.0	00.40	0.040	4.0	625
0044	004.4	00.44	0.044	4.4	550
0050	005.0	00.50	0.050	5.0	500
0057	005.7	00.57	0.057	5.7	435
0060	006.0	00.60	0.060	6.0	415
0065(5)	006.5(5)	00.65(5)	0.065(5)	6.55	370
0075	007.5	00.75	0.075	7.5	330
0080	008.0	00.80	0.080	8.0	315
0083(3)	008.3(3)	00.83(3)	0.083(3)	8.33	300
0100	010.0	01.00	0.100	10.0	250
0120	012.0	01.20	0.120	12.0	205
0125	012.5	01.25	0.125	12.5	200
0157	015.7	01.57	0.157	15.7	150
0200	020.0	02.00	0.200	20.0	125

* The maximum rotation speed (rpm) of the spindle reported in the table corresponds to a maximum rotation of 25000 units of the last roll on the right of the counter.
Rotational speed tests have been performed in our laboratory under standard operating conditions.
Small misalignments (not compromising the correct reading) of counter digits can occur due to high tolerances between gear teeth, designed to prevent damage from sudden acceleration or stop.

SPECIAL EXECUTIONS ON REQUEST

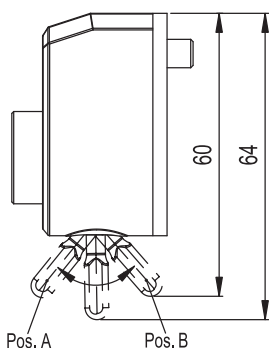
- Special readings after one revolution.
- Case in different colours.
- Completely sealed digital position indicators with IP 67 protection class, see table EN 60529 (on page A23) obtained by means of a brass bushing with double seal ring inside the rear cavity of the base.

LB - LOCKING DEVICE

The DD51-LB position indicators are designed to lock the spindle on which they are mounted to avoid the risk of accidental adjustment alterations due to vibrations. To lock or unlock the spindle rotation, simply move the lever, in pos. A equivalent to unlocked spindle, in pos. B equivalent to locked spindle.

Following repeated locking cycles, the special device is highly wear resistant and functions perfectly over time.

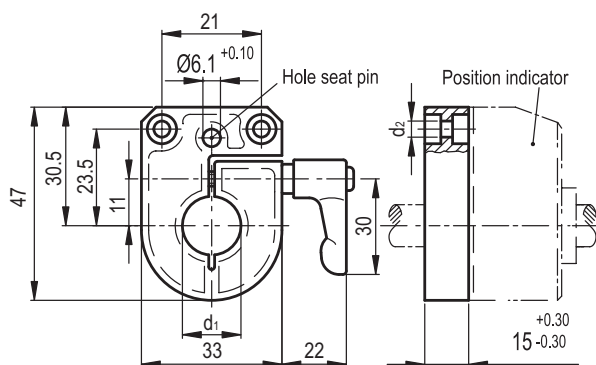
To order the indicator with spindle locking add the -LB index after the code and description (e.g. CE.84101-LB DD51-AN-00.50-D-C3-LB).



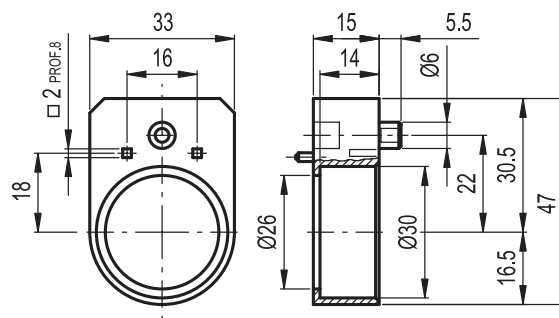
DD51-LB - with locking device

ACCESSORIES ON REQUEST (TO BE ORDERED SEPARATELY)

- **GN 954.6:** zinc die-cast bases for spindle locking, epoxy resin coating, black colour, matte finish (see table). Type GN 302 adjustable handle. GN 954.6 locking bases allow an easy and quick locking of the spindles after their positioning. They are equipped with a $\varnothing 6.1$ mm to fit the referring pin of the indicator. They can be assembled with the handle either on the right or on the left and can be fitted to the machine by means of two M4 cylindrical head screws (not included in the supply).



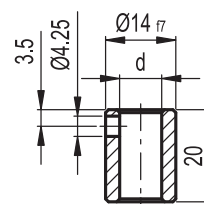
- **BS51:** glass-fibre polyamide based (PA) technopolymer spacer plate (code CE.85900).



- **MD51** (see page 730): polyamide based (PA) technopolymer fluted grip control knob.



- **RB51:** black-oxide steel reduction sleeves.
- **RB51-SST:** AISI 304 stainless steel reduction sleeves.

**RB51**

Code	Description	dh7
CE.85940	RB51-6	6
CE.85950	RB51-8	8
CE.85955	RB51-10	10
CE.85960	RB51-12	12

RB51-SST**STAINLESS STEEL**

Code	Description	dh7
CE.95941	RB51-6-SST-304	6
CE.95951	RB51-8-SST-304	8
CE.95956	RB51-10-SST-304	10
CE.95961	RB51-12-SST-304	12

Description	d1 +0.06/+0.02	d2	⚖
GN 954.6-33-B8	B 8	4.5	112
GN 954.6-33-B10	B 10	4.5	109
GN 954.6-33-B12	B 12	4.5	107
GN 954.6-33-B14	B 14	4.5	102

Digital position indicator

direct drive, 5-digit counter, technopolymer

BASE AND CASE

High-resistance polyamide based (PA) technopolymer. Black base.

Case in the following colours:

- **C2:** RAL 2004 orange, glossy finish.
- **C3:** RAL 7035 grey, glossy finish.
- **C1:** RAL 7021 grey-black, glossy finish.

The ultrasonically welding between the base and the case prevents separation and avoids dust penetration.

WINDOW

Transparent polyamide based (PA-T) technopolymer, moulded over the case and with a perfect seal (avoid contact with alcohol during cleaning operations).

DISPLAY

It indicates the displacement of the mechanism controlled by the spindle from the start position (0).

Five-digit roller counter. The digits of red rolls show the decimal values. An additional graduated scale next to the last decimal digit offers further accuracy of reading.

The display can be in different positions (see "Table of the possible combinations").

- **AN:** inclined display, counter in upper position.
- **AR:** inclined display, counter in lower position.
- **FN:** front display, counter in upper position.
- **FR:** front display, counter in lower position.

INTERNAL GASKET

O-ring front sealing in NBR synthetic rubber, between the case and the boss.

REAR GASKET

Foam polyethylene, supplied.

STANDARD EXECUTION

Boss with Ø 20 mm H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end.

- **DD52R:** black-oxide steel boss.
- **DD52R-SST:** INOX AISI 303 stainless steel boss.

DIRECTION OF ROTATION

- **D:** clockwise. Increasing values with clockwise rotation of the boss.
- **S:** anti-clockwise. Increasing values with anti-clockwise rotation in applications (see "Example of description for ordering").

WEIGHT

97 grams.

FEATURES AND APPLICATION

Direct drive digital position indicators can be assembled on passing through spindles in any position to give direct reading of the positioning of a machine component. They are suitable also for motor driven applications (see "Example of description for ordering").

ERGONOMY AND DESIGN

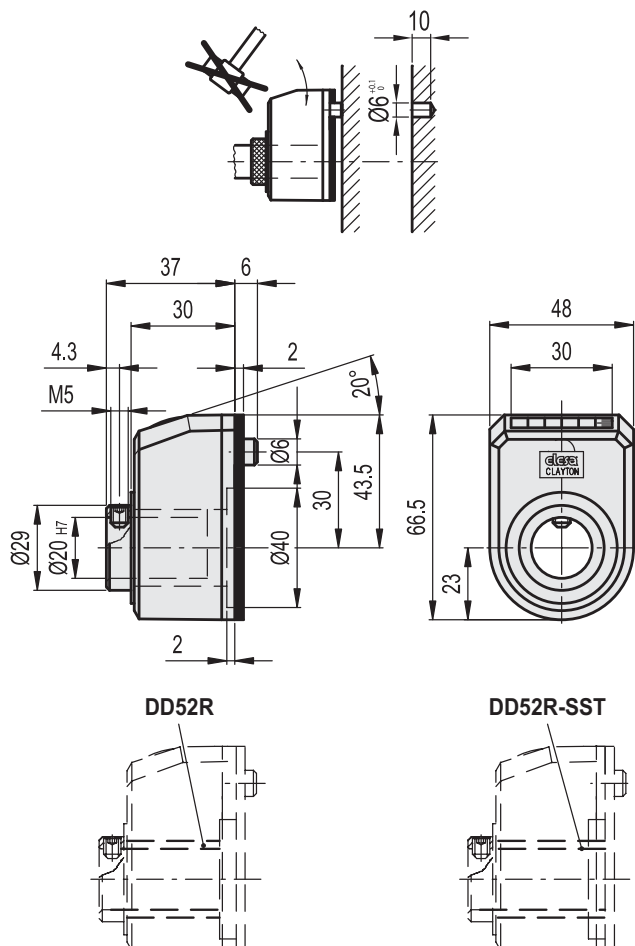
Compact roller counter, ergonomically designed digits for rapid reading. The readability of the counter is increased by the magnifying window.



ELESA Original design

ASSEMBLY INSTRUCTIONS

1. Drill a Ø 6 mm by 10 mm hole in the body of the machine with a 30 mm centre distance from the spindle to fit the rear referring pin.
2. Set the spindle to the start or referring position.
3. Fit the indicator with the zeroed roller counter onto the spindle and make sure that the referring pin fit the hole.
4. Clamp the bushing to the spindle by tightening the grub screw with hexagon socket and cup end, according to UNI 5929-85.



Rotary controls 7

Example of description for ordering

DD52R - AN - 00001 - D - C2 - SST

Series **Display position** **Reading of the counter after one revolution** **Increasing numbering** **Colour** **Stainless steel boss**

AN AR FN FR

The internal mechanism counts also the figures between brackets (even if they do not appear on the display).

D clockwise
S anti-clockwise

C2 RAL 2004
C3 RAL 7035
C1 RAL 7021

To add only for the version with stainless steel boss

0 0 0 0 1	0 0 0 0 1	0 0 0 0 1	0 0 0 0 1	Pitch	Speed (rpm) *
00001	0000.1	000.01	00.001	0.1	1500
00004	0000.4	000.04	00.004	0.4	1500
00005	0000.5	000.05	00.005	0.5	1500
00009(6)	0000.9(6)	000.09(6)	00.009(6)	0.96	1500
00010	0001.0	000.10	00.010	1.0	1500
00012(5)	0001.2(5)	000.12(5)	00.012(5)	1.25	1500
00015	0001.5	000.15	00.015	1.5	1500
00015(8)	0001.5(8)	000.15(8)	00.015(8)	1.58	1500
00015(75)	0001.5(75)	000.15(75)	00.015(75)	1.575	1500
00016(07)	0001.6(07)	000.16(07)	00.016(07)	1.607	1500
00017(5)	0001.7(5)	000.17(5)	00.017(5)	1.75	1420
00019(6875)	0001.9(6875)	000.19(6875)	00.019(6875)	1.96875	1270
00020	0002.0	000.20	00.020	2.0	1250
00025	0002.5	000.25	00.025	2.5	1000
00025(4)	0002.5(4)	000.25(4)	00.025(4)	2.54	980
00030	0003.0	000.30	00.030	3.0	830
00031(5)	0003.1(5)	000.31(5)	00.031(5)	3.15	790
00031(75)	0003.1(75)	000.31(75)	00.031(75)	3.175	780
00035	0003.5	000.35	00.035	3.5	710
00038(095)	0003.8(095)	000.38(095)	00.038(095)	3.8095	650
00039(375)	0003.9(375)	000.39(375)	00.039(375)	3.9375	640
00040	0004.0	000.40	00.040	4.0	625
00042(9)	0004.2(9)	000.42(9)	00.042(9)	4.29	580
00050	0005.0	000.50	00.050	5.0	500
00050(8)	0005.0(8)	000.50(8)	00.050(8)	5.08	490
00052(94)	0005.2(94)	000.52(94)	00.052(94)	5.294	470
00056(47)	0005.6(47)	000.56(47)	00.056(47)	5.647	440
00060	0006.0	000.60	00.060	6.0	415
00062(5)	0006.2(5)	000.62(5)	00.062(5)	6.25	400
00063(5)	0006.3(5)	000.63(5)	00.063(5)	6.35	390
00066	0006.6	000.66	00.066	6.6	370
00070	0007.0	000.70	00.070	7.0	350
00075	0007.5	000.75	00.075	7.5	330
00076(923)	0007.6(923)	000.76(923)	00.076(923)	7.6923	325
00078(75)	0007.8(75)	00078(75)	00.078(75)	7.875	310
00080	0008.0	000.80	00.080	8.0	315
00090	0009.0	000.90	00.090	9.0	270
00100	0010.0	001.00	00.100	10.0	250
00105	0010.5	001.05	00.105	10.5	235
00118(125)	0011.8(125)	001.18(125)	00.118(125)	11.8125	205
00119(05)	0011.9(05)	001.19(05)	00.119(05)	11.905	210
00120	0012.0	001.20	00.120	12.0	200
00130	0013.0	001.30	00.130	13.0	190
00150	0015.0	001.50	00.150	15.0	160
00160	0016.0	001.60	00.160	16.0	150
00200	0020.0	002.00	00.200	20.0	125

* The maximum rotation speed (rpm) of the spindle reported in the table corresponds to a maximum rotation of 25000 units of the last roll on the right of the counter.

Rotational speed tests have been performed in our laboratory under standard operating conditions.

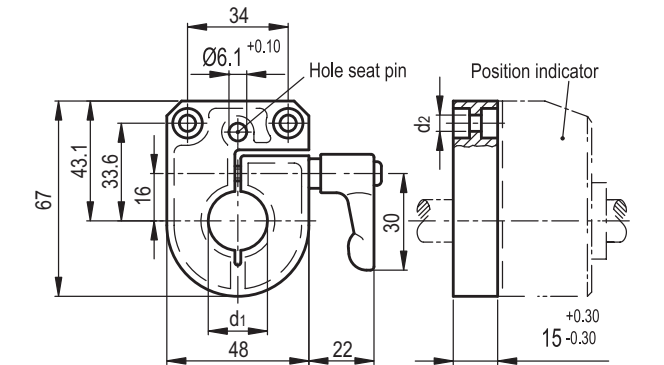
Small misalignments (not compromising the correct reading) of counter digits can occur due to high tolerances between gear teeth, designed to prevent damage from sudden acceleration or stop.

SPECIAL EXECUTIONS ON REQUEST

- Special readings after one revolution.
- Case in different colours.
- Completely sealed digital position indicators with IP 67 protection class, see table EN 60529 (on page A23) obtained by means of a brass bushing with double seal ring inside the rear cavity of the base.

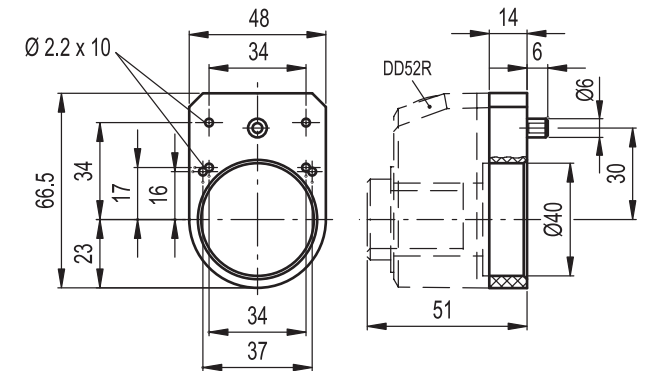
ACCESSORIES ON REQUEST (TO BE ORDERED SEPARATELY)

- **GN 953.6**: zinc die-cast bases for spindle locking, epoxy resin coating, black colour, matte finish (see table). Type GN 302 adjustable handle. GN 953.6 locking bases allow an easy and quick locking of the spindles after their positioning. They are equipped with a Ø 6.1 mm hole to fit the referring pin of the indicator. They can be assembled with the handle either on the right or on the left and can be fitted to the machine by means of two M5 cylindrical-head screws (not included in the supply).

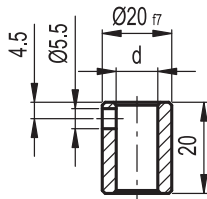


Description	d1+0.06/+0.02	d2	⚖
GN 953.6-48-B12	B 12	5.5	179
GN 953.6-48-B14	B 12	5.5	175
GN 953.6-48-B15	B 15	5.5	173
GN 953.6-48-B16	B 16	5.5	168
GN 953.6-48-B20	B 20	5.5	161

- **BS52R**: glass-fibre reinforced polyamide based (PA) technopolyme spacer base (code CE.83950), designed with two pre-drilled holes for UNI 10227 self-tapping screws Ø 2.2 (not included in the supply).



- **RB52**: black-oxide steel reduction sleeves.
- **RB52-SST**: AISI 304 stainless steel reduction sleeves.



RB52

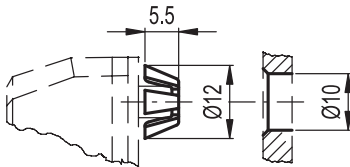
Code	Description	dH7
CE.87940	RB52-12	12
CE.87950	RB52-14	14
CE.87955	RB52-15	15
CE.87960	RB52-16	16

RB52-SST

STAINLESS STEEL

Code	Description	dH7
CE.97941	RB52-12-SST-304	12
CE.97951	RB52-14-SST-304	14
CE.97956	RB52-15-SST-304	15
CE.97961	RB52-16-SST-304	16

- **PE.6-10**: red technopolymer pin (code CE.83960).



7
Rotary controls

Electronic position indicators

direct drive, 5-digit display, technopolymer

BASE AND CASE

High-resistance polyamide based (PA) technopolymer.
Black base.

Case in the following colours:

- **C2:** RAL 2004 orange, glossy finish.
- **C3:** RAL 7035 grey, glossy finish.

Available on request in RAL 7021 grey-black colour (C1).

Cover with perfectly sealed gasket and AISI 304 stainless steel UNI 6955 type self-tapping screws with six-lobe socket TORX® T06 (registered trademark by TEXTRON INC.).

The ultrasonic welding between the base and the case prevents separation and avoids dust and liquid penetration.

BOSS

AISI 304 stainless steel with Ø 14 mm H7 reamed hole, fitting to shaft by means of AISI 304 stainless steel grub screw, hexagon socket and cup end UNI 5929-85, included in the supply.

WINDOW

Transparent polyamide based (PA-T) technopolymer, moulded over the case and with a perfect seal. Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DISPLAY

- 5-digit LCD of 8,0 mm height and special characters.
- The visualization parameters can be set and modified by the operator by means of appropriate keys:
- values displayed in mm, inches or degrees
- display of mode for use (absolute or incremental mode)
- reading orientation (right or reverse).

KEYBOARD

Polyester membrane. Resistant to solvents, alcohol, acids, alkalis.

INTERNAL GASKET

O-ring front sealing in NBR synthetic rubber assembled between the case and the boss.

Brass bushing with double O-ring sealing in NBR synthetic rubber inside the rear cavity of the base (DD51-E-SST-IP67).

REAR GASKET

Foam polyethylene, included in the supply.

STANDARD EXECUTIONS

- **DD51-E-SST-IP65:** completely sealed indicator with IP 65 protection class, see EN 60529 table (on page A23).
- **DD51-E-SST-IP67:** completely sealed indicator with IP 67 protection class, see EN 60529 table (on page A23), obtained by means of a brass bushing with double seal ring inside the rear cavity of the base.

ASSEMBLY INSTRUCTIONS

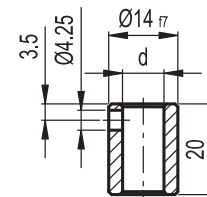
1. Drill a Ø 6x10 mm hole in the body of the machine with a 22 mm centre distance from the shaft to fit the rear referring pin.
2. Fit the indicator onto the shaft and make sure that the referring pin fit the hole.
3. Clamp the bushing to the shaft by tightening the grub screw with hexagon socket and cup end, according to UNI 5929-85.



ELESA Original design

ACCESSORIES ON REQUEST (TO BE ORDERED SEPARATELY)

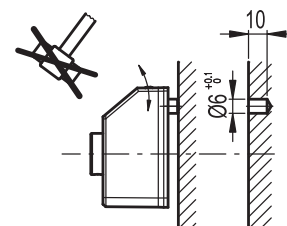
- AISI 304 stainless steel RB51 reduction sleeves.



RB51-SST

STAINLESS STEEL

Code	Description	dh7
CE.95941	RB51-6-SST-304	6
CE.95951	RB51-8-SST-304	8
CE.95956	RB51-10-SST-304	10
CE.95961	RB51-12-SST-304	12



FEATURES AND APPLICATIONS

DD51-E position indicators, with battery power supply, can be used on passing through shafts in any position to provide the reading of the absolute or incremental positioning of a machine component. The 5-digit display of 8,0 mm height ensures excellent readability even from a distance and from different viewing angles. The window in transparent technopolymer protects the LCD display against accidental shocks. The high protection degree, IP 65 or IP67, makes the indicator suitable for applications that require frequent washing, even with intense water jets. In the operating mode, by using the 3 function keys, it is possible to select the incremental or the absolute mode, the unit of measure (mm, inches or degrees), reset the absolute counter or load a preset source value and the preset offset value. In the programming mode, through the 3 function keys, it is possible to program the reading after one revolution of the shaft, the direction of rotation, the display orientation, the resolution (number of decimal digits displayed), the source value and the offset value, the max. speed of rotation and set the functions of the keys among different options available. The internal battery ensures long battery life (over 5 years). A special symbol appears on the display when it is necessary to replace the battery. The replacement can be performed easily by removing the front cover (Fig.1), without disassembly of the indicator from the control shaft and without the loss of configuration parameters. Further technical information available in Operating instructions.

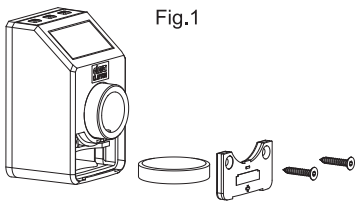
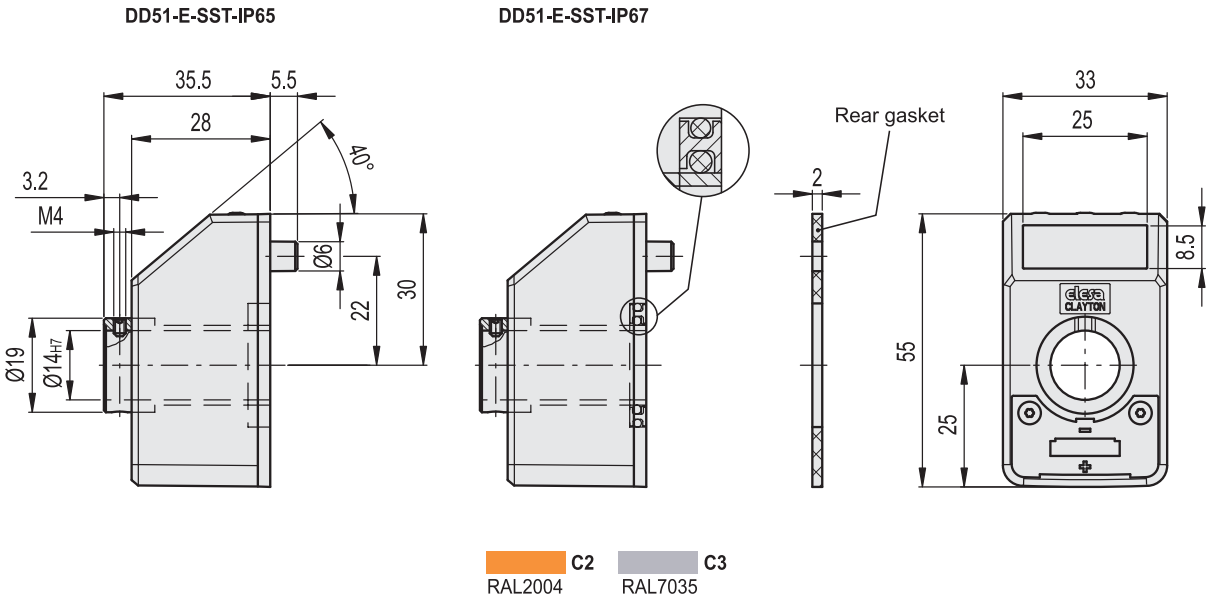


Fig.1

Mechanical and electrical characteristics	
Tension feed	Lithium battery CR2450 3.0 V
Battery life	5 years
Display	5-digit LCD of 8 mm height and special characters
Reading scale	-19999; 99999
Number of decimal digits	programmable ⁽¹⁾
Unit of measure	mm, inches, degrees programmable ⁽¹⁾
Rotation max. speed	300/600/1000 r.p.m ⁽²⁾ programmable ⁽¹⁾
Precision	10.000 impulses / revolution
Protection class	IP65 or IP67
Working temperature	0 ÷ 50 °C
Storing temperature	-20 ÷ +60 °C
Relative humidity	Max. 95% at 25°C without condensation
Interference protection	IEC 61326-1 CE

(1) See the operating instructions.
(2) Default: 600 r.p.m.
Higher rotation speed to 600 r.p.m. can be maintained for short periods of time.
The value of the max. speed affects the battery life.



STAINLESS STEEL

Code	Description	⚖
CE.99002	DD51-E-SST-IP65-C2	67
CE.99001	DD51-E-SST-IP65-C3	67
CE.99012	DD51-E-SST-IP67-C2	72
CE.99011	DD51-E-SST-IP67-C3	72



Rotary controls 7

Electronic position indicators

direct drive, 6-digit display, technopolymer

BASE AND CASE

High-resistance polyamide based (PA) technopolymer.
Black base.

Case in the following colours:

- **C2**: RAL 2004 orange, glossy finish.
- **C3**: RAL 7035 grey, glossy finish.

Available on request in RAL 7021 grey-black colour (C1)

Cover with perfectly sealed gasket and AISI 304 stainless steel UNI 6955 type self-tapping screws with six-lobe socket TORX® T06 (registered trademark by TEXTRON INC.).

The ultrasonic welding between the base and the case prevents separation and avoids dust and liquid penetration.

BOSS

AISI 304 stainless steel with Ø 20 mm H7 reamed hole, fitting to shaft by means of AISI 304 stainless steel grub screw, hexagon socket and cup end UNI 5929-85, included in the supply.

WINDOW

Transparent polyamide based (PA-T) technopolymer, moulded over the case and with a perfect seal. Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DISPLAY

- 6-digit LCD of 12,0 mm height and special characters.
- The visualization parameters can be set and modified by the operator by means of appropriate keys:
- values displayed in mm, inches or degrees
- display of mode for use (absolute or incremental mode)
- reading orientation (right or reverse).

KEYBOARD

Polyester membrane. Resistant to solvents, alcohol, acids, alkalis.

INTERNAL GASKET

O-ring front sealing in NBR synthetic rubber, between the case and the boss.

Brass bushing with double O-ring sealing in NBR synthetic rubber inside the rear cavity of the base (DD52R-E-SST-IP67).

REAR GASKET

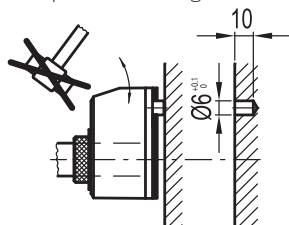
Foam polyethylene, included in the supply.

STANDARD EXECUTIONS

- **DD52R-E-SST-IP65**: completely sealed indicator with IP 65 protection class, see EN 60529 table (on page A23).
- **DD52R-E-SST-IP67**: completely sealed indicator with IP 67 protection class, see EN 60529 table (on page A23), obtained by means of a brass bushing with double seal ring inside the rear cavity of the base.

ASSEMBLY INSTRUCTIONS

1. Drill a Ø 6x10 mm hole in the body of the machine with a 30 mm centre distance from the shaft to fit the rear referring pin.
2. Fit the indicator onto the shaft and make sure that the referring pin fit the hole.
3. Clamp the bushing to the shaft by tightening the grub screw with hexagon socket and cup end, according to UNI 5929-85.



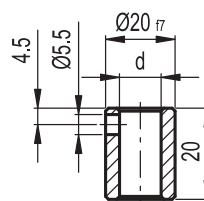
ELESA Original design

ACCESSORIES ON REQUEST (TO BE ORDERED SEPARATELY)

- **RB52-SST**: AISI 304 stainless steel reduction sleeves.

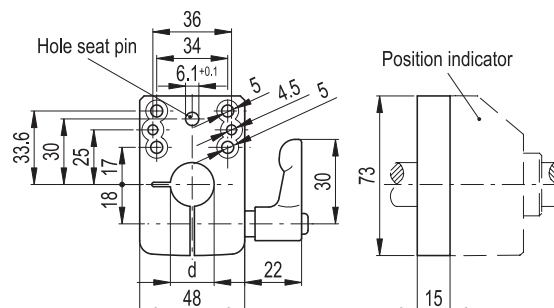
RB52-SST

STAINLESS STEEL



Code	Description	dH7
CE.97941	RB52-12-SST-304	12
CE.97951	RB52-14-SST-304	14
CE.97956	RB52-15-SST-304	15
CE.97961	RB52-16-SST-304	16

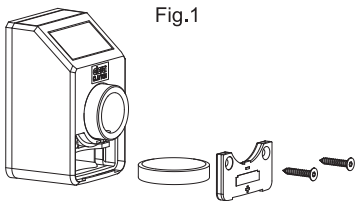
- **BSA52-E**: die-cast zinc alloy bases for spindle locking, epoxy resin coating, black colour, matte finish. GN 302 adjustable handle with die-cast zinc alloy lever body and AISI 304 stainless steel clamping element. A Ø 6.1 mm hole to fit the referring pin of the indicator. Handle positioned either on the right or on the left. Fitting to the machine by means of two M4 cylindrical-head screws (not included in the supply).



Code	Description	dH7
CE.99091	BSA52-E-12	12
CE.99093	BSA52-E-14	14
CE.99094	BSA52-E-15	15
CE.99095	BSA52-E-16	16
CE.99099	BSA52-E-20	20

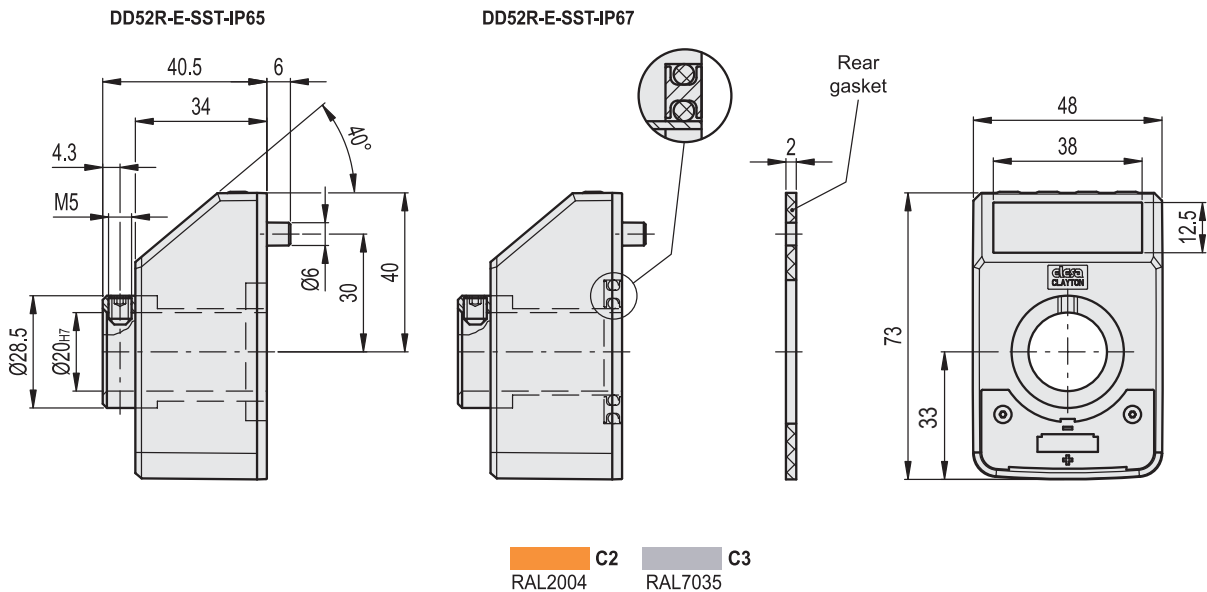
FEATURES AND APPLICATIONS

DD52R-E position indicators, with battery power supply, can be used on passing through shafts in any position to provide the reading of the absolute or incremental positioning of a machine component. The 6-digit display of 12,0 mm height ensures excellent readability even from a distance and from different viewing angles. The window in transparent technopolymer protects the LCD display against accidental shocks. The high protection class, IP 65 or IP67, makes the indicator suitable for applications that require frequent washing, even with water jets. In the operating mode, by using the 4 function keys, it is possible to select the incremental or the absolute mode, the unit of measure (mm, inches or degrees), reset the absolute counter or load a preset source value and the preset offset value. In the programming mode, through the 4 function keys, it is possible to program the reading after one revolution of the shaft, the direction of rotation, the display orientation, the resolution (number of decimal digits displayed), the source value and the offset value, the max. speed of rotation and set the functions of the keys among different options available. The internal battery ensures long battery life (over 8 years). A special symbol appears on the display when it is necessary to replace the battery. The replacement can be performed easily by removing the front cover (Fig.1), without disassembly of the indicator from the control shaft and without the loss of configuration parameters. Further technical information available in Operating instructions.



Mechanical and electrical characteristics	
Tension feed	Lithium battery CR2450 3.0 V
Battery life	8 years
Display	6-digit LCD of 12 mm height and special characters
Reading scale	-199999; 999999
Number of decimal digits	programmable ⁽¹⁾
Unit of measure	mm, inches, degrees programmable programmable ⁽¹⁾
Rotation max. speed	300/600/1000 r.p.m ⁽²⁾ programmable ⁽¹⁾
Precision	10.000 impulses / revolution
Protection class	IP65 or IP67
Working temperature	0 ÷ 50 °C
Storing temperature	-20 ÷ +60 °C
Relative humidity	Max. 95% at 25°C without condensation
Interference protection	IEC 61326-1 CE

(1) See the operating instructions.
(2) Default: 600 r.p.m.
Higher rotation speed to 600 r.p.m. can be maintained for short periods of time.
The value of the max. speed affects the battery life.



Code	Description	⚖
CE.99052	DD52R-E-SST-IP65-C2	129
CE.99051	DD52R-E-SST-IP65-C3	129
CE.99062	DD52R-E-SST-IP67-C2	141
CE.99061	DD52R-E-SST-IP67-C3	141

Electronic position indicators

absolute reading, direct drive, technopolymer

BASE AND CASE

Polyamide based (PA) technopolymer certified self-extinguishing UL94 V-0.

Black base.

Black case, glossy finish.

DISPLAY

- Backlit LCD display showing two values: target position and current position.
- Adjustable reading (upper and lower).
- Cursor to indicate the rotation direction (clockwise/anti-clockwise) to reach the target position.
- Values displayed in mm or inches.

The visualization parameters can be set and modified by software at the installation of the machine.

FRONT MEMBRANE

Polyester. Resistant to solvents, alcohol, acids, alkali.

INTERNAL GASKET

O-ring front sealing in NBR synthetic rubber, between the case and the bushing.

REAR GASKET

Polyurethane, supplied.

BOSS

Black-oxide steel with Ø 14 mm H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.

STANDARD EXECUTIONS

- **DE51-F:** front display, output with connectors.
- **DE51-F-Cable:** front display, output with cable and connectors.
- **DE51-A:** inclined display, output with connectors.
- **DE51-A-Cable:** inclined display, output with cable and connectors.

IP PROTECTION

Completely sealed indicator with IP 65 protection class, see EN 60529 table (on page A23).

FEATURES AND APPLICATIONS

DE51 indicators can be used on passing through spindles in any position to give absolute reading of the current position and of the target one of a machine component.

DE51 indicator is a sophisticated measuring system based on an absolute multi-turn encoder and it is not affected by magnetic fields. Therefore it is able to guarantee perfect operation, even in the presence of electric motors.

Thanks to the long-life lithium battery (more than 10 years of life-expectancy) spindle positioning variations can be registered even when the power supply is off and it prevents the loss of the preset values in case of an electrical power failure.

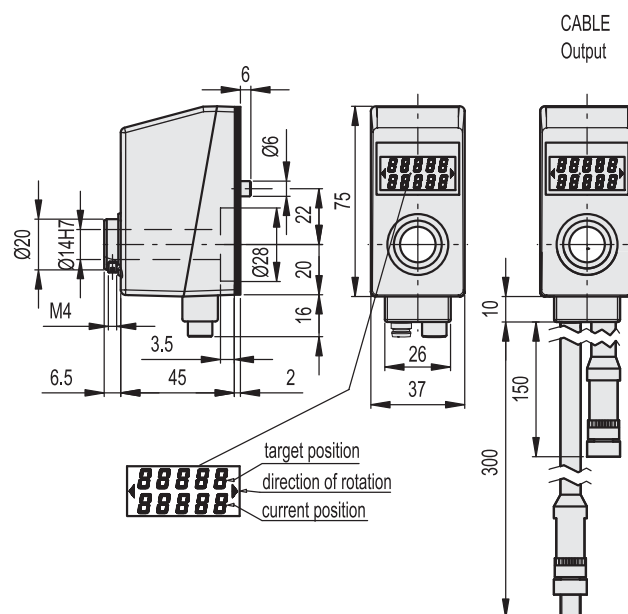
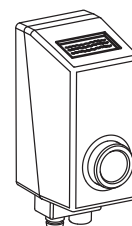
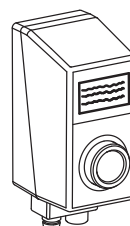
DE51 indicators must be networked to the central memory unit (call Eles Customer Care) or directly to the PLC.

The connection of DE51 electronic indicators directly to the PLC of the machine functions also as a safety system. In fact, in case of mismatch for the target position of even one DE51, the PLC prevents the machine from starting working, thereby avoiding inaccurate work.



DE51-F

DE51-A

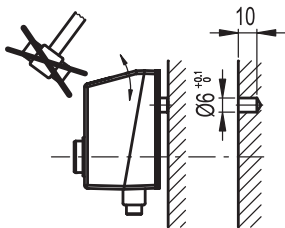


Code	Description	Weight
CE.99111	DE51-F-F.14	125
CE.99121	DE51-A-F.14	125
CE.99112	DE51-F-F.14-Cable	125
CE.99122	DE51-A-F.14-Cable	125

Mechanical and electrical characteristics	
Input	24 Vdc ± 20%, 30mA
Buffer memory	3V lithium battery min. guaranteed life expectancy 10 years for recording current and target values
Interface	RS485
Connection	M8 - 4PIN
MAX RPM number	600 RPM
Weight	120 g
Working temperature	0 ÷ 50 °C
Storing temperature	-20 ÷ +70 °C
Relative humidity	80% at 25°C without condensation
Protection class	IP 65 according to EN 60529
General classification according to EN 61010 part 1	Protection class II Overvoltage protection category II Contamination factor 2
Immunity to interference	According to EN 61000-6-2
Interference emission	According to EN 61000-6-3

ASSEMBLY INSTRUCTIONS

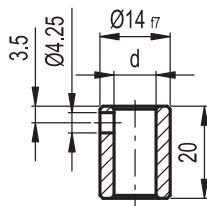
1. Drill a Ø 6 mm by 10 mm hole in the body of the machine with a 22 mm centre distance from the spindle to fit the rear referring pin.
2. Set the spindle to the start or referring position.
3. Fit the indicator onto the spindle and make sure that the referring pin fit the hole.
4. Clamp the bushing to the spindle by tightening the grub screw with hexagon socket and cup end UNI 5929-85.
5. Network the indicator using cables with connectors type M8-4PIN (see table "Mechanical and electrical characteristics").



- ACCESSORIES ON REQUEST** (TO BE ORDERED SEPARATELY)
- **Connection cables** between PLC or central memory unit and DE51 or between two DE51 with different lenghts (see table)
 - **Terminal resistor** to avoid noises and interferences on the net (see table)

Code	Description	
CE.99136	CABLE-M8-SC-5mt	Connection cable between central memory to DE51
CE.99141	CABLE-M8-1mt	Connection cable for DE51 (length 1m)
CE.99143	CABLE-M8-3mt	Connection cable for DE51 (length 3m)
CE.99145	CABLE-M8-5mt	Connection cable for DE51 (length 5m)
CE.99146	CABLE-M8-6mt	Connection cable for DE51 (length 6m)
CE.99156	RE-M8-120ohm	Terminal resistor (resistance value 120ohm)

- **RB51**: black-oxide steel reduction sleeves (see table).



RB51

Code	Description	dH7
CE.85940	RB51-6	6
CE.85950	RB51-8	8
CE.85955	RB51-10	10
CE.85960	RB51-12	12

- **MD51** (see page 730): polyamide based (PA) technopolymer fluted grip control knob.



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Rotary controls

Fluted grip knob for digital indicators DD51 and DE51

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION

Plain blind hole. Fitting by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.

SELF-ADHESIVE FRONT PLATE

Matte anodised aluminium. Supplied assembled.

APPLICATIONS

MD51 knob has been designed to be mounted on direct drive digital position indicators DD51 (on page 718) or on direct drive electronic position indicators DE51 (on page 728).

SPECIAL EXECUTIONS ON REQUEST

Stainless steel grub screw.

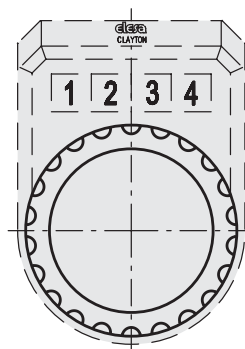
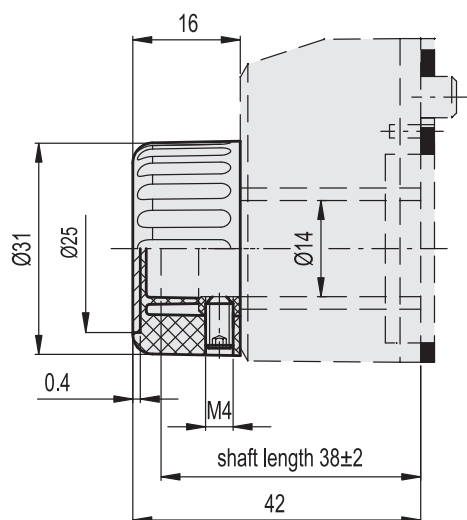
The front plate can be customized with words, marks, graphic symbols, etc... or supplied in other colours.

ASSEMBLY INSTRUCTIONS

1. Remove the grub screw from the indicator bushing.
2. Insert MD51 knob making sure that the grub screw seat matches the tapped blind hole of the indicator bushing.
3. Screw the grub supplied with the knob, to lock simultaneously the spindle, the indicator bushing and the knob.



ELESA Original design



Code	Description	
CE.85851	MD51-31-14-NR	9

Control knobs
for position indicators

SPECIFICATION

TYPES

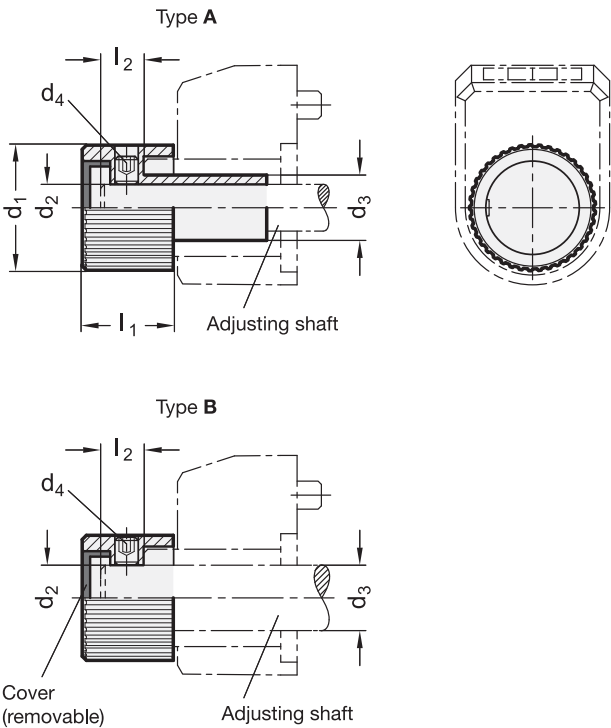
- Type **A**: Shaft-Ød2 < Bore-Ø d3
 - Type **B**: Shaft-Ød2 = Bore-Ø d3
- Aluminium
anodized, black
- Stainless Steel-Socket set screw DIN 916
with internal hexagon and serrated point
- Hub cover cap
Plastic, light grey

INFORMATION

Control knobs GN 957 are used in connection with position indicators. These control knobs offer a simple solution when the assembly requires manual fine adjustment for the application for which it has been designed. The design of this knob adapts it to the diameter of the adjustment shaft, so that no adapter bushes RB51 are needed.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 957

Description	d1	d2 H9	d3	d4	l1	l2 min.	l2 max.	For position indicator	⚖
GN 957-22-B6-A	22	B 6	10	M 4	15.5	4.5	9.6	DD50	10
GN 957-22-B8-A	22	B 8	10	M 4	15.5	4.5	9.6	DD50	20
GN 957-27-B6-A	27	B 6	14	M 5	19.5	6	11.3	DD51	24
GN 957-27-B8-A	27	B 8	14	M 5	19.5	6	11.3	DD51	22
GN 957-27-B10-A	27	B 10	14	M 5	19.5	6	11.3	DD51	20
GN 957-27-B12-A	27	B 12	14	M 5	19.5	6	11.3	DD51	18
GN 957-42-B10-A	42	B 10	20	M 6	24	6.5	15	DD52R	72
GN 957-42-B12-A	42	B 12	20	M 6	24	6.5	15	DD52R	69
GN 957-42-B14-A	42	B 14	20	M 6	24	6.5	15	DD52R	60
GN 957-42-B15-A	42	B 15	20	M 6	24	6.5	15	DD52R	63
GN 957-42-B16-A	42	B 16	20	M 6	24	6.5	15	DD52R	60
GN 957-22-B10-B	22	B 10	10	M 4	15.5	4.5	9.6	DD50	77
GN 957-27-B14-B	27	B 14	14	M 5	19.5	6	11.3	DD51	14
GN 957-42-B20-B	42	B 20	20	M 6	24	6.5	15	DD52R	50

Magnetic measuring system

Length and angle modes

FEATURES AND APPLICATIONS

MPI-15 measuring system, made of a LCD multifunction display with built-in magnetic position sensor, combined with the magnetic band M-BAND-10 (to be ordered separately), is a complete system for the measurement of linear and angular displacement (with a minimum radius of 65 mm). Characterised by an extremely easy assembly, it allows precise alignment and positioning, reducing time and machining procedures to the minimum.

Multifunction LCD with 5 function keys.

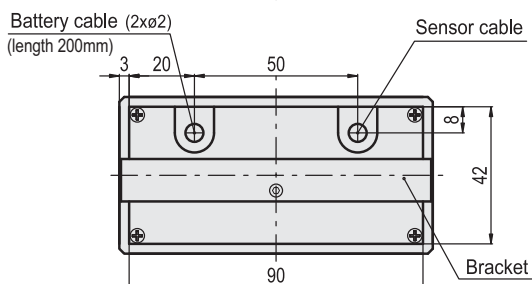
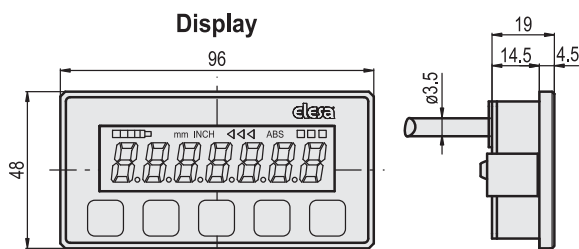
- Absolute/ incremental mode.
- Programmable offset function.
- External battery power supply 1.5 VDC.
- Buffered memory during battery substitution.
- Accidental polarity inversion protection.
- Magnetic sensor envelope material: anodized aluminium.

For further information read the operating instructions.

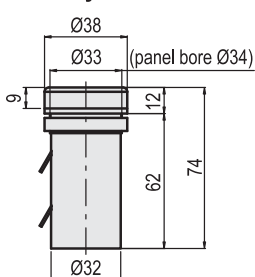
SPECIAL EXECUTIONS ON REQUEST

The special plate display may be supplied with customised graphic symbols, marks or writings.

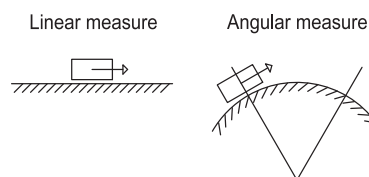
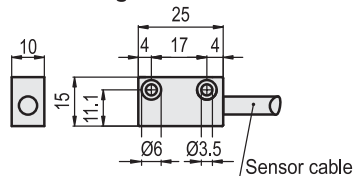
Magnetic sensor with cable length different from the standard executions shown in the table, up to 20 m maximum.



Battery case



Magnetic sensor



MPI-15 Technical data

Battery life	1.5 years (C-type battery)
Resolution ⁽¹⁾	0.1 mm - 0.01 in - 0.01°
Precision ⁽²⁾	0.1 mm
Repeat accuracy ⁽³⁾	0.001 mm
Operating speed	max. 5 m/s
Self-diagnostic	battery check, sensor check, magnetic tape check
Programmable measuring unit	millimetres, inches, degrees (angles)
Working temperature	0 ÷ 50 °C
Storing temperature	-20 ÷ +70 °C
Relative humidity	Max. 95% at 25°C without condensation
Protection class	IP40 whole device IP54 front side according to EN 60529 IP67 magnetic sensor
Interference protection	IEC 61000-4-2

(1) Resolution: the smallest change in length that the system is capable of displaying.

(2) Precision: the maximum deviation of the value measured by the system from the actual one.

(3) Repeat accuracy: the degree of closeness between a series of measures of the same sample, when the single measurements are carried out leaving the asurement conditions unchanged.

MPI-15

Code	Description	ΔΔ
CE.99901-#	MPI-15-#	180

Complete by specifying the sensor cable length in decimetres (10=1 meter). Minimum length 0.2 m, maximum length 2.0 m.

Example: CE.99901-06 MPI-15-06 display with sensor cable length 0.6 m.

MPI-15 ASSEMBLY INSTRUCTIONS

1. Make a drilling of 42 +0.2/+0.5 mm x 90 +0.2/+0.5 mm in the metal sheet for the installation of the display.
2. Fix the display to the panel by using the specific mounting bracket (the screw is included in the supply).
3. Make a drilling of diameter 34 +0.2/+0.5 mm in the metal sheet for the installation of the battery case.
4. Fix the battery case to the panel by using the specific nut.
5. Fix the magnetic sensor by using M3 screws (not included in the supply). Distance between sensor and magnetic band to ensure a correct reading of the displacement: max 2.5 mm.

ACCESSORIES ON REQUEST

M-BAND-10: the magnetic band M-BAND-10 is made of two separate parts: the magnetic band and the cover strip. The magnetic band is made of a magnetic tape, a carrier strip and an adhesive tape (Fig.2). The cover strip is made of a protection strip and an adhesive tape (Fig.1).

ASSEMBLY INSTRUCTIONS M-BAND-10

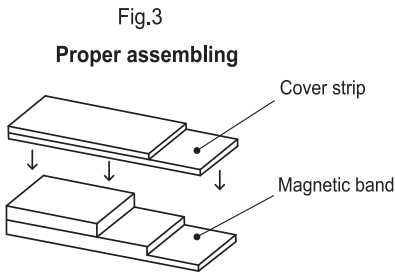
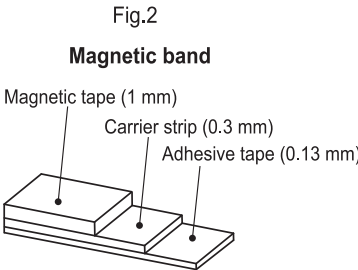
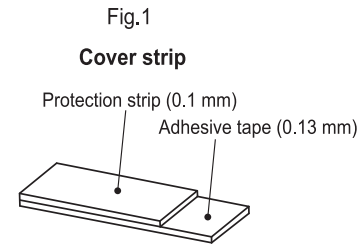
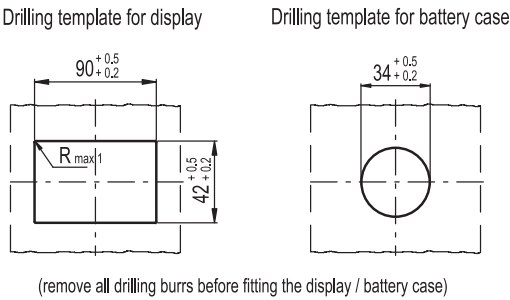
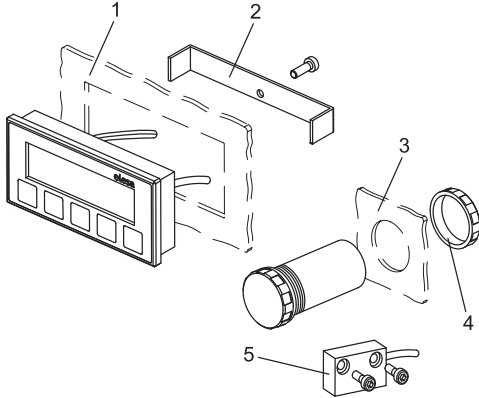
1. The cover strip must be installed over the magnetic band to protect it against possible mechanical damages.
2. Clean the mounting surface carefully.
3. Remove the protective foil from the adhesive tape of the magnetic band.
4. Stick the magnetic band on the mounting surface.
5. Clean the mounting surface carefully.
6. Remove the protective foil from the adhesive tape of the magnetic band.
7. Stick the cover strip on the magnetic band.
8. In the absence of a seat for the housing of M-BAND-10, secure the ends of the cover strip to prevent unintentional peeling.

M-BAND-10 Technical data	
Precision	± 40 µm
Material	magnetic tape: nitrilic rubber
	carrier strip: stainless steel
	cover strip: stainless steel
	acrylic adhesive tape
Width	magnetic band: 10 mm ± 0.20 mm
	cover strip: 10 mm ± 0.20 mm
Thickness	magnetic band: 1.43 ± 0.15 mm
	cover strip: 0.23 mm
Magnetic pole pitch 5 mm	5 mm
Operating and storage temperature	-40 ÷ +100 °C
Linear thermic expansion factor	17 x 10 ⁻⁶ /K

M-BAND-10

Code	Description	Band width [mm]	Band nominal thickness [mm]
CE.99903-#	M-BAND-10-#	10	1.66

Complete by specifying the length in decimetres (10=1 meter).
Minimum length 0.5 m, maximum length 25 m.
Example: CE.99903-15 M-BAND-10-15 magnetic band length 1.5 m.



7
Rotary controls

Direct drive electronic position indicators

One item for all applications

The position indicators **DD51-E** (see page 724) and **DD52R-E** (see page 726) with battery power supply, can be used on passing through shafts in any position to provide the reading of the absolute or incremental positioning of a machine component.

Thanks to the available functions and to the programmable parameters, one item can be used for many applications including all shaft pitch variations, direction of rotation, unit of measure etc.

Available functions

By using the function keys, it is possible to:

- select the incremental or the absolute measure mode
- convert the linear unit of measure (mm, inches) or select the angular measure mode (degrees)
- set the source value of the absolute counter
- select the offset value

Programmable parameters

The function keys allow to program:

- the reading after one revolution of the shaft
- the direction of rotation
- the resolution (number of decimal digits)
- the display orientation
- the source value and the offset value
- the max. speed of rotation
- the functions of the keys among different options available



Wide display

5 digit display of 8 mm (DD51-E) or **6 digit display** 12 mm (DD52R-E) height. Ensures excellent readability even from a distance and from different viewing angles. The window in transparent technopolymer protects the LCD display against accidental shocks.



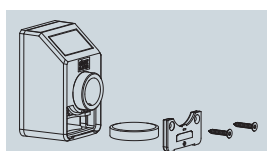
High protection class

IP65 or IP67 protection class. The indicator is suitable for applications that require frequent washing, even with water jets.



Corrosion resistance

AISI 304 stainless steel bushing with Ø 14 (DD51-E) or 20 (DD52R-E) mm H7 reamed hole. High-resistance polyamide based (PA) technopolymer base and case.



Long battery life

The internal lithium battery ensures a battery **life of over 5** (DD51-E) **or 8** (DD52R-E) **years**. The battery replacement can be performed easily, without disassembly of the indicator from the control shaft and without the loss of parameter configuration.

Magnetic length and angle measuring system

The measuring system **MPI-15** (see page 732), made of a multifunction display with integrated magnetic position sensor, combined with the magnetic band **M-BAND**, is a complete system for the measurement of linear and angular displacement. Characterised by an extremely easy assembly, it allows precise alignment and positioning, reducing time and machining procedures to the minimum.

Magnetic measurement system:

- Absence of contact between moving parts
- No wear: no need of maintenance
- Not affected by moisture, dust, oils and process residues
- Insensitive to vibrations

Power supply

- External battery 1.5 VDC.
- Buffered memory during battery substitution.

Display

- Multifunction LCD with 5 function keys.
- Absolute/ incremental mode.
- Programmable measuring unit.
- Linear and angular measures.
- Programmable offset function.
- Resolution: 0.1 mm - 0.01 in - 0.01°
- Precision: 0.1 mm
- Repeat accuracy: 0.01 mm

Magnetic sensor

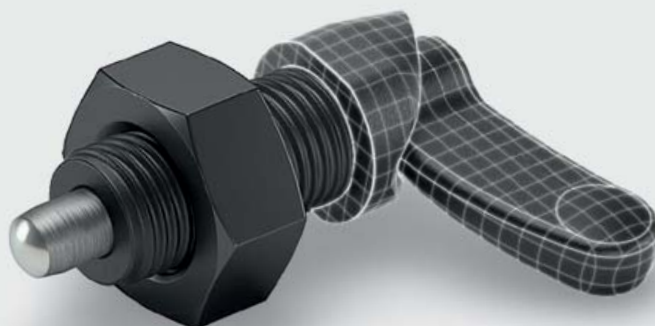
- IP65 protection level
- Cable length up to 20 m.
- Operating speed up to 5m/s.
- Distance between sensor and magnetic band to ensure a correct reading of the displacement: 2.5 mm max.

Magnetic band

- Magnetic pole pitch 5 mm.
- Easy assembly thanks to the adhesive tape.
- Cover strip for protection against possible mechanical damages.



7
Rotary controls

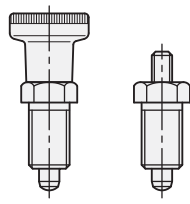


Indexing plungers - Types

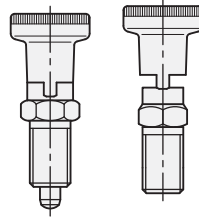
Unlocking by pulling the plunger pin

GN 617 GN 617 ... NI

see page 744
without rest position
Ø 5/6/8/10



GN 617.1
GN 617.1 ... NI
see page 746
with rest position
Ø 5/6/8/10

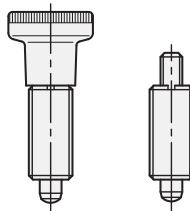


Other features:

- Guide steel, blackened or Stainless Steel
- GN 617 / GN 613 / GN 618 with or without knob
- Stainless Steel version with plastic or Stainless Steel knob
- Sturdy plunger pin: no change in Ø over the entire length
- Plunger pin, steel hardened
- High precision plunger pin guide

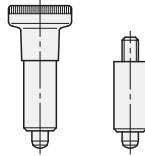
GN 613 GN 613 ... NI

see page 748
without rest position
Ø 5/6/8/10



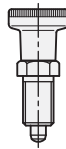
GN 618

see page 760
without rest position
without thread
weldable steel
Ø 5/6/8



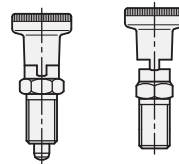
PMT.100

see page 750
without rest position
SUPER-Technopolymer
Ø 5 / 6 / 8 / 10



PMT.101

see page 752
with rest position
SUPER-Technopolymer
Ø 5 / 6 / 8 / 10

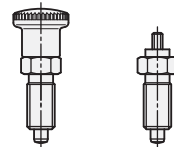


Other features:

- SUPER-technopolymer threaded body
- Lightness and high mechanical strength
- Steel (hardened) or Stainless Steel plunger pin
- Anticorrosive material: suitable even in the presence of liquid or humidity
- Low friction factor to the plunger stroke: no lubricating maintenance is required
- Resistant to several cleaning cycles with solvents and other chemical agents

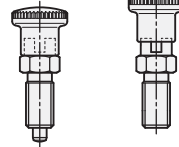
GN 817 GN 817 ... NI

see page 754
Type B / G
without rest position
Ø 4/5/6/8/
10/12/16



GN 817 GN 817 ... NI

see page 754
Type C
with rest position
Ø 4/5/6/8/
10/12/16

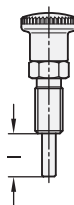


Other features:

- Guide steel, blackened or Stainless Steel
- Type G without knob, Type B/C with black or red knob
- 2 strokes/plunger pin Ø 4/5/6/8
- Plunger pin, steel hardened
- High precision plunger pin guide
- Locking mechanism integrated in the knob
- reduced dimensions

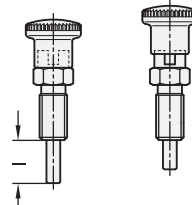
GN 817.8 GN 817.8 ... NI

see page 756
Type B
without rest position
Ø 4/5/6/8/
10/12/16



GN 817.8 GN 817.8 ... NI

see page 756
Type C
with rest position
Ø 4/5/6/8/
10/12/16



Other features:

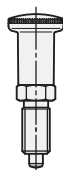
- Designed for plunger pins in special design for small pieces
- All individual parts are delivered as an unassembled set so that the plunger pins can be modified.
- Guide steel, blackened or Stainless Steel
- Plunger pin Stainless Steel
- High precision plunger pin guide
- Locking mechanism integrated in the knob
- reduced dimensions

Indexing plungers - Types

Unlocking by pulling the plunger pin

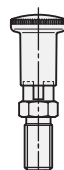
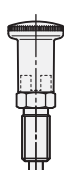
GN 817.2 GN 817.2 ... NI

see page 758
Type B
without rest position
with long
operating knob
Ø 4/5/6/8/10/12



GN 817.2 GN 817.2 ... NI

see page 758
Type C
with rest position
with long
operating knob
Ø 4/5/6/8/10/12

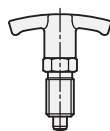


Other features:

- Guide steel, blackened or Stainless Steel
- 2 strokes/Plunger pin-Ø 4/5/6/8
- Plunger pin, steel hardened
- High precision plunger pin guide
- Locking mechanism integrated in the knob
- reduced dimensions

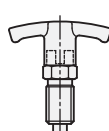
GN 817.4 GN 817.4 ... NI

see page 761
Type B
without rest position
with T-handle
Ø 6/8/10/12



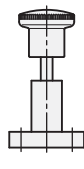
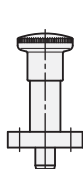
GN 817.4 GN 817.4 ... NI

see page 761
Type C
with rest position
with T-handle
Ø 6/8/10/12

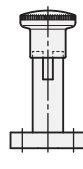
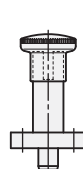


GN 817.1 GN 817.1 ... NI

see page 762
Type B
without rest position
Ø 6/8/10



see page 762
Type C
with rest position
Ø 6/8/10

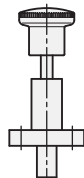
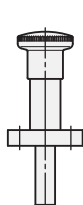


Other features:

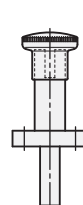
- Guide Zinc die casting, black plastic coated
- Plunger pin Stainless Steel
- with black or red knob
- Locking mechanism integrated in the knob

GN 817.9 GN 817.9 ... NI

see page 763
Type B
without rest position
Ø 7 /8/10
Length: 20/25/30



see page 763
Type C
with rest position
Ø 7 /8/10
Length: 20/25/30

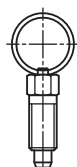


Other features:

- Designed for plunger pins in special design for small pieces
- All individual parts are delivered as an unassembled set so that the plunger pins can be modified.
- Guide zinc die casting, black plastic coated
- Plunger pin Stainless Steel
- Locking mechanism integrated in the knob

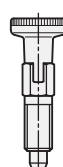
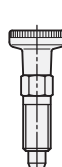
GN 717 ... ST GN 717 ... NI

see page 764
Type A / D
without rest position
Ø 3/4/5/6/8/10



GN 717 ... ST GN 717 ... NI

see page 764
Type B
without rest position
Type C
with rest position
Ø 3/4/5/6/8/10

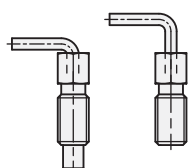


Other features:

- Guide steel, zinc plated or Stainless Steel
- Type A: with lifting ring
- Type D: with wire loop
- Standard or fine thread
- Reduced dimensions
- Reasonably priced versions

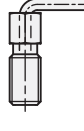
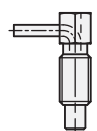
GN 7017 ... ST GN 7017 ... NI

see page 767
Type B / BK
without rest position
Ø 4/5/6/8/10



GN 7017 ... ST GN 7017 ... NI

see page 767
Type C / CK
with rest position
Ø 4/5/6/8/10



Other features:

- Guide steel, zinc plated or Stainless Steel
- with lever
- Reduced dimensions
- Reasonably priced versions



80

Indexing elements

Indexing plungers - Types

Unlocking by pulling the plunger pin

Indexing elements

GN 413 ... ST GN 413 ... NI

see page 768

Type A

without rest position
Ø 5/6/8/10



GN 413 ... ST GN 413 ... NI

see page 768

Type C

with rest position
Ø 5/6/8/10



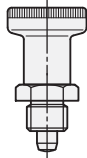
Other features:

- Guide steel, blackened or Stainless Steel
- Standard or fine thread
- Plunger pin Stainless Steel
- Reduced dimensions

GN 607 ... ST GN 607 ... NI

see page 769

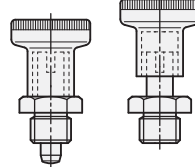
without rest position
Ø 6/8



GN 607.1 ... ST GN 607.1 ... NI

see page 769

with rest position
Ø 6/8



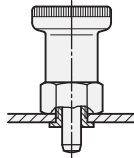
Other features:

- Guide steel, blackened or Stainless Steel
- Plunger pin, steel hardened
- High precision plunger pin guide
- Locking mechanism integrated in the knob

GN 607.2 ... ST GN 607.2 ... NI

see page 771

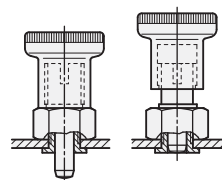
without rest position
Ø 6/8



GN 607.3 ... ST GN 607.3 ... NI

see page 772

with rest position
Ø 6/8



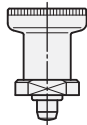
Other features:

- Designed for use in thin walled sheet metal parts
- Guide steel, zinc plated
- Plunger pin Stainless Steel
- Locking mechanism integrated in the knob

GN 607.4 ... ST

see page 773

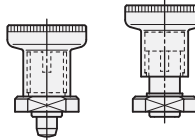
without rest position
Ø 6/8



GN 607.5 ... ST

see page 774

with rest position
Ø 6/8



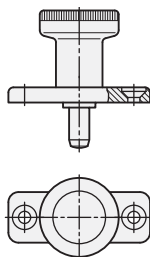
Other features:

- Plunger for welding
- Guide steel, blackened
- Plunger pin steel, hardened
- Locking mechanism integrated in the knob

GN 608 GN 608.5

see page 776

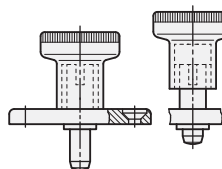
without rest position
Ø 6/8



GN 608.1 GN 608.6

see page 778

with rest position
Ø 6/8



Other features:

- Guide zinc die casting, zinc plated
- GN 608/GN 608.1: Plunger pin steel, hardened
- GN 608.5/GN 608.6: Plunger pin Stainless Steel
- Locking mechanism integrated in the knob

GN 822 ... ST GN 822 ... NI

see page 780

Type B

without rest position
Ø 4/5/6/7



GN 822 ... ST GN 822 ... NI

see page 780

Type C

with rest position
Ø 4/5/6/7



6 indexing positions



Other features:

- Smallest dimensions (indexing plungers)
- Thread without recessed stud for fastening to thin walls (sheets)
- Guide steel, zinc plated or Stainless Steel
- Plunger pin Stainless Steel
- Knob plastic
- Covered indexing mechanism

Indexing plungers - Types

Unlocking by pulling the plunger pin

GN 822.1 ... ST

GN 822.1 ... NI

see page 782

Type B

without rest position
with low knob
Ø 4/5/6/7



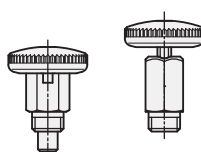
GN 822.1 ... ST

GN 822.1 ... NI

see page 782

Type C

with rest position
with low knob
Ø 4/5/6/7



Other features:

- Smallest dimensions (indexing plungers)
- Thread without recessed stud for fastening to thin walls (sheets)
- Guide steel, zinc plated or Stainless Steel
- Plunger pin Stainless Steel
- Knob plastic
- open indexing mechanism

GN 822.6

GN 822.7

see page 775

Type B / BN

without rest position
Ø 4/5/6/7/8/10



GN 822.6

GN 822.7

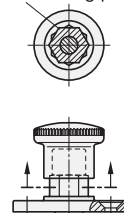
see page 775

Type C / CN

with rest position
Ø 4/5/6/7/8/10



6 indexing positions



Other features:

- Smallest dimensions (indexing plungers)
- Guide steel, zinc plated or Stainless Steel
- Stainless Steel version with plastic or Stainless Steel knob
- Plunger pin Stainless Steel
- Standard or fine thread

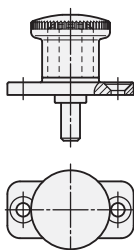
GN 822.8

GN 822.9

see page 786

Type B / BN

without rest position
Ø 4/5/6/8/10



GN 822.8

GN 822.9

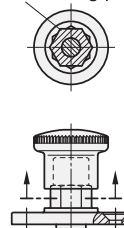
see page 786

Type C / CN

with rest position
Ø 4/5/6/8/10



6 indexing positions



Other features:

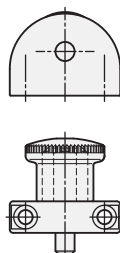
- Reduced dimensions
- Guide zinc die casting, black plastic coated or Stainless Steel (GN 822.9)
- Plunger pin Stainless Steel
- Stainless Steel version (GN 822.9 with plastic or Stainless Steel knob)

GN 412

see page 789

Type B

without rest position
Ø 5/6/8/10



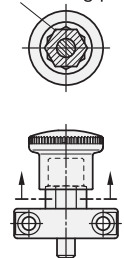
GN 412

see page 789

Type C

with rest position
Ø 5/6/8/10

6 indexing positions



Other features:

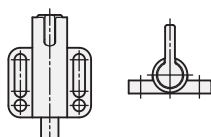
- Short length
- Mounting from the front or rear (female thread)
- Guide zinc die casting, black plastic coated
- Plunger pin Stainless Steel
- Mounting blocks GN 412.1

GN 416

see page 790

Type S

without locking
in normal position
without rest
position
Ø 6/8/10/12

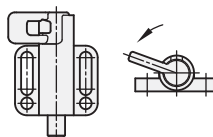


GN 416

see page 790

Type L1/R1

with locking
in normal position
with rest position
Ø 6/8/10/12



Other features:

- Guide zinc die casting, black plastic coated
- Plunger pin steel, zinc plated
- Latch lever plastic
- Operation beyond the plunger axis
- Assembly sets for profile systems
- Type L1/R1: Locking via clockwise or counterclockwise rotation of the latch lever
- Locators GN 416.1



80

Indexing elements

Indexing plungers - Types

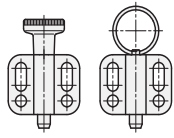
Unlocking by pulling the plunger pin

GN 417

see page 792

Type A/B

without rest position
Ø 4/5/6/8/10

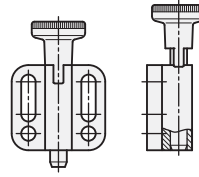


GN 417

see page 792

Type C

with rest position
Ø 4/5/6/8/10



Other features:

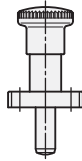
- Indexing plungers for welding
- Guide steel, blackened
- Plunger pin steel, hardened
- Locking mechanism integrated in the knob

GN 817.3

see page 795

Type B

without rest position
Plunger pin cylindrical
Ø 6/8/10

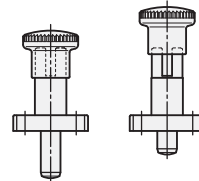


GN 817.3

see page 795

Type C

with rest position
Plunger pin cylindrical
Ø 6/8/10



Other features:

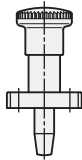
- Designed for precision positioning by using positioning bushings
- Guide steel, blackened
- Plunger pin hardened
- Locking mechanism integrated in the knob
- reduced dimensions

GN 817.5

see page 796

Type B

without rest position
Plunger pin conical
Ø 6/8/10

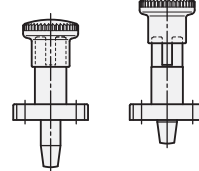


GN 817.5

see page 796

Type C

with rest position
Plunger pin conical
Ø 6/8/10



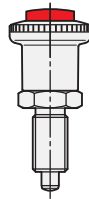
Other features:

- Designed for precision positioning by using positioning bushings
- Guide steel, blackened
- Plunger pin hardened
- Locking mechanism integrated in the knob
- reduced dimensions

GN 414

GN 414 ... NI

see page 797
with safety lock
Ø 6/8/10



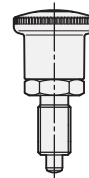
Other features:

- The latching is done automatically in case of a protruding plunger pin and the unlocking using the push-button
- Guide steel, blackened or Stainless Steel
- Plunger pin, steel hardened
- Knob black, push-button red

GN 414.1

GN 414.1 ... NI

see page 802
with rest position
Ø 6/8/10



Other features:

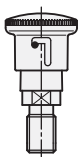
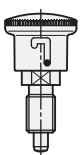
- The rest position is achieved automatically in case of a retracted plunger pin and the unlocking using the push-button
- Guide steel, blackened or Stainless Steel
- Plunger pin, steel hardened
- Knob black, push-button red

GN 816

see page 798

Type A

Plunger pin in normal position protruded
with rest position
Operation with knob
Ø 6/8/10



GN 816

see page 798

Type B

Plunger pin in normal position protruded
with rest position
Operation with key
Ø 6/8/10



Other features:

- Rest position secured against unintended release
- Guide steel, zinc plated
- Plunger pin Stainless Steel AISI 303
- Type B: Operation possible only with special key GN 816-10 (safety function)

Indexing plungers - Types

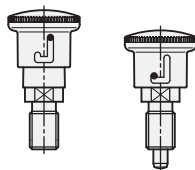
Unlocking by pulling the plunger pin

GN 816.1

see page 800

Type A

Plunger pin
in normal position
retracted
with locking
Operation with knob
Ø 6/8/10

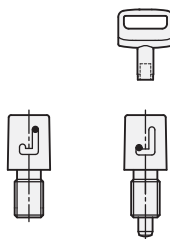


GN 816.1

see page 800

Type B

Plunger pin
in normal position
retracted
with locking
Operation with key
Ø 6/8/10

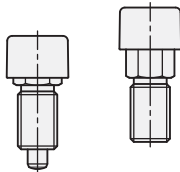


Other features:

- Latch secured against unintended release
- Guide steel, zinc plated
- Plunger pin Stainless Steel AISI 303
- Type B: Operation possible only with special key GN 816.1-10 (safety function)

GN 514

see page 803
with PUSH-PUSH
mechanism
Ø 6/8

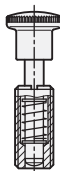


Other features:

- The plunger pin is moved over a so-called 'heart-curve'. This causes the plunger pin to be extended as well as retracted only by pressing the actuation buttons.
- Guide steel, blackened
- Knob plastic

GN 313 ... ST GN 313 ... NI

see page 804
Plunger pin
in normal position
retracted
Type A: with knob
Ø 5/6/8/10



GN 313 ... ST GN 313 ... NI

see page 804
Plunger pin
in normal position
retracted
Type D: without knob
Ø 5/6/8/10



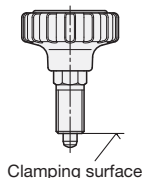
Other features:

- In the normal position (non-actuated), the bolt is not protruding, i.e. it remains retracted by a thrust spring
- Guide steel, blackened or Stainless Steel
- Plunger pin Stainless Steel



GN 7336.7

see page 806
Clamping knobs
with plunger pin
Ø 5/6/8

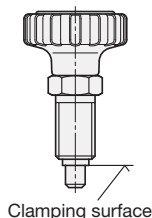


Other features:

- Knurled screw with "integrated" spring plunger pin. Thus, elements to be adjusted can be positioned and clamped simultaneously
- Guide steel, blackened
- Plunger pin Stainless Steel
- Knurled knob plastic

GN 7336.8

see page 807
Clamping
indexing plungers
Ø 6/8



Other features:

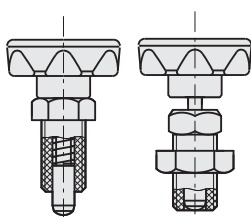
- Application like GN 7336.7 with additional safety function. Knurled screw does not help in clamping, but in positioning. The clamping is done using a plunger pin that is connected to an anti-twist knurled knob.

After releasing the clamping, the plunger pin cannot be retracted (safety feature!), but only after some rotations of the knurled knob

- Guide steel, zinc plated
- Plunger pin steel, nitrided
- Knurled knob plastic

PMT.110

see page 808
Indexing plunger
with knob
Ø 8/10



Other features:

- SUPER-technopolymer threaded body. Lightness and high mechanical strength
- Steel (hardened) or Stainless Steel plunger pin
- Anticorrosive material: suitable even in the presence of liquid or humidity

- Low friction factor to the plunger stroke; no lubricating maintenance is required
- Resistant to several cleaning cycles with solvents and other chemical agents



80

Indexing elements

Indexing plungers

Steel / Stainless Steel without rest position

SPECIFICATION

Types

- Type **A**: with Plastic Knob, without lock nut
- Type **AK**: with Plastic-Knob, with lock nut
- Type **AN**: with Stainless Steel-Knob, without lock nut
- Type **AKN**: with Stainless Steel-Knob, with lock nut
- Type **G**: with threaded rod, without lock nut
- Type **GK**: with threaded rod, with lock nut

Version in Steel

- blackened
- Pin hardened

Version in Stainless Steel AISI 303 NI

Pin chemically nickel plated

Knob Type A / AK

- Plastic (Polyamide PA)
- black, matt
- not removable

Knob Type AN / AKN

- Stainless Steel AISI 303
- not removable

INFORMATION

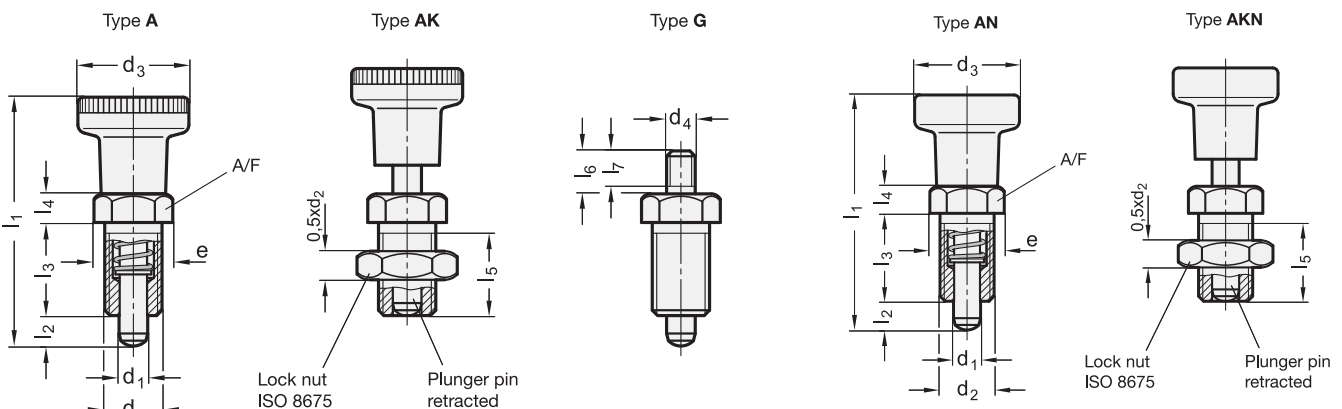
Type G or GK of the GN 617 indexing plungers have been designed for applications where the indexing plunger is not operated with the standard knob.

The indexing plungers are designed such that the plunger set in the end position (spring is "on block") can also absorb axial forces. For applications in which these forces are substantially above the tensile force applied by the operator (Type G), GN 817 (see page 754) indexing plungers are to be preferred.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



GN 617 (Steel with Plastic knob)

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	d4	e	l1 ≈	l2 min.	l3	l4	l5	l6 min.	l7	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 617-5-A	5	M 10 x 1	21	-	13.8	45	5	17	5	15	-	-	12	7	17	19
GN 617-6-A	6	M 12 x 1.5	25	-	16.2	54.5	6	20	6	17	-	-	14	9	24	31
GN 617-8-A	8	M 16 x 1.5	31	-	21.9	69	8	26	8	23	-	-	19	11	30	70
GN 617-10-A	10	M 20 x 1.5	31	-	25.4	80	10	33	10	30	-	-	22	19	45	110
GN 617-5-AK	5	M 10 x 1	21	-	13.8	45	5	17	5	15	-	-	12	7	17	24
GN 617-6-AK	6	M 12 x 1.5	25	-	16.2	54.5	6	20	6	17	-	-	14	9	24	38
GN 617-8-AK	8	M 16 x 1.5	31	-	21.9	69	8	26	8	23	-	-	19	11	30	89
GN 617-10-AK	10	M 20 x 1.5	31	-	25.4	80	10	33	10	30	-	-	22	19	45	143
GN 617-5-G	5	M 10 x 1	-	M 5	13.8	-	5	17	5	15	6	4.5	12	7	17	14
GN 617-6-G	6	M 12 x 1.5	-	M 6	16.2	-	6	20	6	17	10	8	14	9	24	23
GN 617-8-G	8	M 16 x 1.5	-	M 8	21.9	-	8	26	8	23	12	10	19	11	30	54
GN 617-10-G	10	M 20 x 1.5	-	M 8	25.4	-	10	33	10	30	12	12	22	19	45	98
GN 617-5-GK	5	M 10 x 1	-	M 5	13.8	-	5	17	5	15	6	4.5	12	7	17	22
GN 617-6-GK	6	M 12 x 1.5	-	M 6	16.2	-	6	20	6	17	10	8	14	9	24	35
GN 617-8-GK	8	M 16 x 1.5	-	M 8	21.9	-	8	26	8	23	12	10	19	11	30	72
GN 617-10-GK	10	M 20 x 1.5	-	M 8	25.4	-	10	33	10	30	12	12	22	19	45	130

GN 617-NI (Stainless Steel with Plastic knob)

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	d4	e	l1 ≈	l2 min.	l3	l4	l5	l6 min.	l7	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 617-5-A-NI	5	M 10 x 1	21	-	13.8	45	5	17	5	15	-	-	12	6	15	19
GN 617-6-A-NI	6	M 12 x 1.5	25	-	16.2	54.5	6	20	6	17	-	-	14	8	21	31
GN 617-8-A-NI	8	M 16 x 1.5	31	-	21.9	69	8	26	8	23	-	-	19	9	26	71
GN 617-10-A-NI	10	M 20 x 1.5	31	-	25.4	80	10	33	10	30	-	-	22	17	40	115
GN 617-5-AK-NI	5	M 10 x 1	21	-	13.8	45	5	17	5	15	-	-	12	6	15	24
GN 617-6-AK-NI	6	M 12 x 1.5	25	-	16.2	54.5	6	20	6	17	-	-	14	8	21	42
GN 617-8-AK-NI	8	M 16 x 1.5	31	-	21.9	69	8	26	8	23	-	-	19	9	26	85
GN 617-10-AK-NI	10	M 20 x 1.5	31	-	25.4	80	10	33	10	30	-	-	22	17	40	143
GN 617-5-G-NI	5	M 10 x 1	-	M 5	13.8	-	5	17	5	15	6	4.5	12	6	15	15
GN 617-6-G-NI	6	M 12 x 1.5	-	M 6	16.2	-	6	20	6	17	10	8	14	8	21	25
GN 617-8-G-NI	8	M 16 x 1.5	-	M 8	21.9	-	8	26	8	23	12	10	19	9	26	55
GN 617-10-G-NI	10	M 20 x 1.5	-	M 8	25.4	-	10	33	10	30	12	12	22	17	40	98
GN 617-5-GK-NI	5	M 10 x 1	-	M 5	13.8	-	5	17	5	15	6	4.5	12	6	15	22
GN 617-6-GK-NI	6	M 12 x 1.5	-	M 6	16.2	-	6	20	6	17	10	8	14	8	21	35
GN 617-8-GK-NI	8	M 16 x 1.5	-	M 8	21.9	-	8	26	8	23	12	10	19	9	26	77
GN 617-10-GK-NI	10	M 20 x 1.5	-	M 8	25.4	-	10	33	10	30	12	12	22	17	40	131

GN 617-NI (Stainless Steel knob)

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e	l1 ≈	l2 min.	l3	l4	l5	l6 min.	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 617-5-AN-NI	5	M 10 x 1	21	13.8	45	5	17	5	6	15	12	6	15	39
GN 617-6-AN-NI	6	M 12 x 1.5	25	16.2	54.5	6	20	6	10	17	14	8	21	65
GN 617-8-AN-NI	8	M 16 x 1.5	31	21.9	69	8	26	8	12	23	19	9	26	135
GN 617-10-AN-NI	10	M 20 x 1.5	31	25.4	80	10	33	10	12	30	22	17	40	175
GN 617-5-AKN-NI	5	M 10 x 1	21	13.8	45	5	17	5	6	15	12	6	15	40
GN 617-6-AKN-NI	6	M 12 x 1.5	25	16.2	54.5	6	20	6	10	17	14	8	21	130
GN 617-8-AKN-NI	8	M 16 x 1.5	31	21.9	69	8	26	8	12	23	19	9	26	156
GN 617-10-AKN-NI	10	M 20 x 1.5	31	25.4	80	10	33	10	12	30	22	17	40	220



Indexing plungers

Steel / Stainless Steel with rest position

SPECIFICATION

Types

- Type **A**: with Plastic-Knob, without lock nut
- Type **AK**: with Plastic-Knob, with lock nut
- Type **AN**: with Stainless Steel-Knob, without lock nut
- Type **AKN**: with Stainless Steel-Knob, with lock nut

Version in Steel

- blackened
- Pin hardened

Version in Stainless Steel AISI 303 NI

Pin chemically nickel plated

Knob Type A / AK

- Plastic (Polyamide PA)
- black, matt
- not removable

Knob Type AN / AKN

- Stainless Steel AISI 303
- not removable

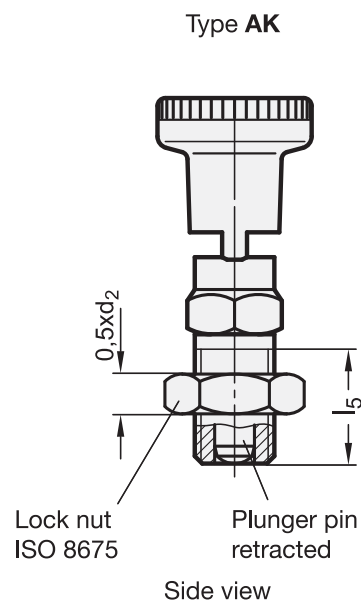
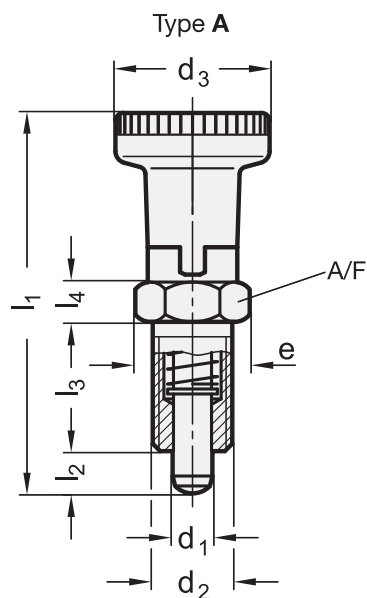
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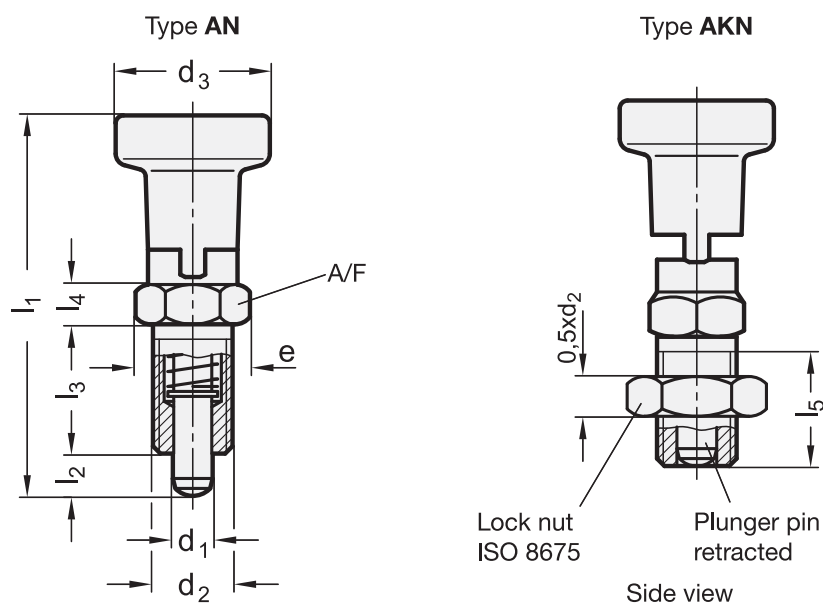
Indexing plungers GN 617.1 with rest position are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)





GN 617.1 (Steel with Plastic knob)

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e	l1 ≈	l2	l3	l4	l5 min.	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 617.1-5-A	5	M 10 x 1	21	13.8	51	5	17	5	15	12	7	17	22
GN 617.1-6-A	6	M 12 x 1.5	25	16.2	61	6	20	6	17	14	9	24	35
GN 617.1-8-A	8	M 16 x 1.5	31	21.9	75.5	7	26	8	23	19	11	30	78
GN 617.1-10-A	10	M 20 x 1.5	31	25.4	91	10	33	10	30	22	19	45	100
GN 617.1-5-AK	5	M 10 x 1	21	13.8	51	5	17	5	15	12	7	17	27
GN 617.1-6-AK	6	M 12 x 1.5	25	16.2	61	6	20	6	17	14	9	24	43
GN 617.1-8-AK	8	M 16 x 1.5	31	21.9	75.5	7	26	8	23	19	11	30	96
GN 617.1-10-AK	10	M 20 x 1.5	31	25.4	91	10	33	10	30	22	19	45	163

GN 617.1-NI (Stainless Steel with Plastic knob)

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e	l1 ≈	l2	l3	l4	l5 min.	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 617.1-5-A-NI	5	M 10 x 1	21	13.8	51	5	17	5	15	12	6	15	22
GN 617.1-6-A-NI	6	M 12 x 1.5	25	16.2	61	6	20	6	17	14	8	21	36
GN 617.1-8-A-NI	8	M 16 x 1.5	31	21.9	75.5	7	26	8	23	19	9	26	79
GN 617.1-10-A-NI	10	M 20 x 1.5	31	25.4	91	10	33	10	30	22	17	40	135
GN 617.1-5-AK-NI	5	M 10 x 1	21	13.8	51	5	17	5	15	12	6	15	27
GN 617.1-6-AK-NI	6	M 12 x 1.5	25	16.2	61	6	20	6	17	14	8	21	43
GN 617.1-8-AK-NI	8	M 16 x 1.5	31	21.9	75.5	7	26	8	23	19	9	26	96
GN 617.1-10-AK-NI	10	M 20 x 1.5	31	25.4	91	10	33	10	30	22	17	40	136

GN 617.1-NI (Stainless Steel knob)

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e	l1 ≈	l2	l3	l4	l5 min.	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 617.1-5-AN-NI	5	M 10 x 1	21	13.8	51	5	17	5	15	12	6	15	47
GN 617.1-6-AN-NI	6	M 12 x 1.5	25	16.2	61	6	20	6	17	14	8	21	74
GN 617.1-8-AN-NI	8	M 16 x 1.5	31	21.9	75.5	7	26	8	23	19	9	26	150
GN 617.1-10-AN-NI	10	M 20 x 1.5	31	25.4	91	10	33	10	30	22	17	40	200
GN 617.1-5-AKN-NI	5	M 10 x 1	21	13.8	51	5	17	5	15	12	6	15	52
GN 617.1-6-AKN-NI	6	M 12 x 1.5	25	16.2	61	6	20	6	17	14	8	21	82
GN 617.1-8-AKN-NI	8	M 16 x 1.5	31	21.9	75.5	7	26	8	23	19	9	26	168
GN 617.1-10-AKN-NI	10	M 20 x 1.5	31	25.4	91	10	33	10	30	22	17	40	240

Indexing plungers

Steel / Stainless Steel without rest position

SPECIFICATION

Types

- Type **A**: with Plastic-Knob, without lock nut
- Type **AK**: with Plastic-Knob, with lock nut
- Type **AN**: with Stainless Steel-Knob, without lock nut
- Type **AKN**: with Stainless Steel-Knob, with lock nut
- Type **G**: with threaded rod, without lock nut
- Type **GK**: with threaded rod, with lock nut

Steel

- blackened
- Pin hardened

Stainless Steel AISI 303 **NI**
Pin chemically nickel plated

Knob Type A / AK

- Plastic (Polyamide PA)
- black, matt
- not removable

Knob Type AN / AKN

- Stainless Steel AISI 303
- not removable

INFORMATION

Type G or GK of the GN 613 indexing plungers have been designed for applications where the indexing plunger is not operated with the standard knob.

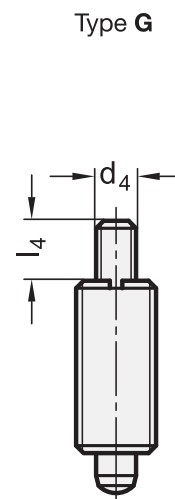
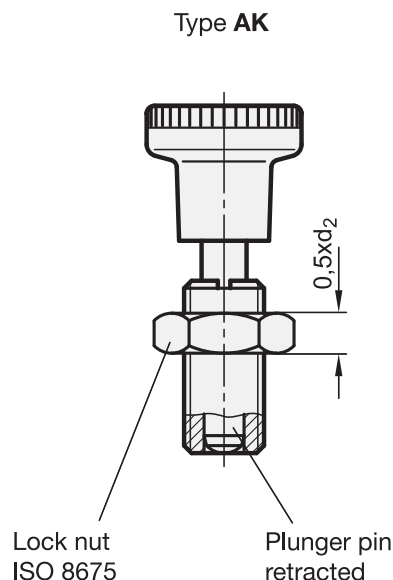
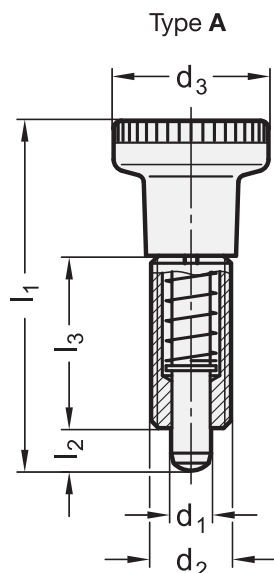
The indexing plungers are designed such that the plunger set in the end position (spring is "on block") can also absorb axial forces. For applications in which these forces are substantially above the tensile force applied by the operator (Type G), GN 817 (see page 754) indexing plungers are to be preferred.

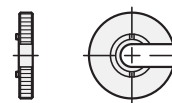
A special screw driver GN 613.1 is available. Two slots are provided in the upper end of the body which are accessible with the knob in its retracted position.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)





GN 613 (Steel with Plastic knob)

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	d4	l1 ≈	l2 min.	l3	l4	Spring load in N ≈ initial	Spring load in N ≈ end	Code no. Screw driver	⚖
GN 613-5-A	5	M 10 x 1	21	-	45	5	22	6	7	17	GN 613.1-5	17
GN 613-6-A	6	M 12 x 1.5	25	-	54.5	6	26	10	9	24	GN 613.1-6	29
GN 613-8-A	8	M 16 x 1.5	31	-	69	8	34	12	11	30	GN 613.1-8	62
GN 613-10-A	10	M 20 x 1.5	31	-	80	10	43	12	19	45	GN 613.1-10	92
GN 613-5-AK	5	M 10 x 1	21	-	45	5	22	6	7	17	GN 613.1-5	25
GN 613-6-AK	6	M 12 x 1.5	25	-	54.5	6	26	10	9	24	GN 613.1-6	38
GN 613-8-AK	8	M 16 x 1.5	31	-	69	8	34	12	11	30	GN 613.1-8	82
GN 613-10-AK	10	M 20 x 1.5	31	-	80	10	43	12	19	45	GN 613.1-10	127
GN 613-5-G	5	M 10 x 1	-	M 5	-	5	22	6	7	17	GN 613.1-5	14
GN 613-6-G	6	M 12 x 1.5	-	M 6	-	6	26	10	9	24	GN 613.1-6	20
GN 613-8-G	8	M 16 x 1.5	-	M 8	-	8	34	12	11	30	GN 613.1-8	40
GN 613-10-G	10	M 20 x 1.5	-	M 8	-	10	43	12	19	45	GN 613.1-10	86
GN 613-5-GK	5	M 10 x 1	-	M 5	-	5	22	6	7	17	GN 613.1-5	21
GN 613-6-GK	6	M 12 x 1.5	-	M 6	-	6	26	10	9	24	GN 613.1-6	37
GN 613-8-GK	8	M 16 x 1.5	-	M 8	-	8	34	12	11	30	GN 613.1-8	64
GN 613-10-GK	10	M 20 x 1.5	-	M 8	-	10	43	12	19	45	GN 613.1-10	121

GN 613-NI (Stainless Steel with Plastic knob)

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	d4	l1 ≈	l2 min.	l3	l4	Spring load in N ≈ initial	Spring load in N ≈ end	Code no. Screw driver	⚖
GN 613-5-A-NI	5	M 10 x 1	21	-	45	5	22	6	6	15	GN 613.1-5	15
GN 613-6-A-NI	6	M 12 x 1.5	25	-	54.5	6	26	10	8	21	GN 613.1-6	29
GN 613-8-A-NI	8	M 16 x 1.5	31	-	69	8	34	12	9	26	GN 613.1-8	64
GN 613-10-A-NI	10	M 20 x 1.5	31	-	80	10	43	12	17	40	GN 613.1-10	106
GN 613-5-AK-NI	5	M 10 x 1	21	-	45	5	22	6	6	15	GN 613.1-5	25
GN 613-6-AK-NI	6	M 12 x 1.5	25	-	54.5	6	26	10	8	21	GN 613.1-6	35
GN 613-8-AK-NI	8	M 16 x 1.5	31	-	69	8	34	12	9	26	GN 613.1-8	82
GN 613-10-AK-NI	10	M 20 x 1.5	31	-	80	10	43	12	17	40	GN 613.1-10	127
GN 613-5-G-NI	5	M 10 x 1	-	M 5	-	5	22	6	6	15	GN 613.1-5	14
GN 613-6-G-NI	6	M 12 x 1.5	-	M 6	-	6	26	10	8	21	GN 613.1-6	19
GN 613-8-G-NI	8	M 16 x 1.5	-	M 8	-	8	34	12	9	26	GN 613.1-8	44
GN 613-10-G-NI	10	M 20 x 1.5	-	M 8	-	10	43	12	17	40	GN 613.1-10	88
GN 613-5-GK-NI	5	M 10 x 1	-	M 5	-	5	22	6	6	15	GN 613.1-5	21
GN 613-6-GK-NI	6	M 12 x 1.5	-	M 6	-	6	26	10	8	21	GN 613.1-6	27
GN 613-8-GK-NI	8	M 16 x 1.5	-	M 8	-	8	34	12	9	26	GN 613.1-8	64
GN 613-10-GK-NI	10	M 20 x 1.5	-	M 8	-	10	43	12	17	40	GN 613.1-10	123

GN 613-NI (Stainless Steel knob)

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	l1 ≈	l2 min.	l3	Spring load in N ≈ initial	Spring load in N ≈ end	Code no. Screw driver	⚖
GN 613-5-AN-NI	5	M 10 x 1	21	45	5	22	6	15	GN 613.1-5	37
GN 613-6-AN-NI	6	M 12 x 1.5	25	54.5	6	26	8	21	GN 613.1-6	61
GN 613-8-AN-NI	8	M 16 x 1.5	31	69	8	34	9	26	GN 613.1-8	123
GN 613-10-AN-NI	10	M 20 x 1.5	31	80	10	43	17	40	GN 613.1-10	171
GN 613-5-AKN-NI	5	M 10 x 1	21	45	5	22	6	15	GN 613.1-5	40
GN 613-6-AKN-NI	6	M 12 x 1.5	25	54.5	6	26	8	21	GN 613.1-6	69
GN 613-8-AKN-NI	8	M 16 x 1.5	31	69	8	34	9	26	GN 613.1-8	140
GN 613-10-AKN-NI	10	M 20 x 1.5	31	80	10	43	17	40	GN 613.1-10	200

Indexing plungers

SUPER-technopolymer body

THREADED BODY

Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer.

PLUNGER

Black-oxide hardened steel or AISI 303 stainless steel.
Suggested tolerance for matching hole = H7.

KNOB

High-resilience polyamide based (PA) technopolymer, black colour or RAL 3000 red colour (C6), matte finish.

SPRING

AISI 302 stainless steel.

LOCKING NUT (NTT)

Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer.
Available also as accessory sold separately (see table NTT).

STANDARD EXECUTIONS

- **PMT.100-A:** black-oxide steel plunger, without locking nut.
- **PMT.100-AK:** black-oxide steel plunger, with locking nut (supplied not assembled).
- **PMT.100-SST-A:** AISI 303 stainless steel plunger, without locking nut, not magnetic.
- **PMT.100-SST-AK:** AISI 303 stainless steel plunger, with locking nut (supplied not assembled), not magnetic.

FEATURES AND APPLICATIONS

- Lightness and high mechanical resistance of the product.
- The SUPER-technopolymer threaded body of the plunger offers a low friction factor to the plunger stroke; no lubricating maintenance is required.
- Anticorrosive material: suitable even in the presence of liquid or humidity (PMT.100-SST).
- Resistant to several cleaning cycles with solvents and other chemical agents, for this reason they are suitable for applications as in the pharmaceutical or food industry.

ASSEMBLY INSTRUCTIONS

Make sure that no machining residues are left on the threaded hole for the assembly of PMT.100 indexing plunger (see fig. 1). Do not make any chamfering in the hole (see fig. 2).

SUPER-technopolymer product based on ELESA technology, dimensions according to GN 617 (see page 744) standards as agreed with Otto Ganter GmbH Co. KG.

ANOTHER STANDARD EXECUTION

PMT.101: (see page 752) indexing plungers with rest position.

NTT

Code	Description
301083	NTT-M10x1
301085	NTT-M12x1,5
301087	NTT-M16x1,5
301089	NTT-M20x1,5



ELESA Original design

Fig.1

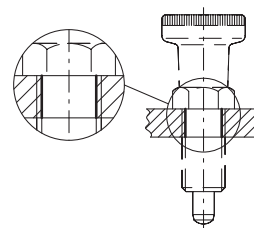
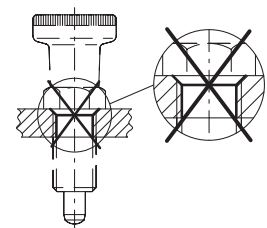
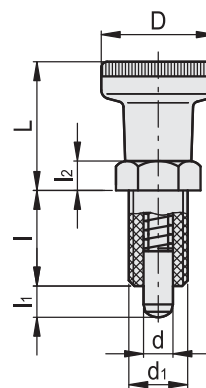


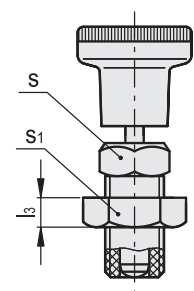
Fig.2

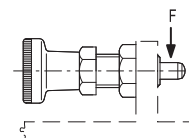


PMT.100-A
PMT.100-SST-A



PMT.100-AK
PMT.100-SST-AK





PMT.100

Code	Description	d-0.15 -0.1	d1	L	D	I	l1	l2	l3	s	s1	[N]*[N]#	Max. tightening torque [Nm]	Static load at breakage F [N]	⚖
51501	PMT.100-5-M10x1-A	5	M10x1	23	21	17	5	5	-	12	-	7 17	6	2300	13
51501-C6	PMT.100-5-M10x1-A-C6	5	M10x1	23	21	17	5	5	-	12	-	7 17	6	2300	13
51502	PMT.100-6-M12x1.5-A	6	M12x1.5	28	25	20	6	6	-	14	-	9 24	10	3500	20
51502-C6	PMT.100-6-M12x1.5-A-C6	6	M12x1.5	28	25	20	6	6	-	14	-	9 24	10	3500	20
51511	PMT.100-8-M16x1.5-A	8	M16x1.5	35	31	26	8	8	-	19	-	11 30	18	5900	25
51511-C6	PMT.100-8-M16x1.5-A-C6	8	M16x1.5	35	31	26	8	8	-	19	-	11 30	18	5900	25
51512	PMT.100-10-M20x1.5-A	10	M20x1.5	37	31	33	10	10	-	22	-	19 45	25	7700	32
51512-C6	PMT.100-10-M20x1.5-A-C6	10	M20x1.5	37	31	33	10	10	-	22	-	19 45	25	7700	32
51521	PMT.100-5-M10x1-AK	5	M10x1	23	21	17	5	5	7	12	16	7 17	6	2300	23
51521-C6	PMT.100-5-M10x1-AK-C6	5	M10x1	23	21	17	5	5	7	12	16	7 17	6	2300	23
51522	PMT.100-6-M12x1.5-AK	6	M12x1.5	28	25	20	6	6	8	14	19	9 24	10	3500	33
51522-C6	PMT.100-6-M12x1.5-AK-C6	6	M12x1.5	28	25	20	6	6	8	14	19	9 24	10	3500	33
51531	PMT.100-8-M16x1.5-AK	8	M16x1.5	35	31	26	8	8	10	19	24	11 30	18	5900	50
51531-C6	PMT.100-8-M16x1.5-AK-C6	8	M16x1.5	35	31	26	8	8	10	19	24	11 30	18	5900	50
51532	PMT.100-10-M20x1.5-AK	10	M20x1.5	37	31	33	10	10	11	22	30	19 45	25	7700	69
51532-C6	PMT.100-10-M20x1.5-AK-C6	10	M20x1.5	37	31	33	10	10	11	22	30	19 45	25	7700	69

PMT.100-SST

STAINLESS STEEL

Code	Description	d-0.15 -0.1	d1	L	D	I	l1	l2	l3	s	s1	[N]*[N]#	Max. tightening torque [Nm]	Static load at breakage F [N]	⚖
51551	PMT.100-SST-5-M10x1-A	5	M10x1	23	21	17	5	5	-	12	-	7 17	6	1800	13
51551-C6	PMT.100-SST-5-M10x1-A-C6	5	M10x1	23	21	17	5	5	-	12	-	7 17	6	1800	13
51552	PMT.100-SST-6-M12x1.5-A	6	M12x1.5	28	25	20	6	6	-	14	-	9 24	10	2900	20
51552-C6	PMT.100-SST-6-M12x1.5-A-C6	6	M12x1.5	28	25	20	6	6	-	14	-	9 24	10	2900	20
51561	PMT.100-SST-8-M16x1.5-A	8	M16x1.5	35	31	26	8	8	-	19	-	11 30	18	4400	25
51561-C6	PMT.100-SST-8-M16x1.5-A-C6	8	M16x1.5	35	31	26	8	8	-	19	-	11 30	18	4400	25
51562	PMT.100-SST-10-M20x1.5-A	10	M20x1.5	37	31	33	10	10	-	22	-	19 45	25	6800	32
51562-C6	PMT.100-SST-10-M20x1.5-A-C6	10	M20x1.5	37	31	33	10	10	-	22	-	19 45	25	6800	32
51571	PMT.100-SST-5-M10x1-AK	5	M10x1	23	21	17	5	5	7	12	16	7 17	6	1800	23
51571-C6	PMT.100-SST-5-M10x1-AK-C6	5	M10x1	23	21	17	5	5	7	12	16	7 17	6	1800	23
51572	PMT.100-SST-6-M12x1.5-AK	6	M12x1.5	28	25	20	6	6	8	14	19	9 24	10	2900	33
51572-C6	PMT.100-SST-6-M12x1.5-AK-C6	6	M12x1.5	28	25	20	6	6	8	14	19	9 24	10	2900	33
51581	PMT.100-SST-8-M16x1.5-AK	8	M16x1.5	35	31	26	8	8	10	19	24	11 30	18	4400	50
51581-C6	PMT.100-SST-8-M16x1.5-AK-C6	8	M16x1.5	35	31	26	8	8	10	19	24	11 30	18	4400	50
51582	PMT.100-SST-10-M20x1.5-AK	10	M20x1.5	37	31	33	10	10	11	22	30	19 45	25	6800	69
51582-C6	PMT.100-SST-10-M20x1.5-AK-C6	10	M20x1.5	37	31	33	10	10	11	22	30	19 45	25	6800	69

Index C6: indexing plunger with RAL 3000 red colour knob.

* Spring preload

Spring maximum load



Indexing plungers

Rest position, SUPER-technopolymer body

THREADED BODY

Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer.

PLUNGER

Black-oxide hardened steel or AISI 303 stainless steel.
Suggested tolerance for matching hole = H7.

KNOB

High-resiliencetechopolymer based (PA) technopolymer, black colour or RAL 3000 red colour (C6), matte finish.

SPRING

AISI 302 stainless steel.

LOCKING NUT NTT

Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer.
Available also as accessory sold separately (see table NTT).

STANDARD EXECUTIONS

- **PMT.101-A:** black-oxide steel plunger, without locking nut.
- **PMT.101-AK:** black-oxide steel plunger, with locking nut (supplied not assembled).
- **PMT.101-SST-A:** AISI 303 stainless steel plunger, without locking nut, not magnetic.
- **PMT.101-SST-AK:** AISI 303 stainless steel plunger, with locking nut (supplied not assembled), not magnetic.

FEATURES AND APPLICATIONS

- Lightness and mechanical resistance of the product.
- The SUPER-technopolymer threaded body of the plunger offers a low friction factor to the plunger stroke; no lubricating maintenance is required.
- Anticorrosive material: suitable even in the presence of liquid or humidity (PMT.101-SST).
- Resistant to several cleaning cycles with solvents and other chemical agents, for this reason they are suitable for applications as in the pharmaceutical or food industry.
- The stop toothing (for the rest position), made out of SUPER-technopolymer, protects the device from seizure or wear.

ASSEMBLY INSTRUCTIONS

Make sure that no machining residues are left on the threaded hole for the assembly of PMT.101 indexing plunger (see fig. 1). Do not make any chamfering in the hole (see fig. 2).

SUPER-technopolymer product based on ELESa technology, dimensions according to GN 617 (see page 744) standards as agreed with Otto Ganter GmbH Co. KG.

ANOTHER STANDARD EXECUTION

PMT.100: (see page 750) indexing plungers without rest position.

NTT

Code	Description
301083	NTT-M10x1
301085	NTT-M12x1,5
301087	NTT-M16x1,5
301089	NTT-M20x1,5



ELESa Original design

Fig.1

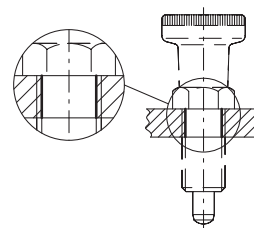
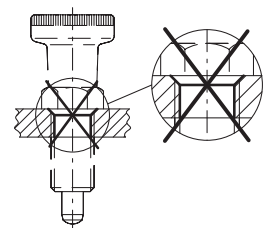
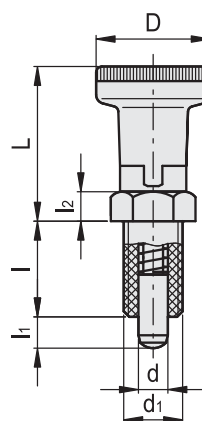


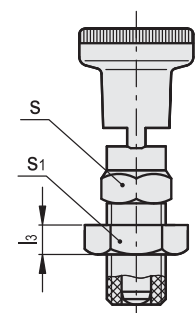
Fig.2

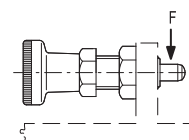


PMT.101-A
PMT.101-SST-A



PMT.101-AK
PMT.101-SST-AK





PMT.101

Code	Description	d-0.15-0.1	d1	L	D	I	I1	I2	I3	s	s1	[N]* [N]#	Max. tightening torque [Nm]	Static load at breakage F [N]	⚖
51601	PMT.101-5-M10x1-A	5	M10x1	29	21	17	5	5	-	12	-	7 17	6	2300	13
51601-C6	PMT.101-5-M10x1-A-C6	5	M10x1	29	21	17	5	5	-	12	-	7 17	6	2300	13
51602	PMT.101-6-M12x1.5-A	6	M12x1.5	35	25	20	6	6	-	14	-	9 24	10	3500	20
51602-C6	PMT.101-6-M12x1.5-A-C6	6	M12x1.5	35	25	20	6	6	-	14	-	9 24	10	3500	20
51611	PMT.101-8-M16x1.5-A	8	M16x1.5	43	31	26	8	8	-	19	-	11 30	18	5900	25
51611-C6	PMT.101-8-M16x1.5-A-C6	8	M16x1.5	43	31	26	8	8	-	19	-	11 30	18	5900	25
51612	PMT.101-10-M20x1.5-A	10	M20x1.5	48	31	33	10	10	-	22	-	19 45	25	7700	32
51612-C6	PMT.101-10-M20x1.5-A-C6	10	M20x1.5	48	31	33	10	10	-	22	-	19 45	25	7700	32
51621	PMT.101-5-M10x1-AK	5	M10x1	29	21	17	5	5	7	12	16	7 17	6	2300	23
51621-C6	PMT.101-5-M10x1-AK-C6	5	M10x1	29	21	17	5	5	7	12	16	7 17	6	2300	23
51622	PMT.101-6-M12x1.5-AK	6	M12x1.5	35	25	20	6	6	8	14	19	9 24	10	3500	33
51622-C6	PMT.101-6-M12x1.5-AK-C6	6	M12x1.5	35	25	20	6	6	8	14	19	9 24	10	3500	33
51631	PMT.101-8-M16x1.5-AK	8	M16x1.5	43	31	26	8	8	10	19	24	11 30	18	5900	50
51631-C6	PMT.101-8-M16x1.5-AK-C6	8	M16x1.5	43	31	26	8	8	10	19	24	11 30	18	5900	50
51632	PMT.101-10-M20x1.5-AK	10	M20x1.5	48	31	33	10	10	11	22	30	19 45	25	7700	69
51632-C6	PMT.101-10-M20x1.5-AK-C6	10	M20x1.5	48	31	33	10	10	11	22	30	19 45	25	7700	69

PMT.101-SST

STAINLESS STEEL

Code	Description	d-0.15-0.1	d1	L	D	I	I1	I2	I3	s	s1	[N]* [N]#	Max. tightening torque [Nm]	Static load at breakage F [N]	⚖
51651	PMT.101-SST-5-M10x1-A	5	M10x1	29	21	17	5	5	-	12	-	7 17	6	1800	13
51651-C6	PMT.101-SST-5-M10x1-A-C6	5	M10x1	29	21	17	5	5	-	12	-	7 17	6	1800	13
51652	PMT.101-SST-6-M12x1.5-A	6	M12x1.5	35	25	20	6	6	-	14	-	9 24	10	2900	20
51652-C6	PMT.101-SST-6-M12x1.5-A-C6	6	M12x1.5	35	25	20	6	6	-	14	-	9 24	10	2900	20
51661	PMT.101-SST-8-M16x1.5-A	8	M16x1.5	43	31	26	8	8	-	19	-	11 30	18	4400	25
51661-C6	PMT.101-SST-8-M16x1.5-A-C6	8	M16x1.5	43	31	26	8	8	-	19	-	11 30	18	4400	25
51662	PMT.101-SST-10-M20x1.5-A	10	M20x1.5	48	31	33	10	10	-	22	-	19 45	25	6800	32
51662-C6	PMT.101-SST-10-M20x1.5-A-C6	10	M20x1.5	48	31	33	10	10	-	22	-	19 45	25	6800	32
51671	PMT.101-SST-5-M10x1-AK	5	M10x1	29	21	17	5	5	7	12	16	7 17	6	1800	23
51671-C6	PMT.101-SST-5-M10x1-AK-C6	5	M10x1	29	21	17	5	5	7	12	16	7 17	6	1800	23
51672	PMT.101-SST-6-M12x1.5-AK	6	M12x1.5	35	25	20	6	6	8	14	19	9 24	10	2900	33
51672-C6	PMT.101-SST-6-M12x1.5-AK-C6	6	M12x1.5	35	25	20	6	6	8	14	19	9 24	10	2900	33
51681	PMT.101-SST-8-M16x1.5-AK	8	M16x1.5	43	31	26	8	8	10	19	24	11 30	18	4400	50
51681-C6	PMT.101-SST-8-M16x1.5-AK-C6	8	M16x1.5	43	31	26	8	8	10	19	24	11 30	18	4400	50
51682	PMT.101-SST-10-M20x1.5-AK	10	M20x1.5	48	31	33	10	10	11	22	30	19 45	25	6800	69
51682-C6	PMT.101-SST-10-M20x1.5-AK-C6	10	M20x1.5	48	31	33	10	10	11	22	30	19 45	25	6800	69

Index C6: indexing plunger with RAL 3000 red colour knob.

* Spring preload

Spring maximum load



Indexing plungers

Steel / Stainless Steel, with and without rest position

SPECIFICATION

Types

- Type **B**: without rest position, without lock nut
- Type **BK**: without rest position, with lock nut
- Type **C**: with rest position, without lock nut
- Type **CK**: with rest position, with lock nut
- Type **G**: with threaded rod, without lock nut
- Type **GK**: with threaded rod, with lock nut

Steel

- blackened
- Pin hardened

Stainless Steel AISI 303 NI

Pin chemically nickel plated

Knob Plastic (Polyamide PA)

- black, matt
- red **RT** RAL 3000 (add RT on order code)
- not removable



INFORMATION

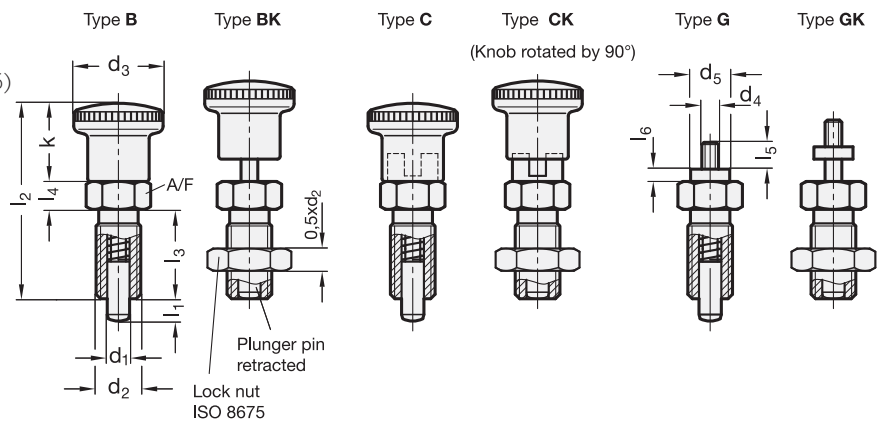
Indexing plungers GN 817 with rest position (Type C / CK) are used for such applications where the plunger has to stay in its retracted position.

To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



* Complete with type index of the Indexing plungers (B, BK, C, CK, G or GK)

B BK C CK G GK

GN 817

Description	d1 Pin -0.02/-0.05 Bore H7	l1	d2	d3	d4	d5	k	l2	l3	l4	l5	l6	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	
GN 817-4-4-*	4	4	M 8 x 1	16	M 3	7	14	35	16	5	4.5	2.5	10	4.5	12	11
GN 817-4-6-*	4	6	M 8 x 1	16	M 3	7	14	35	16	5	4.5	2.5	10	4	12.5	12
GN 817-5-5-*	5	5	M 10 x 1	19	M 4	8	16	40	18	6	5.5	3	12	5	15	19
GN 817-5-8-*	5	8	M 10 x 1	19	M 4	8	16	40	18	6	5.5	3	12	5	18	20
GN 817-6-6-*	6	6	M 12 x 1.5	23	M 5	9	20	48	22	6	7	3.5	14	6.5	19	30
GN 817-6-9-*	6	9	M 12 x 1.5	23	M 5	9	20	48	22	6	7	3.5	14	6	25	31
GN 817-8-8-*	8	8	M 16 x 1.5	28	M 6	10	24	58	26	8	8.5	4	17	8.5	26	64
GN 817-8-12-*	8	12	M 16 x 1.5	28	M 6	10	24	58	26	8	8.5	4	17	8.5	28	65
GN 817-10-12-*	10	12	M 16 x 1.5	28	M 6	10	24	58	26	8	8.5	4	17	9.5	38	65
GN 817-12-15-*	12	15	M 20 x 1.5	33	M 6	12	28.5	71.5	33	10	8.5	4	22	11.5	40	118
GN 817-16-20-*	16	20	M 24 x 2	33	M 8	15	28.5	78.5	38	12	11.5	5	27	13	54	203

Weight type B

* Complete with type index of the Indexing plungers (B, BK, C, CK, G or GK)

B BK C CK G GK

GN 817-NI

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	l1	d2	d3	d4	d5	k	l2	l3	l4	l5	l6	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817-4-4-*-NI	4	4	M 8 x 1	16	M 3	7	14	35	16	5	4.5	2.5	10	4.5	12	11
GN 817-4-6-*-NI	4	6	M 8 x 1	16	M 3	7	14	35	16	5	4.5	2.5	10	4	12.5	11
GN 817-5-5-*-NI	5	5	M 10 x 1	19	M 4	8	16	40	18	6	5.5	3	12	5	15	19
GN 817-5-8-*-NI	5	8	M 10 x 1	19	M 4	8	16	40	18	6	5.5	3	12	5	18	19
GN 817-6-6-*-NI	6	6	M 12 x 1.5	23	M 5	9	20	48	22	6	7	3.5	14	6.5	19	30
GN 817-6-9-*-NI	6	9	M 12 x 1.5	23	M 5	9	20	48	22	6	7	3.5	14	6	25	30
GN 817-8-8-*-NI	8	8	M 16 x 1.5	28	M 6	10	24	58	26	8	8.5	4	17	8.5	26	63
GN 817-8-12-*-NI	8	12	M 16 x 1.5	28	M 6	10	24	58	26	8	8.5	4	17	8.5	28	63
GN 817-10-12-*-NI	10	12	M 16 x 1.5	28	M 6	10	24	58	26	8	8.5	4	17	9.5	38	66
GN 817-12-15-*-NI	12	15	M 20 x 1.5	33	M 6	12	28.5	71.5	33	10	8.5	4	22	11.5	40	118
GN 817-16-20-*-NI	16	20	M 24 x 2	33	M 8	15	28.5	78.5	38	12	11.5	5	27	13	54	260

* Complete with type index of the Indexing plungers (B, BK, C or CK)

B BK C CK

GN 817 (red knob)

Description	d1 Pin -0.02/-0.05 Bore H7	l1	d2	d3	k	l2	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817-4-4-*-RT	4	4	M 8 x 1	16	14	35	16	5	10	4.5	12	11
GN 817-4-6-*-RT	4	6	M 8 x 1	16	14	35	16	5	10	4	12.5	12
GN 817-5-5-*-RT	5	5	M 10 x 1	19	16	40	18	6	12	5	15	19
GN 817-5-8-*-RT	5	8	M 10 x 1	19	16	40	18	6	12	5	18	19
GN 817-6-6-*-RT	6	6	M 12 x 1.5	23	20	48	22	6	14	6.5	19	31
GN 817-6-9-*-RT	6	9	M 12 x 1.5	23	20	48	22	6	14	6	25	30
GN 817-8-8-*-RT	8	8	M 16 x 1.5	28	24	58	26	8	17	8.5	26	63
GN 817-8-12-*-RT	8	12	M 16 x 1.5	28	24	58	26	8	17	8.5	28	65
GN 817-10-12-*-RT	10	12	M 16 x 1.5	28	24	58	26	8	17	9.5	38	70
GN 817-12-15-*-RT	12	15	M 20 x 1.5	33	28.5	71.5	33	10	22	11.5	40	118
GN 817-16-20-*-RT	16	20	M 24 x 2	33	28.5	78.5	38	12	27	13	54	203

GN 817-NI (red knob)

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	l1	d2	d3	k	l2	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817-4-4-*-NI-RT	4	4	M 8 x 1	16	14	35	16	5	10	4.5	12	12
GN 817-4-6-*-NI-RT	4	6	M 8 x 1	16	14	35	16	5	10	4	12.5	12
GN 817-5-5-*-NI-RT	5	5	M 10 x 1	19	16	40	18	6	12	5	15	19
GN 817-5-8-*-NI-RT	5	8	M 10 x 1	19	16	40	18	6	12	5	18	19
GN 817-6-6-*-NI-RT	6	6	M 12 x 1.5	23	20	48	22	6	14	6.5	19	30
GN 817-6-9-*-NI-RT	6	9	M 12 x 1.5	23	20	48	22	6	14	6	25	30
GN 817-8-8-*-NI-RT	8	8	M 16 x 1.5	28	24	58	26	8	17	8.5	26	63
GN 817-8-12-*-NI-RT	8	12	M 16 x 1.5	28	24	58	26	8	17	8.5	28	63
GN 817-10-12-*-NI-RT	10	12	M 16 x 1.5	28	24	58	26	8	17	9.5	38	69
GN 817-12-15-*-NI-RT	12	15	M 20 x 1.5	33	28.5	71.5	33	10	22	11.5	40	118
GN 817-16-20-*-NI-RT	16	20	M 24 x 2	33	28.5	78.5	38	12	27	13	54	200

Weight type B



Indexing plungers

Steel / Stainless Steel, removable, with or without rest position

SPECIFICATION

Types

- Type **B**: without rest position, without lock nut
- Type **BK**: without rest position, with lock nut
- Type **C**: with rest position, without lock nut
- Type **CK**: with rest position, with lock nut

Version in Steel ST

blackened

- Threaded body
- Lock nut

Version in Stainless Steel NI

- Threaded body, AISI 303
- Lock nut, AISI 304

Pin

Stainless Steel AISI 303

Countersunk screw DIN 7991

Stainless Steel AISI 304

Knob

- Plastic (Polyamide PA)
- black, matt

INFORMATION

Indexing plungers GN 817.8 have been designed such that special versions of the indexing pins can also be made economically in smaller unit quantities.

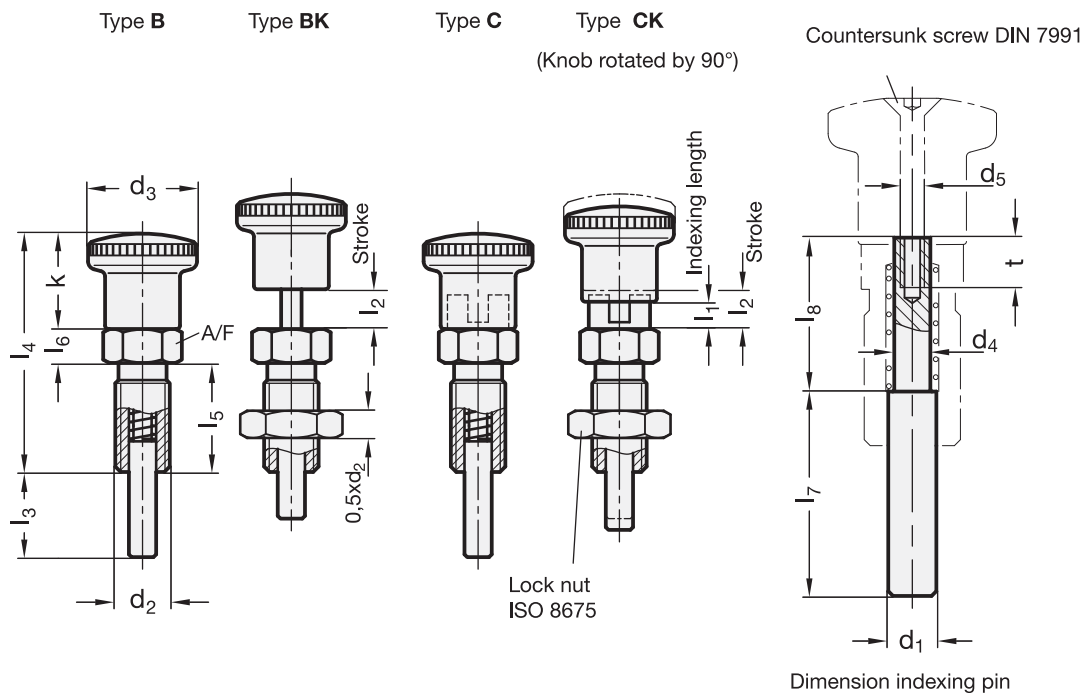
If required, the indexing pins can be machined or made by the user as shown in the drawing above. They are assembled with a countersunk screw and can therefore be assembled several times. All parts are supplied in a non-assembled set.

The indexing plungers type C / CK are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)





* Complete with type index of the Indexing plungers (B, BK, C or CK)

B	BK	C	CK
---	----	---	----

GN 817.8

Description	d1 Pin -0.02/-0.05 Bore H7	l1	l2	d2	d3	d4	d5	k	l3	l4	l5	l6	l7	l8	t	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.8-7-6-*-ST	7	6	8	M12x1.5	23	5	M3	20	20	48	22	6	31	17.6	7	14	6.5	19	20
GN 817.8-7-9-*-ST	7	9	11	M12x1.5	23	5	M3	20	20	48	22	6	27.5	21.1	7	14	6	25	53
GN 817.8-8-8-*-ST	8	8	10	M16x1.5	28	6	M4	24	25	58	26	8	39	20.6	8	17	8.5	26	72
GN 817.8-8-12-*-ST	8	12	14	M16x1.5	28	6	M4	24	25	58	26	8	34	25.6	8	17	8.5	28	93
GN 817.8-10-12-*-ST	10	12	14	M16x1.5	28	7.5	M4	24	30	58	26	8	39.2	25.4	8	17	9.5	38	75
GN 817.8-12-15-*-ST	12	15	17	M20x1.5	33	9	M6	28.5	35	71.5	33	10	47.3	31.3	13.5	22	11.5	40	147

GN 817.8-NI

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	l1	l2	d2	d3	d4	d5	k	l3	l4	l5	l6	l7	l8	t	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.8-7-6-*-NI	7	6	8	M12x1.5	23	5	M3	20	20	48	22	6	31	17.6	7	14	6.5	19	20
GN 817.8-7-9-*-NI	7	9	11	M12x1.5	23	5	M3	20	20	48	22	6	27.5	21.1	7	14	6	25	53
GN 817.8-8-8-*-NI	8	8	10	M16x1.5	28	6	M4	24	25	58	26	8	39	20.6	8	17	8.5	26	68
GN 817.8-8-12-*-NI	8	12	14	M16x1.5	28	6	M4	24	25	58	26	8	34	25.6	8	17	8.5	28	75
GN 817.8-10-12-*-NI	10	12	14	M16x1.5	28	7.5	M4	24	30	58	26	8	39.2	25.4	8	17	9.5	38	84
GN 817.8-12-15-*-NI	12	15	17	M20x1.5	33	9	M6	28.5	35	71.5	33	10	47.3	31.3	13.5	22	11.5	40	148

Weight type B



Indexing elements

Indexing plungers

Steel / Stainless Steel, with long knob, with and without rest position

SPECIFICATION

Types

- Type **B**: without rest position, without lock nut
- Type **BK**: without rest position, with lock nut
- Type **C**: with rest position, without lock nut
- Type **CK**: with rest position, with lock nut

Version in Steel

- blackened
- Pin hardened

Version in Stainless Steel NI

- AISI 303
- Pin chemically nickel plated

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

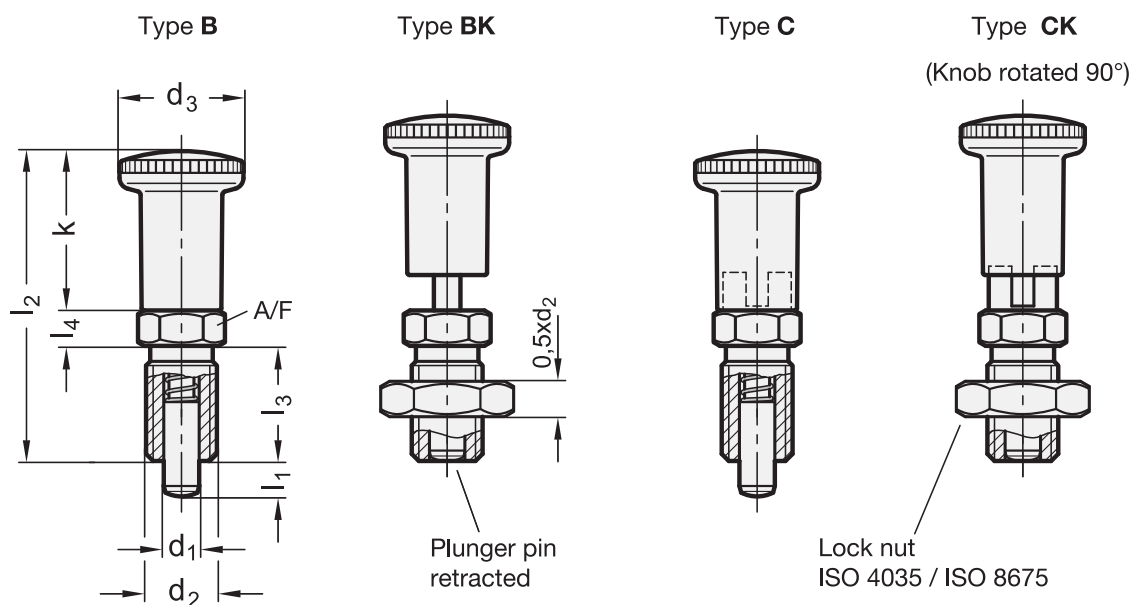
Indexing plungers GN 817.2 correspond to GN 817 (see page 754), they only differ by a longer knob.

Type C / CK are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



* Complete with type index of the Indexing plungers (B, BK, C or CK)

B BK C CK

GN 817.2

Description	d1 -0.02/-0.05	l1 min.	d2	d3	k	l2	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.2-4-4-*	4	4	M 8 x 1	16	21	42	16	5	10	4.5	12	11
GN 817.2-4-6-*	4	6	M 8 x 1	16	21	42	16	5	10	4	12.5	14
GN 817.2-5-5-*	5	5	M 10 x 1	19	24	48	18	6	12	5	15	20
GN 817.2-5-8-*	5	8	M 10 x 1	19	24	48	18	6	12	5	18	24
GN 817.2-6-6-*	6	6	M 12 x 1.5	23	30	58	22	6	14	6.5	19	40
GN 817.2-6-9-*	6	9	M 12 x 1.5	23	30	58	22	6	14	6	25	44
GN 817.2-8-8-*	8	8	M 16 x 1.5	28	36	70	26	8	17	8.5	26	60
GN 817.2-8-12-*	8	12	M 16 x 1.5	28	36	70	26	8	17	8.5	28	64
GN 817.2-10-12-*	10	12	M 16 x 1.5	28	36	70	26	8	17	9.5	38	70
GN 817.2-12-15-*	12	15	M 20 x 1.5	28	36	79	33	10	22	11.5	40	120

GN 817.2-NI

STAINLESS STEEL

Description	d1 -0.02/-0.05	l1 min.	d2	d3	k	l2	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.2-4-4-*.NI	4	4	M 8 x 1	16	21	42	16	5	10	4.5	12	11
GN 817.2-4-6-*.NI	4	6	M 8 x 1	16	21	42	16	5	10	4	12.5	16
GN 817.2-5-5-*.NI	5	5	M 10 x 1	19	24	48	18	6	12	5	15	19
GN 817.2-5-8-*.NI	5	8	M 10 x 1	19	24	48	18	6	12	5	18	24
GN 817.2-6-6-*.NI	6	6	M 12 x 1.5	23	30	58	22	6	14	6.5	19	31
GN 817.2-6-9-*.NI	6	9	M 12 x 1.5	23	30	58	22	6	14	6	25	40
GN 817.2-8-8-*.NI	8	8	M 16 x 1.5	28	36	70	26	8	17	8.5	26	64
GN 817.2-8-12-*.NI	8	12	M 16 x 1.5	28	36	70	26	8	17	8.5	28	70
GN 817.2-10-12-*.NI	10	12	M 16 x 1.5	28	36	70	26	8	17	9.5	38	80
GN 817.2-12-15-*.NI	12	15	M 20 x 1.5	28	36	79	33	10	22	11.5	40	121

Weight type B



Indexing plungers

without thread, without rest position

SPECIFICATION

Types

- Type **A**: with knob
- Type **G**: with threaded rod

Steel

- weldable
- blackened
- Pin hardened

Knob Plastic (Polyamide PA)

- black, matt
- not removable



INFORMATION

Indexing plungers GN 618 without thread are for applications where welding, resin bonding (Loctite) or clamping is favoured.

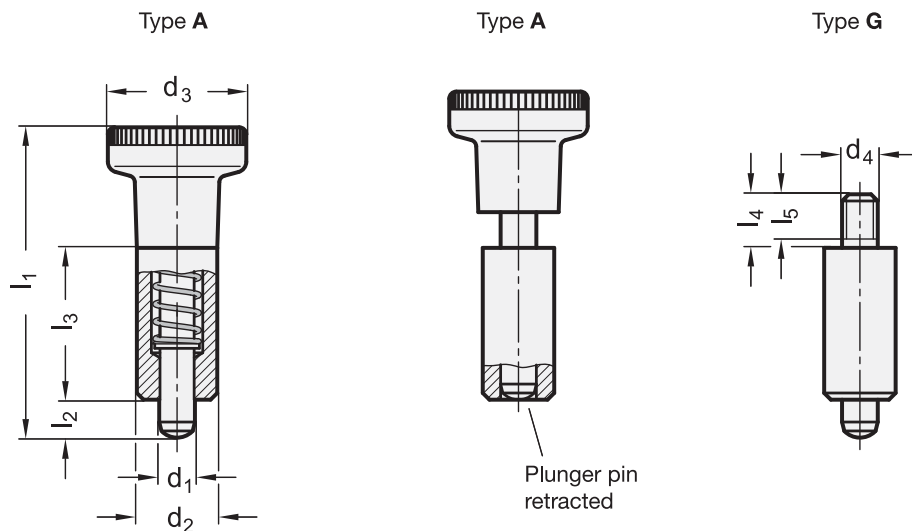
Type G has been designed for applications where the indexing plunger is not operated with the standard knob.

The indexing plungers are designed such that the plunger set in the end position (spring is "on block") can also absorb axial forces. For applications in which these forces are substantially above the tensile force applied by the operator (Type G), additional information can be submitted on request.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)



GN 618

Description	d1 Pin -0.02/-0.05 Bore G7	d2 h9	d3	d4	l1 ≈	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 618-5-A	5	12	21	-	45	5	22	-	-	7	17	30
GN 618-6-A	6	14	25	-	54.5	6	26	-	-	9	24	40
GN 618-8-A	8	18	31	-	69	8	34	-	-	11	30	84
GN 618-5-G	5	12	-	M 5	-	5	22	6	4.5	7	17	25
GN 618-6-G	6	14	-	M 6	-	6	26	10	8	9	24	37
GN 618-8-G	8	18	-	M 8	-	8	34	12	10	11	30	69

Indexing plungers

Steel / Stainless Steel, with T-Handle, with and without rest position

SPECIFICATION

Types

- Type **B**: without rest position, without lock nut
- Type **BK**: without rest position, with lock nut
- Type **C**: with rest position, without lock nut
- Type **CK**: with rest position, with lock nut

Version in Steel

- blackened
- Pin hardened and grounded

Version in Stainless Steel NI

- AISI 303
- Pin chemically nickel plated

T-Handle

Plastic Polyamide (PA)

- not removable
- black, matt

INFORMATION

Indexing plungers GN 817.4 are similar to GN 817 (see page 754) but with a T-handle instead of a round head.

This shape allows better visual orientation of the indexing position of Type C and is advantageous when greater unlocking forces occur.

Type C with rest position is used in such applications where the plunger must not protrude continually. In that case the knob is retracted and afterwards turned by 90°. A notch keeps the plunger in this position.

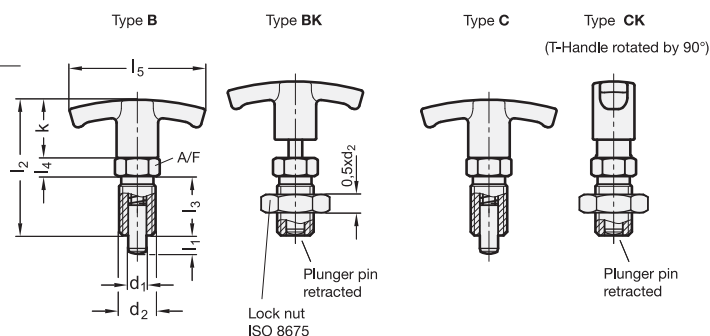
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

* Complete with type index of the Indexing plungers (B, BK, C or CK)

B BK C CK



GN 817.4

Description	d1 Pin -0.02/-0.05 Bore H7	l1	d2	k	l2	l3	l4	l5	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.4-6-6-*	6	6	M 12 x 1.5	20	48	22	6	54	14	6.5	19	31
GN 817.4-6-9-*	6	9	M 12 x 1.5	20	48	22	6	54	14	6	25	34
GN 817.4-8-8-*	8	8	M 16 x 1.5	25	59	26	8	59	17	8.5	26	64
GN 817.4-8-12-*	8	12	M 16 x 1.5	25	59	26	8	59	17	8.5	28	65
GN 817.4-10-12-*	10	12	M 16 x 1.5	25	59	26	8	59	17	9.5	38	72
GN 817.4-12-15-*	12	15	M 20 x 1.5	25	68	33	10	59	22	11.5	40	120

GN 817.4-NI

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	l1	d2	k	l2	l3	l4	l5	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.4-6-6-*.NI	6	6	M 12 x 1.5	20	48	22	6	54	14	6.5	19	31
GN 817.4-6-9-*.NI	6	9	M 12 x 1.5	20	48	22	6	54	14	6	25	35
GN 817.4-8-8-*.NI	8	8	M 16 x 1.5	25	59	26	8	59	17	8.5	26	64
GN 817.4-8-12-*.NI	8	12	M 16 x 1.5	25	59	26	8	59	17	8.5	28	69
GN 817.4-10-12-*.NI	10	12	M 16 x 1.5	25	59	26	8	59	17	9.5	38	72
GN 817.4-12-15-*.NI	12	15	M 20 x 1.5	25	68	33	10	59	22	11.5	40	120

Weight type B



Indexing plungers

with or without rest position

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Guide

Zinc die casting
plastic coated
black, matt textured finish

Pin

Stainless Steel AISI 303
- chemically nickel plated

Knob

Plastic (Polyamide PA)

- black, matt
- red **RT** RAL 3000, add RT on order code
- not removable



INFORMATION

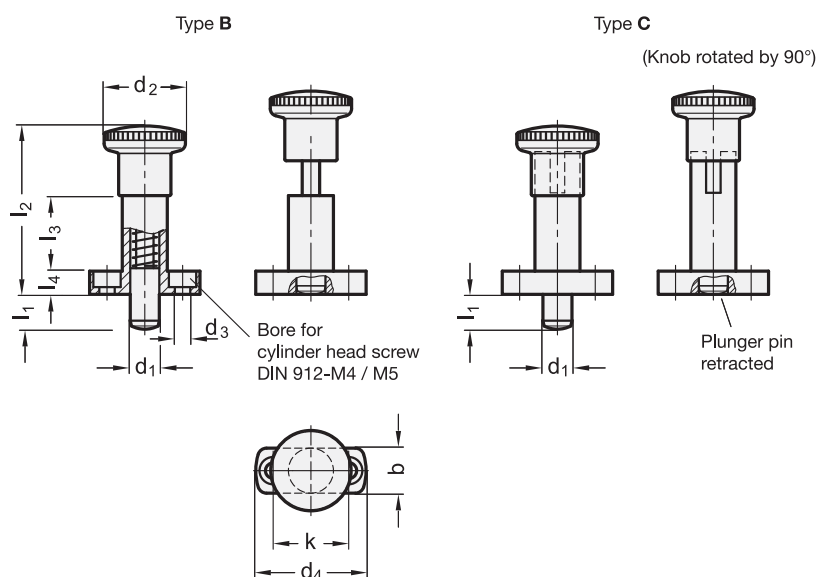
Indexing plungers GN 817.1 (Type C) are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated 90° degrees after being retracted. A notch keeps the plunger in this position.

ON REQUEST

- Indexing plungers with T-Handle

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



* Complete with type index of the Indexing plungers (B or C)

B without rest position **C** with rest position

GN 817.1

Description	d1 Pin -0.02/-0.05 Bore +0.10/+0.03	l1	b	d2	d3	d4	k	l2	l3	l4	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.1-6-6-*	6	6	13	23	4.3	34	22	48	22	6	6.5	19	38
GN 817.1-6-6-RT	6	6	13	23	4.3	34	22	48	22	6	6.5	19	39
GN 817.1-6-9-*	6	9	13	23	4.3	34	22	48	22	6	6	25	42
GN 817.1-6-9-RT	6	9	13	23	4.3	34	22	48	22	6	6	25	41
GN 817.1-8-8-*	8	8	16	28	5.3	38	26	58	26	8	8.5	26	68
GN 817.1-8-8-RT	8	8	16	28	5.3	38	26	58	26	8	8.5	26	67
GN 817.1-8-12-*	8	12	16	28	5.3	38	26	58	26	8	8.5	28	74
GN 817.1-8-12-RT	8	12	16	28	5.3	38	26	58	26	8	8.5	28	73
GN 817.1-10-12-*	10	12	16	28	5.3	38	26	58	26	8	9.5	38	76
GN 817.1-10-12-RT	10	12	16	28	5.3	38	26	58	26	8	9.5	38	75

Weight type B

Indexing plungers
removable, with or without rest position

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Guide
Zinc die casting
plastic coated
black, textured finish

Pin
Stainless Steel AISI 303
Countersunk screw DIN 7991
Stainless Steel AISI 304

Knob
Plastic (Polyamide PA)
black, matt

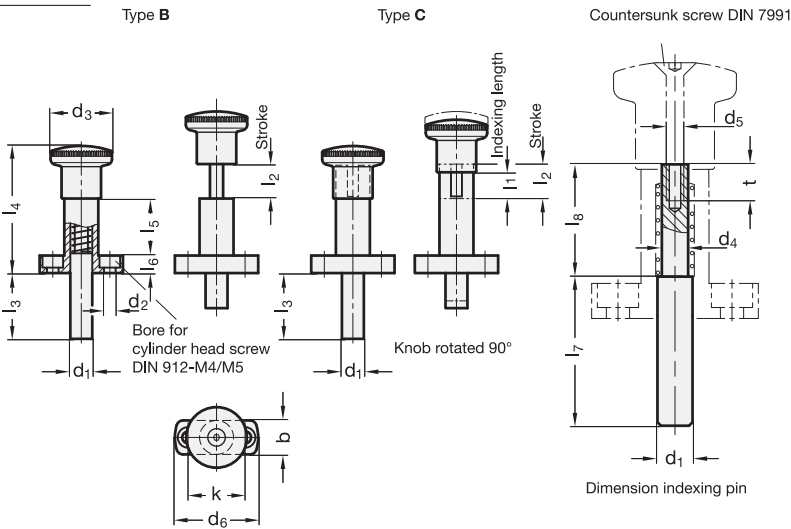


INFORMATION

Indexing plungers GN 817.9 have been designed such that special versions of the indexing pins can also be made economically in smaller unit quantities.
If required, the indexing pins can be machined or made by the user as shown in the drawing above. They are assembled with a countersunk screw and can therefore be assembled several times. All parts are supplied in a non-assembled set.
The indexing plungers type C are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



GN 817.9

Description	d1 Pin -0.02/-0.05 Bore +0.10/+0.03	l1	l2	b	d2	d3	d4	d5	d6	k	l3	l4	l5	l6	l7	l8	t	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.9-7-6-B	7	6	8	13	4.3	23	5	M 3	34	22	20	48	22	6	31	17.6	7	6.5	19	47
GN 817.9-7-9-B	7	9	11	13	4.3	23	5	M 3	34	22	20	48	22	6	27.5	21.1	7	6	25	48
GN 817.9-8-8-B	8	8	10	16	5.3	28	6	M 4	38	26	25	58	26	8	39	20.6	8	8.5	26	78
GN 817.9-8-12-B	8	12	14	16	5.3	28	6	M 4	38	26	25	58	26	8	34	25.6	8	8.5	28	79
GN 817.9-10-12-B	10	12	14	16	5.3	28	7.5	M 4	38	26	30	58	26	8	39.2	25.4	8	9.5	38	85
GN 817.9-7-6-C	7	6	8	13	4.3	23	5	M 3	34	22	20	48	22	6	31	17.6	7	6.5	19	49
GN 817.9-7-9-C	7	9	11	13	4.3	23	5	M 3	34	22	20	48	22	6	27.5	21.1	7	6	25	50
GN 817.9-8-8-C	8	8	10	16	5.3	28	6	M 4	38	26	25	58	26	8	39	20.6	8	8.5	26	81
GN 817.9-8-12-C	8	12	14	16	5.3	28	6	M 4	38	26	25	58	26	8	34	25.6	8	8.5	28	82
GN 817.9-10-12-C	10	12	14	16	5.3	28	7.5	M 4	38	26	30	58	26	8	39.5	25.4	8	9.5	38	90



Indexing plungers

Steel / Stainless Steel, with and without rest position

SPECIFICATION

Types

- Type **A**: with lifting ring, without lock nut
- Type **AK**: with lifting ring, with lock nut
- Type **B**: without rest position (Knob), without lock nut
- Type **BK**: without rest position (Knob), with lock nut
- Type **C**: with rest position (Knob), without lock nut
- Type **CK**: with rest position (Knob), with lock nut
- Type **D**: with wire loop, without lock nut
- Type **DK**: with wire loop, with lock nut

Threaded body

- Version in Steel zinc plated, blue passivated **ST**
- Version in Stainless Steel AISI 303 **NI**

Plunger

Stainless Steel AISI 303

Spring

Stainless Steel AISI 301

Lifting ring / Wire loop

Stainless Steel AISI 301

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

GN 717 Indexing plungers are characterized by small dimensions. These indexing plungers are universally applicable due to their prevention of misalignments and positioning errors of the mating indexing bores.

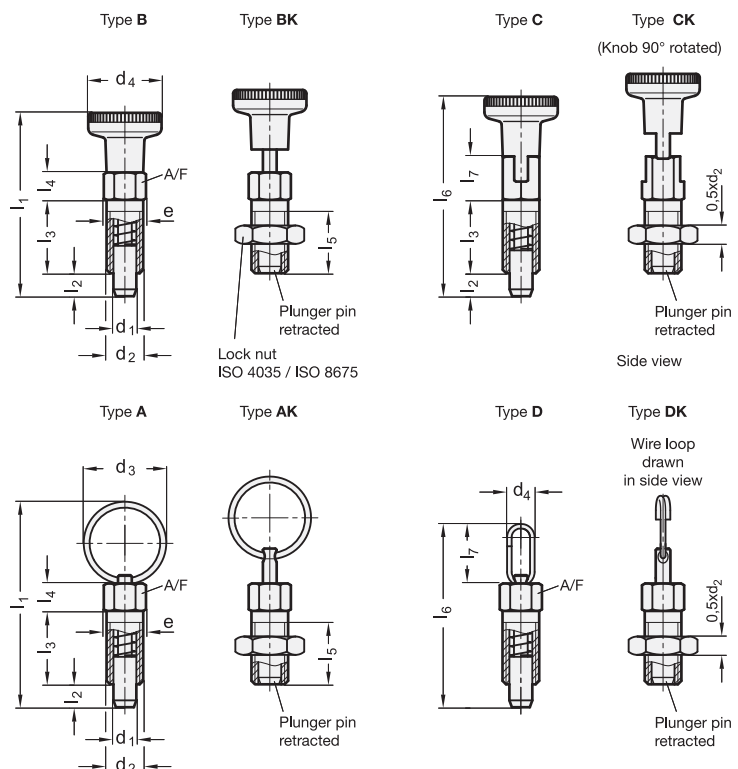
The type C / CK with rest position are used for such applications where the plunger has to stay in its retracted position.

During assembly, the max. tightening torques shown in the table should not be exceeded when securing the lock nut.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



* Complete with Material of the Indexing plungers (ST or NI)

ST
Steel

NI
Stainless Steel

GN 717

Description	d1 Bore +0.03/+0.08 Plunger 0.05	d2	d3	d4	e	l1	l2	l3	l4	l5 min.	l6	l7	A/F	Max. tight- ening torque in Nm	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 717-3-M6-A-*	3	M 6	14	-	6.9	-	3.5	12	4.5	10	-	-	6	2	3	12	5
GN 717-3-M6x0,75-A-*	3	M 6 x 0.75	14	-	6.9	-	3.5	12	4.5	10	-	-	6	3	3	12	5
GN 717-4-M6-A-*	4	M 6	14	-	6.9	-	4	12	4.5	10	-	-	6	2	3	12	5
GN 717-4-M8x1-A-*	4	M 8 x 1	14	-	9.2	-	4.5	16	6	13.5	-	-	8	8	5	24	10
GN 717-5-M8-A-*	5	M 8	18	-	9.2	-	5	16	6	13.5	-	-	8	7	5	24	9
GN 717-5-M8x1-A-*	5	M 8 x 1	18	-	9.2	-	5	16	6	13.5	-	-	8	7	5	24	14
GN 717-5-M10x1-A-*	5	M 10 x 1	18	-	11.5	-	5	16	6	13.5	-	-	10	22	5	24	14
GN 717-6-M10-A-*	6	M 10	24	-	11.5	-	6	20	7.5	17	-	-	10	15	5	21	18
GN 717-6-M12x1,5-A-*	6	M 12 x 1.5	24	-	13.8	-	6	20	7.5	16.5	-	-	12	38	5	21	24
GN 717-8-M12-A-*	8	M 12	30	-	13.8	-	8	24	9	20.5	-	-	12	20	6	22	31
GN 717-8-M12x1,5-A-*	8	M 12 x 1.5	30	-	13.8	-	8	24	9	20.5	-	-	12	20	6	22	33
GN 717-8-M16x1,5-A-*	8	M 16 x 1.5	30	-	19.6	-	8	24	9	20.5	-	-	17	80	6	22	55
GN 717-10-M16x1,5-A-*	10	M 16 x 1.5	30	-	19.6	-	10	26	9	22.5	-	-	17	80	4	25	56
GN 717-3-M6-AK-*	3	M 6	14	-	6.9	-	3.5	12	4.5	10	-	-	6	2	3	12	3
GN 717-3-M6x0,75-AK-*	3	M 6 x 0.75	14	-	6.9	-	3.5	12	4.5	10	-	-	6	3	3	12	6
GN 717-4-M6-AK-*	4	M 6	14	-	6.9	-	4	12	4.5	10	-	-	6	2	3	12	6
GN 717-4-M8x1-AK-*	4	M 8 x 1	18	-	9.2	-	4.5	16	6	13.5	-	-	8	8	5	24	12
GN 717-5-M8-AK-*	5	M 8	18	-	9.2	-	5	16	6	13.5	-	-	8	7	5	24	12
GN 717-5-M8x1-AK-*	5	M 8 x 1	18	-	9.2	-	5	16	6	13.5	-	-	8	7	5	24	14
GN 717-5-M10x1-AK-*	5	M 10 x 1	18	-	11.5	-	5	16	6	13.5	-	-	10	22	5	24	19
GN 717-6-M10-AK-*	6	M 10	24	-	11.5	-	6	20	7.5	17	-	-	10	15	5	21	23
GN 717-6-M12x1,5-AK-*	6	M 12 x 1.5	24	-	13.8	-	6	20	7.5	16.5	-	-	12	38	5	21	31
GN 717-8-M12-AK-*	8	M 12	30	-	13.8	-	8	24	9	20.5	-	-	12	20	6	22	39
GN 717-8-M12x1,5-AK-*	8	M 12 x 1.5	30	-	13.8	-	8	24	9	20.5	-	-	12	20	6	22	40
GN 717-8-M16x1,5-AK-*	8	M 16 x 1.5	30	-	19.6	-	8	24	9	20.5	-	-	17	80	6	22	71
GN 717-10-M16x1,5-AK-*	10	M 16 x 1.5	30	-	19.6	-	10	26	9	22.5	-	-	17	80	4	25	81
GN 717-3-M6-B-*	3	M 6	-	12	6.9	30	3.5	12	4.5	10	-	-	6	2	3	12	4
GN 717-3-M6x0,75-B-*	3	M 6 x 0.75	-	12	6.9	30	3.5	12	4.5	10	-	-	6	3	3	12	5
GN 717-4-M6-B-*	4	M 6	-	12	6.9	30.5	4	12	4.5	10	-	-	6	2	3	12	5
GN 717-4-M8x1-B-*	4	M 8 x 1	-	16	9.2	39.5	4.5	16	6	13.5	-	-	8	8	5	24	10
GN 717-5-M8-B-*	5	M 8	-	16	9.2	40	5	16	6	13.5	-	-	8	7	5	24	10
GN 717-5-M8x1-B-*	5	M 8 x 1	-	16	9.2	40	5	16	6	13.5	-	-	8	7	5	24	10
GN 717-5-M10x1-B-*	5	M 10 x 1	-	18	11.5	42.5	5	16	6	13.5	-	-	10	22	5	24	15
GN 717-6-M10-B-*	6	M 10	-	18	11.5	49	6	20	7.5	17	-	-	10	15	5	21	19
GN 717-6-M12x1,5-B-*	6	M 12 x 1.5	-	21	13.8	52	6	20	7.5	16.5	-	-	12	38	5	21	27
GN 717-8-M12-B-*	8	M 12	-	21	13.8	59	8	24	9	20.5	-	-	12	20	6	22	32
GN 717-8-M12x1,5-B-*	8	M 12 x 1.5	-	21	13.8	59	8	24	9	20.5	-	-	12	20	6	22	33
GN 717-8-M16x1,5-B-*	8	M 16 x 1.5	-	25	19.6	63.5	8	24	9	20.5	-	-	17	80	6	22	55
GN 717-10-M16x1,5-B-*	10	M 16 x 1.5	-	25	19.6	67.5	10	26	9	22.5	-	-	17	80	4	25	19
GN 717-3-M6-BK-*	3	M 6	-	12	6.9	30	3.5	12	4.5	10	-	-	6	2	3	12	6
GN 717-3-M6x0,75-BK-*	3	M 6 x 0.75	-	12	6.9	30	3.5	12	4.5	10	-	-	6	3	3	12	6
GN 717-4-M6-BK-*	4	M 6	-	12	6.9	30.5	4	12	4.5	10	-	-	6	2	3	12	6
GN 717-4-M8x1-BK-*	4	M 8 x 1	-	16	9.2	39.5	4.5	16	6	13.5	-	-	8	8	5	24	13
GN 717-5-M8-BK-*	5	M 8	-	16	9.2	40	5	16	6	13.5	-	-	8	7	5	24	13
GN 717-5-M8x1-BK-*	5	M 8 x 1	-	16	9.2	40	5	16	6	13.5	-	-	8	7	5	24	13
GN 717-5-M10x1-BK-*	5	M 10 x 1	-	18	11.5	42.5	5	16	6	13.5	-	-	10	22	5	24	21
GN 717-6-M10-BK-*	6	M 10	-	18	11.5	49	6	20	7.5	17	-	-	10	15	5	21	24
GN 717-6-M12x1,5-BK-*	6	M 12 x 1.5	-	21	13.8	52	6	20	7.5	16.5	-	-	12	38	5	21	36
GN 717-8-M12-BK-*	8	M 12	-	21	13.8	59	8	24	9	20.5	-	-	12	20	6	22	41
GN 717-8-M12x1,5-BK-*	8	M 12 x 1.5	-	21	13.8	59	8	24	9	20.5	-	-	12	20	6	22	44
GN 717-8-M16x1,5-BK-*	8	M 16 x 1.5	-	25	19.6	63.5	8	24	9	20.5	-	-	17	80	6	22	71
GN 717-10-M16x1,5-BK-*	10	M 16 x 1.5	-	25	19.6	67.5	10	26	9	22.5	-	-	17	80	4	25	67

Weight ST



* Complete with Material of the Indexing plungers (ST or NI)

ST
Steel

NI
Stainless Steel

GN 717

Description	d1 Bore +0.03/+0.08 Plunger 0.05	d2	d3	d4	e	l1	l2	l3	l4	l5 min.	l6	l7	A/F	Max. tightening torque in Nm	Spring load in N ≈ initial	Spring load in N ≈ end	
GN 717-3-M6-C-*	3	M 6	-	12	6.9	-	3.5	12	-	10	32.5	7	6	2	3	12	5
GN 717-3-M6x0,75-C-*	3	M 6 x 0,75	-	12	6.9	-	3.5	12	-	10	32.5	7	6	3	3	12	6
GN 717-4-M6-C-*	4	M 6	-	12	6.9	-	4	12	-	10	33	7	6	2	3	12	5
GN 717-4-M8x1-C-*	4	M 8 x 1	-	16	9.2	-	4.5	16	-	13.5	43	9.5	8	8	5	24	11
GN 717-5-M8-C-*	5	M 8	-	16	9.2	-	5	16	-	13.5	43.5	9.5	8	7	5	24	11
GN 717-5-M8x1-C-*	5	M 8 x 1	-	16	9.2	-	5	16	-	13.5	43.5	9.5	8	7	5	24	11
GN 717-5-M10x1-C-*	5	M 10 x 1	-	18	11.5	-	5	16	-	13.5	46	9.5	10	22	5	24	17
GN 717-6-M10-C-*	6	M 10	-	18	11.5	-	6	20	-	17	52	10.5	10	15	5	21	19
GN 717-6-M12x1,5-C-*	6	M 12 x 1.5	-	21	13.8	-	6	20	-	16.5	55	10.5	12	38	5	21	28
GN 717-8-M12-C-*	8	M 12	-	21	13.8	-	8	24	-	20.5	63.5	13.5	12	20	6	22	33
GN 717-8-M12x1,5-C-*	8	M 12 x 1.5	-	21	13.8	-	8	24	-	20.5	63.5	13.5	12	20	6	22	34
GN 717-8-M16x1,5-C-*	8	M 16 x 1.5	-	25	19.6	-	8	24	-	20.5	68	13.5	17	80	6	22	60
GN 717-10-M16x1,5-C-*	10	M 16 x 1.5	-	25	19.6	-	10	26	-	22.5	72.5	14	17	80	4	25	66
GN 717-3-M6-CK-*	3	M 6	-	12	6.9	-	3.5	12	-	10	32.5	7	6	2	3	12	7
GN 717-3-M6x0,75-CK-*	3	M 6 x 0,75	-	12	6.9	-	3.5	12	-	10	32.5	7	6	3	3	12	7
GN 717-4-M6-CK-*	4	M 6	-	12	6.9	-	4	12	-	10	33	7	6	2	3	12	6
GN 717-4-M8x1-CK-*	4	M 8 x 1	-	16	9.2	-	4.5	16	-	13.5	43	9.5	8	8	5	24	13
GN 717-5-M8-CK-*	5	M 8	-	16	9.2	-	5	16	-	13.5	43.5	9.5	8	7	5	24	14
GN 717-5-M8x1-CK-*	5	M 8 x 1	-	16	9.2	-	5	16	-	13.5	43.5	9.5	8	7	5	24	14
GN 717-5-M10x1-CK-*	5	M 10 x 1	-	18	11.5	-	5	16	-	13.5	46	9.5	10	22	5	24	20
GN 717-6-M10-CK-*	6	M 10	-	18	11.5	-	6	20	-	17	52	10.5	10	15	5	21	24
GN 717-6-M12x1,5-CK-*	6	M 12 x 1.5	-	21	13.8	-	6	20	-	16.5	55	10.5	12	38	5	21	36
GN 717-8-M12-CK-*	8	M 12	-	21	13.8	-	8	24	-	20.5	63.5	13.5	12	20	6	22	57
GN 717-8-M12x1,5-CK-*	8	M 12 x 1.5	-	21	13.8	-	8	24	-	20.5	63.5	13.5	12	20	6	22	23
GN 717-8-M16x1,5-CK-*	8	M 16 x 1.5	-	25	19.6	-	8	24	-	20.5	68	13.5	17	80	6	22	81
GN 717-10-M16x1,5-CK-*	10	M 16 x 1.5	-	25	19.6	-	10	26	-	22.5	72.5	14	17	80	4	25	84
GN 717-3-M6-D-*	3	M 6	-	6	6.9	-	3.5	12	-	10	32.7	12.9	6	2	3	12	5
GN 717-3-M6x0,75-D-*	3	M 6 x 0,75	-	6	6.9	-	3.5	12	-	10	32.7	12.9	6	3	3	12	6
GN 717-4-M6-D-*	4	M 6	-	6	6.9	-	4	12	-	10	33.2	12.9	6	2	3	12	5
GN 717-4-M8x1-D-*	4	M 8 x 1	-	6	9.2	-	4.5	16	-	13.5	42.5	15.5	8	8	5	24	11
GN 717-5-M8-D-*	5	M 8	-	7.2	9.2	-	5	16	-	13.5	42.5	15.5	8	7	5	24	11
GN 717-5-M8x1-D-*	5	M 8 x 1	-	7.2	9.2	-	5	16	-	13.5	42.5	15.5	8	7	5	24	11
GN 717-5-M10x1-D-*	5	M 10 x 1	-	7.2	11.5	-	5	16	-	13.5	42.5	15.5	10	22	5	24	17
GN 717-6-M10-D-*	6	M 10	-	9.5	11.5	-	6	20	-	17	54.4	15.5	10	15	5	21	19
GN 717-6-M12x1,5-D-*	6	M 12 x 1.5	-	9.5	13.8	-	6	20	-	16.5	54.4	20.9	12	38	5	21	28
GN 717-8-M12-D-*	8	M 12	-	11.8	13.8	-	8	24	-	20.5	67.2	20.9	12	20	6	22	33
GN 717-8-M12x1,5-D-*	8	M 12 x 1.5	-	11.8	13.8	-	8	24	-	20.5	67.2	20.9	12	20	6	22	33
GN 717-8-M16x1,5-D-*	8	M 16 x 1.5	-	11.8	19.6	-	8	24	-	20.5	67.2	25.9	17	80	6	22	52
GN 717-10-M16x1,5-D-*	10	M 16 x 1.5	-	11.8	19.6	-	10	26	-	22.5	70.9	25.9	17	80	4	25	66
GN 717-3-M6-DK-*	3	M 6	-	6	6.9	-	3.5	12	-	10	32.7	12.9	6	2	3	12	7
GN 717-3-M6x0,75-DK-*	3	M 6 x 0,75	-	6	6.9	-	3.5	12	-	10	32.7	12.9	6	3	3	12	7
GN 717-4-M6-DK-*	4	M 6	-	6	6.9	-	4	12	-	10	32.7	12.9	6	2	3	12	6
GN 717-4-M8x1-DK-*	4	M 8 x 1	-	7.2	9.2	-	4.5	16	-	13.5	42.5	15.5	8	8	5	24	13
GN 717-5-M8-DK-*	5	M 8	-	7.2	9.2	-	5	16	-	13.5	42.5	15.5	8	7	5	24	14
GN 717-5-M8x1-DK-*	5	M 8 x 1	-	7.2	9.2	-	5	16	-	13.5	42.5	15.5	8	7	5	24	14
GN 717-5-M10x1-DK-*	5	M 10 x 1	-	7.2	11.5	-	5	16	-	13.5	42.5	15.5	10	22	5	24	20
GN 717-6-M10-DK-*	6	M 10	-	9.5	11.5	-	6	20	-	17	54.5	20.9	10	15	5	21	24
GN 717-6-M12x1,5-DK-*	6	M 12 x 1.5	-	9.5	13.8	-	6	20	-	16.5	54.4	20.9	12	38	5	21	36
GN 717-8-M12-DK-*	8	M 12	-	11.8	13.8	-	8	24	-	20.5	67.2	25.9	12	20	6	22	43
GN 717-8-M12x1,5-DK-*	8	M 12 x 1.5	-	11.8	13.8	-	8	24	-	20.5	67.2	25.9	12	20	6	22	64
GN 717-8-M16x1,5-DK-*	8	M 16 x 1.5	-	11.8	19.6	-	8	24	-	20.5	67.2	25.9	17	80	6	22	81
GN 717-10-M16x1,5-DK-*	10	M 16 x 1.5	-	11.8	19.6	-	10	26	-	22.5	70.9	25.9	17	80	4	25	84

Weight ST



Indexing plungers

Steel / Stainless Steel, with lever,
with and without rest position

SPECIFICATION

Types

- Type **B**: without rest position, without locknut
- Type **BK**: without rest position, with locknut
- Type **C**: with rest position, without locknut
- Type **CK**: with rest position, with locknut
- Version in Steel zinc plated, blue passivated **ST**
- Version in Stainless Steel AISI 303 **NI**

Spring
Stainless Steel AISI 301

INFORMATION

GN 7017 indexing plungers are activated through a lever and are characterized by small dimensions. These indexing plungers are universally applicable due to their prevention of misalignments and positioning errors of the mating indexing bores.

The type C / CK with rest position are used for such applications where the plunger has to stay in its retracted position.

During assembly, the max. tightening torques shown in the table should not be exceeded when securing the lock nut

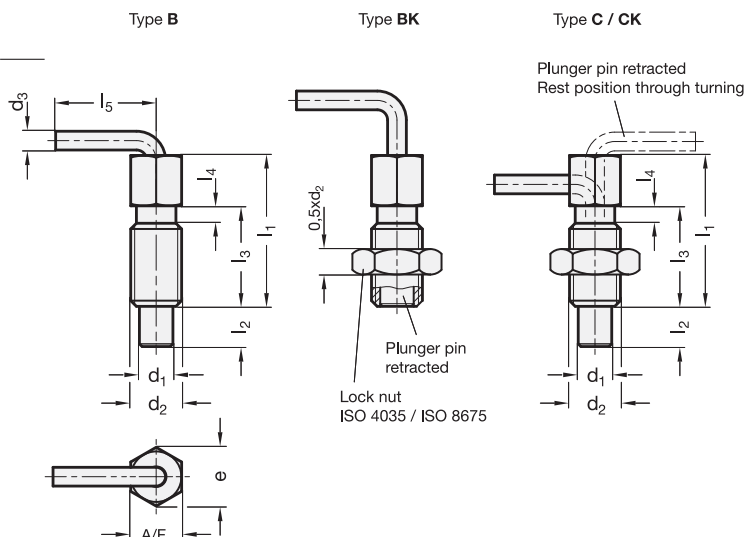
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)

*Complete with type index of the Indexing plungers (B, BK, C or CK)

B BK C CK



GN 7017

Description	d1 Bore +0.03/+0.08 Pin h11	d2	d3	e	l1	l2 min.	l3	l4	l5 min.	A/F	Max. tightening torque in Nm	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 7017-4-M6-*-ST	4	M 6	2.5	6.9	32	9.5	20	2.5	16	6	1.6	3	10	6
GN 7017-5-M8-*-ST	5	M 8	3	9.2	42	12	27	3.1	19.5	8	4.5	3.5	13.5	18
GN 7017-6-M10-*-ST	6	M 10	3.5	11.5	51	14	33.5	3.7	24	10	10	4	16	30
GN 7017-8-M12-*-ST	8	M 12	5	13.8	54	19	31.8	4.3	32	12	13	4	22	46
GN 7017-10-M16-*-ST	10	M 16	5	19.6	77.5	25	50.5	5	33.5	16	42	4	23	110

GN 7017-NI

STAINLESS STEEL

Description	d1 Bore +0.03/+0.08 Pin h11	d2	d3	e	l1	l2 min.	l3	l4	l5 min.	A/F	Max. tightening torque in Nm	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 7017-4-M6-*-NI	4	M 6	2.5	6.9	32	9.5	20	2.5	16	6	1.6	3	10	22
GN 7017-5-M8-*-NI	5	M 8	3	9.2	42	12	27	3.1	19.5	8	4.5	3.5	13.5	30
GN 7017-6-M10-*-NI	6	M 10	3.5	11.5	51	14	33.5	3.7	24	10	10	4	16	38
GN 7017-8-M12-*-NI	8	M 12	5	13.8	54	19	31.8	4.3	32	12	13	4	22	39
GN 7017-10-M16-*-NI	10	M 16	5	19.6	77.5	25	50.5	5	33.5	16	42	4	23	70

Weight type B



88

Indexing elements

Indexing plungers

Steel / Stainless Steel, with and without rest position

SPECIFICATION

Types

- Type **A**: without rest position, without lock nut
- Type **AK**: without rest position, with lock nut
- Type **C**: with rest position, without lock nut
- Type **CK**: with rest position, with lock nut

Guide (Threaded socket)

Version in Steel **ST**
blackened

Guide (Threaded socket)

Version in Stainless Steel AISI 303 **NI**

Pin

Stainless Steel AISI 303

chemically nickel plated

Spring / Lifting ring

Stainless Steel AISI 301



INFORMATION

Owing to its shape, the lifting ring of the indexing plungers GN 413 can be used both as a screw-in assist during assembly or as indexing lock (Type C / Type CK).

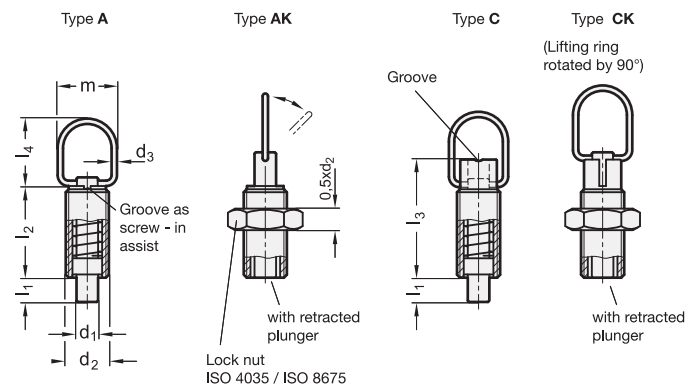
Indexing plungers with rest position are used when the indexing pin is temporarily not allowed to protrude. After the pin is pulled in, turn the pull ring by 90°. The ring is held in position by an indexing notch.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)

* Complete with type index of the Indexing plungers (A, AK, C or CK)

A AK C CK



GN 413

Description	d1 Pin -0.05/-0.10 Bore H7	d2	d3	l1 min.	l2	l3	l4	m	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 413-5-M10-*-ST	5	M 10	1.5	5	22	28	23	18	5	15	11
GN 413-5-M10x1-*-ST	5	M 10 x 1	1.5	5	22	28	23	18	5	15	12
GN 413-6-M12-*-ST	6	M 12	2	6	24	31	25	22	6	21	18
GN 413-6-M12x1,5-*-ST	6	M 12 x 1.5	2	6	24	31	25	22	6	21	18
GN 413-8-M16-*-ST	8	M 16	2	9	34	44	25	22	7	27	45
GN 413-8-M16x1,5-*-ST	8	M 16 x 1.5	2	9	34	44	25	22	7	27	45
GN 413-10-M16-*-ST	10	M 16	2	9	34	44	25	22	7	27	47
GN 413-10-M16x1,5-*-ST	10	M 16 x 1.5	2	9	34	44	25	22	7	27	47

GN 413-NI

STAINLESS STEEL

Description	d1 Pin -0.05/-0.10 Bore H7	d2	d3	l1 min.	l2	l3	l4	m	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 413-5-M10-*-NI	5	M 10	1.5	5	22	28	23	18	5	15	11
GN 413-5-M10x1-*-NI	5	M 10 x 1	1.5	5	22	28	23	18	5	15	12
GN 413-6-M12-*-NI	6	M 12	2	6	24	31	25	22	6	21	18
GN 413-6-M12x1,5-*-NI	6	M 12 x 1.5	2	6	24	31	25	22	6	21	18
GN 413-8-M16-*-NI	8	M 16	2	9	34	44	25	22	7	27	42
GN 413-8-M16x1,5-*-NI	8	M 16 x 1.5	2	9	34	44	25	22	7	27	45
GN 413-10-M16-*-NI	10	M 16	2	9	34	44	25	22	7	27	47
GN 413-10-M16x1,5-*-NI	10	M 16 x 1.5	2	9	34	44	25	22	7	27	47

Weight type A

Indexing plungers

Steel / Stainless Steel, without rest position

SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Version in Steel ST

- blackened
- Pin hardened

Version in Stainless Steel AISI 303 NI

Pin chemically nickel plated

Knob

Plastic (Polyamide PA)

- black, matt
- not removable

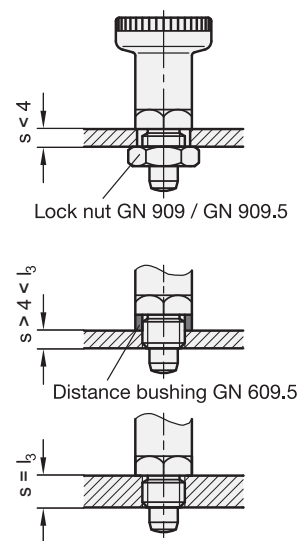
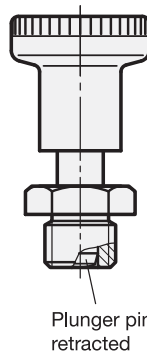
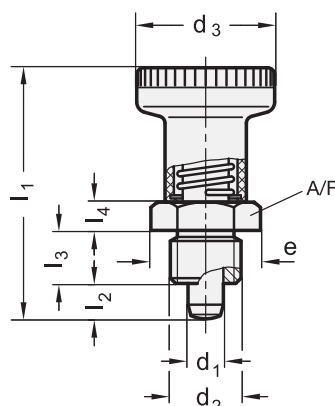
INFORMATION

Indexing plungers GN 607 are distinguished for their small dimensions. The extremely low lock nuts GN 909 (see page 809) / GN 909.5 (see page 809) enlarge the mounting options.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



GN 607

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e ≈	l1	l2 ±0.5	l3 -0.15	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 607-6-A-ST	6	M 12 x 1.5	25	19.6	45	6	10	5	17	11	28	400	34
GN 607-8-A-ST	8	M 16 x 1.5	31	21.9	54	8	12	6	19	15	29	500	61
GN 607-6-AK-ST	6	M 12 x 1.5	25	19.6	45	6	10	5	17	11	28	400	40
GN 607-8-AK-ST	8	M 16 x 1.5	31	21.9	54	8	12	6	19	15	29	500	62

GN 607-NI

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e ≈	l1	l2 ±0.5	l3 -0.15	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 607-6-A-NI	6	M 12 x 1.5	25	19.6	45	6	10	5	17	9	25	400	40
GN 607-8-A-NI	8	M 16 x 1.5	31	21.9	54	8	12	6	19	13	26	500	60
GN 607-6-AK-NI	6	M 12 x 1.5	25	19.6	45	6	10	5	17	9	25	400	43
GN 607-8-AK-NI	8	M 16 x 1.5	31	21.9	54	8	12	6	19	13	26	500	70



Indexing plungers

Steel / Stainless Steel, with rest position

SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Version in Steel ST

- blackened
- Pin hardened

Version in Stainless Steel AISI 303 NI

Pin chemically nickel plated

Knob

Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

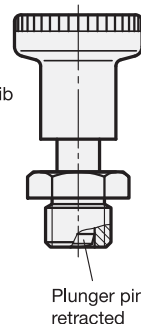
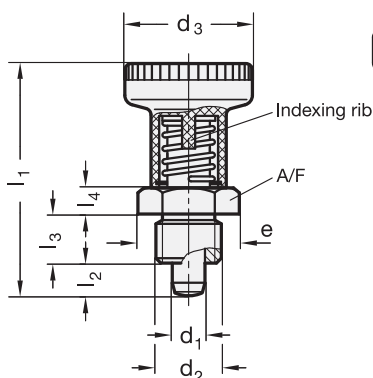
Indexing plungers GN 607.1 with rest position are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is roated by 90° degrees after being retracted. A notch keep the plunger in this position.

Indexing plungers GN 607.1 are distinguished for their small dimensions. The extremely low lock nuts GN 909 (see page 809) / GN 909.5 (see page 809) enlarge the mounting options. The locking tab is an integral part of the knob thus giving reliable operations at all times.

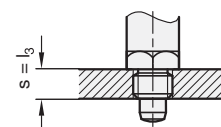
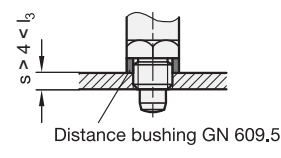
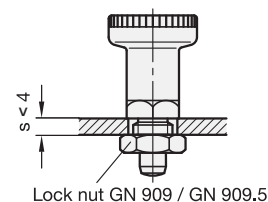
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



Assembly examples



GN 607.1

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e ≈	l1	l2 ±0.5	l3 -0.15	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 607.1-6-A-ST	6	M 12 x 1.5	25	19.6	45	6	10	5	17	11	28	400	34
GN 607.1-8-A-ST	8	M 16 x 1.5	31	21.9	54	8	12	6	19	15	29	500	59
GN 607.1-6-AK-ST	6	M 12 x 1.5	25	19.6	45	6	10	5	17	11	28	400	39
GN 607.1-8-AK-ST	8	M 16 x 1.5	31	21.9	54	8	12	6	19	15	29	500	69

GN 607.1-NI

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e ≈	l1	l2 ±0.5	l3 -0.15	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 607.1-6-A-NI	6	M 12 x 1.5	25	19.6	45	6	10	5	17	9	25	400	34
GN 607.1-8-A-NI	8	M 16 x 1.5	31	21.9	54	8	12	6	19	13	26	500	50
GN 607.1-6-AK-NI	6	M 12 x 1.5	25	19.6	45	6	10	5	17	9	25	400	42
GN 607.1-8-AK-NI	8	M 16 x 1.5	31	21.9	54	8	12	6	19	13	26	500	78

Indexing plungers

for installation in thin walled equipment, without rest position

SPECIFICATION

Guide Steel **ST**

zinc plated, blue passivated

Pin Stainless Steel AISI 303

chemically nickel plated

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

Indexing plungers GN 607.2 have been developed for installation in thin walled equipment.

It has to be taken into consideration that, depending on the mounting plate thickness 's', the protruding plunger length 'l₁' and the position of the hexagon nut on its centre bush, the plunger nose might not always be fully retractable.

For design reasons the positional accuracy of this indexing plunger is not as precise as plunger GN 607 (see page 769).

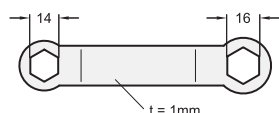
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

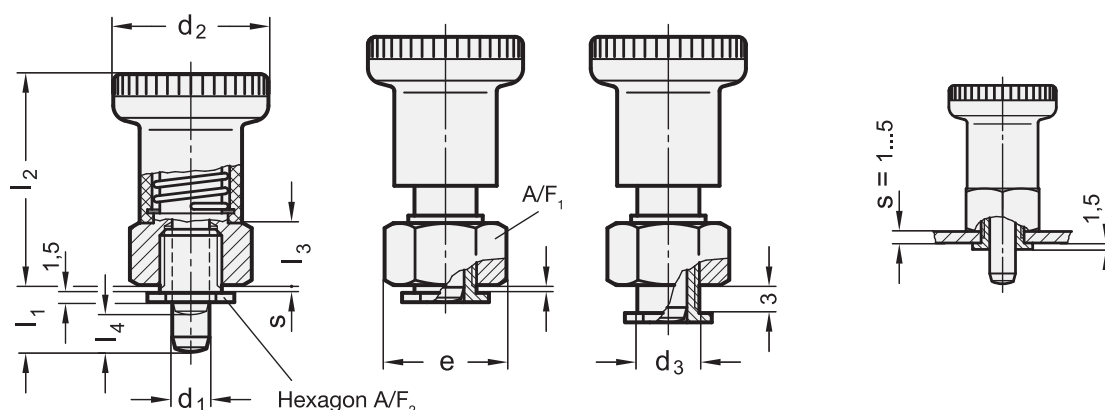
ACCESSORY

- Double ring spanner GN 607.9 - SW14-SW16 (assembling aid)



Plunger pin retracted

Assembly instruction



GN 607.2

Description	d1 Pin -0.02/-0.05 Bore G7	l1	d2	d3	e	l2	l3	l4	s	A/F 1	A/F 2	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	
GN 607.2-6-8,5-ST	6	8.5	25	10	19.5	34	10	6	1...5	17	14	9	25	400	40
GN 607.2-6-10,5-ST	6	10.5	25	10	19.5	34	10	6	1...5	17	14	9	26	400	40
GN 607.2-8-10-ST	8	10	31	12	22	40	12	7.5	1...5	19	16	13	25	500	62
GN 607.2-8-12-ST	8	12	31	12	22	40	12	7.5	1...5	19	16	13	26	500	63

Indexing plungers

for installation in thin walled equipment, with rest position

SPECIFICATION

Guide Steel **ST**

zinc plated, blue passivated

Pin Stainless Steel AISI 303

chemically nickel plated

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

Indexing plungers GN 607.3 have been developed for installation in thin walled equipment.

It has to be taken into consideration that, depending on the mounting plate thickness 's', the protruding plunger length 'l₁' and the position of the hexagon nut on its centre bush, the plunger nose might not always be fully retractable.

For design reasons the positional accuracy of this indexing plunger is not as precise as plunger GN 607 (see page 769).

Indexing plungers with rest position are used for such applications where the plunger pin has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

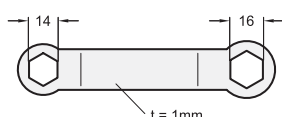
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

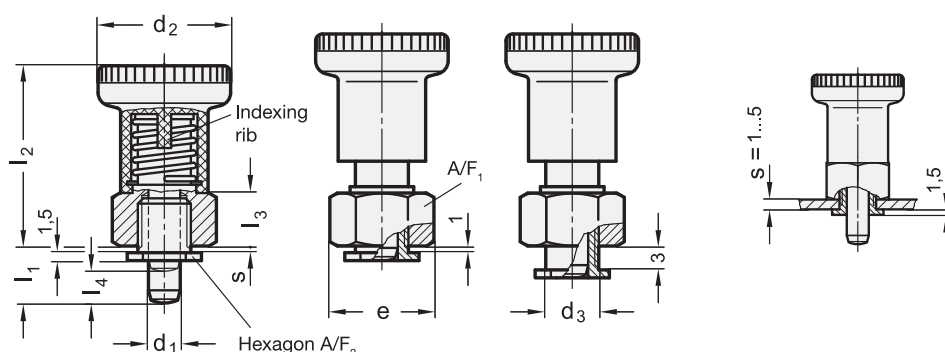
ACCESSORY

- Double ring spanner GN 607.9 -SW14-SW16 (assembling aid)



Plunger pin retracted

Assembly instruction



GN 607.3

Description	d1 Pin -0.02/-0.05 Bore G7	l1	d2	d3	e	l2	l3	l4	s	A/F 1	A/F 2	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	
GN 607.3-6-8,5-ST	6	8.5	25	10	19.5	34	10	6	1...5	17	14	9	25	400	39
GN 607.3-6-10,5-ST	6	10.5	25	10	19.5	34	10	6	1...5	17	14	9	25	400	39
GN 607.3-8-10-ST	8	10	31	12	22	40	12	7.5	1...5	19	16	13	26	500	62
GN 607.3-8-12-ST	8	12	31	12	22	40	12	7.5	1...5	19	16	13	26	500	61

Indexing plungers for welding, without rest position

SPECIFICATION

Steel **ST**

- blackened
- Pin hardened

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

Indexing plungers GN 607.4 are designed for welded fixing, in particular for use in steel square tubings.

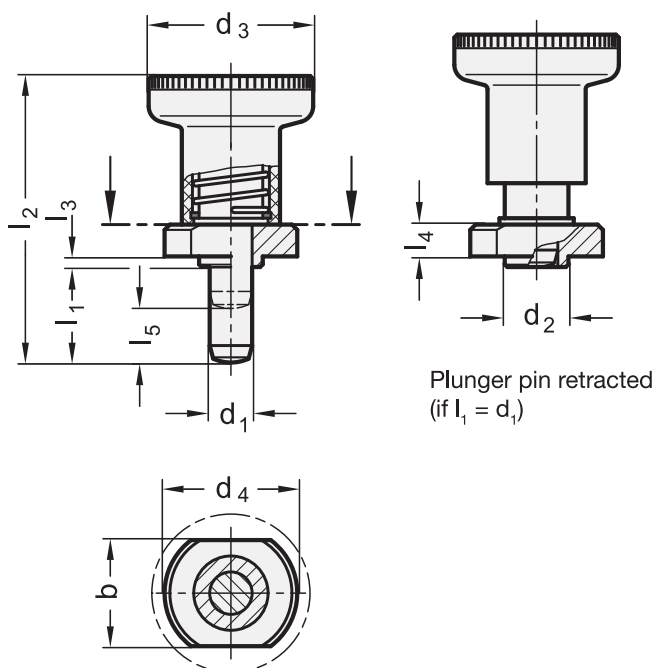
The lug d_2 is intended for positioning.

The plastic knob with the in-moulded indexing pin is driven on after the welding process.

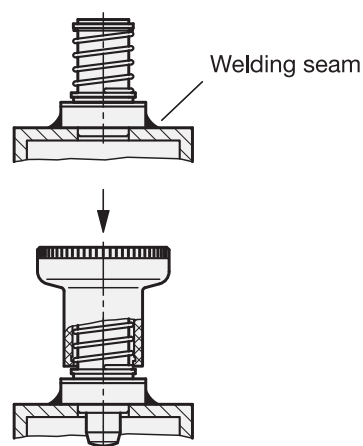
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



Assembly instruction



To prevent damage of the plastic knob, it will be driven onto the shaft using a plastic mallet, after the welding process.

GN 607.4

Description	d1 Pin -0.02/-0.05 Bore +0.30/+0.25	l1	b +0.3	d2 -0.02/-0.1	d3	d4	l2	l3	l4	l5	Spring load in N $\approx$ initial	Spring load in N $\approx$ end	Axial load in N	
GN 607.4-6-6-ST	6	6	18	10	25	22	37	1.5	5.5	6	11	28	400	35
GN 607.4-6-14-ST	6	14	18	10	25	22	45	1.5	5.5	6	11	28	400	36
GN 607.4-8-8-ST	8	8	20	12	31	25	44	2	6.5	8	15	29	500	55
GN 607.4-8-18-ST	8	18	20	12	31	25	54	2	6.5	8	15	29	500	60

Indexing plungers

for welding, with rest position

SPECIFICATION

Steel **ST**

- blackened
- Pin hardened

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

Indexing plungers GN 607.5 with rest position are used in cases where the indexing pin is temporarily not allowed to protrude. After pulling out, the knob is turned by 90°.

A notch keeps the plunger in this position.

The GN 607.5 indexing plungers are intended for welded fixing, in particular for use in steel square tubings.

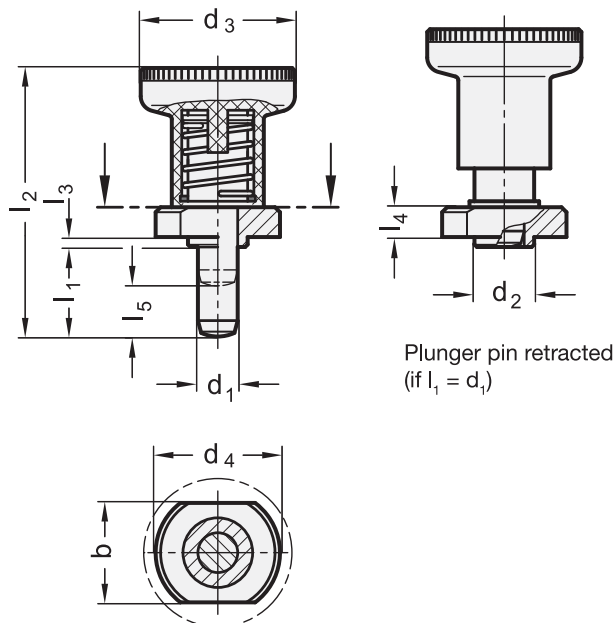
The lug d₂ is intended for positioning.

The plastic knob with the in-moulded indexing pin is driven on after the welding process.

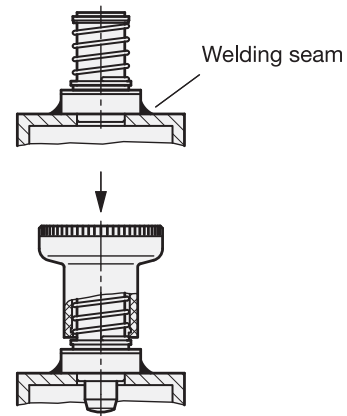
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Load rating information (see page A42)



Assembly instruction



To prevent damage of the plastic knob, it will be driven onto the shaft using a plastic mallet, after the welding process.

GN 607.5

Description	d1 Pin -0.02/-0.05 Bore +0.30/+0.25	l1	b	d2 -0.02/-0.1	d3	d4	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	
GN 607.5-6-6-ST	6	6	18	10	25	22	37	1.5	5.5	6	9	25	400	34
GN 607.5-6-14-ST	6	14	18	10	25	22	45	1.5	5.5	6	9	25	400	36
GN 607.5-8-8-ST	8	8	20	12	31	25	44	2	6.5	8	13	26	500	54
GN 607.5-8-18-ST	8	18	20	12	31	25	54	2	6.5	8	13	26	500	62



Indexing plungers

without rest position

SPECIFICATION

Guide
Zinc die casting
zinc plated, blue passivated

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

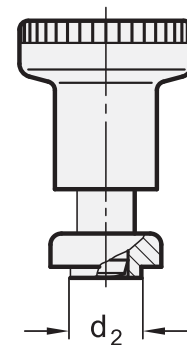
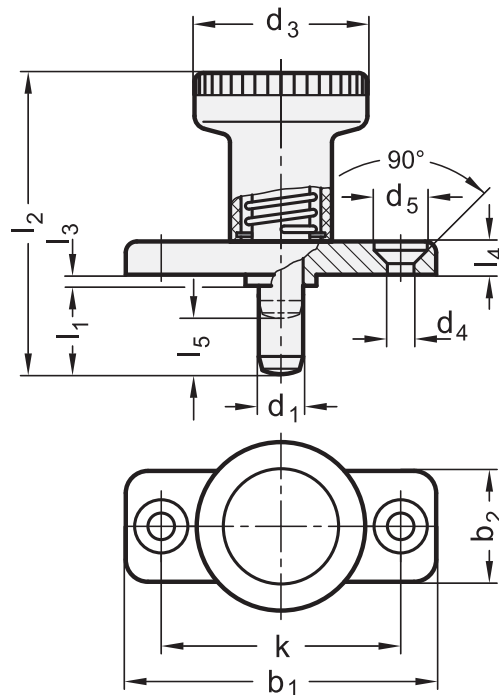
Pin
Steel, hardened
Single components Steel / Brass

INFORMATION

Indexing plungers GN 608 are distinguished for their small dimensions.
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



Plunger retracted
(if $l_1 = d_1$)

GN 608

Description	d1 Pin -0.02/-0.05 Bore H7	l1	b1	b2	d2 -0.02/-0.1	d3	d4	l3 -0.15	l4	l5	Spring load in N $\approx$ initial	Spring load in N $\approx$ end	Axial load in N	
GN 608-6-6	6	6	40	18	10	25	4.3	2.5	4.5	6	9	25	400	36
GN 608-6-14	6	14	40	18	10	25	4.3	2.5	4.5	6	9	25	400	39
GN 608-8-8	8	8	46	20	12	31	5.3	2.5	4.5	8	13	26	500	59
GN 608-8-18	8	18	46	20	12	31	5.3	2.5	4.5	8	13	26	500	64

Indexing plungers with Stainless Steel-Plunger

without rest position

SPECIFICATION

Guide
Zinc die casting
zinc plated, blue passivated

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

Pin Stainless Steel AISI 303
chemically nickel plated

Single components Stainless Steel

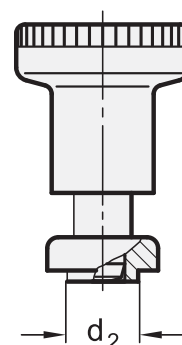
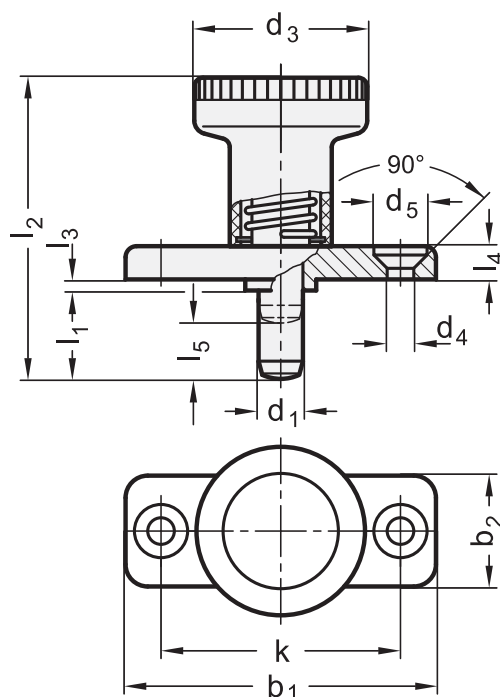
INFORMATION

Indexing plungers with Stainless Steel-Plunger GN 608.5 are distinguished for their small dimensions.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



Plunger retracted
(if $l_1 = d_1$)

GN 608.5

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	l1	b1	b2	d2 -0.02/-0.1	d3	d4	l3 -0.15	l4	l5	Spring load in N $\approx$ initial	Spring load in N $\approx$ end	Axial load in N	
GN 608.5-6-6	6	6	40	18	10	25	4.3	2.5	4.5	6	9	25	400	36
GN 608.5-6-14	6	14	40	18	10	25	4.3	2.5	4.5	6	9	25	400	38
GN 608.5-8-8	8	8	46	20	12	31	5.3	2.5	4.5	8	13	26	500	50
GN 608.5-8-18	8	18	46	20	12	31	5.3	2.5	4.5	8	13	26	500	59

Indexing plungers

with rest position

SPECIFICATION

Guide
Zinc die casting
zinc plated, blue passivated

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

Pin
Steel, hardened
Single components Steel / Brass

INFORMATION

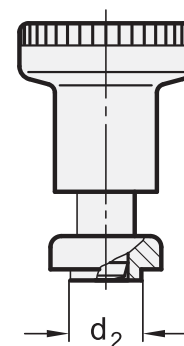
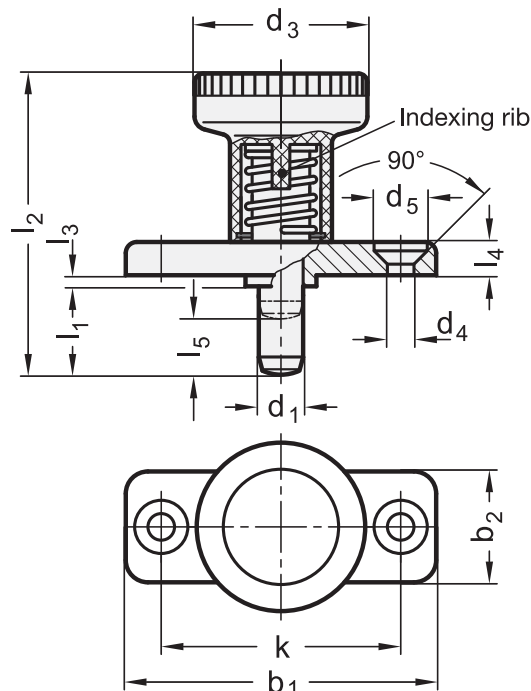
Indexing plungers GN 608.1 with rest position are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

Indexing plungers GN 608.1 are distinguished for their small dimensions. The locking tab is integrated into the knob thus giving reliable operation at all times.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



Plunger retracted
(if $l_1 = d_1$)

GN 608.1

Description	d1 Pin -0.02/-0.05 Bore H7	l1	b1	b2	d2 -0.02/-0.1	d3	d4	d5	k	l2	l3 -0.15	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	
GN 608.1-6-6	6	6	40	18	10	25	4.3	8.3	30	37	2.5	4.5	6	9	25	400	36
GN 608.1-6-14	6	14	40	18	10	25	4.3	8.3	30	45	2.5	4.5	6	9	25	400	38
GN 608.1-8-8	8	8	46	20	12	31	5.3	10.4	34	44	2.5	5.5	8	13	26	500	60
GN 608.1-8-18	8	18	46	20	12	31	5.3	10.4	34	54	2.5	5.5	8	13	26	500	62

Indexing plungers with Stainless Steel-Plunger

with rest position

SPECIFICATION

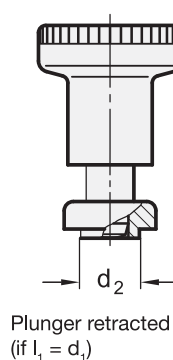
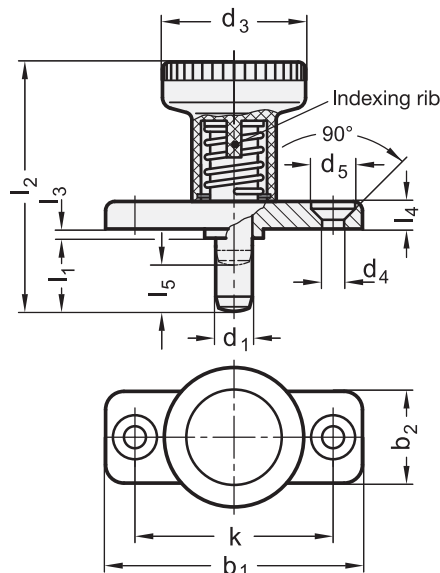
Guide
Zinc die casting
zinc plated, blue passivated
Knob Plastic (Polyamide PA)
- black, matt
- not removable
Pin Stainless Steel AISI 303
chemically nickel plated
Single components Stainless Steel

INFORMATION

Indexing plungers with Stainless Steel-Plunger GN 608.6 with rest position are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.
Indexing plungers GN 608.6 are distinguished for their small dimensions. The locking tab is integrated into the knob thus giving reliable operation at all times.
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



GN 608.6

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	l1	b1	b2	d2 -0.02/-0.1	d3	d4	d5	k	l2	l3 -0.15	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	
GN 608.6-6-6	6	6	40	18	10	25	4.3	8.3	30	37	2.5	4.5	6	9	25	400	30
GN 608.6-6-14	6	14	40	18	10	25	4.3	8.3	30	45	2.5	4.5	6	9	25	400	39
GN 608.6-8-8	8	8	46	20	12	31	5.3	10.4	34	44	2.5	5.5	8	13	26	500	58
GN 608.6-8-18	8	18	46	20	12	31	5.3	10.4	34	54	2.5	5.5	8	13	26	500	63

Mini indexing plungers

Steel / Stainless Steel, Covered indexing mechanism, with and without rest position

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Version in Steel ST

zinc plated, blue passivated

Version in Stainless Steel AISI 303 NI

Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Knob Plastic (Polyamide PA)

- black, matt
- red, RAL 3000 **RT**
- not removable

INFORMATION

Mini indexing plungers GN 822 are distinguished for their small dimensions. They have been designed for installation in thin walled sheet metal constructions.

They are inserted into position by holding them by the serrated knob. The spanner flats on the lock nut are revealed when retracting the pin, so that the mini indexing plunger can be easily tightened by means of a fork spanner.

With Type C the knob can be turned by 30° and a notch keeps the knob in this position.

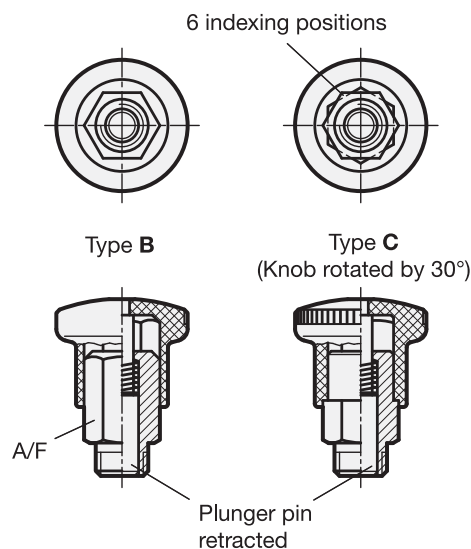
- Range of indexing plungers (see page 738)

ACCESSORY

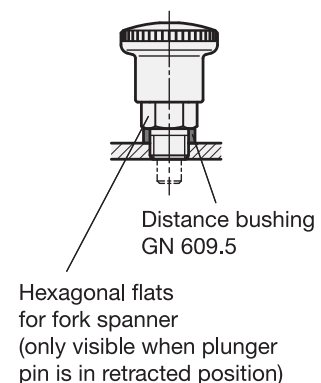
Distance bushings GN 609.5 (see page 810) are to be ordered separately.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



Assembly instruction



GN 822

Description	d1 Pin 0/-0.06 Bore +0.05/+0.1	d2	d3	d4	l1	l2 min.	l3	l4 min.	A/F	Spring load in N $\approx$ initial	Spring load in N $\approx$ end	
GN 822-4-B-ST	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-5-B-ST	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-B-ST	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	25
GN 822-7-B-ST	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	26
GN 822-4-C-ST	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	13
GN 822-5-C-ST	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-C-ST	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	23
GN 822-7-C-ST	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	24
GN 822-4-B-ST-RT	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	13
GN 822-5-B-ST-RT	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-B-ST-RT	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	25
GN 822-7-B-ST-RT	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	26
GN 822-4-C-ST-RT	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	13
GN 822-5-C-ST-RT	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-C-ST-RT	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	24
GN 822-7-C-ST-RT	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	25

GN 822-NI

STAINLESS STEEL

Description	d1 Pin 0/-0.06 Bore +0.05/+0.1	d2	d3	d4	l1	l2 min.	l3	l4 min.	A/F	Spring load in N $\approx$ initial	Spring load in N $\approx$ end	
GN 822-4-B-NI	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	13
GN 822-5-B-NI	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-B-NI	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	25
GN 822-7-B-NI	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	26
GN 822-4-C-NI	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-5-C-NI	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-C-NI	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	24
GN 822-7-C-NI	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	25
GN 822-4-B-NI-RT	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	13
GN 822-5-B-NI-RT	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-B-NI-RT	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	25
GN 822-7-B-NI-RT	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	26
GN 822-4-C-NI-RT	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	10
GN 822-5-C-NI-RT	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	20
GN 822-6-C-NI-RT	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	24
GN 822-7-C-NI-RT	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	30



Mini indexing plungers

Steel / Stainless Steel, opening indexing mechanism, with and without rest position

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Version in Steel ST

zinc plated, blue passivated

Version in Stainless Steel AISI 303 NI

Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Knob Plastic (Polyamide PA)

- black, matt
- red, RAL 3000 **RT**
- not removable

INFORMATION

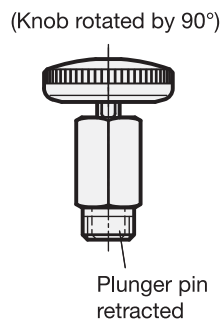
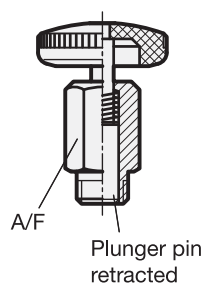
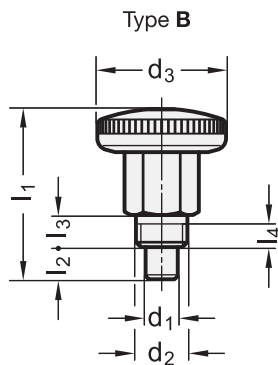
Mini indexing plungers GN 822.1 are distinguished for their small dimensions. They have been designed for installation in thin walled sheet metal constructions.

Type C with rest position is used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

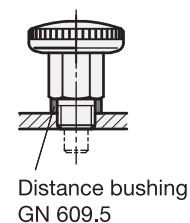
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



Assembly instruction



GN 822.1

Description	d1 Pin 0/-0.06 Bore +0.05/+0.1	d2	d3	l1	l2 min.	l3	l4 min.	A/F	Spring load in N $\approx$ initial	Spring load in N $\approx$ end	
GN 822.1-4-B-ST	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-5-B-ST	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-6-B-ST	6	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-7-B-ST	7	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-4-C-ST	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	12
GN 822.1-5-C-ST	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	12
GN 822.1-6-C-ST	6	M 10 x 1	25	34	7	7	4.5	12	5	18	22
GN 822.1-7-C-ST	7	M 10 x 1	25	34	7	7	4.5	12	5	18	22
GN 822.1-4-B-ST-RT	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-5-B-ST-RT	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-6-B-ST-RT	6	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-7-B-ST-RT	7	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-4-C-ST-RT	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	12
GN 822.1-5-C-ST-RT	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	12
GN 822.1-6-C-ST-RT	6	M 10 x 1	25	34	7	7	4.5	12	5	18	22
GN 822.1-7-C-ST-RT	7	M 10 x 1	25	34	7	7	4.5	12	5	18	22

GN 822.1-NI

STAINLESS STEEL

Description	d1 Pin 0/-0.06 Bore +0.05/+0.1	d2	d3	l1	l2 min.	l3	l4 min.	A/F	Spring load in N $\approx$ initial	Spring load in N $\approx$ end	
GN 822.1-4-B-NI	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-5-B-NI	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-6-B-NI	6	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-7-B-NI	7	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-4-C-NI	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	12
GN 822.1-5-C-NI	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-6-C-NI	6	M 10 x 1	25	34	7	7	4.5	12	5	18	22
GN 822.1-7-C-NI	7	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-4-B-NI-RT	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-5-B-NI-RT	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-6-B-NI-RT	6	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-7-B-NI-RT	7	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-4-C-NI-RT	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	12
GN 822.1-5-C-NI-RT	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-6-C-NI-RT	6	M 10 x 1	25	34	7	7	4.5	12	5	18	22
GN 822.1-7-C-NI-RT	7	M 10 x 1	25	34	7	7	4.5	12	5	18	23



Stainless Steel- Mini indexing plungers with and without rest position

SPECIFICATION

Types

- Type **B**: without rest position, with plastic knob
- Type **BN**: without rest position, with Stainless Steel-Knob
- Type **C**: with rest position, with plastic knob
- Type **CN**: with rest position, with Stainless Steel-Knob

Guide / Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Version with Plastic knob

- Knob Type B and C
- Plastic (Polyamide PA)
 - black, matt
 - not removable

Version with Stainless Steel knob

- Knob Type BN and CN
- Stainless Steel AISI CF-8
 - matt blasted
 - not removable

INFORMATION

Mini indexing plungers GN 822.7 are distinguished for their small dimensions.

Based on the principle of the GN 822 (see page 780) mini indexing plungers, this model combines their clever type of construction with a complete series of all current sizes of bolts and threads. They provide a reasonably priced alternative to the GN 607 (see page 769) / GN 607.1 (see page 770) indexing plungers of the appropriate sizes. To mount, first turn the mini indexing plunger in with the knurled button. Pulling the indexing pin will release the hexagon nut which can then be tightened with an open-end spanner.

The spanner flats on the lock nut are revealed when retracting the pin, so that the mini indexing plunger can be easily tightened by means of a fork spanner.

In types C and CN, the button can be turned by 30° after retracting the indexing pin, holding it in the "retracted" position using the indexing lock.

- Range of indexing plungers (see page 738)

ACCESSORY

Distance bushings GN 609.5 (see page 810) or flat hexagonal nuts GN 909.5 (see page 809) are to be ordered separately.

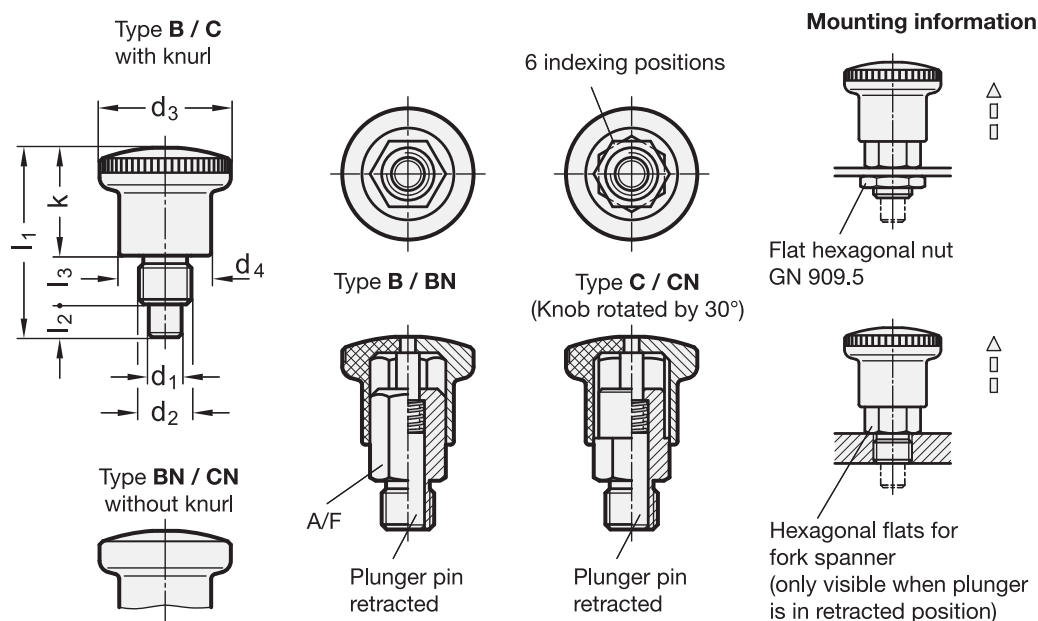
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- ISO-Fundamental tolerances (see page A21)
- Load rating information (see page A42)

ON REQUEST

- with red knob





* Complete with type index of the mini indexing plungers (B or C)

B without rest position **C** with rest position

GN 822.7

STAINLESS STEEL

Description	d1 Bore +0.03/+0.08 Pin h9	d2	d3	d4	l1	l2 min.	l3	k	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 822.7-4-M8-*	4	M 8	21	15	27.5	5	6	16.5	10	4	12	14
GN 822.7-4-M8x1-*	4	M 8 x 1	21	15	27.5	5	6	16.5	10	4	12	15
GN 822.7-5-M10-*	5	M 10	25	18	34	6	8	20	12	6	16	25
GN 822.7-5-M10x1-*	5	M 10 x 1	25	18	34	6	8	20	12	6	16	25
GN 822.7-6-M10-*	6	M 10	25	18	34	6	8	20	12	6	16	26
GN 822.7-6-M10x1-*	6	M 10 x 1	25	18	34	6	8	20	12	6	16	26
GN 822.7-6-M12-*	6	M 12	28	20	40.5	7	10	23.5	14	10	23	40
GN 822.7-6-M12x1,5-*	6	M 12 x 1.5	28	20	40.5	7	10	23.5	14	10	23	40
GN 822.7-7-M12-*	7	M 12	28	20	40.5	7	10	23.5	14	10	23	41
GN 822.7-7-M12x1,5-*	7	M 12 x 1.5	28	20	40.5	7	10	23.5	14	10	23	41
GN 822.7-8-M16-*	8	M 16	33	23	47.5	10	12	25.5	17	11	35	67
GN 822.7-8-M16x1,5-*	8	M 16 x 1.5	33	23	47.5	10	12	25.5	17	11	35	67
GN 822.7-10-M16-*	10	M 16	33	23	47.5	10	12	25.5	17	11	35	68
GN 822.7-10-M16x1,5-*	10	M 16 x 1.5	33	23	47.5	10	12	25.5	17	11	35	70

Weight type B



Stainless Steel- Mini indexing plungers with and without rest position

SPECIFICATION

Types

- Type **B**: without rest position, with plastic knob
- Type **BN**: without rest position, with Stainless Steel knob
- Type **C**: with rest position, with plastic knob
- Type **CN**: with rest position, with Stainless Steel knob

Guide

Stainless Steel AISI 304

Pin

Stainless Steel AISI 303

Spring

Stainless Steel AISI 301

Version with Plastic knob

Knob type B and C

- Plastic (Polyamide PA)
- black, matt
- not removable

Version with Stainless Steel knob

Knob type BN and CN

- AISI CF-8
- matt, blasted
- not removable

INFORMATION

Stainless Steel-Mini indexing plungers GN 822.9 are distinguished for their small dimensions. They are mounted by countersunk screws.

The Stainless Steel-Mini indexing plungers present an affordable alternative to the GN 608.5 (see page) and GN 608.6 (see page 779) Stainless Steel-Indexing plungers.

In types C and CN, the button can be turned by 30° after retracting the indexing pin, holding it in the „retracted“ position using the indexing lock.

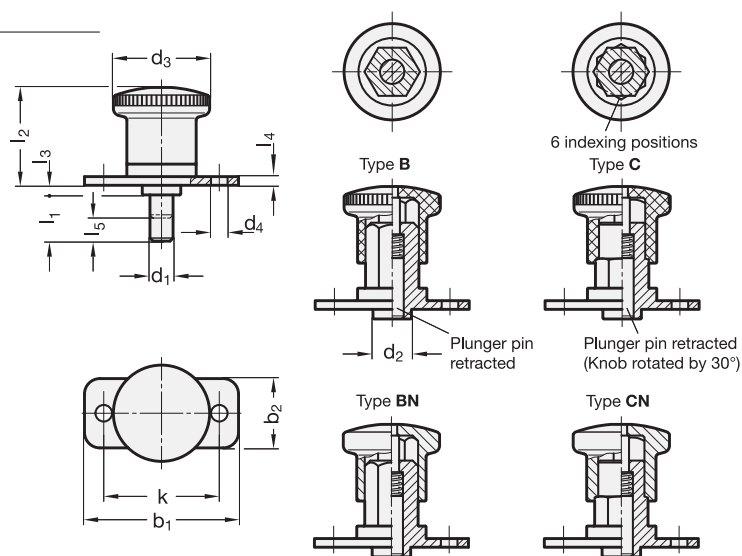
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

ON REQUEST

- with red knob



GN 822.9-B/C

STAINLESS STEEL

Description	d1 Bore +0.03/+0.08 Pin h9	l1	b1	b2	d2	d3	d4	k	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 822.9-4-5-B	4	5	35	15	8	21	4.3	25	20.5	2	2	5	4	12	23
GN 822.9-4-10-B	4	10	35	15	8	21	4.3	25	20.5	2	2	5	4	12	23
GN 822.9-5-6-B	5	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	40
GN 822.9-5-12-B	5	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	41
GN 822.9-6-6-B	6	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	40
GN 822.9-6-12-B	6	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	42
GN 822.9-8-10-B	8	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	100
GN 822.9-8-20-B	8	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	105
GN 822.9-10-10-B	10	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	103
GN 822.9-10-20-B	10	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	109
GN 822.9-4-5-C	4	5	35	15	8	21	4.3	25	20.5	2	2	5	4	12	23
GN 822.9-4-10-C	4	10	35	15	8	21	4.3	25	20.5	2	2	5	4	12	24
GN 822.9-5-6-C	5	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	40
GN 822.9-5-12-C	5	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	41
GN 822.9-6-6-C	6	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	40
GN 822.9-6-12-C	6	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	42
GN 822.9-8-10-C	8	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	99
GN 822.9-8-20-C	8	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	103
GN 822.9-10-10-C	10	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	102
GN 822.9-10-20-C	10	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	108

GN 822.9-BN/CN

STAINLESS STEEL

Description	d1 Bore +0.03/+0.08 Pin h9	l1	b1	b2	d2	d3	d4	k	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 822.9-4-5-BN	4	5	35	15	8	21	4.3	25	20.5	2	2	5	4	12	37
GN 822.9-4-10-BN	4	10	35	15	8	21	4.3	25	20.5	2	2	5	4	12	37
GN 822.9-5-6-BN	5	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	64
GN 822.9-5-12-BN	5	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	65
GN 822.9-6-6-BN	6	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	65
GN 822.9-6-12-BN	6	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	66
GN 822.9-8-10-BN	8	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	146
GN 822.9-8-20-BN	8	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	150
GN 822.9-10-10-BN	10	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	149
GN 822.9-10-20-BN	10	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	155
GN 822.9-4-5-CN	4	5	35	15	8	21	4.3	25	20.5	2	2	5	4	12	37
GN 822.9-4-10-CN	4	10	35	15	8	21	4.3	25	20.5	2	2	5	4	12	37
GN 822.9-5-6-CN	5	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	64
GN 822.9-5-12-CN	5	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	65
GN 822.9-6-6-CN	6	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	47
GN 822.9-6-12-CN	6	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	66
GN 822.9-8-10-CN	8	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	146
GN 822.9-8-20-CN	8	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	150
GN 822.9-10-10-CN	10	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	148
GN 822.9-10-20-CN	10	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	154



Mini indexing plungers

with and without rest position

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Guide

Zinc die casting
plastic coated
black, textured finish

Pin

Stainless Steel AISI 303

Spring

Stainless Steel AISI 301

Knob

Plastic (Polyamide PA)

- black, matt
- not removable



INFORMATION

Mini indexing plungers GN 822.8 are distinguished for their small dimensions. They are mounted by countersunk screws.

The mini indexing plungers present an affordable alternative to the GN 608 (see page 776) and GN 608.1 (see page 778) indexing plungers.

In type C, the button can be turned by 30° after retracting the indexing pin, holding it in the "retracted" position using the indexing lock.

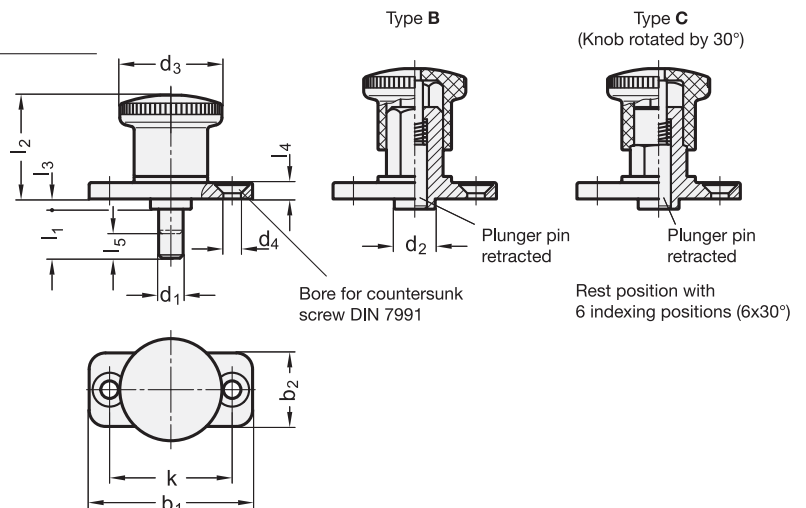
- Range of indexing plungers (see page 738)

ON REQUEST

- with red knob

TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



* Complete with type index of the Mini indexing plunger (B or C)

B without rest position **C** with rest position

GN 822.8

Description	d1 Bore +0.03/+0.08 Pin h9	l1	b1	b2	d2 -0.15	d3	d4	k	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 822.8-4-5-*	4	5	35	15	8	21	4.3	25	20.5	2	4	5	4	12	23
GN 822.8-4-10-*	4	10	35	15	8	21	4.3	25	20.5	2	4	5	4	12	23
GN 822.8-5-6-*	5	6	40	18	10	25	4.3	30	25.5	2.5	4	6	6	16	39
GN 822.8-5-12-*	5	12	40	18	10	25	4.3	30	25.5	2.5	4	6	6	16	40
GN 822.8-6-6-*	6	6	40	18	10	25	4.3	30	25.5	2.5	4	6	6	16	39
GN 822.8-6-12-*	6	12	40	18	10	25	4.3	30	25.5	2.5	4	6	6	16	41
GN 822.8-8-10-*	8	10	50	23	14	33	5.3	38	35	2.5	5	10	11	35	94
GN 822.8-8-20-*	8	20	50	23	14	33	5.3	38	35	2.5	5	10	11	35	98
GN 822.8-10-10-*	10	10	50	23	14	33	5.3	38	35	2.5	5	10	11	35	96
GN 822.8-10-20-*	10	20	50	23	14	33	5.3	38	35	2.5	5	10	11	35	102

Weight type B

Indexing plungers

with and without rest position

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Identification no.

- No. **1**: Mounting from the front
- No. **2**: Mounting from the back

Guide

Zinc die casting
plastic coated
black, textured finish

Pin

Stainless Steel AISI 303

Spring

Stainless Steel AISI 301

Knob

Plastic (Polyamide PA)

- black, matt finish
- not removable



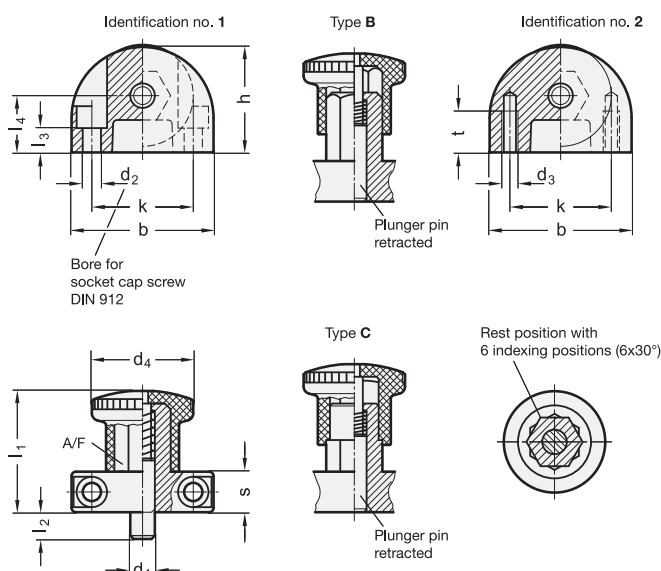
INFORMATION

The outstanding feature of the indexing plungers GN 412 is their compact design. They are mounted either from the front with cylinder head screws or from the back through threads. In Type C, the knob can be turned by 30° after retracting the indexing pin, holding it in the "retracted" position by means of the indexing lock.

The dimensions and connection measurements match the combination with GN 412.1 (see page 814) mounting blocks in connection with positioning bushings GN 412.2 (see page 813) or GN 412.3 (see page 812).

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)



GN 412

Description	d1 Pin 0/-0.06 Bore +0.05/+0.1	b	d2	d3	d4	h	k	l1	l2 min.	l3	l4	s	A/F	t	Spring load in N N ≈ initial	Spring inload in N N ≈ end	⚖
GN 412-5-35-B-1	5	35	4.3	-	25	26	25	32	6	6	14	12	12	-	5	15	63
GN 412-5-35-B-2	5	35	-	M 4	25	26	25	32	6	-	14	12	12	10	5	15	71
GN 412-6-35-B-1	6	35	4.3	-	25	26	25	32	6	6	14	12	12	-	5	15	64
GN 412-6-35-B-2	6	35	-	M 4	25	26	25	32	6	-	14	12	12	10	5	15	71
GN 412-8-47-B-1	8	47	5.3	-	33	34	35	39	10	10	18	14	17	-	9	35	140
GN 412-8-47-B-2	8	47	-	M 5	33	34	35	39	10	-	18	14	17	12	9	35	152
GN 412-10-47-B-1	10	47	5.3	-	33	34	35	39	10	10	18	14	17	-	9	35	143
GN 412-10-47-B-2	10	47	-	M 5	33	34	35	39	10	-	18	14	17	12	9	35	154
GN 412-5-35-C-1	5	35	4.3	-	25	26	25	32	6	6	14	12	12	-	5	15	63
GN 412-5-35-C-2	5	35	-	M 4	25	26	25	32	6	-	14	12	12	10	5	15	70
GN 412-6-35-C-1	6	35	4.3	-	25	26	25	32	6	6	14	12	12	-	5	15	64
GN 412-6-35-C-2	6	35	-	M 4	25	26	25	32	6	-	14	12	12	10	5	15	71
GN 412-8-47-C-1	8	47	5.3	-	33	34	35	39	10	10	18	14	17	-	9	35	130
GN 412-8-47-C-2	8	47	-	M 5	33	34	35	39	10	-	18	14	17	12	9	35	152
GN 412-10-47-C-1	10	47	5.3	-	33	34	35	39	10	10	18	14	17	-	9	35	143
GN 412-10-47-C-2	10	47	-	M 5	33	34	35	39	10	-	18	14	17	12	9	35	155



Spring latches

SPECIFICATION

Types

- Type **S**: with locking, without rest position
- Type **L1**: Locking / Rest position via counterclockwise rotation
- Type **R1**: Locking / Rest position via clockwise rotation

Guide

Zinc die casting
plastic coated, RAL 9005, textured finish

Plunger pin

Steel
zinc plated, blue passivated

Spring

Stainless Steel AISI 301

Latch lever

Plastic, Technopolymer (Polyamide PA)

- black, matte
- not removable



INFORMATION

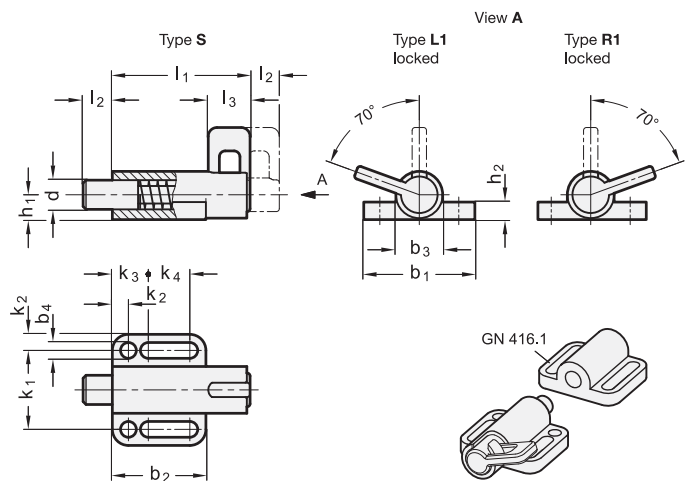
The plunger of spring latches GN 416 is operated by an axial pulling of the latch lever. This kind of operation from the top side is advantageous in certain installation situations.

The pins of Type S spring latches are engaged in the housing to prevent rotation, and therefore lock in the starting position but not the retracted position. Types R1 and L1 spring latches offer a locking function in the starting as well as in the retracted position, preventing an unintentional operation. A lock notch holds the latch lever in both positions.

The adjustment range is designed in such a way that ISO 7092 washers can be used within the adjustment slot in the housing.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



GN 416

Description	d Pin -0.05 Bore +0.1/+0.05	b1	b2	b3	b4	h1	h2	k1	k2	k3	k4	l1	l2 min.	l3	Spring load in N ≈ initial	Spring load in N ≈ end	△
GN 416-6-38-L1	6	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	67
GN 416-8-38-L1	8	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	69
GN 416-8-46-L1	8	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	130
GN 416-10-38-L1	10	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	72
GN 416-10-46-L1	10	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	132
GN 416-12-46-L1	12	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	136
GN 416-6-38-S	6	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	68
GN 416-8-38-S	8	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	69
GN 416-8-46-S	8	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	140
GN 416-10-38-S	10	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	70
GN 416-10-46-S	10	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	132
GN 416-12-46-S	12	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	135
GN 416-6-38-R1	6	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	66
GN 416-8-38-R1	8	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	69
GN 416-8-46-R1	8	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	120
GN 416-10-38-R1	10	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	71
GN 416-10-46-R1	10	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	150
GN 416-12-46-R1	12	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	135

Locators

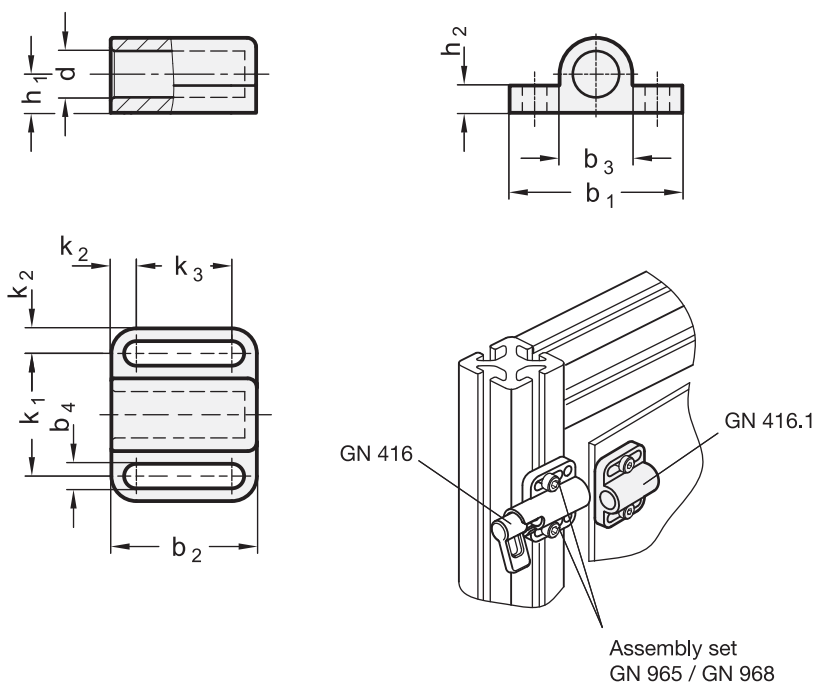
for spring latches GN 416

SPECIFICATION

Zinc die casting
plastic coated
black, RAL 2005, textured finish

INFORMATION

Locators GN 416.1 are matched to the spring latches GN 416 and are used to position the indexing pin.



GN 416.1

Description	d Nominal dimension	d Actual dimension +0.15/-0.05	b1	b2	b3	b4	h1	h2	k1	k2	k3	⚖
GN 416.1-6-38	6	6.2	38	28	16	5.4	8.5	6	27	5.5	17	51
GN 416.1-8-38	8	8.2	38	28	16	5.4	8.5	6	27	5.5	17	47
GN 416.1-8-46	8	8.2	46	38	20	6.4	11	6	33	6.5	25	94
GN 416.1-10-38	10	10.2	38	28	16	5.4	8.5	6	27	5.5	17	20
GN 416.1-10-46	10	10.2	46	38	20	6.4	11	6	33	6.5	25	87
GN 416.1-12-46	12	12.2	46	38	20	6.4	11	6	33	6.5	25	79



Indexing plungers

with and without rest position

SPECIFICATION

Version without rest position

Types

- Type **A**: without rest position (lifting ring)
- Type **B**: without rest position (Knob)

Version with rest position

Type

- Type **C**: with rest position (Knob)

This information applies to both standards:
Guide

Zinc die casting
plastic coated
black, textured finish

Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Lifting ring
Stainless Steel AISI 301

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

The screwing range of indexing plungers GN 417 is chosen in such a way that washers ISO 7092 can be used.

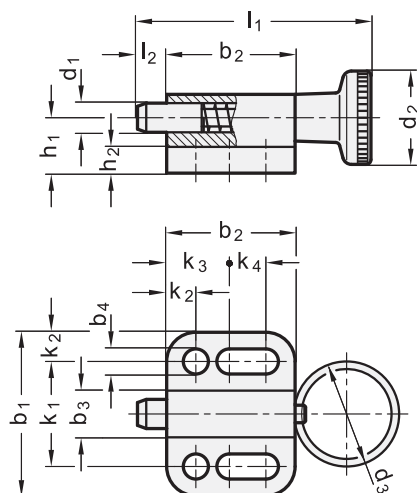
Indexing plungers GN 417 type C with rest position are used in such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

- Range of indexing plungers (see page 738)

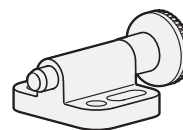
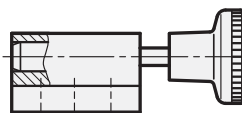
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



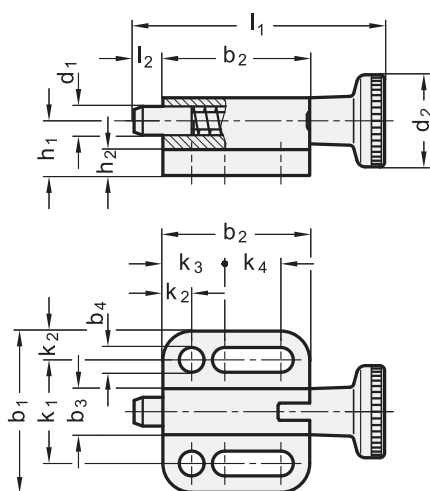


Plunger pin retracted

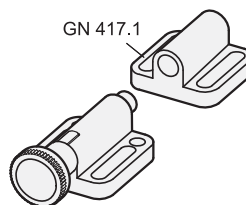
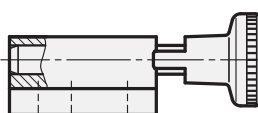


GN 417

Description	d1 Bore +0.03/+0.08 Plunger h11	d2	d3	b1	b2	b3	b4 -0.2	h1	h2	k1 ±0.05	k2	k3	k4	l1	l2 ±0.5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 417-4-A	4	-	14	22	16.5	6	3.3	7	4	14	4	8	4.5	-	4	3	12	11
GN 417-5-A	5	-	18	28	22	8	4.3	9.5	4.5	18	5	10	7	-	5	5	24	22
GN 417-6-A	6	-	24	32	27.5	10	5.4	10.5	5	21	5.5	12	10	-	6	5	21	36
GN 417-8-A	8	-	30	34	33	12	5.4	12.5	6	23	5.5	12	15.5	-	8	6	22	58
GN 417-10-A	10	-	30	39	35	14.5	6.5	14.5	6	27	6	15	13.5	-	10	4	25	83
GN 417-4-B	4	12	-	22	16.5	6	3.3	7	4	14	4	8	4.5	30.5	4	3	12	11
GN 417-5-B	5	16	-	28	22	8	4.3	9.5	4.5	18	5	10	7	40	5	5	24	22
GN 417-6-B	6	18	-	32	27.5	10	5.4	10.5	5	21	5.5	12	10	49	6	5	21	25
GN 417-8-B	8	21	-	34	33	12	5.4	12.5	6	23	5.5	12	15.5	59	8	6	22	59
GN 417-10-B	10	25	-	39	35	14.5	6.5	14.5	6	27	6	15	13.5	67.5	10	4	25	34



Plunger pin retracted



GN 417-C

Description	d1 Bore +0.03/+0.08 Plunger h11	d2	b1	b2	b3	b4 -0.2	h1	h2	k1 ±0.05	k2	k3	k4	l1	l2 min.	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 417-4-C	4	12	22	19	6	3.3	7	4	14	4	8	7	33	4	3	12	14
GN 417-5-C	5	16	28	25.5	8	4.3	9.5	4.5	18	5	10	10.5	43.5	5	5	24	25
GN 417-6-C	6	18	32	30.5	10	5.4	10.5	5	21	5.5	12	13	52	6	5	21	41
GN 417-8-C	8	21	34	37.5	12	5.4	12.5	6	23	5.5	12	20	63.5	8	6	22	66
GN 417-10-C	10	25	39	40	14.5	6.5	14.5	6	27	6	15	18.5	72.5	10	4	25	97



Locators

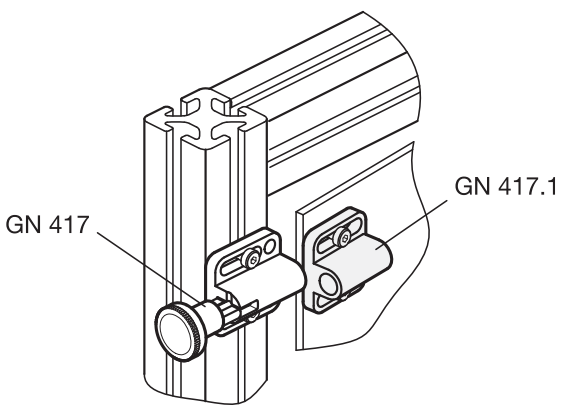
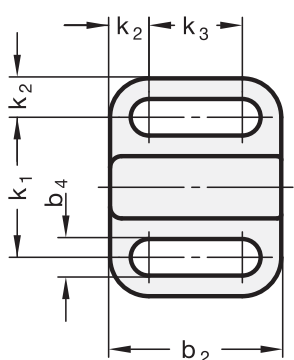
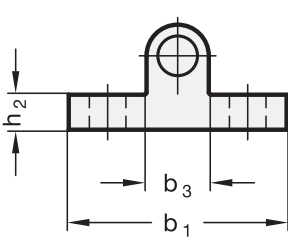
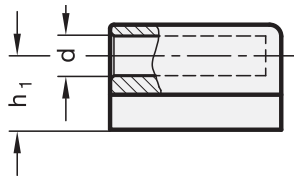
for indexing plungers GN 417

SPECIFICATION

Steel
plastic coated
black, textured finish

INFORMATION

Locators GN 417.1 are matched to the indexing plungers GN 417 (see page 792) and are used to position the indexing pin.



GN 417.1

Description	d Nominal dimension	d Actual dimension +0.1	b1	b2	b3	b4	h1	h2	k1	k2	k3	Δ
GN 417.1-4	4	4.1	22	16.5	6	3.3	7	4	14	4	8.5	10
GN 417.1-5	5	5.1	28	22	8	4.3	9.5	4.5	18	5	12	20
GN 417.1-6	6	6.2	32	27.5	10	5.4	10.5	5	21	5.5	16.5	30
GN 417.1-8	8	8.2	34	33	12	5.4	12.5	6	23	5.5	22	50
GN 417.1-10	10	10.2	39	35	14.5	6.8	14.5	6	27	6	23	70

Indexing plungers for precision locating, plunger cylindrical

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Steel

- blackened
- Pin hardened and ground

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

Indexing plungers GN 817.3 realize a reasonable priced precision locating when guide bushings DIN 179 (see page 1008) are used . For this purpose a guide bushing DIN 179 (see page 1008) is used as guide, whereby the dimension l_3 of the plunger determines the length of the bushing .

The precise location is, therefore, not dependent on the guide pin in the plunger, but on the accuracy of the guide bushing (bore tolerance F7) and the plunger (tolerance h7). Both components are hardened and ground. It goes without saying that the bushing length also influences the accuracy of the positioning.

Type C is used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

- Range of indexing plungers (see page 738)

ACCESSORY

- Guide bushings DIN 179 (see page 1008)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)

CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

Two different plunger pin lengths l_1 are available for each indexing plunger diameter d_1 .

The length l_3 must ensure that the indexing pin fully disengages, bushing length and plate thickness plus any gap can then be selected within certain margins.

For mounting bushings with tolerance n6, a hole with tolerance H7 corresponding to the external diameter is usually provided.

A selection of suitable guide bushings DIN 172 (see page 1006) and DIN 179 (see page 1008) is given.

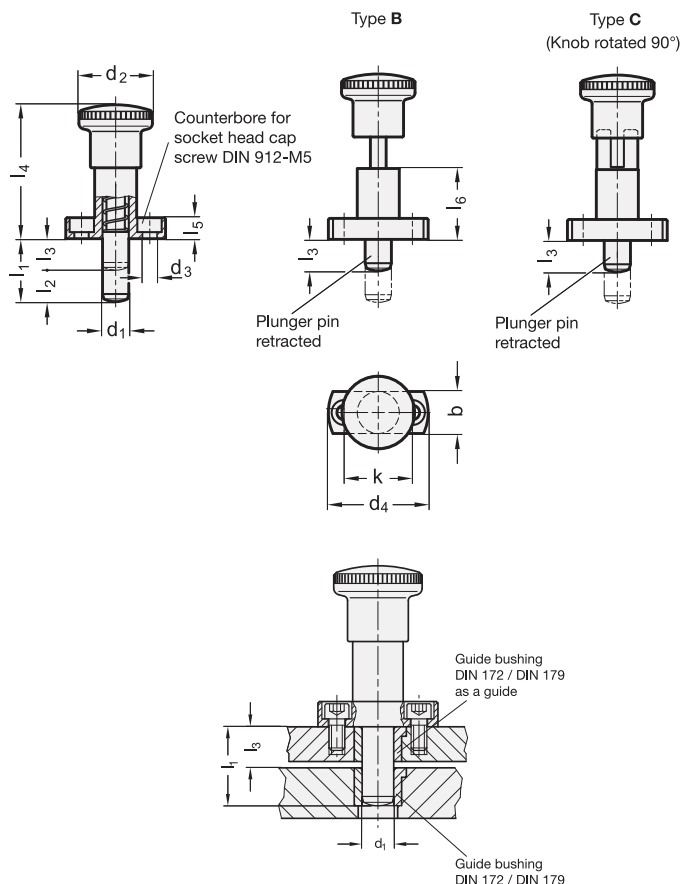
* Complete with type index of the Indexing plungers (B or C)

B	C
without rest position	with rest position

GN 817.3

Description	d_1 h7	l_1	l_2	l_3	b	d_2	d_3	d_4	k	l_4	l_5	l_6	Spring load in N $\approx$ initial	Spring load in N $\approx$ end	
GN 817.3-6-18-*	6	18	9	9	13	23	4.3	34	23	45	6	25	6	25	43
GN 817.3-6-24-*	6	24	9	15	13	23	4.3	34	23	45	6	25	6	25	45
GN 817.3-8-20-*	8	20	10	10	16	28	5.5	38	26	51	8	27	8.5	28	74
GN 817.3-8-26-*	8	26	10	16	16	28	5.5	38	26	51	8	27	8.5	28	77
GN 817.3-10-24-*	10	24	12	12	16	28	5.5	38	26	51	8	27	9.5	38	83
GN 817.3-10-32-*	10	32	12	20	16	28	5.5	38	26	51	8	27	9.5	38	100

Weight type B



Indexing plungers

for precision locating, plunger conical

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Steel

- blackened
- Pin hardened and grounded

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

Indexing plungers GN 817.5 allow highly accurate positioning, with the guidance made by the positioning bushings DIN 172 / DIN 179 with cylindrical bore. The actual indexing bore is fitted with positioning bushings GN 172.1 / GN 179.1 with conical bores.

The conical shape of the indexing pin / the indexing bore makes the positioning virtually clearance-free and therefore highly precise.

Type C is used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

- Range of indexing plungers (see page 738)

CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

The length l_7 is determined by the penetration depth of the indexing pin into the cone of the bushing.

The length l_8 must ensure that the indexing pin fully disengages, bushing length and plate thickness plus any gap can then be selected within certain margins.

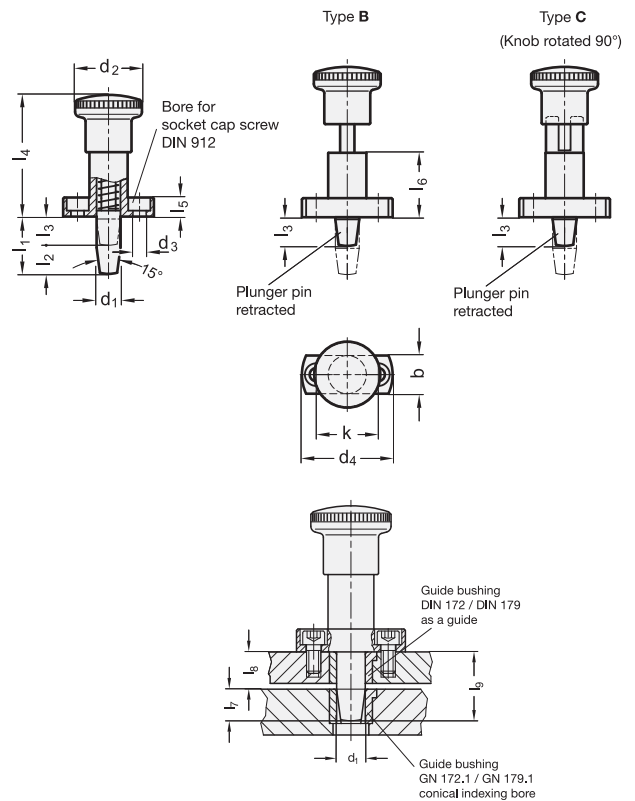
If engaged, the pin must have a minimum remaining stroke of 0.5 mm to make sure that the conical section of the pin is located without clearance in the cone of the guide bushing.

Two different plunger pin lengths l_1 are available for each indexing plunger diameter d_1 (see product table).

For a safe remaining stroke length: $l_9 = l_1 - 0.5 \text{ mm}$

For mounting bushings with tolerance n6, a hole with tolerance H7 corresponding to the external diameter is usually provided.

A selection of suitable guide bushings DIN 172 (see page 1006) and DIN 179 (see page 1008) with cylindrical bore and guide bushings GN 172.1 (see page 1010) / GN 179.1 (see page 1010) with conical bore.



* Complete with type index of the Indexing plungers (B or C)

B without rest position **C** with rest position

GN 817.5

Description	d1 Plunger h6	l1	l2	l3	b	d2	d3	d4	k	l4	l5	l6	l7	l8 min.	l8 max.	l9	Spring load in N ≈ initial	Spring load in N ≈ end	
GN 817.5-6-18-*	6	18	9	9	13	23	4.3	34	23	45	6	25	7	9	10	17.5	6	25	43
GN 817.5-6-24-*	6	24	9	15	13	23	4.3	34	23	45	6	25	7	15	16	23.5	6	25	50
GN 817.5-8-20-*	8	20	10.6	9.4	16	28	5.3	38	26	51	8	27	9	9.4	10	19.5	8.5	28	75
GN 817.5-8-26-*	8	26	10.6	15.4	16	28	5.3	38	26	51	8	27	9	15.4	16	25.5	8.5	28	80
GN 817.5-10-24-*	10	24	12.6	11.4	16	28	5.3	38	26	51	8	27	11	11.4	12	23.5	11.5	40	83
GN 817.5-10-32-*	10	32	12.6	19.4	16	28	5.3	38	26	51	8	27	11	19.4	20	31.5	11.5	40	87

Weight type B

Indexing plungers

Steel / Stainless Steel, with safety lock, unlocking with push-button

SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Version in Steel

- blackened
- Pin hardened

Version in Stainless Steel AISI 303 NI

Pin chemically nickel plated

Knob

Plastic (Polyamide PA)

- black-grey, RAL 7021, matt
- temperature resistant up to 80 °C
- not removable

Push-button

Plastic (Polyacetal POM)

red, RAL 3000, matt



INFORMATION

Indexing plungers GN 414 with safety function are used when the inadvertent retraction of the plunger pin is to be prevented. The protruding plunger is first locked and may be unlocked for pulling only by exerting axial pressure on the red safety push-button

In every case, the safety lock engages in the front end position, i.e. automatically if the indexing pin protrudes, with the locking mechanism housed fully in the operating button and protected from malfunctions. The specified axial load bearing capacity refers to the locking force of the bolt against inadvertent operation which must not be exceeded.

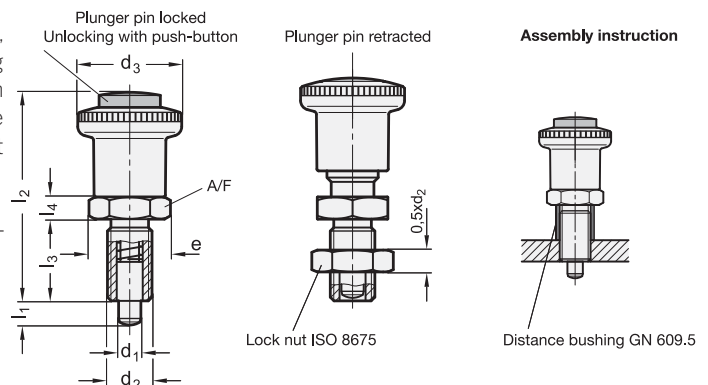
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

* Complete with type index of the Indexing plungers

A AK



GN 414

Description	d1 Pin -0.02/-0.04 Bore H7	l1 min.	d2	d3	e	l2 ≈	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	
GN 414-6-6-*	6	6	M 12 x 1.5	28	21.9	56	22	6	19	6.5	19	120	44
GN 414-6-9-*	6	9	M 12 x 1.5	28	21.9	56	22	6	19	6	25	120	45
GN 414-8-8-*	8	8	M 16 x 1.5	28	21.9	62	26	8	19	8.5	26	120	70
GN 414-8-12-*	8	12	M 16 x 1.5	28	21.9	62	26	8	19	8.5	28	120	72
GN 414-10-12-*	10	12	M 16 x 1.5	28	21.9	62	26	8	19	9.5	38	120	74

GN 414-NI

STAINLESS STEEL

Description	d1 Pin -0.02/-0.04 Bore H7	l1 min.	d2	d3	e	l2 ≈	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	
GN 414-6-6-*.NI	6	6	M 12 x 1.5	28	21.9	56	22	6	19	6.5	19	120	44
GN 414-6-9-*.NI	6	9	M 12 x 1.5	28	21.9	56	22	6	19	6	25	120	45
GN 414-8-8-*.NI	8	8	M 16 x 1.5	28	21.9	62	26	8	19	8.5	26	120	70
GN 414-8-12-*.NI	8	12	M 16 x 1.5	28	21.9	62	26	8	19	8.5	28	120	72
GN 414-10-12-*.NI	10	12	M 16 x 1.5	28	21.9	62	26	8	19	9.5	38	120	74

Weight type A



80

Indexing elements

Locking plungers

Pin in normal position protruded

SPECIFICATION

Types

- Type **A**: Operation with knob, sleeve black, without lock nut
- Type **AK**: Operation with knob, sleeve black, with lock nut
- Type **AR**: Operation with knob, sleeve red, without lock nut
- Type **ARK**: Operation with knob, sleeve red, with lock nut
- Type **B**: Operation with key, sleeve black, without lock nut
- Type **BK**: Operation with key, sleeve black, with lock nut

Threaded body
Steel zinc plated, blue passivated

Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

Sleeve
Plastic (Polyamid PA)

- black, matt or red
- not removable

INFORMATION

If not operated, the plunger of the locking plungers GN 816 protrudes. To retract, move against the spring force and hold in the end position by turning by 90°.

The shape of the cam curve secures the plunger against accidental operation.

When operating the button (Type AR/ARK), to visible **red** covering sleeve indicates the locking status: Indexing pin does **not** protrude.

For the execution with operation with key (Type B / BK) a key is required to move the plunger. In this execution, a cover sleeve provides additional security and safety from unauthorized removal of the locking plunger. The cover sleeve also provides additional protection against malfunction caused by dirt.

- Range of indexing plungers (see page 738)



ACCESSORY

Keys **GN 816-10**
Plastic (Polyamide PA)
(Locking plungers Ø 6 and Ø 8 have the same keys)

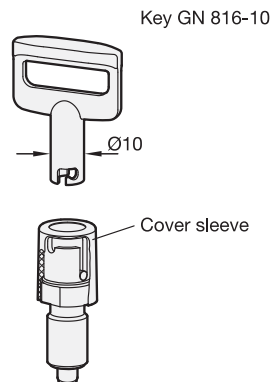
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

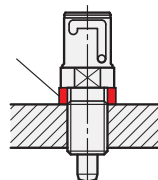
ASSEMBLY INSTRUCTIONS

Version with key (Type B / Type BK)

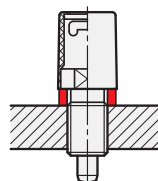
Assembly instruction



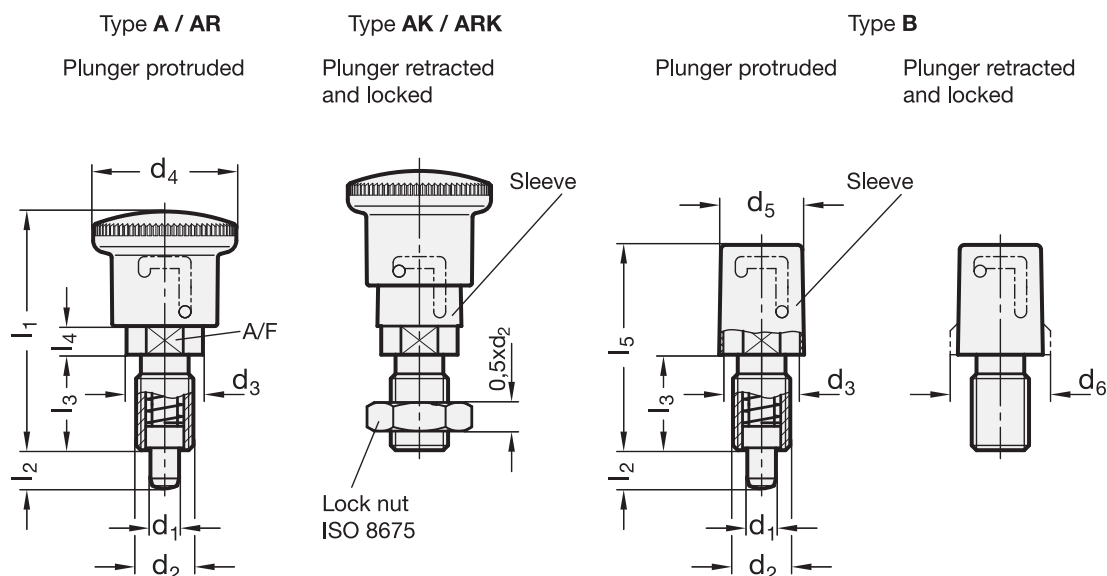
Distance
bushing
GN 609,5



Screw in
threaded socket



Clip in
cover sleeve



GN 816

Description	d1 Pin 0/-0.05 Bore +0.15/+0.07	d2	d3	d4	d5	d6	l1 ≈	l2	l3	l4 ≈	l5	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 816-6-M12x1,5-A	6	M 12 x 1,5	16	28	-	-	50	8	20	6	-	14	13	28	50
GN 816-8-M12x1,5-A	8	M 12 x 1,5	16	28	-	-	50	8	20	6	-	14	13	28	20
GN 816-8-M16x1,5-A	8	M 16 x 1,5	18	28	-	-	52	10	22	6	-	16	14	38	60
GN 816-10-M16x1,5-A	10	M 16 x 1,5	18	28	-	-	52	10	22	6	-	16	14	38	64
GN 816-6-M12x1,5-AK	6	M 12 x 1,5	16	28	-	-	50	8	20	6	-	14	13	28	40
GN 816-8-M12x1,5-AK	8	M 12 x 1,5	16	28	-	-	50	8	20	6	-	14	13	28	29
GN 816-8-M16x1,5-AK	8	M 16 x 1,5	18	28	-	-	52	10	22	6	-	16	14	38	80
GN 816-10-M16x1,5-AK	10	M 16 x 1,5	18	28	-	-	52	10	22	6	-	16	14	38	81
GN 816-6-M12x1,5-AR	6	M 12 x 1,5	16	28	-	-	50	8	20	6	-	14	13	28	42
GN 816-8-M12x1,5-AR	8	M 12 x 1,5	16	28	-	-	50	8	20	6	-	14	13	28	20
GN 816-8-M16x1,5-AR	8	M 16 x 1,5	18	28	-	-	52	10	22	6	-	16	14	38	50
GN 816-10-M16x1,5-AR	10	M 16 x 1,5	18	28	-	-	52	10	22	6	-	16	14	38	20
GN 816-6-M12x1,5-ARK	6	M 12 x 1,5	16	28	-	-	50	8	20	6	-	14	13	28	190
GN 816-8-M12x1,5-ARK	8	M 12 x 1,5	16	28	-	-	50	8	20	6	-	14	13	28	29
GN 816-8-M16x1,5-ARK	8	M 16 x 1,5	18	28	-	-	52	10	22	6	-	16	14	38	80
GN 816-10-M16x1,5-ARK	10	M 16 x 1,5	18	28	-	-	52	10	22	6	-	16	14	38	20
GN 816-6-M12x1,5-B	6	M 12 x 1,5	16	-	-	-	-	8	20	-	43	14	13	28	30
GN 816-8-M12x1,5-B	8	M 12 x 1,5	16	-	-	-	-	8	20	-	43	14	13	28	42
GN 816-8-M16x1,5-B	8	M 16 x 1,5	18	-	17	20	-	10	22	-	48	16	14	38	50
GN 816-10-M16x1,5-B	10	M 16 x 1,5	18	-	17	20	-	10	22	-	48	16	14	38	71
GN 816-6-M12x1,5-BK	6	M 12 x 1,5	16	-	17	-	-	8	20	-	43	14	13	28	30
GN 816-8-M12x1,5-BK	8	M 12 x 1,5	16	-	17	-	-	8	20	-	43	14	13	28	42
GN 816-8-M16x1,5-BK	8	M 16 x 1,5	18	-	17	20	-	10	22	-	48	16	14	38	50
GN 816-10-M16x1,5-BK	10	M 16 x 1,5	18	-	17	20	-	10	22	-	48	16	14	38	71



Locking plungers

Pin in normal position retracted

SPECIFICATION

Types

- Type **A**: Operation with knob, sleeve black, without lock nut
- Type **AK**: Operation with knob, sleeve black, with lock nut
- Type **AR**: Operation with knob, sleeve red, without lock nut
- Type **ARK**: Operation with knob, sleeve red, with lock nut
- Type **B**: Operation with key, sleeve black without lock nut
- Type **BK**: Operation with key, sleeve black, with lock nut

Threaded body
Steel zinc plated, blue passivated

Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

Sleeve
Plastic (Polyamid PA)

- black, matt or red
- not removable

INFORMATION

If not operated, the plunger of the locking plungers GN 816.1 protrudes. To retract, move against the spring force and hold in the end position by turning by 90°.

The shape of the cam curve secures the plunger against accidental operation.

When operating button (Type AR / ARK), the visible **red** covering sleeve indicates the locking status: Indexing pin does **not** protrude.

For the execution with operation with key (Type B / BK) a key is required to move the plunger. In this execution, a cover sleeve provides additional security and safety from unauthorized removal of the locking plunger. The cover sleeve also provides additional protection against malfunction caused by dirt.

- Range of indexing plungers (see page 738)



ACCESSORY

Keys **GN 816.1-10**

Plastic (Polyamide PA)

(Locking plungers Ø 6 and Ø 8 have the same keys)

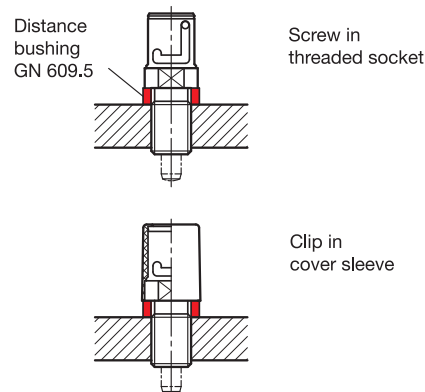
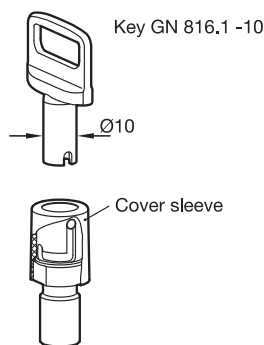
TECHNICAL INFORMATION

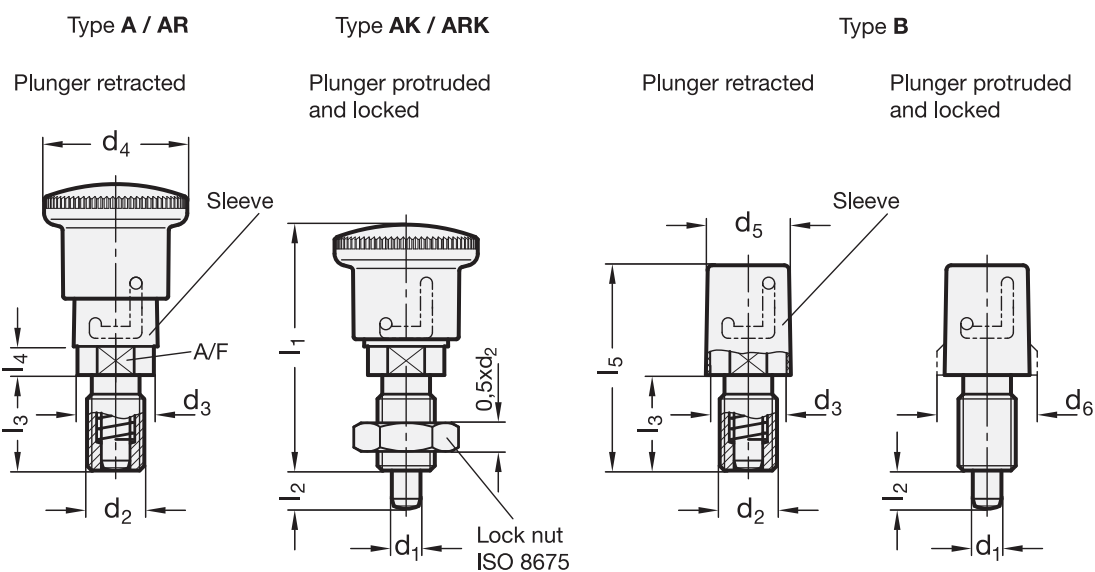
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

ASSEMBLY INSTRUCTION

Version with key (Type B / Type BK)

Assembly instruction





GN 816.1

Description	d1 Pin 0/-0.05 Bore +0.15/+0.07	d2	d3	d4	d5	d6	l1 ≈	l2	l3	l4 ≈	l5	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 816.1-6-M12x1,5-A	6	M 12 x 1.5	16	28	-	-	51.5	8	20	6	-	14	12	27	50
GN 816.1-8-M16x1,5-A	8	M 16 x 1.5	18	28	-	-	54.5	10	22	6	-	16	12	35	50
GN 816.1-6-M12x1,5-AK	6	M 12 x 1.5	16	28	-	-	51.5	8	20	6	-	14	12	27	55
GN 816.1-8-M16x1,5-AK	8	M 16 x 1.5	18	28	-	-	54.5	10	22	6	-	16	12	35	80
GN 816.1-6-M12x1,5-AR	6	M 12 x 1.5	16	28	-	-	51.5	8	20	6	-	14	12	27	50
GN 816.1-8-M16x1,5-AR	8	M 16 x 1.5	18	28	-	-	54.5	10	22	6	-	16	12	35	50
GN 816.1-6-M12x1,5-ARK	6	M 12 x 1.5	16	28	-	-	51.5	8	20	6	-	14	12	27	55
GN 816.1-8-M16x1,5-ARK	8	M 16 x 1.5	18	28	-	-	54.5	10	22	6	-	16	12	35	80
GN 816.1-6-M12x1,5-B	6	M 12 x 1.5	16	-	17	-	-	8	20	-	43	14	12	27	43
GN 816.1-8-M16x1,5-B	8	M 16 x 1.5	18	-	17	20	-	10	22	-	48	16	12	35	50
GN 816.1-6-M12x1,5-BK	6	M 12 x 1.5	16	-	17	-	-	8	20	-	43	14	12	27	43
GN 816.1-8-M16x1,5-BK	8	M 16 x 1.5	18	-	17	20	-	10	22	-	48	16	12	35	70



Indexing plungers

Steel / Stainless Steel, with click-type safety lock, unlocking with push-button

SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Version in Steel

- blackened
- Pin hardened

Version in Stainless Steel AISI 303 NI

Pin chemically nickel plated

Knob

Plastic (Polyamide PA)

- black matt finish
- not removable
- black grey, RAL 7021, matt

Push-button

Technopolymer (Polyacetal POM)

red, RAL 3000, matt



INFORMATION

Indexing plungers GN 414.1 with click-type safety lock are used when the plunger pin is to be briefly prevented from protruding. When the pin is retracted to its end position, the button engages with a clearly audible click.

The safety lock can be unlocked only by exerting axial pressure on the red safety pushbutton, with the plunger pin then returning to its starting position by spring force.

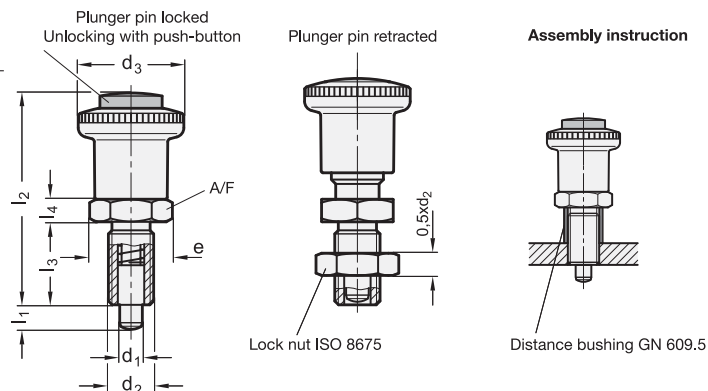
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

* Complete with type index of the Indexing plungers (A or AK)

A	AK
without lock nut	with lock nut



GN 414.1

Description	d1 Pin -0.02/-0.04 Bore H7	l1 min.	d2	d3	e	l2 ≈	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 414.1-6-6-*	6	6	M 12 x 1.5	30	21.9	53.5	22	6	19	6.5	19	47
GN 414.1-6-9-*	6	9	M 12 x 1.5	30	21.9	53.5	22	6	19	6	25	48
GN 414.1-8-8-*	8	8	M 16 x 1.5	30	21.9	59.5	26	8	19	8.5	26	74
GN 414.1-8-12-*	8	12	M 16 x 1.5	30	21.9	59.5	26	8	19	8.5	28	77
GN 414.1-10-12-*	10	12	M 16 x 1.5	30	21.9	59.5	26	8	19	9.5	38	78

GN 414.1-NI

STAINLESS STEEL

Description	d1 Pin -0.02/-0.04 Bore H7	l1 min.	d2	d3	e	l2 ≈	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 414.1-6-6-* -NI	6	6	M 12 x 1.5	30	21.9	53.5	22	6	19	6.5	19	47
GN 414.1-6-9-* -NI	6	9	M 12 x 1.5	30	21.9	53.5	22	6	19	6	25	49
GN 414.1-8-8-* -NI	8	8	M 16 x 1.5	30	21.9	59.5	26	8	19	8.5	26	75
GN 414.1-8-12-* -NI	8	12	M 16 x 1.5	30	21.9	59.5	26	8	19	8.5	28	78
GN 414.1-10-12-* -NI	10	12	M 16 x 1.5	30	21.9	59.5	26	8	19	9.5	38	79

Weight type A

Locking plungers with PUSH-PUSH locking mechanism

SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Steel

- nitrided
- blackened

Knob

Plastic (Polyamide PA)
black, matt



INFORMATION

The indexing pin in the locking plungers GN 514 is moved via a so-called cardioid mechanism.

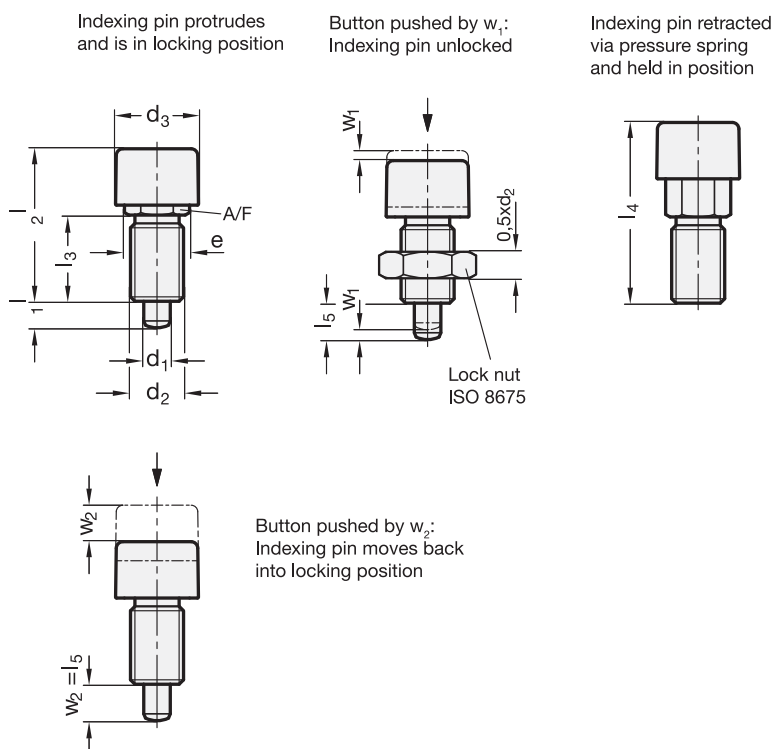
This mechanism means that the indexing pin is both extended and retracted alone by **pressing** the operating button (PUSH-PUSH locking mechanism).

Please note that the indexing pin **cannot absorb any axial forces** and that it retracts virtually by spring action; the indexing pin must therefore remain free and easy to move.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



GN 514

Description	d1 Pin -0.02/-0.04 Bore H7	d2	d3	e	l1	l2	l3	l4	l5	A/F	w1	w2	Spring load in N $\approx$ initial	Spring load in N $\approx$ end	
GN 514-6-A	6	M 12 x 1.5	19	15	6	38	20	44.5	9	13	3	9	8.5	25	28
GN 514-8-A	8	M 16 x 1.5	25	19	8	46	26	54.5	11	17	3	11	18	44	46
GN 514-6-AK	6	M 12 x 1.5	19	15	6	38	20	44.5	9	13	3	9	8.5	25	35
GN 514-8-AK	8	M 16 x 1.5	25	19	8	46	26	54.5	11	17	3	11	18	44	79

Spring bolts

Steel / Stainless Steel, Pin retracted in normal position

SPECIFICATION

Types

- Type **A**: with knob, without lock nut
- Type **AK**: with knob, with lock nut
- Type **D**: without knob, without lock nut
- Type **DK**: without knob, with lock nut

Identification no.

- Version **1**: Plunger without internal thread
- Version **2**: Plunger with internal thread

Guide (Threaded socket)

Steel **ST**
blackened

Guide (Threaded socket)
Stainless Steel AISI 303 **NI**

Pin

Stainless Steel

- AISI 303
- chemically nickel plated

Knob

Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

The pin of the spring bolts GN 313 does not protrude in the inoperative position.

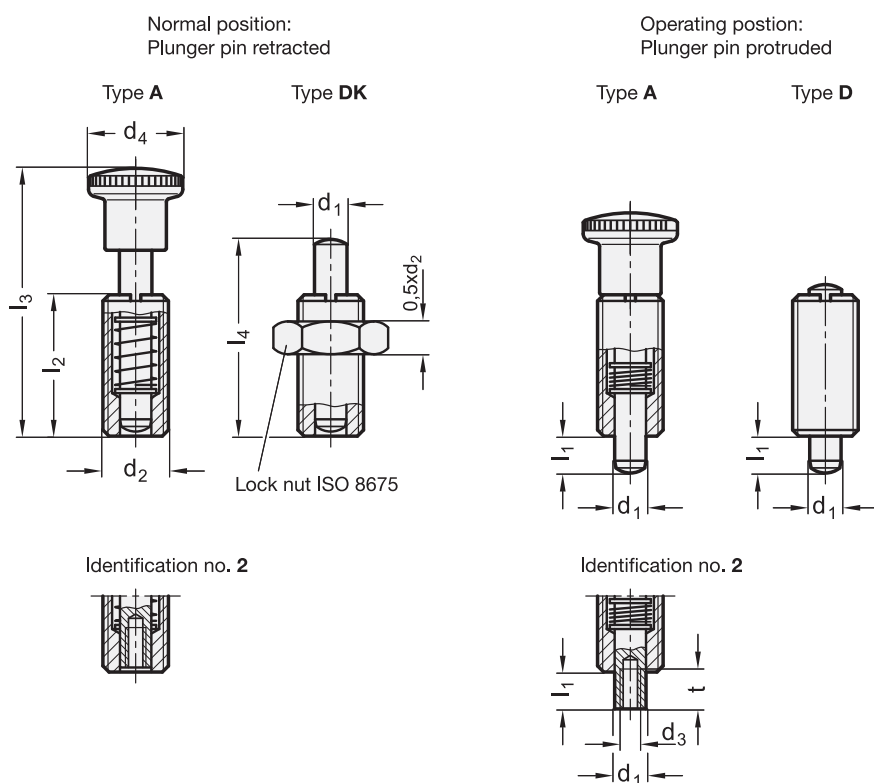
It can be operated manually or in Type D and DK mechanically (pneumatic cylinder, cam plate, etc.) when it will protrude only as long as it is operated.

Using the internal thread at identification 2 on the pressure side, special pressure bolts or a rod arrangement can be operated, for instance.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)





*Complete with type index of the Indexing plungers (A, AK, D or DK)

A AK D DK

GN 313

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	d4	l1	l2	l3 ≈	l4 ≈	t min.	Spring load in N initial	Spring load in N ≈ end	⚖
GN 313-5-*-1-ST	5	M 10 x 1	-	16	6	22	42	29	-	8	20	13
GN 313-6-*-1-ST	6	M 12 x 1.5	-	19	7	26	49	35	-	9	28	21
GN 313-8-*-1-ST	8	M 16 x 1.5	-	23	9	34	65	48	-	12	40	48
GN 313-10-*-1-ST	10	M 20 x 1.5	-	28	11	43	78	57	-	22	50	98
GN 313-5-*-2-ST	5	M 10 x 1	M 3	16	6	22	42	29	7	8	20	13
GN 313-6-*-2-ST	6	M 12 x 1.5	M 4	19	7	26	49	35	7	9	28	20
GN 313-8-*-2-ST	8	M 16 x 1.5	M 5	23	9	34	65	48	9	12	40	47
GN 313-10-*-2-ST	10	M 20 x 1.5	M 6	28	11	43	78	57	12	22	50	75

GN 313-NI

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	d4	l1	l2	l3 ≈	l4 ≈	t min.	Spring load in N initial	Spring load in N ≈ end	⚖
GN 313-5-*-1-NI	5	M 10 x 1	-	16	6	22	42	29	-	7	18	13
GN 313-6-*-1-NI	6	M 12 x 1.5	-	19	7	26	49	35	-	8	21	21
GN 313-8-*-1-NI	8	M 16 x 1.5	-	23	9	34	65	48	-	11	32	48
GN 313-10-*-1-NI	10	M 20 x 1.5	-	28	11	43	78	57	-	18	43	100
GN 313-5-*-2-NI	5	M 10 x 1	M 3	16	6	22	42	29	7	7	18	13
GN 313-6-*-2-NI	6	M 12 x 1.5	M 4	19	7	26	49	35	7	8	21	21
GN 313-8-*-2-NI	8	M 16 x 1.5	M 5	23	9	34	65	48	9	11	32	47
GN 313-10-*-2-NI	10	M 20 x 1.5	M 6	28	11	43	78	57	12	18	43	65

Weight type A



80

Indexing elements

Clamping knobs with indexing plungers

SPECIFICATION

Knurled knob GN 7336 (see page)
 Plastic (Polyamide PA)
 black, matt
 Cover
 Plastic (Polyamide PA)
 light grey, matt
 Fixing thread
 Steel zinc plated, blue passivated
 Plunger pin
 Stainless Steel AISI 303

INFORMATION

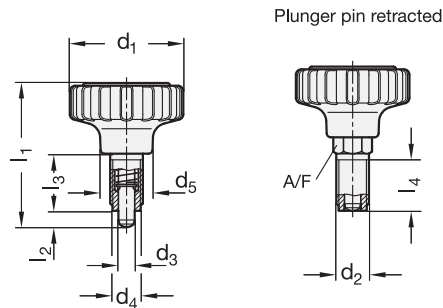
Clamping knobs with indexing plunger GN 7336.7 are used for positioning, securing and clamping adjusting elements at the same time.

The axial movement of the handle (pulling) pulls the indexing pin from the engaged position against the spring force, with the star know at the same time remaining connected with form-lock to the clamping screw via a hexagonal element, allowing both clamping and releasing.

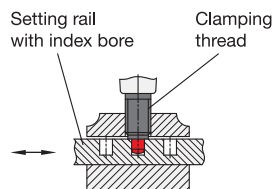
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

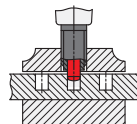
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



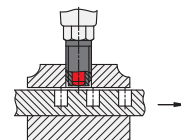
Assembly example



Setting rail positioned through indexing plunger, clamped with in position clamping handle



Clamping action released, indexing plunger still engaged



Clamping action released, indexing plunger disengaged, setting rail can be moved

GN 7336.7

Description	d1	d2	d3 Pin -0.02/-0.04 Bore G7	d4	d5	l1	l2	l3	l4 min.	A/F	Spring load in N $\approx$ initial	Spring load in N $\approx$ end	
GN 7336.7-34-M10x1-5	34	M 10 x 1	5	8.6	15.5	45	5	19	17	10	7	17	25
GN 7336.7-42-M12x1,5-6	42	M 12 x 1.5	6	9.9	19	53	6	21	19	12	9	24	41
GN 7336.7-53-M12x1,5-6	53	M 12 x 1.5	6	9.9	22.5	59	6	21	19	12	9	24	60
GN 7336.7-53-M16x1,5-8	53	M 16 x 1.5	8	13.9	22.5	68	8	28	26	16	11	30	90

Clamping indexing plungers

with safety function

SPECIFICATION

Knurled knob
Plastic (Polyamide PA)
black, matt

Cover
Plastic (Polyamide PA)
light grey, matt

Fixing thread
Steel zinc plated, blue passivated

Plunger pin
Steel nitrided and blackened

INFORMATION

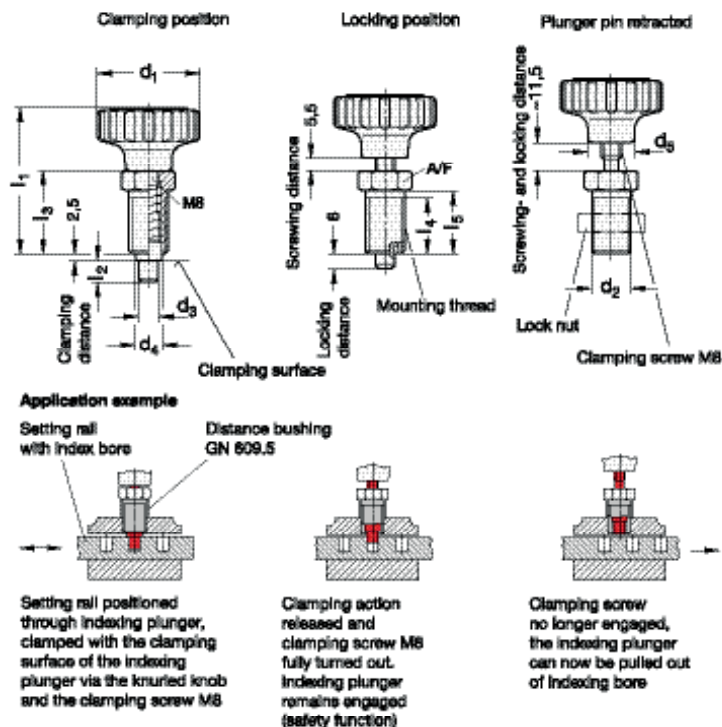
Clamping indexing GN 7336.8 plungers are an advanced development of the GN 7336.7 clamping knobs with indexing plunger.

Like the latter, they are used for positioning, securing and clamping adjusting elements at the same time. This configuration ensures that the indexing pin cannot be pulled from the indexing bore by turning the knurled knob, but only by deliberately pulling the handle (safety function).

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



GN 7336.8

Description	d1	d2	d3 Pin -0.02/-0.04 Bore G7	d4	d5	l1	l2	l3	l4 min.	l5	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 7336.8-42-M16x1,5-6	42	M 16 x 1.5	6	11	19	60	9	34	23	26	19	14	26	90
GN 7336.8-42-M16x1,5-8	42	M 16 x 1.5	8	11	19	60	9	34	23	26	19	14	26	96
GN 7336.8-53-M16x1,5-6	53	M 16 x 1.5	6	11	24	66	9	34	23	26	19	14	26	120
GN 7336.8-53-M16x1,5-8	53	M 16 x 1.5	8	11	24	66	9	34	23	26	19	14	26	120

Indexing plungers

SUPER-technopolymer body

THREADED BODY

Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer.

PLUNGER

Black-oxide hardened steel or AISI 303 stainless steel.
Suggested tolerance for matching hole = H7.

KNOB

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

SPRING

AISI 302 stainless steel.

LOCKING NUT NTT

Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer.
Available also as accessory sold separately (see table NTT).

STANDARD EXECUTIONS

- **PMT.110-A:** black-oxide steel plunger, without locking nut.
- **PMT.110-AK:** black-oxide steel plunger, with locking nut (supplied not assembled).
- **PMT.110-SST-A:** AISI 303 stainless steel plunger, without locking nut, not magnetic.
- **PMT.110-SST-AK:** AISI 303 stainless steel plunger, with locking nut (supplied not assembled), not magnetic.

FEATURES AND APPLICATIONS

- Lightness and high mechanical resistance of the product.
- Anticorrosive material: suitable even in the presence of liquid or humidity (PMT.110-SST).
- The SUPER-technopolymer threaded body of the plunger offers a low friction factor to the plunger stroke; no lubricating maintenance is required.
- Resistant to several cleaning cycles with solvents and other chemical agents, for this reason they are suitable for applications as in the pharmaceutical or food industry.

ASSEMBLY INSTRUCTIONS

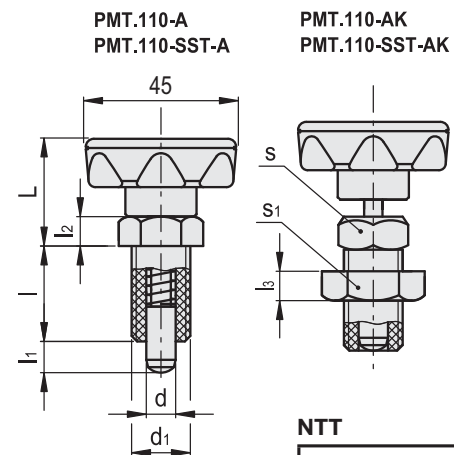
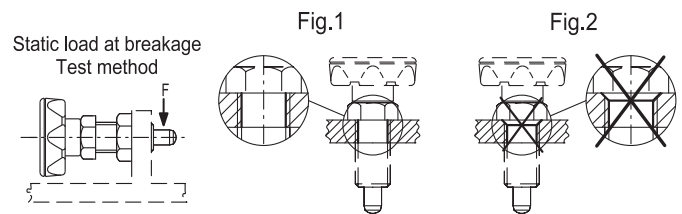
Make sure that no machining residues are left on the threaded hole for the tightening of PMT.110 indexing plunger (see fig. 1). Do not make any chamfering in the hole (see fig. 2).

SUPER-technopolymer product based on ELESA technology, dimensions of the threaded body and plunger according to GN 612 standards as agreed with Otto Ganter GmbH Co. KG.

ELK knob type: ELESA original design.



ELESA Original design



NTT

Code	Description
301087	NTT-M16x1,5
301089	NTT-M20x1,5

PMT.110

Code	Description	d-0.15-0.1	d1	L	l	l1	l2	l3	s	s1	[N]*	[N]#	Max. tightening torque [Nm]	Static load at breakage F [N]	⚖
51811	PMT.110-8-M16x1.5-A	8	M16x1.5	34	26	8	8	-	19	-	11	30	18	5900	47
51821	PMT.110-8-M16x1.5-AK	8	M16x1.5	34	26	8	8	10	19	24	11	30	18	5900	51
51812	PMT.110-10-M20x1.5-A	10	M20x1.5	36	33	10	10	-	22	-	19	45	25	7700	62
51822	PMT.110-10-M20x1.5-AK	10	M20x1.5	36	33	10	10	11	22	30	19	45	25	7700	70

PMT.110-SST

Code	Description	d	d1	L	l	l1	l2	l3	s	s1	[N]*	[N]#	Max. tightening torque [Nm]	Static load at breakage F [N]	⚖
51831	PMT.110-SST-8-M16x1.5-A	8	M16x1.5	34	26	8	8	-	19	-	11	30	18	4400	47
51841	PMT.110-SST-8-M16x1.5-AK	8	M16x1.5	34	26	8	8	10	19	24	11	30	18	4400	51
51832	PMT.110-SST-10-M20x1.5-A	10	M20x1.5	36	33	10	10	-	22	-	19	45	25	6800	62
51842	PMT.110-SST-10-M20x1.5-AK	10	M20x1.5	36	33	10	10	11	22	30	19	45	25	6800	70

STAINLESS STEEL

* Spring preload

Spring maximum load

Flat hexagonal nuts

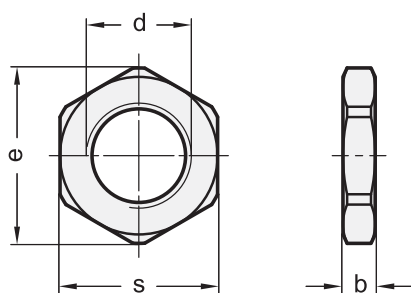
for indexing plungers

SPECIFICATION

Steel
blackened **BT**

INFORMATION

With their smaller dimensions, flat hexagonal nuts GN 909 expand the mounting options of indexing plungers and cam action indexing plungers.



Stainless Steel- Flat hexagonal nuts

for indexing plungers

SPECIFICATION

Stainless Steel AISI 303

INFORMATION

With their smaller dimensions, flat hexagonal nuts GN 909.5 expand the mounting options of indexing plungers and cam action indexing plungers.

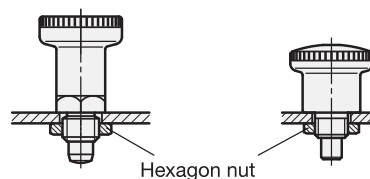
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



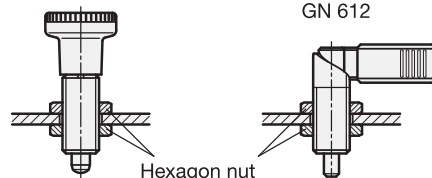
Indexing plungers
GN 607 / GN 607.1

Indexing plunger
GN 822



Indexing plunger
GN 613

Cam action
indexing plunger
GN 612



GN 909

Description	d	b	e	s	
GN 909-M8x1-BT	M 8 x 1	3.5	14.3	13	3
GN 909-M10x1-BT	M 10 x 1	3.5	16.6	15	3
GN 909-M12x1,5-BT	M 12 x 1.5	4	18.9	17	4
GN 909-M16x1,5-BT	M 16 x 1.5	4.5	24.5	22	8
GN 909-M20x1,5-BT	M 20 x 1.5	4.5	29.5	27	11

GN 909.5

STAINLESS STEEL

Description	d	b	e	s	
GN 909.5-M8x1	M 8 x 1	3.5	14.3	13	3
GN 909.5-M10x1	M 10 x 1	3.5	16.6	15	3
GN 909.5-M12x1,5	M 12 x 1.5	4	18.9	17	4
GN 909.5-M16x1,5	M 16 x 1.5	4.5	24.5	22	8
GN 909.5-M20x1,5	M 20 x 1.5	4.5	29.5	27	11



Stainless Steel- Distance bushings

for indexing plungers /
cam action indexing plungers assembly

SPECIFICATION

Stainless Steel AISI 303

INFORMATION

Distance bushings GN 609.5 compensate for the body thread length on the indexing plungers to allow mounting through walls of varying thickness.

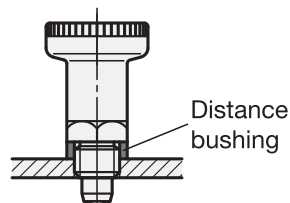
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

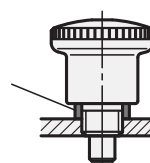


Examples of application

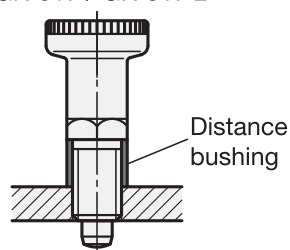
Indexing plungers
GN 607 / GN 607.1



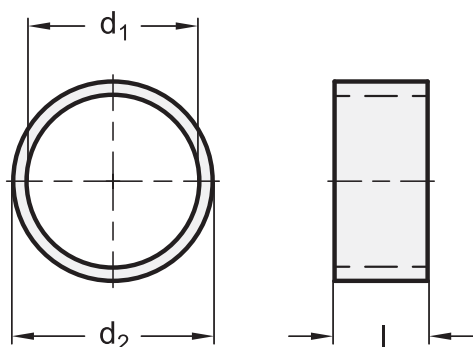
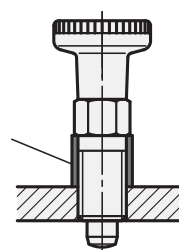
Indexing plunger
GN 822



Indexing plungers
GN 617 / GN 617.1
GN 817 / GN 817.2



Indexing plunger
GN 717



GN 609.5

STAINLESS STEEL

Description	d1 H12	d2 -0.1	l ±0.1	For thread Ø	For indexing plungers	
GN 609.5-6-7-2	6	7	2	M 6	GN 717	1
GN 609.5-6-7-4	6	7	4	M 6	GN 717	1
GN 609.5-6-7-6	6	7	6	M 6	GN 717	1
GN 609.5-6-7-8	6	7	8	M 6	GN 717	1
GN 609.5-8-10-2	8	10	2	M 8	GN 717 / GN 817 / GN 817.2 / GN 822	1
GN 609.5-8-10-4	8	10	4	M 8	GN 717 / GN 817 / GN 817.2 / GN 822	1
GN 609.5-8-10-6	8	10	6	M 8	GN 717 / GN 817 / GN 817.2 / GN 822	1
GN 609.5-8-10-8	8	10	8	M 8	GN 717 / GN 817 / GN 817.2 / GN 822	2
GN 609.5-8-10-10	8	10	10	M 8	GN 717 / GN 817 / GN 817.2 / GN 822	3
GN 609.5-10-12-2	10	12	2	M 10	GN 617 .1 .2 / GN 717 / GN 817 .2 .4 .8 / GN 822 .1 .6 .7	1
GN 609.5-10-12-4	10	12	4	M 10	GN 617 .1 .2 / GN 717 / GN 817 .2 .4 .8 / GN 822 .1 .6 .7	2
GN 609.5-10-12-6	10	12	6	M 10	GN 617 .1 .2 / GN 717 / GN 817 .2 .4 .8 / GN 822 .1 .6 .7	2
GN 609.5-10-12-8	10	12	8	M 10	GN 617 .1 .2 / GN 717 / GN 817 .2 .4 .8 / GN 822 .1 .6 .7	2
GN 609.5-10-12-10	10	12	10	M 10	GN 617 .1 .2 / GN 717 / GN 817 .2 .4 .8 / GN 822 .1 .6 .7	3
GN 609.5-10-12-12	10	12	12	M 10	GN 617 .1 .2 / GN 717 / GN 817 .2 .4 .8 / GN 822 .1 .6 .7	3
GN 609.5-12-14-2	12	14	2	M 12	GN 617 .1 .2 / GN 717 / PMT.200 / GN 816 .1 .2 .4 .8 / GN 514 / GN 612.8 / GN 822 .1 .6 .7	1
GN 609.5-12-14-4	12	14	4	M 12	GN 617 .1 .2 / GN 717 / PMT.200 / GN 816 .1 .2 .4 .8 / GN 514 / GN 612.8 / GN 822 .1 .6 .7	1
GN 609.5-12-14-6	12	14	6	M 12	GN 617 .1 .2 / GN 717 / PMT.200 / GN 816 .1 .2 .4 .8 / GN 514 / GN 612.8 / GN 822 .1 .6 .7	2
GN 609.5-12-14-8	12	14	8	M 12	GN 617 .1 .2 / GN 717 / PMT.200 / GN 816 .1 .2 .4 .8 / GN 514 / GN 612.8 / GN 822 .1 .6 .7	2
GN 609.5-12-14-10	12	14	10	M 12	GN 617 .1 .2 / GN 717 / PMT.200 / GN 816 .1 .2 .4 .8 / GN 514 / GN 612.8 / GN 822 .1 .6 .7	2
GN 609.5-12-14-12	12	14	12	M 12	GN 617 .1 .2 / GN 717 / PMT.200 / GN 816 .1 .2 .4 .8 / GN 514 / GN 612.8 / GN 822 .1 .6 .7	4
GN 609.5-12-14-14	12	14	14	M 12	GN 617 .1 .2 / GN 717 / PMT.200 / GN 816 .1 .2 .4 .8 / GN 514 / GN 612.8 / GN 822 .1 .6 .7	4
GN 609.5-12-17-2	12	17	2	M 12	GN 414 .1 .2 / GN 607 .1 .2	2
GN 609.5-12-17-4	12	17	4	M 12	GN 414 .1 .2 / GN 607 .1 .2	3
GN 609.5-12-17-5	12	17	5	M 12	GN 414 .1 .2 / GN 607 .1 .2	4
GN 609.5-12-17-6	12	17	6	M 12	GN 414 .1 .2 / GN 607 .1 .2	6
GN 609.5-12-17-8	12	17	8	M 12	GN 414 .1 .2 / GN 607 .1 .2	7
GN 609.5-12-17-10	12	17	10	M 12	GN 414 .1 .2 / GN 607 .1 .2	8
GN 609.5-12-17-12	12	17	12	M 12	GN 414 .1 .2 / GN 607 .1 .2	10
GN 609.5-16-17-2	16	17	2	M 16	GN 514 / GN 717 / GN 816 .1 .2 .4 .8 / GN 822 .1 .6 .7 .8	1
GN 609.5-16-17-4	16	17	4	M 16	GN 514 / GN 717 / GN 816 .1 .2 .4 .8 / GN 822 .1 .6 .7 .8	1
GN 609.5-16-17-6	16	17	6	M 16	GN 514 / GN 717 / GN 816 .1 .2 .4 .8 / GN 822 .1 .6 .7 .8	1
GN 609.5-16-17-8	16	17	8	M 16	GN 514 / GN 717 / GN 816 .1 .2 .4 .8 / GN 822 .1 .6 .7 .8	1
GN 609.5-16-17-10	16	17	10	M 16	GN 514 / GN 717 / GN 816 .1 .2 .4 .8 / GN 822 .1 .6 .7 .8	2
GN 609.5-16-17-12	16	17	12	M 16	GN 514 / GN 717 / GN 816 .1 .2 .4 .8 / GN 822 .1 .6 .7 .8	2
GN 609.5-16-19-2	16	19	2	M 16	GN 414 .1 .2 / GN 607 .1 .2 / GN 612.8 / PMT.200 / GN 617 .1 .2 .4 .8 / GN 7336.8 / GN 816.1 / GN 822 .1 .6 .7	1
GN 609.5-16-19-4	16	19	4	M 16	GN 414 .1 .2 / GN 607 .1 .2 / GN 612.8 / PMT.200 / GN 617 .1 .2 .4 .8 / GN 7336.8 / GN 816.1 / GN 822 .1 .6 .7	2
GN 609.5-16-19-6	16	19	6	M 16	GN 414 .1 .2 / GN 607 .1 .2 / GN 612.8 / PMT.200 / GN 617 .1 .2 .4 .8 / GN 7336.8 / GN 816.1 / GN 822 .1 .6 .7	4
GN 609.5-16-19-8	16	19	8	M 16	GN 414 .1 .2 / GN 607 .1 .2 / GN 612.8 / PMT.200 / GN 617 .1 .2 .4 .8 / GN 7336.8 / GN 816.1 / GN 822 .1 .6 .7	5
GN 609.5-16-19-10	16	19	10	M 16	GN 414 .1 .2 / GN 607 .1 .2 / GN 612.8 / PMT.200 / GN 617 .1 .2 .4 .8 / GN 7336.8 / GN 816.1 / GN 822 .1 .6 .7	6
GN 609.5-16-19-12	16	19	12	M 16	GN 414 .1 .2 / GN 607 .1 .2 / GN 612.8 / PMT.200 / GN 617 .1 .2 .4 .8 / GN 7336.8 / GN 816.1 / GN 822 .1 .6 .7	7
GN 609.5-20-22-6	20	22	6	M 20	GN 612.8 / GN 617 .1 .2 / GN 817 .2 .4 .8	3
GN 609.5-20-22-8	20	22	8	M 20	GN 612.8 / GN 617 .1 .2 / GN 817 .2 .4 .8	4
GN 609.5-20-22-10	20	22	10	M 20	GN 612.8 / GN 617 .1 .2 / GN 817 .2 .4 .8	10
GN 609.5-20-22-12	20	22	12	M 20	GN 612.8 / GN 617 .1 .2 / GN 817 .2 .4 .8	6
GN 609.5-20-22-14	20	22	14	M 20	GN 612.8 / GN 617 .1 .2 / GN 817 .2 .4 .8	7
GN 609.5-20-22-16	20	22	16	M 20	GN 612.8 / GN 617 .1 .2 / GN 817 .2 .4 .8	9
GN 609.5-20-22-18	20	22	18	M 20	GN 612.8 / GN 617 .1 .2 / GN 817 .2 .4 .8	9



Positioning bushings with ramping cone for indexing plungers

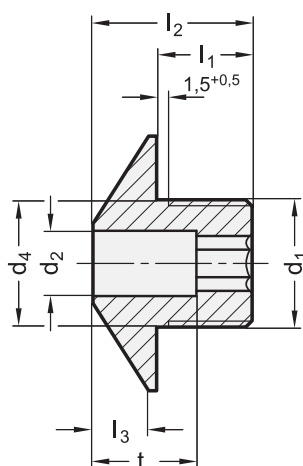
SPECIFICATION

Steel

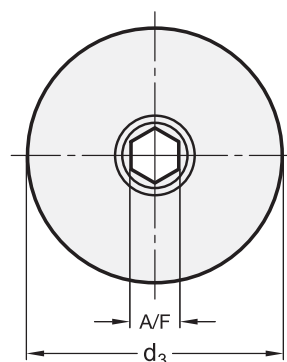
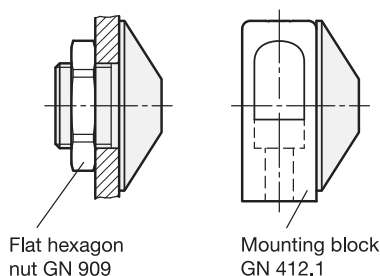
- hardened
- blackened

INFORMATION

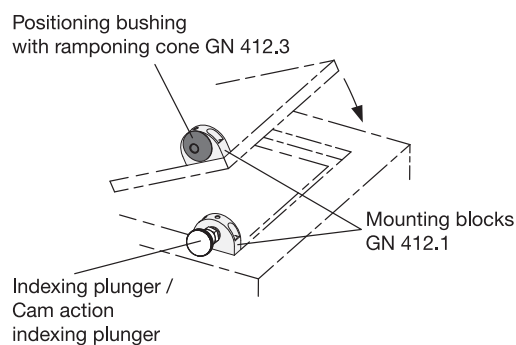
Positioning bushings with ramping cone GN 412.3 are used in connection with bolts of indexing plungers. The threads are adapted to the mounting blocks GN 412.1 (see page 814) and GN 612.1 (see page 815).



Assembly examples



Application example



GN 412.3

Description	d1	d2 +0.1	d3	d4 -0.05	l1	l2	l3	A/F	t	
GN 412.3-M12x1,5-B5,2	M 12 x 1,5	B 5,2	24	12	10	16	5	4	11	16
GN 412.3-M12x1,5-B6,2	M 12 x 1,5	B 6,2	24	12	10	16	5	4	11	16
GN 412.3-M16x1,5-B8,2	M 16 x 1,5	B 8,2	32	16	12	20	7	6	13	36
GN 412.3-M16x1,5-B10,2	M 16 x 1,5	B 10,2	32	16	12	20	7	6	13	35

Positioning bushings

for indexing plungers / cam action indexing plungers

SPECIFICATION

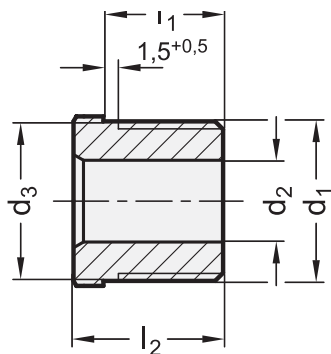
Steel

- hardened
- blackened

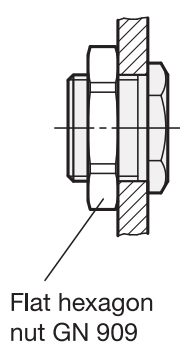
INFORMATION

Positioning bushings GN 412.2 are used in connection with bolts of indexing plungers and cam action indexing plungers.

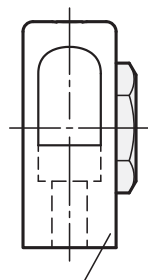
The threads are adapted to the mounting blocks GN 412.1 (see page 814) and GN 612.1 (see page 815).



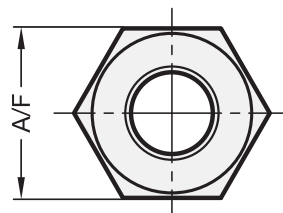
Assembly examples



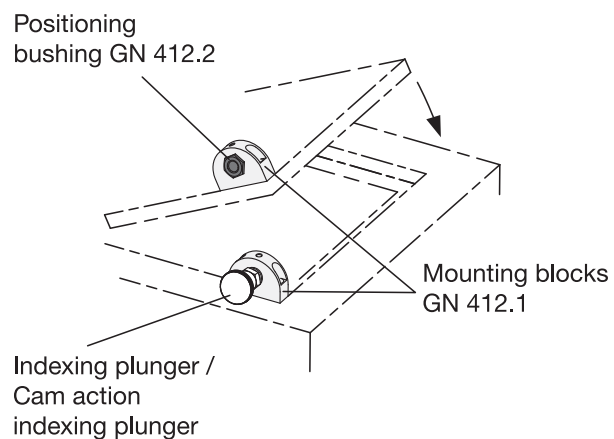
Flat hexagon nut GN 909



Mounting block GN 412.1



Application example



GN 412.2

Description	d1	d2 +0.1	d3 -0.05	l1 -0.2	l2	A/F	⚖
GN 412.2-M12x1,5-B4,2	M 12 x 1.5	B 4.2	12	10	13	13	11
GN 412.2-M12x1,5-B5,2	M 12 x 1.5	B 5.2	12	10	13	13	11
GN 412.2-M12x1,5-B6,2	M 12 x 1.5	B 6.2	12	10	13	13	10
GN 412.2-M16x1,5-B8,2	M 16 x 1.5	B 8.2	16	12	15	17	19
GN 412.2-M16x1,5-B10,2	M 16 x 1.5	B 10.2	16	12	15	17	15
GN 412.2-M16x1,5-B12,2	M 16 x 1.5	B 12.2	16	12	15	17	10

Mounting blocks

for indexing plungers / cam action indexing plungers

SPECIFICATION

Identification no.

- No. **1**: Mounting from the front
- No. **2**: Mounting from the back

Zinc die casting

plastic coated
black, textured finish

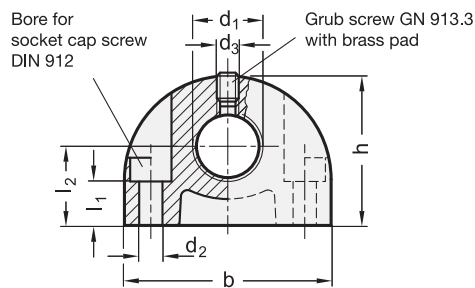
INFORMATION

Mounting blocks GN 412.1 are reasonably priced fitting aid for indexing plungers, cam action indexing plungers and for setting bolts and buffers.

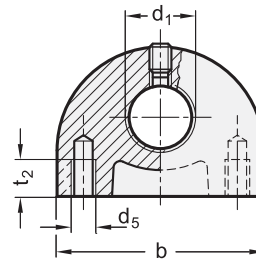
To position the indexing pin of an indexing plunger or cam action indexing plunger, they can also hold positioning bushings GN 412.2 (see page 813).



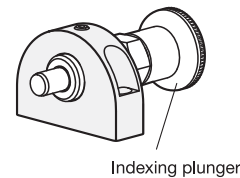
Identification no. 1



Identification no. 2



Application example



Indexing plunger

GN 412.1

Description	b	d1	d2	d3	d4	d5	h	k	l1	l2	s	t1	t2 min.	Δ
GN 412.1-35-M8-1	35	M 8	4.3	M 4	8.2	-	26	25	6	14	12	2	-	40
GN 412.1-35-M8x1-1	35	M 8 x 1	4.3	M 4	8.2	-	26	25	6	14	12	2	-	39
GN 412.1-35-M10-1	35	M 10	4.3	M 4	10.2	-	26	25	6	14	12	2	-	38
GN 412.1-35-M10x1-1	35	M 10 x 1	4.3	M 4	10.2	-	26	25	6	14	12	2	-	39
GN 412.1-35-M12-1	35	M 12	4.3	M 4	12.2	-	26	25	6	14	12	3	-	35
GN 412.1-35-M12x1,5-1	35	M 12 x 1.5	4.3	M 4	12.2	-	26	25	6	14	12	3	-	37
GN 412.1-47-M16-1	47	M 16	5.3	M 5	16.2	-	34	35	10	18	14	3	-	76
GN 412.1-47-M16x1,5-1	47	M 16 x 1.5	5.3	M 5	16.2	-	34	35	10	18	14	3	-	71
GN 412.1-47-M20x1,5-1	47	M 20 x 1.5	5.3	M 5	20.2	-	34	35	10	18	14	3	-	68
GN 412.1-35-M8-2	35	M 8	-	M 4	8.2	M 5	26	25	-	14	12	2	10	48
GN 412.1-35-M8x1-2	35	M 8 x 1	-	M 4	8.2	M 5	26	25	-	14	12	2	10	48
GN 412.1-35-M10-2	35	M 10	-	M 4	10.2	M 5	26	25	-	14	12	2	10	46
GN 412.1-35-M10x1-2	35	M 10 x 1	-	M 4	10.2	M 5	26	25	-	14	12	2	10	46
GN 412.1-35-M12-2	35	M 12	-	M 4	12.2	M 5	26	25	-	14	12	3	12	44
GN 412.1-35-M12x1,5-2	35	M 12 x 1.5	-	M 4	12.2	M 5	26	25	-	14	12	3	12	44
GN 412.1-47-M16-2	47	M 16	-	M 5	16.2	M 6	34	35	-	18	14	3	12	90
GN 412.1-47-M16x1,5-2	47	M 16 x 1.5	-	M 5	16.2	M 6	34	35	-	18	14	3	12	70
GN 412.1-47-M20x1,5-2	47	M 20 x 1.5	-	M 5	20.2	M 6	34	35	-	18	14	3	12	79

Mounting blocks

Steel / Stainless Steel, for indexing plungers /
cam action indexing plungers

SPECIFICATION

Types

- Type **A**: fixing holes parallel to plunger
- Type **B**: fixing holes vertical to plunger

Version in Steel

- blackened
- Grub screw GN 913.3 with brass pad (see page 921)

Version in Stainless Steel AISI 303 NI

Grub screw GN 913.5 with brass pad (see page 922)

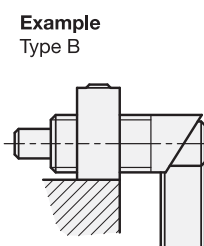
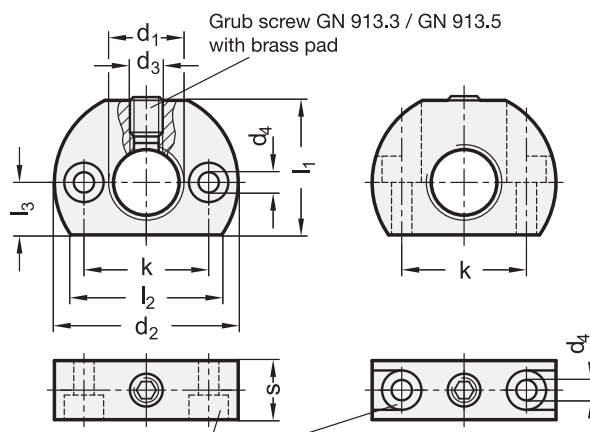
INFORMATION

Mounting blocks GN 612.1 broaden the mounting possibilities and are added feature for the cam action indexing plungers GN 612 (see page 820) and cam action indexing plungers GN 712 (see page 823) / GN 712.1 (see page 824).

To position the indexing pin of an indexing plunger or cam action indexing plunger, they can also hold GN 412.2 (see page 813) positioning bushings.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 612.1

Description	d1	d2	d3	d4	k ±0.1	l1	l2 ≈	l3	s	⚖
GN 612.1-M12x1,5-A	M 12 x 1.5	32	M 5	4.5	21	22	26.5	9	12	44
GN 612.1-M16x1,5-A	M 16 x 1.5	46	M 8	5.5	32	33	37	13	15	122
GN 612.1-M20x1,5-A	M 20 x 1.5	46	M 8	5.5	32	33	37	13	15	95
GN 612.1-M12x1,5-B	M 12 x 1.5	32	M 5	4.5	21	22	26.5	9	12	30
GN 612.1-M16x1,5-B	M 16 x 1.5	46	M 8	5.5	32	33	37	13	15	107
GN 612.1-M20x1,5-B	M 20 x 1.5	46	M 8	5.5	32	33	37	13	15	94

GN 612.1-NI

STAINLESS STEEL

Description	d1	d2	d3	d4	k ±0.1	l1	l2 ≈	l3	s	⚖
GN 612.1-M12x1,5-A-NI	M 12 x 1.5	32	M 5	4.5	21	22	26.5	9	12	43
GN 612.1-M16x1,5-A-NI	M 16 x 1.5	46	M 8	5.5	32	33	37	13	15	121
GN 612.1-M20x1,5-A-NI	M 20 x 1.5	46	M 8	5.5	32	33	37	13	15	110
GN 612.1-M12x1,5-B-NI	M 12 x 1.5	32	M 5	4.5	21	22	26.5	9	12	37
GN 612.1-M16x1,5-B-NI	M 16 x 1.5	46	M 8	5.5	32	33	37	13	15	56
GN 612.1-M20x1,5-B-NI	M 20 x 1.5	46	M 8	5.5	32	33	37	13	15	100

Cam action indexing plungers / Spring latches - Types

Unlocking by turning the plunger over curves

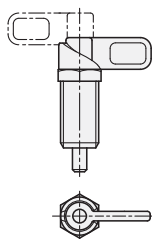


Indexing elements

GN 612.8

see page 825

Ø 4 / 5 / 6 / 8 / 10 / 12



Features:

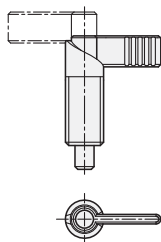
- Guide zinc die casting with nano®-coating
- Plunger pin steel, zinc plated
- Latch plastic
- Reasonably priced versions

GN 612

GN 612 ... NI

see page 820

Ø 4 / 5 / 6 / 8 / 10 / 12



Features:

- Guide steel, blackened or Stainless Steel
- Plunger pin steel, nitrided resp. Stainless Steel
- Latch steel, blackened resp. Stainless Steel
- Latch with or without plastic cover
- High precision plunger pin guide

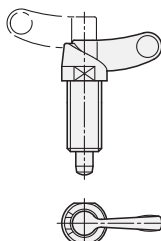
PMT.200

Indexing plunger

with lever

see page 822

Ø 4 / 5 / 6 / 8 / 10 / 12



Features:

- SUPER-technopolymer threaded body and lever. Lightness and high mechanical strength
- Steel (hardened) or Stainless Steel plunger pin
- Anticorrosive material: suitable even in the presence of liquid or humidity
- Low friction factor to the plunger stroke; no lubricating maintenance is required
- Resistant to several cleaning cycles with solvents and other chemical agents

GN 712

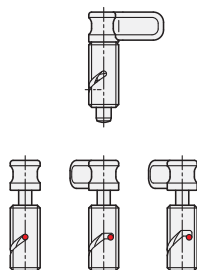
see page 823

Ø 6 / 8 / 10

Plunger pin in

standard position

protruded



Features:

- Plunger in end positions locked, not locked or arrested and additionally locked (safety version)
- Guide steel, zinc plated
- Plunger pin Stainless Steel
- Latch plastic

GN 712.1

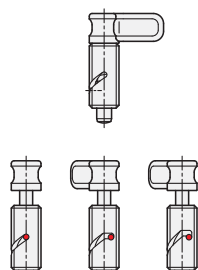
see page 824

Ø 6 / 8 / 10

Plunger pin in

standard position

retracted



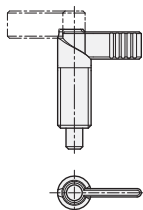
GN 721

GN 721.5

see page 826

Ø 5 / 6 / 8 / 10 /

without locking function



Features:

- Guide steel, blackened or Stainless Steel
- Plunger pin steel, hardened resp. Stainless Steel
- Latch steel, blackened resp. Stainless Steel
- Right- or left- hand lock
- Latch with or without plastic cover
- High precision plunger pin guide

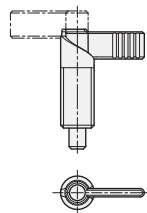
Cam action indexing plungers / Spring latches - Types

Unlocking by turning the plunger over curves

GN 721.1

GN 721.6

see page 828
Ø 4 / 5 / 6 / 8 / 10 / 12
with locking function

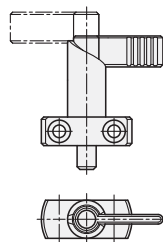


Features:

- Guide steel, blackened or Stainless Steel
- Plunger pin steel, hardened resp. Stainless steel
- Latch steel, blackened resp. Stainless Steel
- Right- or left- hand lock
- Latch with or without plastic cover
- High precision plunger pin guide

GN 612.2

see page 830
Ø 6 / 8 / 10 / 12

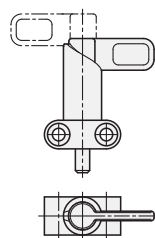


Features:

- Guide steel, blackened
- Plunger pin steel, nitrided
- Latch steel, blackened
- Latch with or without plastic cover

GN 612.9

see page 831
Ø 6 / 8 / 10 / 12

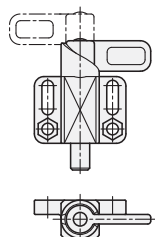


Features:

- Guide, Zinc die casting, black plastic coated
- Plunger pin steel, zinc plated
- Latch plastic
- Reasonably priced versions

GN 722.3

see page 832
Ø 8 / 10 / 12 / 14

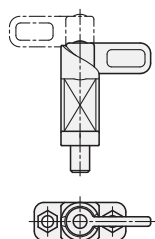


Features:

- Guide steel (fine casting), zinc plated or black plastic coated
- Plunger pin steel, zinc plated
- Latch steel, zinc plated
- Left or right indexing cam
- Designed for use in „steel construction“ or in „locksmith shops“ i.e. for less precise positioning

GN 722.2

see page 834
Ø 8 / 10 / 12 / 14



Features:

- Guide steel (fine casting), zinc plated or black plastic coated
- Plunger pin steel, zinc plated
- Latch position right-angled or parallel to fixing holes
- Designed for use in „steel construction“ or in „locksmith shops“ i.e. for less precise positioning



Indexing elements

Cam action indexing plungers / Spring latches - Types

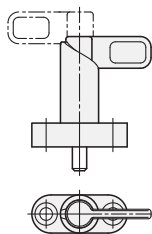
Unlocking by turning the plunger over curves



Indexing elements

GN 612.10

see page 836
Ø 6 / 8 / 10 / 12



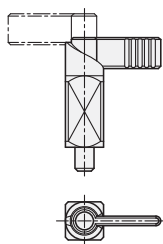
Features:

- Guide, zinc die casting, black plastic coated
- Plunger pin steel, zinc plated
- Latch plastic
- Reasonably priced versions

GN 612.3

GN 612.3 ... NI

see page 820
Ø 6 / 8 / 10 / 12



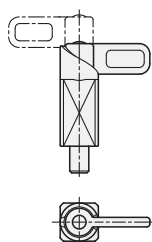
Features:

- Cam action indexing plunger for welding
- Guide steel, blackened or Stainless Steel
- Plunger pin steel, nitrided or Stainless Steel
- Latch with or without plastic cover

GN 722.1 ... ST

GN 722.1 ... A4

see page 838
Ø 8 / 10 / 12 / 14



Features:

- Cam action indexing plunger for welding
- Guide steel precision casting, blackened or Stainless Steel-precision casting
- Plunger pin steel, zinc plated or Stainless Steel
- Latch steel precision casting, blackened or Stainless Steel-precision casting
- Designed for use in „steel construction“ or in „locksmith shops“ i.e. for less precise positioning



8
Indexing elements

Cam action indexing plungers

Steel / Stainless Steel

SPECIFICATION

Types

- Type **A**: without plastic cover, without lock nut
- Type **B**: with plastic cover, without lock nut
- Type **AK**: without plastic cover, with lock nut
- Type **BK**: with plastic cover, with lock nut

Version in Steel

- blackened
- Pin nitrided

Version in Stainless Steel AISI 303 NI

Spring

Stainless Steel AISI 301

Plastic cover (Polyamide PA)

black, matt

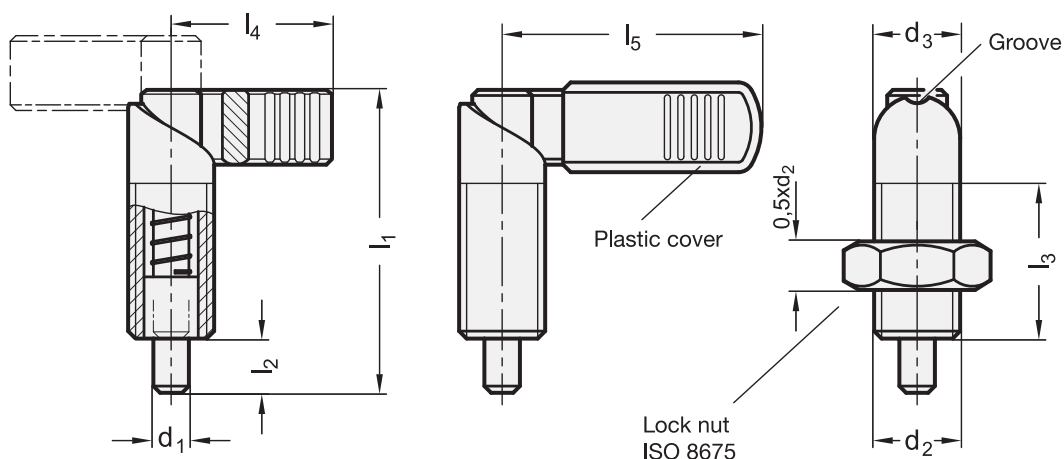
INFORMATION

Cam action indexing plungers GN 612 are used in cases where the locking pin must not protude all the time. By rotating the lock through 180° the locking pin withdraws itself. A groove is provided in either position to prevent the lock from rotating.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



* Complete with type index of the Cam action indexing plungers

A AK B BK

GN 612

Description	d1 Pin -0.02/-0.04 Bore H7	d2	d3	l1	l2	l3 +1.5	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612-4-M10-*	4**	M 10	10	37.5	6	19	21	-	7	20	17
GN 612-4-M10x1-*	4**	M 10 x 1	10	37.5	6	19	21	-	7	20	17
GN 612-5-M10-*	5**	M 10	10	37.5	6	19	21	-	7	20	17
GN 612-5-M10x1-*	5**	M 10 x 1	10	37.5	6	19	21	-	7	20	18
GN 612-5-M12-*	5	M 12	12	47	8	26	26	32	8	18	28
GN 612-5-M12x1,5-*	5	M 12 x 1.5	12	47	8	26	26	32	8	18	28
GN 612-6-M10-*	6**	M 10	10	37.5	6	19	21	-	7	20	18
GN 612-6-M10x1-*	6**	M 10 x 1	10	37.5	6	19	21	-	7	20	18
GN 612-6-M12-*	6	M 12	12	47	8	26	26	32	8	18	29
GN 612-6-M12x1,5-*	6	M 12 x 1.5	12	47	8	26	26	32	8	18	30
GN 612-6-M16-*	6	M 16	16	56	10	30	32	42	11	29	57
GN 612-6-M16x1,5-*	6	M 16 x 1.5	16	56	10	30	32	42	11	29	59
GN 612-8-M12-*	8	M 12	12	47	8	26	26	32	8	18	30
GN 612-8-M12x1,5-*	8	M 12 x 1.5	12	47	8	26	26	32	8	18	29
GN 612-8-M16-*	8	M 16	16	56	10	30	32	42	11	29	59
GN 612-8-M16x1,5-*	8	M 16 x 1.5	16	56	10	30	32	42	11	29	61
GN 612-8-M20x1,5-*	8	M 20 x 1.5	20	69	12	37	37	52	21	57	111
GN 612-8-M20-*	8	M 20	20	69	12	37	37	52	21	57	115
GN 612-10-M16x1,5-*	10	M 16 x 1.5	16	56	10	30	32	42	11	29	60
GN 612-10-M16-*	10	M 16	16	56	10	30	32	42	11	29	61
GN 612-10-M20x1,5-*	10	M 20 x 1.5	20	69	12	37	37	52	21	57	114
GN 612-10-M20-*	10	M 20	20	69	12	37	37	52	21	57	121
GN 612-12-M20x1,5-*	12	M 20 x 1.5	20	69	12	37	37	52	21	57	100
GN 612-12-M20-*	12	M 20	20	69	12	37	37	52	21	57	120

GN 612-NI

STAINLESS STEEL

Description	d1 Pin -0.06/-0.08 Bore H7	d2	d3	l1	l2	l3 +1.5	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612-4-M10-* -NI	4**	M 10	10	37.5	6	19	21	-	7	20	16
GN 612-4-M10x1-* -NI	4**	M 10 x 1	10	37.5	6	19	21	-	7	20	17
GN 612-5-M10-* -NI	5**	M 10	10	37.5	6	19	21	-	7	20	17
GN 612-5-M10x1-* -NI	5**	M 10 x 1	10	37.5	6	19	21	-	7	20	18
GN 612-5-M12-* -NI	5	M 12	12	47	8	26	26	32	8	18	28
GN 612-5-M12x1,5-* -NI	5	M 12 x 1.5	12	47	8	26	26	32	8	18	28
GN 612-6-M10-* -NI	6**	M 10	10	37.5	6	19	21	-	7	20	18
GN 612-6-M10x1-* -NI	6**	M 10 x 1	10	37.5	6	19	21	-	7	20	18
GN 612-6-M12-* -NI	6	M 12	12	47	8	26	26	32	8	18	29
GN 612-6-M12x1,5-* -NI	6	M 12 x 1.5	12	47	8	26	26	32	8	18	30
GN 612-6-M16-* -NI	6	M 16	16	56	10	30	32	42	11	29	57
GN 612-6-M16x1,5-* -NI	6	M 16 x 1.5	16	56	10	30	32	42	11	29	59
GN 612-8-M12-* -NI	8	M 12	12	47	8	26	26	32	8	18	30
GN 612-8-M12x1,5-* -NI	8	M 12 x 1.5	12	47	8	26	26	32	8	18	30
GN 612-8-M16-* -NI	8	M 16	16	56	10	30	32	42	11	29	58
GN 612-8-M16x1,5-* -NI	8	M 16 x 1.5	16	56	10	30	32	42	11	29	60
GN 612-8-M20x1,5-* -NI	8	M 20 x 1.5	20	69	12	36	37	52	21	57	121
GN 612-8-M20-* -NI	8	M 20	20	69	12	36	37	52	21	57	115
GN 612-10-M16x1,5-* -NI	10	M 16 x 1.5	16	56	10	30	32	42	11	29	64
GN 612-10-M16-* -NI	10	M 16	16	56	10	30	32	42	11	29	61
GN 612-10-M20x1,5-* -NI	10	M 20 x 1.5	20	69	12	36	37	52	21	57	120
GN 612-10-M20-* -NI	10	M 20	20	69	12	36	37	52	21	57	117
GN 612-12-M20x1,5-* -NI	12	M 20 x 1.5	20	69	12	36	37	52	21	57	130
GN 612-12-M20-* -NI	12	M 20	20	69	12	36	37	52	21	57	120

** These sizes are only available in Type A and Type AK.



Indexing plungers

Rest position, SUPER-technopolymer body

THREADED BODY

Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer.

PLUNGER

Black-oxide hardened steel or AISI 303 stainless steel.
Suggested tolerance H7 for matching hole.

LEVER

Self-lubricating glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

SPRING

AISI 302 stainless steel.

LOCKING NUT (NTT)

Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer.
Available also as accessory sold separately (see table NTT).

STANDARD EXECUTIONS

- PMT.200-A:** black-oxide steel plunger, without locking nut.
- PMT.200-AK:** black-oxide steel plunger, with locking nut (supplied not assembled).
- PMT.200-SST-A:** AISI 303 stainless steel plunger, without locking nut, not magnetic.
- PMT.200-SST-AK:** AISI 303 stainless steel plunger, with locking nut (supplied not assembled), not magnetic.

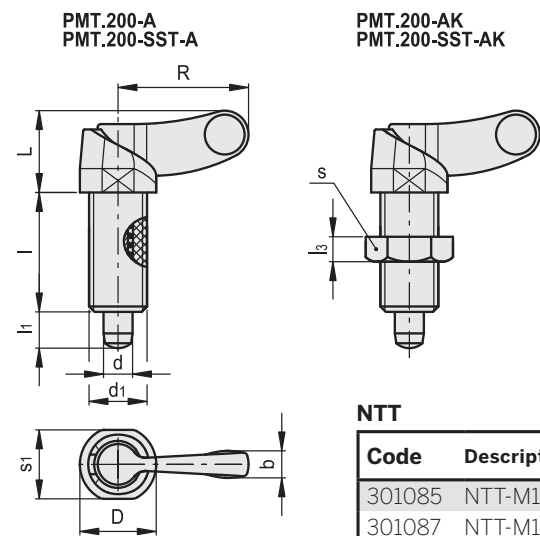
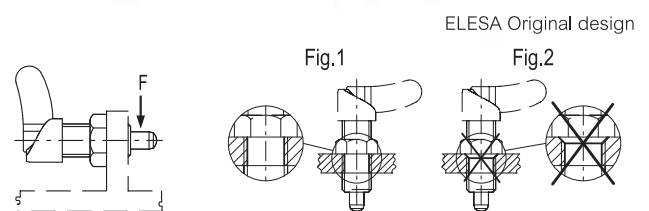
FEATURES AND APPLICATIONS

- PMT.200 lever indexing plungers are used when the plunger must be retracted quickly.
- By rotating the lifting lever by 180°, the plunger stops in the retracted position in which the lever is kept by a notch.
- High lightness and high mechanical resistance of the product.
- Anticorrosive material: suitable even in the presence of liquid or humidity (PMT.200-SST).
- The SUPER-technopolymer threaded body of the plunger offers a low friction factor to the plunger stroke; no lubricating maintenance is required.

ASSEMBLY INSTRUCTIONS

Make sure that no machining residues are left on the threaded hole for the assembly of PMT.200 indexing plunger (see fig. 1). Do not make any chamfering in the hole (see fig. 2).

SUPER-technopolymer product based on ELESa technology, dimensions of the threaded body and plunger according to GN 612 standards as agreed with Otto Gantner GmbH Co. KG.



PMT.200

Code	Description	d-0.15-0.1	d1	L	D	R	b	l	l1	l3	s	s1	[N]*	[N]#	Max. tightening torque [Nm]	Max. static load F[N]	
51702	PMT.200-6-M12x1.5-A	6	M12x1.5	17	15.5	26.5	5.5	26	8	-	-	14	9	35	10	3000	20
51711	PMT.200-8-M16x1.5-A	8	M16x1.5	21	20.5	32.5	7	30	10	-	-	19	10	40	18	3000	26
51722	PMT.200-6-M12x1.5-AK	6	M12x1.5	17	15.5	26.5	5.5	26	8	8	19	14	9	35	10	3000	25
51731	PMT.200-8-M16x1.5-AK	8	M16x1.5	21	20.5	32.5	7	30	10	10	24	19	10	40	18	3000	31

PMT.200-SST

STAINLESS STEEL																	
51752	PMT.200-SST-6-M12x1.5-A	6	M12x1.5	17	15.5	26.5	5.5	26	8	-	-	14	9	35	10	2000	20
51761	PMT.200-SST-8-M16x1.5-A	8	M16x1.5	21	20.5	32.5	7	30	10	-	-	19	10	40	18	2000	26
51772	PMT.200-SST-6-M12x1.5-AK	6	M12x1.5	17	15.5	26.5	5.5	26	8	8	19	14	9	35	10	2000	25
51781	PMT.200-SST-8-M16x1.5-AK	8	M16x1.5	21	20.5	32.5	7	30	10	10	24	19	10	40	18	2000	31

* Spring preload

Spring maximum load

Cam action indexing plungers

Pin in standard position protruded

SPECIFICATION

Types

- Type **A**: without rest position, without lock nut
- Type **AK**: without rest position, with lock nut
- Type **R**: with rest position, without lock nut
- Type **RK**: with rest position, with lock nut
- Type **S**: with safety rest position, without lock nut
- Type **SK**: with safety rest position, with lock nut

Steel
zinc plated, blue passivated

Pin
Stainless Steel AISI 303

Latch
Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

Cam action indexing plungers GN 712 are used in such applications where the plunger must not protrude continually. When turning the cam by 90° resp. 120° degrees in anti-clockwise direction, the plunger is moved through a curved opening in the body. After that, the plunger is retracted.

Depending on the type, the plunger is moved back by a spring in its original position (Type A), is held in retracted position (Type R), resp. is secured against accidental operation (Type S).

In order to move the plunger, safety version Type S requires an additional lifting of the latch.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

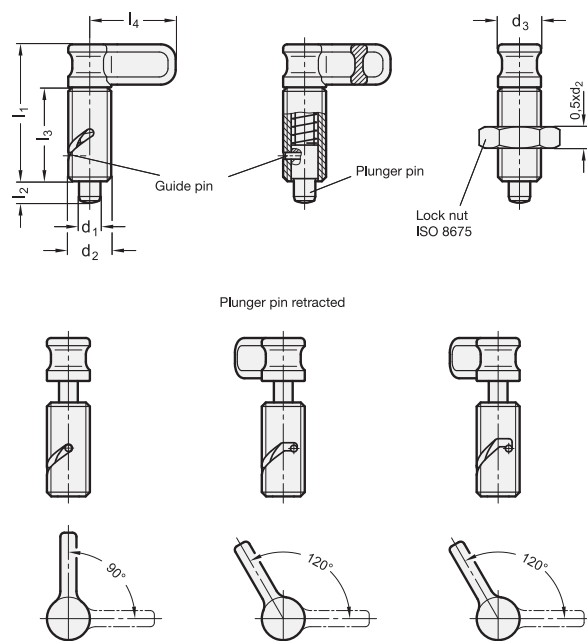
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

ON REQUEST

- Stainless Steel guide

GN 712

Description	d1 Pin -0.02/-0.05 Bore G7	d2	d3	l1 ≈	l2	l3 min.	l4	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 712-6-M16x1,5-A	6	M 16 x 1.5	16	51	8	35	32	6.5	20	50
GN 712-8-M16x1,5-A	8	M 16 x 1.5	16	51	8	35	32	6.5	20	50
GN 712-10-M16x1,5-A	10	M 16 x 1.5	16	51	8	35	32	6.5	20	55
GN 712-6-M16x1,5-AK	6	M 16 x 1.5	16	51	8	35	32	6.5	20	68
GN 712-8-M16x1,5-AK	8	M 16 x 1.5	16	51	8	35	32	6.5	20	69
GN 712-10-M16x1,5-AK	10	M 16 x 1.5	16	51	8	35	32	6.5	20	71
GN 712-6-M16x1,5-R	6	M 16 x 1.5	16	51	8	35	32	6.5	20	50
GN 712-8-M16x1,5-R	8	M 16 x 1.5	16	51	8	35	32	6.5	20	50
GN 712-10-M16x1,5-R	10	M 16 x 1.5	16	51	8	35	32	6.5	20	55
GN 712-6-M16x1,5-RK	6	M 16 x 1.5	16	51	8	35	32	6.5	20	60
GN 712-8-M16x1,5-RK	8	M 16 x 1.5	16	51	8	35	32	6.5	20	68
GN 712-10-M16x1,5-RK	10	M 16 x 1.5	16	51	8	35	32	6.5	20	70
GN 712-6-M16x1,5-S	6	M 16 x 1.5	16	51	8	35	32	6.5	20	60
GN 712-8-M16x1,5-S	8	M 16 x 1.5	16	51	8	35	32	6.5	20	61
GN 712-10-M16x1,5-S	10	M 16 x 1.5	16	51	8	35	32	6.5	20	63
GN 712-6-M16x1,5-SK	6	M 16 x 1.5	16	51	8	35	32	6.5	20	60
GN 712-8-M16x1,5-SK	8	M 16 x 1.5	16	51	8	35	32	6.5	20	71
GN 712-10-M16x1,5-SK	10	M 16 x 1.5	16	51	8	35	32	6.5	20	80



Indexing elements

Cam action indexing plungers

Plunger Pin in standard position retracted

SPECIFICATION

Types

- Type **A**: without rest position, without lock nut
- Type **AK**: without rest position, with lock nut
- Type **R**: with rest position, without lock nut
- Type **RK**: with rest position, with lock nut
- Type **S**: with safety rest position, without lock nut
- Type **SK**: with safety rest position, with lock nut

Steel
zinc plated, blue passivated

Pin
Stainless Steel AISI 303

Latch
Plastic Technopolymer (Polyamide PA)

- black, matt
- not removable

INFORMATION

Cam action indexing plungers GN 712.1 are used in such applications where the plunger must not protrude continually. When turning the cam by 90° resp. 120° degrees in anti-clockwise direction, the plunger is moved through a curved opening in the body. After that, the plunger is protruded.

Depending on the type, the plunger is moved back by a spring in its original position (Type A), is held in protruded position (Type R), resp. is secured against accidental operation (Type S). In order to move the plunger, safety version Type S requires an additional pushing of the latch.

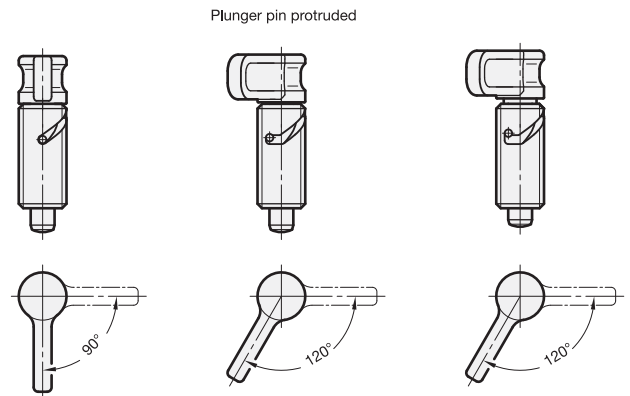
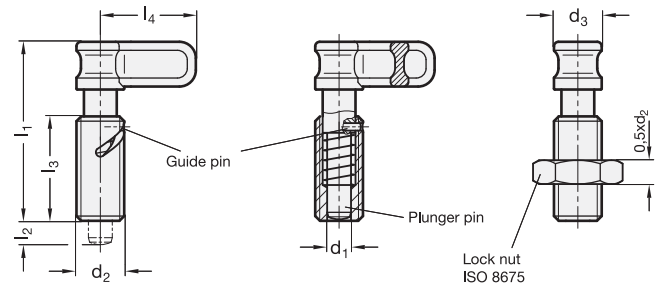
- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

ON REQUEST

- Stainless Steel guide



GN 712.1

Description	d1 Pin -0.02/-0.05 Bore G7	d2	d3	l1 ≈	l2 ±0.5	l3 min.	l4	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 712.1-6-M16x1,5-A	6	M 16 x 1.5	16	60	8	35	32	7	16.5	54
GN 712.1-8-M16x1,5-A	8	M 16 x 1.5	16	60	8	35	32	7	16.5	55
GN 712.1-6-M16x1,5-AK	6	M 16 x 1.5	16	60	8	35	32	7	16.5	60
GN 712.1-8-M16x1,5-AK	8	M 16 x 1.5	16	60	8	35	32	7	16.5	60
GN 712.1-6-M16x1,5-R	6	M 16 x 1.5	16	60	8	35	32	7	16.5	54
GN 712.1-8-M16x1,5-R	8	M 16 x 1.5	16	60	8	35	32	7	16.5	60
GN 712.1-6-M16x1,5-RK	6	M 16 x 1.5	16	60	8	35	32	7	16.5	60
GN 712.1-8-M16x1,5-RK	8	M 16 x 1.5	16	60	8	35	32	7	16.5	73
GN 712.1-6-M16x1,5-S	6	M 16 x 1.5	16	60	6	35	32	7	16.5	60
GN 712.1-8-M16x1,5-S	8	M 16 x 1.5	16	60	6	35	32	7	16.5	65
GN 712.1-6-M16x1,5-SK	6	M 16 x 1.5	16	60	6	35	32	7	16.5	70
GN 712.1-8-M16x1,5-SK	8	M 16 x 1.5	16	60	6	35	32	7	16.5	75

Cam action indexing plungers

**Threaded body zinc die casting,
ZNDG Pass nano®-coating**

SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Threaded body (Guide)

Zinc die casting

- corrosion-resistant, ZNDG Pass nano®-coating
- anthracite

Plunger pin

Steel

zinc plated, blue passivated

Lever

Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

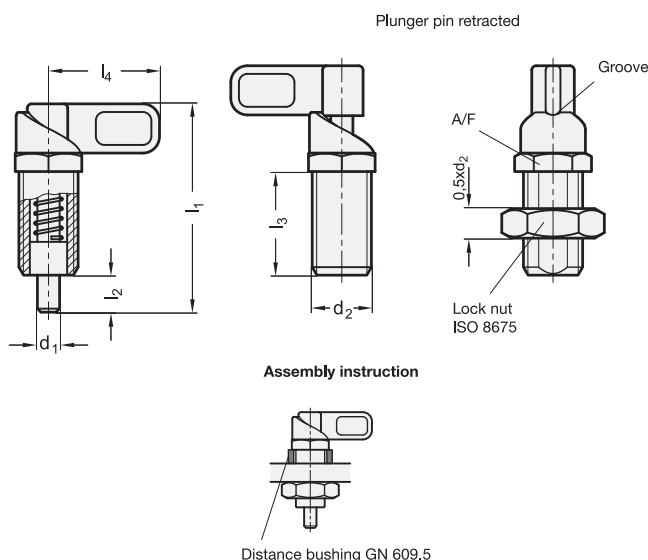
Cam action indexing plungers GN 612.8 are used in cases where the locking pin must not protrude all the time. By rotating the lock through 180° the locking pin withdraws itself. The groove allows safe positioning.

These cam action indexing plungers made of die-cast zinc are very reasonably priced design versions.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Load rating information (see page A42)



GN 612.8

Description	d1 Pin-0.05 Bore +0.1/+0.05	d2	l1	l2	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612.8-4-M12x1,5-A	4	M 12 x 1.5	48	8	25	25	13	8	22	49
GN 612.8-5-M12x1,5-A	5	M 12 x 1.5	48	8	25	25	13	8	22	51
GN 612.8-6-M12x1,5-A	6	M 12 x 1.5	48	8	25	25	13	8	22	23
GN 612.8-6-M16x1,5-A	6	M 16 x 1.5	56.5	10	28	30	18	11	30	45
GN 612.8-8-M16x1,5-A	8	M 16 x 1.5	56.5	10	28	30	18	11	30	47
GN 612.8-8-M20x1,5-A	8	M 20 x 1.5	69.5	12	36	37	22	20	56	94
GN 612.8-10-M16x1,5-A	10	M 16 x 1.5	56.5	10	28	30	18	11	30	49
GN 612.8-10-M20x1,5-A	10	M 20 x 1.5	69.5	12	36	37	22	20	56	92
GN 612.8-12-M20x1,5-A	12	M 20 x 1.5	69.5	12	36	37	22	20	56	100
GN 612.8-4-M12x1,5-AK	4	M 12 x 1.5	48	8	25	25	13	8	22	29
GN 612.8-5-M12x1,5-AK	5	M 12 x 1.5	48	8	25	25	13	8	22	60
GN 612.8-6-M12x1,5-AK	6	M 12 x 1.5	48	8	25	25	13	8	22	31
GN 612.8-6-M16x1,5-AK	6	M 16 x 1.5	56.5	10	28	30	18	11	30	60
GN 612.8-8-M16x1,5-AK	8	M 16 x 1.5	56.5	10	28	30	18	11	30	59
GN 612.8-8-M20x1,5-AK	8	M 20 x 1.5	69.5	12	36	37	22	20	56	130
GN 612.8-10-M16x1,5-AK	10	M 16 x 1.5	56.5	10	28	30	18	11	30	65
GN 612.8-10-M20x1,5-AK	10	M 20 x 1.5	69.5	12	36	37	22	20	56	128
GN 612.8-12-M20x1,5-AK	12	M 20 x 1.5	69.5	12	36	37	22	20	56	130

Cam action indexing plungers

with 180° limit stop, without locking function

SPECIFICATION

Types

- Type **RA**: Right-hand lock
- Type **RB**: Right-hand lock, with plastic cover
- Type **RAK**: Right-hand lock, with lock nut
- Type **RBK**: Right-hand lock, with plastic cover, with lock nut
- Type **LA**: Left-hand lock
- Type **LB**: Left-hand lock, with plastic cover
- Type **LAK**: Left-hand lock, with lock nut
- Type **LBK**: Left-hand lock, with plastic cover, with lock nut

Steel

- blackened
- Pin nitrided

Spring

Stainless Steel AISI 301

Plastic cover

Technopolymer (Polyamide PA)
black, matte



INFORMATION

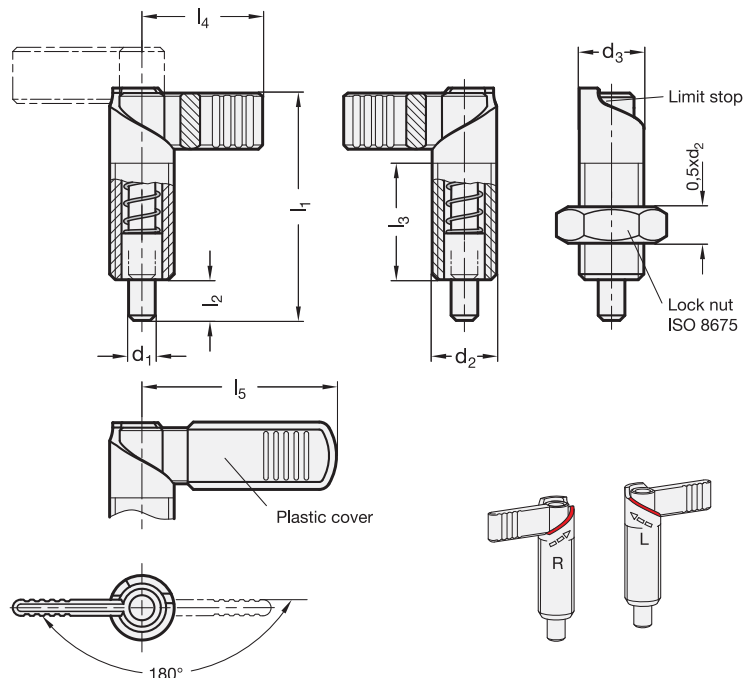
For GN 721 cam action indexing plungers the indexing plunger pin is withdrawn by turning the lock by 180°.

When the cam action indexing plungers are positioned symmetrically, the left or right handed types allow for a practical, i.e. equal, direction setting of the lock.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)



* Complete with type index of the Cam action indexing plungers

RA RB RAK RBK LA LB LAK LBK

GN 721

Description	d1 Pin -0.02/-0.04 Bore H7	d2	d3	l1	l2	l3 +1.5	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 721-5-M10x1-*	5**	M10x1	10	37.5	6	19	21	-	7	20	18
GN 721-6-M12x1.5-*	6	M12x1.5	12	47	8	26	26	32	8	18	30
GN 721-8-M16x1.5-*	8	M16x1.5	16	56	10	30	32	42	11	29	64
GN 721-10-M20x1.5-*	10	M20x1.5	20	69	12	37	37	52	21	57	129

** This size is only available in types LA, LAK, RA and RAK.

Stainless Steel-Cam action indexing plungers

with 180° limit stop, without locking function

SPECIFICATION

Types

- Type **RA**: Right-hand lock
- Type **RB**: Right-hand lock, with plastic cover
- Type **RAK**: Right-hand lock, with lock nut
- Type **RBK**: Right-hand lock, with plastic cover, with lock nut
- Type **LA**: Left-hand lock
- Type **LB**: Left-hand lock, with plastic cover
- Type **LAK**: Left-hand lock, with lock nut
- Type **LBK**: Left-hand lock, with plastic cover, with lock nut

Stainless Steel AISI 303

Spring

Stainless Steel AISI 301

Plastic cover

Technopolymer (Polyamide PA)

black, matte



INFORMATION

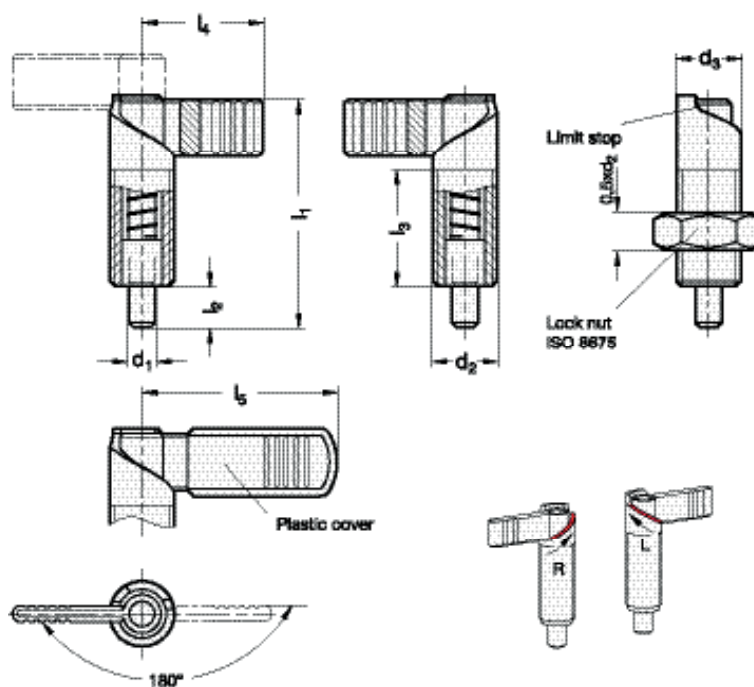
For GN 721.5 Stainless Steel-Cam action indexing plungers the indexing plunger pin is withdrawn by turning the lock by 180°.

For opposing cam action indexing plungers the left or right-handed types allow practical use, that is the same setting of the lock.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)



* Complete with type index of the Cam action indexing plungers

RA RB RAK RBK LA LB LAK LBK

GN 721.5

STAINLESS STEEL

Description	d1 Pin -0.06/-0.08 Bore H7	d2	d3	l1	l2	l3 +1.5	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 721.5-5-M10x1-*	5**	M10x1	10	37.5	6	19	21	-	7	20	90
GN 721.5-6-M12x1.5-*	6	M12x1.5	12	47	8	26	26	32	8	18	110
GN 721.5-8-M16x1.5-*	8	M16x1.5	16	56	10	30	32	42	11	29	120
GN 721.5-10-M20x1.5-*	10	M20x1.5	20	69	12	37	37	52	21	57	130

** This size is only available in types LA, LAK, RA and RAK.



Cam action indexing plungers

with 180° limit stop, with locking function

SPECIFICATION

Types

- Type **RA**: Right-hand lock
- Type **RB**: Right-hand lock, with plastic cover
- Type **RAK**: Right-hand lock, with lock nut
- Type **RBK**: Right-hand lock, with plastic cover, with lock nut
- Type **LA**: Left-hand lock
- Type **LB**: Left-hand lock, with plastic cover
- Type **LAK**: Left-hand lock, with lock nut
- Type **LBK**: Left-hand lock, with plastic cover, with lock nut

Steel

- blackened
- Plunger nitrided

Spring

Stainless Steel AISI 301

Plastic cover

Technopolymer (Polyamide PA)
black, matte



INFORMATION

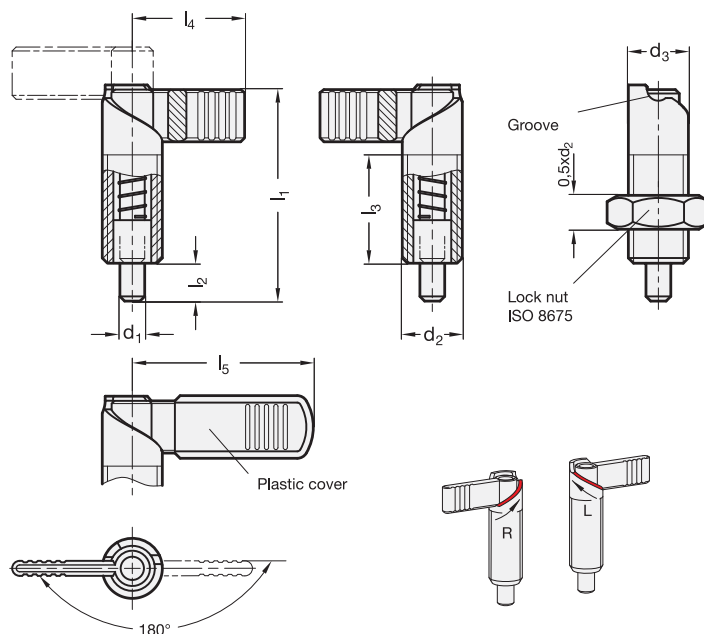
The groove on GN 721.1 cam action indexing plungers ensures that the locking pin remains in its withdrawn position.

When the cam action indexing plungers are positioned symmetrically, the left or right handed types allow for a practical, i.e. equal, direction setting of the lock.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)
- Load rating information (see page A42)



* Complete with type index of the Cam action indexing plungers

RA RB RAK RBK LA LB LAK LBK

GN 721.1

Description	d1 Pin -0.02/-0.04 Bore H7	d2	d3	l1	l2	l3 +1.5	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 721.1-5-M10x1-*	5**	M10x1	10	37.5	6	19	21	-	7	20	18
GN 721.1-6-M12x1.5-*	6	M12x1.5	12	47	8	26	26	32	9	21	31
GN 721.1-8-M16x1.5-*	8	M16x1.5	16	56	10	30	32	42	12	32	66
GN 721.1-10-M20x1.5-*	10	M20x1.5	20	69	12	37	37	52	21	58	129

** This size is only available in types LA, LAK, RA and RAK.

Stainless Steel-Cam action indexing plungers

with 180° limit stop, with locking function

SPECIFICATION

Types

- Type **RA**: Right-hand lock
- Type **RB**: Right-hand lock, with plastic cover
- Type **RAK**: Right-hand lock, with lock nut
- Type **RBK**: Right-hand lock, with plastic cover, with lock nut
- Type **LA**: Left-hand lock
- Type **LB**: Left-hand lock, with plastic cover
- Type **LAK**: Left-hand lock, with lock nut
- Type **LBK**: Left-hand lock, with plastic cover, with lock nut

Stainless Steel AISI 303

Spring

Stainless Steel AISI 301

Plastic cover

Technopolymer (Polyamide PA)

black, matte

INFORMATION

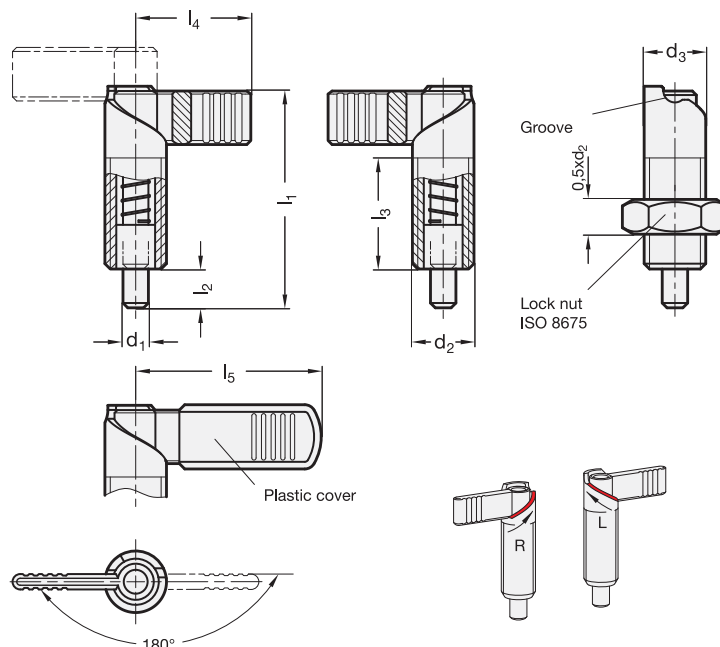
For GN 721.6 Stainless Steel-Cam action indexing plungers the indexing plunger pin is withdrawn by turning the lock by 180°.

For opposing cam action indexing plungers the left or right-handed types allow practical use, that is the same setting of the lock.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)



* Complete with type index of the Cam action indexing plungers

RA RB RAK RBK LA LB LAK LBK

GN 721.6

STAINLESS STEEL

Description	d1 Pin -0.06/-0.08 Bore H7	d2	d3	l1	l2	l3 +1.5	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 721.6-5-M10x1-*	5**	M10x1	10	37.5	6	19	21	-	7	20	18
GN 721.6-6-M12x1.5-*	6	M12x1.5	12	47	8	26	26	32	8	18	31
GN 721.6-8-M16x1.5-*	8	M16x1.5	16	56	10	30	32	42	11	29	65
GN 721.6-10-M20x1.5-*	10	M20x1.5	20	69	12	37	37	52	21	57	130

** This size is only available in types LA, LAK, RA and RAK.



Cam action indexing plungers

Guide steel, blackened

SPECIFICATION

Types

- Type **A**: without plastic cover
- Type **B**: with plastic cover

Steel

- blackened
- Pin nitrided

Plastic cover (Polyamide PA)
black, matt



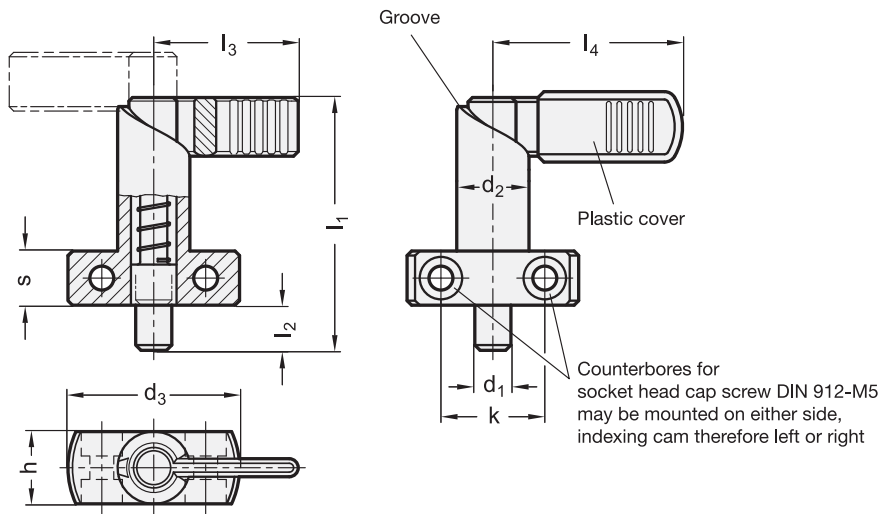
INFORMATION

Cam action indexing plungers GN 612.2 are used in cases where the locking pin must not protrude all the time. By rotating the lock through 180° the locking pin withdraws itself. A groove keeps the plunger in this position.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



GN 612.2

Description	d1 Pin 0/-0.05 Bore H7	d2	d3	h	k	l1	l2	l3	l4	s	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612.2-6-16-A	6	16	35	16	20	56	10	32	-	12	12	32	62
GN 612.2-8-16-A	8	16	35	16	20	56	10	32	-	12	12	32	84
GN 612.2-8-20-A	8	20	40	20	22	69	12	37	-	15	21	58	167
GN 612.2-10-16-A	10	16	35	16	20	56	10	32	-	12	12	32	86
GN 612.2-10-20-A	10	20	40	20	22	69	12	37	-	15	21	58	169
GN 612.2-12-20-A	12	20	40	20	22	69	12	37	-	15	21	58	170
GN 612.2-6-16-B	6	16	35	16	20	56	10	-	42	12	12	32	85
GN 612.2-8-16-B	8	16	35	16	20	56	10	-	42	12	12	32	86
GN 612.2-8-20-B	8	20	40	20	22	69	12	-	52	15	21	58	170
GN 612.2-10-16-B	10	16	35	16	20	56	10	-	42	12	12	32	90
GN 612.2-10-20-B	10	20	40	20	22	69	12	-	52	15	21	58	173
GN 612.2-12-20-B	12	20	40	20	22	69	12	-	52	15	21	58	180

Cam action indexing plungers
with flange / Guide zinc die casting

SPECIFICATION

- Guide
- Zinc die casting
- plastic coated
- black, RAL 9005, textured finish **SW**
- Plunger pin
- Steel
- zinc plated, blue passivated
- Lever
- Plastic (Polyamide PA)
- black, matt
- not removable



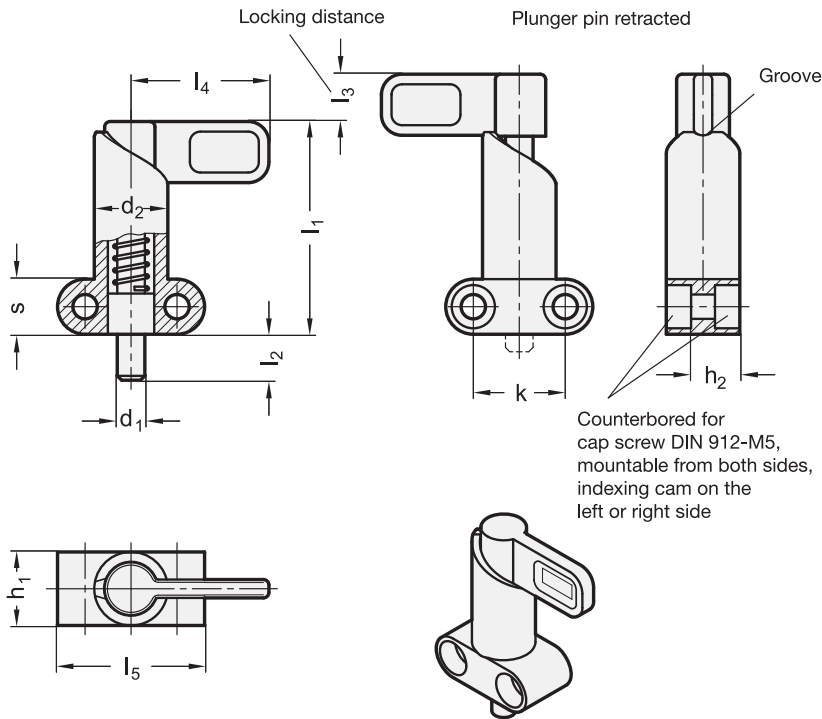
INFORMATION

Cam action indexing plungers GN 612.9 are used in cases where the plunger must not protrude all the time. By rotating the lever through 180° the plunger withdraws itself. The groove allows safe positioning.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



GN 612.9

Description	d1 Pin-0.05 Bore +0.1/+0.05	l2	d2	h1	h2	k	l1 ≈	l3	l4	l5	s	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612.9-6-10-16-SW	6	10	16	16	10.5	20	46	10	30	32	12	12	32	57
GN 612.9-6-16-16-SW	6	16	16	16	10.5	20	46	10	30	32	12	12	32	60
GN 612.9-8-10-16-SW	8	10	16	16	10.5	20	46	10	30	32	12	12	32	58
GN 612.9-8-16-16-SW	8	16	16	16	10.5	20	46	10	30	32	12	12	32	60
GN 612.9-8-12-20-SW	8	12	20	20	14.5	22	57	12	37	37	15	21	58	120
GN 612.9-8-18-20-SW	8	18	20	20	14.5	22	57	12	37	37	15	21	58	120
GN 612.9-10-10-16-SW	10	10	16	16	10.5	20	46	10	30	32	12	12	32	61
GN 612.9-10-16-16-SW	10	16	16	16	10.5	20	46	10	30	32	12	12	32	120
GN 612.9-10-12-20-SW	10	12	20	20	14.5	22	57	12	37	37	15	21	58	122
GN 612.9-10-18-20-SW	10	18	20	20	14.5	22	57	12	37	37	15	21	58	120
GN 612.9-12-12-20-SW	12	12	20	20	14.5	22	57	12	37	37	15	21	58	127
GN 612.9-12-18-20-SW	12	18	20	20	14.5	22	57	12	37	37	15	21	58	130



Spring latches

with flange for surface mounting

SPECIFICATION

Types

- Type **L**: left indexing cam
- Type **R**: right indexing cam

Version in Steel

- Guide
- Steel precision cast
- zinc plated, blue passivated **ZB**
- zinc plated and plastic coated
- black, textured finish **SW**

- Latch / Pin
- Steel, zinc plated, blue passivated

- Spring
- Stainless Steel AISI 301

Version in Stainless Steel

- Guide / Latch
- Stainless Steel precision casting **A4**
- weldable, AISI 316
- Pin
- Stainless Steel AISI 316
- Spring
- Stainless Steel AISI 316Ti

INFORMATION

Spring latches GN 722.3 are used when the indexing pin is temporarily not allowed to protrude. The indexing pin retracts by turning the latch by 180°. A lock notch will hold the latch in both positions.

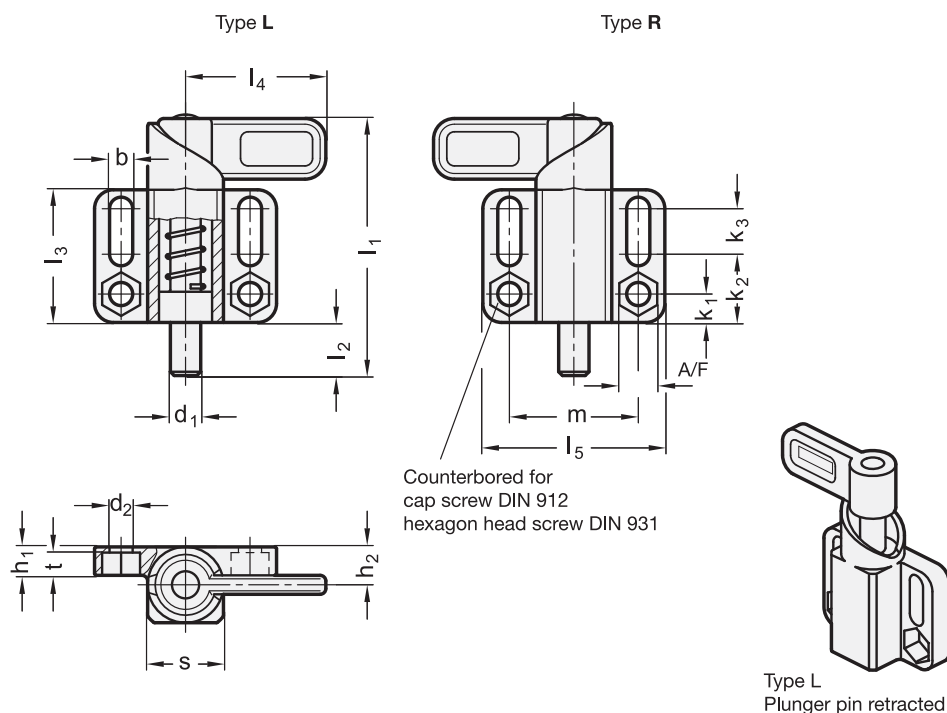
Spring latches GN 722.3 are designed for use in **steel construction** or in **locksmith shops** where less precise positioning / locking is normally required. The dimensional tolerances are therefore chosen to ensure that functional safety is guaranteed under dirt exposure and that cost-effective production methods are used.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)





GN 722.3

Description	d Pin -0.05/-0.25 Bore +0.1/+0.3	s	d2 +0.2	h1	h2	k1	k2	k3	l1 ≈	l2	l3	l4	l5	m	A/F	t	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 722.3-8-20-R-SW	8	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	179
GN 722.3-8-20-R-ZB	8	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	179
GN 722.3-10-20-R-SW	10	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	180
GN 722.3-10-20-R-ZB	10	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	181
GN 722.3-12-20-R-SW	12	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	186
GN 722.3-12-20-R-ZB	12	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	184
GN 722.3-14-20-R-SW	14	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	190
GN 722.3-14-20-R-ZB	14	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	191
GN 722.3-8-20-L-SW	8	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	178
GN 722.3-8-20-L-ZB	8	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	176
GN 722.3-10-20-L-SW	10	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	180
GN 722.3-10-20-L-ZB	10	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	180
GN 722.3-12-20-L-SW	12	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	180
GN 722.3-12-20-L-ZB	12	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	183
GN 722.3-14-20-L-SW	14	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	180
GN 722.3-14-20-L-ZB	14	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	186

GN 722.3-A4

STAINLESS STEEL

Description	d Pin -0.05/-0.25 Bore +0.1/+0.3	s	d2 +0.2	h1	h2	k1	k2	k3	l1 ≈	l2	l3	l4	l5	m	A/F	t	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 722.3-8-20-R-A4	8	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	179
GN 722.3-10-20-R-A4	10	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	182
GN 722.3-12-20-R-A4	12	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	181
GN 722.3-14-20-R-A4	14	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	181
GN 722.3-8-20-L-A4	8	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	180
GN 722.3-10-20-L-A4	10	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	180
GN 722.3-12-20-L-A4	12	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	181
GN 722.3-14-20-L-A4	14	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	181

Spring latches

with flange for surface mounting

SPECIFICATION

Types

- Type **A**: Latch position right-angled to fixing holes
- Type **B**: Latch position parallel to fixing holes

Version in Steel

Guide

Steel precision cast

zinc plated, blue passivated **ZB**

zinc plated and plastic coated
black, textured finish **SW**

Latch / Pin

zinc plated, blue passivated

Spring

Stainless Steel AISI 301

Version in Stainless Steel

Guide / Latch

Stainless Steel precision casting **A4**

weldable, AISI 316

Pin

Stainless Steel AISI 316

Spring

Stainless Steel AISI 316Ti

INFORMATION

Spring latches GN 722.2 are used when the indexing pin is temporarily not allowed to protrude. The indexing pin retracts by turning the latch by 180°. A lock notch will hold the latch in both positions.

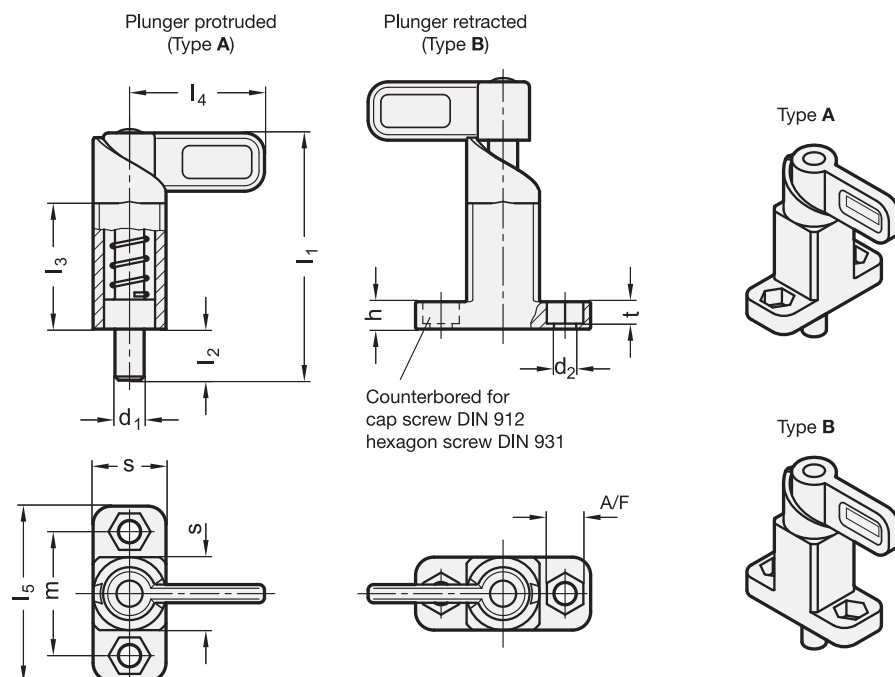
Spring latches GN 722.2 are designed for use in **steel construction** or in **locksmith shops** where less precise positioning / locking is normally required. The dimensional tolerances are therefore chosen to ensure that functional safety is guaranteed under dirt exposure and that cost-effective production methods are used.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)





GN 722.2

Description	d Pin -0.05/-0.25 Bore +0.1/+0.3	s	d2 +0.2	h	l1 ≈	l2	l3	l4	l5	m	A/F	t	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 722.2-8-20-A-SW	8	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	160
GN 722.2-8-20-A-ZB	8	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	162
GN 722.2-10-20-A-SW	10	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	168
GN 722.2-10-20-A-ZB	10	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	170
GN 722.2-12-20-A-SW	12	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	172
GN 722.2-12-20-A-ZB	12	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	171
GN 722.2-14-20-A-SW	14	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	175
GN 722.2-14-20-A-ZB	14	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	176
GN 722.2-8-20-B-SW	8	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	160
GN 722.2-8-20-B-ZB	8	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	160
GN 722.2-10-20-B-SW	10	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	170
GN 722.2-10-20-B-ZB	10	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	170
GN 722.2-12-20-B-SW	12	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	170
GN 722.2-12-20-B-ZB	12	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	170
GN 722.2-14-20-B-SW	14	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	175
GN 722.2-14-20-B-ZB	14	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	175

GN 722.2-A4

STAINLESS STEEL

Description	d Pin -0.05/-0.25 Bore +0.1/+0.3	s	d2 +0.2	h	l1 ≈	l2	l3	l4	l5	m	A/F	t	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 722.2-8-20-A-A4	8	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	166
GN 722.2-10-20-A-A4	10	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	169
GN 722.2-12-20-A-A4	12	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	174
GN 722.2-14-20-A-A4	14	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	180
GN 722.2-8-20-B-A4	8	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	166
GN 722.2-10-20-B-A4	10	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	170
GN 722.2-12-20-B-A4	12	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	176
GN 722.2-14-20-B-A4	14	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	180

Cam action indexing plungers

with flange for surface mounting,
Guide zinc die casting

SPECIFICATION

Guide

Zinc die casting

plastic coated

black, RAL 9005, textured finish **SW**

Pin

Steel

zinc plated, blue passivated

Lever

Plastic (Polyamide PA)

- black, matt

- not removable



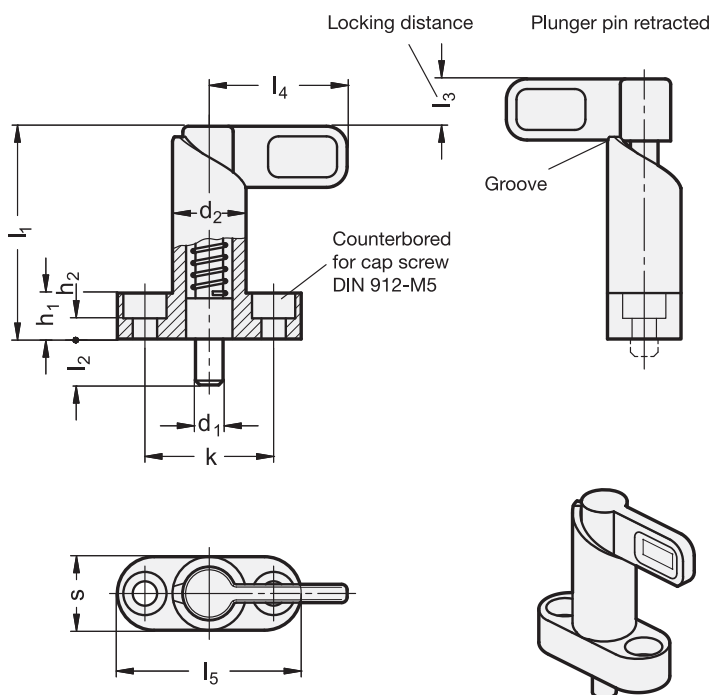
INFORMATION

Cam action indexing plungers GN 612.10 are used in cases where the plunger must not protrude all the time. By rotating the lever through 180° the plunger withdraws itself. The groove allows safe positioning.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



GN 612.10

Description	d1 Pin-0.05 Bore +0.1/+0.05	l2	d2	h1	h2	k	l1 ≈	l3	l4	l5	s	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612.10-6-10-16-SW	6	10	16	10	4.5	28	46	10	30	40	16	12	32	53
GN 612.10-6-16-16-SW	6	16	16	10	4.5	28	46	10	30	40	16	12	32	67
GN 612.10-8-10-16-SW	8	10	16	10	4.5	28	46	10	30	40	16	12	32	68
GN 612.10-8-16-16-SW	8	16	16	10	4.5	28	46	10	30	40	16	12	32	50
GN 612.10-8-12-20-SW	8	12	20	10	4.5	32	57	12	37	45	20	21	58	20
GN 612.10-8-18-20-SW	8	18	20	10	4.5	32	57	12	37	45	20	21	58	120
GN 612.10-10-10-16-SW	10	10	16	10	4.5	28	46	10	30	40	16	12	32	70
GN 612.10-10-16-16-SW	10	16	16	10	4.5	28	46	10	30	40	16	12	32	74
GN 612.10-10-12-20-SW	10	12	20	10	4.5	32	57	12	37	45	20	21	58	126
GN 612.10-10-18-20-SW	10	18	20	10	4.5	32	57	12	37	45	20	21	58	130
GN 612.10-12-12-20-SW	12	12	20	10	4.5	32	57	12	37	45	20	21	58	130
GN 612.10-12-18-20-SW	12	18	20	10	4.5	32	57	12	37	45	20	21	58	135

Cam action indexing plungers

Steel / Stainless Steel, for welding

SPECIFICATION

Types

- Type **A**: without plastic cover
- Type **B**: with plastic cover

Version in Steel

- Guide blackened, weldable
- Pin nitrided

Version Stainless Steel NI

- Guide, weldable AISI 304
- Pin AISI 303

Spring

Stainless Steel AISI 301

Plastic cover (Polyamide PA)

black, matt



INFORMATION

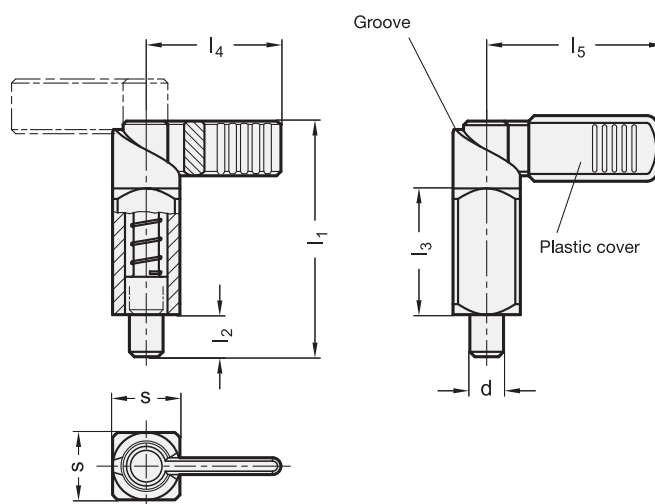
Cam action indexing plungers GN 612.3 are used in cases where the locking pin must not protrude all the time. By rotating the lock through 180° the locking pin withdraws itself. A groove keeps the plunger in this position.

The square body can therefore be welded in any required position. In order to prevent a change in the spring load by the transferred heat we recommend spot welding the plunger body.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



* Complete with type index of the Cam action indexing plungers (A or B)

A without plastic cover
B with plastic cover

GN 612.3

Description	d Pin -0.02/-0.04 Bore +0.14/+0.1	s	l1	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612.3-6-16-*	6	16	56	10	30	32	42	12	32	76
GN 612.3-8-16-*	8	16	56	10	30	32	42	12	32	79
GN 612.3-8-20-*	8	20	69	12	38	37	52	21	58	151
GN 612.3-10-16-*	10	16	56	10	30	32	42	12	32	80
GN 612.3-10-20-*	10	20	69	12	38	37	52	21	58	153
GN 612.3-12-20-*	12	20	69	12	38	37	52	21	58	158

GN 612.3-NI

STAINLESS STEEL

Description	d Pin -0.02/-0.04 Bore +0.14/+0.1	s	l1	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612.3-6-16-*-NI	6	16	56	10	30	32	42	12	32	76
GN 612.3-8-16-*-NI	8	16	56	10	30	32	42	12	32	76
GN 612.3-8-20-*-NI	8	20	69	12	38	37	52	21	58	151
GN 612.3-10-16-*-NI	10	16	56	10	30	32	42	12	32	76
GN 612.3-10-20-*-NI	10	20	69	12	38	37	52	21	58	153
GN 612.3-12-20-*-NI	12	20	69	12	38	37	52	21	58	158



Spring latches

for welding

SPECIFICATION

Version in Steel

Guide

Steel precision casting **ST**
blackened, weldable

Latch

Steel precision casting
zinc plated, blue passivated

Pin

Steel, zinc plated, blue passivated

Spring

Stainless Steel AISI 301

Version in Stainless Steel

Guide / Latch

Stainless Steel precision casting **A4**
weldable, AISI 316

Pin

Stainless Steel AISI 316

Spring

Stainless Steel AISI 316Ti

INFORMATION

Spring latches GN 722.1 are used when the indexing pin is temporarily not allowed to protrude. The indexing pin retracts by turning the latch by 180°. A lock notch will hold the latch in both positions.

The square bar allows the latch to be welded in any desired position. To prevent excessive heating up and the resulting change in the spring properties, fixing with welding spots is recommended.

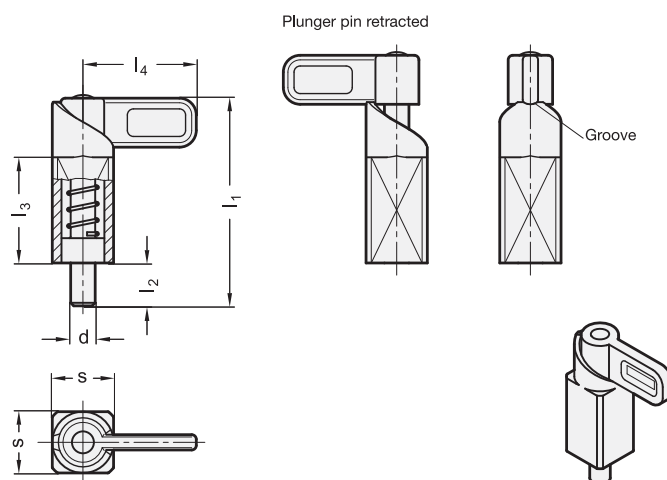
Spring latches GN 722.1 are designed for use in **steel construction** or in **locksmith** shops where less precise positioning / locking is normally required. The dimensional tolerances are therefore chosen to ensure that functional safety is guaranteed under dirt exposure and that cost-effective production methods are used.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

- Load rating information (see page A42)



GN 722.1

Description	d Pin -0.05/-0.25 Bore +0.1/+0.3	s	l1 ≈	l2	l3	l4	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 722.1-8-20-ST	8	20	68	14	35	37	16	55	141
GN 722.1-10-20-ST	10	20	68	14	35	37	16	55	144
GN 722.1-12-20-ST	12	20	68	14	35	37	16	55	148
GN 722.1-14-20-ST	14	20	68	14	35	37	16	55	153

GN 722.1-A4

STAINLESS STEEL

Description	d Pin -0.05/-0.25 Bore +0.1/+0.3	s	l1 ≈	l2	l3	l4	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 722.1-8-20-A4	8	20	68	14	35	37	16	45	150
GN 722.1-10-20-A4	10	20	68	14	35	37	16	45	153
GN 722.1-12-20-A4	12	20	68	14	35	37	16	45	158
GN 722.1-14-20-A4	14	20	68	14	35	37	16	45	169

Spring plungers

Steel / Stainless Steel, with ball / with slot

SPECIFICATION

Types

- Type **K**: Steel, standard spring load
- Type **KS**: Steel, high spring load
- Type **KN**: Stainless Steel, standard spring load
- Type **KSN**: Stainless Steel, high spring load

Type K / KS

- Housing Steel, blackened
- Ball Steel, 1.3505, hardened

Type KN / KSN

- Housing Stainless Steel AISI 303
- Ball Stainless Steel AISI 420C, hardened

Spring

Stainless Steel AISI 631

Marking of Type KS / KSN:

Housing with 2 longitudinal markings

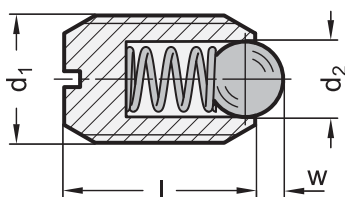


INFORMATION

Spring plungers GN 615 are used as detents as well as for push-on and push-off applications and ejectors.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 615-K/KS

Description	d1	d2	l ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615-M3-K	M 3	1.5	7	0.4	3	4.5	1
GN 615-M4-K	M 4	2.5	9	0.8	6	14.5	1
GN 615-M5-K	M 5	3	12	0.9	8	14	1
GN 615-M6-K	M 6	3.5	14	1	11	18	2
GN 615-M8-K	M 8	4.5	16	1.5	18	31	4
GN 615-M10-K	M 10	6	19	2	24	45	7
GN 615-M12-K	M 12	8	22	2.5	26	49	10
GN 615-M16-K	M 16	10	24	3.5	41	86	24
GN 615-M20-K	M 20	12	30	4.5	56	111	43
GN 615-M24-K	M 24	15	34	5.5	81	151	70
GN 615-M5-KS	M 5	3	12	0.9	15	22	1
GN 615-M6-KS	M 6	3.5	14	1	19	28	2
GN 615-M8-KS	M 8	4.5	16	1.5	36	62	4
GN 615-M10-KS	M 10	6	19	2	57	104	7
GN 615-M12-KS	M 12	8	22	2.5	61	110	10
GN 615-M16-KS	M 16	10	24	3.5	68	142	22
GN 615-M20-KS	M 20	12	30	4.5	84	166	43
GN 615-M24-KS	M 24	15	34	5.5	127	237	70

GN 615-KN/KSN

STAINLESS STEEL

Description	d1	d2	l ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615-M3-KN	M 3	1.5	7	0.4	3	4.5	1
GN 615-M4-KN	M 4	2.5	9	0.8	6	14.5	2
GN 615-M5-KN	M 5	3	12	0.9	8	14	1
GN 615-M6-KN	M 6	3.5	14	1	11	18	2
GN 615-M8-KN	M 8	4.5	16	1.5	18	31	4
GN 615-M10-KN	M 10	6	19	2	24	45	6
GN 615-M12-KN	M 12	8	22	2.5	26	49	10
GN 615-M16-KN	M 16	10	24	3.5	41	86	23
GN 615-M20-KN	M 20	12	30	4.5	56	111	43
GN 615-M24-KN	M 24	15	34	5.5	81	151	70
GN 615-M5-KSN	M 5	3	12	0.9	15	22	1
GN 615-M6-KSN	M 6	3.5	14	1	19	28	2
GN 615-M8-KSN	M 8	4.5	16	1.5	36	62	4
GN 615-M10-KSN	M 10	6	19	2	57	104	7
GN 615-M12-KSN	M 12	8	22	2.5	61	110	10
GN 615-M16-KSN	M 16	10	24	3.5	68	142	22
GN 615-M20-KSN	M 20	12	30	4.5	84	166	43
GN 615-M24-KSN	M 24	15	34	5.5	127	237	70



Spring plungers

Steel / Stainless Steel, with ball / with internal hexagon

SPECIFICATION

Types

- Type **K**: Steel, standard spring load
- Type **KS**: Steel, high spring load
- Type **KN**: Stainless Steel, standard spring load
- Type **KSN**: Stainless Steel, high spring load

Type K / KS

- Steel, blackened
- Ball, hardened

Type KN / KSN

- Stainless Steel AISI 303 / AISI 420C
- Ball hardened

Marking of Type KS / KSN:

Housing with 2 longitudinal markings

- Thread lockings (optional)
- Polyamide patch **PFB**

Type K/KS M 3 ... M16

Type K*/KS* M20 ... M24

Type KN/KSN M3 ... M6

Type KN*/KSN* M20 ... M24

- Micro encapsulation* **MVK**

* not available from stock, requires a minimum order quantity

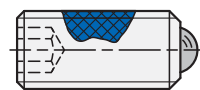
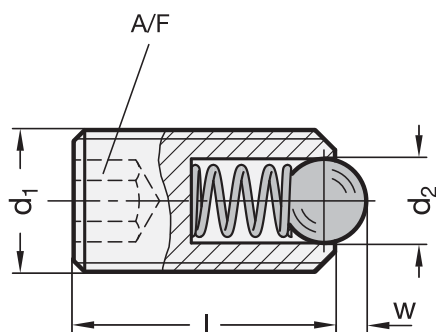
INFORMATION

The **PFB** patch is a **jamming** thread locking (Polyamide patch). The coating for Type K or KN (standard spring load) is indicated blue, for Type KS or KSN (high spring load) green. For this Type of thread locking a relatively high torque is required. Therefore this version with internal hexagon is more preferable than the version with slot GN 615 (see page 839).

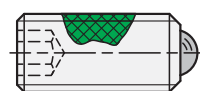
MVK (Micro encapsulation) is a **gluing** thread locking (indicated red).

TECHNICAL INFORMATION

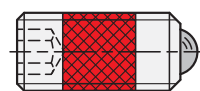
- More information to thread locking MVK (see page A24)
- More information to thread locking PFB (see page A24)



Thread locking **PFB**
Polyamide patch
for type **K** and **KN**



Thread locking **PFB**
Polyamide patch
for type **KS** and **KSN**



Thread locking **MVK**
Micro encapsulation precote
(for all types)

GN 615.3-K/KS

Description	d1	d2	l ±0.1	w	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	
GN 615.3-M3-K	M 3	1.5	8	0.4	1.5	3	4.5	1
GN 615.3-M4-K	M 4	2.5	12	0.8	2	8.5	14	1
GN 615.3-M5-K	M 5	3	14	0.9	2.5	8	14	1
GN 615.3-M6-K	M 6	3.5	15	1	3	11	18	2
GN 615.3-M8-K	M 8	4.5	18	1.5	4	18	31	4
GN 615.3-M10-K	M 10	6	23	2	5	24	45	8
GN 615.3-M12-K	M 12	8	26	2.5	6	26	49	13
GN 615.3-M16-K	M 16	10	33	3.5	8	41	86	31
GN 615.3-M20-K	M 20	12	43	4.5	10	56	111	65
GN 615.3-M24-K	M 24	15	48	5.5	12	81	151	103
GN 615.3-M5-KS	M 5	3	14	0.9	2.5	15	22	1
GN 615.3-M6-KS	M 6	3.5	15	1	3	19	28	2
GN 615.3-M8-KS	M 8	4.5	18	1.5	4	36	62	4
GN 615.3-M10-KS	M 10	6	23	2	5	57	104	8
GN 615.3-M12-KS	M 12	8	26	2.5	6	61	110	13
GN 615.3-M16-KS	M 16	10	33	3.5	8	68	142	32
GN 615.3-M20-KS	M 20	12	43	4.5	10	84	166	65
GN 615.3-M24-KS	M 24	15	48	5.5	12	127	237	105
GN 615.3-M3-K-MVK	M 3*	1.5	8	0.4	1.5	3	4.5	1
GN 615.3-M4-K-MVK	M 4*	2.5	12	0.8	2	8.5	14	1
GN 615.3-M5-K-MVK	M 5*	3	14	0.9	2.5	8	14	1
GN 615.3-M6-K-MVK	M 6*	3.5	15	1	3	11	18	1
GN 615.3-M8-K-MVK	M 8*	4.5	18	1.5	4	18	31	4
GN 615.3-M10-K-MVK	M 10*	6	23	2	5	24	45	8
GN 615.3-M12-K-MVK	M 12*	8	26	2.5	6	26	49	13
GN 615.3-M16-K-MVK	M 16*	10	33	3.5	8	41	86	26
GN 615.3-M20-K-MVK	M 20*	12	43	4.5	10	56	111	65
GN 615.3-M24-K-MVK	M 24*	15	48	5.5	12	81	151	103
GN 615.3-M5-KS-MVK	M 5*	3	14	0.9	2.5	15	22	1
GN 615.3-M6-KS-MVK	M 6*	3.5	15	1	3	19	28	2
GN 615.3-M8-KS-MVK	M 8*	4.5	18	1.5	4	36	62	4
GN 615.3-M10-KS-MVK	M 10*	6	23	2	5	57	104	8
GN 615.3-M12-KS-MVK	M 12*	8	26	2.5	6	61	110	13
GN 615.3-M16-KS-MVK	M 16*	10	33	3.5	8	68	142	32
GN 615.3-M20-KS-MVK	M 20*	12	43	4.5	10	84	166	65
GN 615.3-M24-KS-MVK	M 24*	15	48	5.5	12	127	237	103
GN 615.3-M3-K-PFB	M 3	1.5	8	0.4	1.5	3	4.5	1
GN 615.3-M4-K-PFB	M 4	2.5	12	0.8	2	8.5	14	1
GN 615.3-M5-K-PFB	M 5	3	14	0.9	2.5	8	14	1
GN 615.3-M6-K-PFB	M 6	3.5	15	1	3	11	18	2
GN 615.3-M8-K-PFB	M 8	4.5	18	1.5	4	18	31	4
GN 615.3-M10-K-PFB	M 10	6	23	2	5	24	45	8
GN 615.3-M12-K-PFB	M 12	8	26	2.5	6	26	49	13
GN 615.3-M16-K-PFB	M 16	10	33	3.5	8	41	86	30
GN 615.3-M20-K-PFB	M 20*	12	43	4.5	10	56	111	65
GN 615.3-M24-K-PFB	M 24*	15	48	5.5	12	81	151	103
GN 615.3-M5-KS-PFB	M 5	3	14	0.9	2.5	15	22	1
GN 615.3-M6-KS-PFB	M 6	3.5	15	1	3	19	28	2
GN 615.3-M8-KS-PFB	M 8	4.5	18	1.5	4	36	62	4
GN 615.3-M10-KS-PFB	M 10	6	23	2	5	57	104	8
GN 615.3-M12-KS-PFB	M 12	8	26	2.5	6	61	110	13
GN 615.3-M16-KS-PFB	M 16	10	33	3.5	8	68	142	32
GN 615.3-M20-KS-PFB	M 20*	12	43	4.5	10	84	166	65
GN 615.3-M24-KS-PFB	M 24*	15	48	5.5	12	127	237	103

* not available from stock, requires a minimum order quantity



GN 615.3-KN/KSN

STAINLESS STEEL

Description	d1	d2	l ±0.1	w	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	
GN 615.3-M3-KN	M 3	1.5	8	0.4	1.5	3	4.5	1
GN 615.3-M4-KN	M 4	2.5	12	0.8	2	8.5	14	1
GN 615.3-M5-KN	M 5	3	14	0.9	2.5	8	14	1
GN 615.3-M6-KN	M 6	3.5	15	1	3	11	18	2
GN 615.3-M8-KN	M 8	4.5	18	1.5	4	18	31	4
GN 615.3-M10-KN	M 10	6	23	2	5	24	45	8
GN 615.3-M12-KN	M 12	8	26	2.5	6	26	49	13
GN 615.3-M16-KN	M 16	10	33	3.5	8	41	86	32
GN 615.3-M20-KN	M 20	12	43	4.5	10	56	111	65
GN 615.3-M24-KN	M 24	15	48	5.5	12	81	151	100
GN 615.3-M5-KSN	M 5	3	14	0.9	2.5	15	22	1
GN 615.3-M6-KSN	M 6	3.5	15	1	3	19	28	2
GN 615.3-M8-KSN	M 8	4.5	18	1.5	4	36	62	4
GN 615.3-M10-KSN	M 10	6	23	2	5	57	104	8
GN 615.3-M12-KSN	M 12	8	26	2.5	6	61	110	13
GN 615.3-M16-KSN	M 16	10	33	3.5	8	68	142	32
GN 615.3-M20-KSN	M 20	12	43	4.5	10	84	166	65
GN 615.3-M24-KSN	M 24	15	48	5.5	12	127	237	100
GN 615.3-M5-KN-MVK	M 5*	3	14	0.9	2.5	8	14	2
GN 615.3-M6-KN-MVK	M 6*	3.5	15	1	3	11	18	2
GN 615.3-M8-KN-MVK	M 8*	4.5	18	1.5	4	18	31	4
GN 615.3-M10-KN-MVK	M 10*	6	23	2	5	24	45	8
GN 615.3-M12-KN-MVK	M 12*	8	26	2.5	6	26	49	13
GN 615.3-M16-KN-MVK	M 16*	10	33	3.5	8	41	86	32
GN 615.3-M20-KN-MVK	M 20*	12	43	4.5	10	56	111	65
GN 615.3-M24-KN-MVK	M 24*	15	48	5.5	12	81	151	103
GN 615.3-M5-KSN-MVK	M 5*	3	14	0.9	2.5	15	22	1
GN 615.3-M6-KSN-MVK	M 6*	3.5	15	1	3	19	28	2
GN 615.3-M8-KSN-MVK	M 8*	4.5	18	1.5	4	36	62	4
GN 615.3-M10-KSN-MVK	M 10*	6	23	2	5	57	104	8
GN 615.3-M12-KSN-MVK	M 12*	8	26	2.5	6	61	110	13
GN 615.3-M16-KSN-MVK	M 16*	10	33	3.5	8	68	142	32
GN 615.3-M20-KSN-MVK	M 20*	12	43	4.5	10	84	166	65
GN 615.3-M24-KSN-MVK	M 24*	15	48	5.5	12	127	237	103
GN 615.3-M3-KN-PFB	M 3	1.5	8	0.4	1.5	3	4.5	2
GN 615.3-M4-KN-PFB	M 4	2.5	12	0.8	2	8.5	14	5
GN 615.3-M5-KN-PFB	M 5	3	14	0.9	2.5	8	14	1
GN 615.3-M6-KN-PFB	M 6	3.5	15	1	3	11	18	2
GN 615.3-M8-KN-PFB	M 8	4.5	18	1.5	4	18	31	4
GN 615.3-M10-KN-PFB	M 10	6	23	2	5	24	45	8
GN 615.3-M12-KN-PFB	M 12	8	26	2.5	6	26	49	13
GN 615.3-M16-KN-PFB	M 16	10	33	3.5	8	41	86	32
GN 615.3-M20-KN-PFB	M 20*	12	43	4.5	10	56	111	65
GN 615.3-M24-KN-PFB	M 24*	15	48	5.5	12	81	151	103
GN 615.3-M5-KSN-PFB	M 5	3	14	0.9	2.5	15	22	1
GN 615.3-M6-KSN-PFB	M 6	3.5	15	1	3	19	28	2
GN 615.3-M8-KSN-PFB	M 8	4.5	18	1.5	4	36	62	4
GN 615.3-M10-KSN-PFB	M 10	6	23	2	5	57	104	8
GN 615.3-M12-KSN-PFB	M 12	8	26	2.5	6	61	110	13
GN 615.3-M16-KSN-PFB	M 16	10	33	3.5	8	68	142	32
GN 615.3-M20-KSN-PFB	M 20*	12	43	4.5	10	84	166	65
GN 615.3-M24-KSN-PFB	M 24*	15	48	5.5	12	127	237	100

* not available from stock, requires a minimum order quantity



Spring plungers

Steel / Stainless Steel, with bolt / with internal hexagon

SPECIFICATION

Types

- Type **B**: Steel, standard spring load
- Type **BN**: Stainless Steel, standard spring load
- Type **BS**: Steel, high spring load
- Type **BSN**: Stainless Steel, high spring load

Type B / BS:

- Steel, blackened
- Bolt hardened

Type BN / BSN

- Housing Stainless Steel AISI 303
- Bolt Stainless Steel AISI 420C, hardened

Marking of Type BS / BSN:

Housing with 2 longitudinal markings

Spring

Stainless Steel AISI 631

INFORMATION

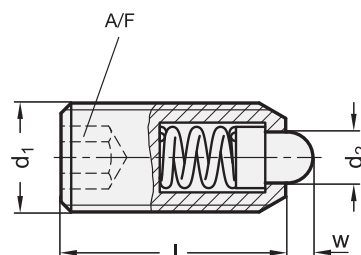
Spring plungers GN 615.4 are used as detents as well as for push-on and push-off applications and ejectors.

ON REQUEST

- with thread locking PFB / MVK

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 615.4-B/BS

Description	d1	d2 -0.1	l ±0.1	w	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615.4-M4-B	M 4	1.8	12	1.5 ^{+0.3/-0.4}	2	4.5	12.5	1
GN 615.4-M5-B	M 5	2.4	14	2	2.5	5	13	1
GN 615.4-M6-B	M 6	2.7	15	2	3	6	17	2
GN 615.4-M8-B	M 8	3.8	18	2	4	16	33	4
GN 615.4-M10-B	M 10	4.5	23	2.5	5	19	42	9
GN 615.4-M12-B	M 12	6.2	26	3.5	6	22	57	13
GN 615.4-M16-B	M 16	8.5	33	4.5 ^{±0.3}	8	38	78	32
GN 615.4-M20-B	M 20	10	43	6.5	10	39	81	67
GN 615.4-M24-B	M 24	13	48	8	12	72	155	106
GN 615.4-M6-BS	M 6	2.7	15	2	3	11	25	2
GN 615.4-M8-BS	M 8	3.8	18	2	4	23	59	4
GN 615.4-M10-BS	M 10	4.5	23	2.5	5	20	54	9
GN 615.4-M12-BS	M 12	6.2	26	3.5	6	38	96	13
GN 615.4-M16-BS	M 16	8.5	33	4.5 ^{±0.3}	8	50	100	32
GN 615.4-M20-BS	M 20	10	43	6.5	10	52	133	67
GN 615.4-M24-BS	M 24	13	48	8	12	91	223	100

GN 615.4-BN/BSN

STAINLESS STEEL

Description	d1	d2 -0.1	l ±0.1	w	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615.4-M4-BN	M 4	1.8	12	1.5 ^{+0.3/-0.4}	2	4.5	12.5	1
GN 615.4-M5-BN	M 5	2.4	14	2	2.5	5	13	1
GN 615.4-M6-BN	M 6	2.7	15	2	3	6	17	2
GN 615.4-M8-BN	M 8	3.8	18	2	4	16	33	4
GN 615.4-M10-BN	M 10	4.5	23	2.5	5	19	42	9
GN 615.4-M12-BN	M 12	6.2	26	3.5	6	22	57	9
GN 615.4-M16-BN	M 16	8.5	33	4.5 ^{±0.3}	8	38	78	32
GN 615.4-M20-BN	M 20	10	43	6.5	10	39	81	67
GN 615.4-M24-BN	M 24	13	48	8	12	72	155	104
GN 615.4-M6-BSN	M 6	2.7	15	2	3	11	25	2
GN 615.4-M8-BSN	M 8	3.8	18	2	4	23	59	4
GN 615.4-M10-BSN	M 10	4.5	23	2.5	5	20	54	9
GN 615.4-M12-BSN	M 12	6.2	26	3.5	6	38	96	13
GN 615.4-M16-BSN	M 16	8.5	33	4.5 ^{±0.3}	8	50	100	32
GN 615.4-M20-BSN	M 20	10	43	6.5	10	52	133	68
GN 615.4-M24-BSN	M 24	13	48	8	12	91	223	105



Spring plungers

Steel / Stainless Steel, with bolt / with slot

SPECIFICATION

Types

- Type **B**: Steel, standard spring load
- Type **BN**: Stainless Steel, standard spring load
- Type **BS**: Steel, high spring load
- Type **BSN**: Stainless Steel, high spring load

Type B / BS

- Steel, blackened
- Bolt, hardened

Type BN / BSN

- Housing Stainless Steel AISI 303
- Ball Stainless Steel AISI 420C, hardened

Spring

Stainless Steel AISI 631

Marking of Type BS / BSN

Housing with 2 longitudinal markings

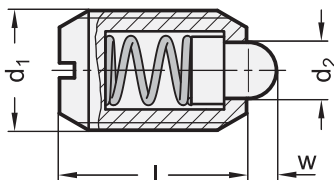


INFORMATION

Spring plungers GN 615.1 are used as detents as well as for push-on and push-off applications and ejectors.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 615.1-B/BS

Description	d1	d2	-0.1	l ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	
GN 615.1-M4-B	M 4	1.8	9	1.5+0.3/-0.4	4.5	12.5	1	
GN 615.1-M5-B	M 5	2.4	12	2	5	13	1	
GN 615.1-M6-B	M 6	2.7	14	2	6	17	2	
GN 615.1-M8-B	M 8	3.8	16	2	16	33	4	
GN 615.1-M10-B	M 10	4.5	19	2.5	19	42	7	
GN 615.1-M12-B	M 12	6	22	3.5	22	57	10	
GN 615.1-M16-B	M 16	8.5	24	4.5 ±0.3	38	78	22	
GN 615.1-M20-B	M 20	10	30	6.5	39	81	43	
GN 615.1-M24-B	M 24	13	34	8	72	155	70	
GN 615.1-M6-BS	M 6	2.7	14	2	11	25	2	
GN 615.1-M8-BS	M 8	3.8	16	2	23	59	4	
GN 615.1-M10-BS	M 10	4.5	19	2.5	20	54	7	
GN 615.1-M12-BS	M 12	6	22	3.5	38	96	10	
GN 615.1-M16-BS	M 16	8.5	24	4.5 ±0.3	50	100	24	
GN 615.1-M20-BS	M 20	10	30	6.5	52	133	40	
GN 615.1-M24-BS	M 24	13	34	8	91	223	70	

GN 615.1-BN/BSN

STAINLESS STEEL

Description	d1	d2	-0.1	l ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	
GN 615.1-M4-BN	M 4	1.8	9	1.5+0.3/-0.4	4.5	12.5	1	
GN 615.1-M5-BN	M 5	2.4	12	2	5	13	1	
GN 615.1-M6-BN	M 6	2.7	14	2	6	17	2	
GN 615.1-M8-BN	M 8	3.8	16	2	16	33	4	
GN 615.1-M10-BN	M 10	4.5	19	2.5	19	42	7	
GN 615.1-M12-BN	M 12	6	22	3.5	22	57	10	
GN 615.1-M16-BN	M 16	8.5	24	4.5 ±0.3	38	78	24	
GN 615.1-M20-BN	M 20	10	30	6.5	39	81	40	
GN 615.1-M24-BN	M 24	13	34	8	72	155	70	
GN 615.1-M6-BSN	M 6	2.7	14	2	11	25	2	
GN 615.1-M8-BSN	M 8	3.8	16	2	23	59	4	
GN 615.1-M10-BSN	M 10	4.5	19	2.5	20	54	7	
GN 615.1-M12-BSN	M 12	6	22	3.5	38	96	10	
GN 615.1-M16-BSN	M 16	8.5	24	4.5 ±0.3	50	100	23	
GN 615.1-M20-BSN	M 20	10	30	6.5	52	133	43	
GN 615.1-M24-BSN	M 24	13	34	8	91	223	70	

Spring plungers

Steel / Stainless Steel, with ball / with collar

SPECIFICATION

Version in Steel ST

- Housing blackened
- Ball hardened

Version in Stainless Steel NI

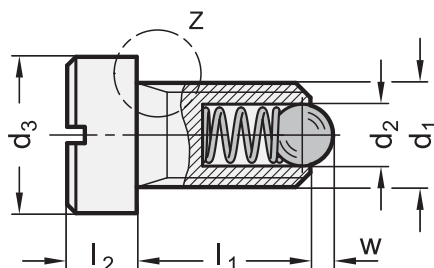
- Housing AISI 303
- Ball AISI 420C hardened

INFORMATION

Spring plungers GN 815 are used as detents as well as for push-on and push-off applications and ejectors.
The collar gives a defined installation position.

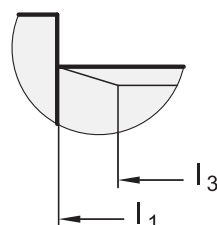
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

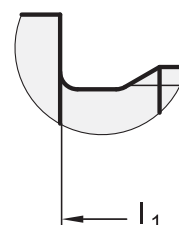


Detail Z; End of thread:

M4 / M5



M6 ... M12



GN 815

Description	d1	d2	d3	l1	l2	l3	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 815-M4-ST	M 4	2.5	6	6.5	3	5	0.8	8	14	1
GN 815-M5-ST	M 5	3	8	8.5	4	6.7	0.9	8	14	5
GN 815-M6-ST	M 6	3.5	10	9	5	-	1	11	18	5
GN 815-M8-ST	M 8	4.5	13	11	5.5	-	1.5	18	31	10
GN 815-M10-ST	M 10	6	16	14	6	-	2	24	45	15
GN 815-M12-ST	M 12	8	18	15	7	-	2.5	26	49	25

GN 815-NI

STAINLESS STEEL

Description	d1	d2	d3	l1	l2	l3	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 815-M4-NI	M 4	2.5	6	6.5	3	5	0.8	8	14	2
GN 815-M5-NI	M 5	3	8	8.5	4	6.7	0.9	8	14	5
GN 815-M6-NI	M 6	3.5	10	9	5	-	1	11	18	5
GN 815-M8-NI	M 8	4.5	13	11	5.5	-	1.5	18	31	8
GN 815-M10-NI	M 10	6	16	14	6	-	2	24	45	15
GN 815-M12-NI	M 12	8	18	15	7	-	2.5	26	49	20



Plastic-Spring plungers

with ball, with slot

SPECIFICATION

Housing
Plastic (Polyacetal POM)
temperature resistant up to 50 °C

Ball

- Stainless Steel AISI 420C **NI**, hardened
- Plastic (Polyacetal POM) **P**

Spring

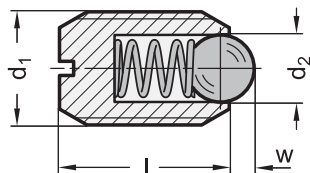
Stainless Steel AISI 631
(all versions)

INFORMATION

Plastic-Spring plungers GN 615.2 are used as detents as well as for push-on and push-off applications and ejectors. These spring plungers are all stainless versions.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



Spring plunger

Press on type, ball double ended

SPECIFICATION

Housing
Brass

Ball

Stainless Steel AISI 420C
hardened

Spring

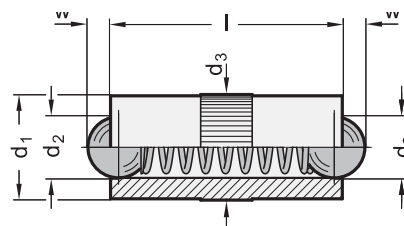
Stainless Steel AISI 631

INFORMATION

Spring plungers GN 614.2 are a result of a further development of spring plungers type GN 614 (see page 847) for special applications. A tolerance H8 is recommended for the locating bore of d1.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 615.2

STAINLESS STEEL

Description	d1	d2	l	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615.2-M6-P	M 6	3.5	14	0.9	12	17	1
GN 615.2-M8-P	M 8	5	16	1.5	20	35	1
GN 615.2-M10-P	M 10	6	19	1.9	25	45	2
GN 615.2-M6-NI	M 6	3.5	14	0.9	12	17	1
GN 615.2-M8-NI	M 8	5	16	1.5	20	35	1
GN 615.2-M10-NI	M 10	6	19	1.9	25	45	3

GN 614.2

Description	d1	d2	d3 +0.05	l	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.2-2,5	2.5	2	2.52	5.3	0.65	1.3	2.5	1
GN 614.2-3	3	2.5	3.02	7.3	0.8	2	4.5	1
GN 614.2-4	4	3	4.03	9	0.9	2.5	7.5	1
GN 614.2-5	5	4	5.03	10.8	1.2	3.5	8	1
GN 614.2-6	6	5	6.03	12.6	1.6	3.5	10.5	2
GN 614.2-7	7	6	7.03	14	2	4	12	3
GN 614.2-8	8	6.5	8.03	18	2.1	6	15	5

Spring plungers

Stainless Steel / Brass / Plastic, Press on type, with ball

SPECIFICATION

Housing and Ball Stainless Steel NI

- AISI 305 / 420C
- Housing sheet-metal
- Ball hardened

Housing Brass MS

- turned
- Ball Stainless Steel AISI 420C, hardened

Housing Plastic (Polyacetal POM) KU

- temperature resistant up to 50 °C
- Ball Stainless Steel AISI 420C, hardened

Housing and Ball Plastic (Polyacetal POM) KD

temperature resistant up to 50 °C

Spring

Stainless Steel AISI 631

INFORMATION

Spring plungers GN 614 are used as detents as well as for push-on and push-off applications and ejectors.

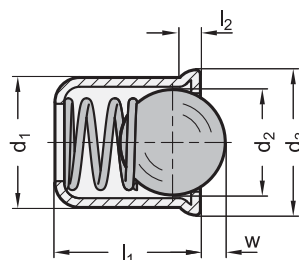
A tolerance of H7 for the location hole of d₁ is recommended.

Due to different production methods, the dimensions l₂ and l₃ are different.

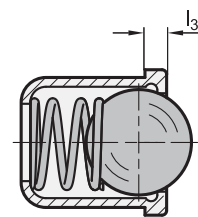
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

Type NI



Type MS / KU / KD



GN 614-NI

STAINLESS STEEL

Description	d1 +0.1	d2	d3	l1 ≈	l2 ≈	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614-3-NI	3	2.4	3.5	4	0.75	0.7	1.8	3.5	1
GN 614-4-NI	4	3	4.6	5	0.9	1	2.5	6	1
GN 614-5-NI	5	4	5.6	6	0.9	1.4	3	6.5	1
GN 614-6-NI	6	5	6.5	7	1	1.8	5.5	11.5	1
GN 614-8-NI	8	6.5	8.5	9	1.1	2.4	7	12.5	2
GN 614-10-NI	10	8.5	11	13	1.5	3.3	8.5	18.5	4
GN 614-12-NI	12	10	13	16	2.3	4	12	26.5	8

GN 614-MS

Description	d1 +0.1	d2	d3	l1 ≈	l3 ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614-3-MS	3	2.4	3.5	4	0.6	0.6	1.8	3.5	2
GN 614-4-MS	4	3	4.6	5	1	0.8	2.5	6	1
GN 614-5-MS	5	4	5.6	6	1	1	3	6.5	1
GN 614-6-MS	6	5	6.5	7	1	1.6	5.5	11.5	1
GN 614-8-MS	8	6.5	8.5	9	1	1.9	7	12.5	3

GN 614-KU

Description	d1 +0.1	d2	d3	l1 ≈	l3 ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614-3-KU	3	2	3.5	4	0.6	0.6	1.7	3.6	1
GN 614-4-KU	4	3	4.6	5	1	0.8	2.5	6.5	1
GN 614-5-KU	5	4	5.6	6	1	1	4.5	9	1
GN 614-6-KU	6	5	6.5	7	1	1.6	6.5	13	1
GN 614-8-KU	8	6.5	8.5	9	1	1.9	8	18	2
GN 614-10-KU	10	8	11	13.5	1.5	2.4	12	23	3
GN 614-12-KU	12	10	13	16	1.5	3.3	13	25	6

GN 614-KD

Description	d1 +0.1	d2	d3	l1 ≈	l3 ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614-4-KD	4	3	4.6	5	1	0.8	2.5	6.5	1
GN 614-5-KD	5	4	5.6	6	1	1	4.5	9	1
GN 614-6-KD	6	5	6.5	7	1	1.6	6.5	13	1
GN 614-8-KD	8	6.5	8.5	9	1	1.9	8	18	1
GN 614-10-KD	10	8	11	13.5	1.5	2.4	12	23	1
GN 614-12-KD	12	10	13	16	1.5	3.3	13	25	2



Holder for spring plungers / Side thrust pins

SPECIFICATION

Types

- Type **LKU**: Fixing from the left, with spring plunger
- Type **RKU**: Fixing from the right, with spring plunger
- Type **BKU**: Fixing from both sides, with spring plunger
- Type **L**: Fixing from the left, without spring plunger
- Type **R**: Fixing from the right, without spring plunger
- Type **B**: Fixing from both sides, without spring plunger

Zinc die casting
nickel plated

Spring plungers GN 614-KU (see page 847)

Housing

Plastic (Polyacetal POM)

temperature resistant up to 50 °C

Ball Stainless Steel AISI 420C, hardened

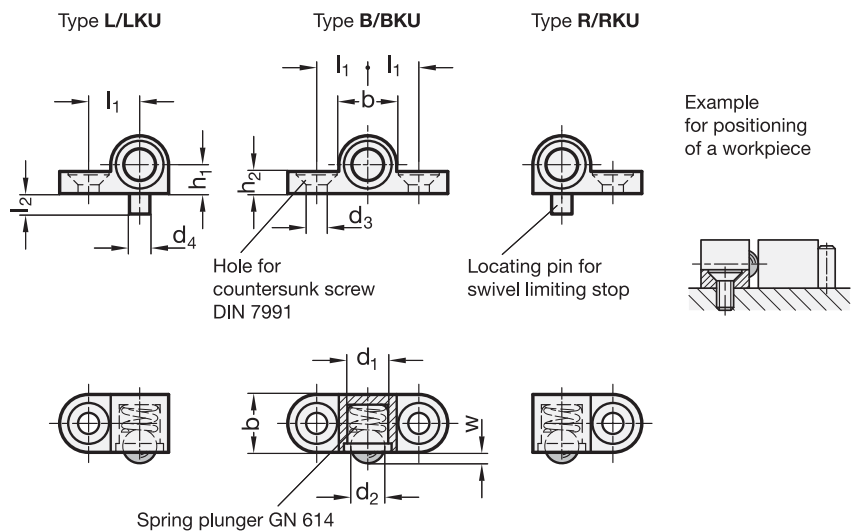


INFORMATION

Holder for spring plungers / Side thrust pins GN 614.1 are used for arresting and as press-on or press-off elements. The easy attachment using one or two countersunk screws also allows its use where a location borehole with the tolerance field H7 for the spring plunger would not be possible from its size and manufacturability. Side thrust pins GN 614.1 consist of a holder for spring plungers and a Stainless Steel-Spring plunger GN 614 of type KU (see page 847). For types R, L and B, only a „empty“ holder for spring plungers (without spring plungers) are supplied which can then be used together with all other design variants of GN 614-6 and GN 614-8 of the types KD, MS and NI.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with type index of the Holder for spring plungers

LKU RKU BKU L R B

GN 614.1

Description	d1	d2	d3	d4 -0.05	b	h1 ±0.05	h2	l1 ±0.05	l2	w -0.1	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.1-6-*	6	5	3.2 M 3	3	8.5	4.25	3.2	7.5	3	1.6	6.5	13	4
GN 614.1-8-*	8	6.5	4.3 M 4	4	10.5	5.25	4.2	9.5	4	1.9	8	18	7

Weight type LKU

Spring plungers

press on type, with ball

SPECIFICATION

Housing

Plastic (Polyacetal POM) **KU**
temperature resistant up to 50 °C

Ball

Stainless Steel

- AISI 420C

- hardened

Housing and ball

Plastic (Polyacetal POM) **KD**
temperature resistant up to 50 °C

Spring

Stainless Steel AISI 631



INFORMATION

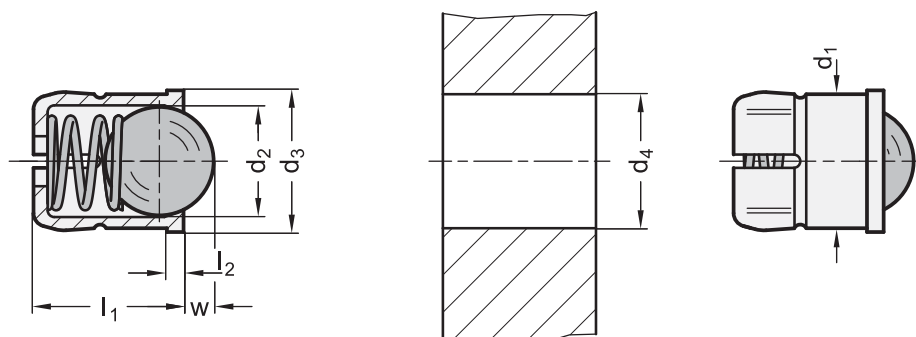
Spring plungers GN 614.5 are used as detents as well as for push-on and push-off applications and ejectors.

The geometric shape of the plastic housing generates a self-clamping function which compensates drill hole tolerances of as much as 0.2 mm. It also allows the hand-tightened assembly and makes overhead installation easier.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

- Plastic characteristics (see page A2)



GN 614.5-KD

STAINLESS STEEL

Description	d1 +0.1	d2	d3	d4 +0.2	l1 ±0.2	l2	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.5-4-KD	4	3	4.6	4	5	1	0.8	3	6.5	1
GN 614.5-5-KD	5	4	5.6	5	6	1	1	6	9.4	1
GN 614.5-6-KD	6	5	6.5	6	7	1	1.6	6.2	12.6	1
GN 614.5-8-KD	8	6.5	8.5	8	9	1	1.9	10	20.4	1
GN 614.5-10-KD	10	8	11	10	13.5	1.5	2.4	11.9	22.3	2

GN 614.5-KU

STAINLESS STEEL

Description	d1 +0.1	d2	d3	d4 +0.2	l1 ±0.2	l2	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.5-4-KU	4	3	4.6	4	5	1	0.8	3	6.5	1
GN 614.5-5-KU	5	4	5.6	5	6	1	1	6	9.4	1
GN 614.5-6-KU	6	5	6.5	6	7	1	1.6	6.2	12.6	1
GN 614.5-8-KU	8	6.5	8.5	8	9	1	1.9	10	20.4	2
GN 614.5-10-KU	10	8	11	10	13.5	1.5	2.4	11.9	22.3	3



Spring loaded shells

SPECIFICATION

Types

- Type **H**: Semi-spherical, Steel
- Type **HN**: Semi-spherical, Stainless Steel
- Type **K**: Pointed nose

Housing

- Type H / K: Steel, nickel plated
- Type HN: Stainless Steel AISI 305

Spring

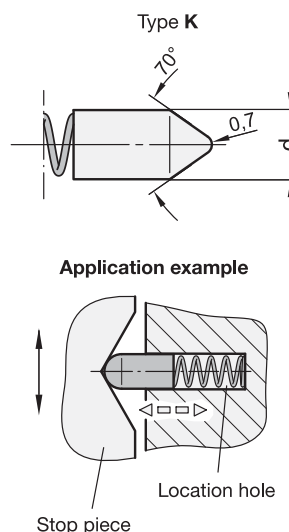
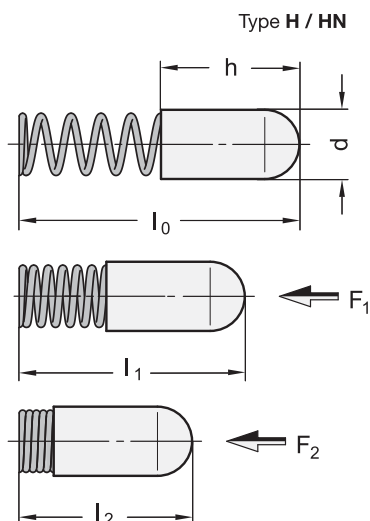
Stainless Steel AISI 301

INFORMATION

Spring loaded shells GN 610 have been designed for applications where in a confined space relatively long strokes are required. In such cases the depth of the mounting hole is determined by the preload required.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 610

STAINLESS STEEL

Description	d ±0.05	l ₀	h	l ₁	F ₁ Spring load in N ≈	l ₂	F ₂ Spring load in N ≈	⚖
GN 610-2,2-16-H	2.2	16	7.8	12	2.2	10.5	3	1
GN 610-2,6-8-H	2.6	8	3.8	6.5	1.1	5.2	2	1
GN 610-3-12-H	3	12	6	9	6.2	8.7	6.8	1
GN 610-3-16-H	3	16	8.5	13	4.8	10.7	8.4	1
GN 610-3,4-12-H	3.4	12	6	9	5	7.8	7	1
GN 610-3,4-15-H	3.4	15	7.3	12	5.9	8.2	13.3	1
GN 610-4-14-H	4	14	8	12	5	9	12.3	1
GN 610-5-16-H	5	16	8	13	8	10.4	15	1
GN 610-2,2-16-K	2.2	16	7.8	12	2.2	12.5	3	1
GN 610-3-11-K	3	11	5	9	1.6	6.7	3.4	1
GN 610-3-16-K	3	16	8.5	13	4.8	10.7	8.4	1
GN 610-3-16-HN	3	16	8	13	4.8	10.6	8.6	1
GN 610-3,6-18-HN	3.6	18	9	15	6.7	11.5	14.5	1
GN 610-4-16-HN	4	16	7.5	13	8	11.4	12.3	1

Ball buttons
for spring plungers

SPECIFICATION

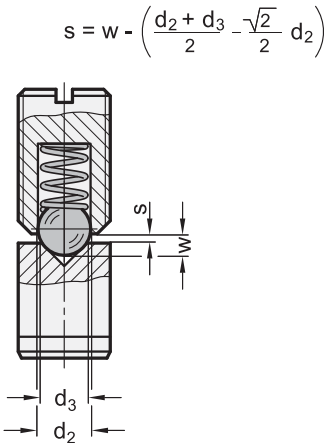
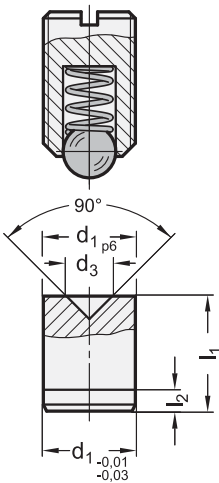
Steel
hardened and ground

INFORMATION

Ball buttons GN 249 are mainly used with spring plungers when a nonwearing and exact positioning is needed.
These ball buttons are especially recommended for use with spring plungers with high spring loads.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 249

Description	d1 p6	d2	d3	l1 ±0.05	l2	w	s For GN 614	s For GN 615, GN 615.2 GN 615.3	s For GN 615.1	s For GN 616	⚖
GN 249-4	4	*	1.5	5	2	*	-	M 4=0.6	M 4=1.1	M 4=1.1	1
GN 249-5	5	*	2	6	2	*	Ø 4=0.4	M 5=0.4	M 5=1.5	M 5=1.8	1
GN 249-6	6	*	2	8	2	*	Ø 5=0.8	M 6=0.6	M 6=1.6	M 6=2.1	2
GN 249-8	8	*	3	10	2	*	Ø 6=1.1	M 8=0.9	M 8=1.3	M 8=2.2	4
GN 249-10	10	*	4	12	3	*	Ø 8=1.2	M 10=1.2	M 10=1.4	M 10=1.8	7
GN 249-12	12	*	6	14	3	*	Ø 10=1.9	M 12=1.2	M 12=1.7	M 12=2.2	12
GN 249-16	16	*	8	18	3	*	Ø 12=1.9	M 16=1.6	M 16=2.3	M 16=2.5	20

* see spring plunger



Indent blocks

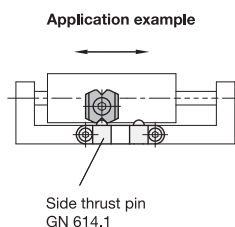
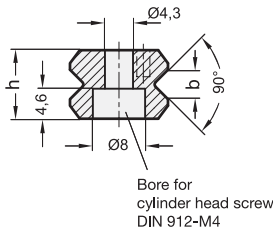
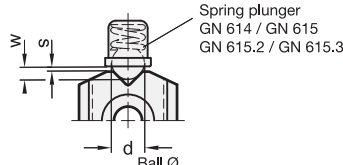
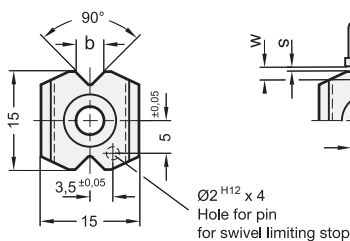
for spring plungers

SPECIFICATION

- Sintered Steel
- case hardened
- blank

INFORMATION

Indent blocks GN 250 are used together with spring plungers for detent or positioning of sliders, flaps and similar applications.



GN 250

Description	h	b ±0.1	Size	d	w	s min.	⚖
GN 250-8,5	8.5	3.4	M 8 *	5	1.6	0.9	10
GN 250-10,5	10.5	4.5	M 10 *	6.5	1.9	1	11
GN 250-8,5	8.5	3.4	M 8 **	4.5	1.5	0.8	10
GN 250-10,5	10.5	4.5	M 10 **	6	2	1	11

* for GN 614 | ** for GN 615 / GN 615.2 / GN 615.3

Stainless Steel-Spring plunger

with ball / without thread

SPECIFICATION

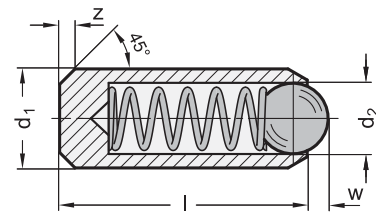
- Housing
Stainless Steel AISI 303 **NI**
- Ball
Stainless Steel AISI 420C
hardened
- Spring
Stainless Steel AISI 631

INFORMATION

Spring plungers GN 614.3 are installed axially through the depth of the bore whereby the dimension "z" of the chamfer has to be taken into consideration.
Due to the thin wall of the shell press fitting is not recommended.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 614.3

STAINLESS STEEL

Description	d1 ±0.04	d2	l	w	z	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.3-3-NI	3	2	7	0.65	0.15	4.5	7.5	1
GN 614.3-3.5-NI	3.5	2.5	9	0.8	0.15	6	14.5	1
GN 614.3-4-NI	4	3	11	0.9	0.25	8	14	1
GN 614.3-4.5-NI	4.5	3.2	12	0.95	0.25	9.5	16.5	1
GN 614.3-5-NI	5	3.5	13	1	0.25	11	18	2
GN 614.3-5.5-NI	5.5	4	14	1.2	0.3	15.5	25	2
GN 614.3-6-NI	6	4.5	15	1.5	0.3	18	31	2

Spring plungers

Press on type / with bolt

SPECIFICATION

Housing

Stainless Steel AISI 305

Bolt

Stainless Steel AISI 303 **NI**

Plastic **KU**

Polyacetal POM, white

temperature resistant up to +50 °C

Spring

Stainless Steel AISI 631



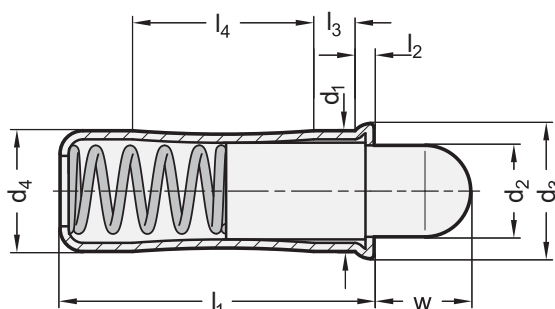
INFORMATION

Spring plungers GN 614.4 are used for locking, as pressing and back-off pins, but also as impact dampers.

A tolerance of H7 for the location hole of d₁ is recommended.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



GN 614.4-KU

Description	d1 +0.1	d2	d3	d4 ±0.0.5	l1	l2 ≈	l3 ≈	l4 ≈	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.4-4-KU	4	2.8	4.6	4	10.7	0.9	1.8	5.6	2.7	3	8.2	1
GN 614.4-5-KU	5	3.8	5.6	5	12	0.9	2.1	6	4	3.3	9	1
GN 614.4-6-KU	6	4.8	6.5	6	15	1	2.3	8.2	5.5	6.1	12	1
GN 614.4-8-KU	8	6.2	8.5	8	18	1.1	2.9	9.5	6.5	10.7	17	3
GN 614.4-10-KU	10	8	11	10	26	1.5	3.5	15	8	16.2	29	3

GN 614.4-NI

STAINLESS STEEL

Description	d1 +0.1	d2	d3	d4 ±0.0.5	l1	l2 ≈	l3 ≈	l4 ≈	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.4-4-NI	4	2.8	4.6	4	10.7	0.9	1.8	5.6	2.7	3	8.2	1
GN 614.4-5-NI	5	3.8	5.6	5	12	0.9	2.1	6	4	3.3	9	1
GN 614.4-6-NI	6	4.8	6.5	6	15	1	2.3	8.2	5.5	6.1	12	2
GN 614.4-8-NI	8	6.2	8.5	8	18	1.1	2.9	9.5	6.5	10.7	17	4
GN 614.4-10-NI	10	8	11	10	26	1.5	3.5	15	8	16.2	29	9



Spring plungers

Steel / Stainless Steel, with bolt / with internal hexagon

SPECIFICATION

Version in Steel

Types

- Type **S**: Bolt Steel, standard spring load
- Type **SS**: Bolt Steel, high spring load
- Type **K**: Bolt Plastic, standard spring load

Housing

Steel, blackened

Type S / SS

Bolt Steel, hardened

Type K

Bolt Plastic (Polyacetal POM)
temperature resistant up to 50 °C

Spring

Stainless Steel AISI 631

Marking of Type SS

Housing with 2 longitudinal markings

Version in Stainless Steel

Types

- Type **SN**: Bolt Stainless Steel, standard spring load
- Type **KN**: Bolt Plastic, standard spring load

Housing

Stainless Steel AISI 303

Type SN

Bolt Stainless Steel AISI 303

Type KN

Bolt Plastic (Polyacetal POM)
temperature resistant up to 50 °C

Spring

Stainless Steel AISI 631

INFORMATION

Spring plungers GN 616 are used as detents as well as for push-on and push-off applications and ejectors.

The slot on the plunger side is provided for blind hole applications. A special screw driver GN 616.5 is available.

ACCESSORY

- Screw drivers GN 616.5 (Code no. see table)

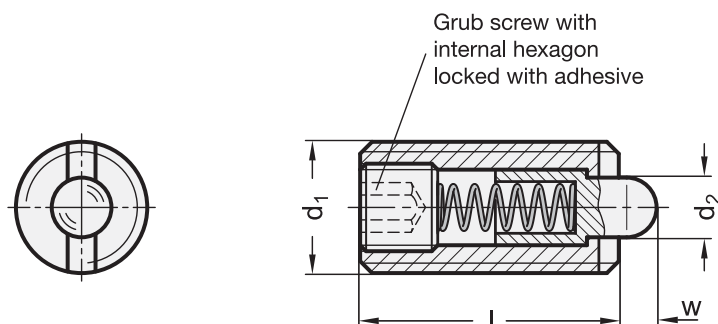
ON REQUEST

- with thread locking PFB / MVK

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 616

Description	d1	d2	l ±0.2	A/F	w +0.3/0.1	Spring load in N ≈ initial	Spring load in N ≈ end	Code no. for screw driver	⚖
GN 616-M3-S	M 3	1	12	0.7	1	2	4	GN 616.5-M3	1
GN 616-M4-S	M 4	1.5	15	1.3	1.5	4.5	16	GN 616.5-M4	1
GN 616-M5-S	M 5	2.4	18	1.5	2.3	6	19	GN 616.5-M5	2
GN 616-M6-S	M 6	2.7	20	2	2.5	6	19	GN 616.5-M6	3
GN 616-M8-S	M 8	3.5	22	2.5	3	10	39	GN 616.5-M8	6
GN 616-M10-S	M 10	4	22	3	3	10	39	GN 616.5-M10	9
GN 616-M12-S	M 12	6	28	4	4	12	53	GN 616.5-M12	16
GN 616-M16-S	M 16	7.5	32	5	5	45	100	GN 616.5-M16	35
GN 616-M20-S	M 20	10	40	6	7	52	125	GN 616.5-M20	65
GN 616-M24-S	M 24	12	52	8	10	70	170	GN 611.5-M24	131
GN 616-M8-SS	M 8	3.5	22	2.5	3	20	75	GN 616.5-M8	6
GN 616-M10-SS	M 10	4	22	3	3	20	75	GN 616.5-M10	9
GN 616-M12-SS	M 12	6	28	4	4	54	120	GN 616.5-M12	16
GN 616-M16-SS	M 16	7.5	32	5	5	64	160	GN 616.5-M16	30
GN 616-M20-SS	M 20	10	40	6	7	75	195	GN 616.5-M20	65
GN 616-M24-SS	M 24	12	52	8	10	75	245	GN 611.5-M24	120
GN 616-M4-K	M 4	1.5	15	1.3	1.5	4.5	16	GN 616.5-M4	1
GN 616-M5-K	M 5	2.4	18	1.5	2.3	6	19	GN 616.5-M5	2
GN 616-M6-K	M 6	2.7	20	2	2.5	6	19	GN 616.5-M6	2
GN 616-M8-K	M 8	3.5	22	2.5	3	10	39	GN 616.5-M8	5
GN 616-M10-K	M 10	4	22	3	3	10	39	GN 616.5-M10	10
GN 616-M12-K	M 12	6	28	4	4	12	53	GN 616.5-M12	14
GN 616-M16-K	M 16	7.5	32	5	5	45	100	GN 616.5-M16	31

GN 616-SN/KN

STAINLESS STEEL

Description	d1	d2	l ±0.2	A/F	w +0.3/0.1	Spring load in N ≈ initial	Spring load in N ≈ end	Code no. for screw driver	⚖
GN 616-M4-SN	M 4	1.5	15	1.3	1.5	4.5	16	GN 616.5-M4	1
GN 616-M5-SN	M 5	2.4	18	1.5	2.3	6	19	GN 616.5-M5	2
GN 616-M6-SN	M 6	2.7	20	2	2.5	6	19	GN 616.5-M6	3
GN 616-M8-SN	M 8	3.5	22	2.5	3	10	39	GN 616.5-M8	6
GN 616-M10-SN	M 10	4	22	3	3	10	39	GN 616.5-M10	9
GN 616-M12-SN	M 12	6	28	4	4	12	53	GN 616.5-M12	16
GN 616-M16-SN	M 16	7.5	32	5	5	45	100	GN 616.5-M16	35
GN 616-M20-SN	M 20	10	40	6	7	52	125	GN 616.5-M20	67
GN 616-M4-KN	M 4	1.5	15	1.3	1.5	4.5	16	GN 616.5-M4	1
GN 616-M5-KN	M 5	2.4	18	1.5	2.3	6	19	GN 616.5-M5	2
GN 616-M6-KN	M 6	2.7	20	2	2.5	6	19	GN 616.5-M6	3
GN 616-M8-KN	M 8	3.5	22	2.5	3	10	39	GN 616.5-M8	5
GN 616-M10-KN	M 10	4	22	3	3	10	39	GN 616.5-M10	9
GN 616-M12-KN	M 12	6	28	4	4	12	53	GN 616.5-M12	16
GN 616-M16-KN	M 16	7.5	32	5	5	45	100	GN 616.5-M16	32



Spring plungers

with bolt / long version

SPECIFICATION

Types

- Type **L**: standard spring load
- Type **LS**: high spring load

Steel
blackened

Bolt
case hardened

Marking of Type LS:
Housing with 2 longitudinal markings



INFORMATION

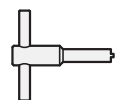
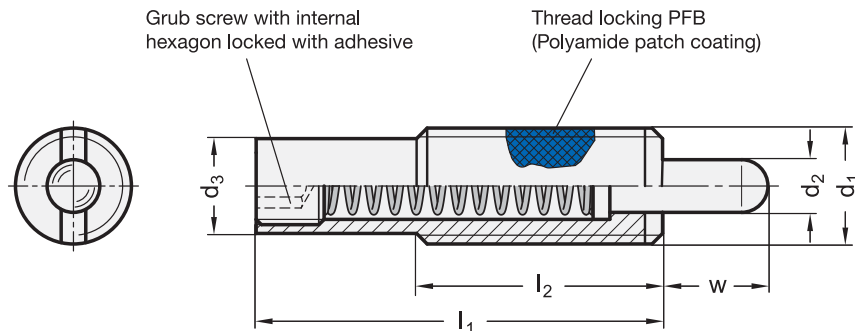
Spring plungers GN 611 are used as ejectors, push-on and push-off operations in the sheet metal industry, as well as cushioners. The slot on the plunger side is provided for blind hole application. A special screw driver GN 611.5 is available (see table).

TECHNICAL INFORMATION

- More information to thread locking PFB (see page A24)

ACCESSORY

- Screw drivers GN 611.5 (Code no. see table)



GN 611

Description	d1	w	d2	d3	l1	l2	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Code no. for screw driver	⚖
GN 611-M10-8-L	M 10	8	4	7.8	35	25	3	6	16	GN 611.5-M10	13
GN 611-M12-10-L	M 12	10	5.5	9.5	43	35	4	4	18	GN 611.5-M12	22
GN 611-M16-10-L	M 16	10	8	13.4	48	35	6	7	24	GN 611.5-M16	42
GN 611-M16-15-L	M 16	15	8	13.4	58	35	6	9	33	GN 611.5-M16	54
GN 611-M16-20-L	M 16	20	8	13.4	58	35	6	4	23	GN 611.5-M16	66
GN 611-M16-25-L	M 16	25	8	13.4	98	35	6	13	41	GN 611.5-M16	78
GN 611-M16-30-L	M 16	30	8	13.4	98	35	6	13	47	GN 611.5-M16	80
GN 611-M16-40-L	M 16	40	8	13.4	148	35	6	13	63	GN 611.5-M16	115
GN 611-M16-50-L	M 16	50	8	13.4	148	35	6	7	43	GN 611.5-M16	127
GN 611-M12-10-LS	M 12	10	5.5	9.5	43	35	4	7	46	GN 611.5-M12	23
GN 611-M16-10-LS	M 16	10	8	13.4	48	35	6	10	43	GN 611.5-M16	42
GN 611-M16-15-LS	M 16	15	8	13.4	58	35	6	10	57	GN 611.5-M16	50
GN 611-M16-20-LS	M 16	20	8	13.4	83	35	6	18	72	GN 611.5-M16	71
GN 611-M16-25-LS	M 16	25	8	13.4	98	35	6	20	70	GN 611.5-M16	78
GN 611-M16-30-LS	M 16	30	8	13.4	98	35	6	20	80	GN 611.5-M16	83
GN 611-M16-40-LS	M 16	40	8	13.4	148	35	6	21	113	GN 611.5-M16	123
GN 611-M16-50-LS	M 16	50	8	13.4	148	35	6	13	75	GN 611.5-M16	127

Spring plungers

with limit switch

SPECIFICATION

Types

- Type **S**: normally open
- Type **O**: normally closed

Screw

Steel, nickel plated

Ball

Steel, hardened

Hexagonal nuts

Steel, nickel plated

Limit switch

- Voltage: 5 ... 24 V DC
- Switching load recom.: 5-10 mA
- Switching load max.: 20 mA DC
- Life expectancy: 3 million operations
- Temperature range: -10 °C ... +80 °C

Supply cable PVC:

- Ø 3; 2 phase, ≈ 2 meters long
- max. tensile load 20 N
- grey, for Type S (normally open)
- black, for Type O (normally closed)

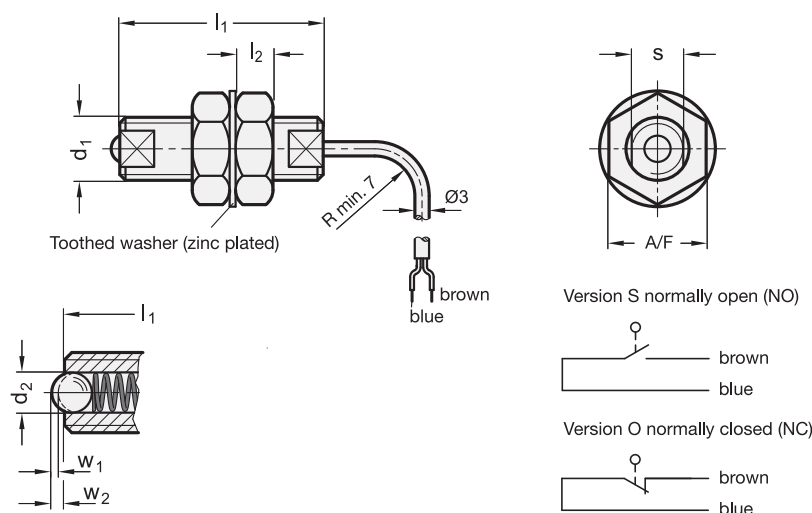
Protection class IP 40



INFORMATION

Spring plungers GN 615.7 are used for end stops as wells as contacts. Simultaneously an electrical control signal can be released from the built-in limit switch.

- IP Protection classes (see page A23)



GN 615.7

Description	d1	d2	l1	s	l2	A/F	w1 ±0.1 Switching stroke	w2 ±0.1 Compression	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615.7-M6-O	M 6	3	33	5	3.5	10	0.3	0.8	6	13	40
GN 615.7-M8-O	M 8	4	36	7	5	13	0.5	1	8	16	53
GN 615.7-M10-O	M 10	5	40	8	6	17	0.7	1.2	10	20	60
GN 615.7-M6-S	M 6	3	33	5	3.5	10	0.3	0.8	6	13	40
GN 615.7-M8-S	M 8	4	36	7	5	13	0.5	1	8	16	53
GN 615.7-M10-S	M 10	5	40	8	6	17	0.7	1.2	10	20	60



Spring elements

SPECIFICATION

Types

- Type **I**: Female thread
- Type **K**: Pointed nose
- Type **H**: Semi-spherical, Steel
- Type **P**: Prism (120°)

Identification No.

- Version **1**: standard spring load
- Version **2**: high spring load

Steel

Threaded sleeve

zinc plated, blue passivated

Spring bolt

case hardened, blackened

Identification

standard spring load:

Crescent shaped ring

phosphated (anthracite)

high spring load:

Crescent shaped ring

zinc plated, blue passivated



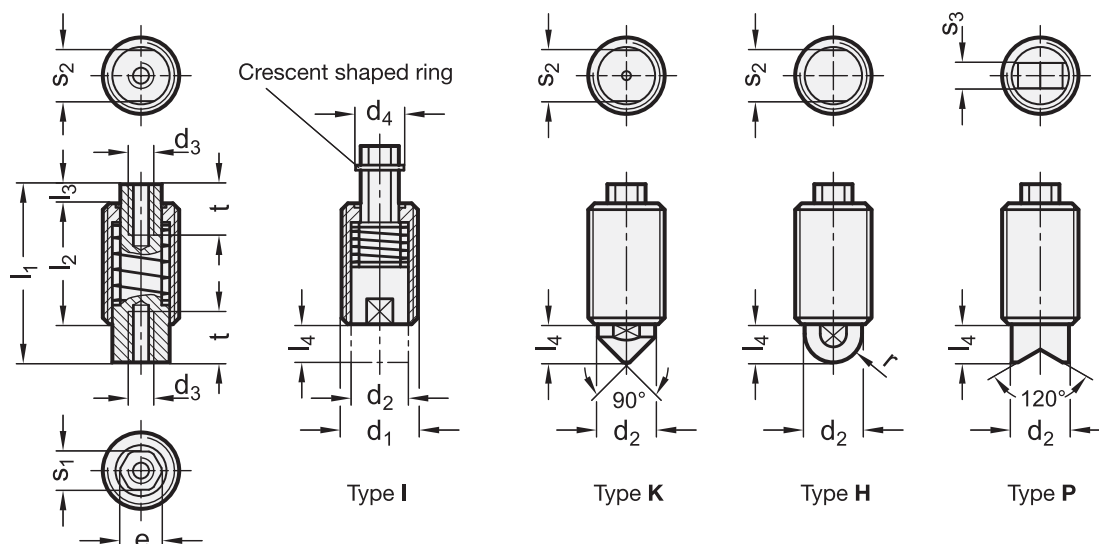
INFORMATION

Spring elements GN 513 are universal pressure elements used as detents, positioners or for clamping with spring pressure. The spring loaded nose can be used for a push-on or push-off operation. In addition the spring loaded nose cannot rotate.

At the pulling end the female thread will accept a pulling rod or an operating knob.

Type I with a female thread at the pushing end can be fitted with a special plunger nose.

The spring element can be screwed into a thread at the hexagon on the pulling end or the spanner flats at the pushing end of the plunger.



GN 513

Description	d1	d2	d3	d4	e	l1	l2	l3	l4	r	s1	s2	s3	t min.	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 513-M12x1,5-I-1	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	-	6	8	-	8	16	35	10
GN 513-M16x1,5-I-1	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	-	7	10	-	10	25	71	31
GN 513-M20x1,5-I-1	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	-	9	12	-	12	40	130	65
GN 513-M12x1,5-P-1	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	-	6	-	4	8	16	35	12
GN 513-M16x1,5-P-1	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	-	7	-	6	10	25	71	30
GN 513-M20x1,5-P-1	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	-	9	-	8	12	40	130	64
GN 513-M12x1,5-K-1	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	-	6	8	-	8	16	35	13
GN 513-M16x1,5-K-1	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	-	7	10	-	10	25	71	30
GN 513-M20x1,5-K-1	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	-	9	12	-	12	40	130	65
GN 513-M12x1,5-H-1	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	4.5	6	8	-	-	16	35	15
GN 513-M16x1,5-H-1	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	6	7	10	-	-	25	71	30
GN 513-M20x1,5-H-1	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	7.2	9	12	-	-	40	130	66
GN 513-M12x1,5-I-2	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	-	6	8	-	8	18	56	12
GN 513-M16x1,5-I-2	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	-	7	10	-	10	45	125	31
GN 513-M20x1,5-I-2	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	-	9	12	-	12	66	200	66
GN 513-M12x1,5-P-2	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	-	6	-	4	8	18	56	12
GN 513-M16x1,5-P-2	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	-	7	-	6	10	45	125	30
GN 513-M20x1,5-P-2	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	-	9	-	8	12	66	200	65
GN 513-M12x1,5-K-2	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	-	6	8	-	8	18	56	12
GN 513-M16x1,5-K-2	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	-	7	10	-	10	45	125	30
GN 513-M20x1,5-K-2	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	-	9	12	-	12	66	200	64
GN 513-M12x1,5-H-2	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	4.5	6	8	-	-	18	56	10
GN 513-M16x1,5-H-2	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	6	7	10	-	-	45	125	32
GN 513-M20x1,5-H-2	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	7.2	9	12	-	-	66	200	67



Side thrust pins

Press on type

SPECIFICATION

Types

- Type **SA**: thrust pin Steel, without seal
- Type **KA**: thrust pin Plastic, without seal
- Type **SB**: thrust pin Steel, with seal
- Type **KB**: thrust pin Plastic, with seal

Housing Aluminium blank

Type SA / SB
thrust pin Steel, hardened
zinc plated, blue passivated

Type KA / KB
thrust pin Plastic Polyacetal (POM)

Thrust spring coding
Force, low thrust: grey
medium thrust: black
high thrust: silver

Seal rubber
NBR (Perbunan)

INFORMATION

Spring loaded side thrust pins GN 715 are versatile and practical elements for holding, positioning and clamping of workpieces. They eliminate costly alternatives, are space saving and easy to install. The knurled body requires only a hole tolerance of H8. For easy mounting a suitable tool GN 715.1... is available (see table).

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)
- Elastomer characteristics (see page A32)

TECHNICAL AND ASSEMBLY INSTRUCTIONS

w = Movement of pin

F = Side thrust in N

initial thrust = F_0

end thrust = $1.1 \times F_0$

$a_2 - a_1$ = Clamping range for workpiece

x = distance centre line – thrust point at w_2

x_1 for highest thrust point (a_1)

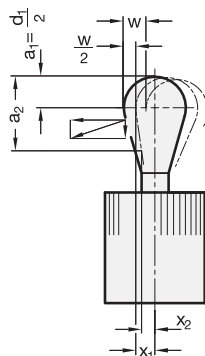
x_2 for lowest thrust point (a_2)

l_0 = Distance end stop – bore of thrust bush

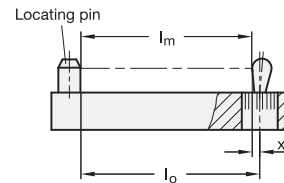
$l_0 = l_m + x$

l_m = Average length of workpiece $l_{max.} + l_{min.} / 2$

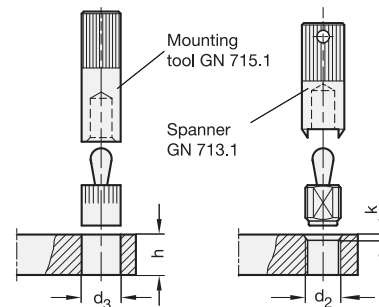
For contact points (workpiece height) between a_1 and a_2 a value for x has to be used lying between x_1 and x_2 (interpolation).



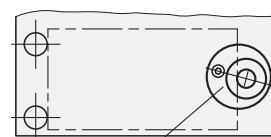
By observing the above values the full movement of the side thrust pin will be available to cover the tolerance of the workpiece.



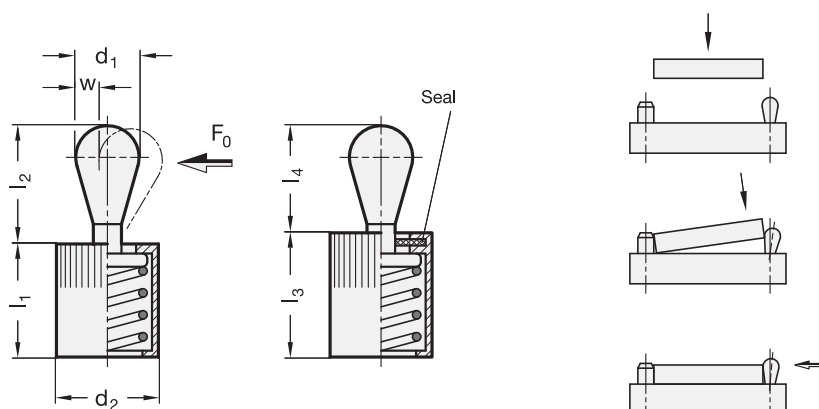
For inserting the side thrust pins the use of a mounting tool GN 715.1 or spanner GN 713.1 is recommended.



Eccentric bushes GN 715.2 (see page 867) are tooling accessory for GN 714 (see page 862) / GN 715. They enable a precise optimum setting of side thrust pins. This allows an adjustment to l_0 to accommodate for instance a larger tolerance range on a workpiece.



Eccentric bushing GN 715.2



GN 715

Description	d1	Side thrust F0 in N	a1	a2	d2	d3 H8 h min.	l1 -1	l2	l3 -1	l4	w	x1	x2	Code no. for mounting tool		
GN 715-3-10-KA	3	10	1.5	3.5	6	6	7	7	4	7	4	0.9	1	0.75	GN 715.1-3	1
GN 715-5-20-KA	5	20	2.5	5.7	10	10	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-5.6	1
GN 715-6-40-KA	6	40	3	7.7	10	10	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-5.6	1
GN 715-8-50-KA	8	50	4	8.9	12	12	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-8	3
GN 715-10-100-KA	10	100	5	10.7	16	16	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-10	6
GN 715-3-10-KB	3	10	1.5	3.5	6	6	7	7	4	7	4	0.9	1	0.75	GN 715.1-3	1
GN 715-5-20-KB	5	20	2.5	5.7	10	10	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-5.6	1
GN 715-6-40-KB	6	40	3	7.7	10	10	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-5.6	2
GN 715-8-50-KB	8	50	4	8.9	12	12	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-8	3
GN 715-10-100-KB	10	100	5	10.7	16	16	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-10	7
GN 715-3-10-SA	3	10	1.5	3.5	6	6	7	7	4	7	4	0.9	1	0.75	GN 715.1-3	1
GN 715-3-20-SA	3	20	1.5	3.5	6	6	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-3	1
GN 715-3-40-SA	3	40	1.5	3.5	6	6	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-3	1
GN 715-5-20-SA	5	20	2.5	5.7	10	10	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-5.6	3
GN 715-5-50-SA	5	50	2.5	5.7	10	10	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-5.6	3
GN 715-5-100-SA	5	100	2.5	5.7	10	10	7	7	4	7	4	0.9	1	0.75	GN 715.1-5.6	3
GN 715-6-40-SA	6	40	3	7.7	10	10	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-5.6	3
GN 715-6-75-SA	6	75	3	7.7	10	10	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-5.6	4
GN 715-6-150-SA	6	150	3	7.7	10	10	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-5.6	4
GN 715-8-50-SA	8	50	4	8.9	12	12	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-8	7
GN 715-8-100-SA	8	100	4	8.9	12	12	7	7	4	7	4	0.9	1	0.75	GN 715.1-8	7
GN 715-8-200-SA	8	200	4	8.9	12	12	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-8	7
GN 715-10-100-SA	10	100	5	10.7	16	16	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-10	15
GN 715-10-200-SA	10	200	5	10.7	16	16	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-10	15
GN 715-10-300-SA	10	300	5	10.7	16	16	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-10	16
GN 715-3-10-SB	3	10	1.5	3.5	6	6	7	7	4	7	4	0.9	1	0.75	GN 715.1-3	1
GN 715-3-20-SB	3	20	1.5	3.5	6	6	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-3	1
GN 715-3-40-SB	3	40	1.5	3.5	6	6	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-3	1
GN 715-5-20-SB	5	20	2.5	5.7	10	10	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-5.6	3
GN 715-5-50-SB	5	50	2.5	5.7	10	10	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-5.6	3
GN 715-5-100-SB	5	100	2.5	5.7	10	10	7	7	4	7	4	0.9	1	0.75	GN 715.1-5.6	3
GN 715-6-40-SB	6	40	3	7.7	10	10	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-5.6	3
GN 715-6-75-SB	6	75	3	7.7	10	10	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-5.6	4
GN 715-6-150-SB	6	150	3	7.7	10	10	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-5.6	4
GN 715-8-50-SB	8	50	4	8.9	12	12	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-8	7
GN 715-8-100-SB	8	100	4	8.9	12	12	7	7	4	7	4	0.9	1	0.75	GN 715.1-8	7
GN 715-8-200-SB	8	200	4	8.9	12	12	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-8	7
GN 715-10-100-SB	10	100	5	10.7	16	16	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-10	15
GN 715-10-200-SB	10	200	5	10.7	16	16	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-10	14
GN 715-10-300-SB	10	300	5	10.7	16	16	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-10	16



Side thrust pins without pressure pin, press on type

SPECIFICATION

Housing Aluminium
blank

Thrust plate with female thread
hardened, blackened

Thrust spring coding
Force, low thrust: grey
medium thrust: lack
high thrust: silver

Seal rubber
NBR (Perbunan)

INFORMATION

Side thrust pins GN 714 are the result of further development of GN 715 (see page 860). It is left to the customer to design his own pressure pin which can be screwed into the thrust plate.

This design extends the field of applications for side thrust pins offering identical advantages i.e. they eliminate costly alternatives, are space saving and are simple to install. The knurled body requires bore to H8 tolerance only.

For easy mounting a suitable tool GN 715.1 is available (see table).

ACCESSORY

- Mounting tools GN 715.1 (Code no. see table)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Elastomer characteristics (see page A32)

TECHNICAL AND ASSEMBLY INSTRUCTIONS

w = Movement of pin

F = Side thrust in N

initial thrust = F_0

end thrust = $1.1 \times F_0$

$a_2 - a_1$ = Clamping range for workpiece

x = Distance centre line – thrust point at w_2

x_1 for highest thrust point (a_1)

x_2 for lowest thrust point (a_2)

l_0 = Distance end stop – bore of thrust bushing

$l_0 = l_m + x$

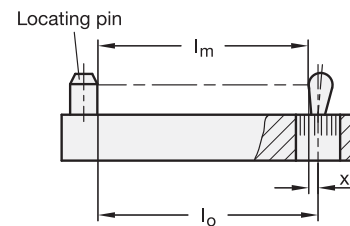
l_m = Average length of workpiece $l_{max.} + l_{min.} / 2$

For contact points (workpiece height) between a_1 and a_2 a value for x has to be used lying between x_1 and x_2 (interpolation).

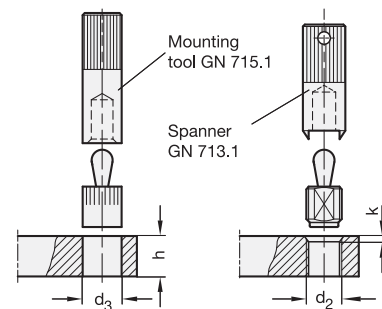
By observing the above values the full movement of the side thrust pin will be available to cover the tolerance of the workpiece.



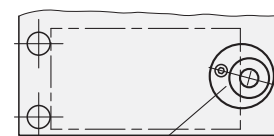
By observing the above values the full movement of the side thrust pin will be available to cover the tolerance of the workpiece.



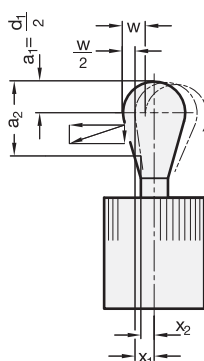
For inserting the side thrust pins the use of a mounting tool GN 715.1 or spanner GN 713.1 is recommended.

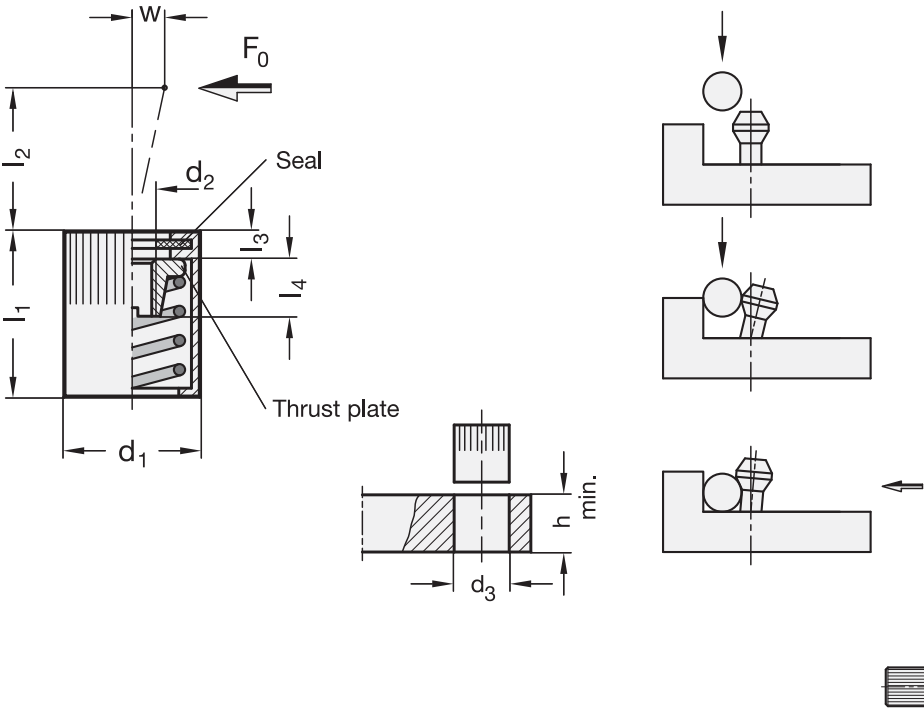


Eccentric bushes GN 715.2 (see page 867) are tooling accessory for GN 714 (see page 862) / GN 715 (see page 860). They enable a precise optimum setting of side thrust pins. This allows an adjustment to l_0 to accommodate for instance a larger tolerance range on a workpiece.



Eccentric bushing GN 715.2





GN 714

Description	d1	Side thrust F0 in N ≈ at l2	d2	d3 H8	h min.	l1 -1	l2	l3	l4	w	Code no.	⚖
GN 714-10-20	10	20	M 4	10	12	12	4	1.5	4.5	1.6	GN 715.1-5.6	2
GN 714-10-40	10	40	M 4	10	12	12	7.5	1.5	4.5	1.6	GN 715.1-5.6	2
GN 714-10-50	10	50	M 4	10	12	12	4	1.5	4.5	1.6	GN 715.1-5.6	2
GN 714-10-75	10	75	M 4	10	12	12	7.5	1.5	4.5	1.6	GN 715.1-5.6	2
GN 714-10-100	10	100	M 4	10	12	12	4	1.5	4.5	1.6	GN 715.1-5.6	2
GN 714-10-150	10	150	M 4	10	12	12	7.5	1.5	4.5	1.6	GN 715.1-5.6	2
GN 714-16-100	16	100	M 6	16	18	18	11.5	2	7.5	3.2	GN 715.1-10	9
GN 714-16-200	16	200	M 6	16	18	18	11.5	2	7.5	3.2	GN 715.1-10	9
GN 714-16-300	16	300	M 6	16	18	18	11.5	2	7.5	3.2	GN 715.1-10	10



Side thrust pins

with thread

SPECIFICATION

Types

- Type **SB**: thrust pin Steel, with seal
- Type **SA***: thrust pin Steel, without seal

* not available from stock, requires a minimum order quantity

Housing Steel
zinc plated, blue passivated

Thrust pin Steel, hardened
zinc plated, blue passivated

Thrust spring coding
Force low thrust: grey
medium thrust: black
high thrust: silver

Seal rubber
NBR (Perbunan)



INFORMATION

Spring loaded side thrust pins GN 713 are versatile and practical elements for holding, positioning and clamping workpieces. They eliminate costly alternatives, are space saving and simple to install. The protruding height of the thrust pin can be adjusted with the threaded body. For easy mounting a suitable tool GN 713.1 is available (see table).

ACCESSORY

- Mounting tools GN 713.1 (Code no. see table)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)

TECHNICAL AND ASSEMBLY INSTRUCTIONS

w = Movement of pin

F = Side thrust in N

initial thrust = F_0

end thrust = $1.1 \times F_0$

a_2 - a_1 = Clamping range for workpiece

x = Distance centre line – thrust point at w_2

x_1 for highest thrust point (a_1)

x_2 for lowest thrust point (a_2)

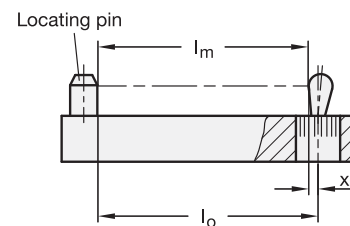
l_0 = Distance end stop – bore of thrust bush

$l_0 = l_m + x$

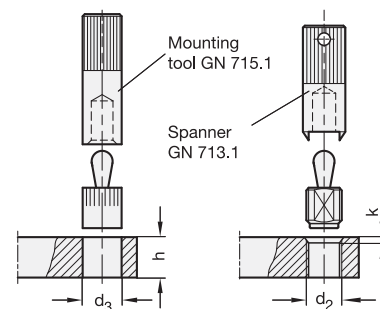
l_m = Average length of workpiece $l_{max.} + l_{min.}/2$

For contact points (workpiece height) between a_1 and a_2 a value for x has to be used lying between x_1 and x_2 (interpolation).

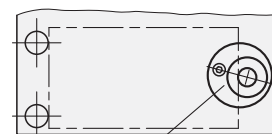
By observing the above values the full movement of the side thrust pin will be available to cover the tolerance of the workpiece.



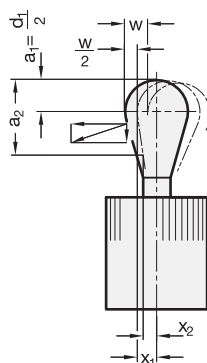
For inserting the side thrust pins the use of a mounting tool GN 715.1 or spanner GN 713.1 is recommended.

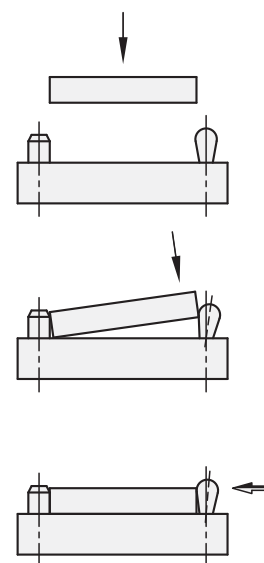
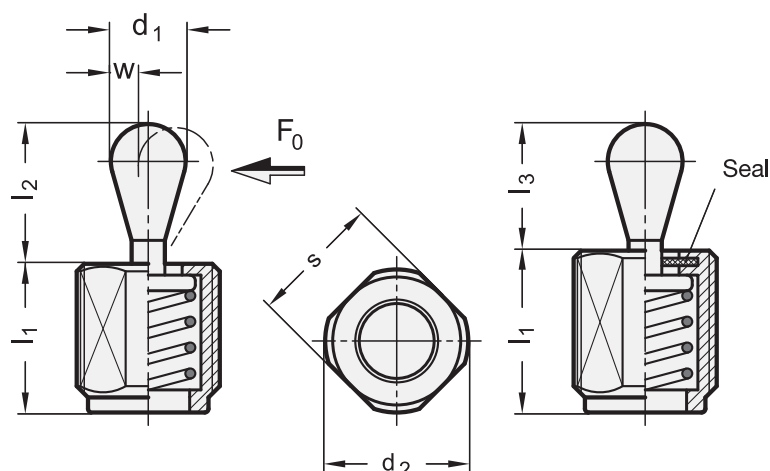


Eccentric bushes GN 715.2 (see page 867) are tooling accessory for GN 714 (see page 862) / GN 715 (see page 860). They enable a precise optimum setting of side thrust pins. This allows an adjustment to l_0 to accommodate for instance a larger tolerance range on a workpiece.



Eccentric bushing GN 715.2





* Complete with type index of the Side thrust pins (SB or SA)

SB SA



GN 713

Description	d1	Side thrust F0 in N at l2	l1 -1.5	d2	a1	a2	k	l2	l3	s	w	x1	x2	Code no. for mounting tool	
GN 713-5-20-11,5-*	5	20	11.5	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	4
GN 713-5-20-19-*	5	20	19	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	6
GN 713-5-20-26,5-*	5	20	26.5**	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	8
GN 713-5-50-11,5-*	5	50	11.5	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	4
GN 713-5-50-19-*	5	50	19	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	6
GN 713-5-50-26,5-*	5	50	26.5**	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	8
GN 713-5-100-11,5-*	5	100	11.5	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	4
GN 713-5-100-19-*	5	100	19	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	7
GN 713-5-100-26,5-*	5	100	26.5**	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	9
GN 713-6-40-11,5-*	6	40	11.5	M 12	3	7.7	1.5x45°	10.7	10	10	1.8	1.9	1.4	GN 713.1-5.6	5
GN 713-6-40-19-*	6	40	19	M 12	3	7.7	1.5x45°	10.7	10	10	1.8	1.9	1.4	GN 713.1-5.6	7
GN 713-6-40-26,5-*	6	40	26.5**	M 12	3	7.7	1.5x45°	10.7	10	10	1.8	1.9	1.4	GN 713.1-5.6	8
GN 713-6-75-11,5-*	6	75	11.5	M 12	3	7.7	1.5x45°	10.7	10	10	1.8	1.9	1.4	GN 713.1-5.6	5
GN 713-6-75-19-*	6	75	19	M 12	3	7.7	1.5x45°	10.7	10	10	1.8	1.9	1.4	GN 713.1-5.6	7
GN 713-6-75-26,5-*	6	75	26.5**	M 12	3	7.7	1.5x45°	10.7	10	10	1.8	1.9	1.4	GN 713.1-5.6	9
GN 713-6-150-11,5-*	6	150	11.5	M 12	3	7.7	1.5x45°	10.7	10	10	1.8	1.9	1.4	GN 713.1-5.6	7
GN 713-6-150-19-*	6	150	19	M 12	3	7.7	1.5x45°	10.7	10	10	1.8	1.9	1.4	GN 713.1-5.6	8
GN 713-6-150-26,5-*	6	150	26.5**	M 12	3	7.7	1.5x45°	10.7	10	10	1.8	1.9	1.4	GN 713.1-5.6	10
GN 713-10-100-18-*	10	100	18	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	19
GN 713-10-100-31,5-*	10	100	31.5	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	28
GN 713-10-100-45-*	10	100	45**	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	36
GN 713-10-200-18-*	10	200	18	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	20
GN 713-10-200-31,5-*	10	200	31.5	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	29
GN 713-10-200-45-*	10	200	45**	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	40
GN 713-10-300-18-*	10	300	18	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	21
GN 713-10-300-31,5-*	10	300	31.5	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	30
GN 713-10-300-45-*	10	300	45**	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	38

** not available from stock, requires a minimum order quantity



Side thrust pins

Press on type

SPECIFICATION

Types

- Type **ENI**: one-sided, ball Stainless Steel
- Type **EKU**: one-sided, ball Plastic
- Type **EST**: one-sided, ball Steel
- Type **BST**: both-sided, ball Steel

Housing Steel, blackened

Sleeve (for Ball)

- Type ENI / EKU: Plastic
- Type EST / BST: Steel, blackened

Ball

- Type ENI: Stainless Steel
- Type EKU: Plastic
- Type EST / BST: Steel

Spring

- Type ENI / EKU: Stainless Steel
- Type EST / BST: elastic plastic

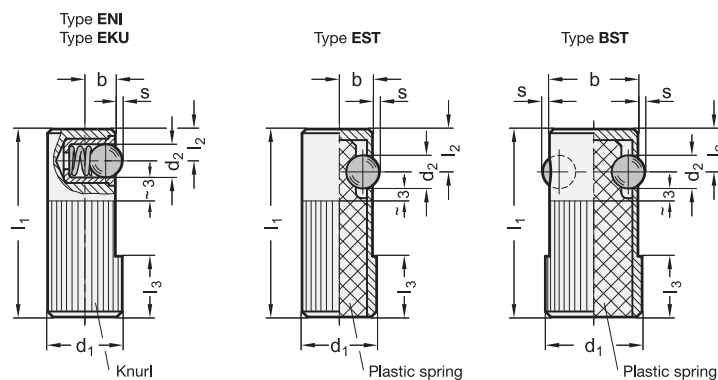
temperature resistant up to 80 °C



INFORMATION

Side thrust pins GN 716 are designed for holding, positioning and locating a workpiece.

They have to be pressed into the housing by at least the dimensions l_3 , so as to ensure a positive hold.



GN 716

Description	d1	d2	b	l1	l2	l3	s	Spring load in N $\approx$ initial	Spring load in N $\approx$ end	Locating bore H8	⚖
GN 716-8-ENI	8	3	3.2	25	3.6	6	0.9	2.5	6.5	8	9
GN 716-10-ENI	10	4	4	30	4.2	7	1	4.5	9	10	17
GN 716-12-ENI	12	5	5	35	4.8	9	1.5	6.5	13	12	29
GN 716-14-ENI	14	6.5	5.4	40	5.8	10	1.8	8	18	14	43
GN 716-8-EKU	8	3	3.2	25	3.6	6	0.9	2.5	6.5	8	9
GN 716-10-EKU	10	4	4	30	4.2	7	1	4.5	9	10	17
GN 716-12-EKU	12	5	5	35	4.8	9	1.5	6.5	13	12	29
GN 716-14-EKU	14	6.5	5.4	40	5.8	10	1.8	8	18	14	43
GN 716-10-EST	10	5.5	4.5	30	7	8	1	50	160	10	9
GN 716-12-EST	12	6.5	5.5	35	8	9	1.5	60	270	12	13
GN 716-14-EST	14	8	6.5	40	9	10	2	100	380	14	19
GN 716-16-BST	16	5.5	15	35	7	11	1.5	36	190	16	20
GN 716-18-BST	18	6.5	17	40	8	12	1.8	38	270	18	27
GN 716-22-BST	22	8	21	45	9	15	2.5	40	410	22	43

Eccentric bushes

for side thrust pins GN 714 / GN 715

SPECIFICATION

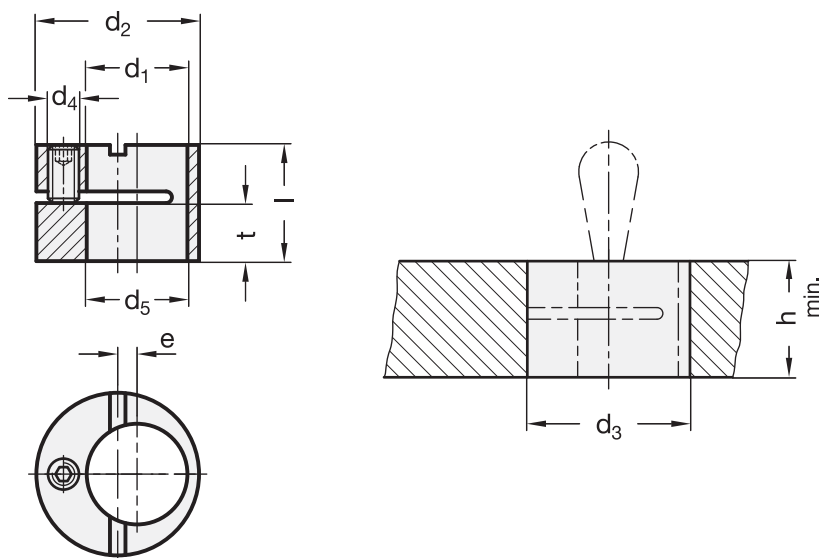
Steel
blackened

INFORMATION

Eccentric bushes GN 715.2 allows side thrust pins GN 715 (see page 860) / GN 714 (see page 862) to be adjusted. These bushes allow the side thrust pin to be precisely adjusted to suit the requirements for clamping of a component.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 715.2

Description	d1	d2 h9	d3 H7	d4	d5 +0.1	e	h min.	l -0.2	t	For side thrust pin-Ø	⚖
GN 715.2-6	6	12	12	M 4	6.2	2	10	9.9	4.4	3	5
GN 715.2-10	10	16	16	M 4	10.2	2	12	11.9	5.4	5 6	9
GN 715.2-12	12	18	18	M 4	12.2	2	14	13.9	6.6	8	13
GN 715.2-16	16	25	25	M 6	16.2	3	18	17.9	7.9	10	35

Locking pins with axial lock - Types



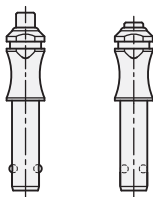
Indexing elements

GN 113.3

GN 113.4

see page 870

Ø 5 / 6 / 8 / 10 / 12 / 16 / 20
with tightened gripping tray



Function:

- The locking element consists of 2 balls, which are "retracted" by press of a button and brought back into the (form-locking) lock function by a spring.

Features:

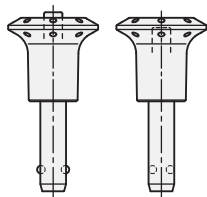
- GN 113.3: Stainless Steel AISI 303
- GN 113.4: Stainless Steel AISI 630, precipitation-hardened

GN 113.5

GN 113.6

see page 874

Ø 5 / 6 / 8 / 10 / 12 / 16
with plastic knob



Function:

- The locking element consists of 2 balls, which are "retracted" by press of a button and brought back into the (form-locking) lock function by a spring.

Features:

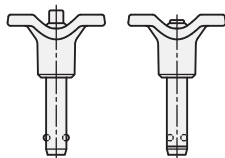
- GN 113.5: Stainless Steel AISI 303
- GN 113.6: Stainless Steel AISI 630, precipitation-hardened

GN 113.7

GN 113.8

see page 878

Ø 5 / 6 / 8 / 10 / 12 / 16
with plastic-T-handle



Function:

- The locking element consists of 2 balls, which are "retracted" by press of a button and brought back into the (form-locking) lock function by a spring.

Features:

- GN 113.7: Stainless Steel AISI 303
- GN 113.8: Stainless Steel AISI 630, precipitation-hardened

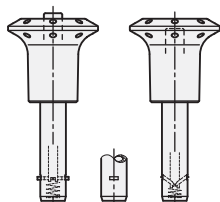
GN 114.2

GN 114.3

GN 114.6

see page 882

Ø 6 / 8 / 10 / 12 / 16 / 20
with knob



Function:

- The locking element consists of rectangular locking pawls, which are "retracted" by press of a button a brought back into the lock function by a spring (DBP).

Features:

- GN 114.2
 - Pin steel, zinc plated
 - Knob, push-button, slide plastic
- GN 114.3
 - Pin Stainless Steel AISI 303
 - Knob, push-button, slide plastic
- GN 114.6
 - Pin Stainless Steel AISI 303
 - Knob, push-button, slide Stainless Steel

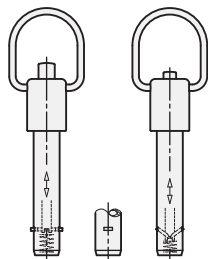
GN 214.2

GN 214.3

GN 214.6

see page 888

Ø 6 / 8 / 10 / 12 / 16 / 20
with lifting ring
(Stainless Steel AISI 301)



Function:

- The locking element consists of rectangular locking pawls, which are "retracted" by press of a button a brought back into the lock function by a spring (DBP).

Features:

- GN 214.2
 - Pin steel, zinc plated
 - Push-button, slide plastic
- GN 214.3
 - Pin Stainless Steel AISI 303
 - Push-button, slide plastic
- GN 214.6
 - Pin Stainless Steel AISI 303
 - Push-button, slide Stainless Steel AISI 303

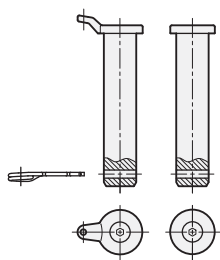
Locking pins with axial lock - Types

GN 2342

see page 898

Type B / E

Ø 8 / 10 / 12 / 16 / 20



Function:

- With type B and E Stainless Steel-Assembly pins, axial positioning is performed with a collar or eyelet washer.
- Axial securing is by means of a transverse hole (id. no. 2) in which a spring cotter pin is inserted.
- Assembly pins with eyelet washers (type E), including the matching spring cotter pin, can additionally be secured against loss with a retaining cable.

Features:

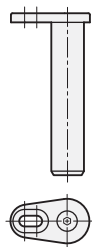
- Pin Stainless Steel AISI 304

GN 2342

see page 898

Type L

Ø 6 / 8 / 10 / 12



Function:

- With type L Stainless Steel-Assembly pins, axial positioning is by means of a fastening tab.
- Fastened with a countersunk screw, the fastening tab holds the assembly pin in the hole so that it is secured against rotation and does not have any play.

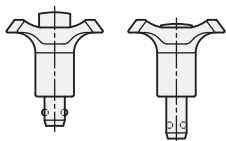
Features:

- Pin Stainless Steel AISI 304

GN 113.1

see page 894

Ø 6 / 8 / 10 / 12



Function:

- The ball lock pins are used for quick fixing of thin-walled parts e.g. sheets.
- By depressing the spring-loaded push button the pin advances and at the same time frees the two balls.

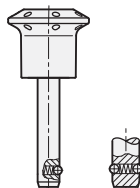
Features:

- Pin Stainless Steel AISI 303
- Handle plastic

GN 124.2

see page 895

Ø 6 / 8 / 10 / 12



Function:

- The locking element consists of one or two guide balls that are held in the locking position using a thrust spring. The bolts can be quickly and easily inserted and removed from the locating hole.

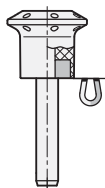
Features:

- Pin Stainless Steel AISI 303
- Knob plastic

GN 124.1

see page 896

Ø 6 / 8 / 10 / 12



Function:

- Combined with magnetic components, the magnet fitted at the bottom of the knob holds the locking pins in the axial direction.
- Good surfaces and perpendicular drilling heads help in achieving extremely good axial retaining forces.

Features:

- Pin Stainless Steel AISI 303
- Knob plastic
- Retaining magnet neodymium, iron, boron



80

Indexing elements

Stainless Steel-Ball lock pins

AISI 303, with hollow for grip

SPECIFICATION

Stainless Steel AISI 303

Balls

Stainless Steel AISI 420C

Spring

Stainless Steel AISI 631

temperature resistant up to 250 °C

INFORMATION

Stainless Steel-Ball lock pins GN 113.3 are used for quick fixing, connecting and locking of various parts and workpieces. A typical application is locating pins which have often to be removed and installed again.

By pressing the spring loaded push button both balls are unlocked and by releasing it the balls are locked again.

Ball lock pins GN 113.3 are renowned for their compactness. The eye ring is enclosed unmounted.

The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

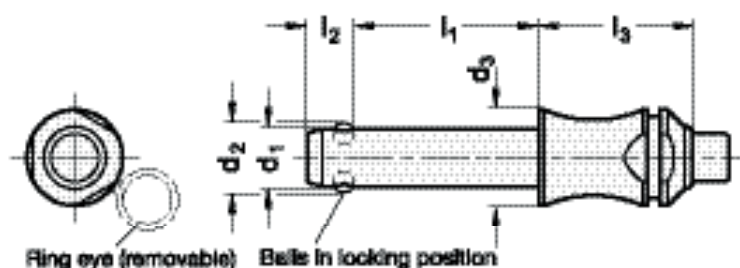
- Range of lock pins (see page 868)

ACCESSORY

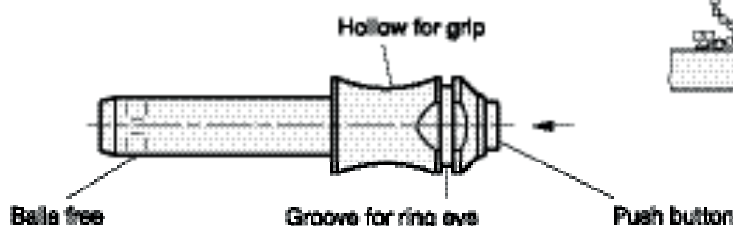
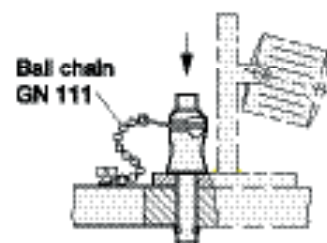
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



Application example



GN 113.3

STAINLESS STEEL

Description	d1 -0.04/-0.08	l1 +0.6	d2	d3	l2 ±1	l3+0.2	Locating bore H11	Load in kN ≈ Double sided shearing resistance according DIN 50141 (Breaking strength)	⚖
GN 113.3-5-10	5	10	5.5	10	6	22	5	14	17
GN 113.3-5-15	5	15	5.5	10	6	22	5	14	17
GN 113.3-5-20	5	20	5.5	10	6	22	5	14	20
GN 113.3-5-25	5	25	5.5	10	6	22	5	14	20
GN 113.3-5-30	5	30	5.5	10	6	22	5	14	20
GN 113.3-6-10	6	10	7	10	7	22	6	21	12
GN 113.3-6-15	6	15	7	10	7	22	6	21	15
GN 113.3-6-20	6	20	7	10	7	22	6	21	15
GN 113.3-6-25	6	25	7	10	7	22	6	21	17
GN 113.3-6-30	6	30	7	10	7	22	6	21	17
GN 113.3-6-35	6	35	7	10	7	22	6	21	20
GN 113.3-6-40	6	40	7	10	7	22	6	21	30
GN 113.3-6-45	6	45	7	10	7	22	6	21	36
GN 113.3-6-50	6	50	7	10	7	22	6	21	41
GN 113.3-8-20	8	20	9.5	14	8.2	27	8	38	35
GN 113.3-8-25	8	25	9.5	14	8.2	27	8	38	37
GN 113.3-8-30	8	30	9.5	14	8.2	27	8	38	38
GN 113.3-8-35	8	35	9.5	14	8.2	27	8	38	40
GN 113.3-8-40	8	40	9.5	14	8.2	27	8	38	42
GN 113.3-8-45	8	45	9.5	14	8.2	27	8	38	44
GN 113.3-8-50	8	50	9.5	14	8.2	27	8	38	46
GN 113.3-10-20	10	20	12	14	9.6	27	10	60	41
GN 113.3-10-25	10	25	12	14	9.6	27	10	60	44
GN 113.3-10-30	10	30	12	14	9.6	27	10	60	45
GN 113.3-10-35	10	35	12	14	9.6	27	10	60	46
GN 113.3-10-40	10	40	12	14	9.6	27	10	60	40
GN 113.3-10-45	10	45	12	14	9.6	27	10	60	50
GN 113.3-10-50	10	50	12	14	9.6	27	10	60	50
GN 113.3-10-60	10	60	12	14	9.6	27	10	60	65
GN 113.3-12-25	12	25	14.5	20	10.6	32	12	87	86
GN 113.3-12-30	12	30	14.5	20	10.6	32	12	87	90
GN 113.3-12-35	12	35	14.5	20	10.6	32	12	87	94
GN 113.3-12-40	12	40	14.5	20	10.6	32	12	87	98
GN 113.3-12-45	12	45	14.5	20	10.6	32	12	87	103
GN 113.3-12-50	12	50	14.5	20	10.6	32	12	87	107
GN 113.3-12-60	12	60	14.5	20	10.6	32	12	87	115
GN 113.3-12-70	12	70	14.5	20	10.6	32	12	87	124
GN 113.3-12-80	12	80	14.5	20	10.6	32	12	87	133
GN 113.3-16-30	16	30	19	20	14	32	16	155	120
GN 113.3-16-35	16	35	19	20	14	32	16	155	128
GN 113.3-16-40	16	40	19	20	14	32	16	155	130
GN 113.3-16-45	16	45	19	20	14	32	16	155	142
GN 113.3-16-50	16	50	19	20	14	32	16	155	150
GN 113.3-16-60	16	60	19	20	14	32	16	155	160
GN 113.3-16-70	16	70	19	20	14	32	16	155	180
GN 113.3-16-80	16	80	19	20	14	32	16	155	200
GN 113.3-20-60	20	60	25	28	20.5	39	20	244	323
GN 113.3-20-80	20	80	25	28	20.5	39	20	244	350
GN 113.3-20-100	20	100	25	28	20.5	39	20	244	420
GN 113.3-20-120	20	120	25	28	20.5	39	20	244	460



Indexing elements

Stainless Steel-Ball lock pins

AISI 630, with hollow for grip

SPECIFICATION

Stainless Steel AISI 630

- precipitation-hardened
- hard coated

Balls

Stainless Steel AISI 420C

Spring

Stainless Steel AISI 631

temperature resistant up to 250 °C



INFORMATION

Stainless Steel-Ball lock pins GN 113.4 are used for quick fixing, connecting and locking of various parts and workpieces. A typical application is locating pins which have often to be removed and installed again.

By pressing the spring loaded push button both balls are unlocked and by releasing it the balls are locked again.

Ball lock pins GN 113.4 are renowned for their compactness. The eye ring is enclosed unmounted.

The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

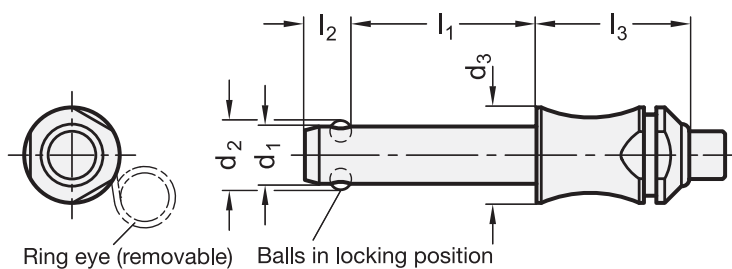
- Range of locking pins (see page 868)

ACCESSORY

- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



Marking for material
AISI 630 (GN 113.4)

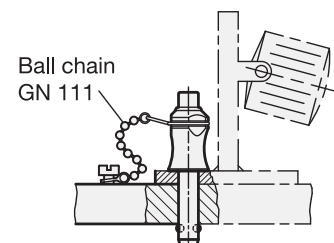
Hollow for grip

Balls free

Groove for ring eye

Push button

Application example



GN 113.4

STAINLESS STEEL

Description	d1 -0.04/-0.08	l1 +0.6	d2	d3	l2 ±1	l3+0.2	Locating bore H11	Load in kN ≈ Double sided shearing resistance according DIN 50141 (Breaking strength)	⚖
GN 113.4-5-10	5	10	5.5	10	6	22	5	24	11
GN 113.4-5-15	5	15	5.5	10	6	22	5	24	20
GN 113.4-5-20	5	20	5.5	10	6	22	5	24	20
GN 113.4-5-25	5	25	5.5	10	6	22	5	24	20
GN 113.4-5-30	5	30	5.5	10	6	22	5	24	20
GN 113.4-6-10	6	10	7	10	7	22	6	35	12
GN 113.4-6-15	6	15	7	10	7	22	6	35	12
GN 113.4-6-20	6	20	7	10	7	22	6	35	15
GN 113.4-6-25	6	25	7	10	7	22	6	35	16
GN 113.4-6-30	6	30	7	10	7	22	6	35	16
GN 113.4-6-35	6	35	7	10	7	22	6	35	20
GN 113.4-6-40	6	40	7	10	7	22	6	35	20
GN 113.4-6-45	6	45	7	10	7	22	6	35	35
GN 113.4-6-50	6	50	7	10	7	22	6	35	35
GN 113.4-8-20	8	20	9.5	14	8.2	27	8	63	35
GN 113.4-8-25	8	25	9.5	14	8.2	27	8	63	35
GN 113.4-8-30	8	30	9.5	14	8.2	27	8	63	35
GN 113.4-8-35	8	35	9.5	14	8.2	27	8	63	40
GN 113.4-8-40	8	40	9.5	14	8.2	27	8	63	40
GN 113.4-8-45	8	45	9.5	14	8.2	27	8	63	40
GN 113.4-8-50	8	50	9.5	14	8.2	27	8	63	40
GN 113.4-10-20	10	20	12	14	9.6	27	10	100	40
GN 113.4-10-25	10	25	12	14	9.6	27	10	100	40
GN 113.4-10-30	10	30	12	14	9.6	27	10	100	40
GN 113.4-10-35	10	35	12	14	9.6	27	10	100	50
GN 113.4-10-40	10	40	12	14	9.6	27	10	100	50
GN 113.4-10-45	10	45	12	14	9.6	27	10	100	50
GN 113.4-10-50	10	50	12	14	9.6	27	10	100	60
GN 113.4-10-60	10	60	12	14	9.6	27	10	100	60
GN 113.4-12-25	12	25	14.5	20	10.6	32	12	144	80
GN 113.4-12-30	12	30	14.5	20	10.6	32	12	144	88
GN 113.4-12-35	12	35	14.5	20	10.6	32	12	144	90
GN 113.4-12-40	12	40	14.5	20	10.6	32	12	144	90
GN 113.4-12-45	12	45	14.5	20	10.6	32	12	144	110
GN 113.4-12-50	12	50	14.5	20	10.6	32	12	144	110
GN 113.4-12-60	12	60	14.5	20	10.6	32	12	144	120
GN 113.4-12-70	12	70	14.5	20	10.6	32	12	144	120
GN 113.4-12-80	12	80	14.5	20	10.6	32	12	144	140
GN 113.4-16-30	16	30	19	20	14	32	16	257	120
GN 113.4-16-35	16	35	19	20	14	32	16	257	120
GN 113.4-16-40	16	40	19	20	14	32	16	257	134
GN 113.4-16-45	16	45	19	20	14	32	16	257	140
GN 113.4-16-50	16	50	19	20	14	32	16	257	160
GN 113.4-16-60	16	60	19	20	14	32	16	257	160
GN 113.4-16-70	16	70	19	20	14	32	16	257	179
GN 113.4-16-80	16	80	19	20	14	32	16	257	200
GN 113.4-20-60	20	60	25	28	20.5	39	20	403	319
GN 113.4-20-80	20	80	25	28	20.5	39	20	403	400
GN 113.4-20-100	20	100	25	28	20.5	39	20	403	420
GN 113.4-20-120	20	120	25	28	20.5	39	20	403	440



Indexing elements

Stainless Steel-Ball lock pins

AISI 303, with plastic-knob

SPECIFICATION

Pin Stainless Steel AISI 303

Knob

Plastic (Polyamide PA)

- black-grey / red
- temperature resistant up to 80 °C

Balls

Stainless Steel AISI 420C

Spring

German Material No. 1.4565



INFORMATION

Stainless Steel-Ball lock pins GN 113.5 are used for quick fixing, connecting and locking of various parts and workpieces. A typical application is locating pins which have often to be removed and installed again.

By pressing the spring loaded push button both balls are unlocked and by releasing it, the balls are locked again.

The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

- Range of lock pins (see page 868)

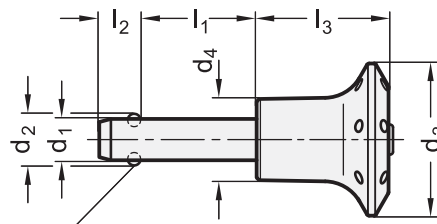
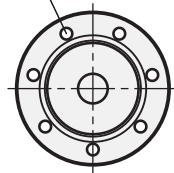
ACCESSORY

- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

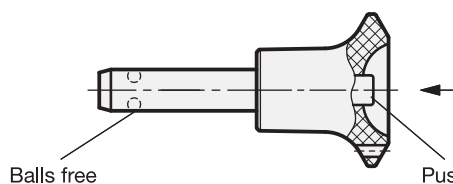
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

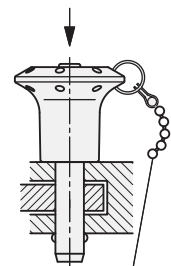
Bore for ring
(Ball chain)



Balls in locking position



Application example



Ball chain GN 111

GN 113.5

STAINLESS STEEL

Description	d1 -0.04/-0.08	l1 +0.6	d2	d3	d4	l2 ±0.1	l3 -0.2	Locating bore H11	Load in kN ≈ Double sided shearing resistance according DIN 50141 (Breaking strength)	⚖
GN 113.5-5-10	5	10	5.5	30	16	6	26	5	14	17
GN 113.5-5-15	5	15	5.5	30	16	6	26	5	14	18
GN 113.5-5-20	5	20	5.5	30	16	6	26	5	14	19
GN 113.5-5-25	5	25	5.5	30	16	6	26	5	14	20
GN 113.5-5-30	5	30	5.5	30	16	6	26	5	14	20
GN 113.5-6-10	6	10	7	30	16	7.1	26	6	21	19
GN 113.5-6-15	6	15	7	30	16	7.1	26	6	21	19
GN 113.5-6-20	6	20	7	30	16	7.1	26	6	21	20
GN 113.5-6-25	6	25	7	30	16	7.1	26	6	21	21
GN 113.5-6-30	6	30	7	30	16	7.1	26	6	21	23
GN 113.5-6-35	6	35	7	30	16	7.1	26	6	21	25
GN 113.5-6-40	6	40	7	30	16	7.1	26	6	21	25
GN 113.5-6-45	6	45	7	30	16	7.1	26	6	21	26
GN 113.5-6-50	6	50	7	30	16	7.1	26	6	21	27
GN 113.5-8-20	8	20	9.5	35	19	8.2	32.5	8	38	42
GN 113.5-8-25	8	25	9.5	35	19	8.2	32.5	8	38	44
GN 113.5-8-30	8	30	9.5	35	19	8.2	32.5	8	38	46
GN 113.5-8-35	8	35	9.5	35	19	8.2	32.5	8	38	48
GN 113.5-8-40	8	40	9.5	35	19	8.2	32.5	8	38	51
GN 113.5-8-45	8	45	9.5	35	19	8.2	32.5	8	38	52
GN 113.5-8-50	8	50	9.5	35	19	8.2	32.5	8	38	54
GN 113.5-10-20	10	20	12	35	19	9.6	32.5	10	60	49
GN 113.5-10-25	10	25	12	35	19	9.6	32.5	10	60	52
GN 113.5-10-30	10	30	12	35	19	9.6	32.5	10	60	55
GN 113.5-10-35	10	35	12	35	19	9.6	32.5	10	60	58
GN 113.5-10-40	10	40	12	35	19	9.6	32.5	10	60	62
GN 113.5-10-45	10	45	12	35	19	9.6	32.5	10	60	64
GN 113.5-10-50	10	50	12	35	19	9.6	32.5	10	60	68
GN 113.5-10-60	10	60	12	35	19	9.6	32.5	10	60	73
GN 113.5-12-25	12	25	14.5	42	25	10.6	39	12	87	100
GN 113.5-12-30	12	30	14.5	42	25	10.6	39	12	87	104
GN 113.5-12-35	12	35	14.5	42	25	10.6	39	12	87	108
GN 113.5-12-40	12	40	14.5	42	25	10.6	39	12	87	113
GN 113.5-12-45	12	45	14.5	42	25	10.6	39	12	87	117
GN 113.5-12-50	12	50	14.5	42	25	10.6	39	12	87	121
GN 113.5-12-60	12	60	14.5	42	25	10.6	39	12	87	129
GN 113.5-12-70	12	70	14.5	42	25	10.6	39	12	87	138
GN 113.5-12-80	12	80	14.5	42	25	10.6	39	12	87	148
GN 113.5-16-30	16	30	19	42	25	14	39	16	155	136
GN 113.5-16-35	16	35	19	42	25	14	39	16	155	143
GN 113.5-16-40	16	40	19	42	25	14	39	16	155	151
GN 113.5-16-45	16	45	19	42	25	14	39	16	155	158
GN 113.5-16-50	16	50	19	42	25	14	39	16	155	167
GN 113.5-16-60	16	60	19	42	25	14	39	16	155	183
GN 113.5-16-70	16	70	19	42	25	14	39	16	155	198
GN 113.5-16-80	16	80	19	42	25	14	39	16	155	213



80

Indexing elements

Stainless Steel-Ball lock pins

AISI 630, with plastic-knob

SPECIFICATION

Pin Stainless Steel AISI 630
precipitation-hardened

Knob
Plastic (Polyamide PA)

- black-grey / red
- temperature resistant up to 80 °C

Balls
Stainless Steel AISI 420C

Spring
German Material No. 1.4565



INFORMATION

Stainless Steel-Ball lock pins GN 113.6 are used for quick fixing, connecting and locking of various parts and workpieces. A typical application is locating pins which have often to be removed and installed again.

By pressing the spring loaded push button both balls are unlocked and by releasing it, the balls are locked again.

The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

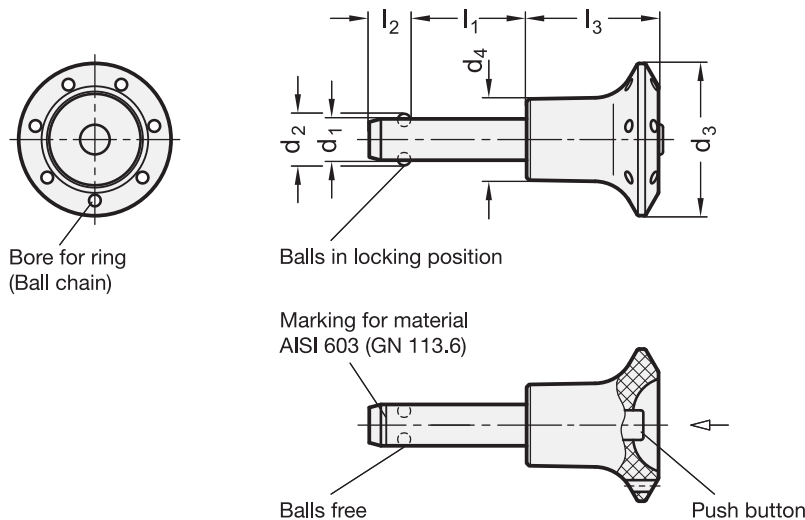
- Range of lock pins (see page 868)

ACCESSORY

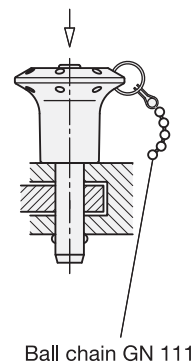
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



Application example



GN 113.6

STAINLESS STEEL

Description	d1 -0.04/-0.08	l1 +0.6	d2	d3	d4	l2 ±0.1	l3 -0.2	Locating bore H11	Load in kN ≈ Double sided shearing resistance according DIN 50141 (Breaking strength)	⚖
GN 113.6-5-10	5	10	5.5	30	16	6	26	5	24	17
GN 113.6-5-15	5	15	5.5	30	16	6	26	5	24	18
GN 113.6-5-20	5	20	5.5	30	16	6	26	5	24	19
GN 113.6-5-25	5	25	5.5	30	16	6	26	5	24	20
GN 113.6-5-30	5	30	5.5	30	16	6	26	5	24	20
GN 113.6-6-10	6	10	7	30	16	7.1	26	6	35	19
GN 113.6-6-15	6	15	7	30	16	7.1	26	6	35	20
GN 113.6-6-20	6	20	7	30	16	7.1	26	6	35	21
GN 113.6-6-25	6	25	7	30	16	7.1	26	6	35	21
GN 113.6-6-30	6	30	7	30	16	7.1	26	6	35	22
GN 113.6-6-35	6	35	7	30	16	7.1	26	6	35	23
GN 113.6-6-40	6	40	7	30	16	7.1	26	6	35	24
GN 113.6-6-45	6	45	7	30	16	7.1	26	6	35	26
GN 113.6-6-50	6	50	7	30	16	7.1	26	6	35	26
GN 113.6-8-20	8	20	9.5	35	19	8.2	32.5	8	63	42
GN 113.6-8-25	8	25	9.5	35	19	8.2	32.5	8	63	44
GN 113.6-8-30	8	30	9.5	35	19	8.2	32.5	8	63	46
GN 113.6-8-35	8	35	9.5	35	19	8.2	32.5	8	63	48
GN 113.6-8-40	8	40	9.5	35	19	8.2	32.5	8	63	50
GN 113.6-8-45	8	45	9.5	35	19	8.2	32.5	8	63	52
GN 113.6-8-50	8	50	9.5	35	19	8.2	32.5	8	63	54
GN 113.6-10-20	10	20	12	35	19	9.6	32.5	10	100	49
GN 113.6-10-25	10	25	12	35	19	9.6	32.5	10	100	52
GN 113.6-10-30	10	30	12	35	19	9.6	32.5	10	100	55
GN 113.6-10-35	10	35	12	35	19	9.6	32.5	10	100	58
GN 113.6-10-40	10	40	12	35	19	9.6	32.5	10	100	60
GN 113.6-10-45	10	45	12	35	19	9.6	32.5	10	100	63
GN 113.6-10-50	10	50	12	35	19	9.6	32.5	10	100	67
GN 113.6-10-60	10	60	12	35	19	9.6	32.5	10	100	72
GN 113.6-12-25	12	25	14.5	42	25	10.6	39	12	144	98
GN 113.6-12-30	12	30	14.5	42	25	10.6	39	12	144	103
GN 113.6-12-35	12	35	14.5	42	25	10.6	39	12	144	107
GN 113.6-12-40	12	40	14.5	42	25	10.6	39	12	144	112
GN 113.6-12-45	12	45	14.5	42	25	10.6	39	12	144	115
GN 113.6-12-50	12	50	14.5	42	25	10.6	39	12	144	120
GN 113.6-12-60	12	60	14.5	42	25	10.6	39	12	144	129
GN 113.6-12-70	12	70	14.5	42	25	10.6	39	12	144	137
GN 113.6-12-80	12	80	14.5	42	25	10.6	39	12	144	145
GN 113.6-16-30	16	30	19	42	25	14	39	16	257	135
GN 113.6-16-35	16	35	19	42	25	14	39	16	257	143
GN 113.6-16-40	16	40	19	42	25	14	39	16	257	149
GN 113.6-16-45	16	45	19	42	25	14	39	16	257	157
GN 113.6-16-50	16	50	19	42	25	14	39	16	257	166
GN 113.6-16-60	16	60	19	42	25	14	39	16	257	180
GN 113.6-16-70	16	70	19	42	25	14	39	16	257	196
GN 113.6-16-80	16	80	19	42	25	14	39	16	257	211



Indexing elements 8

Stainless Steel-Ball lock pins

AISI 303, with plastic T-Handle

SPECIFICATION

Pin Stainless Steel AISI 303

T-Handle

Plastic (Polyamide PA)

- black
- temperature resistant up to 80 °C

Balls

Stainless Steel AISI 420C

Spring

Stainless Steel

German Material No. 14565



INFORMATION

Stainless Steel-Ball lock pins GN 113.7 are used for quick fixing, connecting and locking of various parts and workpieces. A typical application is locating pins which have often to be removed and installed again.

By pressing the spring loaded push button both balls are unlocked and by releasing it, the balls are locked again.

The load values given in the above table at shar stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out of any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product ist suitable for the intended use.

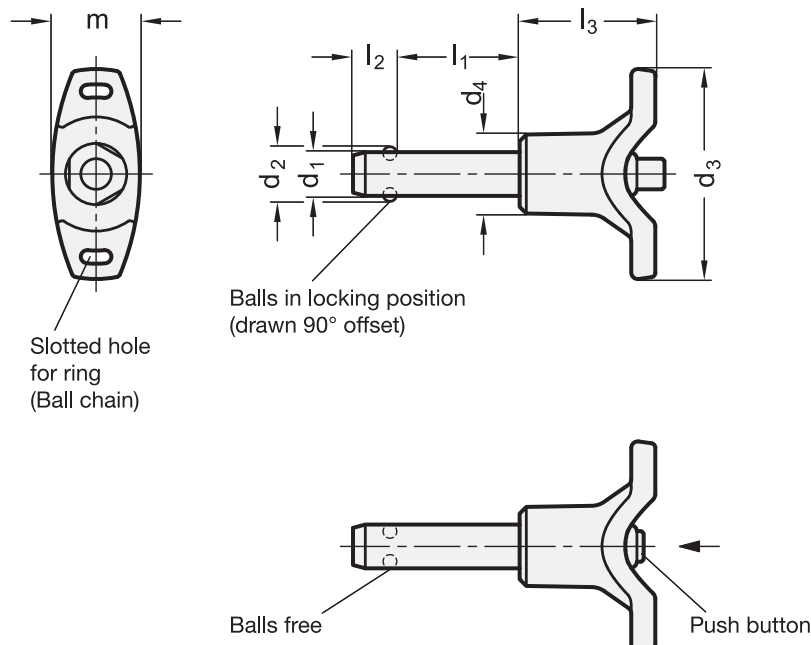
- Range of lock pins (see page 868)

ACCESSORY

- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



GN 113.7

STAINLESS STEEL

Description	d1 -0.04/-0.08	l1 +0.6	d2	d3	d4	l2 ±0.1	l3	m	Locating bore H11	Load in kN ≈ Double sided shearing resistance according DIN 50141 (Breaking strength)	⚖
GN 113.7-5-10	5	10	5.5	40	13.5	6	25	15.5	5	14	15
GN 113.7-5-15	5	15	5.5	40	13.5	6	25	15.5	5	14	16
GN 113.7-5-20	5	20	5.5	40	13.5	6	25	15.5	5	14	15
GN 113.7-5-25	5	25	5.5	40	13.5	6	25	15.5	5	14	17
GN 113.7-5-30	5	30	5.5	40	13.5	6	25	15.5	5	14	18
GN 113.7-6-10	6	10	7	40	13.5	7.1	25	15.5	6	21	16
GN 113.7-6-15	6	15	7	40	13.5	7.1	25	15.5	6	21	17
GN 113.7-6-20	6	20	7	40	13.5	7.1	25	15.5	6	21	18
GN 113.7-6-25	6	25	7	40	13.5	7.1	25	15.5	6	21	19
GN 113.7-6-30	6	30	7	40	13.5	7.1	25	15.5	6	21	20
GN 113.7-6-35	6	35	7	40	13.5	7.1	25	15.5	6	21	21
GN 113.7-6-40	6	40	7	40	13.5	7.1	25	15.5	6	21	22
GN 113.7-6-45	6	45	7	40	13.5	7.1	25	15.5	6	21	23
GN 113.7-6-50	6	50	7	40	13.5	7.1	25	15.5	6	21	24
GN 113.7-8-20	8	20	9.5	48	18	8.2	31	20.5	8	38	40
GN 113.7-8-25	8	25	9.5	48	18	8.2	31	20.5	8	38	42
GN 113.7-8-30	8	30	9.5	48	18	8.2	31	20.5	8	38	44
GN 113.7-8-35	8	35	9.5	48	18	8.2	31	20.5	8	38	46
GN 113.7-8-40	8	40	9.5	48	18	8.2	31	20.5	8	38	46
GN 113.7-8-45	8	45	9.5	48	18	8.2	31	20.5	8	38	50
GN 113.7-8-50	8	50	9.5	48	18	8.2	31	20.5	8	38	51
GN 113.7-10-20	10	20	12	48	18	9.6	31	20.5	10	60	47
GN 113.7-10-25	10	25	12	48	18	9.6	31	20.5	10	60	50
GN 113.7-10-30	10	30	12	48	18	9.6	31	20.5	10	60	53
GN 113.7-10-35	10	35	12	48	18	9.6	31	20.5	10	60	56
GN 113.7-10-40	10	40	12	48	18	9.6	31	20.5	10	60	59
GN 113.7-10-45	10	45	12	48	18	9.6	31	20.5	10	60	62
GN 113.7-10-50	10	50	12	48	18	9.6	31	20.5	10	60	65
GN 113.7-10-60	10	60	12	48	18	9.6	31	20.5	10	60	71
GN 113.7-12-25	12	25	14.5	58	24	10.6	36.5	27.5	12	87	94
GN 113.7-12-30	12	30	14.5	58	24	10.6	36.5	27.5	12	87	100
GN 113.7-12-35	12	35	14.5	58	24	10.6	36.5	27.5	12	87	104
GN 113.7-12-40	12	40	14.5	58	24	10.6	36.5	27.5	12	87	109
GN 113.7-12-45	12	45	14.5	58	24	10.6	36.5	27.5	12	87	113
GN 113.7-12-50	12	50	14.5	58	24	10.6	36.5	27.5	12	87	117
GN 113.7-12-60	12	60	14.5	58	24	10.6	36.5	27.5	12	87	125
GN 113.7-12-70	12	70	14.5	58	24	10.6	36.5	27.5	12	87	134
GN 113.7-12-80	12	80	14.5	58	24	10.6	36.5	27.5	12	87	142
GN 113.7-16-30	16	30	19	58	24	14	36.5	27.5	16	155	132
GN 113.7-16-35	16	35	19	58	24	14	36.5	27.5	16	155	140
GN 113.7-16-40	16	40	19	58	24	14	36.5	27.5	16	155	148
GN 113.7-16-45	16	45	19	58	24	14	36.5	27.5	16	155	155
GN 113.7-16-50	16	50	19	58	24	14	36.5	27.5	16	155	163
GN 113.7-16-60	16	60	19	58	24	14	36.5	27.5	16	155	187
GN 113.7-16-70	16	70	19	58	24	14	36.5	27.5	16	155	194
GN 113.7-16-80	16	80	19	58	24	14	36.5	27.5	16	155	209



8

Indexing elements

Stainless Steel-Ball lock pins

AISI 630, with plastic T-Handle

SPECIFICATION

Pin Stainless Steel AISI 630

- precipitation-hardened
- hard coated

T-Handle

Plastic (Polyamide PA)

- black
- temperature resistant up to 80 °C

Balls

Stainless Steel AISI 420C

Spring

Stainless Steel

German Material No. 14565



INFORMATION

Stainless Steel-Ball lock pins GN 113.8 are used for quick fixing, connecting and locking of various parts and workpieces. A typical application is locating pins which have often to be removed and installed again.

By pressing the spring loaded push button both balls are unlocked and by releasing it, the balls are locked again.

Ball lock pins GN 113.8 have an extreme load capacity, the pin is made of heavy duty, hardened and highly abrasion-resistant stainless steel. The load values given in the above table at shar stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out of any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

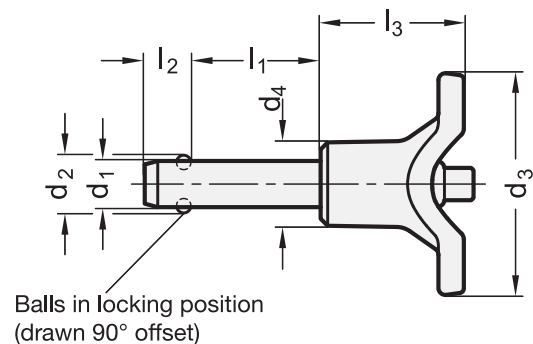
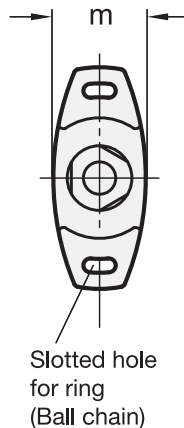
- Range of lock pins (see page 868)

ACCESSORY

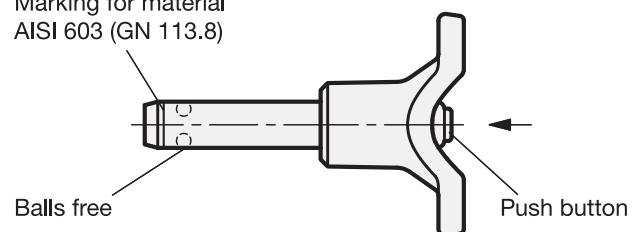
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- ISO-Fundamental Tolerances (see page A21)



Marking for material
AISI 603 (GN 113.8)



GN 113.8

STAINLESS STEEL

Description	d1 -0.04/-0.08	l1 +0.6	d2	d3	d4	l2 ±0.1	l3	m	Locating bore H11	Load in kN ≈ Double sided shearing resistance according DIN 50141 (Breaking strength)	⚖
GN 113.8-5-10	5	10	5.5	40	13.5	6	25	15.5	5	24	15
GN 113.8-5-15	5	15	5.5	40	13.5	6	25	15.5	5	24	15
GN 113.8-5-20	5	20	5.5	40	13.5	6	25	15.5	5	24	16
GN 113.8-5-25	5	25	5.5	40	13.5	6	25	15.5	5	24	17
GN 113.8-5-30	5	30	5.5	40	13.5	6	25	15.5	5	24	18
GN 113.8-6-10	6	10	7	40	13.5	7.1	25	15.5	6	35	14
GN 113.8-6-15	6	15	7	40	13.5	7.1	25	15.5	6	35	16
GN 113.8-6-20	6	20	7	40	13.5	7.1	25	15.5	6	35	18
GN 113.8-6-25	6	25	7	40	13.5	7.1	25	15.5	6	35	19
GN 113.8-6-30	6	30	7	40	13.5	7.1	25	15.5	6	35	20
GN 113.8-6-35	6	35	7	40	13.5	7.1	25	15.5	6	35	21
GN 113.8-6-40	6	40	7	40	13.5	7.1	25	15.5	6	35	22
GN 113.8-6-45	6	45	7	40	13.5	7.1	25	15.5	6	35	23
GN 113.8-6-50	6	50	7	40	13.5	7.1	25	15.5	6	35	24
GN 113.8-8-20	8	20	9.5	48	18	8.2	31	20.5	8	63	40
GN 113.8-8-25	8	25	9.5	48	18	8.2	31	20.5	8	63	40
GN 113.8-8-30	8	30	9.5	48	18	8.2	31	20.5	8	63	43
GN 113.8-8-35	8	35	9.5	48	18	8.2	31	20.5	8	63	45
GN 113.8-8-40	8	40	9.5	48	18	8.2	31	20.5	8	63	47
GN 113.8-8-45	8	45	9.5	48	18	8.2	31	20.5	8	63	50
GN 113.8-8-50	8	50	9.5	48	18	8.2	31	20.5	8	63	50
GN 113.8-10-20	10	20	12	48	18	9.6	31	20.5	10	100	66
GN 113.8-10-25	10	25	12	48	18	9.6	31	20.5	10	100	66
GN 113.8-10-30	10	30	12	48	18	9.6	31	20.5	10	100	70
GN 113.8-10-35	10	35	12	48	18	9.6	31	20.5	10	100	72
GN 113.8-10-40	10	40	12	48	18	9.6	31	20.5	10	100	72
GN 113.8-10-45	10	45	12	48	18	9.6	31	20.5	10	100	73
GN 113.8-10-50	10	50	12	48	18	9.6	31	20.5	10	100	75
GN 113.8-10-60	10	60	12	48	18	9.6	31	20.5	10	100	75
GN 113.8-12-25	12	25	14.5	58	24	10.6	36.5	27.5	12	144	90
GN 113.8-12-30	12	30	14.5	58	24	10.6	36.5	27.5	12	144	90
GN 113.8-12-35	12	35	14.5	58	24	10.6	36.5	27.5	12	144	92
GN 113.8-12-40	12	40	14.5	58	24	10.6	36.5	27.5	12	144	110
GN 113.8-12-45	12	45	14.5	58	24	10.6	36.5	27.5	12	144	120
GN 113.8-12-50	12	50	14.5	58	24	10.6	36.5	27.5	12	144	125
GN 113.8-12-60	12	60	14.5	58	24	10.6	36.5	27.5	12	144	126
GN 113.8-12-70	12	70	14.5	58	24	10.6	36.5	27.5	12	144	134
GN 113.8-12-80	12	80	14.5	58	24	10.6	36.5	27.5	12	144	140
GN 113.8-16-30	16	30	19	58	24	14	36.5	27.5	16	257	156
GN 113.8-16-35	16	35	19	58	24	14	36.5	27.5	16	257	158
GN 113.8-16-40	16	40	19	58	24	14	36.5	27.5	16	257	160
GN 113.8-16-45	16	45	19	58	24	14	36.5	27.5	16	257	162
GN 113.8-16-50	16	50	19	58	24	14	36.5	27.5	16	257	164
GN 113.8-16-60	16	60	19	58	24	14	36.5	27.5	16	257	166
GN 113.8-16-70	16	70	19	58	24	14	36.5	27.5	16	257	168
GN 113.8-16-80	16	80	19	58	24	14	36.5	27.5	16	257	170



Indexing elements

Locking pins with axial lock (Pawl)

SPECIFICATION

- Pin
- Steel
- zinc plated, blue passivated
- Pawl
- Stainless Steel AISI 304 (sheet metal)
- Knob
- Plastic (Polyamide PA)
 - black-grey
 - temperature resistant up to 80 °C
- Push button / Slide
- Plastic
 - Push button: red
 - temperature resistant up to 80 °C
- Spring
- Stainless Steel AISI 301



INFORMATION

Locking pins with axial lock GN 114.2 are used for quick fixing, connecting and locking of various jig and fixture systems. A typical application is location pins which have to be often removed and replaced again.

The rectangular pawls made of Stainless Steel sheet metal keep the locking pin in an axial position in the bore. It can be retracted by pressing the button, once released it returns the pressure spring into its locking position.

The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

- Range of lock pins (see page 868)

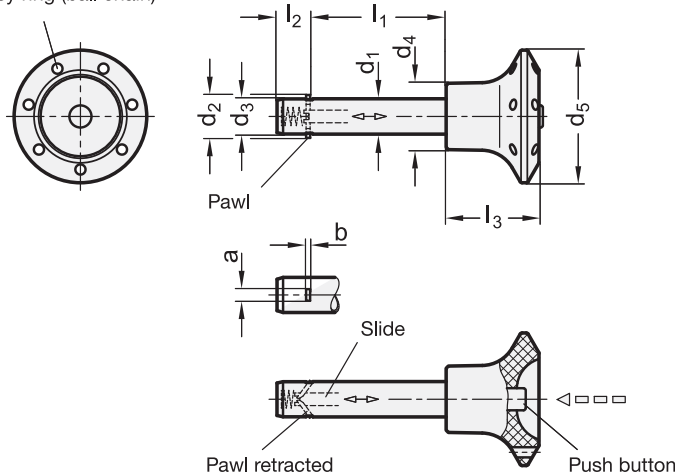
ACCESSORY

- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

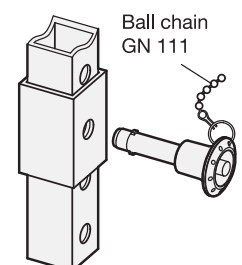
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

Bore for
key ring (ball chain)



Application example



GN 114.2

Description	d1 -0.1	l1 +0.4	a	b	d2	d3	d4	d5	l2	l3	Load in kN ≈ (Double sided shear force) see information	⚖
GN 114.2-6-10	6	10	2.3	0.5	7.5+0.5	5.9	15	30	7	21	14	12
GN 114.2-6-12	6	12	2.3	0.5	7.5+0.5	5.9	15	30	7	21	14	12
GN 114.2-6-16	6	16	2.3	0.5	7.5+0.5	5.9	15	30	7	21	14	12
GN 114.2-6-20	6	20	2.3	0.5	7.5+0.5	5.9	15	30	7	21	14	13
GN 114.2-6-25	6	25	2.3	0.5	7.5+0.5	5.9	15	30	7	21	14	14
GN 114.2-6-30	6	30	2.3	0.5	7.5+0.5	5.9	15	30	7	21	14	15
GN 114.2-6-35	6	35	2.3	0.5	7.5+0.5	5.9	15	30	7	21	14	16
GN 114.2-6-40	6	40	2.3	0.5	7.5+0.5	5.9	15	30	7	21	14	16
GN 114.2-6-45	6	45	2.3	0.5	7.5+0.5	5.9	15	30	7	21	14	17
GN 114.2-6-50	6	50	2.3	0.5	7.5+0.5	5.9	15	30	7	21	14	18
GN 114.2-8-16	8	16	2.8	0.6	10+0.5	7.9	15	30	8.4	21	28	16
GN 114.2-8-20	8	20	2.8	0.6	10+0.5	7.9	15	30	8.4	21	28	17
GN 114.2-8-25	8	25	2.8	0.6	10+0.5	7.9	15	30	8.4	21	28	20
GN 114.2-8-30	8	30	2.8	0.6	10+0.5	7.9	15	30	8.4	21	28	21
GN 114.2-8-35	8	35	2.8	0.6	10+0.5	7.9	15	30	8.4	21	28	22
GN 114.2-8-40	8	40	2.8	0.6	10+0.5	7.9	15	30	8.4	21	28	24
GN 114.2-8-45	8	45	2.8	0.6	10+0.5	7.9	15	30	8.4	21	28	26
GN 114.2-8-50	8	50	2.8	0.6	10+0.5	7.9	15	30	8.4	21	28	28
GN 114.2-10-20	10	20	3.3	1	12+1	9.9	18	34	9.8	26	38	27
GN 114.2-10-25	10	25	3.3	1	12+1	9.9	18	34	9.8	26	38	30
GN 114.2-10-30	10	30	3.3	1	12+1	9.9	18	34	9.8	26	38	31
GN 114.2-10-35	10	35	3.3	1	12+1	9.9	18	34	9.8	26	38	33
GN 114.2-10-40	10	40	3.3	1	12+1	9.9	18	34	9.8	26	38	35
GN 114.2-10-45	10	45	3.3	1	12+1	9.9	18	34	9.8	26	38	39
GN 114.2-10-50	10	50	3.3	1	12+1	9.9	18	34	9.8	26	38	40
GN 114.2-10-60	10	60	3.3	1	12+1	9.9	18	34	9.8	26	38	46
GN 114.2-12-25	12	25	3.8	1	14+1	11.9	18	34	11.3	26	61	39
GN 114.2-12-30	12	30	3.8	1	14+1	11.9	18	34	11.3	26	61	43
GN 114.2-12-35	12	35	3.8	1	14+1	11.9	18	34	11.3	26	61	45
GN 114.2-12-40	12	40	3.8	1	14+1	11.9	18	34	11.3	26	61	50
GN 114.2-12-45	12	45	3.8	1	14+1	11.9	18	34	11.3	26	61	53
GN 114.2-12-50	12	50	3.8	1	14+1	11.9	18	34	11.3	26	61	60
GN 114.2-12-60	12	60	3.8	1	14+1	11.9	18	34	11.3	26	61	63
GN 114.2-12-70	12	70	3.8	1	14+1	11.9	18	34	11.3	26	61	72
GN 114.2-12-80	12	80	3.8	1	14+1	11.9	18	34	11.3	26	61	77
GN 114.2-16-30	16	30	4.8	1.2	19+1	15.9	22	40	14.2	32	113	79
GN 114.2-16-35	16	35	4.8	1.2	19+1	15.9	22	40	14.2	32	113	85
GN 114.2-16-40	16	40	4.8	1.2	19+1	15.9	22	40	14.2	32	113	92
GN 114.2-16-45	16	45	4.8	1.2	19+1	15.9	22	40	14.2	32	113	99
GN 114.2-16-50	16	50	4.8	1.2	19+1	15.9	22	40	14.2	32	113	107
GN 114.2-16-60	16	60	4.8	1.2	19+1	15.9	22	40	14.2	32	113	119
GN 114.2-16-70	16	70	4.8	1.2	19+1	15.9	22	40	14.2	32	113	133
GN 114.2-16-80	16	80	4.8	1.2	19+1	15.9	22	40	14.2	32	113	146
GN 114.2-20-30	20	30	4.8	1.2	23+1	19.8	25	40	14.8	33	187	118
GN 114.2-20-35	20	35	4.8	1.2	23+1	19.8	25	40	14.8	33	187	129
GN 114.2-20-40	20	40	4.8	1.2	23+1	19.8	25	40	14.8	33	187	139
GN 114.2-20-45	20	45	4.8	1.2	23+1	19.8	25	40	14.8	33	187	151
GN 114.2-20-50	20	50	4.8	1.2	23+1	19.8	25	40	14.8	33	187	162
GN 114.2-20-60	20	60	4.8	1.2	23+1	19.8	25	40	14.8	33	187	184
GN 114.2-20-70	20	70	4.8	1.2	23+1	19.8	25	40	14.8	33	187	207
GN 114.2-20-80	20	80	4.8	1.2	23+1	19.8	25	40	14.8	33	187	229



Indexing elements

Stainless Steel-Locking pins

Plastic knob, with axial lock (Pawl)

SPECIFICATION

Knob / Push button / Slide

- Plastic
- temperature resistant up to 80 °C
- Knob: black-grey
- Push button: red

Pin

Stainless Steel AISI 303

Pawl

Stainless Steel AISI 304 (sheet metal)

Spring

Stainless Steel AISI 301

INFORMATION

Stainless Steel-Pins with axial lock GN 114.3 are used for quick fixing, connecting and locking of various jig and fixture systems. A typical application is location pins which have to be often removed and replaced again.

The rectangular pawls made of Stainless Steel sheet metal keep the locking pin in an axial position in the bore. It can be retracted by pressing the button, once released it returns the pressure spring into its locking position.

The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

- Range of lock pins (see page 868)

ACCESSORY

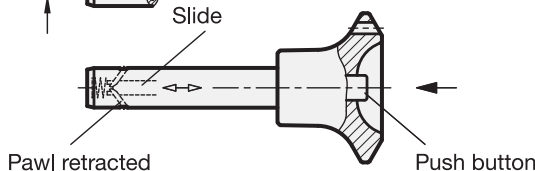
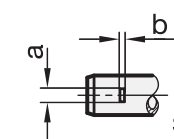
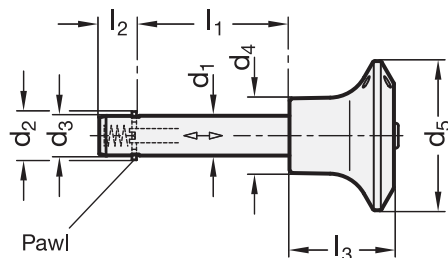
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

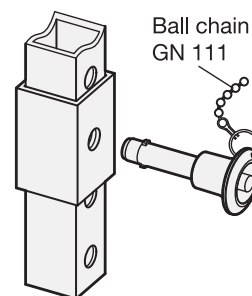
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



Bore for
key ring (ball chain)



Application example



GN 114.3

STAINLESS STEEL

Description	d1 -0.1	l1 +0.4	a	b	d2	d3	d4	d5	l2	l3	Load in kN ≈ (Double sided shear force) see information	⚖
GN 114.3-6-10	6	10	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	12
GN 114.3-6-12	6	12	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	12
GN 114.3-6-16	6	16	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	13
GN 114.3-6-20	6	20	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	13
GN 114.3-6-25	6	25	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	14
GN 114.3-6-30	6	30	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	14
GN 114.3-6-35	6	35	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	16
GN 114.3-6-40	6	40	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	16
GN 114.3-6-45	6	45	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	17
GN 114.3-6-50	6	50	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	18
GN 114.3-8-16	8	16	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	16
GN 114.3-8-20	8	20	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	18
GN 114.3-8-25	8	25	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	19
GN 114.3-8-30	8	30	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	20
GN 114.3-8-35	8	35	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	20
GN 114.3-8-40	8	40	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	24
GN 114.3-8-45	8	45	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	26
GN 114.3-8-50	8	50	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	27
GN 114.3-10-20	10	20	3.3	1	12 +1	9.9	18	34	9.8	26	47	27
GN 114.3-10-25	10	25	3.3	1	12 +1	9.9	18	34	9.8	26	47	29
GN 114.3-10-30	10	30	3.3	1	12 +1	9.9	18	34	9.8	26	47	31
GN 114.3-10-35	10	35	3.3	1	12 +1	9.9	18	34	9.8	26	47	35
GN 114.3-10-40	10	40	3.3	1	12 +1	9.9	18	34	9.8	26	47	36
GN 114.3-10-45	10	45	3.3	1	12 +1	9.9	18	34	9.8	26	47	39
GN 114.3-10-50	10	50	3.3	1	12 +1	9.9	18	34	9.8	26	47	41
GN 114.3-10-60	10	60	3.3	1	12 +1	9.9	18	34	9.8	26	47	45
GN 114.3-12-25	12	25	3.8	1	14 +1	11.9	18	34	11.3	26	75	38
GN 114.3-12-30	12	30	3.8	1	14 +1	11.9	18	34	11.3	26	75	42
GN 114.3-12-35	12	35	3.8	1	14 +1	11.9	18	34	11.3	26	75	45
GN 114.3-12-40	12	40	3.8	1	14 +1	11.9	18	34	11.3	26	75	49
GN 114.3-12-45	12	45	3.8	1	14 +1	11.9	18	34	11.3	26	75	53
GN 114.3-12-50	12	50	3.8	1	14 +1	11.9	18	34	11.3	26	75	57
GN 114.3-12-60	12	60	3.8	1	14 +1	11.9	18	34	11.3	26	75	63
GN 114.3-12-70	12	70	3.8	1	14 +1	11.9	18	34	11.3	26	75	69
GN 114.3-12-80	12	80	3.8	1	14 +1	11.9	18	34	11.3	26	75	80
GN 114.3-16-30	16	30	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	70
GN 114.3-16-35	16	35	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	85
GN 114.3-16-40	16	40	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	92
GN 114.3-16-45	16	45	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	99
GN 114.3-16-50	16	50	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	106
GN 114.3-16-60	16	60	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	119
GN 114.3-16-70	16	70	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	132
GN 114.3-16-80	16	80	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	145
GN 114.3-20-30	20	30	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	117
GN 114.3-20-35	20	35	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	128
GN 114.3-20-40	20	40	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	139
GN 114.3-20-45	20	45	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	151
GN 114.3-20-50	20	50	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	162
GN 114.3-20-60	20	60	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	185
GN 114.3-20-70	20	70	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	206
GN 114.3-20-80	20	80	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	229



Stainless Steel-Locking pins

Stainless Steel knob, with axial lock (Pawl)

SPECIFICATION

Knob / Push button / Slide
Stainless Steel AISI 303

Pin
Stainless Steel AISI 303

Pawl
Stainless Steel AISI 304 (sheet metal)

Spring
Stainless Steel AISI 301

INFORMATION

Stainless Steel-Locking pins with axial lock GN 114.6 are used for quick fixing, connecting and locking of various jig and fixture systems. A typical application is location pins which have to be often removed and replaced again.

The rectangular pawls made of Stainless Steel sheet metal keep the locking pin in an axial position in the bore. It can be retracted by pressing the button, once released it returns the pressure spring into its locking position.

The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

- Range of lock pins (see page 868)

ACCESSORY

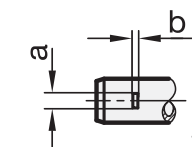
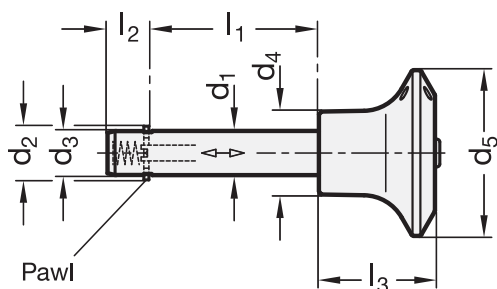
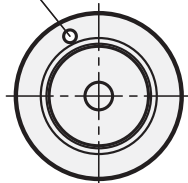
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

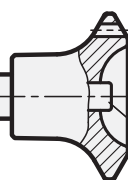


Bore for
key ring (ball chain)



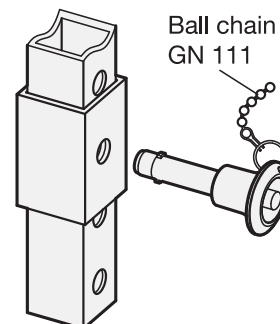
Pawl retracted

Slide



Push button

Application example



Ball chain
GN 111

GN 114.6

STAINLESS STEEL

Description	d1 -0.1	l1 +0.4	a	b	d2	d3	d4	d5	l2	l3	Load in kN ≈ (Double sided shear force) see information	⚖
GN 114.6-6-16	6	16	2.3	0.5	7.5+0.5	5.9	12	25	7	20	17	33
GN 114.6-6-20	6	20	2.3	0.5	7.5+0.5	5.9	12	25	7	20	17	34
GN 114.6-6-25	6	25	2.3	0.5	7.5+0.5	5.9	12	25	7	20	17	35
GN 114.6-6-30	6	30	2.3	0.5	7.5+0.5	5.9	12	25	7	20	17	36
GN 114.6-6-35	6	35	2.3	0.5	7.5+0.5	5.9	12	25	7	20	17	37
GN 114.6-6-40	6	40	2.3	0.5	7.5+0.5	5.9	12	25	7	20	17	38
GN 114.6-6-45	6	45	2.3	0.5	7.5+0.5	5.9	12	25	7	20	17	40
GN 114.6-6-50	6	50	2.3	0.5	7.5+0.5	5.9	12	25	7	20	17	40
GN 114.6-8-16	8	16	2.8	0.6	10+0.5	7.9	15	30	8.4	21	35	53
GN 114.6-8-20	8	20	2.8	0.6	10+0.5	7.9	15	30	8.4	21	35	55
GN 114.6-8-25	8	25	2.8	0.6	10+0.5	7.9	15	30	8.4	21	35	57
GN 114.6-8-30	8	30	2.8	0.6	10+0.5	7.9	15	30	8.4	21	35	59
GN 114.6-8-35	8	35	2.8	0.6	10+0.5	7.9	15	30	8.4	21	35	60
GN 114.6-8-40	8	40	2.8	0.6	10+0.5	7.9	15	30	8.4	21	35	62
GN 114.6-8-45	8	45	2.8	0.6	10+0.5	7.9	15	30	8.4	21	35	65
GN 114.6-8-50	8	50	2.8	0.6	10+0.5	7.9	15	30	8.4	21	35	66
GN 114.6-10-20	10	20	3.3	1	12+1	9.9	18	34	9.8	26	47	87
GN 114.6-10-25	10	25	3.3	1	12+1	9.9	18	34	9.8	26	47	90
GN 114.6-10-30	10	30	3.3	1	12+1	9.9	18	34	9.8	26	47	93
GN 114.6-10-35	10	35	3.3	1	12+1	9.9	18	34	9.8	26	47	56
GN 114.6-10-40	10	40	3.3	1	12+1	9.9	18	34	9.8	26	47	99
GN 114.6-10-45	10	45	3.3	1	12+1	9.9	18	34	9.8	26	47	103
GN 114.6-10-50	10	50	3.3	1	12+1	9.9	18	34	9.8	26	47	106
GN 114.6-10-60	10	60	3.3	1	12+1	9.9	18	34	9.8	26	47	111
GN 114.6-12-25	12	25	3.8	1	14+1	11.9	18	34	11.3	26	75	99
GN 114.6-12-30	12	30	3.8	1	14+1	11.9	18	34	11.3	26	75	104
GN 114.6-12-35	12	35	3.8	1	14+1	11.9	18	34	11.3	26	75	109
GN 114.6-12-40	12	40	3.8	1	14+1	11.9	18	34	11.3	26	75	113
GN 114.6-12-45	12	45	3.8	1	14+1	11.9	18	34	11.3	26	75	117
GN 114.6-12-50	12	50	3.8	1	14+1	11.9	18	34	11.3	26	75	121
GN 114.6-12-60	12	60	3.8	1	14+1	11.9	18	34	11.3	26	75	124
GN 114.6-12-70	12	70	3.8	1	14+1	11.9	18	34	11.3	26	75	139
GN 114.6-12-80	12	80	3.8	1	14+1	11.9	18	34	11.3	26	75	146
GN 114.6-16-30	16	30	4.8	1.2	19+1	15.9	22	40	14.2	32	138	181
GN 114.6-16-35	16	35	4.8	1.2	19+1	15.9	22	40	14.2	32	138	188
GN 114.6-16-40	16	40	4.8	1.2	19+1	15.9	22	40	14.2	32	138	196
GN 114.6-16-45	16	45	4.8	1.2	19+1	15.9	22	40	14.2	32	138	203
GN 114.6-16-50	16	50	4.8	1.2	19+1	15.9	22	40	14.2	32	138	212
GN 114.6-16-60	16	60	4.8	1.2	19+1	15.9	22	40	14.2	32	138	226
GN 114.6-16-70	16	70	4.8	1.2	19+1	15.9	22	40	14.2	32	138	243
GN 114.6-16-80	16	80	4.8	1.2	19+1	15.9	22	40	14.2	32	138	258
GN 114.6-20-30	20	30	4.8	1.2	23+1	19.8	25	40	14.8	33	228	219
GN 114.6-20-35	20	35	4.8	1.2	23+1	19.8	25	40	14.8	33	228	229
GN 114.6-20-40	20	40	4.8	1.2	23+1	19.8	25	40	14.8	33	228	241
GN 114.6-20-45	20	45	4.8	1.2	23+1	19.8	25	40	14.8	33	228	256
GN 114.6-20-50	20	50	4.8	1.2	23+1	19.8	25	40	14.8	33	228	266
GN 114.6-20-60	20	60	4.8	1.2	23+1	19.8	25	40	14.8	33	228	293
GN 114.6-20-70	20	70	4.8	1.2	23+1	19.8	25	40	14.8	33	228	314
GN 114.6-20-80	20	80	4.8	1.2	23+1	19.8	25	40	14.8	33	228	330



Locking pins with axial lock (Pawl)

SPECIFICATION

- Pin
- Steel
- zinc plated, blue passivated
- Pawl
- Stainless Steel sheet metal AISI 304
- Lifting ring
- Stainless Steel AISI 301
- Push button / Slide
- Plastic
- temperature resistant up to 80 °C
- Push button red
- Spring
- Stainless Steel AISI 301

INFORMATION

Locking pins with axial lock GN 214.2 are used for quick fixing, connecting and locking of various jig and fixture systems. A typical application is location pins which have to be often removed and replaced again.

The rectangular pawls made of Stainless Steel sheet metal keep the locking pin in an axial position in the bore. It can be retracted by pressing the button, once released it returns the pressure spring into its locking position.

The version with swivelling lifting ring is ideal for the use in confined spaces.

The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

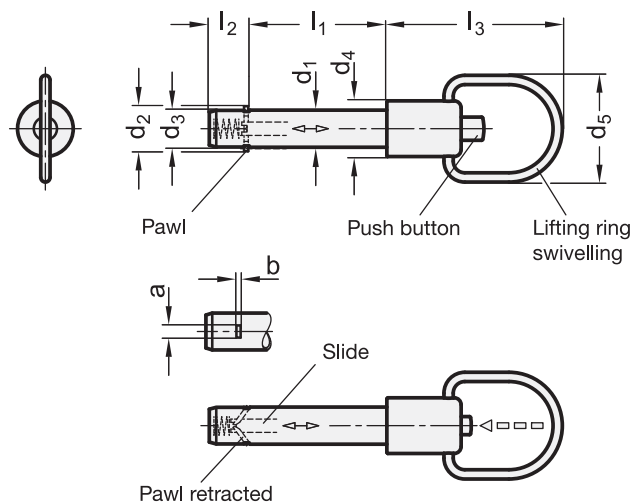
- Range of locking pins (see page 868)

ACCESSORY

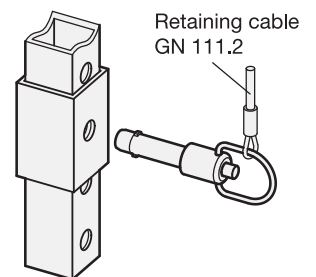
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



Application example



GN 214.2

Description	d1 -0.1	l1 +0.4	a	b	d2	d3	d4	d5	l2	l3	Load in kN ≈ (Double sided shear force) see information	⚖
GN 214.2-6-10	6	10	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	18
GN 214.2-6-12	6	12	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	18
GN 214.2-6-16	6	16	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	18
GN 214.2-6-20	6	20	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	19
GN 214.2-6-25	6	25	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	20
GN 214.2-6-30	6	30	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	21
GN 214.2-6-35	6	35	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	22
GN 214.2-6-40	6	40	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	23
GN 214.2-6-45	6	45	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	23
GN 214.2-6-50	6	50	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	24
GN 214.2-8-16	8	16	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	21
GN 214.2-8-20	8	20	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	22
GN 214.2-8-25	8	25	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	24
GN 214.2-8-30	8	30	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	25
GN 214.2-8-35	8	35	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	27
GN 214.2-8-40	8	40	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	27
GN 214.2-8-45	8	45	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	29
GN 214.2-8-50	8	50	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	32
GN 214.2-10-20	10	20	3.3	1	12 +1	9.9	16	28	9.8	42	38	41
GN 214.2-10-25	10	25	3.3	1	12 +1	9.9	16	28	9.8	42	38	43
GN 214.2-10-30	10	30	3.3	1	12 +1	9.9	16	28	9.8	42	38	45
GN 214.2-10-35	10	35	3.3	1	12 +1	9.9	16	28	9.8	42	38	47
GN 214.2-10-40	10	40	3.3	1	12 +1	9.9	16	28	9.8	42	38	50
GN 214.2-10-45	10	45	3.3	1	12 +1	9.9	16	28	9.8	42	38	52
GN 214.2-10-50	10	50	3.3	1	12 +1	9.9	16	28	9.8	42	38	54
GN 214.2-10-60	10	60	3.3	1	12 +1	9.9	16	28	9.8	42	38	59
GN 214.2-12-25	12	25	3.8	1	14 +1	11.9	16	28	11.3	42	61	52
GN 214.2-12-30	12	30	3.8	1	14 +1	11.9	16	28	11.3	42	61	56
GN 214.2-12-35	12	35	3.8	1	14 +1	11.9	16	28	11.3	42	61	60
GN 214.2-12-40	12	40	3.8	1	14 +1	11.9	16	28	11.3	42	61	63
GN 214.2-12-45	12	45	3.8	1	14 +1	11.9	16	28	11.3	42	61	67
GN 214.2-12-50	12	50	3.8	1	14 +1	11.9	16	28	11.3	42	61	71
GN 214.2-12-60	12	60	3.8	1	14 +1	11.9	16	28	11.3	42	61	77
GN 214.2-12-70	12	70	3.8	1	14 +1	11.9	16	28	11.3	42	61	85
GN 214.2-12-80	12	80	3.8	1	14 +1	11.9	16	28	11.3	42	61	93
GN 214.2-16-30	16	30	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	102
GN 214.2-16-35	16	35	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	109
GN 214.2-16-40	16	40	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	115
GN 214.2-16-45	16	45	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	121
GN 214.2-16-50	16	50	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	128
GN 214.2-16-60	16	60	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	142
GN 214.2-16-70	16	70	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	156
GN 214.2-16-80	16	80	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	169



Indexing elements 8

Stainless Steel-Locking pins

Plastic slide, with axial lock (Pawl)

SPECIFICATION

- Pin
Stainless Steel AISI 303
- Slide / Push button
Plastic
temperature resistant up to 80 °C
red
- Pawl
Stainless Steel sheet metal AISI 304
- Lifting ring
Stainless Steel AISI 301
- Spring
Stainless Steel AISI 301

INFORMATION

Stainless Steel-Locking pins with axial lock GN 214.3 are used for quick fixing, connecting and locking of various jig and fixture systems. A typical application is location pins which have to be often removed and re-placed again.

The rectangular pawls made of Stainless Steel sheet metal keep the locking pin in an axial position in the bore. It can be retracted by pressing the button, once released it returns the pressure spring into its locking position.

The version with swivelling lifting ring is ideal for the use in confined spaces.

The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

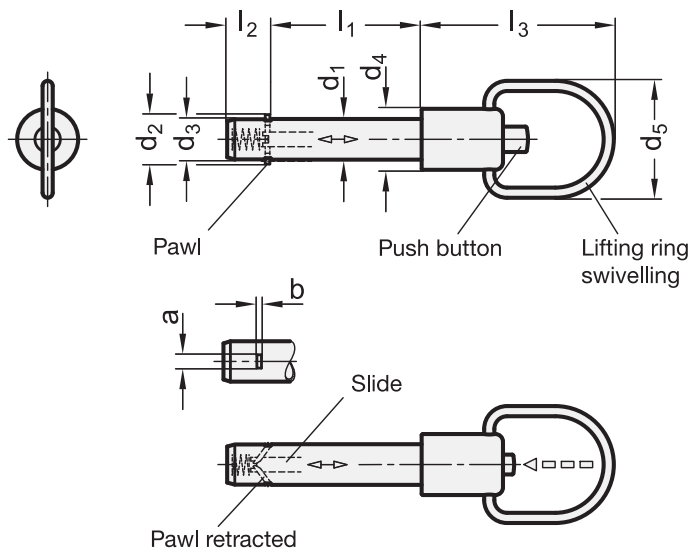
- Range of locking pins (see page 868)

ACCESSORY

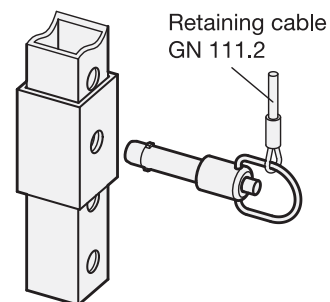
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



Application example



GN 214.3

STAINLESS STEEL

Description	d1 -0.1	l1 +0.4	a	b	d2	d3	d4	d5	l2	l3	Load in kN ≈ (Double sided shear force) see information	⚖
GN 214.3-6-10	6	10	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	18
GN 214.3-6-12	6	12	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	18
GN 214.3-6-16	6	16	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	18
GN 214.3-6-20	6	20	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	19
GN 214.3-6-25	6	25	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	20
GN 214.3-6-30	6	30	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	21
GN 214.3-6-35	6	35	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	21
GN 214.3-6-40	6	40	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	22
GN 214.3-6-45	6	45	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	23
GN 214.3-6-50	6	50	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	24
GN 214.3-8-16	8	16	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	21
GN 214.3-8-20	8	20	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	22
GN 214.3-8-25	8	25	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	24
GN 214.3-8-30	8	30	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	25
GN 214.3-8-35	8	35	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	27
GN 214.3-8-40	8	40	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	29
GN 214.3-8-45	8	45	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	31
GN 214.3-8-50	8	50	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	32
GN 214.3-10-20	10	20	3.3	1	12 +1	9.9	16	28	9.8	42	47	39
GN 214.3-10-25	10	25	3.3	1	12 +1	9.9	16	28	9.8	42	47	42
GN 214.3-10-30	10	30	3.3	1	12 +1	9.9	16	28	9.8	42	47	45
GN 214.3-10-35	10	35	3.3	1	12 +1	9.9	16	28	9.8	42	47	47
GN 214.3-10-40	10	40	3.3	1	12 +1	9.9	16	28	9.8	42	47	50
GN 214.3-10-45	10	45	3.3	1	12 +1	9.9	16	28	9.8	42	47	52
GN 214.3-10-50	10	50	3.3	1	12 +1	9.9	16	28	9.8	42	47	54
GN 214.3-10-60	10	60	3.3	1	12 +1	9.9	16	28	9.8	42	47	59
GN 214.3-12-25	12	25	3.8	1	14 +1	11.9	16	28	11.3	42	75	53
GN 214.3-12-30	12	30	3.8	1	14 +1	11.9	16	28	11.3	42	75	55
GN 214.3-12-35	12	35	3.8	1	14 +1	11.9	16	28	11.3	42	75	59
GN 214.3-12-40	12	40	3.8	1	14 +1	11.9	16	28	11.3	42	75	62
GN 214.3-12-45	12	45	3.8	1	14 +1	11.9	16	28	11.3	42	75	67
GN 214.3-12-50	12	50	3.8	1	14 +1	11.9	16	28	11.3	42	75	70
GN 214.3-12-60	12	60	3.8	1	14 +1	11.9	16	28	11.3	42	75	77
GN 214.3-12-70	12	70	3.8	1	14 +1	11.9	16	28	11.3	42	75	84
GN 214.3-12-80	12	80	3.8	1	14 +1	11.9	16	28	11.3	42	75	91
GN 214.3-16-30	16	30	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	102
GN 214.3-16-35	16	35	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	109
GN 214.3-16-40	16	40	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	116
GN 214.3-16-45	16	45	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	122
GN 214.3-16-50	16	50	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	129
GN 214.3-16-60	16	60	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	143
GN 214.3-16-70	16	70	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	155
GN 214.3-16-80	16	80	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	168



Stainless Steel-Locking pins

Stainless Steel-Slide, with axial lock (Pawl)

SPECIFICATION

- Pin
Stainless Steel AISI 303
- Slide / Push button
Stainless Steel AISI 303
- Pawl
Stainless Steel sheet metal AISI 304
- Lifting ring
Stainless Steel AISI 301
- Spring
Stainless Steel AISI 301

INFORMATION

Stainless Steel-Locking pins with axial lock GN 214.6 are used for quick fixing, connecting and locking of various jig and fixture systems. A typical application is location pins which have to be often removed and re-placed again.

The rectangular pawls made of Stainless Steel sheet metal keep the locking pin in an axial position in the bore. It can be retracted by pressing the button, once released it returns the pressure spring into its locking position.

The version with swivelling lifting ring is ideal for the use in confined spaces.

The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

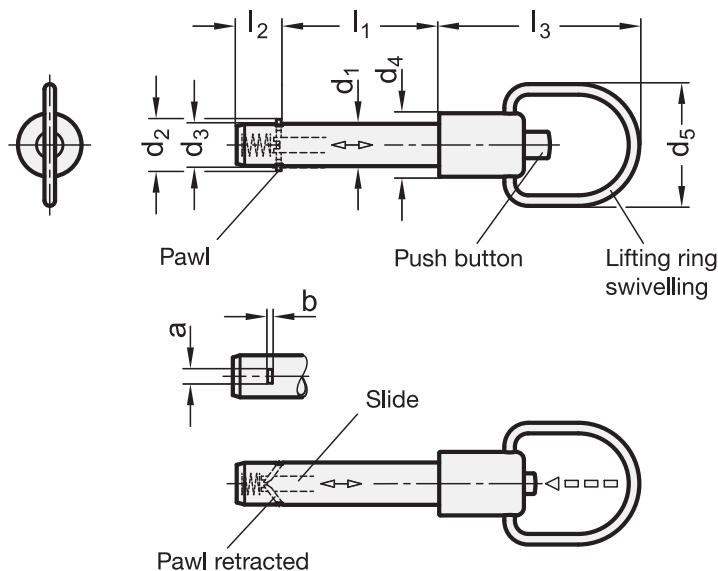
- Range of locking pins (see page 868)

ACCESSORY

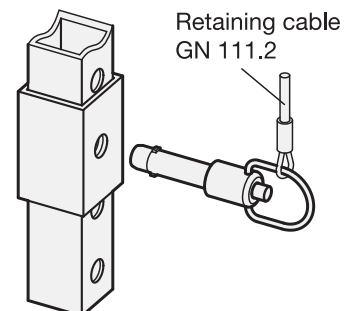
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Application example



GN 214.6

STAINLESS STEEL

Description	d1 -0.1	l1 +0.4	a	b	d2	d3	d4	d5	l2	l3	Load in kN ≈ (Double sided shear force) see information	
GN 214.6-6-16	6	16	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	20
GN 214.6-6-20	6	20	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	21
GN 214.6-6-25	6	25	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	22
GN 214.6-6-30	6	30	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	23
GN 214.6-6-35	6	35	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	24
GN 214.6-6-40	6	40	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	25
GN 214.6-6-45	6	45	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	26
GN 214.6-6-50	6	50	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	27
GN 214.6-8-16	8	16	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	23
GN 214.6-8-20	8	20	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	25
GN 214.6-8-25	8	25	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	27
GN 214.6-8-30	8	30	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	29
GN 214.6-8-35	8	35	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	30
GN 214.6-8-40	8	40	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	32
GN 214.6-8-45	8	45	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	34
GN 214.6-8-50	8	50	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	36
GN 214.6-10-20	10	20	3.3	1	12 +1	9.9	16	28	9.8	42	47	49
GN 214.6-10-25	10	25	3.3	1	12 +1	9.9	16	28	9.8	42	47	52
GN 214.6-10-30	10	30	3.3	1	12 +1	9.9	16	28	9.8	42	47	55
GN 214.6-10-35	10	35	3.3	1	12 +1	9.9	16	28	9.8	42	47	58
GN 214.6-10-40	10	40	3.3	1	12 +1	9.9	16	28	9.8	42	47	60
GN 214.6-10-45	10	45	3.3	1	12 +1	9.9	16	28	9.8	42	47	63
GN 214.6-10-50	10	50	3.3	1	12 +1	9.9	16	28	9.8	42	47	66
GN 214.6-10-60	10	60	3.3	1	12 +1	9.9	16	28	9.8	42	47	74
GN 214.6-12-25	12	25	3.8	1	14 +1	11.9	16	28	11.3	42	75	61
GN 214.6-12-30	12	30	3.8	1	14 +1	11.9	16	28	11.3	42	75	65
GN 214.6-12-35	12	35	3.8	1	14 +1	11.9	16	28	11.3	42	75	69
GN 214.6-12-40	12	40	3.8	1	14 +1	11.9	16	28	11.3	42	75	73
GN 214.6-12-45	12	45	3.8	1	14 +1	11.9	16	28	11.3	42	75	78
GN 214.6-12-50	12	50	3.8	1	14 +1	11.9	16	28	11.3	42	75	82
GN 214.6-12-60	12	60	3.8	1	14 +1	11.9	16	28	11.3	42	75	90
GN 214.6-12-70	12	70	3.8	1	14 +1	11.9	16	28	11.3	42	75	99
GN 214.6-12-80	12	80	3.8	1	14 +1	11.9	16	28	11.3	42	75	107
GN 214.6-16-30	16	30	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	119
GN 214.6-16-35	16	35	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	128
GN 214.6-16-40	16	40	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	135
GN 214.6-16-45	16	45	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	142
GN 214.6-16-50	16	50	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	150
GN 214.6-16-60	16	60	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	165
GN 214.6-16-70	16	70	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	183
GN 214.6-16-80	16	80	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	197



Stainless Steel-Ball lock pins

with clamping length compensation

SPECIFICATION

- Pin
Stainless Steel AISI 303
- Handle
Plastic (Polyamide PA)
 - black-grey / red
 - temperature resistant up to 80 °C
- Balls
Stainless Steel AISI 420C
- Spring
Stainless Steel AISI 631

INFORMATION

Stainless Steel-Ball lock pins GN 113.1 are used for rapid clamping and, at the same time, play-free clamping of thin components in particular where frequent clamping and releasing is required. A typical application is the alignment and clamping of sheet metal during a welding process.

By depressing the spring-loaded push button the pin advances by the length l_2 and at the same time frees the two balls.

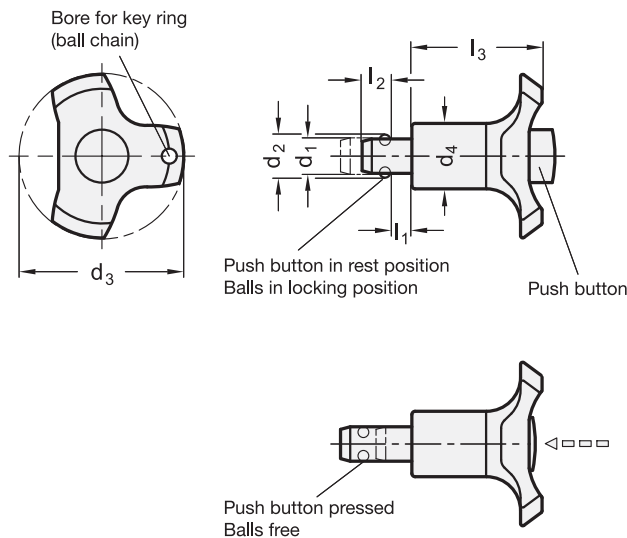
- Range of locking pins (see page 868)

ACCESSORY

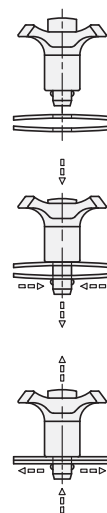
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



Application example



GN 113.1

STAINLESS STEEL

Description	d1 -0.04/-0.08	l1 max.	l1 min.	d2	d3	d4	l2	l3	Locating bore H11	Clamping force max. in N ≈	⚖
GN 113.1-6-0	6	5	0	7	38	17.5	5	30	6	16	16
GN 113.1-6-5	6	10	5	7	38	17.5	5	30	6	18	23
GN 113.1-8-0	8	5	0	9.5	38	17.5	6.5	30	8	16	19
GN 113.1-8-5	8	10	5	9.5	38	17.5	6.5	30	8	18	20
GN 113.1-10-0	10	5	0	12	47	23	8.7	36	10	21	38
GN 113.1-10-5	10	10	5	12	47	23	8.7	36	10	23	39
GN 113.1-12-0	12	5	0	14	47	23	9.4	36	12	21	42
GN 113.1-12-5	12	10	5	14	47	23	9.4	36	12	23	44

Stainless Steel-Locking pins

with axial lock (Ball retainer)

SPECIFICATION

Pin
Stainless Steel AISI 303

Knob
Plastic Technopolymer (Polyamide PA)

- black-grey
- temperature resistant up to 80 °C

Ball
Stainless Steel AISI 420C

Spring
Stainless Steel AISI 631

INFORMATION

GN 124.2 Stainless Steel-Locking pins are used for quick fixing, connecting and locking of various jig and fixture systems.

The locking balls are held in position by a pressure spring and are therefore not rigidly locked. The bolts can be quickly and easily inserted and removed from the locating hole.

The rated shear stresses of the bolt cross-section are theoretical guide values only and do not constitute any warranty. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

This standard replaces the previous Stainless Steel-Locking pins GN 124.

- Range of locking pins (see page 868)

ACCESSORY

- Stainless Steel-Ball chains GN 111.5 (see page 905)

- Retaining cables GN 111.2 (see page 906)

TECHNICAL INFORMATION

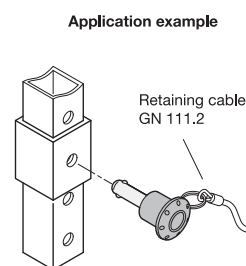
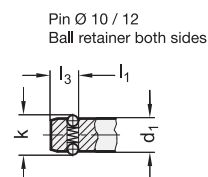
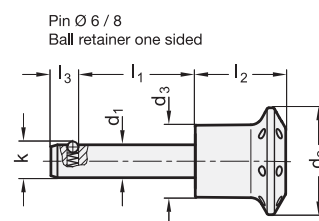
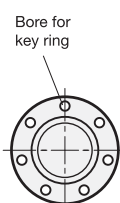
- Stainless Steel characteristics (see page A26)

- Plastic characteristics (see page A2)

GN 124.2

STAINLESS STEEL

Description	d1 -0.04/-0.08	l1	d2	d3	k	l2	l3	Locating bore	Axial holding force in N ≈	Load in kN ≈ (Double sided shear force) according DIN 50141	⚖
GN 124.2-6-10	6	10	26	17.5	6.5	22	5	6	8	22	13
GN 124.2-6-15	6	15	26	17.5	6.5	22	5	6	8	22	15
GN 124.2-6-20	6	20	26	17.5	6.5	22	5	6	8	22	16
GN 124.2-6-25	6	25	26	17.5	6.5	22	5	6	8	22	16
GN 124.2-6-30	6	30	26	17.5	6.5	22	5	6	8	22	19
GN 124.2-6-50	6	50	26	17.5	6.5	22	5	6	8	22	19
GN 124.2-8-15	8	15	26	17.5	8.7	22	6.3	8	15	40	19
GN 124.2-8-20	8	20	26	17.5	8.7	22	6.3	8	15	40	19
GN 124.2-8-25	8	25	26	17.5	8.7	22	6.3	8	15	40	20
GN 124.2-8-30	8	30	26	17.5	8.7	22	6.3	8	15	40	25
GN 124.2-8-50	8	50	26	17.5	8.7	22	6.3	8	15	40	33
GN 124.2-10-15	10	15	34	23	12	28.5	8.7	10	30	62	39
GN 124.2-10-20	10	20	34	23	12	28.5	8.7	10	30	62	42
GN 124.2-10-25	10	25	34	23	12	28.5	8.7	10	30	62	45
GN 124.2-10-30	10	30	34	23	12	28.5	8.7	10	30	62	48
GN 124.2-10-50	10	50	34	23	12	28.5	8.7	10	30	62	59
GN 124.2-12-20	12	20	34	23	14.5	28.5	9.5	12	32	90	51
GN 124.2-12-30	12	30	34	23	14.5	28.5	9.5	12	32	90	59
GN 124.2-12-40	12	40	34	23	14.5	28.5	9.5	12	32	90	68
GN 124.2-12-50	12	50	34	23	14.5	28.5	9.5	12	32	90	75



Indexing elements

Stainless Steel-Locking pins

with axial lock (magnetic)

SPECIFICATION

Pin

Stainless Steel AISI 303

Knob

Plastic Technopolymer (Polyamide PA)

- black-grey

- temperature resistant up to 80 °C

Retaining magnet

Neodymium, iron, boron

INFORMATION

GN 124.1 Stainless Steel-Locking pins are used for quickly fixing, connecting and locking various parts and workpieces made of magnetic materials.

A neodymium magnet is recessed into the underside of the bolt and axially retains the bolt in its inserted procession. High-quality surfaces with perpendicular locating holes promote magnetic flux to produce excellent axial retention.

The rated shear stresses of the bolt cross-section are theoretical guide values only and do not constitute any warranty. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

- Range of locking pins (see page 868)

ACCESSORY

- Ball chains GN 111 (see page 904)

- Stainless Steel-Ball chains GN 111.5 (see page 905)

- Retaining cables GN 111.2 (see page 906)

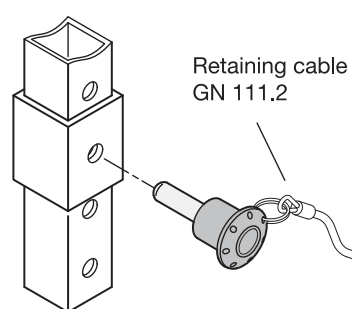
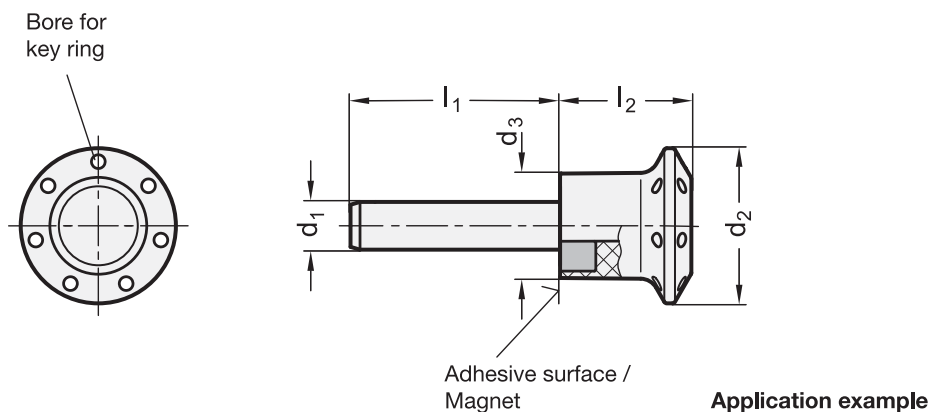
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

- Plastic characteristics (see page A2)





GN 124.1

STAINLESS STEEL

Description	d1 -0.04/-0.08	l1	d2	d3	l2	Locating bore	Axial holding force in N ≈	Load in kN ≈ (Double sided shear force) according DIN 50141	⚖
GN 124.1-6-12	6	12	26	17.5	22	6	65	22	13
GN 124.1-6-17	6	17	26	17.5	22	6	65	22	19
GN 124.1-6-22	6	22	26	17.5	22	6	65	22	20
GN 124.1-6-27	6	27	26	17.5	22	6	65	22	21
GN 124.1-6-32	6	32	26	17.5	22	6	65	22	22
GN 124.1-6-42	6	42	26	17.5	22	6	65	22	24
GN 124.1-6-52	6	52	26	17.5	22	6	65	22	27
GN 124.1-8-17	8	17	26	17.5	22	8	45	40	24
GN 124.1-8-22	8	22	26	17.5	22	8	45	40	24
GN 124.1-8-27	8	27	26	17.5	22	8	45	40	25
GN 124.1-8-32	8	32	26	17.5	22	8	45	40	27
GN 124.1-8-42	8	42	26	17.5	22	8	45	40	31
GN 124.1-8-52	8	52	26	17.5	22	8	45	40	35
GN 124.1-8-62	8	62	26	17.5	22	8	45	40	38
GN 124.1-10-18	10	18	34	23	28.5	10	95	62	43
GN 124.1-10-23	10	23	34	23	28.5	10	95	62	46
GN 124.1-10-28	10	28	34	23	28.5	10	95	62	49
GN 124.1-10-33	10	33	34	23	28.5	10	95	62	52
GN 124.1-10-43	10	43	34	23	28.5	10	95	62	58
GN 124.1-10-53	10	53	34	23	28.5	10	95	62	64
GN 124.1-10-63	10	63	34	23	28.5	10	95	62	71
GN 124.1-12-23	12	23	34	23	28.5	12	75	90	52
GN 124.1-12-33	12	33	34	23	28.5	12	75	90	61
GN 124.1-12-43	12	43	34	23	28.5	12	75	90	70
GN 124.1-12-53	12	53	34	23	28.5	12	75	90	78
GN 124.1-12-63	12	63	34	23	28.5	12	75	90	87
GN 124.1-12-83	12	83	34	23	28.5	12	75	90	104

Stainless Steel-Assembly pins

SPECIFICATION

Types

- Type **B**: with plain washer
- Type **E**: with washer with eyelet, suitable for key rings
- Type **L**: with washer, with mounting shackle (only identification no.1)

Identification no.

- No. **1**: without cross hole
- No. **2**: with cross hole for spring cotter pin GN 1024 (see page 909)

Assembly pin
Stainless Steel AISI 304 **NI**

Washer
Stainless Steel

- Type B: turned AISI 304
- Type E: metal injection molded AISI 316 LHC
- Type L: sintered AISI 316 LHC

Countersunk screw DIN 7991
Stainless Steel AISI 304
not removable



INFORMATION

GN 2342 Stainless Steel-Assembly pins are characterized by their use in diverse applications.

Depending on the requirement there are three washer types to choose from, which place the assembly pin in an axial position in its insertion direction. With the washer with eyelet (Type E) the assembly pin and a corresponding GN 1024 (see page 909) spring cotter pin can be secured to prevent loss using a retaining cable or ball chain. The washer with mounting shackle (Type L) simultaneously acts as loss protection and anti-rotation protection. Assembly pins according to identification no. 2 are secured against falling out via a transverse drill hole which is aligned to the GN 1024 (see page 909).

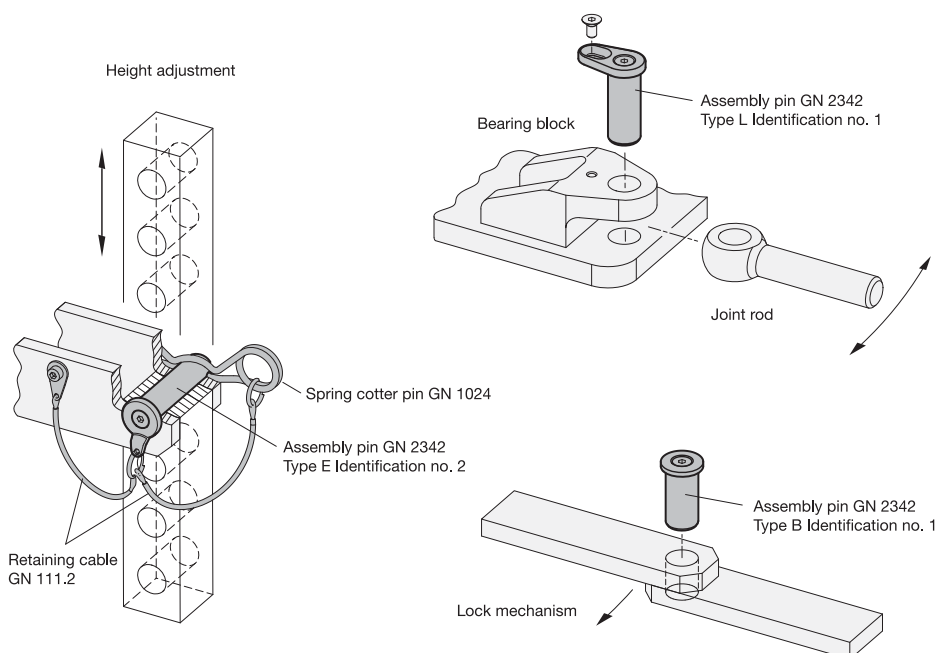
ACCESSORY

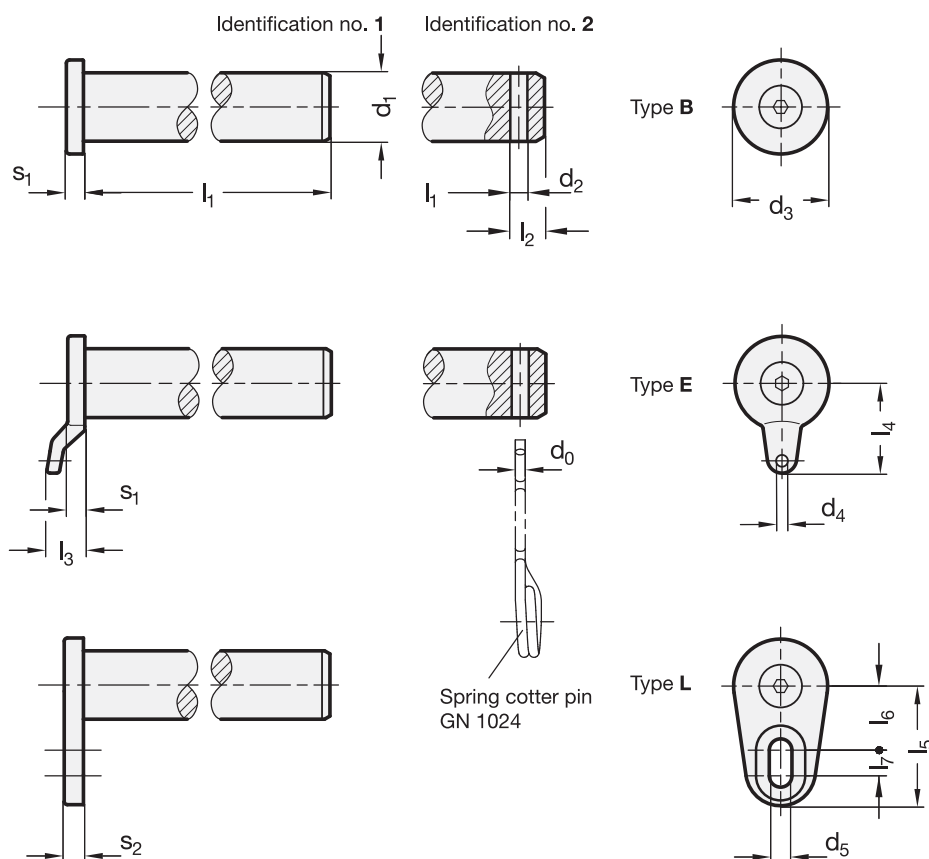
- Spring cotter pins GN 1024 (see page 909)
- Ball chains GN 111 (see page 904)
- Retaining cables GN 111.2 (see page 906)
- Key rings GN 111.3 (see page 903)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

APPLICATION EXAMPLE





* Complete with type index of the Stainless Steel-Assembly Pins (B, E or L)

B E L**

GN 2342

STAINLESS STEEL

Description	d1 h9	l1	d2	d3	d4	d5	l2	l3	l4	l5	l6	l7	s1	s2	Suitable spring cotter pins for Identification no. 2	
GN 2342-NI-8-16-*1	8	16	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	10
GN 2342-NI-8-16-*2	8**	16	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	12
GN 2342-NI-8-20-*1	8	20	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	11
GN 2342-NI-8-20-*2	8**	20	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	13
GN 2342-NI-8-24-*1	8	24	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	13
GN 2342-NI-8-24-*2	8**	24	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	15
GN 2342-NI-8-28-*1	8	28	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	14
GN 2342-NI-8-28-*2	8**	28	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	16
GN 2342-NI-8-30-*1	8	30	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	15
GN 2342-NI-8-30-*2	8**	30	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	17
GN 2342-NI-8-32-*1	8	32	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	16
GN 2342-NI-8-32-*2	8**	32	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	18
GN 2342-NI-8-35-*1	8	35	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	17
GN 2342-NI-8-35-*2	8**	35	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	19
GN 2342-NI-8-40-*1	8	40	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	19
GN 2342-NI-8-40-*2	8**	40	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	21
GN 2342-NI-8-45-*1	8	45	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	21
GN 2342-NI-8-45-*2	8**	45	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	23
GN 2342-NI-8-50-*1	8	50	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	23
GN 2342-NI-8-50-*2	8**	50	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	25
GN 2342-NI-8-55-*1	8	55	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	25
GN 2342-NI-8-55-*2	8**	55	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	27
GN 2342-NI-8-60-*1	8	60	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	27
GN 2342-NI-8-60-*2	8**	60	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	29

** This type (L) is only available in Identification no. 1



* Complete with type index of the Stainless Steel-Assembly Pins (B, E or L)

B E L**

GN 2342

STAINLESS STEEL

Description	d1 h9	l1	d2	d3	d4	d5	l2	l3	l4	l5	l6	l7	s1	s2	Suitable spring cotter pins for Identification no. 2	
GN 2342-NI-10-20-*1 10	20	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	17	
GN 2342-NI-10-20-*2 10**	20	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	21	
GN 2342-NI-10-24-*1 10	24	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	19	
GN 2342-NI-10-24-*2 10**	24	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	23	
GN 2342-NI-10-30-*1 10	30	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	23	
GN 2342-NI-10-30-*2 10**	30	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	27	
GN 2342-NI-10-35-*1 10	35	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	26	
GN 2342-NI-10-35-*2 10**	35	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	30	
GN 2342-NI-10-40-*1 10	40	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	29	
GN 2342-NI-10-40-*2 10**	40	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	33	
GN 2342-NI-10-45-*1 10	45	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	32	
GN 2342-NI-10-45-*2 10**	45	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	36	
GN 2342-NI-10-50-*1 10	50	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	36	
GN 2342-NI-10-50-*2 10**	50	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	39	
GN 2342-NI-10-55-*1 10	55	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	39	
GN 2342-NI-10-55-*2 10**	55	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	42	
GN 2342-NI-10-60-*1 10	60	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	42	
GN 2342-NI-10-60-*2 10**	60	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	44	
GN 2342-NI-10-65-*1 10	65	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	45	
GN 2342-NI-10-65-*2 10**	65	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	48	
GN 2342-NI-10-70-*1 10	70	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	48	
GN 2342-NI-10-70-*2 10**	70	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	51	
GN 2342-NI-10-80-*1 10	80	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	54	
GN 2342-NI-10-80-*2 10**	80	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	58	
GN 2342-NI-12-20-*1 12	20	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	25	
GN 2342-NI-12-20-*2 12**	20	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	30	
GN 2342-NI-12-24-*1 12	24	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	29	
GN 2342-NI-12-24-*2 12**	24	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	34	
GN 2342-NI-12-30-*1 12	30	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	34	
GN 2342-NI-12-30-*2 12**	30	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	39	
GN 2342-NI-12-35-*1 12	35	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	45	
GN 2342-NI-12-35-*2 12**	35	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	46	
GN 2342-NI-12-40-*1 12	40	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	42	
GN 2342-NI-12-40-*2 12**	40	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	48	
GN 2342-NI-12-45-*1 12	45	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	47	
GN 2342-NI-12-45-*2 12**	45	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	53	
GN 2342-NI-12-50-*1 12	50	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	51	
GN 2342-NI-12-50-*2 12**	50	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	57	
GN 2342-NI-12-55-*1 12	55	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	56	
GN 2342-NI-12-55-*2 12**	55	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	61	
GN 2342-NI-12-60-*1 12	60	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	61	
GN 2342-NI-12-60-*2 12**	60	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	66	
GN 2342-NI-12-65-*1 12	65	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	65	
GN 2342-NI-12-65-*2 12**	65	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	70	
GN 2342-NI-12-70-*1 12	70	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	70	
GN 2342-NI-12-70-*2 12**	70	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	75	

** This type (L) is only available in Identification no. 1



* Complete with type index of the Stainless Steel-Assembly Pins (B, E or L)

B E L**

GN 2342

STAINLESS STEEL

Description	d1	h9	l1	d2	d3	d4	d5	l2	l3	l4	l5	l6	l7	s1	s2	Suitable spring cotter pins for Identification no. 2	
GN 2342-NI-12-80-*-1	12	80		2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	78
GN 2342-NI-12-80-*-2	12**	80		2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	84
GN 2342-NI-16-32-*-1	16	32		3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	62
GN 2342-NI-16-32-*-2	16**	32		3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	73
GN 2342-NI-16-35-*-1	16	35		3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	67
GN 2342-NI-16-35-*-2	16**	35		3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	77
GN 2342-NI-16-40-*-1	16	40		3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	74
GN 2342-NI-16-40-*-2	16**	40		3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	85
GN 2342-NI-16-45-*-1	16	45		3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	82
GN 2342-NI-16-45-*-2	16**	45		3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	93
GN 2342-NI-16-50-*-1	16	50		3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	90
GN 2342-NI-16-50-*-2	16**	50		3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	101
GN 2342-NI-16-55-*-1	16	55		3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	98
GN 2342-NI-16-55-*-2	16**	55		3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	109
GN 2342-NI-16-60-*-1	16	60		3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	106
GN 2342-NI-16-60-*-2	16**	60		3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	117
GN 2342-NI-16-65-*-1	16	65		3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	114
GN 2342-NI-16-65-*-2	16**	65		3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	125
GN 2342-NI-16-70-*-1	16	70		3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	122
GN 2342-NI-16-70-*-2	16**	70		3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	133
GN 2342-NI-16-80-*-1	16	80		3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	138
GN 2342-NI-16-80-*-2	16**	80		3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	149
GN 2342-NI-16-90-*-1	16	90		3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	154
GN 2342-NI-16-90-*-2	16**	90		3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	164
GN 2342-NI-16-100-*-1	16	100		3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	170
GN 2342-NI-16-100-*-2	16**	100		3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	180
GN 2342-NI-20-40-*-1	20	40		4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	115
GN 2342-NI-20-40-*-2	20**	40		4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	136
GN 2342-NI-20-45-*-1	20	45		4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	126
GN 2342-NI-20-45-*-2	20**	45		4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	158
GN 2342-NI-20-50-*-1	20	50		4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	138
GN 2342-NI-20-50-*-2	20**	50		4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	161
GN 2342-NI-20-55-*-1	20	55		4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	150
GN 2342-NI-20-55-*-2	20**	55		4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	173
GN 2342-NI-20-60-*-1	20	60		4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	163
GN 2342-NI-20-60-*-2	20**	60		4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	186
GN 2342-NI-20-65-*-1	20	65		4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	175
GN 2342-NI-20-65-*-2	20**	65		4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	198
GN 2342-NI-20-70-*-1	20	70		4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	188
GN 2342-NI-20-70-*-2	20**	70		4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	211
GN 2342-NI-20-80-*-1	20	80		4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	212
GN 2342-NI-20-80-*-2	20**	80		4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	235
GN 2342-NI-20-90-*-1	20	90		4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	237
GN 2342-NI-20-90-*-2	20**	90		4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	260
GN 2342-NI-20-100-*-1	20	100		4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	262
GN 2342-NI-20-100-*-2	20**	100		4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	287

** This type (L) is only available in Identification no. 1



Stainless Steel- Retaining washers

SPECIFICATION

Types

- Type **E**: with eyelet
- Type **L**: with mounting shackle

Stainless Steel **NI**

- Type E: metal injection, molded, AISI 316 LHC, ground
- Type L: sintered AISI 316 LHC, ground

INFORMATION

GN 2344 Stainless Steel-Retaining washers are universally usable standard parts.

Type E is suitable for use in connection with retaining cables and ball chains to mount other standard or securing parts in order to prevent loss.

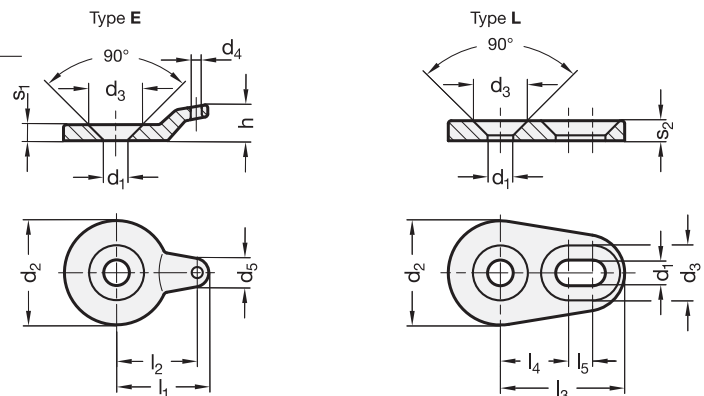
Type L is suitable, for example, for mounting bolts or axes, which can thereby simultaneously be secured in an axial and also in a radial position.

ACCESSORY

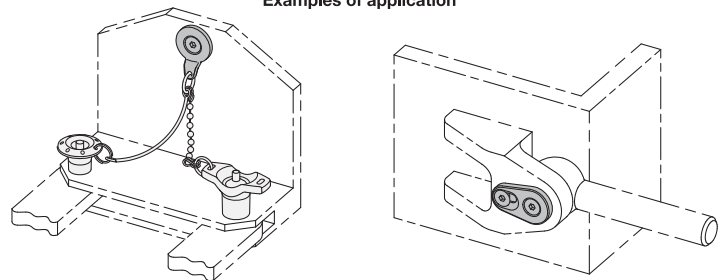
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)
- Key rings GN 111.3 (see page 903)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Examples of application



GN 2344

STAINLESS STEEL

Description	d1	d2	d3	d4	d5	h	l1	l2	l3	l4	l5	s1	s2	Suitable key rings for type E	
GN 2344-NI-4,3-12-E	4.3	12	9.2	2.5	6	7	13.5	10.8	-	-	-	3	-	Ø14	2
GN 2344-NI-4,3-15-E	4.3	15	9.2	2.5	6.3	7	15	12.3	-	-	-	3	-	Ø14	4
GN 2344-NI-5,3-17-E	5.3	17	11.5	3	7.2	7	18.5	15	-	-	-	4	-	Ø14 Ø18	7
GN 2344-NI-5,3-22-E	5.3	22	11.5	3	7.5	9	21	17.5	-	-	-	4	-	Ø14 Ø18	12
GN 2344-NI-6,4-26-E	6.4	26	13.7	3.5	8.1	9	24	20.3	-	-	-	4	-	Ø14 Ø18 Ø24	15
GN 2344-NI-4,3-12-L	4.3	12	9.2	-	-	-	-	-	18	10	2	-	4	-	5
GN 2344-NI-4,3-15-L	4.3	15	9.2	-	-	-	-	-	21	11	4	-	4	-	7
GN 2344-NI-5,3-17-L	5.3	17	11.5	-	-	-	-	-	23	12	4	-	4.5	-	10
GN 2344-NI-5,3-22-L	5.3	22	11.5	-	-	-	-	-	28	15	6	-	4.5	-	16
GN 2344-NI-6,4-26-L	6.4	26	13.7	-	-	-	-	-	31	17	6	-	5	-	25

Key rings

SPECIFICATION

Stainless Steel

Suitable for ball lock pins and locking pins (see pages 870):

* GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 5, Ø 6, Ø 8

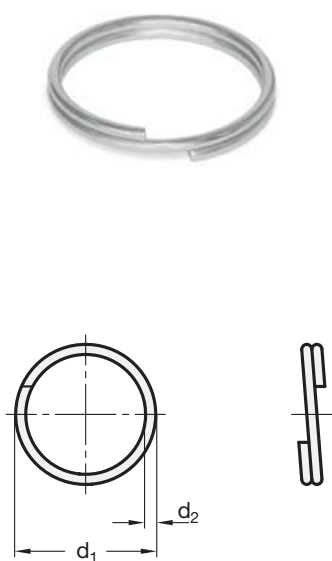
and

* GN 113.5, GN 113.6, GN 114.2, GN 114.3, GN 114.6, GN 124.1, GN 124.2 for all pins

** GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 10, Ø 12, Ø 16, Ø 20

INFORMATION

For ball chains GN 111, Stainless Steel-Ball chains GN 111.5 (see page 905) retaining cables GN 111.2 (see page 906) and spiral retaining cables GN 111.4 (see page 908) there are single key rings available. Some sizes can be used as loss protection for ball lock pins and locking pins e.g. in combination with a retaining cable. Furthermore, key rings have uses in many other areas.



Stainless Steel-Retaining rings

SPECIFICATION

Stainless Steel AISI 301

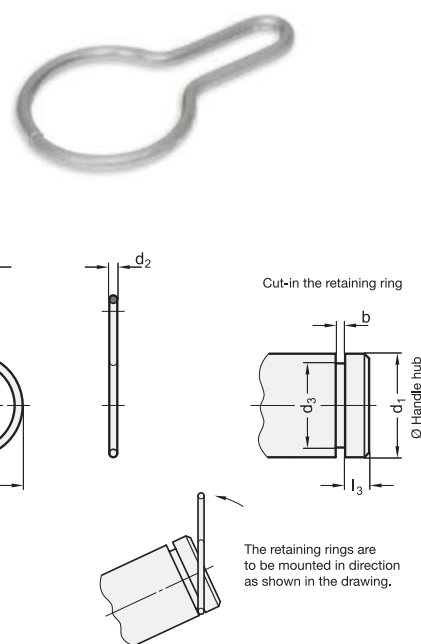
INFORMATION

Retaining rings GN 111.6 are normally used together with ball chains or retaining cables.

One typical application involves making e.g. knurled screws captive, for instance.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 111.3

STAINLESS STEEL

Description	d1	d2	⚖
GN 111.3-14	14*	1	1
GN 111.3-18	18**	1.3	1
GN 111.3-24	24	1.5	1
GN 111.3-30	30	1.8	4

GN 111.6

STAINLESS STEEL

Description	d1	d2	d3 -0.1 b +0.2	l1	l2	l3 +0.3	⚖	
GN 111.6-12	12	1.4	9.1	1.7	16	5.6	2.5	1
GN 111.6-14	14	1.5	10.9	1.8	17	6	3.2	1
GN 111.6-15	15	1.5	11.9	1.8	17	6	3.2	1
GN 111.6-16	16	1.5	12.9	1.8	17	6	3.2	1
GN 111.6-17	17	1.6	13.7	1.9	19	6.4	3.9	1
GN 111.6-18	18	1.6	14.7	1.9	19	6.4	3.9	1
GN 111.6-19	19	1.6	15.7	1.9	19	6.4	3.9	1
GN 111.6-20	20	1.6	16.7	1.9	19	6.4	3.9	1
GN 111.6-21	21	1.7	17.5	2	20	6.8	5.1	1
GN 111.6-22	22	1.7	18.5	2	20	6.8	5.1	1
GN 111.6-23	23	1.7	19.5	2	20	6.8	5.1	2
GN 111.6-24	24	1.7	20.5	2	20	6.8	5.1	2
GN 111.6-26	26	1.8	22.3	2.1	21	7.2	5.4	2



Ball chains

with two key rings

SPECIFICATION

Ball chain
Brass, nickel plated

Key ring
Stainless Steel AISI 301

Suitable for ball lock pins and pins with axial lock (see pages 870):

* GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins $\varnothing 5$, $\varnothing 6$, $\varnothing 8$

and

* GN 113.5, GN 113.6, GN 114.2, GN 114.3, GN 114.6, GN 124.1, GN 124.2 for all pins

** GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins $\varnothing 10$, $\varnothing 12$, $\varnothing 16$, $\varnothing 20$

INFORMATION

Ball chains GN 111 are mainly used in connection with ball lock pins and pins with axial lock.

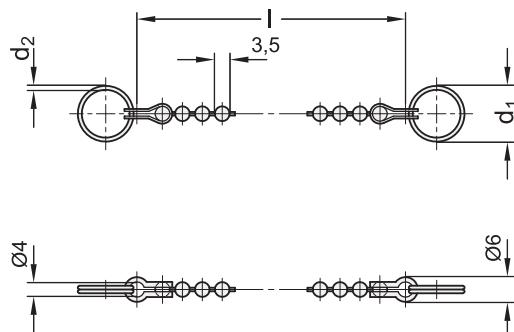
The key rings are supplied unmounted. Both rings have the same $\varnothing d_1$.

The load values given in the above table at shear stress are theoretically obtained and indicative only.

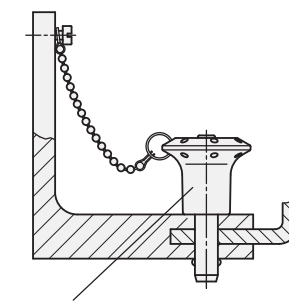
They are non-binding recommended values and rule out any liability.

ACCESSORY

- Single key rings are supplied with code no. GN 111.3-d1 (see page 903)



Application example



Locking pins
Ball lock pins

GN 111

Description	$l \pm 3$	d_1	d_2	Static load in N $\approx$ with key ring	Static load in N $\approx$ without key ring	
GN 111-200-14	200	14*	1	50	180	7
GN 111-200-18	200	18**	1.3	90	180	9
GN 111-200-24	200	24	1.5	100	180	9
GN 111-200-30	200	30	1.8	120	180	9
GN 111-320-14	320	14*	1	50	180	10
GN 111-320-18	320	18**	1.3	90	180	11
GN 111-320-24	320	24	1.5	100	180	13
GN 111-320-30	320	30	1.8	120	180	15
GN 111-500-14	500	14*	1	50	180	14
GN 111-500-18	500	18**	1.3	90	180	15
GN 111-500-24	500	24	1.5	100	180	15
GN 111-500-30	500	30	1.8	120	180	20
GN 111-1000-14	1000	14*	1	50	180	28
GN 111-1000-18	1000	18**	1.3	90	180	30
GN 111-1000-24	1000	24	1.5	100	180	30
GN 111-1000-30	1000	30	1.8	120	180	32

Stainless Steel-Ball chains

with two key rings

SPECIFICATION

Ball chain
Stainless Steel AISI 304

Key ring
Stainless Steel AISI 301

Suitable for ball lock pins and pins with axial lock (see pages 870):

* GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 5, Ø 6, Ø 8

and

* GN 113.5, GN 113.6, GN 114.2, GN 114.3, GN 114.6, GN 124.1, GN 124.2 for all pins

** GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 10, Ø 12, Ø 16, Ø 20



INFORMATION

Ball chains GN 111.5 are mainly used in connection with ball lock pins and pins with axial lock.

The key rings are supplied unmounted. Both rings have the same Ø d₁.

The load values given in the above table at shear stress are theoretically obtained and indicative only.

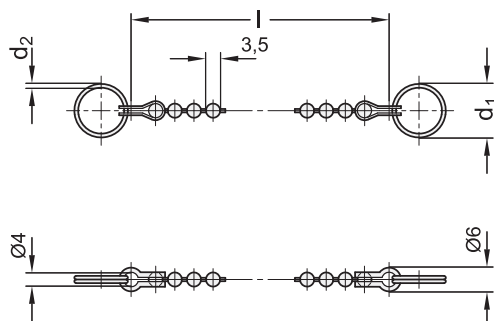
They are non-binding recommended values and rule out any liability.

TECHNICAL INFORMATION

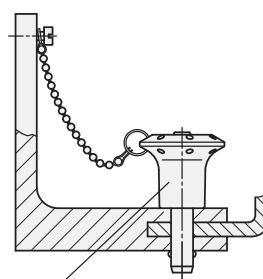
- Stainless Steel characteristics (see page A26)

ACCESSORY

- Single key rings are supplied with code no. GN 111.3-d₁ (see page 903)



Application example



Locking pins
Ball lock pins

GN 111.5

STAINLESS STEEL

Description	l ±3	d1	d2	Static load in N ≈ with key ring	Static load in N ≈ without key ring	⚖
GN 111.5-200-14	200	14*	1	50	180	5
GN 111.5-200-18	200	18**	1.3	90	180	10
GN 111.5-200-24	200	24	1.5	100	180	16
GN 111.5-200-30	200	30	1.8	120	180	20
GN 111.5-320-14	320	14*	1	50	180	10
GN 111.5-320-18	320	18**	1.3	90	180	15
GN 111.5-320-24	320	24	1.5	100	180	21
GN 111.5-320-30	320	30	1.8	120	180	25
GN 111.5-500-14	500	14*	1	50	180	10
GN 111.5-500-18	500	18**	1.3	90	180	16
GN 111.5-500-24	500	24	1.5	100	180	18
GN 111.5-500-30	500	30	1.8	120	180	20
GN 111.5-1000-14	1000	14*	1	50	180	18
GN 111.5-1000-18	1000	18**	1.3	90	180	30
GN 111.5-1000-24	1000	24	1.5	100	180	35
GN 111.5-1000-30	1000	30	1.8	120	180	50



Stainless Steel-Retaining cables

with 2 mounting tabs

SPECIFICATION

Types

- Type **A**: with 2 key rings
- Type **B**: with tab and key ring
- Type **C**: with 2 tabs
- Type **D**: without tab and without key ring

Retaining cable
Stainless Steel A2
coated with clear plastic (PVC)

Tab
Stainless Steel AISI 304

Key ring
Stainless Steel AISI 301

Suitable for ball lock pins and locking pins with axial lock
(see pages 870):

* GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3,
GN 214.6 for pins Ø 5, Ø 6, Ø 8

and

* GN 113.5, GN 113.6, GN 114.2, GN 114.3, GN 114.6, GN 124.1, GN 124.2
for all pins

** GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2,
GN 214.3, GN 214.6 for pins Ø 10, Ø 12, Ø 16, Ø 20

INFORMATION

The key rings are supplied fixed to the retaining cable. In Type A, both rings have the same diameter d_1 .

The details on static loads are guide values given without warranty.

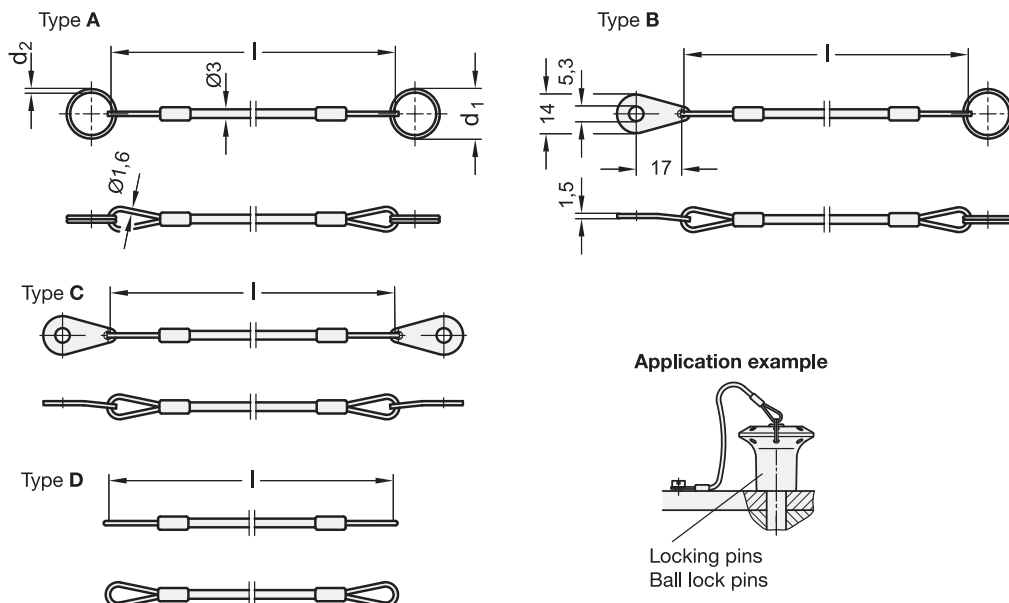
Type A and B are suitable for ball lock pins and pins with axial lock:

TECHNICAL INFORMATION

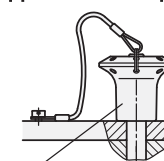
- Stainless Steel characteristics (see page A26)

ACCESSORY

- Single key rings are supplied with code no. GN 111.3- d_1
(see page 903)



Application example



Locking pins
Ball lock pins

GN 111.2

STAINLESS STEEL

Description	l	d1	d2	Static load in N ≈ with key ring	Static load in N ≈ without key ring	Static load in N ≈	⚖
GN 111.2-150-14-A	150	14 *	1	50	1800	-	5
GN 111.2-150-18-A	150	18 **	1.3	90	1800	-	7
GN 111.2-150-24-A	150	24	1.5	100	1800	-	8
GN 111.2-150-30-A	150	30	1.8	120	1800	-	12
GN 111.2-200-14-A	200	14 *	1	50	1800	-	6
GN 111.2-200-18-A	200	18 **	1.3	90	1800	-	8
GN 111.2-200-24-A	200	24	1.5	100	1800	-	9
GN 111.2-200-30-A	200	30	1.8	120	1800	-	13
GN 111.2-320-14-A	320	14 *	1	50	1800	-	9
GN 111.2-320-18-A	320	18 **	1.3	90	1800	-	10
GN 111.2-320-24-A	320	24	1.5	100	1800	-	11
GN 111.2-320-30-A	320	30	1.8	120	1800	-	15
GN 111.2-500-14-A	500	14 *	1	50	1800	-	12
GN 111.2-500-18-A	500	18 **	1.3	90	1800	-	14
GN 111.2-500-24-A	500	24	1.5	100	1800	-	15
GN 111.2-500-30-A	500	30	1.8	120	1800	-	20
GN 111.2-150-14-B	150	14 *	1	50	1800	-	7
GN 111.2-150-18-B	150	18 **	1.3	90	1800	-	7
GN 111.2-150-24-B	150	24	1.5	100	1800	-	7
GN 111.2-150-30-B	150	30	1.8	120	1800	-	10
GN 111.2-200-14-B	200	14 *	1	50	1800	-	7
GN 111.2-200-18-B	200	18 **	1.3	90	1800	-	8
GN 111.2-200-24-B	200	24	1.5	100	1800	-	11
GN 111.2-200-30-B	200	30	1.8	120	1800	-	15
GN 111.2-320-14-B	320	14 *	1	50	1800	-	10
GN 111.2-320-18-B	320	18 **	1.3	90	1800	-	11
GN 111.2-320-24-B	320	24	1.5	100	1800	-	12
GN 111.2-320-30-B	320	30	1.8	120	1800	-	16
GN 111.2-500-14-B	500	14 *	1	50	1800	-	13
GN 111.2-500-18-B	500	18 **	1.3	90	1800	-	15
GN 111.2-500-24-B	500	24	1.5	100	1800	-	18
GN 111.2-500-30-B	500	30	1.8	120	1800	-	21
GN 111.2-150-C	150	-	-	-	-	1800	10
GN 111.2-200-C	200	-	-	-	-	1800	10
GN 111.2-320-C	320	-	-	-	-	1800	12
GN 111.2-500-C	500	-	-	-	-	1800	12
GN 111.2-150-D	150	-	-	-	-	1800	4
GN 111.2-200-D	200	-	-	-	-	1800	5
GN 111.2-320-D	320	-	-	-	-	1800	7
GN 111.2-500-D	500	-	-	-	-	1800	10



Spiral retaining cables

with two key rings

SPECIFICATION

Spiral retaining cable
Plastic (Polyuretan PUR)
black

Fixing loop
Copper, tin-plated

Key rings
Stainless Steel

Suitable for ball lock pins and pins with axial lock (see pages 870) :

* GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 5, Ø 6, Ø 8

and

* GN 113.5, GN 113.6, GN 114.2, GN 114.3, GN 114.6, GN 124.1, GN 124.2 for all pins

** 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 10, Ø 12, Ø 16, Ø 20



INFORMATION

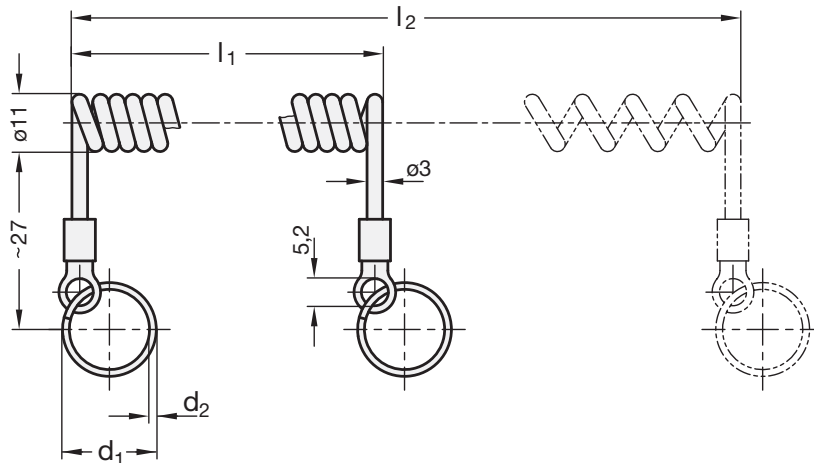
Spiral retaining cables GN 111.4 are used in connection with low weight elements e. g. ball lock pins and pins with axial lock.

They are distinguished for a large "useable length".

The key rings are supplied unmounted. Both rings have the same Ø d₁.

ACCESSORY

- Single key rings are supplied with code no. GN 111.3-d₁ (see page 903)



GN 111.4

Description	l1 ±3	d1	l2 max. ≈	d2	Static load in N ≈ with key ring	Static load in N ≈ without key ring	⚖
GN 111.4-50-14	50	14*	250	1	50	60	10
GN 111.4-50-18	50	18**	250	1.3	60	60	10
GN 111.4-50-24	50	24	250	1.5	60	60	25
GN 111.4-100-14	100	14*	500	1	50	60	11
GN 111.4-100-18	100	18**	500	1.3	60	60	17
GN 111.4-100-24	100	24	500	1.5	60	60	12
GN 111.4-200-14	200	14*	1000	1	50	60	17
GN 111.4-200-18	200	18**	1000	1.3	60	60	17
GN 111.4-200-24	200	24	1000	1.5	60	60	18

Spring cotter pins

Steel / Stainless Steel

SPECIFICATION

Types

- Type **E**: with single winding
- Type **D**: with double winding

Version in Steel **ST**

zinc plated, blue passivated

Version in Stainless Steel **NI**

AISI 303

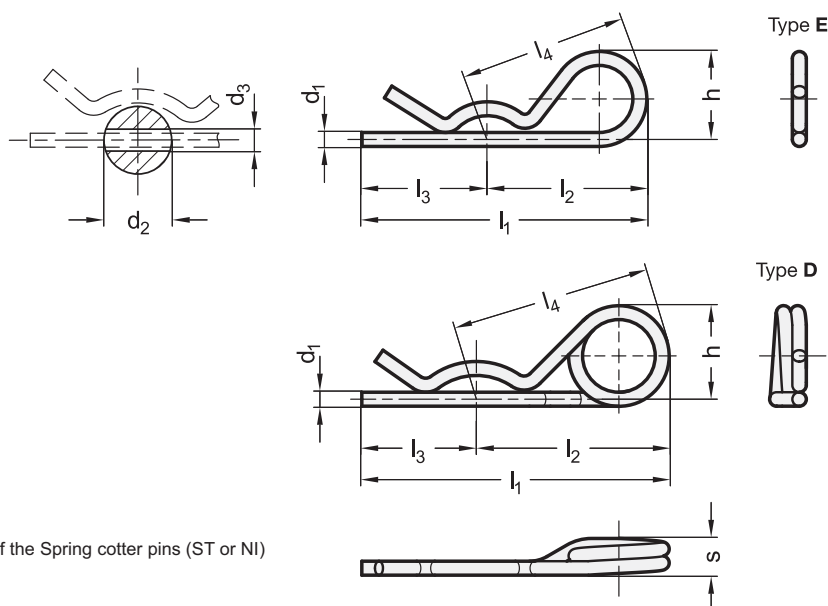
INFORMATION

Spring cotter pins GN 1024 are used for the axial fixing of bolts and axes and as distortion guard, e.g. for crown nuts DIN 935.

Owing to their double winding, spring cotter pins of Type D have a flatter spring characteristic and are therefore easier to install. Also, a retaining rope inclding a key ring can be attached to the double winding to safeguard the spring cotter pins against loss.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with material index of the Spring cotter pins (ST or NI)

ST
Steel

NI
Stainless Steel

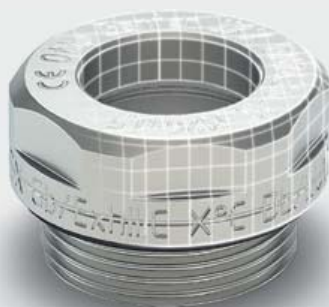
GN 1024

STAINLESS STEEL

Description	d1	d2	d3	h	l1	l2	l3	l4	s	Load in N ≈ Mounting	Load in N ≈ Dismantling	Load in N ≈ for bolt Ø	⚖
GN 1024-*1.5-E	1.5	7 ... 12	2	9	45	25	20	25	-	9	8	8	1
GN 1024-*2-E	2	9 ... 14	2.5	13	57	32	25	34	-	14	9	12	3
GN 1024-*3-E	3	10 ... 16	3.5	23	72	42	30	44	-	55	40	16	9
GN 1024-*4-E	4	16 ... 20	4.5	27	74	44	30	48	-	210	170	20	17
GN 1024-*5-E	5	20 ... 28	5.5	32	102	57	45	61	-	280	210	25	34
GN 1024-*6-E	6	28 ... 40	6.5	42	126	73	53	77	-	240	150	30	60
GN 1024-*2-D	2	8 ... 14	2.5	14	56	31	25	33	5.5	10	9	12	4
GN 1024-*3-D	3	14 ... 20	3.5	22	73	43	30	47	8	35	28	16	12
GN 1024-*4-D	4	17 ... 24	4.5	32	94	58	36	62	10.5	50	35	20	29
GN 1024-*5-D	5	18 ... 30	5.5	35	110	70	40	73	13.5	100	95	25	53
GN 1024-*6-D	6	24 ... 36	6.5	41	142	85	57	90	16	190	125	30	93
GN 1024-*7-D	7**	26 ... 40	7.5	42	152	92	60	96	19	350	210	40	135

** only available in steel





Plugs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING

NBR synthetic rubber.

STANDARD EXECUTIONS

- **TN.**: without side hole.
- **TNF.**: with side breather hole.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

TECHNICAL DATA

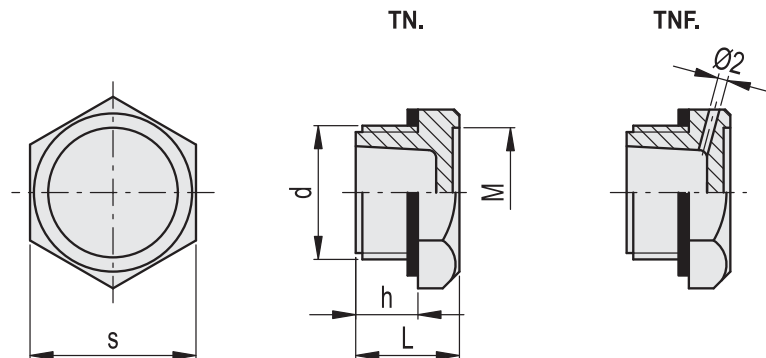
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

ACCESSORIES ON REQUEST

TN. plugs are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).



ELESA Original design



TN.

TNF.

Code	Description	Code	Description	d	h	s	L	M	Tightening torque [Nm]	⚖
58284	TN.10x1.5	58334	TNF.10x1.5	M10x1.5	9	19	16	15	4÷5	4
58285	TN.12x1.5	58335	TNF.12x1.5	M12x1.5	9	19	16	15	6÷8	4
58286	TN.14x1.5	58336	TNF.14x1.5	M14x1.5	9	19	16	15	6÷8	5
58287	TN.16x1.5	58337	TNF.16x1.5	M16x1.5	9	22	16	17	8÷10	7
58288	TN.18x1.5	58338	TNF.18x1.5	M18x1.5	11	26	18	20.5	8÷10	8
58289	TN.20x1.5	58339	TNF.20x1.5	M20x1.5	11	26	18	20.5	8÷10	8
58290	TN.22x1.5	58340	TNF.22x1.5	M22x1.5	12	32	20	25	10÷12	12
58291	TN.25x1.5	58343	TNF.25x1.5	M25x1.5	12	32	20	25	10÷12	12
58292	TN.26x1.5	58344	TNF.26x1.5	M26x1.5	12	32	20	25	10÷12	14
58293	TN.35x1.5	58345	TNF.35x1.5	M35x1.5	13	38	22	31	15÷18	15
58401	TN.40x1.5	58451	TNF.40x1.5	M40x1.5	14	46	24	38	15÷18	20
58294	TN.1/8	58346	TNF.1/8	G 1/8	9	19	16	15	4÷6	4
58295	TN.1/4	58347	TNF.1/4	G 1/4	9	19	16	15	4÷6	4
58296	TN.3/8	58348	TNF.3/8	G 3/8	9	22	16	17	8÷10	5
58297	TN.1/2	58349	TNF.1/2	G 1/2	11	26	18	20.5	8÷10	8
58298	TN.3/4	58350	TNF.3/4	G 3/4	12	32	20	25	10÷12	14
58299	TN.1	58353	TNF.1	G 1	13	38	22	31	12÷15	18
58411	TN.1¼	58461	TNF.1 ¼	G 1 ¼	14	46	24	38	15÷18	20
58413	TN.1½	58463	TNF.1 ½	G 1 ½	15	55	26	46	15÷18	24

Plugs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING

NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C

ATEX DIRECTIVE COMPLIANCE

The plugs of the TN-EX series comply with Health and Safety Requirements intended in 94/9/EC ATEX European Directive (explosive atmospheres) for equipments in Group II, category 2GD. Plugs have "k" protection degree and can therefore be mounted in equipments protected by means of "immersion in liquid", without lowering protection degree.

II 2 G D k T5, marked on the TN-EX plugs, represents the identification according to ATEX directive.

II: group of substances for which the product is suitable

2: identification of the category

G: identification of the type of explosive atmosphere (Gases or vapours)

D: identification of the type of explosive atmosphere (Dust)

k: protection degree by means of immersion in liquid

T5: temperature class

Ambient and/or fluid temperature: -30 ÷ +100°C

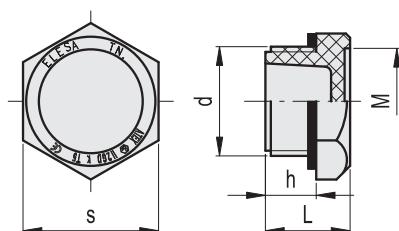
The declaration of conformity to European Directives of this product is available and it is part of the product itself.

TECHNICAL DATA

The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.



ELESA Original design



Code	Description	d	h	s	L	M	Tightening torque [Nm]	
58296-EX	TN.3/8-EX	G 3/8	9	22	16	17	8÷10	5
58297-EX	TN.1/2-EX	G 1/2	11	26	18	20.5	8÷10	8
58298-EX	TN.3/4-EX	G 3/4	12	32	20	25	10÷12	14

Labels with marks and symbols

for oil plugs, aluminium

MATERIAL

Matte anodised aluminium.

Self-adhesive back for sticking to the plain surface of the plug head.

STANDARDIZED GRAPHIC SYMBOLS

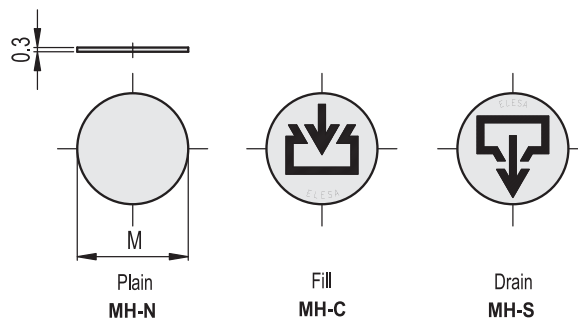
- **MH-N**: plain surface, without symbols.
- **MH-C**: with graphic symbol "fill" according to DIN regulations.
- **MH-S**: with graphic symbol "drain" according to DIN regulations.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

APPLICATIONS

The plates with graphic symbols for oil plugs are suitable for the application on plugs type TN. (see page 1664), TNR. (see page 1666), TN-EX (see page 1665), TCR. (see page 1667), TCD. (see page 1668), TSD. (see page 1670) and TSR. (see page 1671).



MH-N

MH-C

MH-S

Code	Description	Code	Description	Code	Description	M*Ø
39501	MH.19-N	39521	MH.19-C	39541	MH.19-S	15
39503	MH.22-N	39523	MH.22-C	39543	MH.22-S	17
39505	MH.26-N	39525	MH.26-C	39545	MH.26-S	20.5
39507	MH.32-N	39527	MH.32-C	39547	MH.32-S	25
39509	MH.38-N	39529	MH.38-C	39549	MH.38-S	31

M* = diameter of the seat of the correspondent plug.

Plugs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING

NBR synthetic rubber O-Ring.

The positioning of the O-Ring in its housing guarantees a high tightening torque.

STANDARD EXECUTIONS

- **TNR.**: without side hole.
- **TNRF.**: with side breather hole.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

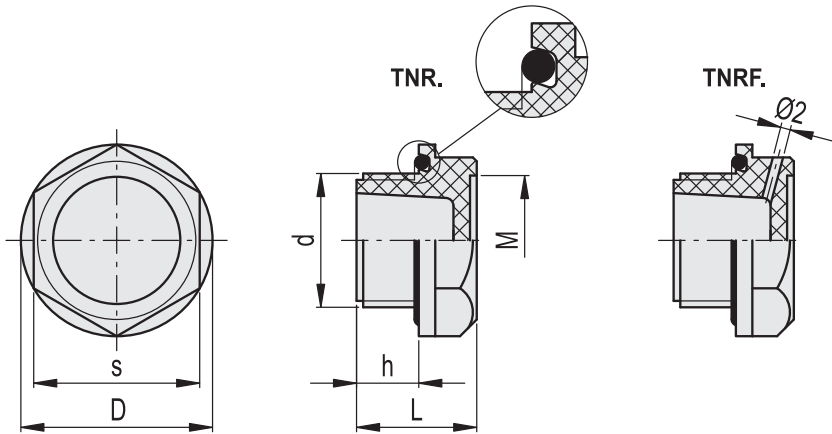
100°C.

ACCESSORIES ON REQUEST

TNR. plugs are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).



ELESA Original design



TNR.

TNRF.

Code	Description	Code	Description	d	h	s	D	L	M	Tightening torque [Nm]	⚖
158295	TNR.1/4	158495	TNRF.1/4	G 1/4	9	19	22	17	15	4÷6	4
158296	TNR.3/8	158496	TNRF.3/8	G 3/8	9	22	25.5	18	17	8÷10	6
158297	TNR.1/2	158497	TNRF.1/2	G 1/2	11	27	32	20	20.5	8÷10	8
158298	TNR.3/4	158498	TNRF.3/4	G 3/4	12	32	37	22	25	10÷12	14
158299	TNR.1	158499	TNRF.1	G 1	13	38	44	23	31	12÷15	18
158411	TNR.1 ¼	158611	TNRF.1 ¼	G1 1/4	14	46	53.5	26	38	15÷18	32
158413	TNR.1 ½	158613	TNRF.1 ½	G1 1/2	15	55	63.5	28	46	15÷18	51

Oil fill plugs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING

NBR synthetic rubber O-Ring.
The positioning of the O-Ring in its housing guarantees a high tightening torque.

STANDARD EXECUTIONS

- **TCR.:** without side hole.
- **TCRF.:** with side breather hole.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

GRAPHIC SYMBOL "FILL"

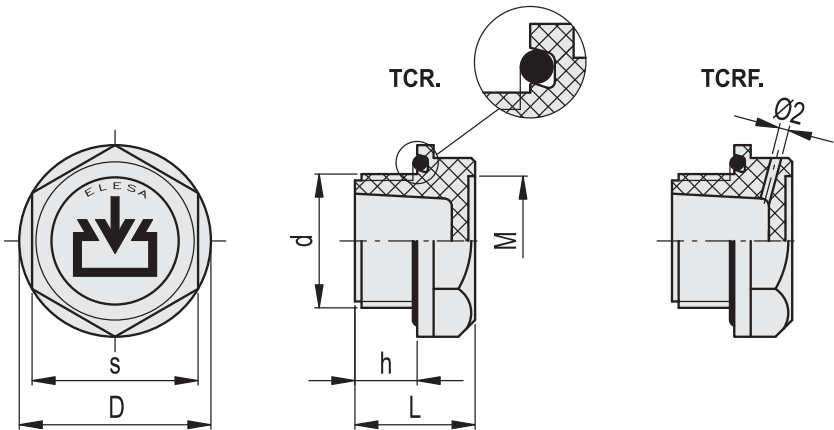
According to DIN regulations.

ACCESSORIES ON REQUEST

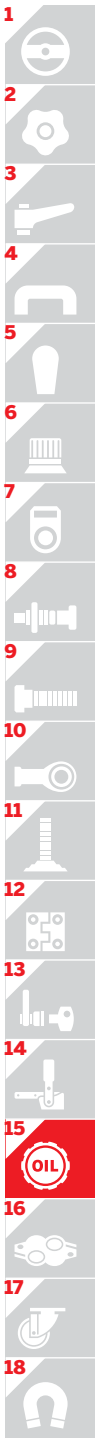
TCR. oil fill plugs are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).



ELESA Original design



TCR.		TCRF.		d	h	s	D	L	M	Tightening torque [Nm]	⚖
158695	TCR.1/4	158795	TCRF.1/4	G 1/4	9	19	22	17	15	4÷6	4
158696	TCR.3/8	158796	TCRF.3/8	G 3/8	9	22	25.5	18	17	8÷10	6
158697	TCR.1/2	158797	TCRF.1/2	G 1/2	11	27	32	20	20.5	8÷10	8
158698	TCR.3/4	158798	TCRF.3/4	G 3/4	12	32	37	22	25	10÷12	14
158699	TCR.1	158799	TCRF.1	G 1	13	38	44	23	31	12÷15	18
158711	TCR.1¼	158811	TCRF.1¼	G1 1/4	14	46	53.5	26	38	15÷18	32
158713	TCR.1½	158813	TCRF.1½	G1 1/2	15	55	63.5	28	46	15÷18	51



Oil fill plugs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING

NBR synthetic rubber.

STANDARD EXECUTIONS

- **TCD.**: without side hole.
- **TCDF.**: with side breather hole.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

GRAPHIC SYMBOL "FILL"

According to DIN regulations.

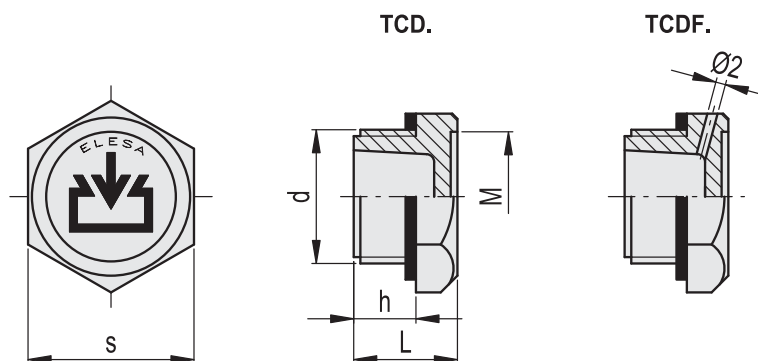
TECHNICAL DATA

The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

ACCESSORIES

TCD. oil fill plugs are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).

ELESA Original design



TCD.

TCDF.

Code	Description	Code	Description	d	h	s	L	M	Tightening torque [Nm]	⚖
58551	TCD.10x1.5	58651	TCDF.10x1.5	M10x1.5	9	19	16	15	4÷5	4
58553	TCD.12x1.5	58653	TCDF.12x1.5	M12x1.5	9	19	16	15	6÷8	4
58555	TCD.14x1.5	58655	TCDF.14x1.5	M14x1.5	9	19	16	15	6÷8	5
58557	TCD.16x1.5	58657	TCDF.16x1.5	M16x1.5	9	22	16	17	8÷10	7
58559	TCD.18x1.5	58659	TCDF.18x1.5	M18x1.5	11	26	18	20.5	8÷10	8
58561	TCD.20x1.5	58661	TCDF.20x1.5	M20x1.5	11	26	18	20.5	8÷10	8
58563	TCD.22x1.5	58663	TCDF.22x1.5	M22x1.5	12	32	20	25	10÷12	12
58565	TCD.25x1.5	58665	TCDF.25x1.5	M25x1.5	12	32	20	25	10÷12	12
58569	TCD.26x1.5	58681	TCDF.26x1.5	M26x1.5	12	32	20	25	10÷12	14
58567	TCD.35x1.5	58667	TCDF.35x1.5	M35x1.5	13	38	22	31	15÷18	15
58571	TCD.40x1.5	58683	TCDF.40x1.5	M40x1.5	14	46	24	38	15÷18	20
58591	TCD.1/8	58669	TCDF.1/8	G 1/8	9	19	16	15	4÷6	4
58601	TCD.1/4	58671	TCDF.1/4	G 1/4	9	19	16	15	4÷6	4
58611	TCD.3/8	58673	TCDF.3/8	G 3/8	9	22	16	17	8÷10	5
58621	TCD.1/2	58675	TCDF.1/2	G 1/2	11	26	18	20.5	8÷10	8
58631	TCD.3/4	58677	TCDF.3/4	G 3/4	12	32	20	25	10÷12	14
58641	TCD.1	58679	TCDF.1	G 1	13	38	22	31	12÷15	18
58643	TCD.1¼	58685	TCDF.1¼	G1 1/4	14	46	24	38	15÷18	20
58645	TCD.1½	58687	TCDF.1½	G1 1/2	15	55	26	46	15÷18	24

Oil fill plugs

with flat dipstick, technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING

NBR synthetic rubber.

FLAT DIPSTICK

Flat section phosphatised steel.

On request and for sufficient quantities dipstick can be supplied in different lengths and/or complete with MAX-MIN level lines.

STANDARD EXECUTIONS

- **TCD+a**: without side hole.
- **TCDF+a**: with side breather hole.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

GRAPHIC SYMBOL "FILL"

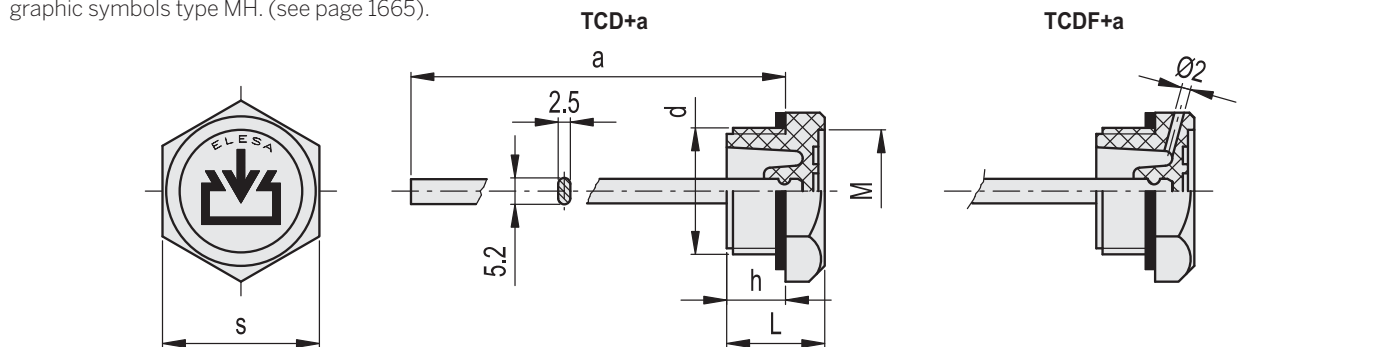
According to DIN regulations.

TECHNICAL DATA

The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

ACCESSORIES

TCD+a oil fill plugs are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).



TCD+a

Code	Description	d	h	s	L	M	a	Tightening torque [Nm]	△
59501	TCD.10x1.5+a	M10x1.5	9	19	16	15	120	4÷5	21
59503	TCD.12x1.5+a	M12x1.5	9	19	16	15	120	6÷8	21
59505	TCD.14x1.5+a	M14x1.5	9	19	16	15	120	6÷8	22
59507	TCD.16x1.5+a	M16x1.5	9	22	16	17	120	8÷10	22
59509	TCD.18x1.5+a	M18x1.5	11	26	18	20.5	195	8÷10	36
59511	TCD.20x1.5+a	M20x1.5	11	26	18	20.5	195	8÷10	37
59513	TCD.22x1.5+a	M22x1.5	12	32	20	25	195	10÷12	40
59515	TCD.25x1.5+a	M25x1.5	12	32	20	25	195	10÷12	40
59517	TCD.26x1.5+a	M26x1.5	12	32	20	25	195	10÷12	42
59519	TCD.35x1.5+a	M35x1.5	13	38	22	31	195	15÷18	44
59523	TCD.40x1.5+a	M40x1.5	14	46	24	38	195	15÷18	49
59531	TCD.1/8+a	G 1/8	9	19	16	15	120	4÷6	22
59533	TCD.1/4+a	G 1/4	9	19	16	15	120	4÷6	22
59535	TCD.3/8+a	G 3/8	9	22	16	17	120	8÷10	22
59537	TCD.1/2+a	G 1/2	11	26	18	20.5	195	8÷10	37
59539	TCD.3/4+a	G 3/4	12	32	20	25	195	10÷12	40
59541	TCD.1+a	G 1	13	38	22	31	195	12÷15	44
59543	TCD.1¼+a	G 1¼	14	46	24	38	195	15÷18	49
59545	TCD.1½+a	G 1½	15	55	26	46	195	15÷18	53

TCDF+a

Code	Description	d	h	s	L	M	a	Tightening torque [Nm]	△
59557	TCDF.16x1.5+a	M16x1.5	9	22	16	17	120	8÷10	15
59559	TCDF.18x1.5+a	M18x1.5	11	26	18	20.5	195	8÷10	30
59561	TCDF.20x1.5+a	M20x1.5	11	26	18	20.5	195	8÷10	30
59563	TCDF.22x1.5+a	M22x1.5	12	32	20	25	195	10÷12	35
59565	TCDF.25x1.5+a	M25x1.5	12	32	20	25	195	10÷12	35
59567	TCDF.26x1.5+a	M26x1.5	12	32	20	25	195	10÷12	35
59569	TCDF.35x1.5+a	M35x1.5	13	38	22	31	195	15÷18	40
59573	TCDF.40x1.5+a	M40x1.5	14	46	24	38	195	15÷18	49
59585	TCDF.3/8+a	G 3/8	9	22	16	17	120	8÷10	20
59587	TCDF.1/2+a	G 1/2	11	26	18	20.5	195	8÷10	30
59589	TCDF.3/4+a	G 3/4	12	32	20	25	195	10÷12	35
59591	TCDF.1+a	G 1	13	38	22	31	195	12÷15	45
59595	TCDF.1¼+a	G 1¼	14	46	24	38	195	15÷18	49
59597	TCDF.1½+a	G 1½	15	55	26	46	195	15÷18	53



Oil drain plugs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, red colour similar to RAL 3000, matte finish.

FLAT PACKING RING

NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

GRAPHIC SYMBOL "DRAIN"

According to DIN regulations.

TECHNICAL DATA

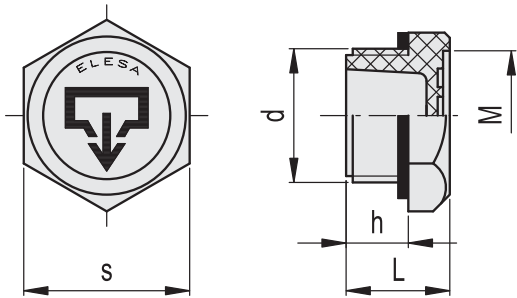
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

ACCESSORIES ON REQUEST

TSD. oil fill plugs are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).



ELESA Original design



Code	Description	d	h	s	L	M	Tightening torque [Nm]	⚖
59942	TSD.10x1.5	M10x1.5	9	19	16	15	4÷5	4
59944	TSD.12x1.5	M12x1.5	9	19	16	15	6÷8	4
59946	TSD.14x1.5	M14x1.5	9	19	16	15	6÷8	5
59948	TSD.16x1.5	M16x1.5	9	22	16	17	8÷10	7
59950	TSD.18x1.5	M18x1.5	11	26	18	20.5	8÷10	8
59952	TSD.20x1.5	M20x1.5	11	26	18	20.5	8÷10	8
59954	TSD.22x1.5	M22x1.5	12	32	20	25	10÷12	12
59956	TSD.25x1.5	M25x1.5	12	32	20	25	10÷12	12
59958	TSD.26x1.5	M26x1.5	12	32	20	25	10÷12	14
59960	TSD.35x1.5	M35x1.5	13	38	22	31	15÷18	15
59964	TSD.40x1.5	M40x1.5	14	46	24	38	15÷18	20
59972	TSD.1/8	G 1/8	9	19	16	15	4÷6	4
59974	TSD.1/4	G 1/4	9	19	16	15	4÷6	4
59976	TSD.3/8	G 3/8	9	22	16	17	8÷10	5
59978	TSD.1/2	G 1/2	11	26	18	20.5	8÷10	8
59980	TSD.3/4	G 3/4	12	32	20	25	10÷12	14
59982	TSD.1	G 1	13	38	22	31	15÷18	18
59986	TSD.1¼	G1 1/4	14	46	24	38	15÷18	20
59988	TSD.1½	G1 1/2	15	55	26	46	15÷18	24

Oil drain plugs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, red colour similar to RAL 3000, matte finish.

PACKING RING

NBR synthetic rubber O-Ring.
The positioning of the O-Ring in its housing guarantees a high tightening torque.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

GRAPHIC SYMBOL "DRAIN"

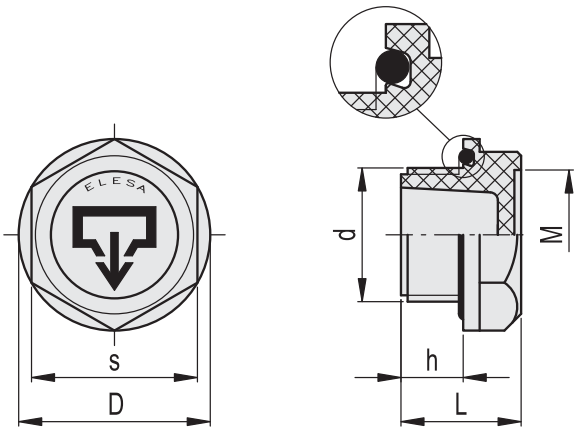
According to DIN regulations.

ACCESSORIES ON REQUEST

TSR. oil fill plugs are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).



ELESA Original design



Code	Description	d	h	s	D	L	M	Tightening torque [Nm]	⚖
158895	TSR.1/4	G 1/4	9	19	22	17	15	4÷6	4
158896	TSR.3/8	G 3/8	9	22	25.5	18	17	8÷10	6
158897	TSR.1/2	G 1/2	11	27	32	20	20.5	8÷10	8
158898	TSR.3/4	G 3/4	12	32	37	22	25	10÷12	14
158899	TSR.1	G 1	13	38	44	23	31	12÷15	18
158911	TSR.1¼	G1 1/4	14	46	53.5	26	38	15÷18	32
158913	TSR.1½	G1 1/2	15	55	63.5	28	46	15÷18	51



Threaded plugs

Aluminium, up to 100 °C

SPECIFICATION

Types

- Type **OS**: neutral, blank
- Type **OSS**: neutral, black anodized
- Type **ES**: with DIN re-fill symbol, blank
- Type **ESS**: with DIN re-fill symbol, black anodized
- Type **AS**: with DIN drain symbol, blank
- Type **ASS**: with DIN drain symbol, black anodized

Identification no.

- No. **1**: without vent drilling
- No. **2**: with vent drilling

Aluminium

- Type OS, ES and AS: fine turned, blank
- Type OSS, ESS and ASS: fine turned, black anodized
- Symbol laser engraved

Temperature resistant up to **100 °C**

Sealing ring rubbers NBR (Perbunan)

INFORMATION

Threaded plugs GN 741 are fitted with outside diameter d_1 to suit screw holes with BSP threads to DIN 3852.

The sealing ring is bedded into a undercut groove which prevents it from dropping out and at the same time stops it from being extruded when tightening the cap.

ON REQUEST

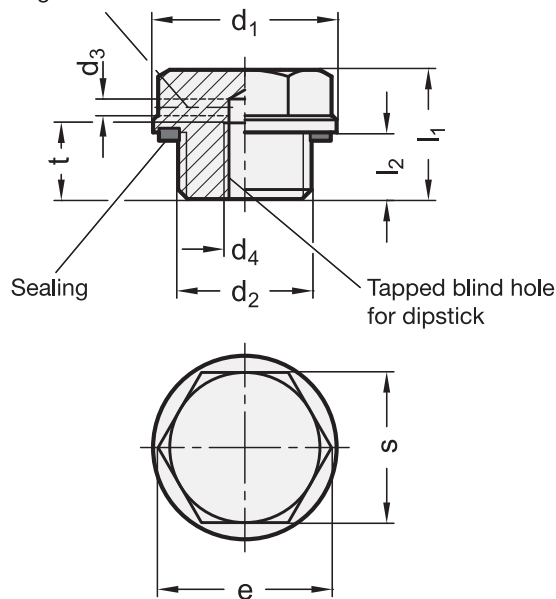
- with dipstick

TECHNICAL INFORMATION

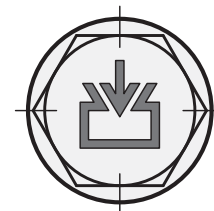
- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)



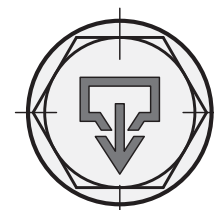
Air vent drilling



Re-fill symbol



Drain symbol



* Complete with type index of the Threaded plugs

OS OSS ES ESS AS ASS

GN 741

Description	d1	d2	d3	d4	l1	l2	s	e ≈	t min.	⚖
GN 741-19-M14x1,5-*1	19	M 14 x 1.5	2	M 5	15.5	8	15	17.3	8	7
GN 741-19-M14x1,5-*2	19	M 14 x 1.5	2	M 5	15.5	8	15	17.3	8	7
GN 741-22-M16x1,5-*1	22	M 16 x 1.5	2	M 5	15.5	8	18	20.8	8	10
GN 741-22-M16x1,5-*2	22	M 16 x 1.5	2	M 5	15.5	8	18	20.8	8	10
GN 741-26-M20x1,5-*1	26	M 20 x 1.5	2	M 5	16	8.5	21	24.3	8	16
GN 741-26-M20x1,5-*2	26	M 20 x 1.5	2	M 5	16	8.5	21	24.3	8	15
GN 741-32-M26x1,5-*1	32	M 26 x 1.5	2	M 5	17	9	27	31.2	8	26
GN 741-32-M26x1,5-*2	32	M 26 x 1.5	2	M 5	17	9	27	31.2	8	25
GN 741-32-M27x1,5-*1	32	M 27 x 1.5	2	M 5	17	9	27	31.2	8	27
GN 741-32-M27x1,5-*2	32	M 27 x 1.5	2	M 5	17	9	27	31.2	8	27
GN 741-40-M33x1,5-*1	40	M 33 x 1.5	2	M 5	19.5	11	32	37	8	47
GN 741-40-M33x1,5-*2	40	M 33 x 1.5	2	M 5	19.5	11	32	37	8	47
GN 741-50-M40x1,5-*1	50	M 40 x 1.5	2	M 5	21	12	41	47.3	8	2
GN 741-50-M40x1,5-*2	50	M 40 x 1.5	2	M 5	21	12	41	47.3	8	2
GN 741-50-M42x1,5-*1	50	M 42 x 1.5	2	M 5	21	12	41	47.3	8	2
GN 741-50-M42x1,5-*2	50	M 42 x 1.5	2	M 5	21	12	41	47.3	8	2
GN 741-50-M42x2-*1	50	M 42 x 2	2	M 5	21	12	41	47.3	8	2
GN 741-50-M42x2-*2	50	M 42 x 2	2	M 5	21	12	41	47.3	8	2
GN 741-19-G1/4-*1	19	G 1/4	2	M 5	15.5	8	15	17.3	8	7
GN 741-19-G1/4-*2	19	G 1/4	2	M 5	15.5	8	15	17.3	8	8
GN 741-22-G3/8-*1	22	G 3/8	2	M 5	15.5	8	18	20.8	8	10
GN 741-22-G3/8-*2	22	G 3/8	2	M 5	15.5	8	18	20.8	8	10
GN 741-26-G1/2-*1	26	G 1/2	2	M 5	16	8.5	21	24.3	8	15
GN 741-26-G1/2-*2	26	G 1/2	2	M 5	16	8.5	21	24.3	8	17
GN 741-32-G3/4-*1	32	G 3/4	2	M 5	17	9	27	31.2	8	27
GN 741-32-G3/4-*2	32	G 3/4	2	M 5	17	9	27	31.2	8	38
GN 741-40-G1-*1	40	G 1	2	M 5	19.5	11	32	37	8	47
GN 741-40-G1-*2	40	G 1	2	M 5	19.5	11	32	37	8	47
GN 741-50-G11/4-*1	50	G 1 1/4	2	M 5	21	12	41	47.3	8	80
GN 741-50-G11/4-*2	50	G 1 1/4	2	M 5	21	12	41	47.3	8	80
GN 741-60-G11/2-*1	60	G 1 1/2	2	M 5	22	13	50	57.7	8	119
GN 741-60-G11/2-*2	60	G 1 1/2	2	M 5	22	13	50	57.7	8	119

Weight OS



Threaded plugs

Aluminium, up to 180 °C

SPECIFICATION

Types

- Type **OS**: neutral, blank
- Type **OSS**: neutral, black anodized
- Type **ES**: with DIN re-fill symbol, blank
- Type **ESS**: with DIN re-fill symbol, black anodized
- Type **AS**: with DIN drain symbol, blank
- Type **ASS**: with DIN drain symbol, black anodized

Identification no.

- No. **1**: without vent drilling
- No. **2**: with vent drilling

Aluminium

- Type OS, ES and AS: fine turned, blank
- Type OSS, ESS and ASS: fine turned, black anodized
- Symbols laser engraved

temperature resistant up to **180 °C**

Sealing ring rubber FPM (Viton®)

Identification by not black finish of seal

INFORMATION

Threaded plugs GN 742 are fitted with outside diameter d_1 to suit screw holes with BSP threads to DIN 3852.

The sealing ring is bedded into a undercut groove which prevents it from dropping out and at the same time stops it from being extruded when tightening the cap.

ON REQUEST

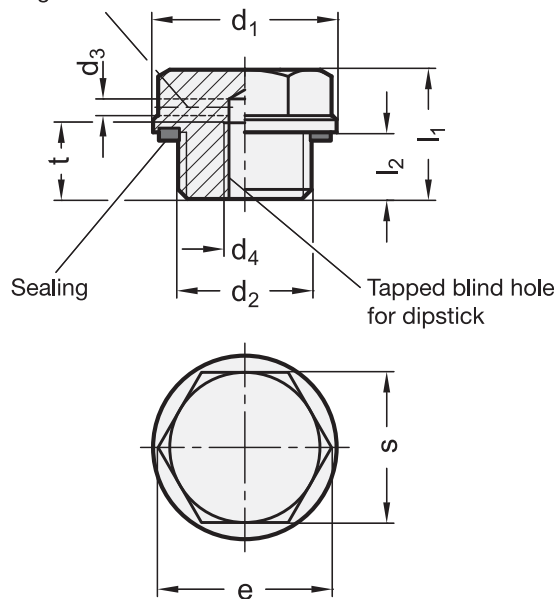
- with dipstick

TECHNICAL INFORMATION

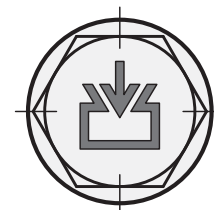
- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)



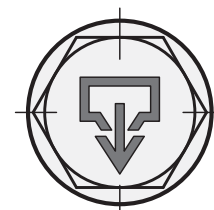
Air vent drilling



Re-fill symbol



Drain symbol



* Complete with type index of the Threaded plugs

OS OSS ES ESS AS ASS

GN 742

Description	d1	d2	d3	d4	l1	l2	s	e ≈	t min.	⚖
GN 742-19-M14x1,5-*1	19	M 14 x 1,5	2	M 5	15,5	8	15	17,3	8	7
GN 742-19-M14x1,5-*2	19	M 14 x 1,5	2	M 5	15,5	8	15	17,3	8	7
GN 742-22-M16x1,5-*1	22	M 16 x 1,5	2	M 5	15,5	8	18	20,8	8	10
GN 742-22-M16x1,5-*2	22	M 16 x 1,5	2	M 5	15,5	8	18	20,8	8	10
GN 742-26-M20x1,5-*1	26	M 20 x 1,5	2	M 5	16	8,5	21	24,3	8	15
GN 742-26-M20x1,5-*2	26	M 20 x 1,5	2	M 5	16	8,5	21	24,3	8	15
GN 742-32-M26x1,5-*1	32	M 26 x 1,5	2	M 5	17	9	27	31,2	8	27
GN 742-32-M26x1,5-*2	32	M 26 x 1,5	2	M 5	17	9	27	31,2	8	27
GN 742-32-M27x1,5-*1	32	M 27 x 1,5	2	M 5	17	9	27	31,2	8	27
GN 742-32-M27x1,5-*2	32	M 27 x 1,5	2	M 5	17	9	27	31,2	8	27
GN 742-40-M33x1,5-*1	40	M 33 x 1,5	2	M 5	19,5	11	32	37	8	50
GN 742-40-M33x1,5-*2	40	M 33 x 1,5	2	M 5	19,5	11	32	37	8	50
GN 742-50-M40x1,5-*1	50	M 40 x 1,5	2	M 5	21	12	41	47,3	8	2
GN 742-50-M40x1,5-*2	50	M 40 x 1,5	2	M 5	21	12	41	47,3	8	2
GN 742-50-M42x1,5-*1	50	M 42 x 1,5	2	M 5	21	12	41	47,3	8	2
GN 742-50-M42x1,5-*2	50	M 42 x 1,5	2	M 5	21	12	41	47,3	8	2
GN 742-50-M42x2-*1	50	M 42 x 2	2	M 5	21	12	41	47,3	8	2
GN 742-50-M42x2-*2	50	M 42 x 2	2	M 5	21	12	41	47,3	8	2
GN 742-19-G1/4-*1	19	G 1/4	2	M 5	15,5	8	15	17,3	8	7
GN 742-19-G1/4-*2	19	G 1/4	2	M 5	15,5	8	15	17,3	8	7
GN 742-22-G3/8-*1	22	G 3/8	2	M 5	15,5	8	18	20,8	8	10
GN 742-22-G3/8-*2	22	G 3/8	2	M 5	15,5	8	18	20,8	8	10
GN 742-26-G1/2-*1	26	G 1/2	2	M 5	16	8,5	21	24,3	8	18
GN 742-26-G1/2-*2	26	G 1/2	2	M 5	16	8,5	21	24,3	8	18
GN 742-32-G3/4-*1	32	G 3/4	2	M 5	17	9	27	31,2	8	26
GN 742-32-G3/4-*2	32	G 3/4	2	M 5	17	9	27	31,2	8	26
GN 742-40-G1-*1	40	G 1	2	M 5	19,5	11	32	37	8	47
GN 742-40-G1-*2	40	G 1	2	M 5	19,5	11	32	37	8	47
GN 742-50-G1 1/4-*1	50	G 1 1/4	2	M 5	21	12	41	47,3	8	80
GN 742-50-G1 1/4-*2	50	G 1 1/4	2	M 5	21	12	41	47,3	8	80
GN 742-60-G1 1/2-*1	60	G 1 1/2	2	M 5	22	13	50	57,7	8	120
GN 742-60-G1 1/2-*2	60	G 1 1/2	2	M 5	22	13	50	57,7	8	120

Weight OS



Magnetic plugs

Aluminium

MATERIAL

Black anodised aluminium.
Marked "MAGNETIC" and graphic symbol, laser engraved.

PERMANENT MAGNETIC ELEMENT

(AlNiCo) Aluminium-nickel-cobalt with a high attractive power, to keep metal particles in oil.

STANDARD EXECUTIONS

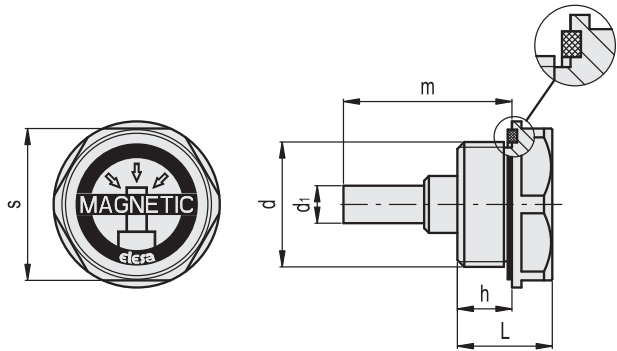
- **TMB**: NBR synthetic rubber flat packing ring. Max working temperature 100°C.
- **TMB-HT**: FKM synthetic rubber flat packing ring. Max working temperature 180°C.

TECHNICAL DATA

The positioning of the packing ring in its housing guarantees a high tightening torque, therefore the plug can be used even in pressurised reservoirs.



ELESA Original design



TMB

TMB-HT

Code	Description	Code	Description	d	h	s	L	d1	m	⚖
59701	TMB.M14x1,5	59751	TMB-HT.M14x1,5	M14x1,5	9	19	16,5	6	30	14
59703	TMB.M16x1,5	59753	TMB-HT.M16x1,5	M16x1,5	9	22	16,5	8	31	22
59705	TMB.M20x1,5	59755	TMB-HT.M20x1,5	M20x1,5	11	24	18,5	8	34	28
59707	TMB.M26x1,5	59757	TMB-HT.M26x1,5	M26x1,5	11,5	32	20	8	35,5	45
59709	TMB.M27x1,5	59759	TMB-HT.M27x1,5	M27x1,5	11,5	32	20	8	35,5	46
59711	TMB.M33x1,5	59761	TMB-HT.M33x1,5	M33x1,5	11,5	38	20	8	35,5	65
59713	TMB.M40x1,5	59763	TMB-HT.M40x1,5	M40x1,5	13	46	24	8	37	107
59715	TMB.M42x1,5	59765	TMB-HT.M42x1,5	M42x1,5	13	46	24	8	37	110
59717	TMB.M42x2	59767	TMB-HT.M42x2	M42x2	13	46	24	8	37	113
59721	TMB.1/4	59771	TMB-HT.1/4	G 1/4	9	19	16,5	6	30	14
59723	TMB.3/8	59773	TMB-HT.3/8	G 3/8	9	22	16,5	8	31	22
59725	TMB.1/2	59775	TMB-HT.1/2	G 1/2	11	24	18,5	8	34	28
59727	TMB.3/4	59777	TMB-HT.3/4	G 3/4	11,5	32	20	8	35,5	45
59729	TMB.1	59779	TMB-HT.1	G 1	11,5	38	20,5	8	35,5	65
59731	TMB.1 1/4	59781	TMB-HT.1 1/4	G 1 1/4	13	46	24	8	37	107
59733	TMB.1 1/2	59783	TMB-HT.1 1/2	G 1 1/2	13	50	24	8	37	131

Oil fill plugs for push-fit, technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

PACKING RINGS

Two NBR synthetic rubber O-rings.

STANDARD EXECUTIONS

- **TPC**: without side hole.
- **TPCF**: with side breather hole.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

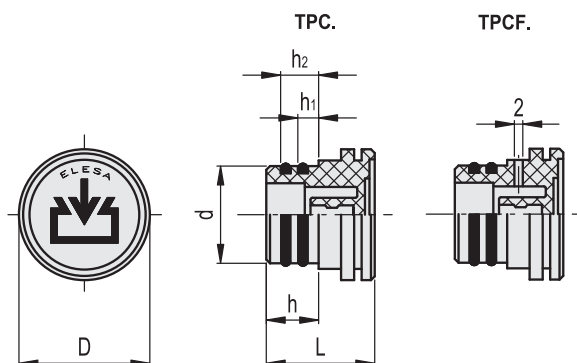
100°C.

GRAPHIC SYMBOL "FILL"

According to DIN regulations.



ELESA Original design



TPC.

Code	Description	d+0.2	h	D	L	h1	h2	⚖
59861	TPC.20	20	14	30	29	6.5	10.5	8
59881	TPC.26	26	14	35	29.5	6.5	10.5	15

TPCF.

Code	Description	d+0.2	h	D	L	h1	h2	⚖
59901	TPCF.20	20	14	30	29	6.5	10.5	8
59921	TPCF.26	26	14	35	29.5	6.5	10.5	15

Oil fill plugs with flat dipstick for push-fit, technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

PACKING RINGS

Two NBR synthetic rubber O-rings.

FLAT DIPSTICK

Flat section phosphatised steel.

On request and for sufficient quantities dipstick can be supplied in different lengths and/or complete with MAX-MIN level lines.

STANDARD EXECUTIONS

- **TPC+a**: without side hole.
- **TPCF+a**: with side breather hole.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

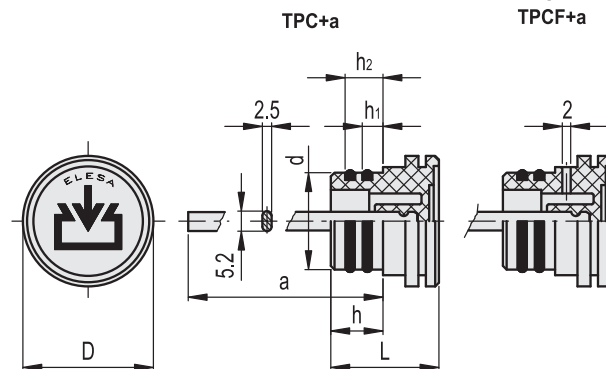
100°C.

GRAPHIC SYMBOL "FILL"

According to DIN regulations.



ELESA Original design



TPC+a

Code	Description	d+0.2	h	D	L	h1	h2	a	⚖
59865	TPC.20+a	20	14	30	29	6.5	10.5	188	27
59885	TPC.26+a	26	14	35	29.5	6.5	10.5	188	35

TPCF+a

Code	Description	d+0.2	h	D	L	h1	h2	a	⚖
59905	TPCF.20+a	20	14	30	29	6.5	10.5	188	27
59925	TPCF.26+a	26	14	35	29.5	6.5	10.5	188	35



Plugs

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING

NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

SPECIAL EXECUTIONS ON REQUEST

Words, marks and graphic symbols can be tampoprinted on the cap.

Plugs

with flat dipstick, technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING

NBR synthetic rubber.

FLAT DIPSTICK

Flat section phosphatised steel.

On request and for sufficient quantities dipstick can be supplied in different lengths and/or complete with MAX-MIN level lines.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

SPECIAL EXECUTIONS ON REQUEST

Words, marks and graphic symbols can be tampoprinted on the cap.

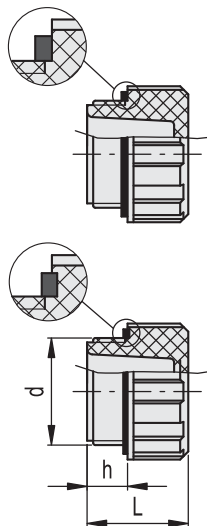


ELESA Original design

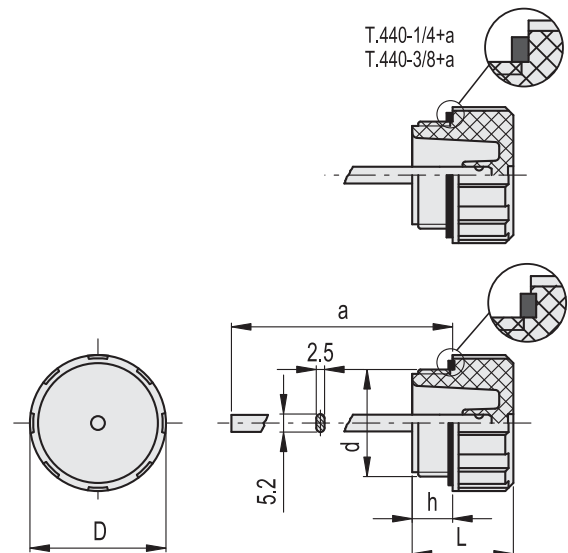


ELESA Original design

T.440-1/4
T.440-3/8



T.440-1/4+a
T.440-3/8+a



Code	Description	d	h	D	L	
157111	T.440-1/4	G 1/4	9	20.5	19	10
157121	T.440-3/8	G 3/8	9	25	21	12
157131	T.440-1/2	G 1/2	11	28.5	25	14
157141	T.440-3/4	G 3/4	12	34.5	27	22
157151	T.440-1	G 1	13	42.5	28.5	28
157161	T.440-1¼	G 1¼	13	52	32	52
157171	T.440-1½	G 1½	13	57.5	34	63

Code	Description	d	h	D	L	a	
157211	T.440-1/4+a	G 1/4	9	20.5	19	192	30
157221	T.440-3/8+a	G 3/8	9	25	21	192	32
157231	T.440-1/2+a	G 1/2	11	28.5	25	189	42
157241	T.440-3/4+a	G 3/4	12	34.5	27	188	50
157251	T.440-1+a	G 1	13	42.5	28.5	188	56
157261	T.440-1¼+a	G 1¼	13	52	32	185	72
157271	T.440-1½+a	G 1½	13	57.5	34	185	83

Plugs

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING

NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

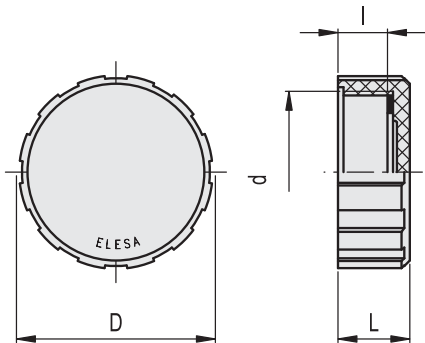
100°C.

SPECIAL EXECUTIONS ON REQUEST

Words, marks and graphic symbols can be tampoprinted on the cap.



ELESA Original design



Code	Description	d	I	D	L	⚖️
58231	T.470-60x2	M60x2	18	70	26	55
58251	T.470-1	G 1	11	42	16	17
58281	T.470-2	G 2	18	70	26	58

Plugs

with hexagon socket, technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING

NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

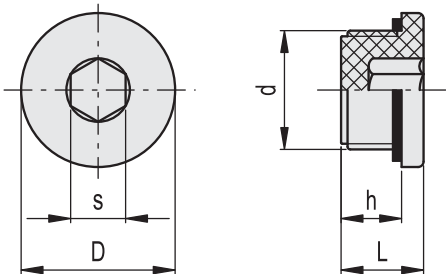
100°C.

TECHNICAL DATA

The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.



ELESA Original design



Code	Description	d	h	s	D	L	Tightening torque [Nm]	⚖️
161033	TCE.1/4	G 1/4	9	6	20	12	3	4
161034	TCE.3/8	G 3/8	9	8	22	13	3÷5	5
161035	TCE.1/2	G 1/2	11	10	28	15	3÷4	8
161036	TCE.3/4	G 3/4	12	12	32	16.5	3÷5	14



Threaded plugs

Steel, zinc plated

SPECIFICATION

Types

- Type **A**: Sealing ring rubber NBR (Perbunan)
- Type **B**: Sealing ring rubber FPM (Viton®)

Steel

- Tensile strength class 5.8
- ultrasonically and tensile tested
- zinc plated, nano-passivated (silver / yellowish)

Type A

temperature resistant up to **100 °C**

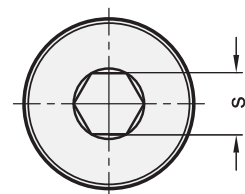
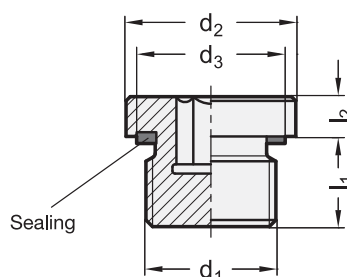
Sealing ring rubber NBR (Perbunan)

Type B

temperature resistant up to **180 °C**

Sealing ring rubber FPM (Viton®)

Identification by not black finish of the seal



INFORMATION

The dimensions of the threaded plugs GN 749 comply with DIN 908 (see page 1681), but deviating from the latter is the elastic sealing ring (rubber). This sealing ring is retained in a radial undercut in the mating face which prevents it from dropping out and in particular it does not extrude when the plug is tightened.

The details relating to the permissible operating pressure are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

* Complete with type index of the Threaded plugs

A
Perbunan
B
Viton

GN 749

Description	d1	d2 h14	d3	l1	l2	s	Max. permissible operating pressure in PB	Recommended torque in Nm	⚖
GN 749-M8x1-*	M 8 x 1	12	9.9	8	4	4	400	8	5
GN 749-M10x1-*	M 10 x 1	14	11.9	8	4	5	400	12	7
GN 749-M12x1,5-*	M 12 x 1.5	17	14.4	12	5	6	400	25	14
GN 749-M14x1,5-*	M 14 x 1.5	19	16.5	12	5	6	400	30	19
GN 749-M16x1,5-*	M 16 x 1.5	22	18.9	12	5	8	400	50	24
GN 749-M18x1,5-*	M 18 x 1.5	24	20.9	12	5	8	400	60	31
GN 749-M20x1,5-*	M 20 x 1.5	26	22.9	14	5	10	400	70	41
GN 749-M22x1,5-*	M 22 x 1.5	27	24.3	14	5	10	400	80	49
GN 749-M24x1,5-*	M 24 x 1.5	30	26.9	14	5	12	400	95	56
GN 749-M26x1,5-*	M 26 x 1.5	32	29.2	16	5	12	400	120	75
GN 749-M27x2-*	M 27 x 2	32	29.2	16	5	12	400	120	80
GN 749-M30x1,5-*	M 30 x 1.5	37	32.7	16	6.5	17	400	190	103
GN 749-M33x2-*	M 33 x 2	40	35.7	16	6.5	17	400	225	126
GN 749-M42x2-*	M 42 x 2	50	45.8	16	6.5	22	315	360	201
GN 749-M48x2-*	M 48 x 2	55	50.7	16	6.5	24	315	400	254
GN 749-G1/8-*	G 1/8	14	11.9	8	4	5	400	12	7
GN 749-G1/4-*	G 1/4	19	16.5	12	5	6	400	30	17
GN 749-G3/8-*	G 3/8	22	18.9	12	5	8	400	50	26
GN 749-G1/2-*	G 1/2	27	23.9	14	5	10	400	80	44
GN 749-G3/4-*	G 3/4	32	29.2	16	5	12	400	120	70
GN 749-G1-*	G 1	40	35.7	16	6.5	17	400	225	125
GN 749-G1 1/4-*	G 1 1/4	50	45.8	16	6.5	22	315	360	195
GN 749-G1 1/2-*	G 1 1/2	55	50.7	16	6.5	24	315	400	240

Weight A

Threaded plugs

Steel, zinc plated

SPECIFICATION

Types

- Type **A**: without gasket
- Type **AC**: with gasket in copper
- Type **AA**: with gasket in aluminium

Steel **ST**

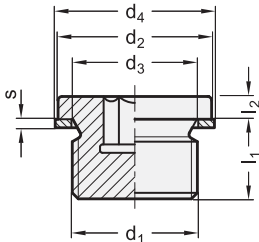
- Tensile strength class 5.8
- ultrasonically and tensile tested
- zinc plated, nano-passivated

INFORMATION

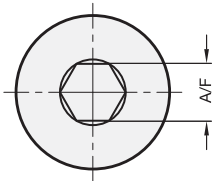
The gaskets in types AC and AA correspond to the gaskets DIN 7603 (see page 1682), type A (flat gaskets).

ON REQUEST

- Stainless Steel version (NI)



Screw-in plug to DIN 3852-1 Type A



* Complete with type index of the Threaded plugs

A AC AA

DIN 908

Description	d1	d2 h14	d3	d4	l1 ±0.2	l2 +0.5	s	A/F	⚖
DIN 908-ST-M8x1-*	M 8 x 1	12	8.3	11.5	8	3	1	4	4
DIN 908-ST-M10x1-*	M 10 x 1	14	10.3	13.5	8	3	1	5	6
DIN 908-ST-M12x1,5-*	M 12 x 1.5	17	12.3	16	12	3	1.5	6	11
DIN 908-ST-M14x1,5-*	M 14 x 1.5	19	14.3	18	12	3	1.5	6	16
DIN 908-ST-M16x1,5-*	M 16 x 1.5	21	16.3	20	12	3	1.5	8	20
DIN 908-ST-M18x1,5-*	M 18 x 1.5	23	18.3	22	12	4	1.5	8	29
DIN 908-ST-M20x1,5-*	M 20 x 1.5	25	20.3	24	14	4	1.5	10	38
DIN 908-ST-M22x1,5-*	M 22 x 1.5	27	22.3	27	14	4	1.5	10	55
DIN 908-ST-M24x1,5-*	M 24 x 1.5	29	24.3	29	14	4	2	12	60
DIN 908-ST-M26x1,5-*	M 26 x 1.5	31	26.3	31	16	4	2	12	73
DIN 908-ST-M27x2-*	M 27 x 2	32	27.3	32	16	4	2	12	75
DIN 908-ST-M30x1,5-*	M 30 x 1.5	36	30.3	36	16	4	2	17	84
DIN 908-ST-M33x2-*	M 33 x 2	39	33.3	39	16	5	2	17	119
DIN 908-ST-M42x2-*	M 42 x 2	49	42.3	49	16	5	2	22	187
DIN 908-ST-M48x2-*	M 48 x 2	55	48.3	55	16	5	2	24	240
DIN 908-ST-G1/8-*	G 1/8	14	10	13.5	8	3	1	5	6
DIN 908-ST-G1/4-*	G 1/4	18	13.4	18	12	3	1.5	6	14
DIN 908-ST-G3/8-*	G 3/8	22	17	21	12	3	1.5	8	22
DIN 908-ST-G1/2-*	G 1/2	26	21.3	26	14	4	1.5	10	41
DIN 908-ST-G3/4-*	G 3/4	32	26.7	32	16	4	2	12	53
DIN 908-ST-G1-*	G 1	39	33.5	39	16	5	2	17	119
DIN 908-ST-G1 1/4-*	G 1 1/4	49	42.2	49	16	5	2	22	185
DIN 908-ST-G1 1/2-*	G 1 1/2	55	48.1	55	16	5	2	24	237

Weight A



Gaskets

Metal, for threaded plugs DIN 908

SPECIFICATION

Type

- Type **A**: Flat gasket

Copper **CU**

Aluminium **AL**

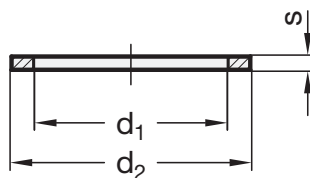
INFORMATION

The gaskets listed in this standard sheet are only an extract of DIN 7603.

They are used in connection with threaded plugs DIN 908 (see page 1681).

ON REQUEST

- other sizes
- other materials
- other types



* Complete with type index of the Gaskets

CU
Copper

AL
Aluminium

DIN 7603

Description	d1	d1 +0.3	d2	d2 -0.2	s ±0.2	Suitable for DIN 908	⚖
DIN 7603-*-8-11,5-A	8	8.2	11.5	11.4	1	M 8 x 1	1
DIN 7603-*-10-13,5-A	10	10.2	13.5	13.4	1	M 10 x 1	1
DIN 7603-*-12-16-A	12	12.2	16	15.9	1.5	M 12 x 1.5	1
DIN 7603-*-14-18-A	14	14.2	18	17.9	1.5	M 14 x 1.5	1
DIN 7603-*-16-20-A	16	16.2	20	19.9	1.5	M 16 x 1.5	1
DIN 7603-*-18-22-A	18	18.2	22	21.9	1.5	M 18 x 1.5	1
DIN 7603-*-20-24-A	20	20.2	24	23.9	1.5	M 20 x 1.5	1
DIN 7603-*-22-27-A	22	22.2	27	26.9	1.5	M 22 x 1.5	1
DIN 7603-*-24-29-A	24	24.3	29	28.9	2	M 24 x 1.5	1
DIN 7603-*-26-31-A	26	26.3	31	30.9	2	M 26 x 1.5	1
DIN 7603-*-27-32-A	27	27.3	32	31.9	2	M 27 x 2	1
DIN 7603-*-30-36-A	30	30.3	36	35.9	2	M 30 x 1.5	1
DIN 7603-*-33-39-A	33	33.3	39	38.9	2	M 33 x 2	2
DIN 7603-*-42-49-A	42	42.3	49	48.9	2	M 42 x 2	2
DIN 7603-*-48-55-A	48	48.3	55	54.9	2	M 48 x 2	3
DIN 7603-*-10-13,5-A	10	10.2	13.5	13.4	1	G 1/8	1
DIN 7603-*-14-18-A	14	14.2	18	17.9	1.5	G 1/4	1
DIN 7603-*-17-21-A	17	17.2	21	20.9	1.5	G 3/8	1
DIN 7603-*-21-26-A	21	21.2	26	25.9	1.5	G 1/2	1
DIN 7603-*-27-32-A	27	27.3	32	31.9	2	G 3/4	1
DIN 7603-*-33-39-A	33	33.3	39	38.9	2	G 1	2
DIN 7603-*-42-49-A	42	42.3	49	48.9	2	G 1 1/4	2
DIN 7603-*-48-55-A	48	48.3	55	54.9	2	G 1 1/2	3

Weight AL

Welding sockets

with and without collar

SPECIFICATION

Types

- Type **A**: with chamfer
- Type **B**: with collar

Steel **ST**

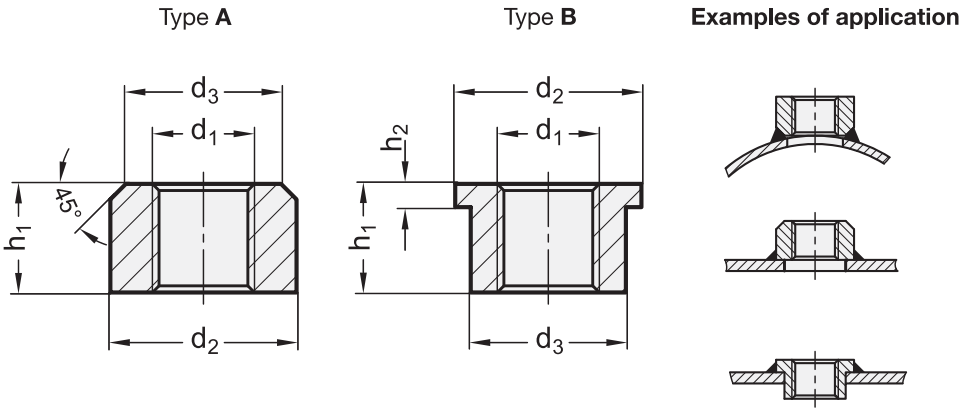
- weldable
- turned
- blank

INFORMATION

Welding sockets GN 7490 are used in container construction or in hydraulics for mounting instruments such as oil level sight glasses or locking caps. The plane surfaces are machined, with the effect that they can be used as sealing surface in connection with a sealing element or compound. The favourably dimensioned wall thickness prevents deformation or burn-through during welding. Type B is used if exact positioning through the mounting bore or a low construction height is required.

ON REQUEST

- Stainless Steel-Welding sockets
- metric threads



* Complete with type index of the Welding sockets
A with chamfer **B** with collar

GN 7490

Description	d1	d2	d3	h1	h2	⚖
GN 7490-ST-G1/8-*	G 1/8	20	16	10	3	18
GN 7490-ST-G1/4-*	G 1/4	24	20	14	3	35
GN 7490-ST-G3/8-*	G 3/8	28	22	14	4.5	42
GN 7490-ST-G1/2-*	G 1/2	32	26	16	4.5	57
GN 7490-ST-G3/4-*	G 3/4	40	32	18	6	97
GN 7490-ST-G1-*	G 1	50	40	20	7.5	165
GN 7490-ST-G1 1/4-*	G 1 1/4	60	50	22	7.5	244
GN 7490-ST-G1 1/2-*	G 1 1/2	65	55	24	7.5	282

Weight A



DIN 906

Threaded plugs

Steel / Stainless Steel, with conical thread

SPECIFICATION

Types

- Type **A**: without micro encapsulation
- Type **GPC**: with micro encapsulation

Version in Steel ST

- ultrasonically and tensile tested
- zinc plated, blue passivated

Version in Stainless Steel AISI 303 NI

Thread coating GPC

Precote 5 (see page A25)

INFORMATION

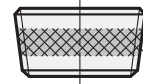
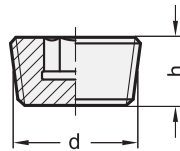
Threaded plugs DIN 906 are used to close bore holes with cylindrical internal thread.

The tightness depends on the medium, pressure, temperature and material pairing. The design with GPC thread coating provides a higher degree of safety.

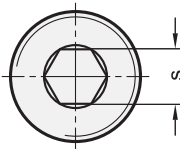
The official DIN 906 standard sheet also provides for thread sizes M33x2; M38x1.5; M39x2; M52x1.5; M52x2; M56x2 and M60x2.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Pressure tightness with thread coating **GPC** (Precote 5)



* Complete with type index of the Threaded plugs

A without micro encapsulation **GPC** with micro encapsulation

DIN 906

Description	d	h	s	Weight A
DIN 906-ST-M8x1-*	M 8 x 1	8	4	2
DIN 906-ST-M10x1-*	M 10 x 1	8	5	3
DIN 906-ST-M12x1,5-*	M 12 x 1.5	10	6	6
DIN 906-ST-M14x1,5-*	M 14 x 1.5	10	7	8
DIN 906-ST-M16x1,5-*	M 16 x 1.5	10	8	10
DIN 906-ST-M18x1,5-*	M 18 x 1.5	10	8	14
DIN 906-ST-M20x1,5-*	M 20 x 1.5	10	10	17
DIN 906-ST-M22x1,5-*	M 22 x 1.5	10	10	22
DIN 906-ST-M24x1,5-*	M 24 x 1.5	12	12	30
DIN 906-ST-M26x1,5-*	M 26 x 1.5	12	12	37
DIN 906-ST-M30x1,5-*	M 30 x 1.5	12	17	45
DIN 906-ST-M36x1,5-*	M 36 x 1.5	15	19	86
DIN 906-ST-M42x1,5-*	M 42 x 1.5	18	22	142
DIN 906-ST-M45x1,5-*	M 45 x 1.5	18	22	163
DIN 906-ST-M48x1,5-*	M 48 x 1.5	20	24	210
DIN 906-ST-R1/8-*	R 1/8	8	5	3
DIN 906-ST-R1/4-*	R 1/4	10	7	7
DIN 906-ST-R3/8-*	R 3/8	10	8	12
DIN 906-ST-R1/2-*	R 1/2	10	10	19
DIN 906-ST-R3/4-*	R 3/4	12	12	37
DIN 906-ST-R1-*	R 1	12	17	57
DIN 906-ST-R1 1/4-*	R 1 1/4	18	22	133
DIN 906-ST-R1 1/2-*	R 1 1/2	20	24	200

Weight A

* Complete with type index of the Threaded plugs

A without micro encapsulation **GPC** with micro encapsulation

DIN 906-NI

STAINLESS STEEL

Description	d	h	s	Weight A
DIN 906-NI-M8x1-*	M 8 x 1	8	4	2
DIN 906-NI-M10x1-*	M 10 x 1	8	5	4
DIN 906-NI-M12x1,5-*	M 12 x 1.5	10	6	6
DIN 906-NI-M14x1,5-*	M 14 x 1.5	10	7	9
DIN 906-NI-M16x1,5-*	M 16 x 1.5	10	8	11
DIN 906-NI-M18x1,5-*	M 18 x 1.5	10	8	15
DIN 906-NI-M20x1,5-*	M 20 x 1.5	10	10	19
DIN 906-NI-M22x1,5-*	M 22 x 1.5	10	10	23
DIN 906-NI-M24x1,5-*	M 24 x 1.5	12	12	33
DIN 906-NI-R1/8-*	R 1/8	8	5	3
DIN 906-NI-R1/4-*	R 1/4	10	7	7
DIN 906-NI-R3/8-*	R 3/8	10	8	12
DIN 906-NI-R1/2-*	R 1/2	10	10	18
DIN 906-NI-R3/4-*	R 3/4	12	12	39
DIN 906-NI-R1-*	R 1	12	17	63

Weight A

Blanking plugs

SPECIFICATION

Types

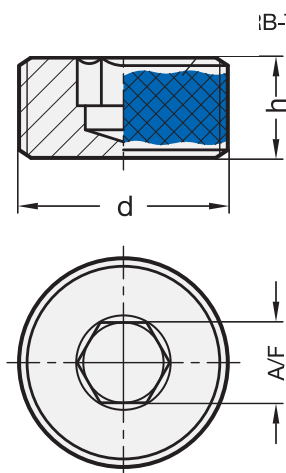
- Type **A**: without thread coating
- Type **PRB**: with thread coating (polyamide allround coating)

Steel

- Tensile strength class 5.8
- blackened

INFORMATION

The thread locking PRB (polyamide allround coating) is a clamping lock which prevents the locking screw from being inadvertently being loosened and becoming detached.



iB-Thread coating

Stainless Steel-Blanking plugs

SPECIFICATION

Types

- Type **A**: without thread coating
- Type **PRB**: with thread coating (polyamide allround coating)

Stainless Steel AISI 303

INFORMATION

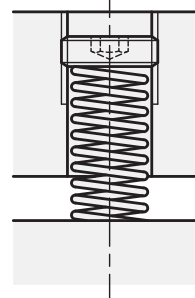
The thread locking PRB (polyamide allround coating) is a clamping lock which prevents the locking screw from being inadvertently being loosened and becoming detached.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Example for application



GN 252

Description	d	h	A/F	⚖
GN 252-M12x1,5-A	M 12 x 1.5	10	6	6
GN 252-M16x1,5-A	M 16 x 1.5	10	8	14
GN 252-M20x1,5-A	M 20 x 1.5	12	10	20
GN 252-M24x1,5-A	M 24 x 1.5	12	14	24
GN 252-M27x1,5-A	M 27 x 1.5	12	14	36
GN 252-M30x1,5-A	M 30 x 1.5	12	17	44
GN 252-M33x1,5-A	M 33 x 1.5	12	17	56
GN 252-M12x1,5-PRB	M 12 x 1.5	10	6	6
GN 252-M16x1,5-PRB	M 16 x 1.5	10	8	10
GN 252-M20x1,5-PRB	M 20 x 1.5	12	10	20
GN 252-M24x1,5-PRB	M 24 x 1.5	12	14	24
GN 252-M27x1,5-PRB	M 27 x 1.5	12	14	36
GN 252-M30x1,5-PRB	M 30 x 1.5	12	17	44
GN 252-M33x1,5-PRB	M 33 x 1.5	12	17	56

GN 252.5

STAINLESS STEEL

Description	d	h	A/F	⚖
GN 252.5-M12x1,5-A	M12x1.5	10	6	5
GN 252.5-M16x1,5-A	M16x1.5	10	8	10
GN 252.5-M20x1,5-A	M20x1.5	12	10	20
GN 252.5-M24x1,5-A	M24x1.5	12	14	26
GN 252.5-M27x1,5-A	M27x1.5	12	14	26
GN 252.5-M12x1,5-PRB	M12x1.5	10	6	6
GN 252.5-M16x1,5-PRB	M16x1.5	10	8	10
GN 252.5-M20x1,5-PRB	M20x1.5	12	10	26
GN 252.5-M24x1,5-PRB	M24x1.5	12	14	30
GN 252.5-M27x1,5-PRB	M27x1.5	12	14	36



Threaded plugs

Resistant up to 100 °C, Aluminium

SPECIFICATION

Identification no.

- No. **1**: without vent hole
- No. **2**: with vent hole

Aluminium

plastic coated

black, RAL 9005, matte finish **SW**

blank **BL**

tumbled

temperature resistant up to **100 °C**

Sealing ring rubber NBR (Perbunan)



INFORMATION

Threaded plugs GN 441 with the external diameter d_1 match the screw-in holes for DIN 3852 pipe bolt connections.

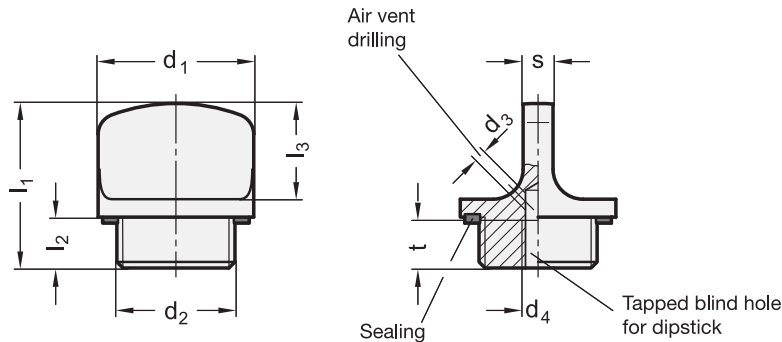
The sealing ring is embedded in a radial recess on the plane side, which makes the sealing ring captive and cannot be squeezed out during tightening. The sealing is also relatively soft, enhancing the sealing effect also on uneven surfaces.

ON REQUEST

- Threaded plugs with dipstick

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



* Complete with colour index of the Threaded plugs

SW **BL**
RAL9005 blank

GN 441

Description	d_1	d_2	d_3	d_4	$l_1 \pm 0.5$	l_2	l_3	s	t min.	
GN 441-22-M16x1,5-1-*	22	M 16 x 1,5	-	M 5	26	8	15	5	8	12
GN 441-22-M16x1,5-2-*	22	M 16 x 1,5	2	M 5	26	8	15	5	8	12
GN 441-26-M20x1,5-1-*	26	M 20 x 1,5	-	M 5	27,5	8,5	16	5	8	17
GN 441-26-M20x1,5-2-*	26	M 20 x 1,5	2	M 5	27,5	8,5	16	5	8	17
GN 441-32-M26x1,5-1-*	32	M 26 x 1,5	-	M 5	29	9	17	6	8	27
GN 441-32-M26x1,5-2-*	32	M 26 x 1,5	2	M 5	29	9	17	6	8	27
GN 441-22-G3/8-1-*	22	G 3/8	-	M 5	26	8	15	5	8	12
GN 441-22-G3/8-2-*	22	G 3/8	2	M 5	26	8	15	5	8	12
GN 441-26-G1/2-1-*	26	G 1/2	-	M 5	27,5	8,5	16	5	8	17
GN 441-26-G1/2-2-*	26	G 1/2	2	M 5	27,5	8,5	16	5	8	17
GN 441-32-G3/4-1-*	32	G 3/4	-	M 5	29	9	17	6	8	27
GN 441-32-G3/4-2-*	32	G 3/4	2	M 5	29	9	17	6	8	27
GN 441-40-G1-1-*	40	G 1	-	M 5	32,5	11	18	7	8	48
GN 441-40-G1-2-*	40	G 1	2	M 5	32,5	11	18	7	8	48

Weight colour SW

Threaded plugs

Resistant up to 200 °C, Aluminium

SPECIFICATION

Identification no.

- No. **1**: without vent hole
- No. **2**: with vent hole

Aluminium

plastic coated

black, RAL 9005, matte finish **SW**

blank **BL**

tumbled

temperature resistant up to **200 °C**

Sealing ring rubber FPM (Viton®)

Identification by not black finish of the seal



INFORMATION

Threaded plugs GN 442 with the external diameter d_1 match the screw-in holes for DIN 3852 pipe bolt connections.

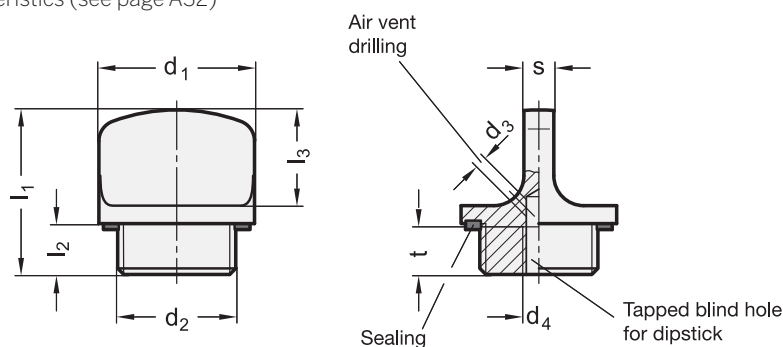
The sealing ring is embedded in a radial recess on the plane side, which makes the sealing ring captive and cannot be squeezed out during tightening. The sealing is also relatively soft, enhancing the sealing effect also on uneven surfaces.

ON REQUEST

- Threaded plugs with dipstick

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



* Complete with colour index of the Threaded plugs

SW **BL**
RAL9005 blank

GN 442

Description	d1	d2	d3	d4	l1 ±0.5	l2	l3	s	t min.	⚖
GN 442-22-M16x1,5-1-*	22	M 16 x 1.5	-	M 5	26	8	15	5	8	12
GN 442-22-M16x1,5-2-*	22	M 16 x 1.5	2	M 5	26	8	15	5	8	12
GN 442-26-M20x1,5-1-*	26	M 20 x 1.5	-	M 5	27.5	8.5	16	5	8	17
GN 442-26-M20x1,5-2-*	26	M 20 x 1.5	2	M 5	27.5	8.5	16	5	8	17
GN 442-32-M26x1,5-1-*	32	M 26 x 1.5	-	M 5	29	9	17	6	8	27
GN 442-32-M26x1,5-2-*	32	M 26 x 1.5	2	M 5	29	9	17	6	8	27
GN 442-22-G3/8-1-*	22	G 3/8	-	M 5	26	8	15	5	8	12
GN 442-22-G3/8-2-*	22	G 3/8	2	M 5	26	8	15	5	8	12
GN 442-26-G1/2-1-*	26	G 1/2	-	M 5	27.5	8.5	16	5	8	17
GN 442-26-G1/2-2-*	26	G 1/2	2	M 5	27.5	8.5	16	5	8	17
GN 442-32-G3/4-1-*	32	G 3/4	-	M 5	29	9	17	6	8	27
GN 442-32-G3/4-2-*	32	G 3/4	2	M 5	29	9	17	6	8	27
GN 442-40-G1-1-*	40	G 1	-	M 5	32.5	11	18	7	8	48
GN 442-40-G1-2-*	40	G 1	2	M 5	32.5	11	18	7	8	48

Weight colour SW



Oil drain valves

SPECIFICATION

Type

- Type **K**: with plastic protective cap and retaining cable

Valve body

- Steel **ST** zinc plated, blue passivated
- Brass **MS**

Valve plate

- Brass
- O-ring rubber FPM (Viton®)

Sealing disc DIN 7603 A

Copper

Protective cap

Plastic (Polyamide PA)

Retaining cable

Stainless Steel

INFORMATION

Oil drain valves GN 880 may be used for draining non-pressurised oil. As well conditionally as for vacuum drainage.

The flow volume (l/min.) depends on the viscosity of the medium, the filling quantity and the temperature. Guidance values available on request.

Other features are:

- easy and safe handling
- optimum flow rate
- high pressure resistance (up to 100 bar)
- high temperature resistance (-30 °C to +120 °C, short period up to 180 °C)
- 100 % leak-tight tested

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)

ON REQUEST

- other materials

OPERATION DESCRIPTION

After removing the protective cap secured against loss with a retaining cable, turn in the matching connector pieces GN 880.1 (see page 1690).

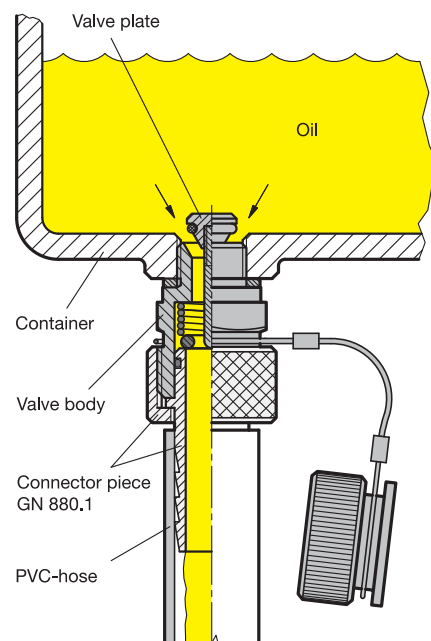
When the connector is screwed in, the valve plate will open and the oil will empty through the hose into a pan.

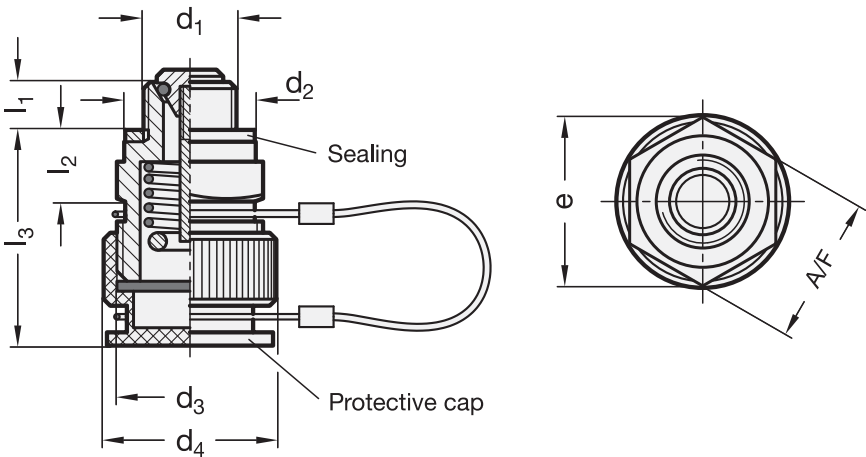
Take off the connector after the oil has drained. The valve plate will be lowered and closes off the drainage outlet.

The container with the oil drain valve is ready for filling again.

Other benefits of the oil drain valves GN 880:

- No risk of burns caused by hot oil
- No dirt caused by uncontrolled oil drainage
- Quick and easy





GN 880

Description	d1	d2	d3	d4	e ≈	l1	l2	l3	A/F	⚖
GN 880-M14x1,5-ST-K	M 14 x 1.5	20	M22x1.5	26	25.4	7.5	10.5	31	22	54
GN 880-M16x1,5-ST-K	M 16 x 1.5	22	M22x1.5	26	25.4	7.5	10.5	31	22	58
GN 880-M18x1,5-ST-K	M 18 x 1.5	24	M22x1.5	26	25.4	8.5	10.5	31	22	62
GN 880-M20x1,5-ST-K	M 20 x 1.5	26	M22x1.5	26	31.2	8.5	10.5	31	27	81
GN 880-M22x1,5-ST-K	M 22 x 1.5	27	M26x1.5	30	31.2	8.5	12	32	27	94
GN 880-M24x1,5-MS-K	M 24 x 1.5	29	M26x1.5	30	34.7	9	12	32	30	116
GN 880-M26x1,5-MS-K	M 26 x 1.5	32	M26x1.5	30	37	9	12	32	32	132
GN 880-M30x1,5-MS-K	M 30 x 1.5	36	M26x1.5	30	41.6	9	12	32	36	166
GN 880-G1/4-ST-K	G 1/4	20	M22x1.5	26	25.4	7.5	10.5	31	22	55
GN 880-G3/8-ST-K	G 3/8	23	M22x1.5	26	25.4	7.5	10.5	31	22	61
GN 880-G1/2-ST-K	G 1/2	26	M26x1.5	30	31.2	8.5	12	32	27	81
GN 880-G3/4-MS-K	G 3/4	32	M26x1.5	30	37	9	12	32	32	153
GN 880-G1-MS-K	G 1	39	M26x1.5	30	47.3	9	12	32	41	205



Connector pieces

for oil drain valves GN 880 / with or without drain hose

SPECIFICATION

Types

- Type **A**: Connector straight
- Type **B**: Connector 45°
- Type **C**: Connector 90°

Connecting nut
with hose liner

Brass

L bend 45° / 90 °

Copper

O-Ring

Rubber NBR (Perbunan)

Drain hose

PVC, transparent **T**

Hose clip

Steel, zinc plated

Plug

Plastic, LD-PE

INFORMATION

Connector pieces GN 880.1 are needed when using oil drain valves GN 880 (see page 1688).

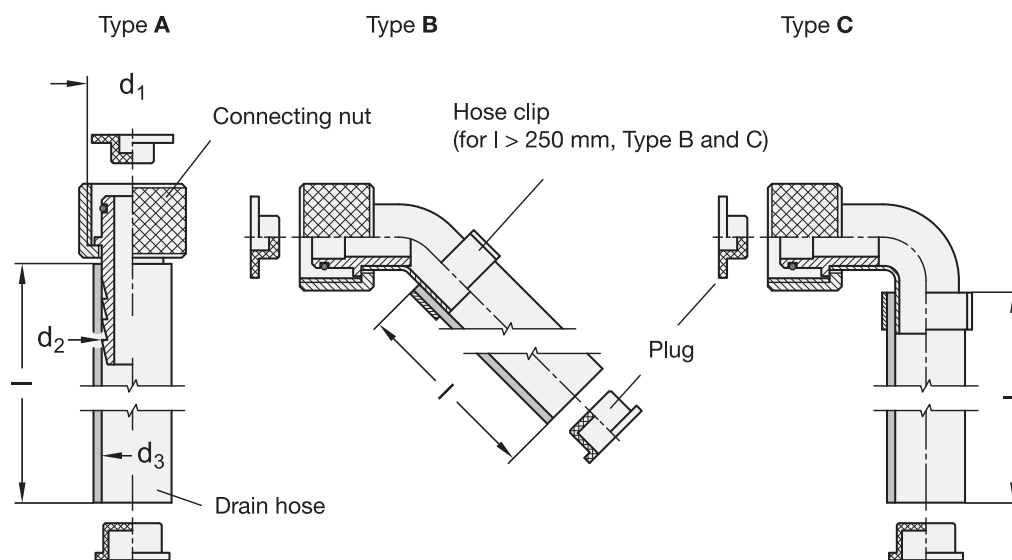
Screwing on the connector piece will activate the valve plate of the oil drain valve, allowing the oil to flow through the hose into a pan held ready.

The plug prevents remaining oil from dripping out after discharging.

ON REQUEST

- other hose length
- Drain hose with inside webbing (Nylon)





GN 880.1

Description	Size	d1	l	d2	d3	⚖
GN 880.1-22-A	22	M 22 x 1.5	-	15	-	58
GN 880.1-26-A	26	M 26 x 1.5	-	20	-	88
GN 880.1-22-B	22	M 22 x 1.5	-	15	-	58
GN 880.1-26-B	26	M 26 x 1.5	-	20	-	86
GN 880.1-22-C	22	M 22 x 1.5	-	15	-	61
GN 880.1-26-C	26	M 26 x 1.5	-	20	-	89
GN 880.1-22-A-250-T	22	M 22 x 1.5	250	15	14	97
GN 880.1-22-A-500-T	22	M 22 x 1.5	500	15	14	129
GN 880.1-22-A-1000-T	22	M 22 x 1.5	1000	15	14	220
GN 880.1-26-A-250-T	26	M 26 x 1.5	250	20	19	162
GN 880.1-26-A-500-T	26	M 26 x 1.5	500	20	19	237
GN 880.1-26-A-1000-T	26	M 26 x 1.5	1000	20	19	387
GN 880.1-22-B-250-T	22	M 22 x 1.5	250	15	14	93
GN 880.1-22-B-500-T	22	M 22 x 1.5	500	15	14	140
GN 880.1-22-B-1000-T	22	M 22 x 1.5	1000	15	14	223
GN 880.1-26-B-250-T	26	M 26 x 1.5	250	20	19	152
GN 880.1-26-B-500-T	26	M 26 x 1.5	500	20	19	234
GN 880.1-26-B-1000-T	26	M 26 x 1.5	1000	20	19	386
GN 880.1-22-C-250-T	22	M 22 x 1.5	250	15	14	97
GN 880.1-22-C-500-T	22	M 22 x 1.5	500	15	14	140
GN 880.1-22-C-1000-T	22	M 22 x 1.5	1000	15	14	219
GN 880.1-26-C-250-T	26	M 26 x 1.5	250	20	19	153
GN 880.1-26-C-500-T	26	M 26 x 1.5	500	20	19	232
GN 880.1-26-C-1000-T	26	M 26 x 1.5	1000	20	19	389



Breather valves

Brass

SPECIFICATION

Valve body
Brass **MS**

Breather cap
Stainless Steel AISI 304 **M**

Gasket
Brass
with silicone-rubber coating (VMQ)

Spring
Stainless Steel AISI 301

Sealing DIN 7603 A
Soft iron 1.0338

temperature resistant from -30 °C to +100 °C



INFORMATION

Once the opening pressure given in the table is exceeded, breather valves GN 881 with gasket will vent into a container and so protect against excessive inside container pressure. A green colour ring marks the opening pressure of 200 mbar.

In its normal state, the gasket closes the container and so prevents dirt or dust getting inside the container.

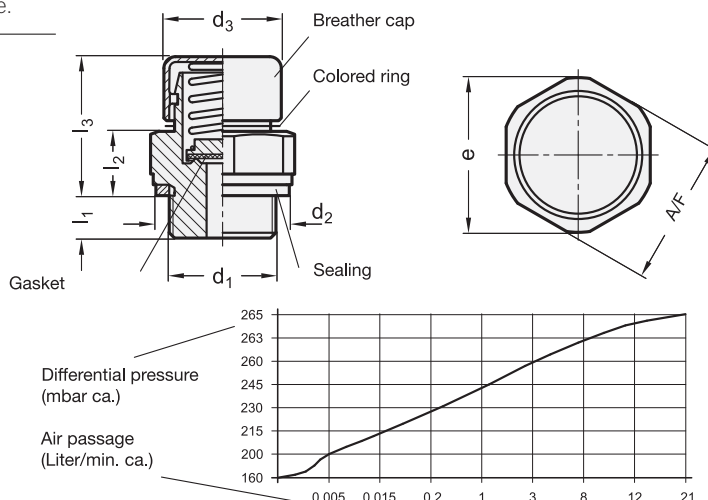
The above diagram shows the air outlet as a factor of the opening pressure.

The installation position is vertical to the top.

The valves are checked for leak tightness and opening pressure.

ON REQUEST

- other materials
- with other opening pressure 50 mbar (yellow ring)
- with dipstick



GN 881

Description	d1	Opening pressure in mbar ±20%	d2	d3	e ≈	l1	l2	l3	A/F	⚖
GN 881-M12x1,5-200-MS-M	M 12 x 1.5	200	18	20	23.5	8.5	11.5	24.5	22	39
GN 881-M14x1,5-200-MS-M	M 14 x 1.5	200	20	20	23.5	8.5	11.5	24.5	22	44
GN 881-M16x1,5-200-MS-M	M 16 x 1.5	200	22	20	23.5	8.5	11.5	24.5	22	49
GN 881-M18x1,5-200-MS-M	M 18 x 1.5	200	24	20	23.5	8.5	11.5	24.5	22	52
GN 881-M20x1,5-200-MS-M	M 20 x 1.5	200	26	20	29	8.5	11.5	24.5	27	74
GN 881-M22x1,5-200-MS-M	M 22 x 1.5	200	27	22	29	8.5	11.5	24.5	27	79
GN 881-M24x1,5-200-MS-M	M 24 x 1.5	200	29	20	32.5	8	12	25	30	96
GN 881-M26x1,5-200-MS-M	M 26 x 1.5	200	32	20	34	8	12	25	32	112
GN 881-M30x1,5-200-MS-M	M 30 x 1.5	200	36	20	39	8	12	25	36	148
GN 881-G1/4-200-MS-M	G 1/4	200	20	20	23.5	8.5	11.5	24.5	22	42
GN 881-G3/8-200-MS-M	G 3/8	200	23	20	23.5	8.5	11.5	24.5	22	51
GN 881-G1/2-200-MS-M	G 1/2	200	26	20	29	8.5	11.5	24.5	27	76
GN 881-G3/4-200-MS-M	G 3/4	200	32	20	34	8	12	25	32	113
GN 881-G1-200-MS-M	G 1	200	39	20	44	8	12	25	41	186

Breather filters

Brass

SPECIFICATION

Valve body

Brass **MS**

Breather cap

Stainless Steel AISI 304 **M**

Air filter

- Stainless Steel-Wire mesh AISI 304
- Filter category G2-G3
- Mean separation rate (Am approx. 65 - 85 %, based on a particle size > 10 µm)

Sealing DIN 7603 A

Soft iron 1.0338

temperature resistant from -30 °C to +100 °C

INFORMATION

Breather filters GN 882 are used when the air exchange is to be allowed between the inside of the container and the ambient air. The filter function is marked by a blue colour ring.

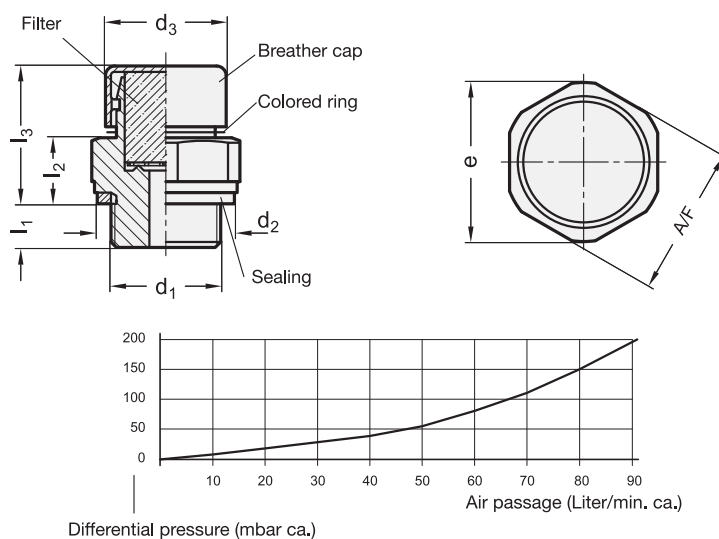
The filter prevents air-borne particles (e.g. dust) from being carried from the outside to the inside of the container. It also ensures that e.g. oil particles do not escape to the outside.

The above diagram shows the air passage as a factor of the differential pressure.

The recommended installation position is vertical to the top.

ON REQUEST

- other materials
- with dipstick



GN 882

Description	d1	d2	d3	e	l1	l2	l3	A/F	⚖
GN 882-M12x1,5-MS-M	M 12 x 1.5	18	20	23.5	8.5	11.5	24.5	22	40
GN 882-M14x1,5-MS-M	M 14 x 1.5	20	20	23.5	8.5	11.5	24.5	22	44
GN 882-M16x1,5-MS-M	M 16 x 1.5	22	20	23.5	8.5	11.5	24.5	22	49
GN 882-M18x1,5-MS-M	M 18 x 1.5	24	20	23.5	8.5	11.5	24.5	22	53
GN 882-M20x1,5-MS-M	M 20 x 1.5	26	20	29	8.5	11.5	24.5	27	75
GN 882-M22x1,5-MS-M	M 22 x 1.5	27	20	29	8.5	11.5	24.5	27	79
GN 882-M24x1,5-MS-M	M 24 x 1.5	29	20	32.5	8	12	25	30	97
GN 882-M26x1,5-MS-M	M 26 x 1.5	32	20	34	8	12	25	32	113
GN 882-M30x1,5-MS-M	M 30 x 1.5	36	20	39	8	12	25	36	148
GN 882-G1/4-MS-M	G 1/4	20	20	23.5	7.5	10.5	24.5	22	42
GN 882-G3/8-MS-M	G 3/8	22	20	23.5	8.5	11.5	24.5	22	49
GN 882-G1/2-MS-M	G 1/2	26	20	29	8	12	25	27	75
GN 882-G3/4-MS-M	G 3/4	32	20	34	8	12	25	32	113
GN 882-G1-MS-M	G 1	39	20	44	8	12	25	41	186



Breather valves

Brass

SPECIFICATION

Types

- Type **A**: low design
- Type **B**: high design with Stainless Steel cap

Valve body

Brass **MS**

Ball

Stainless Steel AISI 5210

Spring

Stainless Steel AISI 301

Sealing DIN 7603 A

Soft iron 1.0338

(for $d_1 = M10 \times 1:PA6$)

Breather cap (Type B)

Stainless Steel AISI 304

temperature resistant from -30°C to $+100^{\circ}\text{C}$

INFORMATION

Once the opening pressure given in the table is exceeded, breather valves GN 883 will vent into a container and so protect against excessive inside container pressure. They also feature highly compact dimensions.

A coding (Type A) or a colour ring (Type B) in yellow (20 - 80 mbar) or green (160 - 240 mbar) indicates the different opening pressure ratings.

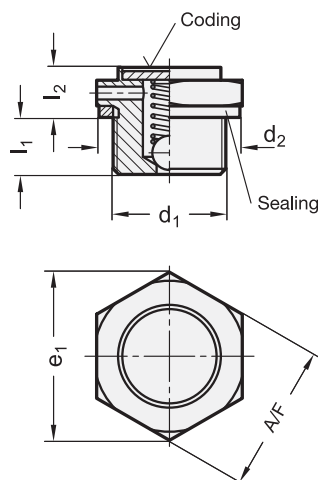
The simple function principle (pressure spring / ball) ensures long and trouble-free use of the valve. The installation position is vertical to the top.

TECHNICAL INFORMATION

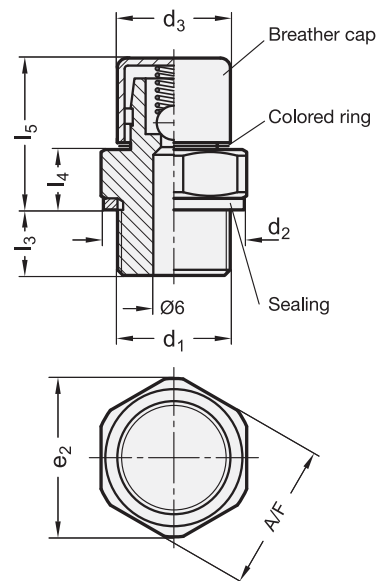
- Stainless Steel characteristics (see page A26)



Type A



Type B



GN 883

Description	d1	Opening pressure in mbar min.	Opening pressure in mbar max.	d2	d3	e1	e2	l1	l2	l3	l4	l5	A/F	Ca. air passage l/min.	
GN 883-M10x1-20-A-MS	M 10 x 1	20	80	14.5	-	16	-	6	6	-	-	-	14	1.2	8
GN 883-M10x1-160-A-MS	M 10 x 1	160	240	14.5	-	16	-	6	6	-	-	-	14	1.2	8
GN 883-M12x1,5-20-A-MS	M 12 x 1.5	20	80	18	-	19.5	-	6.5	6	-	-	-	17	1.2	14
GN 883-M12x1,5-160-A-MS	M 12 x 1.5	160	240	18	-	19.5	-	6.5	6	-	-	-	17	1.2	14
GN 883-M14x1,5-20-A-MS	M 14 x 1.5	20	80	20	-	19.5	-	6.5	6	-	-	-	17	1.2	16
GN 883-M14x1,5-160-A-MS	M 14 x 1.5	160	240	20	-	19.5	-	6.5	6	-	-	-	17	1.2	17
GN 883-M16x1,5-20-A-MS	M 16 x 1.5	20	80	22	-	25	-	9	11	-	-	-	22	1.2	35
GN 883-M16x1,5-160-A-MS	M 16 x 1.5	160	240	22	-	25	-	9	11	-	-	-	22	1.2	36
GN 883-M10x1-20-B-MS	M 10 x 1	20	80	-	12.5	-	18.5	-	-	8	7	16	17	1.8	19
GN 883-M10x1-160-B-MS	M 10 x 1	160	240	-	12.5	-	18.5	-	-	8	7	16	17	1.8	19
GN 883-M12x1,5-20-B-MS	M 12 x 1.5	20	80	-	12.5	-	18.5	-	-	7.5	7	16.5	17	1.8	22
GN 883-M12x1,5-160-B-MS	M 12 x 1.5	160	240	-	12.5	-	18.5	-	-	7.5	7	16.5	17	1.8	22
GN 883-M14x1,5-20-B-MS	M 14 x 1.5	20	80	-	12.5	-	18.5	-	-	7.5	7.5	16.5	17	1.8	25
GN 883-M14x1,5-160-B-MS	M 14 x 1.5	160	240	-	12.5	-	18.5	-	-	7.5	7.5	16.5	17	1.8	25
GN 883-M16x1,5-20-B-MS	M 16 x 1.5	20	80	-	12.5	-	24	-	-	7.5	7.5	16.5	22	1.8	36
GN 883-M16x1,5-160-B-MS	M 16 x 1.5	160	240	-	12.5	-	24	-	-	7.5	7.5	16.5	22	1.8	36
GN 883-G1/4-20-A-MS	G 1/4	20	80	20	-	19.5	-	6.5	6	-	-	-	17	1.2	15
GN 883-G1/4-160-A-MS	G 1/4	160	240	20	-	19.5	-	6.5	6	-	-	-	17	1.2	15
GN 883-G3/8-20-A-MS	G 3/8	20	80	23	-	25	-	9	11	-	-	-	22	1.2	37
GN 883-G3/8-160-A-MS	G 3/8	160	240	23	-	25	-	9	11	-	-	-	22	1.2	35
GN 883-G1/2-20-A-MS	G 1/2	20	80	26	-	31	-	8.5	11	-	-	-	27	1.2	46
GN 883-G1/2-160-A-MS	G 1/2	160	240	26	-	31	-	8.5	11	-	-	-	27	1.2	54
GN 883-G3/4-20-A-MS	G 3/4	20	80	32	-	37	-	8.5	11	-	-	-	32	1.2	49
GN 883-G3/4-160-A-MS	G 3/4	160	240	32	-	37	-	8.5	11	-	-	-	32	1.2	83
GN 883-G1/4-20-B-MS	G 1/4	20	80	-	12.5	-	18.5	-	-	7.5	7.5	16.5	17	1.8	24
GN 883-G1/4-160-B-MS	G 1/4	160	240	-	12.5	-	18.5	-	-	7.5	7.5	16.5	17	1.8	24
GN 883-G3/8-20-B-MS	G 3/8	20	80	-	12.5	-	24	-	-	7.5	7.5	16.5	22	1.8	38
GN 883-G3/8-160-B-MS	G 3/8	160	240	-	12.5	-	24	-	-	7.5	7.5	16.5	22	1.8	38
GN 883-G1/2-20-B-MS	G 1/2	20	80	-	12.5	-	29	-	-	8	8	17	27	1.8	56
GN 883-G1/2-160-B-MS	G 1/2	160	240	-	12.5	-	29	-	-	8	8	17	27	1.8	56
GN 883-G3/4-20-B-MS	G 3/4	20	80	-	12.5	-	35	-	-	8	8	17	32	1.8	84
GN 883-G3/4-160-B-MS	G 3/4	160	240	-	12.5	-	35	-	-	8	8	17	32	1.8	84



Breather filters

Brass

SPECIFICATION

Types

- Type **A**: low design
- Type **B**: high design, with Stainless Steel cap

Valve body

Brass **MS**

Air filter

- Stainless Steel-Wire mesh AISI 304
- Filter category G2-G3
- Mean separation rate (Am approx. 65 - 80 %, based on a particle size $> 10 \mu\text{m}$)

Sealing DIN 7603 A

Soft iron 1.0338

(at $d_1 = \text{M}10 \times 1$: PA6)

Breather (Type B)

Stainless Steel AISI 304

temperature resistant from -30°C to $+100^{\circ}\text{C}$

INFORMATION

The breather filters GN 884 are used when the air exchange is to be allowed between the inside of the container and the ambient air.

The stainless steel wire mesh prevents air-borne particles of a certain size from being carried into the inside of the container and simultaneously ensures that e.g. oil particles do not escape to the outside.

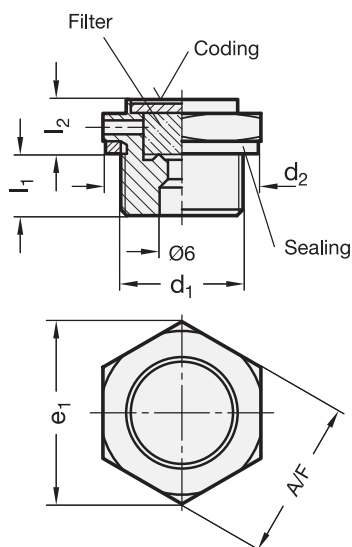
A label with the symbol "BE" (type A) or a blue coloured ring (type B) marks the filter function. The recommended installation position is vertical to the top.

ON REQUEST

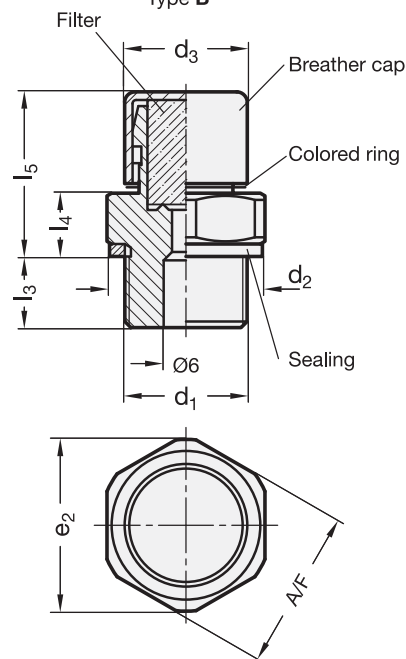
- other materials
- other dimensions



Type A



Type B



GN 884

Description	d1	d2	d3	e1	e2	l1	l2	l3	l4	l5	A/F	Ca. air passage l/min.	
GN 884-G1/8-A-MS	G 1/8	13.5	-	16	-	6	6	-	-	-	14	24	8
GN 884-M10x1-A-MS	M 10 x 1	14.5	-	16	-	6	6	-	-	-	14	24	7
GN 884-M12x1,5-A-MS	M 12 x 1.5	18	-	19.5	-	6.5	6	-	-	-	17	24	13
GN 884-M14x1,5-A-MS	M 14 x 1.5	20	-	19.5	-	6.5	6	-	-	-	17	24	15
GN 884-G1/4-A-MS	G 1/4	20	-	19.5	-	6.5	6	-	-	-	17	24	14
GN 884-M16x1,5-A-MS	M 16 x 1.5	22	-	25	-	9	11	-	-	-	22	24	33
GN 884-M18x1,5-A-MS	M 18 x 1.5	24	-	25	-	9	11	-	-	-	22	24	37
GN 884-M22x1,5-A-MS	M 22 x 1.5	27	-	31	-	9	11	-	-	-	27	24	55
GN 884-G3/8-A-MS	G 3/8	23	-	25	-	9	11	-	-	-	22	24	36
GN 884-G1/2-A-MS	G 1/2	26	-	31	-	8.5	11	-	-	-	27	24	53
GN 884-G3/4-A-MS	G 3/4	32	-	37	-	8.5	11	-	-	-	32	24	80
GN 884-G1/8-B-MS	G 1/8	13.5	12.5	16	18.5	6	6	8	7	16	17	46	18
GN 884-M10x1-B-MS	M 10 x 1	14.5	12.5	16	18.5	6	6	8	7	16	17	46	18
GN 884-M12x1,5-B-MS	M 12 x 1.5	18	12.5	19.5	18.5	6.5	6	7.5	7.5	16.5	17	46	21
GN 884-M14x1,5-B-MS	M 14 x 1.5	20	12.5	19.5	18.5	6.5	6	7.5	7.5	16.5	17	46	24
GN 884-G1/4-B-MS	G 1/4	20	12.5	19.5	18.5	6.5	6	7.5	7.5	16.5	17	46	23
GN 884-M16x1,5-B-MS	M 16 x 1.5	22	12.5	25	24	9	11	7.5	7.5	16.5	22	46	34
GN 884-M18x1,5-B-MS	M 18 x 1.5	24	12.5	25	24	9	11	7.5	7.5	16.5	22	46	38
GN 884-M22x1,5-B-MS	M 22 x 1.5	27	12.5	31	29	9	11	7.5	7.5	16.5	27	46	55
GN 884-G3/8-B-MS	G 3/8	23	12.5	25	24	9	11	7.5	7.5	16.5	22	46	36
GN 884-G1/2-B-MS	G 1/2	26	12.5	31	29	8.5	11	8	8	17	27	46	52
GN 884-G3/4-B-MS	G 3/4	32	12.5	37	35	8.5	11	8	8	17	32	46	80



Breather caps

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer.

- Cover: RAL 2004 orange, semi-matte finish, marked "OIL".
- Threaded connector: black colour, semi-matte finish.

PACKING RING

NBR synthetic rubber.

STANDARD EXECUTIONS

- **SFN.**: without air filter.
 - **SFN+F**: with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 µ.
 - **SFN.70-BA+F**: with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 µ.
- Zinc-plated steel sheet bayonet.
Chrome-plated steel safety chain.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C for execution with "tech-foam" air filter.

FEATURES AND APPLICATIONS

SFN. breather caps, owing to their high air flow rate, are particularly suitable for use on hydraulic power packs or tanks subject to rapid changes in liquid volume.

TECHNICAL DATA

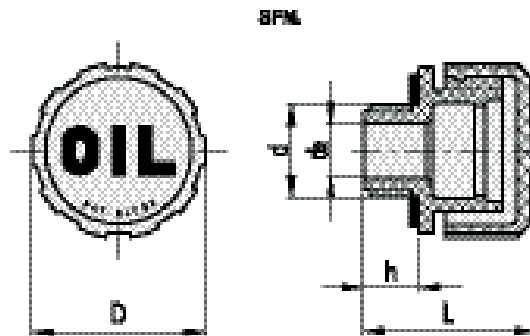
Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.

SPECIAL EXECUTIONS ON REQUEST

- Cover, RAL 2004 orange, without "OIL" mark.
- Black cover with or without "OIL" mark.
- Threaded connector also with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20) for the codes marked with # in the table.



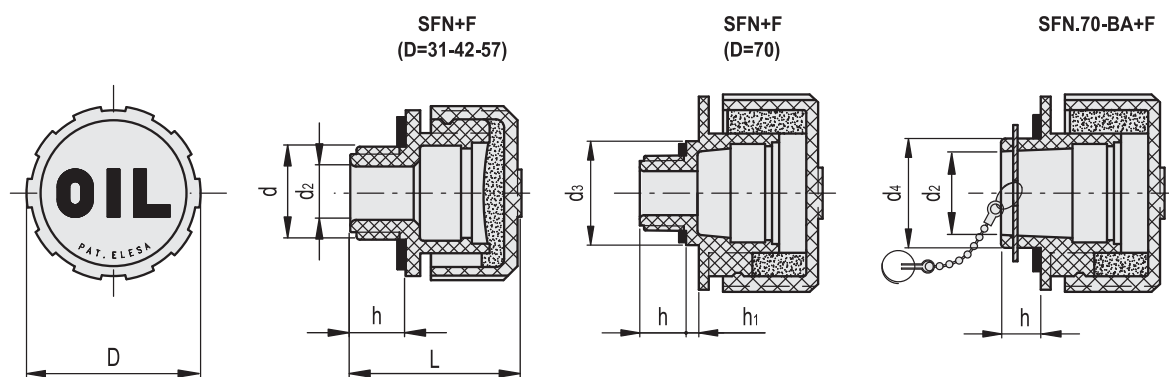
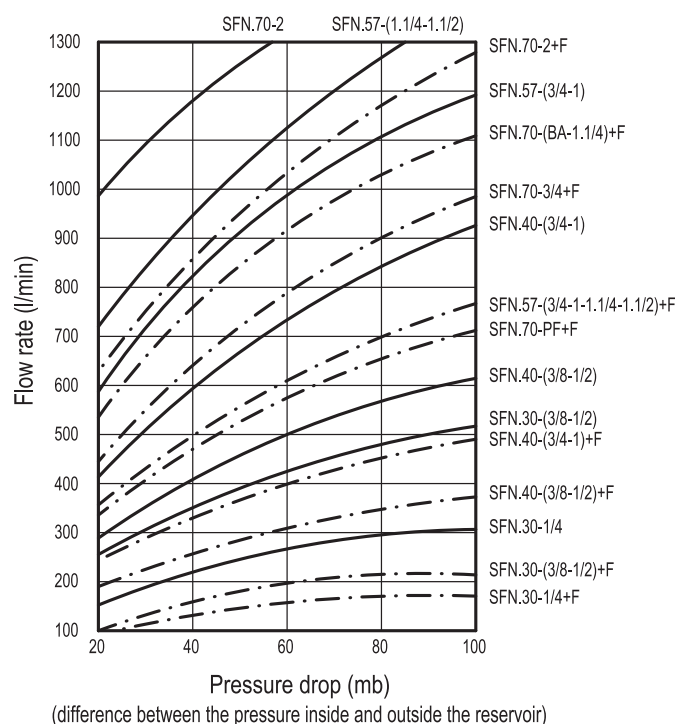
ELESA Original design



SFN.

Code	Description	d	D	L	d2	h	⚖
56151	SFN.30-1/4#	G 1/4	31	29.5	8	9.5	10
53901	SFN.30-3/8	G 3/8	31	29.5	10	9.5	10
53911	SFN.30-1/2	G 1/2	31	29.5	12	9.5	11
56181	SFN.40-3/8#	G 3/8	42	36.5	10	11.5	20
56201	SFN.40-1/2#	G 1/2	42	36.5	12	11.5	21
53921	SFN.40-3/4#	G 3/4	42	36.5	18	11.5	20
53931	SFN.40-1	G 1	42	36.5	18	11.5	20
56241	SFN.57-3/4#	G 3/4	57	42	18	14	38
56261	SFN.57-1	G 1	57	42	23	14	40
53932	SFN.57-1¼	G1 1/4	57	44	28	16	41
53933	SFN.57-1½	G1 1/2	57	44	28	16	40
56381	SFN.70-2	G 2	70	59	23	17	79

Types available on request with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20).



SFN+F

Code	Description	d	D	L	d2	d3	h	h1	△
56156	SFN.30-1/4+F#	G 1/4	31	29.5	8	-	9.5	-	10
56161	SFN.30-3/8+F	G 3/8	31	29.5	10	-	9.5	-	10
56171	SFN.30-1/2+F	G 1/2	31	29.5	12	-	9.5	-	11
56191	SFN.40-3/8+F#	G 3/8	42	36.5	10	-	11.5	-	19
56211	SFN.40-1/2+F#	G 1/2	42	36.5	12	-	11.5	-	20
56221	SFN.40-3/4+F#	G 3/4	42	36.5	18	-	11.5	-	20
56231	SFN.40-1+F	G 1	42	36.5	18	-	11.5	-	21
56251	SFN.57-3/4+F#	G 3/4	57	42	18	-	14	-	37
56271	SFN.57-1+F	G 1	57	42	23	-	14	-	38
56281	SFN.57-1¼+F	G1 1/4	57	44	28	-	16	-	39
56291	SFN.57-1½+F	G1 1/2	57	44	28	-	16	-	40
54701	SFN.70-3/4+F#	G 3/4	70	63	16	35	15	6	76
54711	SFN.70-1¼+F	G1 1/4	70	59	23	-	17	-	77
56391	SFN.70-2+F	G 2	70	59	23	-	17	-	82

SFN-BA+F

Code	Description	D	L	d2	d4	h	△
54731	SFN.70-BA+F	70	56	23	39	14	85

Types available on request with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20).



Breather cap

with sealing closure, technopolymer

MATERIAL

- Cover: polyamide based (PA) technopolymer, black colour, semi-matte finish.
- Threaded connector: acetal based technopolymer (POM), black colour, semi-matte finish.

PACKING RINGS

NBR synthetic rubber O-Ring.

AIR FILTER

Polyurethane foam mesh "tech-foam" (polyester base), air filtration 10 μ .

MAXIMUM CONTINUOUS WORKING TEMPERATURE

80°C.

FEATURES AND APPLICATIONS

The cover of the SFC. breather cap (ELESA Patent) can be positioned in two different ways:

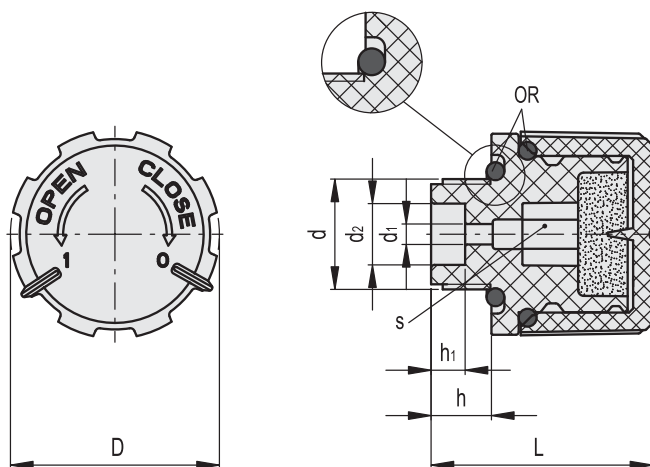
- Breather position: air is let in and out of the reservoir in normal conditions of use.
- Closure position: a packing ring between the cover and the threaded connector flange guarantees a perfect sealing of gas or liquid contained in the reservoir.

SPECIAL EXECUTIONS ON REQUEST

- Air filter in polyurethane foam mesh "tech-foam" (polyester base) with air filtration 40 μ .
- Cover in RAL 2004 orange.



ELESA Original design



Code	Description	d	D	L	d1	d2	h	h1	s	
52801	SFC.30-3/8+F	G 3/8	30	33	3	9	9	5	8	18

ASSEMBLY INSTRUCTIONS

The components are supplied not assembled.

- Screw the threaded connector by means of a hexagon socket, tightening torque 8 Nm (fig. 1).
- Insert the "tech-foam" filter in its proper upper housing.
- Fit the cover on the threaded connector by properly matching the two different teeth (one large and one tight) inside the cover, with the relevant knurlings on the upper part of the threaded connector (fig. 2).
- By turning the cover clockwise of a few degrees the breather position is reached: the index on the cover marked with 1 is in line with the index of the threaded connector (fig. 3).
- By further turning the cover clockwise following the CLOSE arrow, the closure position is reached: the index on the cover marked with 0 is in line with the index of the threaded connector (fig. 4).
- To reach from the closure position to the breather one just turn the cover anticlockwise following the OPEN arrow until the click.
- By further turning the cover anticlockwise following the OPEN arrow, it is possible to remove the cover from the threaded connector, thus allowing the operator to clean the two components or to substitute or clean the "tech-foam" filter (fig. 5).

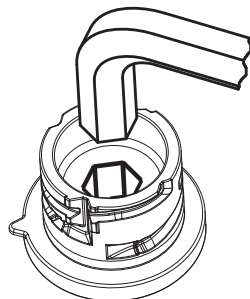
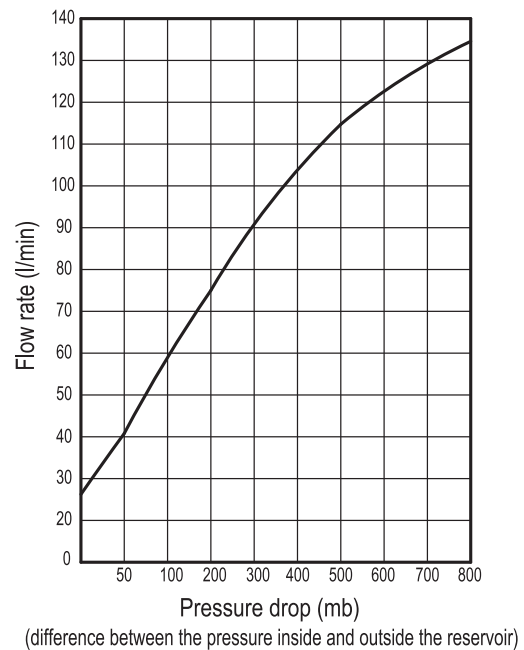


Fig.1

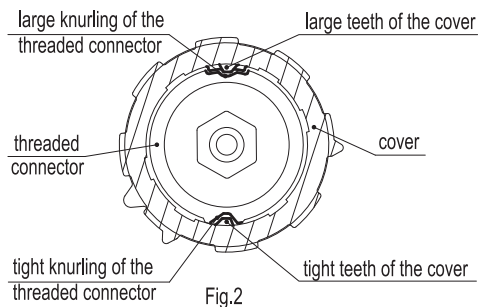


Fig.2

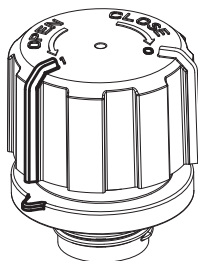


Fig.3

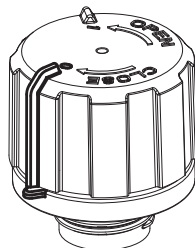


Fig.4

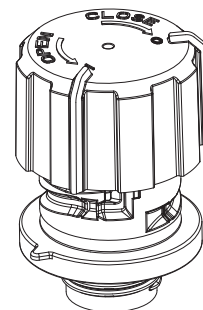


Fig.5



Breather caps

with splash guard, technopolymer

MATERIAL

Polyamide based (PA) technopolymer.

- Cover: RAL 2004 orange, semi-matte finish, marked "OIL".
- Threaded connector: black colour, semi-matte finish.

PACKING RING

NBR synthetic rubber.

SPLASH GUARD

Technopolymer.

STANDARD EXECUTIONS

- **SFP.**: without air filter (black splash guard).
- **SFP+F.**: with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 µ (grey splash guard) or with "tech-fil" air filter in zinc-plated steel wire (orange splash guard).
- **SFP.70-BA+F.**: with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 µ (grey splash guard).
Zinc-plated steel sheet bayonet.
Chrome-plated steel safety chain.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

FEATURES AND APPLICATIONS

SFP. breather caps come complete with splash guard device (ELESA original design) that prevents oil loss and are particularly suitable for use where oil is violently agitated and could be splashed against breather cap.

TECHNICAL DATA

Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.

SPECIAL EXECUTIONS ON REQUEST

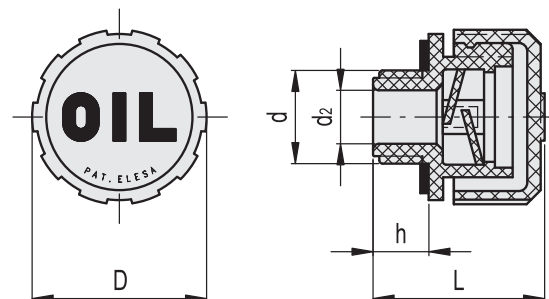
- Cover, RAL 2004 orange, without "OIL" mark.
- Black cover with or without "OIL" mark.
- Threaded connector also with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20) for the codes marked with # in the table.



ELESA Original design



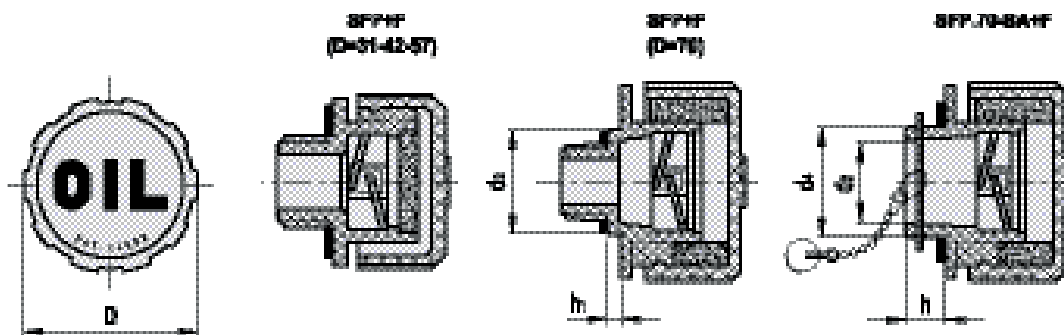
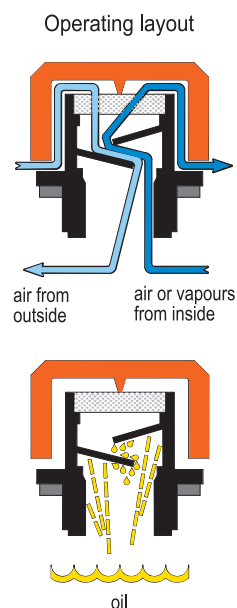
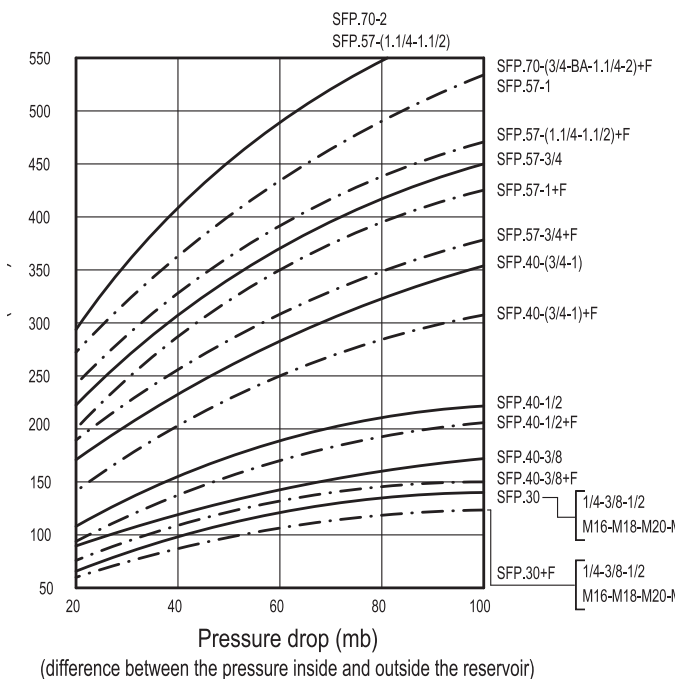
SFP.



SFP.

Code	Description	d	D	L	d2	h	⚖
53941	SFP.30-16x1.5	M16x1.5	31	29.5	10	9.5	10
53961	SFP.30-18x1.5	M18x1.5	31	29.5	10	9.5	10
53981	SFP.30-20x1.5	M20x1.5	31	29.5	12	9.5	11
53991	SFP.30-22x1.5	M22x1.5	31	29.5	12	9.5	11
53935	SFP.30-1/4#	G 1/4	31	29.5	8	9.5	10
54001	SFP.30-3/8	G 3/8	31	29.5	10	9.5	11
54101	SFP.30-1/2	G 1/2	31	29.5	12	9.5	11
56651	SFP.40-3/8#	G 3/8	42	36.5	10	11.5	20
56671	SFP.40-1/2#	G 1/2	42	36.5	12	11.5	22
54201	SFP.40-3/4#	G 3/4	42	36.5	18	11.5	22
54301	SFP.40-1	G 1	42	36.5	18	11.5	22
56701	SFP.57-3/4#	G 3/4	57	42	18	14	40
56731	SFP.57-1	G 1	57	42	23	14	40
54401	SFP.57-1¼	G1 1/4	57	44	28	16	41
54501	SFP.57-1½	G1 1/2	57	44	28	16	45
54876	SFP.70-2	G 2	70	59	23	17	82

Types available on request with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20).



SFP+F

Code	Description	Code	Description	d	D	L	d2	d3	h	h1	⚖
53951	SFP.30-16x1.5+F FIL	53952	SFP.30-16x1.5+F FOAM	M16x1.5	31	29.5	10	-	9.5	-	12
53971	SFP.30-18x1.5+F FIL	53972	SFP.30-18x1.5+F FOAM	M18x1.5	31	29.5	10	-	9.5	-	13
53986	SFP.30-20x1.5+F FIL	53987	SFP.30-20x1.5+F FOAM	M20x1.5	31	29.5	12	-	9.5	-	13
53996	SFP.30-22x1.5+F FIL	53997	SFP.30-22x1.5+F FOAM	M22x1.5	31	29.5	12	-	9.5	-	14
53937	SFP.30-1/4+F FIL	53938	SFP.30-1/4+F FOAM	G 1/4	31	29.5	8	-	9.5	-	11
54021	SFP.30-3/8+F FIL	54022	SFP.30-3/8+F FOAM	G 3/8	31	29.5	10	-	9.5	-	13
54121	SFP.30-1/2+F FIL	54122	SFP.30-1/2+F FOAM	G 1/2	31	29.5	12	-	9.5	-	15
56661	SFP.40-3/8+F FIL	56662	SFP.40-3/8+F FOAM#	G 3/8	42	36.5	10	-	11.5	-	23
56681	SFP.40-1/2+F FIL	56682	SFP.40-1/2+F FOAM#	G 1/2	42	36.5	12	-	11.5	-	26
54221	SFP.40-3/4+F FIL	54222	SFP.40-3/4+F FOAM#	G 3/4	42	36.5	18	-	11.5	-	28
54321	SFP.40-1+F FIL	54322	SFP.40-1+F FOAM	G 1	42	36.5	18	-	11.5	-	24
56711	SFP.57-3/4+F FIL	56712	SFP.57-3/4+F FOAM#	G 3/4	57	42	18	-	14	-	50
56741	SFP.57-1+F FIL	56742	SFP.57-1+F FOAM	G 1	57	42	23	-	14	-	50
54421	SFP.57-1¼+F FIL	54422	SFP.57-1¼+F FOAM	G1 1/4	57	44	28	-	16	-	50
54521	SFP.57-1½+F FIL	54522	SFP.57-1½+F FOAM	G1 1/2	57	44	28	-	16	-	54
-	-	54851	SFP.70-3/4+F FOAM#	G 3/4	70	63	16	35	15	6	80
-	-	54861	SFP.70-1¼+F FOAM	G1 1/4	70	59	23	-	17	-	80
-	-	54878	SFP.70-2+F FOAM	G 2	70	59	23	-	17	-	85

SFP.70-BA+F

Code	Description	D	L	d2	d4	h	⚖
54881	SFP.70-BA+F FOAM	70	56	30	39	14	91

Types available on request with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20).

Breather caps

with splash guard and flat dipstick, technopolymer

MATERIAL

Polyamide based (PA) technopolymer.

- Cover: RAL 2004 orange, semi-matte finish, marked "OIL".
- Threaded connector: black, semi-matte finish.

PACKING RING

NBR synthetic rubber.

FLAT DIPSTICK

Flat section phosphatised steel. On request and for sufficient quantities dipstick can be supplied in different lengths and/or complete with MAX-MIN level lines.

SPLASH GUARD

Technopolymer.

STANDARD EXECUTIONS

- **SFP+a**: without air filter (black splash guard).
- **SFP+F+a**: D = 31, 42 and 57 with "tech-fil" air filter in zinc-plated steel wire (orange splash guard); D = 70 with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 µ (grey splash guard).
- **SFP.70-BA+F+a**: with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 µ (grey splash guard).

Zinc-plated steel sheet bayonet.

Chrome-plated steel safety chain.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

FEATURES AND APPLICATIONS

SFP+a breather caps come complete with splash guard device (ELESA originale design) that prevents oil loss and are particularly suitable for use where oil is violently agitated and could be splashed against the breather cap.

TECHNICAL DATA

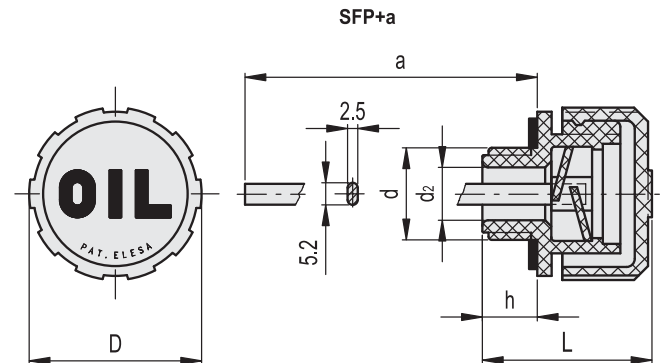
Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.

SPECIAL EXECUTIONS ON REQUEST

- Cover, RAL 2004 orange, without "OIL" mark.
- Black cover with or without "OIL" mark.

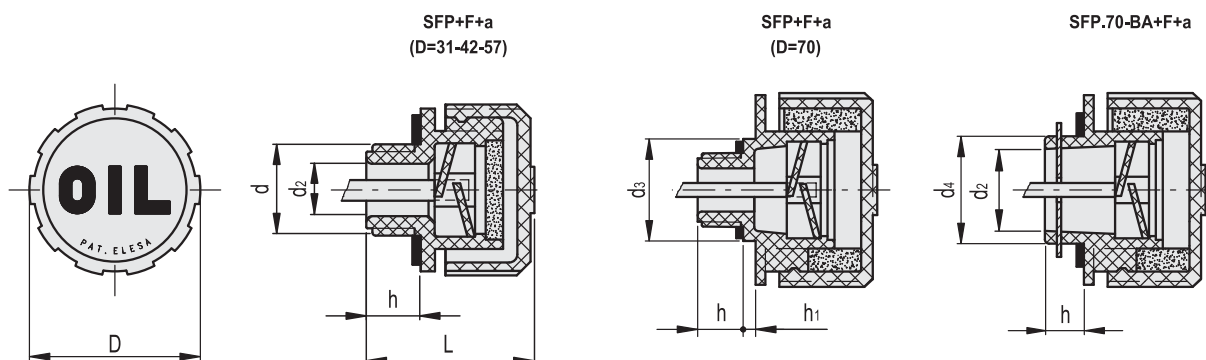
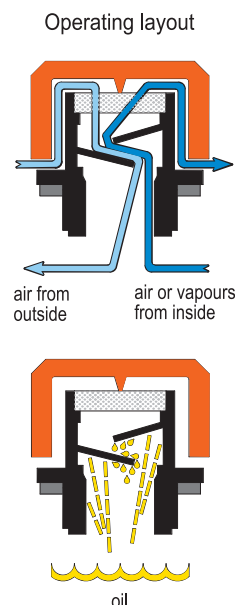
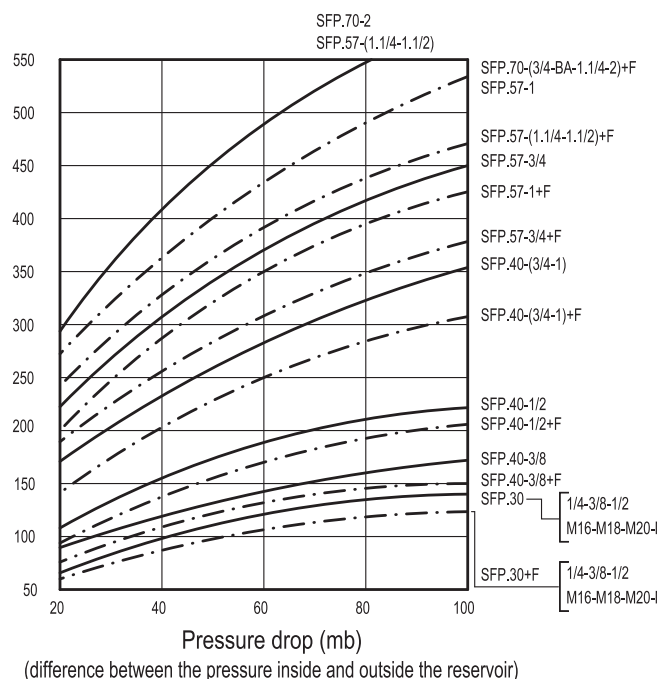


ELESA Original design



SFP+a

Code	Description	d	D	L	d2	h	a	⚖
53946	SFP.30-16x1.5+a	M16x1.5	31	29.5	10	9.5	188	30
53966	SFP.30-18x1.5+a	M18x1.5	31	29.5	10	9.5	188	30
53983	SFP.30-20x1.5+a	M20x1.5	31	29.5	12	9.5	188	31
53993	SFP.30-22x1.5+a	M22x1.5	31	29.5	12	9.5	188	31
53936	SFP.30-1/4+a	G 1/4	31	29.5	8	9.5	188	30
54011	SFP.30-3/8+a	G 3/8	31	29.5	10	9.5	188	30
54111	SFP.30-1/2+a	G 1/2	31	29.5	12	9.5	188	30
54211	SFP.40-3/4+a	G 3/4	42	36.5	18	11.5	184	42
54311	SFP.40-1+a	G 1	42	36.5	18	11.5	184	44
54411	SFP.57-1¼+a	G 1 1/4	57	44	28	16	184	63
54511	SFP.57-1½+a	G 1 1/2	57	44	28	16	184	65
54877	SFP.70-2+a	G 2	70	59	23	17	179	106



SFP+F+a

Code	Description	d	D	L	d2	d3	h	h1	a	⚖
53956	SFP.30-16x1.5+F+a	M16x1.5	31	29.5	10	-	9.5	-	188	34
53976	SFP.30-18x1.5+F+a	M18x1.5	31	29.5	10	-	9.5	-	188	34
53989	SFP.30-20x1.5+F+a	M20x1.5	31	29.5	12	-	9.5	-	188	32
53999	SFP.30-22x1.5+F+a	M22x1.5	31	29.5	12	-	9.5	-	188	33
53939	SFP.30-1/4+F+a	G 1/4	31	29.5	8	-	9.5	-	188	31
54031	SFP.30-3/8+F+a	G 3/8	31	29.5	10	-	9.5	-	188	33
54131	SFP.30-1/2+F+a	G 1/2	31	29.5	12	-	9.5	-	188	34
54231	SFP.40-3/4+F+a	G 3/4	42	36.5	18	-	11.5	-	184	50
54331	SFP.40-1+F+a	G 1	42	36.5	18	-	11.5	-	184	50
54431	SFP.57-1/4+F+a	G 1 1/4	57	44	28	-	16	-	184	75
54531	SFP.57-1/2+F+a	G 1 1/2	57	44	28	-	16	-	184	75
54853	SFP.70-3/4+F+a	G 3/4	70	63	16	35	15	6	173	100
54863	SFP.70-1/4+F+a	G 1 1/4	70	59	23	-	17	-	179	105
54879	SFP.70-2+F+a	G 2	70	59	23	-	17	-	179	110

SFP.70-BA+F+a

Code	Description	D	L	d2	d4	h	a	⚖
54883	SFP.70-BA+F+a	70	56	30	39	14	179	100

Breather caps

with splash guard, technopolymer

MATERIAL

Polyamide based (PA) technopolymer.

- Cover: RAL 2004 orange, semi-matte finish, marked "OIL".
- Threaded connector: black colour, semi-matte finish.

PACKING RING

NBR synthetic rubber.

SPLASH GUARD

Technopolymer.

STANDARD EXECUTIONS

- **SFP-EX**: without air filter (black splash guard).
- **SFP+F-EX**: with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 μ (grey splash guard).

ATEX DIRECTIVE COMPLIANCE

The breather caps of the SFP-EX series comply with Health and Safety Requirements intended in 94/9/EC ATEX European Directive (explosive atmospheres) for equipments in Group II, category 2GD.

II 2 G D IIB T6, marked on the SFP-EX breather caps, represents the identification according to ATEX directive.

II: group of substances for which the product is suitable

2: identification of the category

G: identification of the type of explosive atmosphere (Gases or vapours)

D: identification of the type of explosive atmosphere (Dust)

IIB: group of explosive gases

T6: temperature class

Ambient and/or fluid temperature: $-30 \div +80^{\circ}\text{C}$

The declaration of conformity to European Directives of this product is available and it is part of the product itself.

FEATURES AND APPLICATIONS

SFP-EX breather caps come complete with splash guard device (ELESA original design) that prevents oil loss and are particularly suitable for use where oil is violently agitated and could be splashed against breather cap.

TECHNICAL DATA

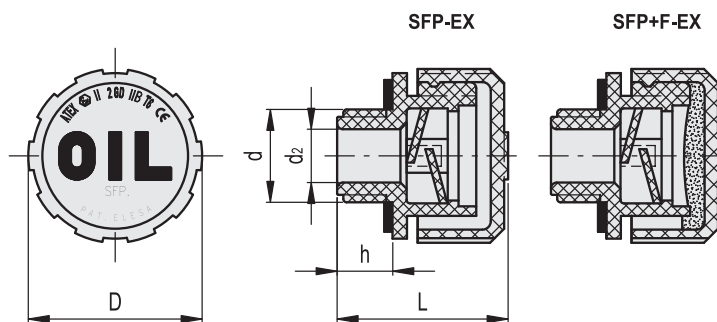
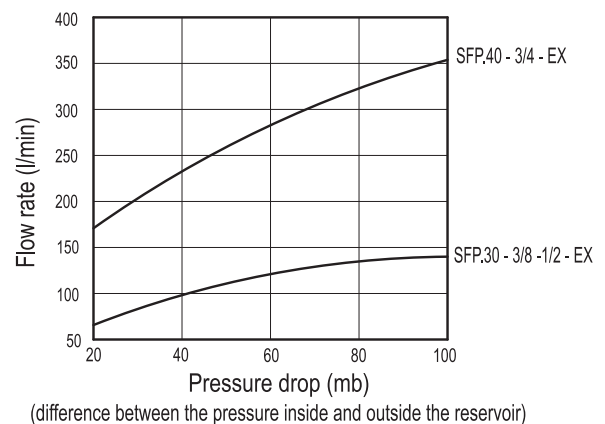
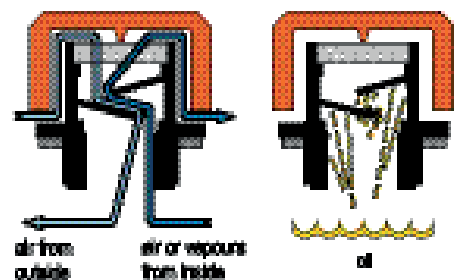
Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.



ELESA Original design



Operating layout



SFP-EX

Code	Description	d	D	L	d2	h	
54001-EX	SFP.30-3/8-EX	G 3/8	31	29.5	10	9.5	11
54101-EX	SFP.30-1/2-EX	G 1/2	31	29.5	12	9.5	11
54201-EX	SFP.40-3/4-EX	G 3/4	42	36.5	18	11.5	22

SFP+F-EX

Code	Description	d	D	L	d2	h	
54022-EX	SFP.30-3/8+F-EX	G 3/8	31	29.5	10	9.5	13
54122-EX	SFP.30-1/2+F-EX	G 1/2	31	29.5	12	9.5	15
54222-EX	SFP.40-3/4+F-EX	G 3/4	42	36.5	18	11.5	28

Breather caps
with splash guard and flat dipstick, technopolymer

MATERIAL
Polyamide based (PA) technopolymer.
- Cover: RAL 2004 orange, semi-matte finish, marked "OIL".
- Threaded connector: black colour, semi-matte finish.

PACKING RING
NBR synthetic rubber.

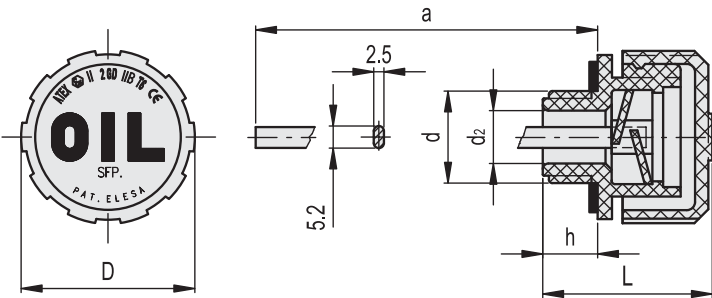
FLAT DIPSTICK
Flat section phosphatised steel.
On request and for sufficient quantities dipstick can be supplied in different lengths and/or complete with MAX-MIN level lines.

SPLASH GUARD
Technopolymer.

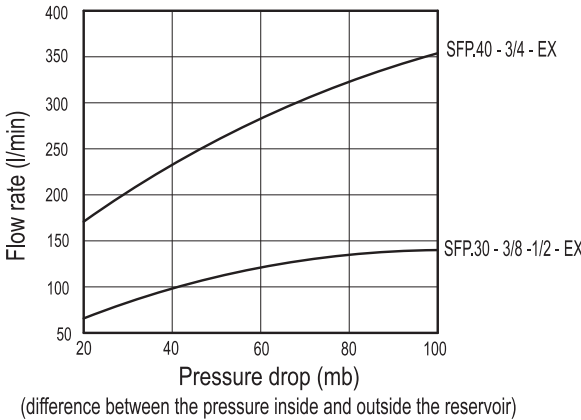
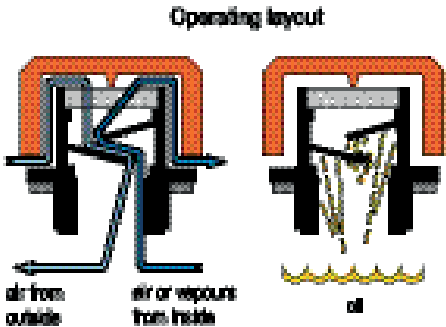
ATEX DIRECTIVE COMPLIANCE
The breather caps of the SFP+a-EX series comply with Health and Safety Requirements intended in 94/9/EC ATEX European Directive (explosive atmospheres) for equipments in Group II, category 2GD. II 2 G D IIB T6, marked on the SFP-EX breather caps, represents the identification according to ATEX directive.
II: group of substances for which the product is suitable
2: identification of the category
G: identification of the type of explosive atmosphere (Gases or vapours)
D: identification of the type of explosive atmosphere (Dust)
IIB: group of explosive gases
T6: temperature class
Ambient and/or fluid temperature: -30 ÷ +80°C
Every product codes will be supplied with declaration of conformity to European Directives.

FEATURES AND APPLICATIONS
SFP+a-EX breather caps come complete with splash guard device (ELESA original design) that prevents oil loss and are particularly suitable for use where oil is violently agitated and could be splashed against breather cap.

TECHNICAL DATA
Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.



ELESA Original design



Code	Description	d	D	L	d2	h	a	⚖
54011-EX	SFP.30-3/8+a-EX	G 3/8	31	29.5	10	9.5	188	30
54111-EX	SFP.30-1/2+a-EX	G 1/2	31	29.5	12	9.5	188	30
54211-EX	SFP.40-3/4+a-EX	G 3/4	42	36.5	18	11.5	184	42



Breather caps with vacuum breaker valve

Technopolymer

MATERIAL

Polypropylene based (PP) technopolymer.

- Cover: red colour (TVD-EPDM), green (TVD-FKM).
- Graphic symbol "valve" tampoprinted in black colour.
- Avoid contact with solvents, alcohol or detergents containing alcohol to preserve tampoprinted graphic symbol.
- Threaded connector: black colour.

STANDARD EXECUTIONS

- **TVD-FKM**: flat packing ring and FKM membrane gasket, hardness 70 Shore A.
- **TVD-EPDM**: flat packing ring and EPDM membrane gasket, hardness 70 Shore A.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

50°C.

FEATURES AND APPLICATIONS

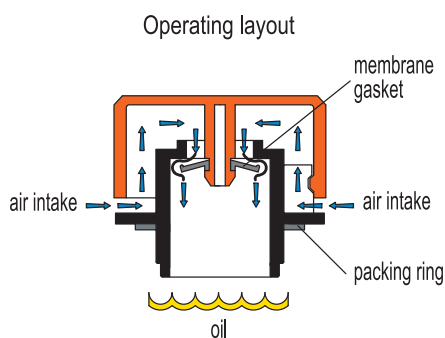
TVD. breather caps with vacuum breaker valve are suitable for reservoirs and tanks for liquid transport.

The membrane retaining system allows a quick emptying out of the reservoir by letting in big quantities of air through the cap. Thus avoiding the vacuum inside the reservoir, slowing down the liquid exit. The pre-set pressure of the membrane gasket stops any liquid loss when the reservoir is shaken (for example during transportation).

The liquid pressure on the gasket guarantees a perfect seal of the cap, for example in case of overturning of the reservoir.



ELESA Original design



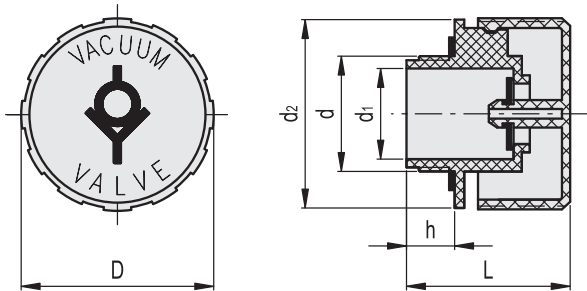
The membrane gasket warps and lets air inside the reservoir due to the effect of the vacuum which is created by the liquid discharge.

DEPRESSION	FLOW RATE	
	FKM	EPDM
50 mb	360 l/min	370 l/min
40 mb	320 l/min	330 l/min
30 mb	260 l/min	280 l/min
20 mb	210 l/min	230 l/min
10 mb	140 l/min	160 l/min
5 mb	110 l/min	130 l/min

RESISTANCE TO CHEMICAL AGENTS
Tests carried out under standard laboratory conditions at 23°C.
Values to be considered only as guidelines.
Please contact ELESa Technical Department for further chemical resistance details to particular liquids not reported in the table.

CHEMICAL AGENTS	EPDM	FKM	PP
POOR ACIDS	●	●	●
STRONG ACIDS	●	▲	●
CONC. ACETIC ACID 40%	●	▲	●
CONC. HYDROCHLORIC ACID 10%	●	●	●
CONC. NITRIC ACID 10%	▲	●	■
CONC. SULPHURIC ACID 20%	▲	●	●
ALCOHOL	●	▲	●
ALDEHYDE (FORMALDEHYDE)	●	▲	●
AMMONIA	●	▲	●
POOR BASES	●	●	●
STRONG BASES	●	▲	●
BENZOL	▲	●	▲
KETONES (Acetone, Methyl Ethyl Ketone)	●	▲	●
ESTERS	●	▲	●
GLYCOL	●	●	●
ALIPHATIC HYDROCARBONS (Petrol, Gas oil, Ethane, Propane, Butane)	▲	●	■
AROMATIC HYDROCARBONS (Toluol, Xylol)	▲	●	■
ANIMAL AND VEGETAL OILS AND GREASES	▲	●	●
MINERAL OIL AND GREASES	▲	●	■

Resistance: Good ● Fair ■ Poor ▲



Code	Description	d	D	L	d1	d2	h	⚖
61011	TVD.70-1¼-FKM	G1 1/4	70	59	33	68.5	17	80
61021	TVD.70-1¼-EPDM	G1 1/4	70	59	33	68.5	17	80



Breather cap push-fit, technopolymer

MATERIAL

Polyamide based (PA) technopolymer.

- Cover: RAL 2004 orange, semi-matte finish, marked "OIL".
- Threaded connector: black colour, semi-matte finish.

MOUNTING

Push-fit on pipes with max outside diameter of 39 mm and min inside diameter of 32 mm.

CLIP

Black-oxide steel.

RING-SHAPED AIR FILTER

"Tech-foam" polyurethane foam mesh (polyester base), air filtration 40 μ .

MAXIMUM CONTINUOUS WORKING TEMPERATURE

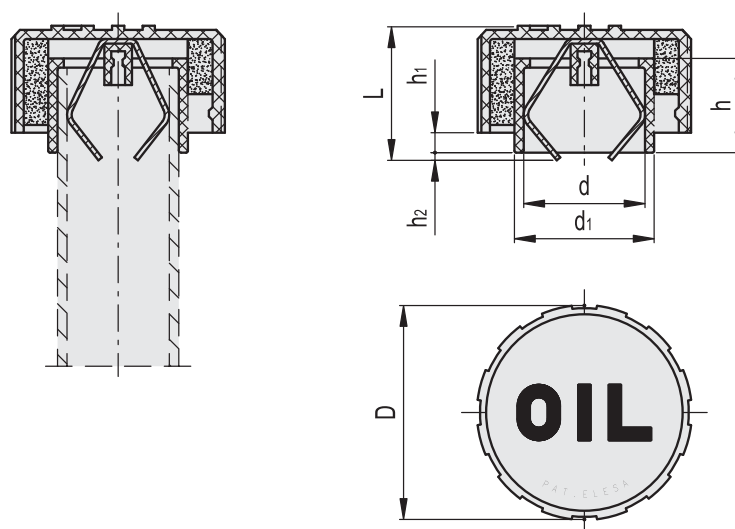
100°C.

SPECIAL EXECUTIONS ON REQUEST

- Cover, RAL 2004 orange, without "OIL" mark.
- Black cover with or without "OIL" mark.



ELESA Original design 



Code	Description	d	D	L	d1	h	h1	h2	
54761	SFN.70-PF+F	39.5	70	43	45.5	27.5	2.5	6.5	67

Valve breather caps

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer.

- Cover: RAL 2004 orange, semi-matte finish, with graphic symbol "valve".
- Threaded connector: black colour, semi-matte finish.

PACKING RING

NBR synthetic rubber.

SEALING DISK

Technopolymer with NBR synthetic rubber O-ring.

SPRING

Stainless steel.

STANDARD EXECUTIONS

- **SFV-10 mb**: valve (sealing disk) opens when pressure exceeds 0.010 bar (set at 10 mb).
- **SFV-100 mb**: valve (sealing disk) opens when pressure exceeds 0.100 bar (set at 100 mb).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

FEATURES AND APPLICATIONS

SFV. valve breather caps are particularly suitable for all those applications (speed reducers, variators or compressors) when the internal air pressure must not exceed a certain value (10 or 100 mb). In these cases, the safety valve of the cap allows the expulsion of the exceeding air in the reservoir, thus re-establishing the pressure values for which the valve is set.

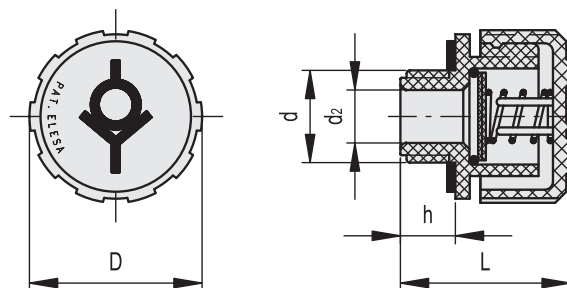
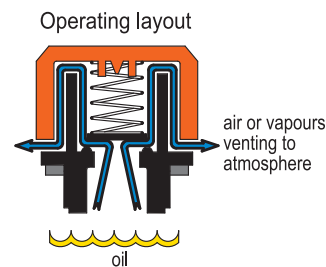
Sealing disc (closed in normal pressure conditions) prevents dust from getting in and oil-losses.

SPECIAL EXECUTIONS ON REQUEST

Black cover.



ELESA Original design



Code	Description	Code	Description	d	D	L	d2	h	⚖
54611	SFV.16x1.5 10mb	54616	SFV.16x1.5 100mb	M16x1.5	31	29.5	10	9.5	12
54621	SFV.18x1.5 10mb	54626	SFV.18x1.5 100mb	M18x1.5	31	29.5	10	9.5	12
54631	SFV.20x1.5 10mb	54636	SFV.20x1.5 100mb	M20x1.5	31	29.5	10	9.5	12
54641	SFV.22x1.5 10mb	54646	SFV.22x1.5 100mb	M22x1.5	31	29.5	10	9.5	13
54651	SFV.1/4 10mb	54656	SFV.1/4 100mb	G 1/4	31	29.5	8	9.5	11
54661	SFV.3/8 10mb	54666	SFV.3/8 100mb	G 3/8	31	29.5	10	9.5	12
54671	SFV.1/2 10mb	54676	SFV.1/2 100mb	G 1/2	31	29.5	10	9.5	12
54681	SFV.3/4 10mb	54686	SFV.3/4 100mb	G 3/4	42	36.5	17	11.5	23
54691	SFV.1 10mb	54696	SFV.1 100mb	G 1	42	36.5	17	11.5	25



Pressurised breather caps

with double valve, technopolymer

MATERIAL

Polyamide based (PA) technopolymer.

- Cover: RAL 2004 orange, semi-matte finish, with graphic symbol "valve".
- Threaded connector: black colour, semi-matte finish.

PACKING RING

NBR synthetic rubber.

OVERPRESSURE VALVE

Technopolymer with NBR synthetic rubber O-ring and stainless steel spring.

Set at around 0.350 bar (on request 0.700 bar).

SUCTION VALVE

Technopolymer sealing disk with NBR synthetic rubber O-ring and stainless steel spring.

Set at around 0.030 bar.

RING-SHAPED AIR FILTER

"Tech-foam" polyurethane foam mesh (polyester base), air filtration 40 µ.

FLAT DIPSTICK

Flat section phosphatised steel.

On request and for sufficient quantities dipstick can be supplied in different lengths and/or complete with MAX-MIN level lines.

STANDARD EXECUTIONS

- **SFW+F**: without flat dipstick.
- **SFW-BA+F**: with zinc-plated steel sheet bayonet, without flat dipstick. Chrome-plated steel safety chain.
- **SFW+F+a**: with flat dipstick.
- **SFW-BA+F+a**: with zinc-plated steel sheet bayonet and flat dipstick. Chrome-plated steel safety chain.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

SPECIAL EXECUTIONS ON REQUEST

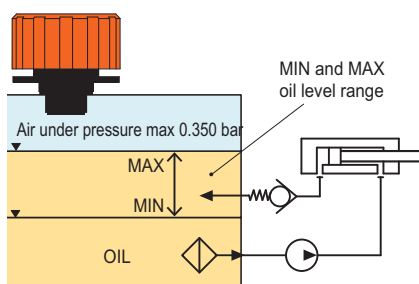
- Black cover.
- Threaded connector also with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20) for the codes marked with # in the table.



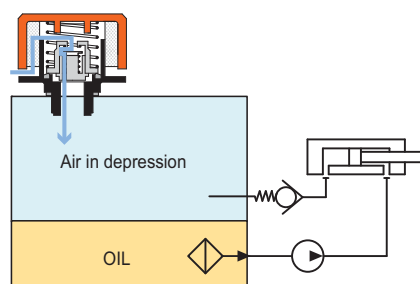
ELESA Original design



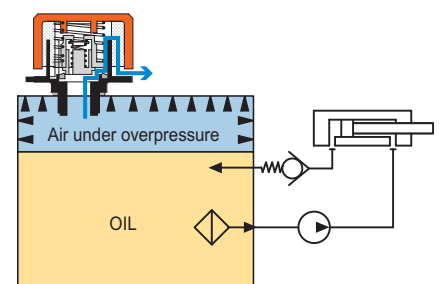
SFW. pressurised breather cap functioning in a hydraulic circuit



Normal working conditions



When in the reservoir a depression around 0.030 bar is produced, a flux of air entering the reservoir through the suction valve takes place.



When in the reservoir an over pressure exceeding 0.350 (or 0.700) bar is produced, a flux of air is discharged through the safety valve.

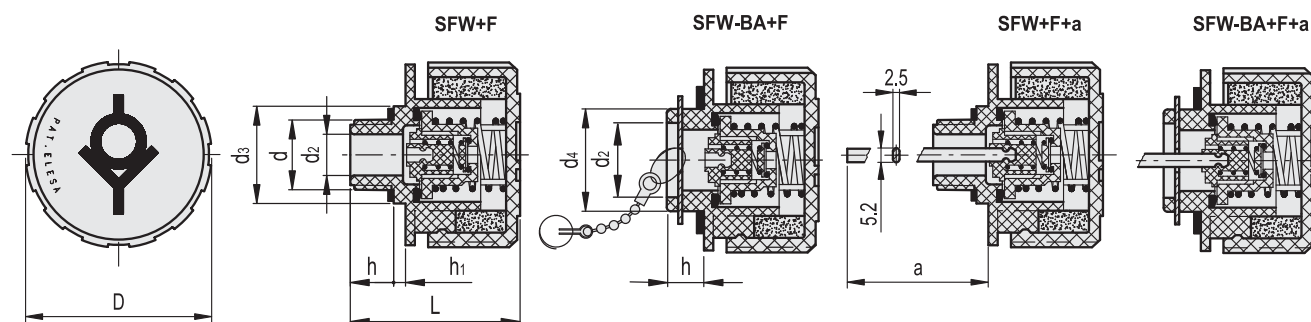
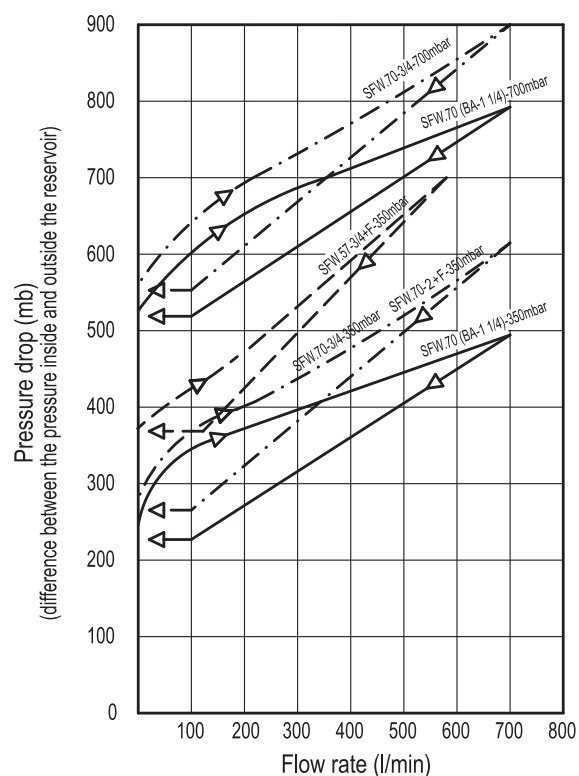
FEATURES

The use of SFW. pressurised breather caps which create a pressure plenum chamber right above the oil level within tested limit conditions, in order to avoid any reservoir deformation, offers the following advantages:

- reduces reservoir air volume intake keeping clean oil and filter
- improves suction pump action during working conditions reducing cavitation phenomenon
- prevents fluid leakage when the system is part of a mobile unit
- reduces foam in fluid.

TECHNICAL DATA

Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.



SFW+F

Code	Description	d	D	L	d2	d3	h	h1	⚖
54801	SFW.57-3/4+F-350 mb	G 3/4	57	48	16	35	13	6	67
54911	SFW.70-3/4+F-350 mb#	G 3/4	70	63	16	35	15	6	98
54921	SFW.70-1 1/4+F-350 mb	G1 1/4	70	59	23	-	17	-	101
54931	SFW.70-2+F-350 mb	G 2	70	59	23	-	17	-	108

SFW-BA+F

Code	Description	D	L	d2	d4	h	⚖
54941	SFW.70-BA+F-350 mb	70	56	30	39	14	105

SFW-BA+F+a

Code	Description	D	L	d2	d4	h	a	⚖
54943	SFW.70-BA+F+a-350 mb	70	56	30	39	14	195	124

SFW+F+a

Code	Description	d	D	L	d2	d3	h	h1	a	⚖
54913	SFW.70-3/4+F+a-350 mb#	G 3/4	70	63	16	35	15	6	188	117
54923	SFW.70-1 1/4+F+a-350 mb	G1 1/4	70	59	23	-	17	-	195	120

Types available on request with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20).

Pressurised breather caps

with double valve and vandal-proof device, technopolymer

MATERIAL

- Cover: polyamide based (PA) technopolymer, black colour, matte finish. Graphic symbol "double valve".
- Threaded connector: acetal based technopolymer (POM), black colour, matte finish.

PACKING RING

NBR synthetic rubber.

OVERPRESSURE VALVE

Technopolymer with NBR synthetic rubber O-ring and stainless steel spring.

Set at around 0.350 bar (on request 0.700 bar).

SUCTION VALVE

Technopolymer sealing disk with NBR synthetic rubber O-ring and stainless steel spring.

Set at around 0.030 bar.

RING-SHAPED AIR FILTER

"Tech-foam" polyurethane foam mesh (polyester base), air filtration 40 µ.

KEY

Acetal resin-based (POM) technopolymer, red colour, with stainless steel anti-intrusion-profile insert. Folding. On request it can be supplied in black colour too.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

"VANDAL-PROOF" SAFETY DEVICE (ELESA PATENT)

It is especially designed to prevent the cap from being unscrewed without permission. It is provided with a "controlled-torque" mechanism which guarantees the best seal of the packing ring.

SPECIAL EXECUTIONS ON REQUEST

Flat dipstick, flat section phosphatised steel.

APPLICATIONS

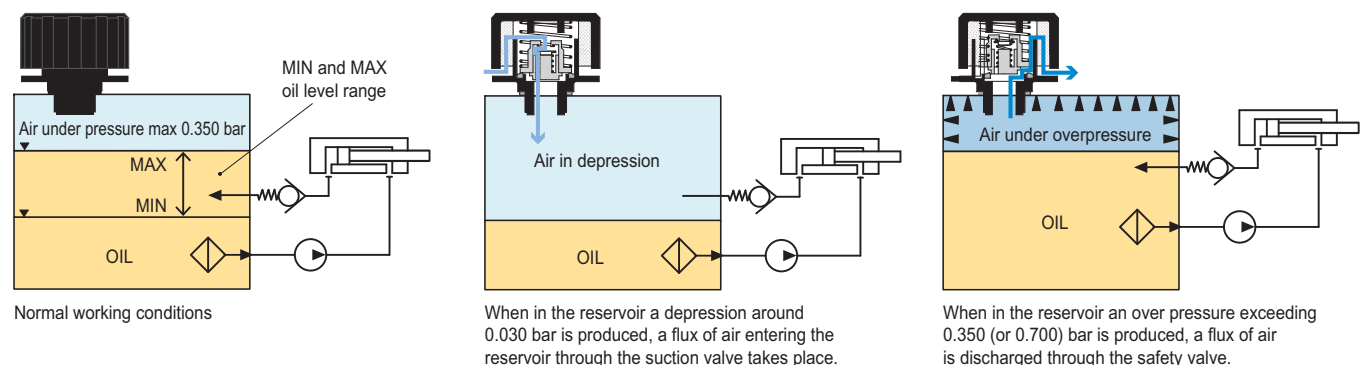
SFW-VP pressurised breather caps are suitable for material handling equipment, machines for the agriculture sector and in general for those machines which remain unattended.

Thanks to its small dimensions, the key can be kept together with others (e.g. starting key of the engine).



ELESA Original design

SFW.VP pressurised breather cap functioning in a hydraulic circuit



FEATURES

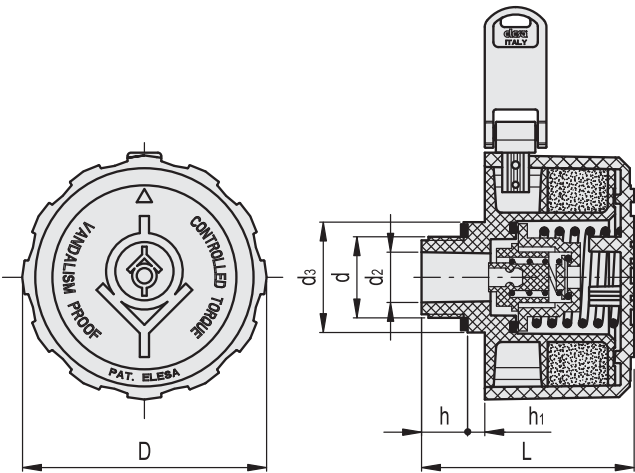
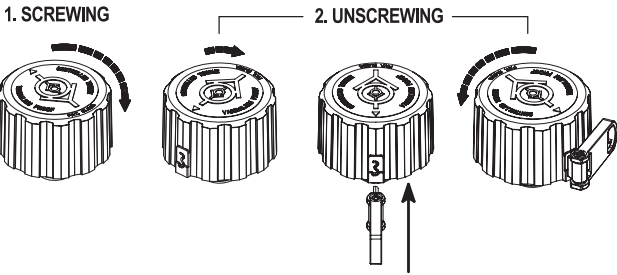
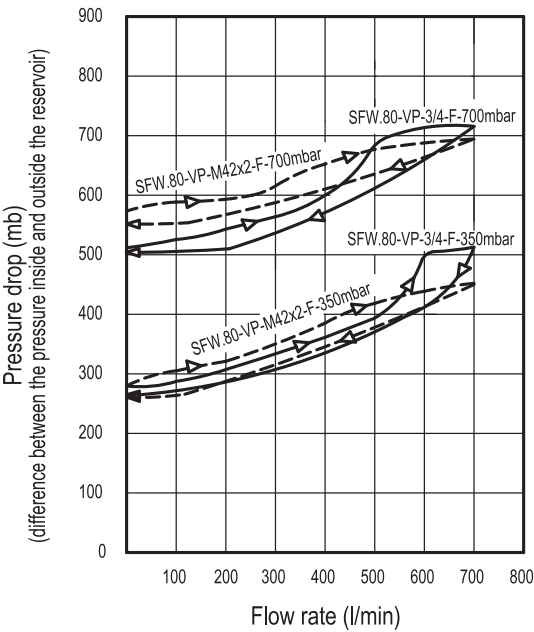
The use of SFW-VP pressurised breather cap which create a pressure plenum chamber right above the oil level within tested limit conditions, in order to avoid any reservoir deformation, offers also other advantages (see features of the breather caps type SFW. on page 1712).

TECHNICAL DATA

Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.

"VANDAL-PROOF" SAFETY DEVICE FUNCTIONING

- Cap screwing.
Take out the key and screw the cap clockwise until the friction-click controlled torque mechanism is engaged so that to guarantee the best sealing of the packing ring. The maximum torque is reached at the first mechanism release (click).
After that, the cap can neither be screwed (to protect the packing ring) nor unscrewed (to protect the cap from any tampering attempt).
WARNING: during screwing the key must not be inserted.
- Cap unscrewing.
Turn the cap clockwise until one of the two resistance points is reached. Only at one of these two positions the key, which couples the cover to the threaded connector, can be completely inserted and the cap can be unscrewed.



Code	Description	d	D	L	d2	d3	h	h1	⚖
54961	SFW.80-VP-3/4-F-350mb	G 3/4	80	68	16	36	15	5.5	140
54967	SFW.80-VP-M42x2-F-350mb	M42x2	80	74	32	47	21	4	150

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Accessories for hydraulic systems 15

Pressurised breather caps with double valve and threaded connector, steel

MATERIAL

- Cover: steel sheet, with chrome plating superficial treatment.
- Flange: zinc-plated steel sheet.
- Threaded connector: zinc-plated steel.

PACKING RING

NBR synthetic rubber.

OVERPRESSURE VALVE (ONLY FOR SMW.)

Technopolymer with NBR synthetic rubber O-ring and stainless steel spring.
Set at around 0.350 bar (0.700 bar on request).

SUCTION VALVE (ONLY FOR SMW.)

Technopolymer sealing disk with NBR synthetic rubber O-ring and stainless steel spring.
Set at around 0.030 bar.

RING-SHAPED AIR FILTER

Tech-foam 40 μ .

FILTER SETTING SPRING (ONLY FOR SMN.)

Zinc-plated steel.

STANDARD EXECUTIONS

- **SMN.**: breather cap.
- **SMW.**: double-valve breather cap.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

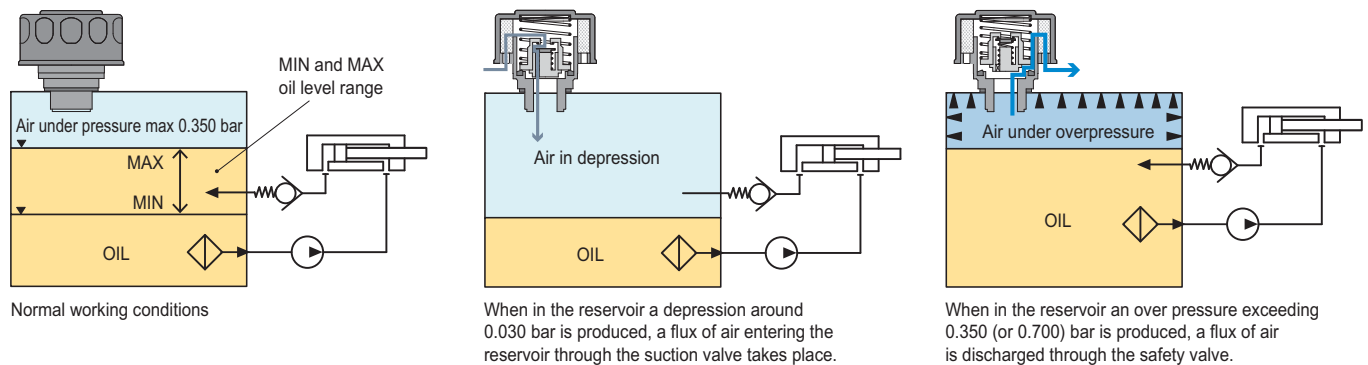
100°C.

SPECIAL EXECUTIONS ON REQUEST

With dipstick for fluid level indication (only for SMW.).



SMW. pressurised breather cap functioning in a hydraulic circuit



FEATURES AND APPLICATIONS

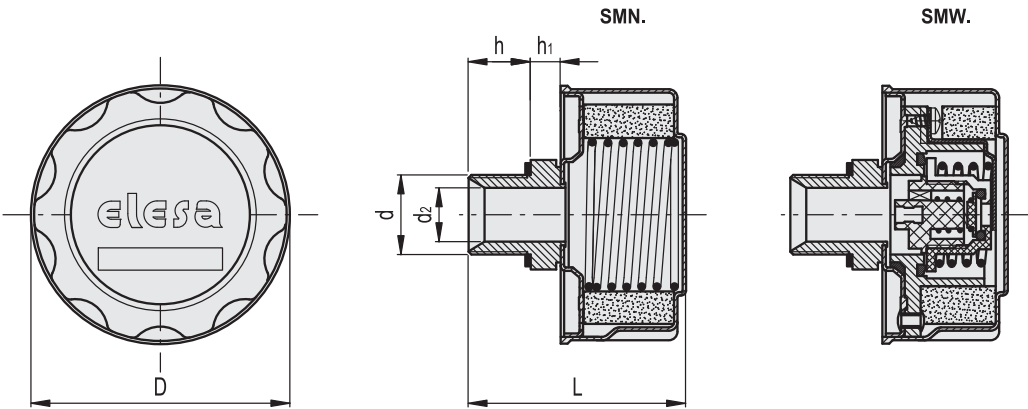
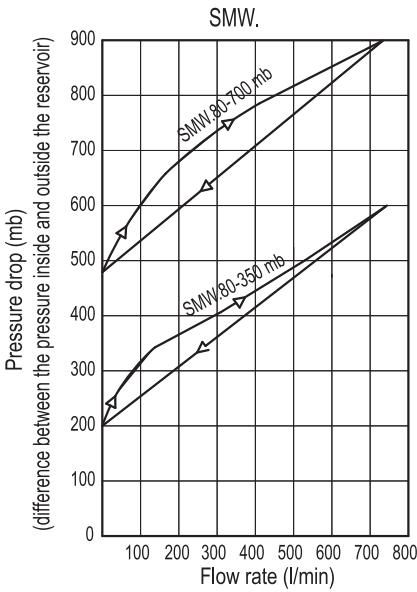
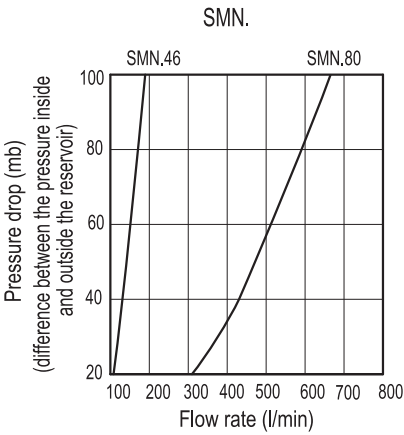
Double-valve breather cap SMW. creates a pressure plenum chamber right above the oil level within given limit conditions in order to avoid any reservoir deformation.

Advantages:

- it reduces reservoir air volume intake keeping clean fluid and filter;
- it improves suction pump action under working conditions reducing cavitation phenomenon;
- it prevents fluid leakage when the system is part of a mobile unit;
- it reduces foam in fluid.

TECHNICAL DATA

Air flow rate for the different executions of breather caps can be obtained from the diagram on the basis of the difference of air pressure inside and outside the reservoir.



SMN.

Code	Description	d	D	L	d2	h	h1	⚖
156833	SMN.46-1/4-F40	G 1/4	47	51	7	10	5	57
156883	SMN.80-3/4-F40	G 3/4	81	70	17	16	12	239

SMW.

Code	Description	d	D	L	d2	h	h1	⚖
156983	SMW.80-3/4-F40-350mb	G 3/4	81	70	17	16	12	308



Pressurised breather caps

with double valve and bayonet assembly, steel

MATERIAL

- Cover: steel sheet, with chrome plating superficial treatment.
- Flange: zinc-plated steel sheet.
- Bayonet and flange with bayonet: zinc-plated steel sheet.

PACKING RINGS

- SMN.46: two flat packing rings in rubber-impregnated cork and one in NBR synthetic rubber.
- SMN.80 SMW.80: three flat packing rings in rubber-impregnated cork.

OVERPRESSURE VALVE (ONLY FOR SMW-BA)

Technopolymer with NBR synthetic rubber O-ring and stainless steel spring.
Set at around 0.350 bar (0.700 bar on request).

SUCTION VALVE (ONLY FOR SMW-BA)

Technopolymer sealing disk with NBR synthetic rubber O-ring and stainless steel spring.
Set at around 0.030 bar.

RING-SHAPED AIR FILTER

Tech-foam 40 µ.

FILTER SETTING SPRING (ONLY FOR SMN-BA)

Zinc-plated steel.

FILTRATION BASKET

Electro zinc-plated steel, degree of filtration 800 µ.

SAFETY CHAIN (ONLY FOR SMN.80-BA/SMW.80-BA)

Brass

STANDARD EXECUTIONS

- **SMN-BA**: breather cap.
- **SMW-BA**: double-valve breather cap.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

SPECIAL EXECUTIONS ON REQUEST

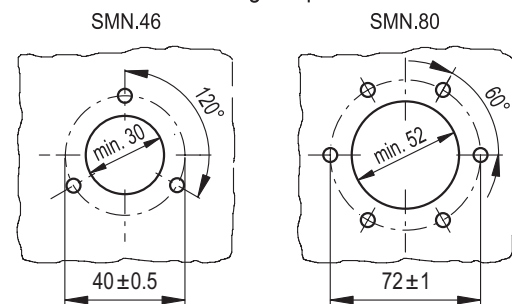
With dipstick for fluid level indication (only for SMW-BA).



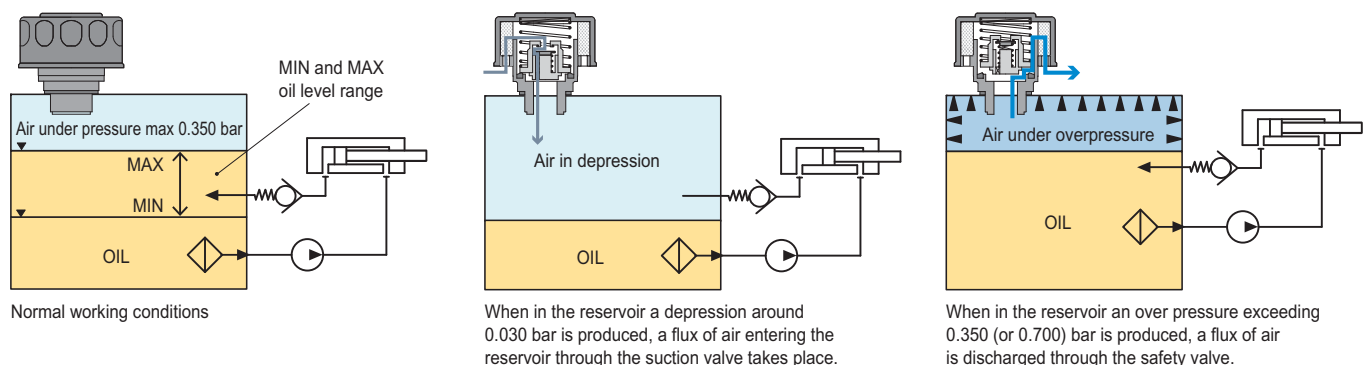
MOUNTING

- SMN.46: by means of three glossy zinc-plated steel screws with screwdriver slot head M5x12, supplied.
- SMN.80 SMW.80: by means of six glossy zinc-plated steel screws with screwdriver slot head M5x12, supplied.

Drilling templates



SMW-BA pressurised breather cap functioning in a hydraulic circuit



FEATURES AND APPLICATIONS

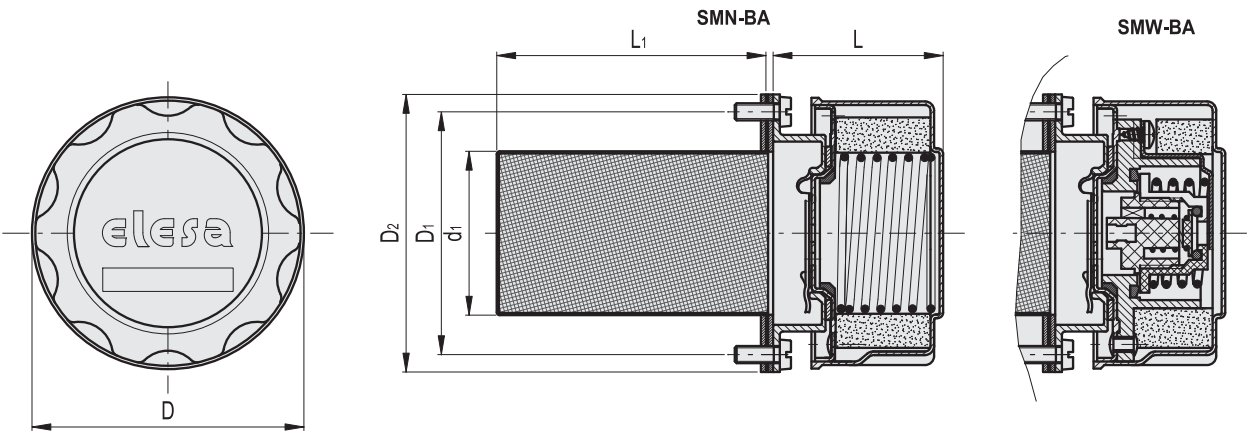
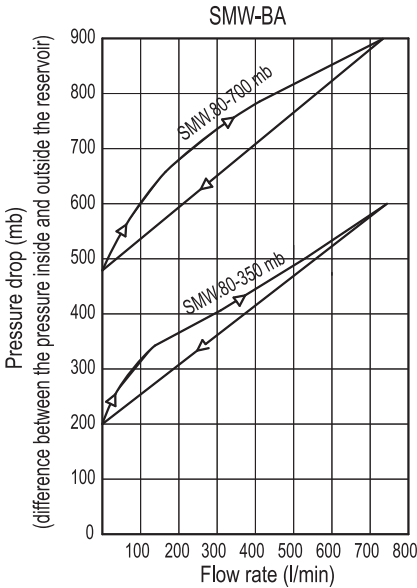
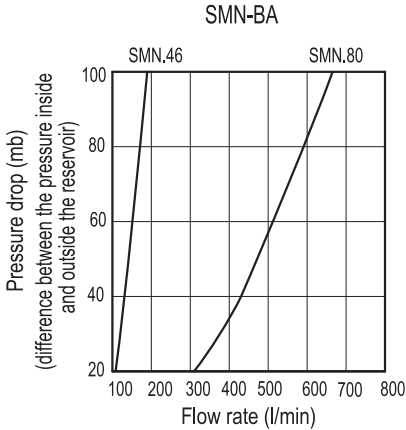
Double-valve breather caps SMW.BA with bayonet assembly creates a pressure plenum chamber right above the oil level within given limit conditions in order to avoid any reservoir deformation.

Advantages:

- it reduces reservoir air volume intake keeping clean fluid and filter;
- it improves suction pump action under working conditions reducing cavitation phenomenon;
- it prevents fluid leakage when the system is part of a mobile unit;
- it reduces foam in fluid.

TECHNICAL DATA

Air flow rate for the different executions of breather caps can be obtained from the diagram on the basis of the difference of air pressure inside and outside the reservoir. Tests carried out without filtration basket.



SMN-BA

Code	Description	D	D1	D2	L	L1	d1	△
156836	SMN.46-BA-F40	47	40	52	42	66	27	91
156886	SMN.80-BA-F40	81	72	83	55	80	49	370

SMW-BA

Code	Description	D	D1	D2	L	L1	d1	△
156986	SMW.80-BA-F40-350mb	81	72	83	55	80	49	410



Flange

for threaded cap, technopolymer

MATERIAL

- Flange: glass-fibre reinforced polyamide based (PA) technopolymer with threaded connector.
- Basket: polypropylene based (PP) technopolymer.

COLOUR

Black, matte finish.

PACKING RINGS

Cork impregnated MGS based rubber.

MOUNTING

By means of six zinc-plated steel self-tapping screws TC-N10 (Ø 4.8x19) UNI 6951-DIN 7971, supplied.

NOTE

The breather cap to be coupled to the flange is not included in the supply and has to be ordered separately.

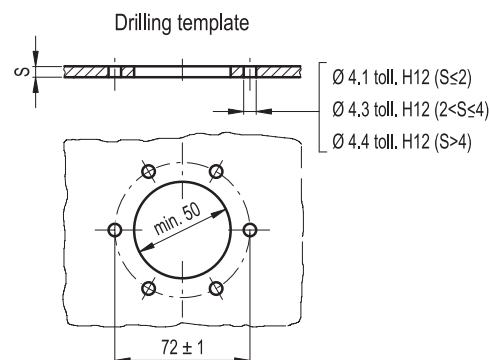
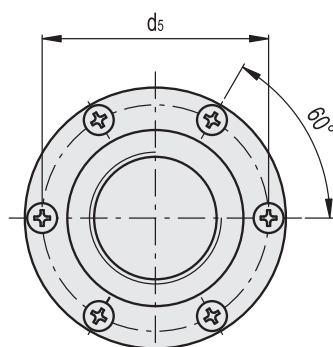
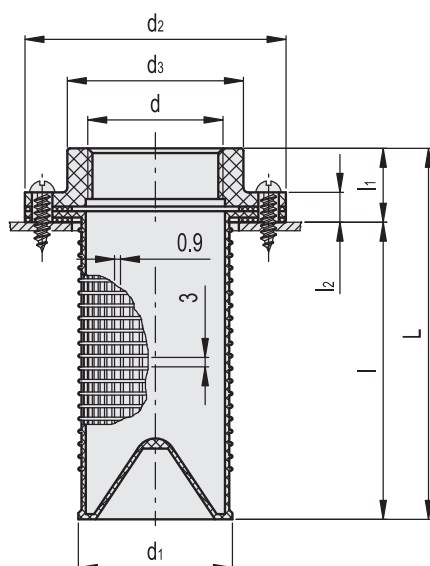
Depending on the customer's requirements, can be used breather caps type SFN. (see page 1698), SFP. (see page 1702), SFW. (see page 1712).

SPECIAL EXECUTIONS ON REQUEST

Threaded flange without basket (FRF).



ELESA Original design 



Code	Description	d	L	d1	d2	d3	d5	l	l1	l2	Δ
9101	FRF+C	G 1 1/4	118	49	83	56	72	93.5	24.5	10.5	105

Flange
for bayonet cap, technopolymer

MATERIAL
- Flange: zinc-plated steel with bayonet connector.
- Basket: polypropylene based (PP) technopolymer, black colour.

PACKING RINGS
Cork impregnated MGS based rubber.

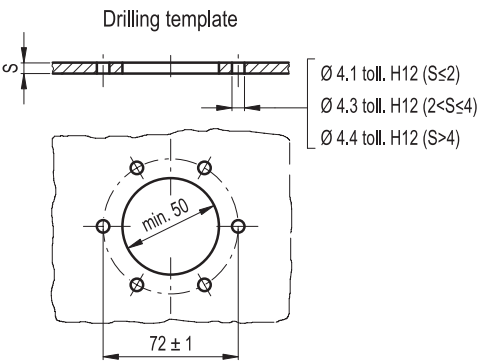
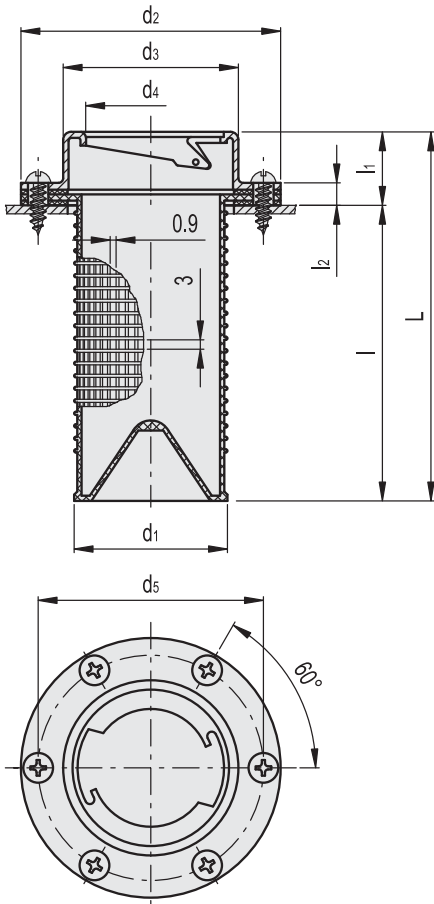
MOUNTING
By means of six zinc-plated steel self-tapping screws TC-N10 (Ø 4.8x19) UNI 6951-DIN 7971, supplied.

NOTE
The breather cap to be coupled to the flange is not included in the supply and has to be ordered separately.
Depending on the customer's requirements, can be used breather caps type SFN. (see page 1698), SFP. (see page 1702), SFW. (see page 1712).

SPECIAL EXECUTIONS ON REQUEST
Flange with bayonet connector without basket (FRB).



ELESA Original design **if**
Hammer



Code	Description	L	d1	d2	d3	d4	d5	l	l1	l2	⚖
9201	FRB+C	114.5	49	83	58	39	72	94.5	20	7	125



Side mount for threaded cap, technopolymer

MATERIAL

- Mount: polyamide based (PA) technopolymer with NBR synthetic rubber packing ring.
- Flange: glass-fibre reinforced polyamide based (PA) technopolymer, threaded connector with flat gasket in cork impregnated MGS based rubber
- Basket: polypropylene based (PP) technopolymer.

COLOUR

Black, matte finish.

MOUNTING

Flange and basket are fitted to the mount by means of six zinc-plated steel self-tapping screws TC-N10 (Ø 4.8x19) UNI 6951-DIN 7971, supplied.

The mount is fitted to the reservoir by means of seven M6 screws and relative washers (not supplied).

Maximum recommended tightening torque: 8 Nm.

NOTE

The breather cap to be coupled to the flange is not included in the supply and has to be ordered separately.

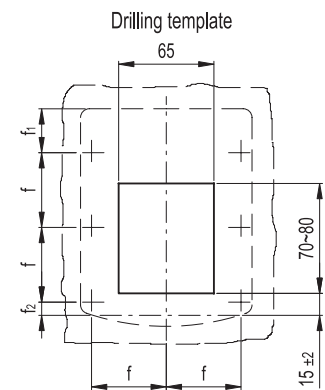
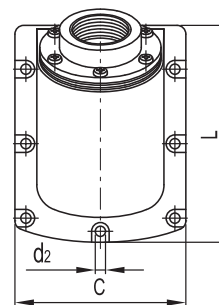
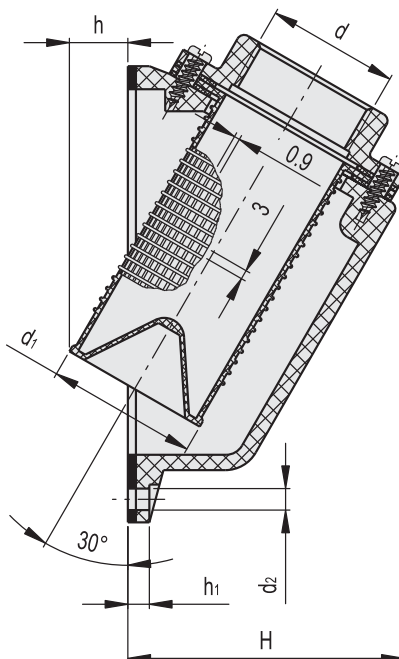
Depending on the customer's requirements, can be used breather caps type SFN. (see page 1698), SFP. (see page 1702), SFW. (see page 1712).

SPECIAL EXECUTIONS ON REQUEST

Mount with threaded flange without basket (PLRF).



ELESA Original design 



Code	Description	d	L	C	H	d1	d2	h	h1	f	f1	f2	△
49411	PLRF+C	G 1 1/4	148.5	117	92	49	7	18	7	51	30	9	335

Side mount
for bayonet cap, technopolymer

- MATERIAL**
- Mount: polyamide based (PA) technopolymer with NBR synthetic rubber packing ring.
 - Flange: zinc-plated steel, bayonet with flat gasket in cork impregnated MGS based rubber.
 - Basket: polypropylene based (PP) technopolymer.

COLOUR
Black, matte finish.

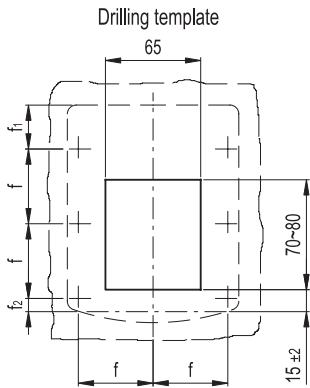
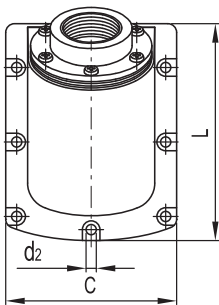
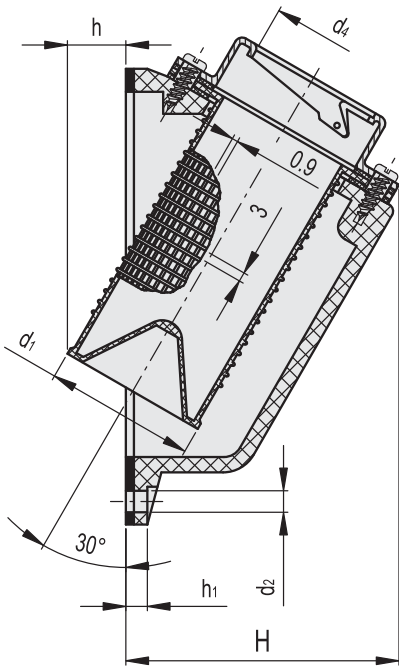
MOUNTING
Flange and basket are fitted to the mount by means of six zinc-plated steel self-tapping screws TC-N10 (Ø 4.8x19) UNI 6951-DIN 7971, supplied.
The mount is fitted to the reservoir by means of seven M6 screws and relative washers (not supplied).
Maximum recommended tightening torque: 8 Nm.

NOTE
The breather cap to be coupled to the flange is not included in the supply and has to be ordered separately.
Depending on the customer's requirements, can be used breather caps type SFN. (see page 1698),SFP. (see page 1702),SFW. (see page 1712).

SPECIAL EXECUTIONS ON REQUEST
Mount with bayonet flange without basket (PLRB).



ELESA Original design **if** 88
Hammer



Code	Description	L	C	H	d1	d2	d4	h	h1	f	f1	f2	⚖
49401	PLRB+C	148.5	117	90	49	7	39	18	7	51	30	9	355



Oil level indicators

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black or red colour, glossy finish (HGFT/SL only black colour).

WINDOW

Transparent polyamide based (PA-T/AR) technopolymer.

PACKING RING

NBR synthetic rubber.

STANDARD EXECUTIONS

- **HGFT.**: with matte anodised aluminium star-shaped contrast screen with red central level point.
- **HGFT/SL**: without contrast screen.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C at 3 bar pressure.

NOTE

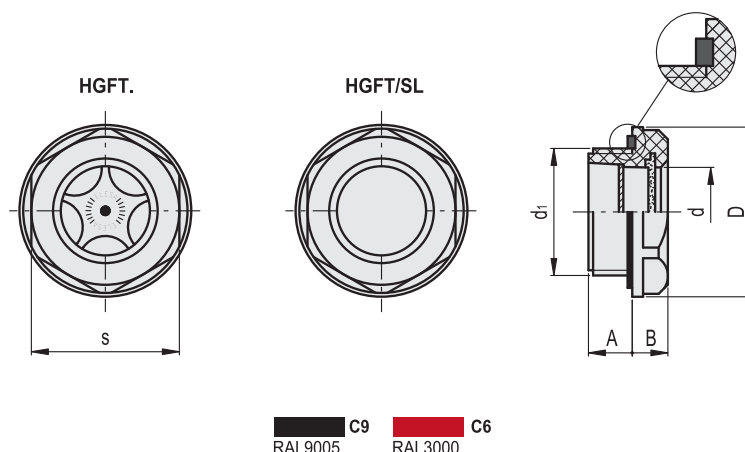
For use with other fluids with special additives, please contact ELESASales Department.

ACCESSORIES ON REQUEST

Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESA Original design



C9 RAL9005 C6 RAL3000

HGFT.

Code	Description	Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14441	HGFT.10-3/8 C9	14444	HGFT.10-3/8 C6	G 3/8	8	7	24	11	22	4÷8	4
14461	HGFT.13-1/2 C9	14464	HGFT.13-1/2 C6	G 1/2	10	8.5	28	14.5	24	6÷8	6
14481	HGFT.16-3/4 C9	14484	HGFT.16-3/4 C6	G 3/4	9.5	8.5	35	18	32	8÷10	10
14521	HGFT.21-1 C9	14524	HGFT.21-1 C6	G 1	11	9.5	42.5	23	38	10÷12	15
14541	HGFT.25-1¼ C9	14544	HGFT.25-1¼ C6	G1 1/4	11	9	50	30	46	12÷15	30
14561	HGFT.40-2 C9	14564	HGFT.40-2 C6	G 2	12	11	68	40	62	12÷15	60

HGFT/SL

Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14446	HGFT.10/SL-3/8	G 3/8	8	7	24	11	22	4÷8	3
14466	HGFT.13/SL-1/2	G 1/2	10	8.5	28	14.5	24	6÷8	5
14486	HGFT.16/SL-3/4	G 3/4	9.5	8.5	35	18	32	8÷10	9
14526	HGFT.21/SL-1	G 1	11	9.5	42.5	23	38	10÷12	14
14546	HGFT.25/SL-1¼	G1 1/4	11	9	50	30	46	12÷15	29
14566	HGFT.40/SL-2	G 2	12	11	68	40	62	12÷15	59

Oil level indicators

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, glossy finish.

WINDOW

Transparent polyamide based (PA-T/AR) technopolymer.

PACKING RING

NBR synthetic rubber.

STANDARD EXECUTIONS

- **HGFT-EX:** with matte anodised aluminium star-shaped contrast screen with red central level point.
- **HGFT/SL-EX:** without contrast screen.

ATEX DIRECTIVE COMPLIANCE

The level indicators of the HGFT-EX series comply with Health and Safety Requirements intended in 94/9/EC ATEX European Directive (explosive atmospheres) for equipments in Group II, category 2GD. Level indicators have “kX” protection degree and can therefore be mounted on equipment protected by means of “immersion in liquid”, without lowering protection degree.

II 2 G D k T6 X, marked on the HGFT-EX level indicators, represents the identification according to ATEX directive.

II: group of substances for which the product is suitable

2: identification of the category

G: identification of the type of explosive atmosphere (Gases or vapours)

D: identification of the type of explosive atmosphere (Dust)

kX: protection degree by means of immersion in liquid

IIB: explosive gases group (only for HGFT.16)

T6: temperature class

Ambient and/or fluid temperature: -30 to +80°C

The declaration of conformity to European Directives of this product is available and it is part of the product itself.



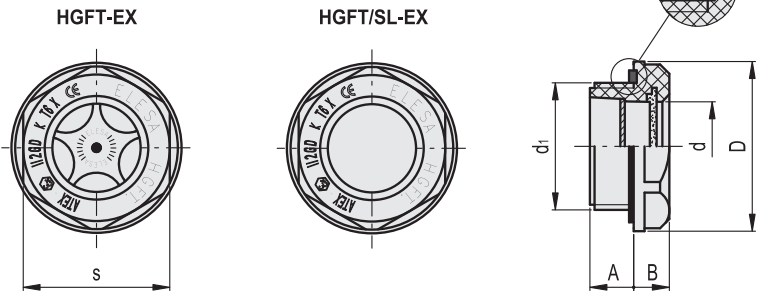
ELESA Original design

NOTE

For use with other fluids with special additives, please contact Elesa Sales Department.

ACCESSORIES ON REQUEST

Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



HGFT-EX

Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	
14441-EX	HGFT.10-3/8-C9-EX	G 3/8	8	7	24	11	22	4÷8	4
14461-EX	HGFT.13-1/2-C9-EX	G 1/2	10	8.5	28	14.5	24	6÷8	6
14481-EX	HGFT.16-3/4-C9-EX	G 3/4	9.5	8.5	35	18	32	8÷10	10

HGFT/SL-EX

Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	
14446-EX	HGFT.10/SL-3/8-C9-EX	G 3/8	8	7	24	11	22	4÷8	3
14466-EX	HGFT.13/SL-1/2-C9-EX	G 1/2	10	8.5	28	14.5	24	6÷8	5
14486-EX	HGFT.16/SL-3/4-C9-EX	G 3/4	9.5	8.5	35	18	32	8÷10	9

Oil level sight glasses

Aluminum / natural glass, up to 100°C

SPECIFICATION

Types

- Type **A**: with contrast screen, blank
- Type **AS**: with contrast screen, black anodized
- Type **B**: without contrast screen, blank
- Type **BS**: without contrast screen, black anodized

Body
Aluminium

- Type A and B: fine turned, blank
- Type AS and BS: fine turned, black anodized

Contrast screen
Technopolymer (Polysulfon)

- temperature resistant up to **100 °C**
- Sight glass Float-glass
- Sealing ring rubber NBR (Perbunan)

INFORMATION

Oil level sight glasses GN 743 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.

The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.

The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.

Oil level sight glasses GN 743 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.

Assembly instruction:

For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).

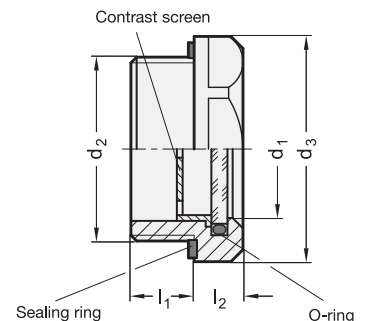
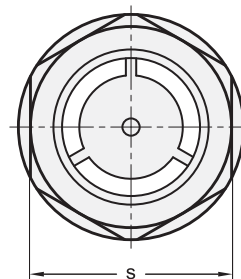
- RoHS compliant (only types AS and BS)

ACCESSORY

- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal



* Complete with type index of the Oil level sight glasses

A AS B BS

GN 743

Description	d1	d2	d3	l1	l2	s	⚖
GN 743-7-M14x1,5-*	7	M 14 x 1.5	20	7.5	6.5	18	6
GN 743-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	10
GN 743-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	12
GN 743-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	18
GN 743-18-M27x1,5-*	18	M 27 x 1.5	32	9	8	30	18
GN 743-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	26
GN 743-32-M40x1,5-*	32	M 40 x 1.5	50	12	9	46	39
GN 743-32-M42x1,5-*	32	M 42 x 1.5	50	12	9	46	48
GN 743-7-G1/4-*	7	G 1/4	20	7.5	6.5	18	9
GN 743-11-G3/8-*	11	G 3/8	22	8	7.5	20	10
GN 743-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	12
GN 743-18-G3/4-*	18	G 3/4	32	9	8	30	18
GN 743-24-G1-*	24	G 1	40	11	8.5	36	26
GN 743-32-G1 1/4-*	32	G 1 1/4	50	12	9	46	40
GN 743-32-G1 1/2-*	32	G 1 1/2	60	13	9	55	80

Weight type A

Oil level sight glasses

Aluminum / natural glass, up to 180°C

SPECIFICATION

Types

- Type **A**: with contrast screen, blank
- Type **AS**: with contrast screen, black anodized
- Type **B**: without contrast screen, blank
- Type **BS**: without contrast screen, black anodized

Body

Aluminium

- Type A and B: fine turned, blank
- Type AS and BS: fine turned, black anodized

Contrast screen

Technopolymer (Polysulfon)

- temperature resistant up to **180 °C**
- Sight glass ESG-glass
- Sealing ring rubber FPM (Viton®)

Identification by not black finish of the sealing ring

INFORMATION

Oil level sight glasses GN 743.1 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.

The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.

The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.

Oil level sight glasses GN 743.1 can be used on pressurised oil tanks.

Tests regarding maximum pressure are available on request.

Assembly instruction:

For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).

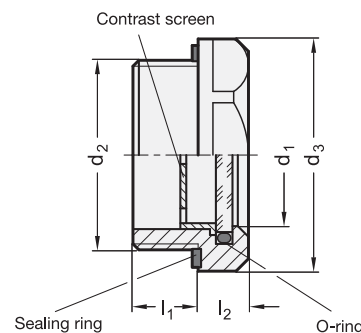
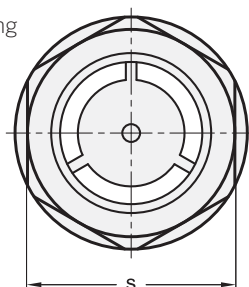
- RoHS compliant (only types AS and BS)

ACCESSORY

- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal



* Complete with type index of the Oil level sight glasses

A AS B BS

GN 743.1

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.1-7-M14x1,5-*	7	M 14 x 1.5	20	7.5	6.5	18	6
GN 743.1-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	8
GN 743.1-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	10
GN 743.1-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	18
GN 743.1-18-M27x1,5-*	18	M 27 x 1.5	32	9	8	30	18
GN 743.1-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	26
GN 743.1-32-M40x1,5-*	32	M 40 x 1.5	50	12	9	46	45
GN 743.1-32-M42x1,5-*	32	M 42 x 1.5	50	12	9	46	43
GN 743.1-7-G1/4-*	7	G 1/4	20	7.5	6.5	18	6
GN 743.1-11-G3/8-*	11	G 3/8	22	8	7.5	20	9
GN 743.1-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	12
GN 743.1-18-G3/4-*	18	G 3/4	32	9	8	30	18
GN 743.1-24-G1-*	24	G 1	40	11	8.5	36	31
GN 743.1-32-G1 1/4-*	32	G 1 1/4	50	12	9	46	45
GN 743.1-32-G1 1/2-*	32	G 1 1/2	60	13	9	55	91

Weight type A



Oil level sight glasses

Brass / natural glass, up to 100°C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body

Brass

CuZn40Pb2

Contrast screen

Technopolymer (Polysulfon)

- temperature resistant up to **100 °C**

- Sight glass Float-glass

- Sealing ring rubber NBR (Perbunan)



INFORMATION

Oil level sight glasses GN 743.2 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.

The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.

The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.

Oil level sight glasses GN 743.2 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.

Assembly instruction:

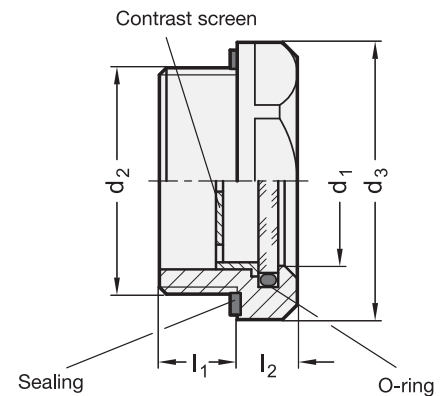
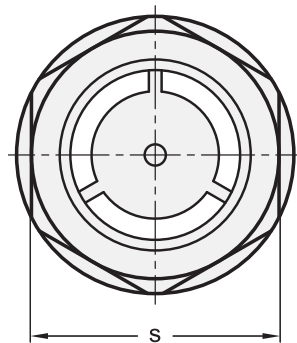
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).

ACCESSORY

- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal



* Complete with type index of the Oil level sight glasses

A with contrast screen **B** without contrast screen

GN 743.2

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.2-11-M16x1,5-*	11	M 16 x 1,5	22	8	7,5	20	19
GN 743.2-14-M20x1,5-*	14	M 20 x 1,5	26	8,5	7,5	23	23
GN 743.2-18-M26x1,5-*	18	M 26 x 1,5	32	9	8	30	44
GN 743.2-18-M27x1,5-*	18	M 27 x 1,5	32	9	8	30	46
GN 743.2-24-M33x1,5-*	24	M 33 x 1,5	40	11	8,5	36	70
GN 743.2-11-G3/8-*	11	G 3/8	22	8	7,5	20	20
GN 743.2-14-G1/2-*	14	G 1/2	26	8,5	7,5	23	23
GN 743.2-18-G3/4-*	18	G 3/4	32	9	8	30	44
GN 743.2-24-G1-*	24	G 1	40	11	8,5	36	69

Weight type A

Oil level sight glasses

Brass / natural glass, up to 180 °C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body

Brass

CuZn40Pb2

Contrast screen

Technopolymer (Polysulfon)

- temperature resistant up to **180 °C**

- Sight glass ESG-glass

- Sealing ring rubber FPM (Viton®)

Identification by not black finish of the sealing ring

INFORMATION

Oil level sight glasses GN 743.3 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.

The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.

The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.

Oil level sight glasses GN 743.3 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.

Assembly instruction:

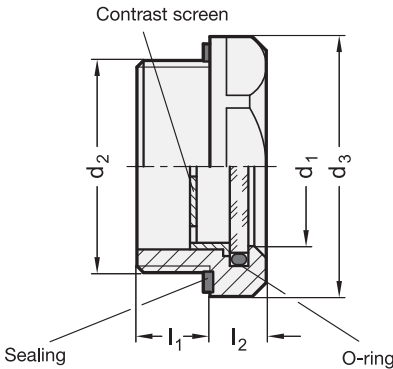
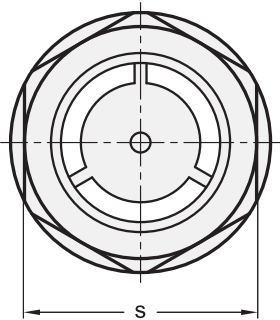
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).

ACCESSORY

- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal



*Complete with type index of the Oil level sight glasses

- A**
with contrast screen
- B**
without contrast screen

GN 743.3

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.3-11-M16x1,5-A	11	M 16 x 1.5	22	8	7.5	20	19
GN 743.3-14-M20x1,5-A	14	M 20 x 1.5	26	8.5	7.5	23	23
GN 743.3-18-M26x1,5-A	18	M 26 x 1.5	32	9	8	30	44
GN 743.3-18-M27x1,5-A	18	M 27 x 1.5	32	9	8	30	46
GN 743.3-24-M33x1,5-A	24	M 33 x 1.5	40	11	8.5	36	70
GN 743.3-11-G3/8-A	11	G 3/8	22	8	7.5	20	20
GN 743.3-14-G1/2-A	14	G 1/2	26	8.5	7.5	23	23
GN 743.3-18-G3/4-A	18	G 3/4	32	9	8	30	43
GN 743.3-24-G1-A	24	G 1	40	11	8.5	36	65

Weight type A



Stainless Steel- Oil level sight glasses

Natural glass, up to 100 °C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body

Stainless Steel AISI 303

Contrast screen (Type A)

Technopolymer (Polysulfan)

Circlip (Type B)

Stainless Steel AISI 301

- temperature resistant up to **100 °C**
- Sight glass Float-glass
- Sealing ring rubber NBR (Perbunan®)



INFORMATION

Stainless Steel-Oil level sight glasses GN 743.4 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.

The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.

The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.

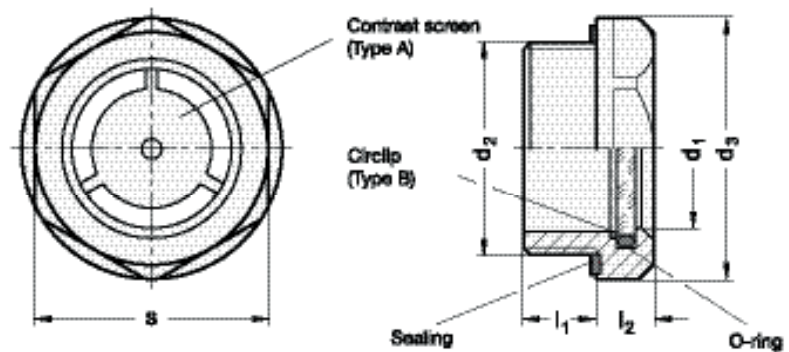
Stainless Steel-Oil level sight glasses GN 743.4 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.

ON REQUEST

- EPDM seal

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Stainless Steel characteristics (see page A26)



* Complete with type index of the Oil level sight glasses

- | | |
|----------------------|-------------------------|
| A | B |
| with contrast screen | without contrast screen |

GN 743.4

STAINLESS STEEL

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.4-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	20
GN 743.4-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	20
GN 743.4-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	40
GN 743.4-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	63
GN 743.4-32-M42x1,5-*	32	M 42 x 1.5	50	12	9	46	101
GN 743.4-11-G3/8-*	11	G 3/8	22	8	7.5	20	20
GN 743.4-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	52
GN 743.4-18-G3/4-*	18	G 3/4	32	9	8	30	55
GN 743.4-24-G1-*	24	G 1	40	11	8.5	36	61
GN 743.4-32-G1 1/4-*	32	G 1 1/4	50	12	9	46	99

Weight type A

Stainless Steel- Oil level sight glasses

Natural glass, up to 180 °C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body

Stainless Steel AISI 303

Contrast screen (Type A)

Technopolymer (Polysulfan)

Circlip (Type B)

Stainless Steel AISI 301

- temperature resistant up to **180 °C**

- Sight glass ESG-glass

- Sealing ring rubber FPM (Viton®)

Identification by not black finish of the sealing ring



INFORMATION

Stainless Steel-Oil level sight glasses GN 743.5 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the periphery and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.

The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.

The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.

Stainless Steel-Oil level sight glasses GN 743.5 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.

ON REQUEST

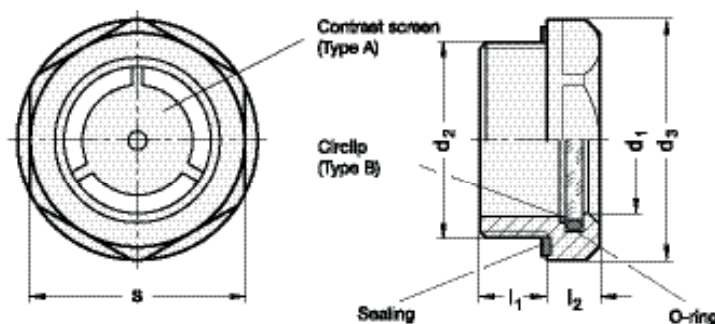
- EPDM seal

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Stainless Steel characteristics (see page A26)

* Complete with type index of the Oil level sight glasses

A	B
with contrast screen	without contrast screen



GN 743.5

STAINLESS STEEL

Description	d1	d2	d3	l1	l2	s	△
GN 743.5-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	19
GN 743.5-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	20
GN 743.5-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	42
GN 743.5-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	64
GN 743.5-32-M42x1,5-*	32	M 42 x 1.5	50	12	9	46	90
GN 743.5-11-G3/8-*	11	G 3/8	22	8	7.5	20	19
GN 743.5-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	23
GN 743.5-18-G3/4-*	18	G 3/4	32	9	8	30	41
GN 743.5-24-G1-*	24	G 1	40	11	8.5	36	64
GN 743.5-32-G1 1/4-*	32	G 1 1/4	50	12	9	46	102

Weight type A



ATEX-Sight glasses

Aluminium / Natural glass

SPECIFICATION

- Body
- Aluminium
- Surface fine turned
- Sight glass
- ESG-glass
- Sealing ring
- rubber FPM (Viton®)
- Circlip
- Stainless Steel AISI 301
- Temperature range:
- 20 °C up to +150 °C



INFORMATION

ATEX-Sight glasses GN 743.6 are suitable for use in an explosion risk environment. They comply with the guidelines 94/9/EG. Detailed documentation is available and forms part of an order for this product.

A detailed operating instruction is included.

In addition, the body is provided with an ATEX-label.

Further salient points of the oil level sight glasses GN 743.6 are:

Genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.

The sealing ring is embedded in a radial groove and cannot drop out, nor can it be extruded when tightening torque is applied.

Sight glasses GN 743.6 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.

Assembly instruction:

For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).

ACCESSORY

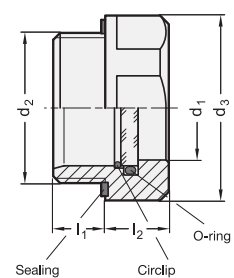
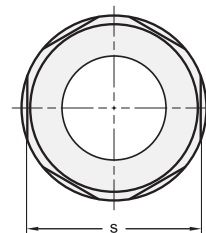
- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Stainless Steel characteristics (see page A26)



GN 743.6

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.6-11-M16x1,5	11	M 16 x 1,5	22	8	8	20	18
GN 743.6-14-M20x1,5	14	M 20 x 1,5	26	8,5	9	23	20
GN 743.6-18-M26x1,5	18	M 26 x 1,5	32	9	11	30	21
GN 743.6-18-M27x1,5	18	M 27 x 1,5	32	9	11	30	22
GN 743.6-18-M27x2	18	M 27 x 2	32	9	11	30	22
GN 743.6-11-G3/8	11	G 3/8	22	8	8	20	20
GN 743.6-14-G1/2	14	G 1/2	26	8,5	9	23	20
GN 743.6-18-G3/4	18	G 3/4	32	9	11	30	35

Oil level sight glasses

Brass / natural glass, resistant up to 100 °C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body

Brass

CuZn40Pb2

Contrast screen

Technopolymer (Polysulfon)

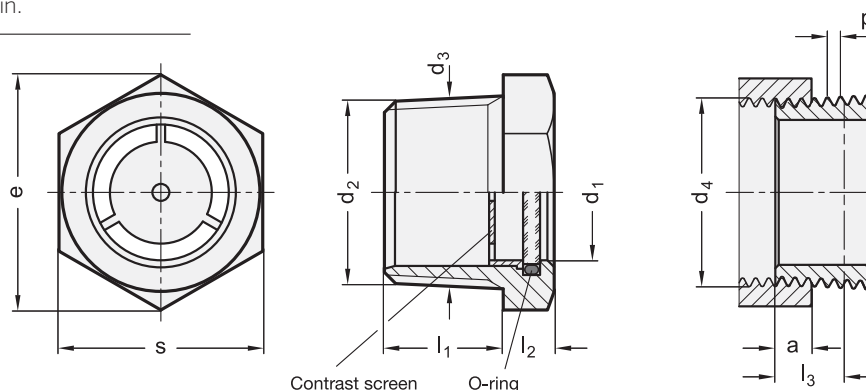
- temperature resistant up to **100 °C**
- Sight glass Float-glass
- O-Ring rubber NBR (Perbunan)

INFORMATION

The conical thread of the oil level sight glasses GN 743.7 makes a metallic seal possible. When tightening the conical male thread R it blocks itself with the appropriate cylindrical female thread Rp. With the datum plane a the R-male thread has the same thread diameter as the Rp-female thread, so that it can be screwed in by hand. The strong tightening by means of a tool increases the length of engagement and seals the screw connection. Additionally a sealant (hemp or teflon band) is usually used. The R-thread is „roughened“, so that the sealant does not shift when screwing in.

ON REQUEST

- EPDM O-rings



GN 743.7

Description	d1	d2	a	d3	d4	e	l1	l2	l3	s	p	△
GN 743.7-11-R3/8-A	11	R 3/8	6.4	16.7	Rp 3/8	22	13	6	10.1	19	1.34	19
GN 743.7-14-R1/2-A	14	R 1/2	8.2	21	Rp 1/2	27.5	17	7	13.2	24	1.81	40
GN 743.7-18-R3/4-A	18	R 3/4	9.5	26.4	Rp 3/4	31	18	8	14.5	27	1.81	50
GN 743.7-24-R1-A	24	R 1	10.4	33.2	Rp 1	40.5	21	9	16.8	36	2.3	91
GN 743.7-32-R1 1/4-A	32	R 1 1/4	12.7	42	Rp 1 1/4	53	24	9	19.1	46	2.3	149
GN 743.7-11-R3/8-B	11	R 3/8	6.4	16.7	Rp 3/8	22	13	6	10.1	19	1.34	20
GN 743.7-14-R1/2-B	14	R 1/2	8.2	21	Rp 1/2	27.5	17	7	13.2	24	1.81	33
GN 743.7-18-R3/4-B	18	R 3/4	9.5	26.4	Rp 3/4	31	18	8	14.5	27	1.81	49
GN 743.7-24-R1-B	24	R 1	10.4	33.2	Rp 1	40.5	21	9	16.8	36	2.3	91
GN 743.7-32-R1 1/4-B	32	R 1 1/4	12.7	42	Rp 1 1/4	53	24	9	19.1	46	2.3	140
GN 743.7-32-11/4NPT-B	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	133
GN 743.7-11-3/8NPT-A	11	3/8 NPT	6.1	17.1	3/8 NPT	22	15	6	-	19.1	1.41	19
GN 743.7-14-1/2NPT-A	14	1/2 NPT	8.1	21.2	1/2 NPT	27.5	16	7	-	23.8	1.81	31
GN 743.7-18-3/4NPT-A	18	3/4 NPT	8.6	26.6	3/4 NPT	33	18	8	-	28.6	1.81	55
GN 743.7-24-1NPT-A	24	1 NPT	10.2	33.7	1 NPT	41.5	22	8	-	34.9	2.21	73
GN 743.7-32-11/4NPT-A	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	135
GN 743.7-11-3/8NPT-B	11	3/8 NPT	6.1	17.1	3/8 NPT	22	15	6	-	19.1	1.41	200
GN 743.7-14-1/2NPT-B	14	1/2 NPT	8.1	21.2	1/2 NPT	27.5	16	7	-	23.8	1.81	34
GN 743.7-18-3/4NPT-B	18	3/4 NPT	8.6	26.6	3/4 NPT	33	18	8	-	28.6	1.81	60
GN 743.7-24-1NPT-B	24	1 NPT	10.2	33.7	1 NPT	41.5	22	8	-	34.9	2.21	83
GN 743.7-32-11/4NPT-B	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	133

Oil level sight glasses

Brass / natural glass, resistant up to 180 °C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body

Brass

CuZn40Pb2

Contrast screen

Technopolymer (Polysulfon)

- temperature resistant up to **180 °C**

- Sight glass ESG-glass

- O-Ring rubber FPM (Viton®)

Identification by not black finish of the sealing ring



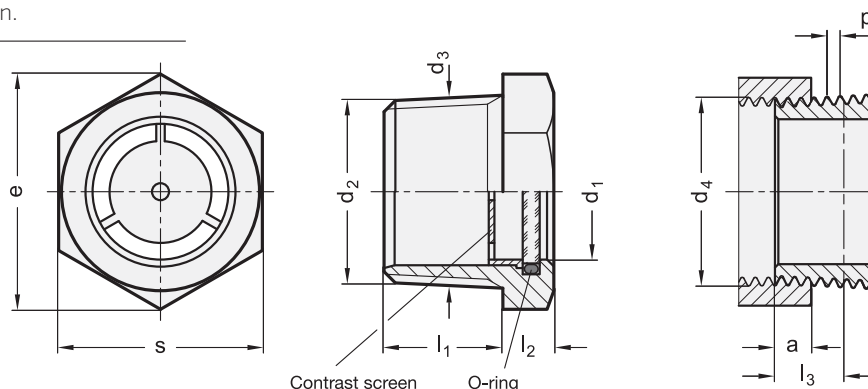
INFORMATION

The conical thread of the oil level sight glasses GN 743.8 makes a metallic seal possible. When tightening the conical male thread R it blocks itself with the appropriate cylindrical female thread Rp.

With the datum plane a the R-male thread has the same thread diameter as the Rp-female thread, so that it can be screwed in by hand. The strong tightening by means of a tool increases the length of engagement and seals the screw connection. Additionally a sealant (hemp or teflon band) is usually used. The R-thread is „roughened“, so that the sealant does not shift when screwing in.

ON REQUEST

- EPDM O-rings



GN 743.8

Description	d1	d2	a	d3	d4	e	l1	l2	l3	s	p	Δ
GN 743.8-11-R3/8-A	11	R 3/8	6.4	16.7	Rp 3/8	22	13	6	10.1	19	1.34	19
GN 743.8-14-R1/2-A	14	R 1/2	8.2	21	Rp 1/2	27.5	17	7	13.2	24	1.81	34
GN 743.8-18-R3/4-A	18	R 3/4	9.5	26.4	Rp 3/4	31	18	8	14.5	27	1.81	49
GN 743.8-24-R1-A	24	R 1	10.4	33.2	Rp 1	40.5	21	9	16.8	36	2.3	92
GN 743.8-32-R1 1/4-A	32	R 1 1/4	12.7	42	Rp 1 1/4	53	24	9	19.1	46	2.3	140
GN 743.8-11-R3/8-B	11	R 3/8	6.4	16.7	Rp 3/8	22	13	6	10.1	19	1.34	22
GN 743.8-14-R1/2-B	14	R 1/2	8.2	21	Rp 1/2	27.5	17	7	13.2	24	1.81	40
GN 743.8-18-R3/4-B	18	R 3/4	9.5	26.4	Rp 3/4	31	18	8	14.5	27	1.81	60
GN 743.8-24-R1-B	24	R 1	10.4	33.2	Rp 1	40.5	21	9	16.8	36	2.3	80
GN 743.8-32-R1 1/4-B	32	R 1 1/4	12.7	42	Rp 1 1/4	53	24	9	19.1	46	2.3	140
GN 743.8-32-1 1/4NPT-B	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	140
GN 743.8-11-3/8NPT-A	11	3/8 NPT	6.1	17.1	3/8 NPT	22	15	6	-	19.1	1.41	27
GN 743.8-14-1/2NPT-A	14	1/2 NPT	8.1	21.2	1/2 NPT	27.5	16	7	-	23.8	1.81	34
GN 743.8-18-3/4NPT-A	18	3/4 NPT	8.6	26.6	3/4 NPT	33	18	8	-	28.6	1.81	55
GN 743.8-24-1NPT-A	24	1 NPT	10.2	33.7	1 NPT	41.5	22	8	-	34.9	2.21	100
GN 743.8-32-1 1/4NPT-A	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	150
GN 743.8-11-3/8NPT-B	11	3/8 NPT	6.1	17.1	3/8 NPT	22	15	6	-	19.1	1.41	20
GN 743.8-14-1/2NPT-B	14	1/2 NPT	8.1	21.2	1/2 NPT	27.5	16	7	-	23.8	1.81	32
GN 743.8-18-3/4NPT-B	18	3/4 NPT	8.6	26.6	3/4 NPT	33	18	8	-	28.6	1.81	60
GN 743.8-24-1NPT-B	24	1 NPT	10.2	33.7	1 NPT	41.5	22	8	-	34.9	2.21	140
GN 743.8-32-1 1/4NPT-B	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	140

Oil level indicators
with prismatic window, technopolymer

- MATERIAL**

Polyamide based (PA) technopolymer, black colour, glossy finish.
- PRISMATIC WINDOW**

Transparent polyamide based (PA-T/AR) technopolymer. The window consists of a continuous series of prisms which provide a clear and immediate reading of the level of the oil contained in the reservoir.
- PACKING RING**

NBR synthetic rubber.
- MAXIMUM CONTINUOUS WORKING TEMPERATURE**

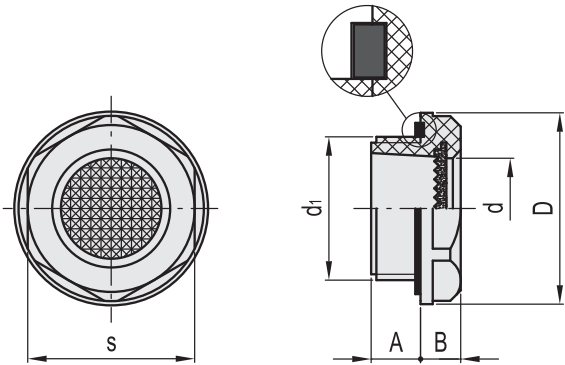
100°C at 3 bar pressure.
- NOTE**

For use with other fluids with special additives, please contact ELESASales Department.
- ACCESSORIES ON REQUEST**

Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESA Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14462	HGFT.13/PR-1/2-C9	G 1/2	10	8.5	28	14.5	24	6÷8	5
14482	HGFT.16/PR-3/4-C9	G 3/4	9.5	8.5	35	18	32	8÷10	9
14522	HGFT.21/PR-1-C9	G 1	11	9.5	42.5	23	38	10÷12	14
14542	HGFT.25/PR-1¼-C9	G 1 1/4	11	9	50	30	46	12÷15	30

Oil level indicators
with prismatic window, high temperatures, technopolymer

- MATERIAL**

Polyamide based (PA) technopolymer, black colour, glossy finish.
- PRISMATIC WINDOW**

Transparent sulphonic based technopolymer. The window consists of a continuous series of prisms which provide a clear and immediate reading of the level of the oil contained in the reservoir.
- PACKING RING**

FKM type VITON®*.
- MAXIMUM CONTINUOUS WORKING TEMPERATURE**

140°C at 7 bar pressure.

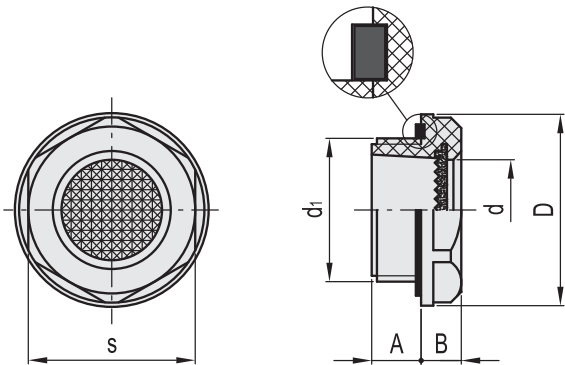
* Registered trademark by DuPont Dow Elastomers.
- NOTE**

For use with other fluids with special additives, please contact ELESASales Department.
- ACCESSORIES ON REQUEST**

Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESA Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14463	HGFT.13/HT-PR-1/2	G 1/2	10	8.5	28	14.5	24	6÷8	5
14483	HGFT.16/HT-PR-3/4	G 3/4	9.5	8.5	35	18	32	8÷10	9
14523	HGFT.21/HT-PR-1	G 1	11	9.5	42.5	23	38	10÷12	14

Breather strainers

with Stainless Steel mesh

SPECIFICATION

Body

- Aluminium **AL**
- Stainless Steel AISI 303 **NI**

Strainer

Stainless Steel mesh
AISI 304

Strainer bezel

Plastic Polyamide (PA)

- glass fibre reinforced
- temperature resistant up to 100 °C

Sealing / O-Ring

Rubber NBR (Perbunan®)

INFORMATION

Breather strainers GN 7403 are used in enclosure and device construction. Inserted into the wall of the enclosure, they ensure pressure equilibrium between the inside of the enclosure and the outside.

Any dirt and dust particles carried by the medium (usually gas) are prevented from exiting depending on the mesh size. This protects the insides of sensitive devices and machinery parts from dirt and pollution and also protects the environment from any exiting dust.

The outside diameter of the enclosure with the recessed hexagon matches the bolt mounting holes for DIN 3852 threaded pipe connectors.

The sealing ring is embedded in a radial and plane-sided recess which makes the seal captive and prevents it from being squeezed out during tightening.

Assembly instruction:

For mounting on walls of less than 4 mm thickness, please use mounting nut GH. (see page 1743).



ACCESSORY

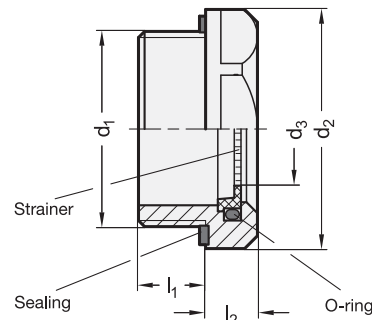
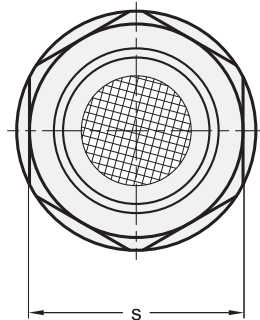
- Mounting nut GH. (see page 1743)

ON REQUEST

- Body in brass
- Other mesh size
- Other material for the strainer

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)



GN 7403-AL

Description	d1	Mesh size in µm	d2	d3	l1	l2	s	⚖
GN 7403-AL-G1/2-100	G1/2	100	26	10	8.5	7.5	23	11
GN 7403-AL-G1/2-500	G1/2	500	26	10	8.5	7.5	23	11
GN 7403-AL-G3/4-100	G3/4	100	32	14	9	8	30	17
GN 7403-AL-G3/4-500	G3/4	500	32	14	9	8	30	17
GN 7403-AL-G1-100	G1	100	40	20	11	8.5	36	28
GN 7403-AL-G1-500	G1	500	40	20	11	8.5	36	20
GN 7403-AL-M20x1,5-100	M20x1.5	100	26	10	8.5	7.5	23	10
GN 7403-AL-M20x1,5-500	M20x1.5	500	26	10	8.5	7.5	23	10
GN 7403-AL-M26x1,5-100	M26x1.5	100	32	14	9	8	30	17
GN 7403-AL-M26x1,5-500	M26x1.5	500	32	14	9	8	30	17
GN 7403-AL-M33x1,5-100	M33x1.5	100	40	20	11	8.5	36	20
GN 7403-AL-M33x1,5-500	M33x1.5	500	40	20	11	8.5	36	20

GN 7403-NI

STAINLESS STEEL

Description	d1	Mesh size in µm	d2	d3	l1	l2	s	⚖
GN 7403-NI-G1/2-100	G1/2	100	26	10	8.5	7.5	23	23
GN 7403-NI-G1/2-500	G1/2	500	26	10	8.5	7.5	23	20
GN 7403-NI-G3/4-100	G3/4	100	32	14	9	8	30	38
GN 7403-NI-G3/4-500	G3/4	500	32	14	9	8	30	38
GN 7403-NI-G1-100	G1	100	40	20	11	8.5	36	59
GN 7403-NI-G1-500	G1	500	40	20	11	8.5	36	66
GN 7403-NI-M20x1,5-100	M20x1.5	100	26	10	8.5	7.5	23	20
GN 7403-NI-M20x1,5-500	M20x1.5	500	26	10	8.5	7.5	23	20
GN 7403-NI-M26x1,5-100	M26x1.5	100	32	14	9	8	30	38
GN 7403-NI-M26x1,5-500	M26x1.5	500	32	14	9	8	30	37
GN 7403-NI-M33x1,5-100	M33x1.5	100	40	20	11	8.5	36	59
GN 7403-NI-M33x1,5-500	M33x1.5	500	40	20	11	8.5	36	59

Stainless Steel-Strainer fittings

SPECIFICATION

Types

- Type **A**: Fitting with female thread on both ends
- Type **B**: Fitting with female / male thread

Housing

Stainless Steel AISI 304 **NI**

Strainer

Stainless Steel mesh
AISI 304

Strainer bezel

Plastic (Polyamide PA)

- glass fibre reinforced
- temperature resistant up to 100 °C

O-ring

NBR (Perbunan)

INFORMATION

GN 7405 Stainless Steel-Strainer fittings are suited for assembly into piping systems as upstream or downstream protection devices. Depending on the mesh size, particles carried by liquid or gaseous media can be prevented from passing through. Units or housing interiors are thereby protected from foreign objects which can impair function or durability due to their size.

The housing is separately bolted through a union nut, making assembly/disassembly easier and allowing the strainer insert to be exchanged if necessary.

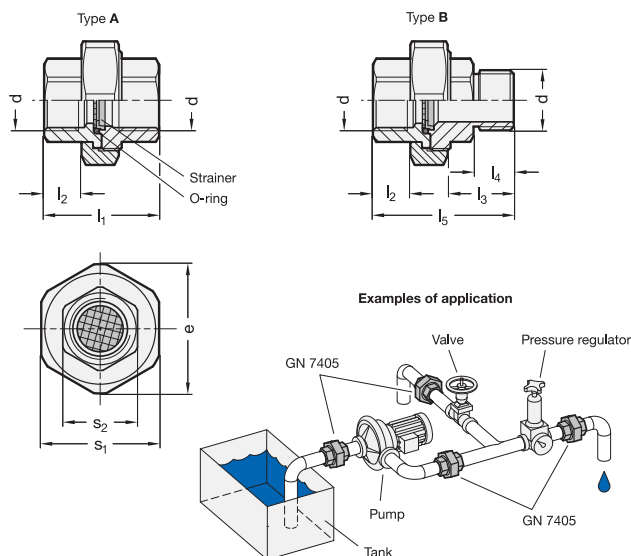
Replacement or maintenance Stainless Steel-Strainers are available under the GN 7403.1 (see page 1738) standard.

ACCESSORY

- Stainless Steel-Strainers GN 7403.1 (see page 1738)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



GN 7405

STAINLESS STEEL

Description	d	Mesh size in µm	e	l1	l2	l3	l4	l5	s1	s2	Differential pressure Δ 1 bar Flow volume in l/min. Water 100 µm	Differential pressure Δ 1 bar Flow volume in l/min. Water 500 µm	Hydraulic oil (HPL 46) 100 µm	Hydraulic oil (HPL 46) 500 µm	⚖
GN 7405-NI-G3/8-A-100	G3/8	100	40	36.5	12	-	-	-	36	22	21	25	7	18	140
GN 7405-NI-G3/8-A-500	G3/8	500	40	36.5	12	-	-	-	36	22	21	25	7	18	140
GN 7405-NI-G1/2-A-100	G1/2	100	45	40	13	-	-	-	41	26	48	61	15.5	38.5	168
GN 7405-NI-G1/2-A-500	G1/2	500	45	40	13	-	-	-	41	26	48	61	15.5	38.5	168
GN 7405-NI-G3/4-A-100	G3/4	100	55	46	15	-	-	-	50	34	96	104	30	77.5	303
GN 7405-NI-G3/4-A-500	G3/4	500	55	46	15	-	-	-	50	34	96	104	30	77.5	303
GN 7405-NI-G3/8-B-100	G3/8	100	40	36.5	12	21	12	45	36	22	21	25	7	18	140
GN 7405-NI-G3/8-B-500	G3/8	500	40	36.5	12	21	12	45	36	22	21	25	7	18	140
GN 7405-NI-G1/2-B-100	G1/2	100	45	40	13	23	14	49	41	26	48	61	15.5	38.5	188
GN 7405-NI-G1/2-B-500	G1/2	500	45	40	13	23	14	49	41	26	48	61	15.5	38.5	187
GN 7405-NI-G3/4-B-100	G3/4	100	55	46	15	25	16	55	50	34	96	104	30	77.5	333
GN 7405-NI-G3/4-B-500	G3/4	500	55	46	15	25	16	55	50	34	96	104	30	77.5	333

Stainless Steel-Strainers

SPECIFICATION

Strainer
Stainless Steel mesh **NI**
AISI 304

Strainer bezel
Plastic (Polyamide PA)

- glass fibre reinforced
- temperature resistant up to 100 °C

INFORMATION

GN 7403.1 Stainless-Steel-Strainers are adapted for use as replacements for GN 7405 (see page 1737) strainer fittings. They are also suitable for the application-specific assembly of upstream or downstream protection devices.

Depending on the mesh size, particles carried by liquid or gaseous media can be prevented from passing through. Units or housing interiors are thereby protected from foreign objects which can impair function or durability due to their size.

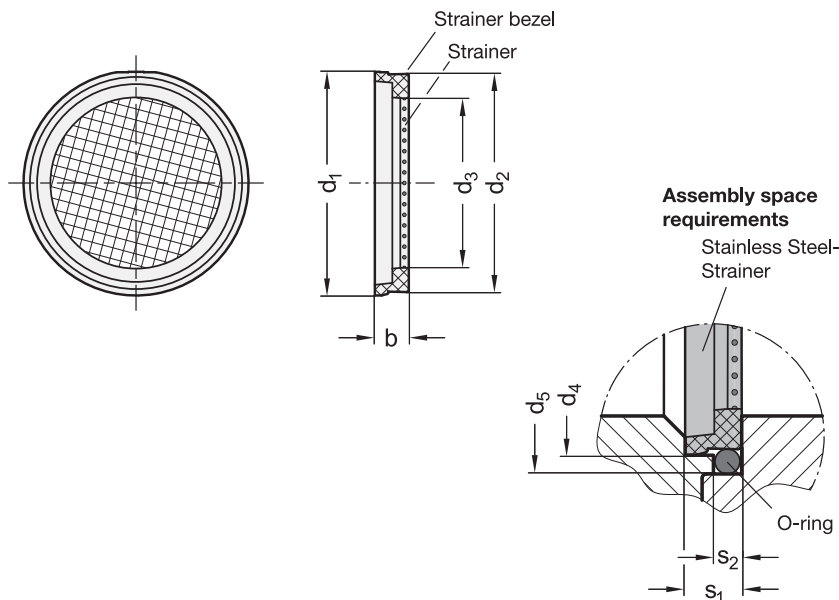
The assembly space required is shown in the drawing. An additional O-ring is generally mounted at the circumference as a seal.

ON REQUEST

- other mesh sizes
- Plastic strainer mesh

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



GN 7403.1

STAINLESS STEEL

Description	Nominal size	Mesh size in μm	b	d1	d2	d3	d4 +0.1	d5 ± 0.05	s1 +0.1	s2 -0.1	Suitable O-ring	Suitable for nominal size d of GN 7405	
GN 7403.1-NI-14-100	14	100	4	16.6	15.7	10	16.6	18.7	4	2	16x2	G3/8	32
GN 7403.1-NI-14-500	14	500	4	16.6	15.7	10	16.6	18.7	4	2	16x2	G3/8	32
GN 7403.1-NI-18-100	18	100	4	20.6	19.7	14	20.6	22.7	4	2	20x2	G1/2	35
GN 7403.1-NI-18-500	18	500	4	20.6	19.7	14	20.6	22.7	4	2	20x2	G1/2	35
GN 7403.1-NI-24-100	24	100	4	26.6	25.7	20	26.6	28.7	4	2	26x2	G3/4	30
GN 7403.1-NI-24-500	24	500	4	26.6	25.7	20	26.6	28.7	4	2	26x2	G3/4	30

Oil level sight glasses

Aluminium / crystal-clear plastic

SPECIFICATION

Types

- Type **A**: with prismatic effect (only $d_1 = 14/18/24$)
- Type **B**: without contrast screen (all sizes)
- Type **C**: with red marking ring (only $d_1 = 11/14/18/24$)

Body

Aluminium
fine turned

Sight glass
Plastic

- crystal-clear Polyimide (PA-T)
- temperature resistant up to 110 °C

Red marking ring
pad printing

Sealing ring
Rubber NBR (Perbunan)

INFORMATION

Oil level sight glasses GN 744 use the so called prismatic effect of a cat's eye to display the oil level unaffected by oil colour or oil viscosity. The advantage of this effect is particularly obvious in the case of under or overfilling or for inspection under unfavourable light conditions.

The seal is housed in a radial groove in the aluminium body and hence cannot be lost. In addition it cannot be extruded when tightening the sight glass.

Oil level sight glasses GN 744 can also be used on pressurised tanks. Data of pressure and vacuum pressure tests is available.

Assembly instruction:

For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743)

ACCESSORY

- Fixing nut GH. (see page 1743)

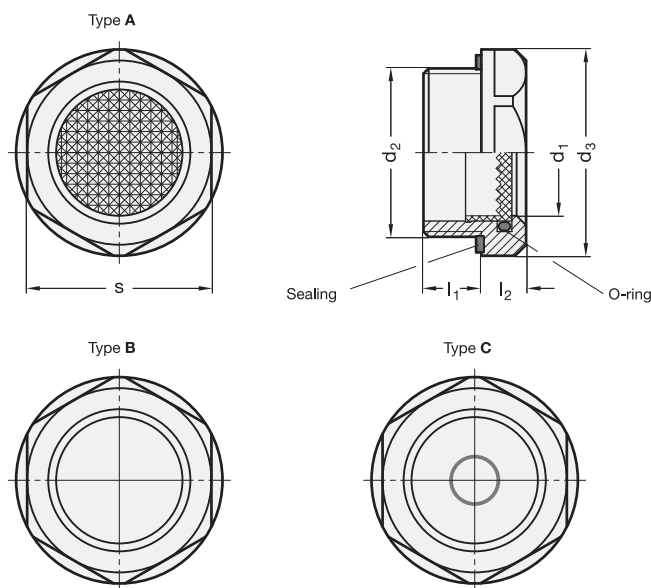


ON REQUEST

- EPDM seal

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)



GN 744

Description	d1	d2	d3	l1	l2	s	⚖
GN 744-14-G1/2-A	14	G 1/2	26	8.5	7.5	23	12
GN 744-14-M20x1,5-A	14	M 20 x 1.5	26	8.5	7.5	23	5
GN 744-18-G3/4-A	18	G 3/4	32	9	8	30	15
GN 744-18-M26x1,5-A	18	M 26 x 1.5	32	9	8	30	15
GN 744-18-M27x1,5-A	18	M 27 x 1.5	32	9	8	30	16
GN 744-24-G1-A	24	G 1	40	11	8.5	36	23
GN 744-24-M33x1,5-A	24	M 33 x 1.5	40	11	8.5	36	30
GN 744-7-G1/4-B	7	G 1/4	20	7.5	6.5	18	5
GN 744-7-M12x1,5-B	7	M 12 x 1.5	20	7.5	6.5	18	5
GN 744-11-G3/8-B	11	G 3/8	22	8	7.5	20	6
GN 744-11-M16x1,5-B	11	M 16 x 1.5	22	8	7.5	20	6
GN 744-14-G1/2-B	14	G 1/2	26	8.5	7.5	23	8
GN 744-14-M20x1,5-B	14	M 20 x 1.5	26	8.5	7.5	23	8
GN 744-18-G3/4-B	18	G 3/4	32	9	8	30	15

GN 744

Description	d1	d2	d3	l1	l2	s	⚖
GN 744-18-M26x1,5-B	18	M 26 x 1.5	32	9	8	30	14
GN 744-18-M27x1,5-B	18	M 27 x 1.5	32	9	8	30	16
GN 744-24-G1-B	24	G 1	40	11	8.5	36	22
GN 744-24-M33x1,5-B	24	M 33 x 1.5	40	11	8.5	36	23
GN 744-11-G3/8-C	11	G 3/8	22	8	7.5	20	6
GN 744-11-M16x1,5-C	11	M 16 x 1.5	22	8	7.5	20	6
GN 744-14-G1/2-C	14	G 1/2	26	8.5	7.5	23	8
GN 744-14-M20x1,5-C	14	M 20 x 1.5	26	8.5	7.5	23	8
GN 744-18-G3/4-C	18	G 3/4	32	9	8	30	15
GN 744-18-M26x1,5-C	18	M 26 x 1.5	32	9	8	30	14
GN 744-18-M27x1,5-C	18	M 27 x 1.5	32	9	8	30	16
GN 744-24-G1-C	24	G 1	40	11	8.5	36	22
GN 744-24-M33x1,5-C	24	M 33 x 1.5	40	11	8.5	36	23



Oil level indicators

Technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

STAR-SHAPED CONTRAST SCREEN

Matte anodised aluminium with red central level point.

PACKING RING

NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

FEATURES

The particular shape of the magnifying lens increases and improves visibility even from side positions.

TECHNICAL DATA

The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE

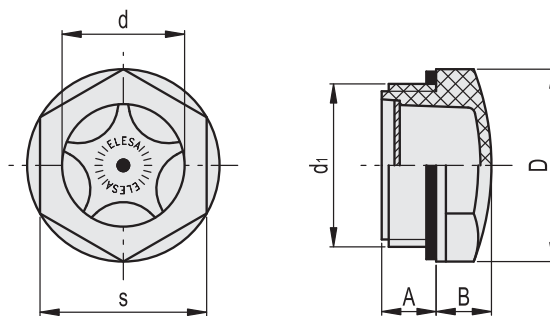
For use with other fluids with special additives, please contact ELESa Sales Department.

ACCESSORIES ON REQUEST

Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESa Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
13661	HFTX.11-M16x1.5	M16x1.5	8	7	22	11	19	2÷3	4
13681	HFTX.14-M20x1.5	M20x1.5	9.5	8	26	14	22	8÷10	5
13701	HFTX.18-M25x1.5	M25x1.5	8	9	31.5	18	27	8÷10	8
13726	HFTX.21-M26x1.5	M26x1.5	13	9	31.5	18	27	8÷10	8
13711	HFTX.19-M27x1.5	M27x1.5	9	9	31.5	20	27	8÷10	8
13731	HFTX.22-M30x1.5	M30x1.5	9	10	35	22	30	8÷10	10
13751	HFTX.26-M35x1.5	M35x1.5	11	10	40	25	34	8÷10	13
13771	HFTX.31-M40x1.5	M40x1.5	11.5	13	47	30	40.5	8÷10	20
13651	HFTX.9-1/4	G 1/4	10	6	18	9	15	2÷3	3
13671	HFTX.12-3/8	G 3/8	7.5	7	22	11	19	3÷5	4
13691	HFTX.15-1/2	G 1/2	10.5	8	26	14	22	4÷6	5
13721	HFTX.20-3/4	G 3/4	10.5	9	31.5	20	27	6÷8	8
13741	HFTX.24-1	G 1	11	10	40	25	34	8÷10	12
13761	HFTX.30-1¼	G 1 1/4	11.5	13	47.5	30	40.5	8÷10	20

Oil level indicators

with prismatic window, technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

The window consists of a continuous series of prisms which provide a clear and immediate reading of the level of the oil contained in the reservoir.

PACKING RING

NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

TECHNICAL DATA

The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE

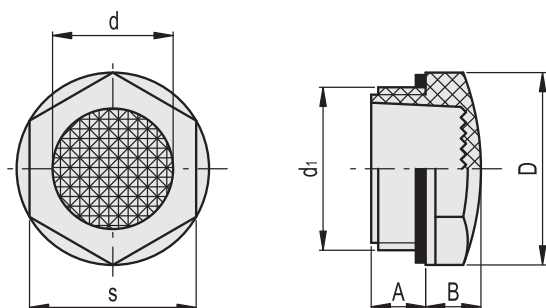
For use with other fluids with special additives, please contact ELESА Sales Department.

ACCESSORIES ON REQUEST

Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESА Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
13652	HFTX.9/PR-1/4	G 1/4	10	6	18	9	15	2÷3	3
13672	HFTX.12/PR-3/8	G 3/8	7.5	7	22	11	19	3÷5	4
13692	HFTX.15/PR-1/2	G 1/2	10.5	8	26	14	22	4÷6	5
13722	HFTX.20/PR-3/4	G 3/4	10.5	9	31.5	20	27	6÷8	8
13742	HFTX.24/PR-1	G 1	11	10	40	25	34	8÷10	12

Oil level indicators

with prismatic window, technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

The window consists of a continuous series of prisms which provide a clear and immediate reading of the level of the oil contained in the reservoir.

PACKING RING

NBR synthetic rubber

The positioning of the packing ring in its housing guarantees a high tightening torque.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

NOTE

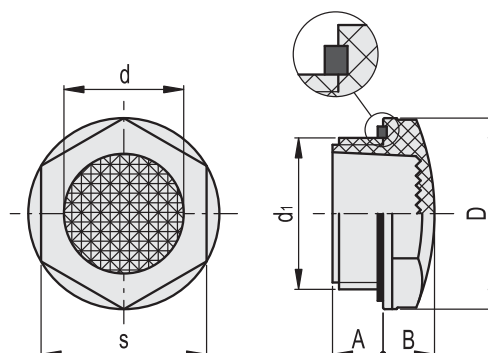
For use with other fluids with special additives, please contact ELESА Sales Department.

ACCESSORIES ON REQUEST

Brass nut GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESА Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14692	HFTR.15/PR-1/2	G 1/2	10.5	9	28	15	24	8÷10	6
14722	HFTR.20/PR-3/4	G 3/4	10.5	10.5	35	20	32	10÷12	9
14742	HFTR.24/PR-1	G 1	11	13.5	42.5	24	38	10÷12	13
14762	HFTR.30/PR-1¼	G 1¼	19	16	52	30.5	41	12÷14	21

Oil level indicators

push-fit, technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

WINDOW

Transparent polyamide based (PA-T/AR) technopolymer.

CONTRAST SCREEN

White lacquered aluminium with red level line.

PACKING RING

NBR synthetic rubber O-Ring.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

FEATURES AND APPLICATIONS

The push-fit assembly is guaranteed by optimized ribbings.

Sealing is guaranteed by the O-ring.

HRT. oil level indicators push-fit are particularly suitable for assembly on reservoirs with limited pressure.

NOTE

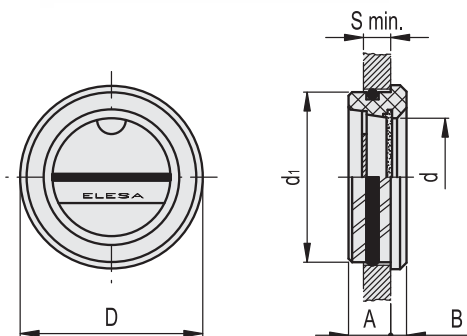
For use with other fluids with special additives, please contact ELESa Sales Department.

ASSEMBLY INSTRUCTIONS

Chamfer hole 1x45° and grease slightly the outside surface of the O-ring to make assembly easier.



ELESa Original design



Code	Description	d1	A	B	D	d	Smin	Mounting hole d1 H11	
10751	HRT.15-26	26	9	4.5	28	14.5	6	26	6
10756	HRT.20-32	32	10.5	4.5	36	18	8	32	10
10761	HRT.25-38	38	11	5	42	23	8	38	12
10766	HRT.40-60	60	11	5.5	64	40	9	60	29

Oil level indicators

push-fit with temperature reading, technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

WINDOW

Transparent polyamide based (PA-T/AR) technopolymer.

CONTRAST SCREEN WITH BIMETALLIC THERMOMETER

Graduated scale up to 100°C to read oil temperature, even when oil level is at minimum, thanks to the conductivity of the aluminium contrast screen.

PACKING RING

NBR synthetic rubber O-Ring.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

FEATURES AND APPLICATIONS

The push-fit assembly is guaranteed by optimized ribbings.

Sealing is guaranteed by the O-ring.

HRT-T oil level indicators push-fit are particularly suitable for assembly on reservoirs with limited pressure.

NOTE

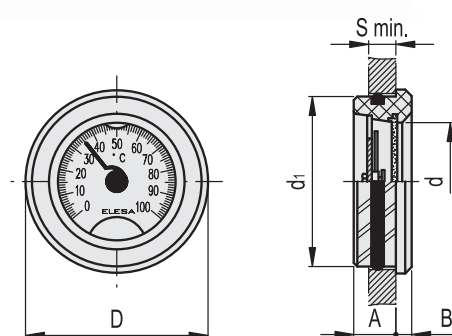
For use with other fluids with special additives, please contact ELESa Sales Department.

ASSEMBLY INSTRUCTIONS

Chamfer hole 1x45° and grease slightly the outside surface of the O-ring to make assembly easier.



ELESa Original design



Code	Description	d1	A	B	D	d	Smin	Mounting hole d1 H11	
10781	HRT.25/T-38	38	11	5	42	23	8	38	12
10786	HRT.40/T-60	60	11	5.5	64	40	9	60	29

Oil level indicators

push- fit, polycarbonate

MATERIAL

Transparent high mechanical resistance polycarbonate. Not suitable for use with oils with additives and solvents. Avoid contact with alcohol or detergents containing alcohol.

CONTRAST SCREEN

White lacquered aluminium with red level line.

PACKING RING

NBR synthetic rubber O-Ring.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

FEATURES AND APPLICATIONS

The push-fit assembly is guaranteed by optimized ribbings. Sealing is guaranteed by the O-ring. HE. oil level indicators push-fit are particularly suitable for assembly on reservoirs with limited pressure.

NOTE

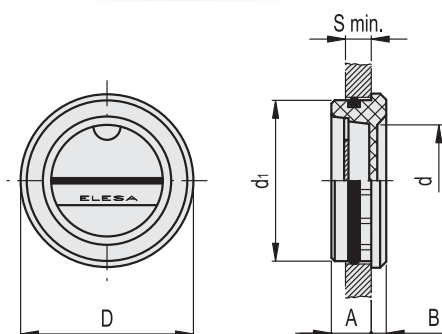
For use with other fluids with special additives, please contact ELESAs Sales Department.

ASSEMBLY INSTRUCTIONS

Chamfer hole 1x45° and grease slightly the outside surface of the O-ring to make assembly easier.



ELESAs Original design



Code	Description	d1	A	B	D	d	Smin	Mounting hole d1 H11	⚖
11401	HE.17	17	6.5	3	18	9	5	17	2
11501	HE.20	20	8	3	21	12	6	20	3
11601	HE.26	26	7.5	3.5	28	17	6	26	5
11701	HE.30	30	8	4	32	20	7	30	7
11801	HE.35	35	9	4	38	25	8	35	10
11901	HE.40	40	10	4.5	43	28	9	40	13
12001	HE.45	45	11	5.5	47	32	9	45	18

Nuts

Brass

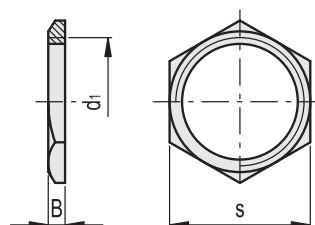
MATERIAL

Brass.

FEATURES AND APPLICATIONS

GH. nuts can be used for fitting the following indicators to reservoirs with thin walls (thickness smaller than 5 mm):

- HGFT. (see page 1724)
- HGFT-EX (see page 1725)
- GN 743 (see page 1726)
- GN 743.1 (see page 1727)
- GN 743.2 (see page 1728)
- GN 743.3 (see page 1729)
- GN 743.4 (see page 1730)
- GN 743.5 (see page 1731)
- GN 743.6 (see page 1732)
- HGFT-PR (see page 1735)
- HGFT-HT-PR (see page 1735)
- GN 744 (see page 1739)
- HFTX (see page 1740)
- HFTX-PR (see page 1741)
- HCFE (see page 1745)
- HCFE-C (see page 1745)
- HCFE-EX (see page 1746)



Code	Description	d1	B	s	⚖
14991	GH. 1/4	G 1/4	6	19	9
15001	GH. 3/8	G 3/8	3	19	3
15011	GH. 1/2	G 1/2	4	26	8
15021	GH. 3/4	G 3/4	5	31	12
15031	GH. 1	G 1	4.5	37	14
15041	GH. 1 1/4	G 1 1/4	5	46	23
15051	GH. 2	G 2	6	65	50



Oil level sight glasses

Aluminium / Perspex / without thread

SPECIFICATION

Types

- Type **A**: without oil level mark
- Type **B**: with oil level mark

Ring nut

Aluminium

Sight glass

Perspex (PMMA)

temperature resistant up to 80 °C

Sealing ring

Rubber NBR (Perbunan)

Contrast screen

Plastic

white, with red oil level marks



INFORMATION

This oil level glass GN 537 does not require a thread.

The oil level sight glass is inserted into the bore d2 to H11. By simply tightening the ring nut using the pin key the seal is pressed against the contact surface which, at the same time, will hold the sight glass in position. For removal reverse the procedure.

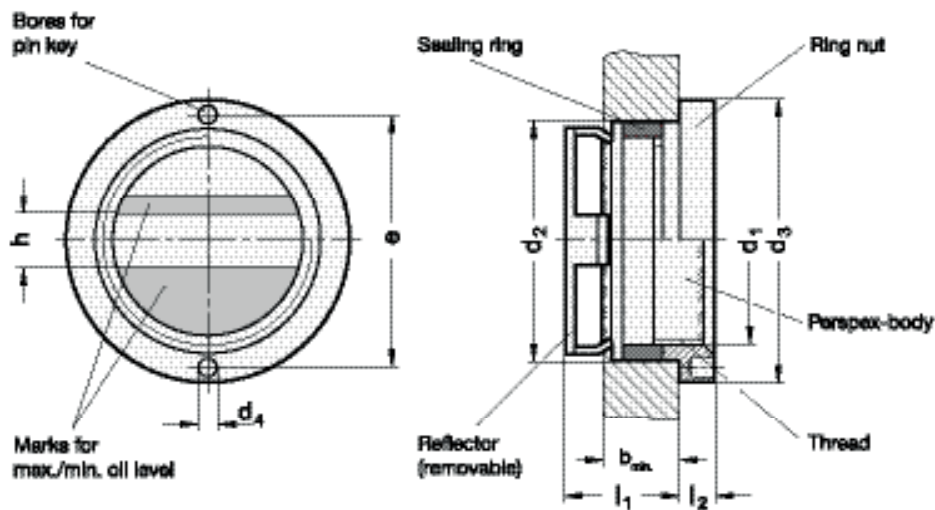
Their application is limited to non-pressurised or only slightly pressurised tanks.

ACCESSORY

- Pin key for installation GN 537.1 (Code no. see table)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



GN 537

Description	d1 Window glass	d2 Bore Ø	b min.	d3	d4	e ±0.1	h	l1	l2	Code no. pin key for installation	⚖
GN 537-16-20-A	16	20	9	25	2.2	21	5	15	3.5	GN 537.1-21	8
GN 537-22-28-A	22	28	10	35	3	30	6	15	4.5	GN 537.1-30	17
GN 537-32-38-A	32	38	12	45	3	40	8	18	5.5	GN 537.1-40	34
GN 537-50-58-A	50	58	14	64	3	58.5	10	22	5.5	GN 537.1-58.5	80
GN 537-16-20-B	16	20	9	25	2.2	21	5	15	3.5	GN 537.1-21	8
GN 537-22-28-B	22	28	10	35	3	30	6	15	4.5	GN 537.1-30	17
GN 537-32-38-B	32	38	12	45	3	40	8	18	5.5	GN 537.1-40	30
GN 537-50-58-B	50	58	14	64	3	58.5	10	22	5.5	GN 537.1-58.5	80

Oil circulation sights

Technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

PACKING RING

NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

TECHNICAL DATA

The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE

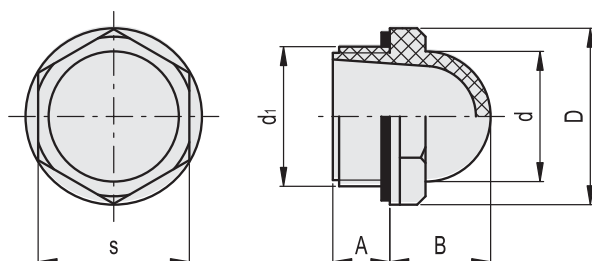
For use with other fluids with special additives, please contact ELESAs Sales Department.

ACCESSORIES ON REQUEST

Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESAs Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	
10851	HCFE.12-3/8	G 3/8	7.5	13	22.5	15	19	3÷5	4
10901	HCFE.15-1/2	G 1/2	10.5	16	26	19	22	4÷6	5
11001	HCFE.20-3/4	G 3/4	10.5	19.5	31.5	25	27	6÷8	8
11101	HCFE.24-1	G 1	11	24	42	31	36	8÷10	18
11111	HCFE.30-1¼	G 1¼	11.5	26.5	46.5	38	40.5	12÷15	22

Oil circulation sights

Technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

CIRCLE FOR OIL LEVEL CHECK

Delimited by a small red coloured externally tampprinted circle. Tampoprinting resistant to oils with additives, greases, alkali and white spirit; resistant to abrasions under normal working conditions. Avoid contact with solvents, alcohol or detergents containing alcohol.

PACKING RING

NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

TECHNICAL DATA

The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE

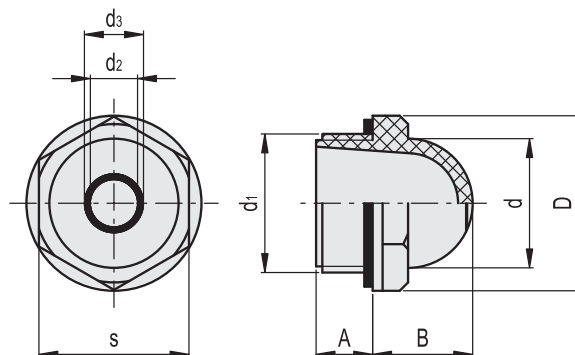
For use with other fluids with special additives, please contact ELESAs Sales Department.

ACCESSORIES ON REQUEST

Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESAs Original design



Code	Description	d1	A	B	D	d	d2	d3	s	Tightening torque [Nm]	
10906	HCFE.15/C-1/2	G 1/2	10.5	16	26	19	6	7	22	4÷6	5
11006	HCFE.20/C-3/4	G 3/4	10.5	19.5	31.5	25	11	12	27	6÷8	8
11106	HCFE.24/C-1	G 1	11	24	42	31	14	15	36	8÷10	18

Oil circulation sights

Technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

PACKING RING

NBR synthetic rubber.

ATEX DIRECTIVE COMPLIANCE

The level indicators of the HCFE-EX series comply with Health and Safety Requirements intended in 94/9/EC ATEX European Directive (explosive atmospheres) for equipments in Group II, category 2GD. Level indicators have "kX" protection degree and can therefore be mounted on equipment protected by means of "immersion in liquid", without lowering protection degree.

II 2 G D k T6, marked on the HCFE-EX level indicators, represents the identification according to ATEX directive.

II: group of substances for which the product is suitable

2: identification of the category

G: identification of the type of explosive atmosphere (Gases or vapours)

D: identification of the type of explosive atmosphere (Dust)

k: protection degree by means of immersion in liquid

IIB: explosive gases group (only for HCFE.20)

T6: temperature class

Ambient and/or fluid temperature: -30 to +80°C

The declaration of conformity to European Directives of this product is available and it is part of the product itself.

TECHNICAL DATA

The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE

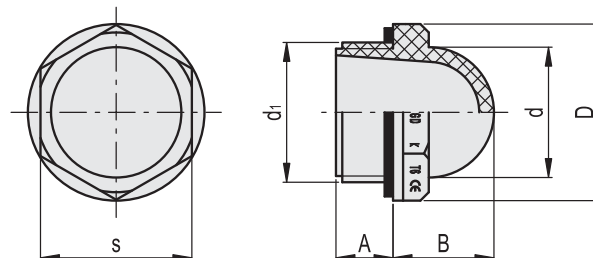
For use with other fluids with special additives, please contact ELESa Sales Department.

ACCESSORIES ON REQUEST

Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESa Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
10851-EX	HCFE.12-3/8-EX	G 3/8	7.5	13	22.5	15	19	3÷5	4
10901-EX	HCFE.15-1/2-EX	G 1/2	10.5	16	26	19	22	4÷6	5
11001-EX	HCFE.20-3/4-EX	G 3/4	10.5	19.5	31.5	25	27	6÷8	8

Visual flow indicators

Technopolymer ends

ENDS

Polypropylene based (PP) technopolymer, black colour, matte finish.

AXIS AND ROTOR PROPELLER

Polypropylene based (PP) technopolymer, red colour.

TUBULAR WINDOW

PYREX® glass, high-resistance, also suitable for use with glycol-based solutions.

Maximum visibility of the flow from all angles.

TIE RODS

Nickel-plated brass.

PACKING RINGS

NBR synthetic rubber.

THREADED FITTINGS

Brass bosses with cylindrical gas thread according to UNI ISO 228/1.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100° C.

FEATURES AND APPLICATIONS

The indicator can be mounted in any position.

In case of mounting on rigid tubes, it is recommended to place the indicator perfectly aligned with the tubes.

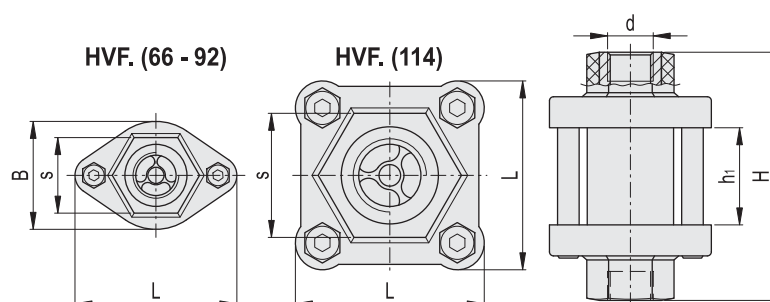
The indicator operates with two-way liquid flows.

For rotating the propeller it is required a minimum fluid flow rate (Q**) depending on the type of fluid and its viscosity (shown in cSt, see table)

SPECIAL EXECUTIONS ON REQUEST

- AISI 316 stainless steel bosses.
- Bosses with NPT conical threads.
- Axis and rotor propeller in blue colour.

* Registered trademark by Corning Inc.



Code	Description	d	H	L	B	h1	s	Q max* l/min	P max # Bar	Q** l/min H2O	Q** l/min 0÷40 cSt	Q** l/min 41÷150 cSt	ΔP max ## Bar	⚖
111301	HVF.66-1/4	1/4	66	44	27	22	20	10	25	0.6	2.5	3.5	0.15	74
111311	HVF.92-3/8	3/8	92	60	40	36	28	20	15	1.2	3	4	0.25	176
111321	HVF.92-1/2	1/2	92	60	40	36	28	40	15	1.2	3	4	0.3	167
111331	HVF.114-3/4	3/4	114	70	-	46	46	60	12	2.1	3.7	5	0.17	663
111341	HVF.114-1	1	114	70	-	46	46	80	12	2.1	3.7	5	0.15	667

* Maximum flow rate

Maximum pressure

** Minimum flow rate to start the rotor for fluids of different viscosity

Pressure drop due to the indicator presence





Column Indicators

Series	Features
HCZ. page 1752	With or without incorporated thermometer. With or without SUPER-technopolymer protection frame. Zinc-plated steel assembly screws. Hole centre distance 76, 127, 254 mm
HCZ-VT page 1754	For applications requiring corrosion resistance with no need of using stainless steel screws. With or without incorporated thermometer. With or without SUPER-technopolymer protection frame. SUPER-technopolymer assembly screws. Hole centre distance 76, 127, 254 mm
HCX. page 1756	With or without incorporated thermometer. Zinc-plated steel assembly screws. Hole centre distance 76, 127, 254 mm
HCX-SST page 1758	For applications requiring corrosion resistance. With or without incorporated thermometer. Stainless steel assembly screws. Hole centre distance 76, 127, 254 mm
HCX-AR page 1763	For applications with fluids containing alcohol. With or without incorporated thermometer. Zinc-plated steel assembly screws. Hole centre distance 76, 127, 254 mm
HCX-BW-SST page 1762	For applications with hot water. Without thermometer. Stainless steel assembly screws. Hole centre distance 76, 127, 254 mm
HCX-VT page 1760	For applications requiring corrosion resistance with no need of using stainless steel screws. With or without incorporated thermometer. SUPER-technopolymer assembly screws. Hole centre distance 127, 254 mm

Series	Features
HCX-LT page 1769	With float for indirect level reading. Zinc-plated steel assembly screws. Hole centre distance 254 mm
HCX-PT page 1764	With or without incorporated thermometer. SUPER-technopolymer protection frame. Zinc-plated steel assembly screws (HCX-PT), stainless steel (HCX-PT-SST), SUPER-technopolymer (HCX-PT-VT). Hole centre distance 76, 127, 254 mm.
HCX-P page 1766	With or without incorporated thermometer. Zinc-alloy protection frame. Zinc-plated steel assembly screws. Hole centre distance 127 mm
HCK. page 1770	Aluminium protection frame. With or without transparent polycarbonate protection frame. Zinc-plated steel assembly screws. Hole centre distance 76, 127, 176, 254, 381, 508 mm
HCK-GL page 1772	For applications with water/glycol-based solutions. Aluminium protection frame and transparent polycarbonate front protection. Zinc-plated or stainless steel assembly screws. Hole centre distance 76, 127, 176, 254, 381, 508 mm
SLCK page 1774	For the electric control of a fluid level for HCK. and HCK-GL
HCL. page 1776	With aluminium protection frame. Zinc-plated steel assembly screws. Hole centre distance 300, 400, 500 mm

Column Indicators

Series	Features	Series	Features
HCX-ST page 1778	With MAX temperature electrical sensor. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm	HCV-E page 1792	With MIN level electrical sensor. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCX-STL page 1780	With electrical probe for indirect temperature reading by means of analogue signal. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm	HCV-E-ST page 1794	With MIN level and MAX temperature electrical sensors. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCX-E page 1782	With MIN level electrical sensor. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm	HCV-E-STL page 1796	With MIN level electrical sensor and electrical probe for indirect temperature reading by means of analogue signal. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCX-E-ST page 1784	With MIN level and MAX temperature electrical sensors. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm	HCY-E page 1798	With MIN level electrical sensor. Nickel-plated brass assembly screws. Hole centre distance 76, 127, 254 mm
HCX-E-STL page 1786	With MIN level electrical sensor and electrical probe for indirect temperature reading by means of analogue signal. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm	HCY-E-ST page 1800	With MIN level and MAX temperature electrical sensors. Nickel-plated brass assembly screws. Hole centre distance 76, 127, 254 mm
HCV-ST page 1788	With MAX temperature electrical sensor. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm	HFL-E page 1802	Level electrical sensor with float. Assembly by means of flange or threaded coupler.
HCV-STL page 1790	With electrical probe for indirect temperature reading by means of analogue signal. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm	HFLT-E page 1804	Level electrical sensor with float. Assembly by means of flange or threaded coupler.



Accessories for hydraulic systems **15**

Column level indicators

with or without protection frame, technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol and detergents containing alcohol.

PROTECTION FRAME

Glass-fibre reinforced polyamide (PA) SUPER-technopolymer, black colour, matte finish. Supplied assembled, removable by a screwdriver.

SCREWS AND NUTS

Zinc-plated steel.

PACKING RINGS

Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring screw underneath. Suggested roughness of the packing ring application surface $R_a = 3 \mu\text{m}$.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HCZ**: without thermometer and without protection frame.
- **HCZ/T**: with thermometer incorporated, without protection frame.
- **HCZ-P**: without thermometer, with protection frame.
- **HCZ/T-P**: with thermometer incorporated and protection frame.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

FEATURES AND PERFORMANCES

Ultrasound welding to guarantee a perfect seal. Lens effect for a better visibility of the fluid level and temperature. Special openings in the protection frame provide maximum fluid level visibility even from side positions. All shocks are absorbed by the frame that transmits them directly onto the wall of the reservoir.

TECHNICAL DATA

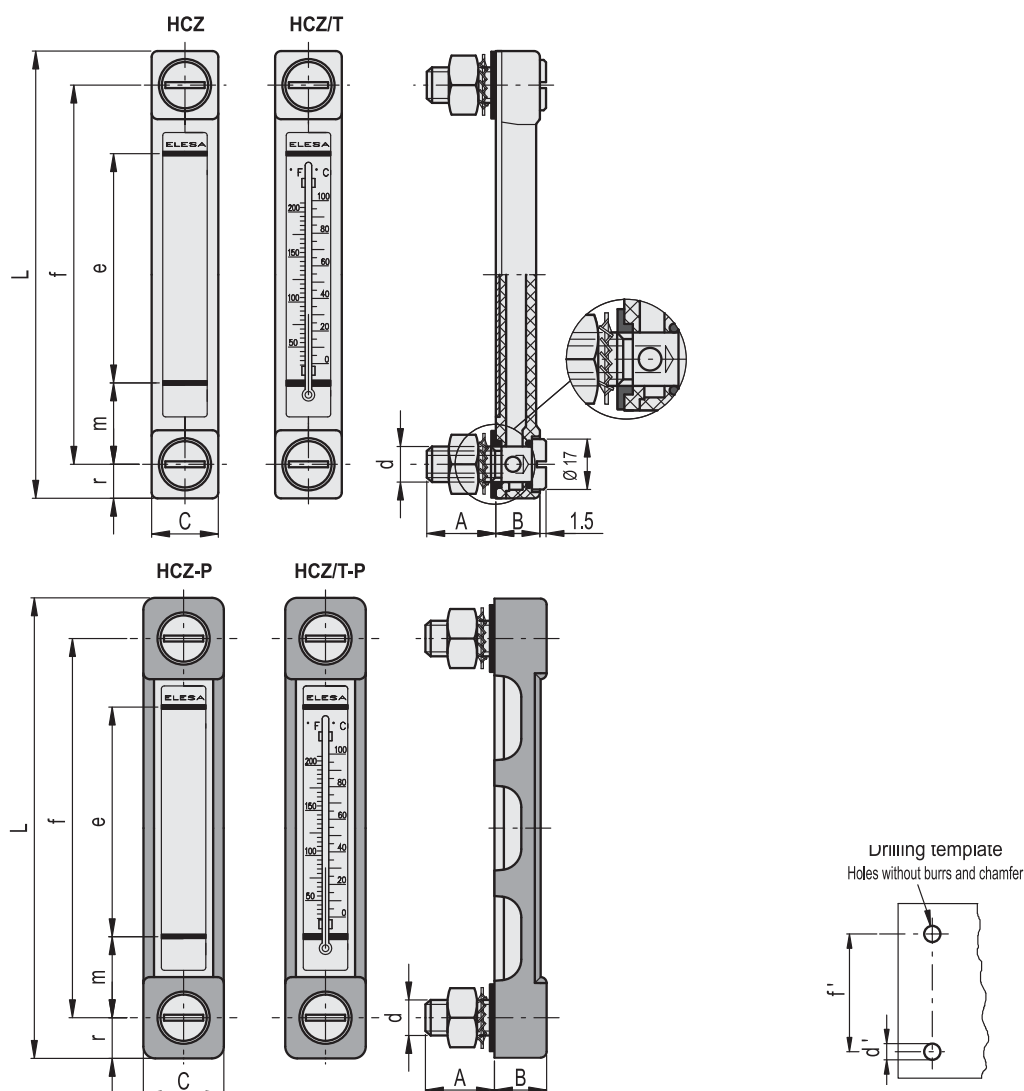
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCZ.76 and HCZ.127) 12 bar (HCZ.254). For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department. In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST

- HCZ.127: with M10 screws and nuts.
- UV resistant transparent technopolymer indicators.



ELESa Original design



HCZ.

Code	Description	f	d	A	B	C	L	e	m	r	d'±0.2	f'±0.2	C# [Nm]	⚖
11382	HCZ.76	76	M10	22	15	22	99	40	18	11.5	10.5	76	12	90
11385	HCZ.127	127	M12	22	15	22	150	80	23	11.5	12.5	127	12	120
11388	HCZ.254	254	M12	22	15	24	278	203	25	12.5	12.5	254	12	150

HCZ/T

Code	Description	f	d	A	B	C	L	e	m	r	d'±0.2	f'±0.2	Thermometer scale °C	Thermometer scale °F	C# [Nm]	⚖
11383	HCZ.76/T	76	M10	22	15	22	99	40	18	11.5	10.5	76	20÷100	68÷210	12	91
11386	HCZ.127/T	127	M12	22	15	22	150	80	23	11.5	12.5	127	0÷100	32÷210	12	121
11389	HCZ.254/T	254	M12	22	15	24	278	203	25	12.5	12.5	254	0÷100	32÷210	12	170

HCZ-P

Code	Description	f	d	A	B	C	L	e	m	r	d'±0.2	f'±0.2	C# [Nm]	⚖
11392	HCZ.76-P	76	M10	22	17.5	27	105	40	18	14.5	10.5	76	12	101
11395	HCZ.127-P	127	M12	22	17.5	27	156	80	23	14.5	12.5	127	12	138
11398	HCZ.254-P	254	M12	22	17.5	29	284	203	25	15.5	12.5	254	12	150

HCZ/T-P

Code	Description	f	d	A	B	C	L	e	m	r	d'±0.2	f'±0.2	Thermometer scale °C	Thermometer scale °F	C# [Nm]	⚖
11393	HCZ.76/T-P	76	M10	22	17.5	27	105	40	18	14.5	10.5	76	20÷100	68÷210	12	102
11396	HCZ.127/T-P	127	M12	22	17.5	27	156	80	23	14.5	12.5	127	0÷100	32÷210	12	139
11399	HCZ.254/T-P	254	M12	22	17.5	29	284	203	25	15.5	12.5	254	0÷100	32÷210	12	150

Maximum tightening torque.



Column level indicators

SUPER-technopolymer assembly screws, with or without protection frame

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

PROTECTION FRAME

Glass-fibre reinforced polyamide (PA) SUPER-technopolymer, black colour, matte finish. Supplied assembled, removable by a screwdriver.

SCREWS

Glass-fibre reinforced polyamide (PA) SUPER-technopolymer, lightweight and high mechanical strength.

Anticorrosive material: suitable even in the presence of liquid or humidity.

Resistant to several washing cycles with solvents and detergents, for this reason it is suitable for applications in the pharmaceutical or food industry.

NUTS AND WASHERS

AISI 304 stainless steel.

PACKING RINGS

Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring screw underneath.

Suggested roughness of the packing ring application surface $Ra = 3 \mu m$.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.

It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HCZ-VT**: without thermometer and without protection frame.
- **HCZ/T-VT**: with thermometer incorporated, without protection frame.
- **HCZ-P-VT**: without thermometer, with protection frame.
- **HCZ/T-P-VT**: with thermometer incorporated and protection frame.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

SPECIAL EXECUTIONS ON REQUEST

UV resistant transparent technopolymer indicators.



ELESA Original design

FEATURES AND PERFORMANCES

Thanks to the SUPER-technopolymer screws, HCZ-VT column level indicator can be used in corrosion resistance applications where stainless steel is not necessary.

The special slotted head of the SUPER-technopolymer screws is especially designed to reach an optimum tightening of the packing rings by applying an adequate tightening torque (ELESA patent) thus avoiding unnecessary stress to the screws.

Ultrasound welding to guarantee a perfect seal.

Lens effect for a better visibility of the fluid level and temperature.

Special openings in the protection frame provide maximum fluid level visibility even from side positions.

All shocks are absorbed by the frame that transmits them directly onto the wall of the reservoir.

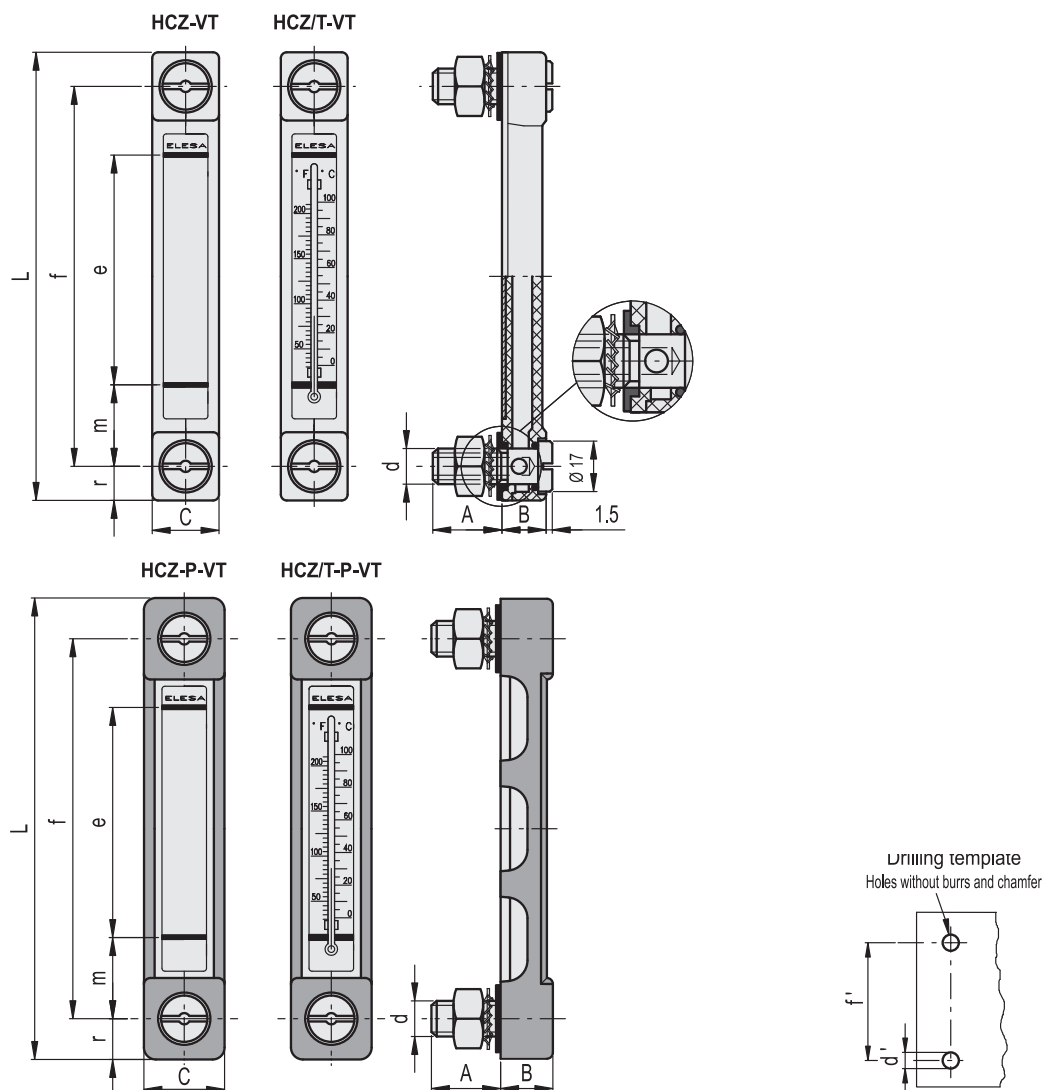
TECHNICAL DATA

Considering the SUPER-technopolymer screws, the maximum working pressure cannot be higher than 5 bar at 20°C and 2 bar at 90°C.

For higher pressure values use HCZ-SST with stainless steel screws.

For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.



HCZ-VT

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	C# [Nm]	
111382	HCZ.76-VT-M12	76	M12	23.5	15	22	99	40	18	11.5	12.5	76	6	67
111385	HCZ.127-VT-M12	127	M12	23.5	15	22	150	80	23	11.5	12.5	127	6	78
111388	HCZ.254-VT-M12	254	M12	23.5	15	24	278	203	25	12.5	12.5	254	6	110

HCZ/T-VT

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	
111383	HCZ.76/T-VT-M12	76	M12	23.5	15	22	99	40	18	11.5	12.5	76	20÷100	68÷210	6	68
111386	HCZ.127/T-VT-M12	127	M12	23.5	15	22	150	80	23	11.5	12.5	127	0÷100	32÷210	6	79
111389	HCZ.254/T-VT-M12	254	M12	23.5	15	24	278	203	25	12.5	12.5	254	0÷100	32÷210	6	111

HCZ-P-VT

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	C# [Nm]	
111392	HCZ.76-P-VT-M12	76	M12	23.5	17.5	27	105	40	18	14.5	12.5	76	6	85
111395	HCZ.127-P-VT-M12	127	M12	23.5	17.5	27	156	80	23	14.5	12.5	127	6	104
111398	HCZ.254-P-VT-M12	254	M12	23.5	17.5	29	284	203	25	15.5	12.5	254	6	169

HCZ/T-P-VT

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	
111393	HCZ.76/T-P-VT-M12	76	M12	23.5	17.5	27	105	40	18	14.5	12.5	76	20÷100	68÷210	6	86
111396	HCZ.127/T-P-VT-M12	127	M12	23.5	17.5	27	156	80	23	14.5	12.5	127	0÷100	32÷210	6	105
111399	HCZ.254/T-P-VT-M12	254	M12	23.5	17.5	29	284	203	25	15.5	12.5	254	0÷100	32÷210	6	170

Maximum tightening torque



Column level indicators

Technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface $R_a = 3 \mu m$.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.

It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **H CX.**: without thermometer.
- **H CX/T**: with incorporated thermometer.

MOUNTING

When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

FEATURES AND PERFORMANCES

Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (H CX.76 e H CX.127) 12 bar (H CX.254).

For use with other fluids and under different pressure and temperature conditions, please contact ELES A Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.

OTHER STANDARD EXECUTIONS

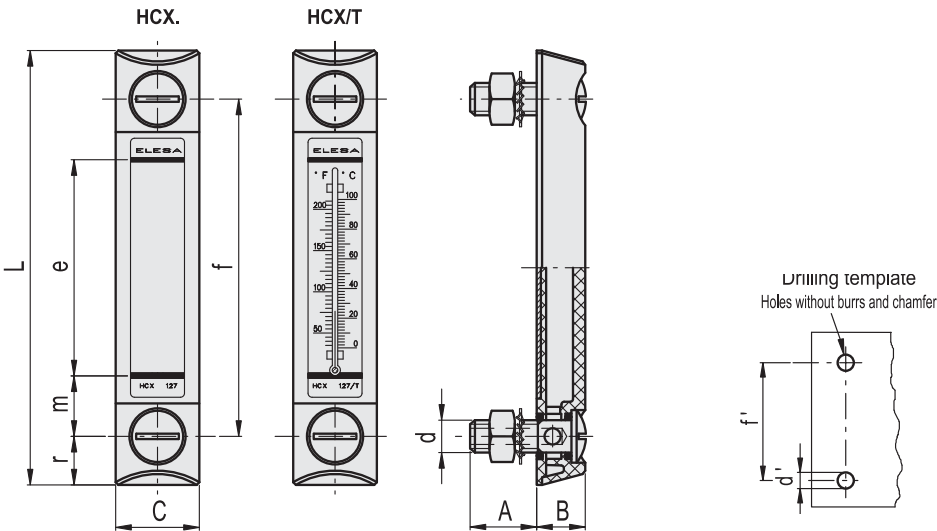
- H CX-AR (see page 1763) for use with fluids containing alcohol.
- H CX-BW-SST (see page 1762) for use with hot water.
- H CX-PT (see page 1764) with SUPER-technopolymer protection frame.

SPECIAL EXECUTIONS ON REQUEST

- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.



ELES A Original design



Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11341	HCX.76-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	-	-	12	87
11346	HCX.76/T-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	20÷100	68÷210	12	87
11349	HCX.127-M10	127	M10	23	18	31	161	80	23	17	10.5	127	-	-	12	138
11354	HCX.127/T-M10	127	M10	23	18	31	161	80	23	17	10.5	127	0÷100	32÷210	12	138
11351	HCX.127-M12	127	M12	23	18	31	161	80	23	17	12.5	127	-	-	12	138
11356	HCX.127/T-M12	127	M12	23	18	31	161	80	23	17	12.5	127	0÷100	32÷210	12	138
11361	HCX.254-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	-	-	10	185
11366	HCX.254/T-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	0÷100	32÷210	10	185

Maximum tightening torque

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Accessories for hydraulic systems 15

Column level indicators

stainless steel assembly screws, technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS

AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers.

PACKING RINGS

FKM type VITON®*O-Ring.

Suggested roughness of the packing ring application surface $Ra = 3 \mu m$.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.

It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HGX-SST**: without thermometer.
- **HGX/T-SST**: with incorporated thermometer.

MOUNTING

When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

FEATURES AND PERFORMANCES

Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.76-SST and HCX.127-SST) 12 bar (HCX.254-SST).

For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.

OTHER STANDARD EXECUTIONS

- HCX-AR (see page 1763) for use with fluids containing alcohol.
- HCX-BW-SST (see page 1762) for use with hot water.
- HCX-PT (see page 1764) with SUPER-technopolymer protection frame.

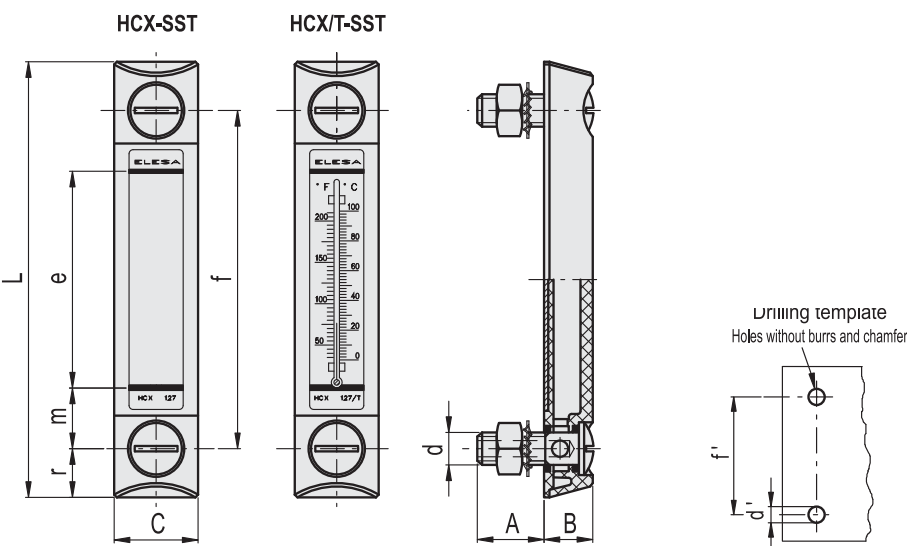
SPECIAL EXECUTIONS ON REQUEST

- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.

* Registered trademark by DuPont Dow Elastomers.



ELESa Original design



STAINLESS STEEL																	
Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C#	[Nm]	
11343	HCX.76-SST-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	-	-	12	87	
11348	HCX.76/T-SST-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	20÷100	68÷210	12	87	
11353	HCX.127-SST-M12	127	M12	23	18	31	161	80	23	17	12.5	127	-	-	12	138	
11358	HCX.127/T-SST-M12	127	M12	23	18	31	161	80	23	17	12.5	127	0÷100	32÷210	12	138	
11363	HCX.254-SST-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	-	-	10	185	
11368	HCX.254/T-SST-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	0÷100	32÷210	10	185	

Maximum tightening torque

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18

Accessories for hydraulic systems 15

Column level indicators

SUPER-technopolymer assembly screws

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREWS

Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer

NUTS AND WASHERS

AISI 304 stainless steel.

PACKING RINGS

NBR synthetic rubber (on request FKM) O-Ring. Suggested roughness of the packing ring application surface $Ra = 3 \mu m$.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HGX-VT**: without thermometer.
- **HGX/T-VT**: with incorporated thermometer.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

FEATURES AND PERFORMANCES

Thanks to the SUPER-technopolymer screws, HGX/VT column level indicator can be used in corrosion resistance applications where stainless steel is not necessary.

The special slotted head of the SUPER-technopolymer screws is especially designed to reach an optimum tightening of the packing rings by applying an adequate tightening torque (Elesa patent) thus avoiding unnecessary stress to the screws.

Ultrasound welding to guarantee a perfect seal.

Maximum fluid level visibility even from side positions.

Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HGX.127-VT) 12 bar (HGX.254-VT).

Considering the SUPER-technopolymer screws, the maximum working pressure cannot be higher than 5 bar at 20°C and 2 bar at 90°C.

For use with other fluids and under different pressure and temperature conditions, please contact Elesa Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.

ANOTHER STANDARD EXECUTION

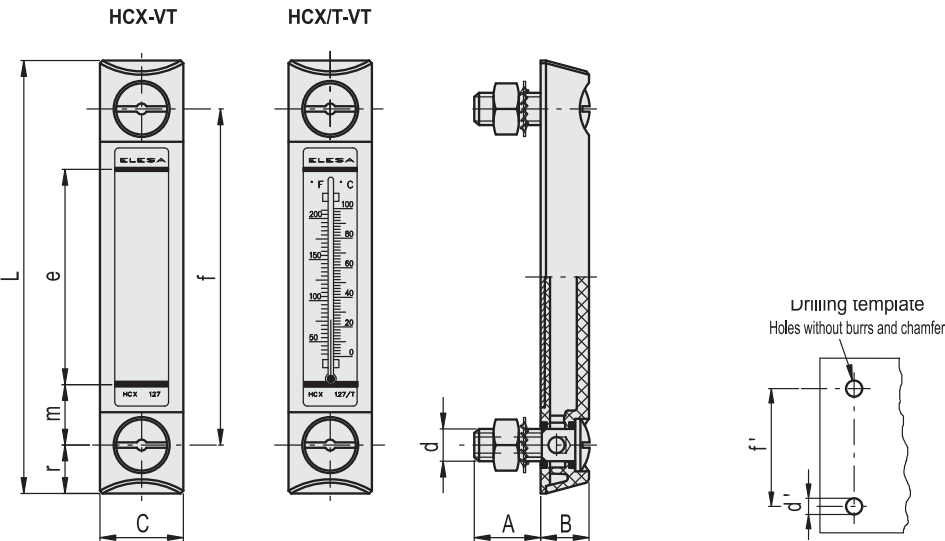
HGX-PT (see page 1764) with SUPER-technopolymer protection frame.

SPECIAL EXECUTIONS ON REQUEST

- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.



Elesa Original design



Code	Description	f	d	A	B	C	L	e	m	r	d'±0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	
111351	HCX.127-VT-M12	127	M12	23	18	31	161	80	23	17	12.5	127	-	-	6	94
111361	HCX.127/T-VT-M12	127	M12	23	18	31	161	80	23	17	12.5	127	0÷100	32÷210	6	94
111371	HCX.254-VT-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	-	-	6	141
111381	HCX.254/T-VT-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	0÷100	32÷210	6	141

Maximum tightening torque

1

2

3

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17

18

Accessories for hydraulic systems 15

Column level indicators

for hot water, technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.

Avoid contact with alcohol or detergents containing alcohol.

The special technopolymer used for HCX-BW-SST column level indicator allows to use it even in circuits working with very hot water and prevents milk effect on the transparent surface.

SCREWS, NUTS AND WASHERS

AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers.

PACKING RINGS

FKM type VITON®-O-Ring.

Suggested roughness of the packing ring application surface $Ra = 3 \mu m$.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

MOUNTING

When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

80°C with peaks of 90°C.

FEATURES AND PERFORMANCES

Ultrasound welding to guarantee a perfect seal.

Maximum fluid level visibility even from side positions.

Lens effect for a better visibility of the fluid level.

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 10 bar.

For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.

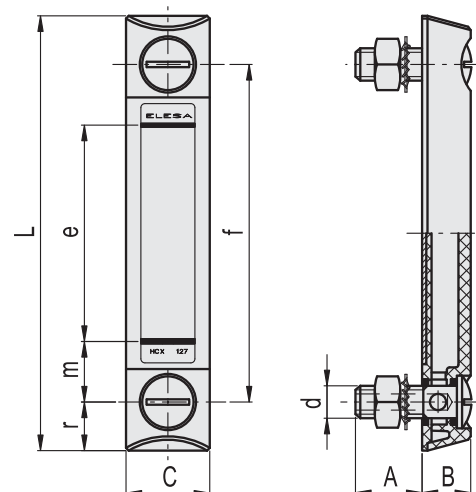
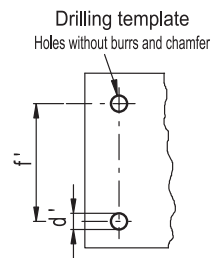
SPECIAL EXECUTIONS ON REQUEST

- Level indicators with SUPER-technopolymer protection frame.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).

* Registered trademark by DuPont Dow Elastomers.



ELESa Original design



STAINLESS STEEL

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
11345	HCX.76-BW-SST-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	8	87
11355	HCX.127-BW-SST-M12	127	M12	23	18	31	161	80	23	17	12.5	127	8	138
11365	HCX.254-BW-SST-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	8	185

Maximum tightening torque

Column level indicators

for use with fluids containing alcohol, technopolymer

MATERIAL

Transparent polyamide based (PA-T/AR) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters, additives and detergents containing alcohol.

SCREWS, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HCX-AR**: without thermometer.
- **HCX/T-AR**: with incorporated thermometer.

MOUNTING

When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

80°C.

FEATURES AND PERFORMANCES

Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA

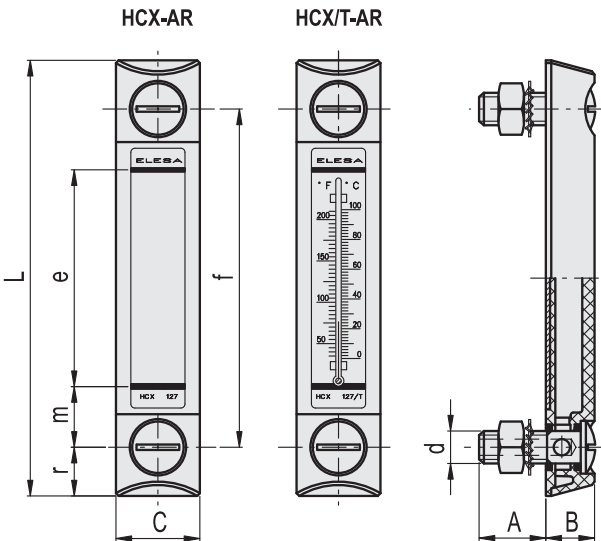
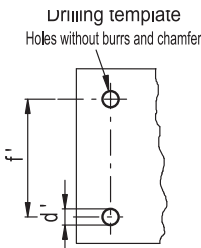
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 13 bar (HCX.76-AR and HCX.127-AR) 10 bar (HCX.254-AR).
For use with other fluids and under different pressure and temperature conditions, please contact Elesa Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST

- Level indicators with with SUPER-technopolymer protection frame.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.

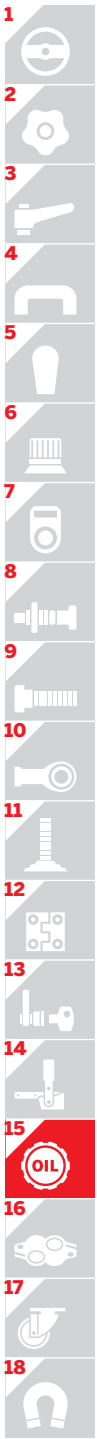


ELESA Original design



Code	Description	f	d	A	B	C	L	e	m	r	d'±0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11342	HCX.76-AR-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	-	-	8	87
11347	HCX.76/T-AR-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	20÷100	68÷210	8	87
11352	HCX.127-AR-M12	127	M12	23	18	31	161	80	23	17	12.5	127	-	-	8	138
11357	HCX.127/T-AR-M12	127	M12	23	18	31	161	80	23	17	12.5	127	0÷100	32÷210	8	138
11362	HCX.254-AR-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	-	-	8	185
11367	HCX.254/T-AR-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	0÷100	32÷210	8	185

Maximum tightening torque



Column level indicators with SUPER-technopolymer protection frame

INDICATOR BODY

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

PROTECTION FRAME

Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer, black colour, matte finish. Supplied assembled, removable by a screwdriver.

SCREWS, NUTS AND WASHERS

- Zinc-plated steel. (HCX-PT).
- AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers. (HCX-PT-SST).
- Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer screws, AISI 304 stainless steel nuts and washers. (HCX-PT-VT).

PACKING RINGS

- NBR synthetic rubber O-Ring. (HCX-PT and HCX-PT-VT).
 - FKM type VITON® O-Ring. (HCX-PT-SST).
- Suggested roughness of the packing ring application surface $R_a = 3 \mu m$.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HCX-PT**: without thermometer. Zinc-plated steel screws, nuts and washers.
- **HCX/T-PT**: with incorporated thermometer. Zinc-plated steel screws, nuts and washers.
- **HCX-PT-SST**: without thermometer. AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers.
- **HCX/T-PT-SST**: with incorporated thermometer. AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers.
- **HCX-PT-VT**: without thermometer. Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer screws, AISI 304 stainless steel nuts and washers.
- **HCX/T-PT-VT**: with incorporated thermometer. Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer screws, AISI 304 stainless steel nuts and washers.

MOUNTING

When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

FEATURES AND PERFORMANCES

Ultrasound welding to guarantee a perfect seal.
Lens effect for a better visibility of the fluid level and temperature.
Special openings in the protection frame provide maximum fluid level visibility even from side positions.
All shocks are absorbed by the frame that transmits them directly onto the wall of the reservoir.



ELESA Original design

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.76-PT e HCX.127-PT) 12 bar (HCX.254-PT). For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department. In any case we suggest to verify the suitability of the product under the actual working conditions.

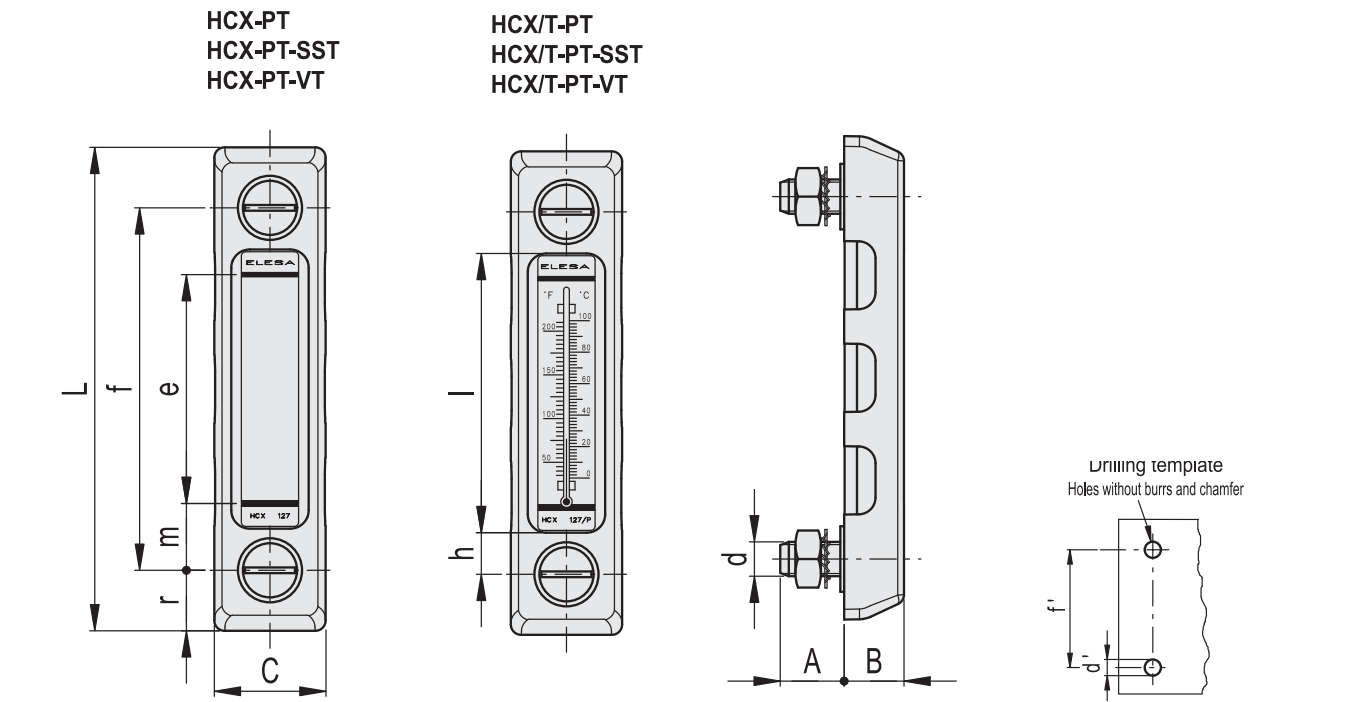
OTHER STANDARD EXECUTIONS

- HCX-AR (see page 1761) for use with fluids containing alcohol.
- HCX-BW-SST (see page 1760) for use with hot water.

SPECIAL EXECUTIONS ON REQUEST

- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.

* Registered trademark by DuPont Dow Elastomers.



HCX-PT - HCX/T-PT

Code	Description	f	d	A	B	C	L	e	h	l	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	
11332	HCX.76-PT-M10	76	M10	20	19	35.5	115	40	13.5	49	18	19.5	10.5	76	-	-	12	117
11336	HCX.76/T-PT-M10	76	M10	20	19	35.5	115	40	13.5	49	18	19.5	10.5	76	20÷100	68÷210	12	117
11372	HCX.127-PT-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	-	-	12	191
11377	HCX.127/T-PT-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	0÷100	32÷210	12	191
11359	HCX.254-PT-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	-	-	12	288
11369	HCX.254/T-PT-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	0÷100	32÷210	12	288

HCX-PT-SST - HCX/T-PT-SST

STAINLESS STEEL

Code	Description	f	d	A	B	C	L	e	h	l	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	
11334	HCX.76-PT-SST-M10	76	M10	20	19	35.5	115	40	13.5	49	18	19.5	10.5	76	-	-	12	119
11338	HCX.76/T-PT-SST-M10	76	M10	20	19	35.5	115	40	13.5	49	18	19.5	10.5	76	20÷100	68÷210	12	119
11373	HCX.127-PT-SST-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	-	-	12	193
11378	HCX.127/T-PT-SST-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	0÷100	32÷210	12	193
11360	HCX.254-PT-SST-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	-	-	12	290
11370	HCX.254/T-PT-SST-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	0÷100	32÷210	12	290

HCX-PT-VT - HCX/T-PT-VT

Code	Description	f	d	A	B	C	L	e	h	l	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	
111353	HCX.127-PT-VT-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	-	-	6	147
111363	HCX.127/T-PT-VT-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	0÷100	32÷210	6	147
111373	HCX.254-PT-VT-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	-	-	6	248
111379	HCX.254/T-PT-VT-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	0÷100	32÷210	6	248

Maximum tightening torque

1

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Accessories for hydraulic systems 15

Column level indicators technopolymer, with zinc alloy protection frame

MATERIAL

Transparent polyamide based (PA-T) technopolymer. High resistance to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

PROTECTION FRAME

Zinc-alloy, sandblasted and treated finish.

SCREWS, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring screw underhead.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HGX-P**: without thermometer.
- **HGX/T-P**: with incorporated thermometer.

MOUNTING

When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

FEATURES AND PERFORMANCES

Ultrasound welding to guarantee a perfect seal.
Lens effect for a better visibility of the fluid level and temperature.
Special openings in the protection frame provide maximum fluid level visibility even from side positions.
All shocks are absorbed by the frame that transmits them directly onto the wall of the reservoir

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 18 bar.

For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department.

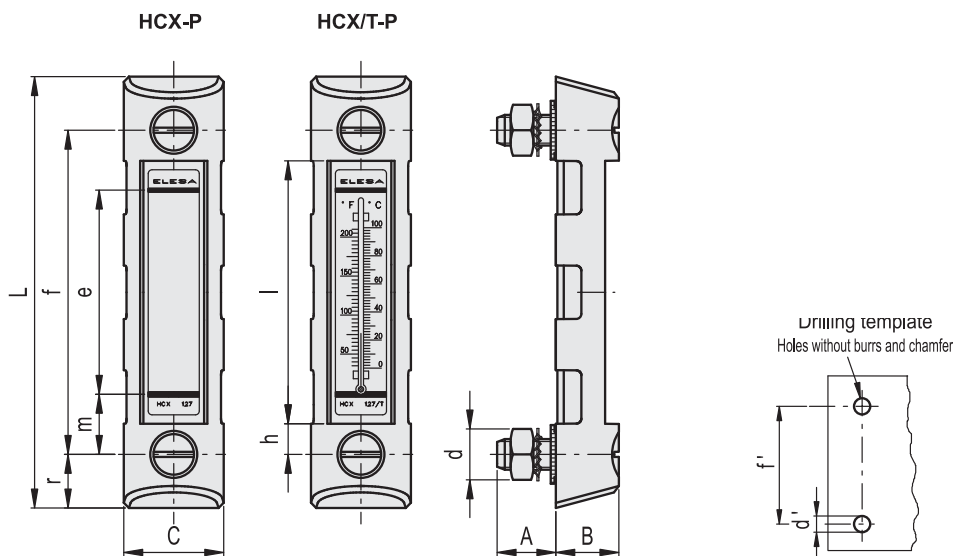
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST

- Level indicators for use with fluids containing alcohol or with hot water.
- UV resistant transparent technopolymer indicators.
- Protection frame with indicators type HGX-SST (see page 1758), HGX-BW-SST (see page 1762), HGX-AR (see page 1763).
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.



ELESa Original design



Code	Description	f	d	A	B	C	L	e	h	l	m	r	d'-0.2	f'±0.2	C# [Nm]	
11371	HCX.127-P-M12	127	M12	22	25	39	169	80	12	103	23	21	12.5	127	12	279
11376	HCX.127/T-P-M12	127	M12	22	25	39	169	80	12	103	23	21	12.5	127	12	281

Maximum tightening torque

1

2

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Accessories for hydraulic systems 15

Fast Mounting Kit

Steel and rubber

NUT

Zinc-plated steel.

PACKING RING

NBR synthetic rubber.

FEATURES

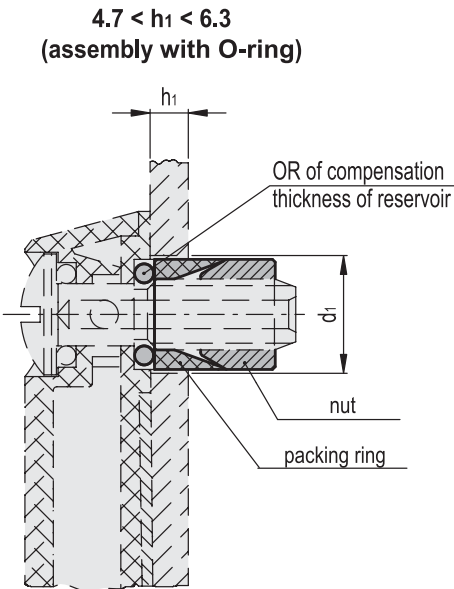
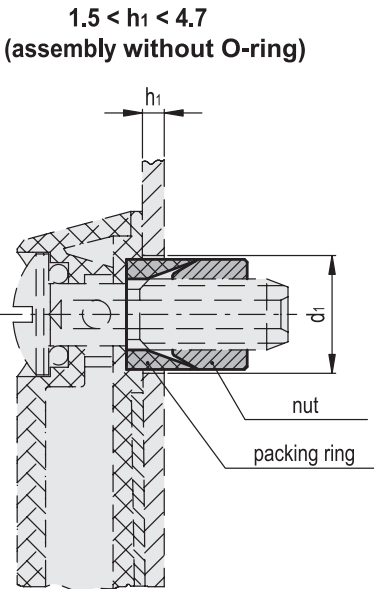
The FM kit (fast mounting kit) has been designed for mounting level indicators series HCX. from the outside when nuts cannot be fitted from the inside of the reservoir.

ASSEMBLY OF THE INDICATOR WITH THE FM KIT (FAST MOUNTING KIT)

- Arrange the holes d_1 as reported in the table and make sure that the holes in the plate do not have any burs, especially inside the reservoir.
- Unscrew the nuts from the HCX. indicator and take out the washers supplied with the standard execution, put the packing ring inside and screw the nuts (with or without O-Ring according to the thickness h_1).
- Before assembly of the indicator on the reservoir, slightly tighten the nut by hand against the packing ring.

We advise you, then, to deform slightly the threaded end of the screw in order to prevent the nut from falling into the reservoir while disassembling the indicator.

- To disassemble the indicator from the reservoir, just rotate the screw 3/4 of a turn keeping the plastic part of the indicator under tension (pulling).



Code	Description	$d_1 \pm 0.1$	Without O-ring $h_1 \text{ min}$	Without O-ring $h_1 \text{ max}$	With O-ring $h_1 \text{ min}$	With O-ring $h_1 \text{ max}$	Tightening torque max. [Nm]
31801	FM-HCX.76-M10-KIT	16	1.5	4.7	4.7	6.3	7
31811	FM-HCX.127-254-M12-KIT	17.5	1.5	4.7	4.7	6.3	7

Column level indicator
with float for indirect level reading, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. High resistance to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Ebonite, black colour.

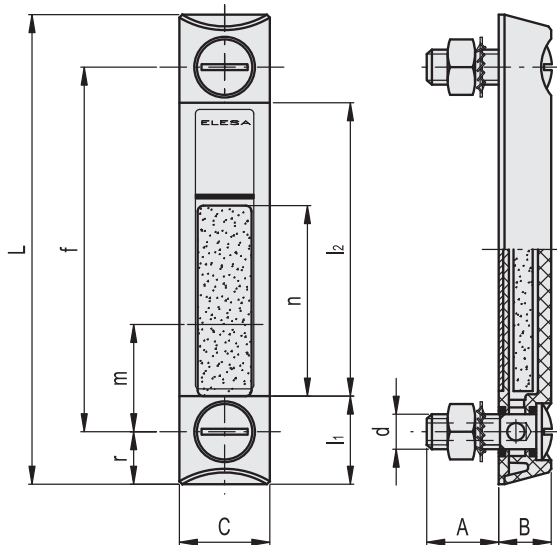
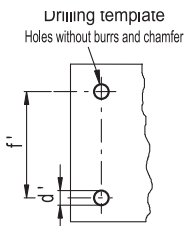
CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
HCX-LT column level indicator allows the fluid level reading by means of a float when, due to the particular design of the system, the fluid level cannot be seen directly from the lower part of the indicator.
The plastic foam float is moved upward by the fluid contained in the reservoir. This system allows an indirect reading of the level.
The red line on the lacquered contrast screen is visible only when the float is in its lowest position (minimum fluid level = m).
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 12 bar.
For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.



Code	Description	f	d	A	B	C	L	l1	l2	m*	n	r	d'±0.2	f'±0.2	C# [Nm]	⚖
11364	HCX.254-LT-M12	254	M12	21	18	35	291	32	225	46	140	18.5	12.5	254	6	215

* See assembly instructions
Maximum tightening torque



ELESa Original design

SPECIAL EXECUTIONS ON REQUEST
Level indicators with SUPER-technopolymer protection frame.
UV resistant transparent technopolymer indicators.

ASSEMBLY INSTRUCTIONS
To ensure proper assembly of the indicator, please follow these instructions:
1. Set the minimum oil level of your reservoir.
2. Drill two holes on the reservoir wall. The lower hole axis should be drilled at "m" distance (see table) under the minimum oil level.
"m" is the minimum oil level allowed. This is the level from which the float starts to be moved upward.
The value "m" is calculated with an oil density of 875 Kg/m³ at 15°C.
If the red line of the contrast screen appears, the oil level is under its minimum level allowed.

Column level indicators

with or without transparent protection, technopolymer

ASSEMBLY ENDS

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour.

SUPPORT

Aluminium in natural colour.

LEVEL COLUMN WINDOW

Polycarbonate transparent tube.

Maximum fluid level visibility even from side positions

SCREWS, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

NBR rubber O-Ring.

GRADUATED CONTRAST SCREEN

White lacquered aluminium. It can be taken out before assembly to allow the insertion of level lines or words.

Fitted to the aluminium support.

STANDARD EXECUTIONS

- **HCK:** with transparent front protection (against accidental shocks), in polycarbonate (PC), extractable for cleaning operations.
- **HCK-NP:** without transparent front protection.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C (with oil).

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the values of pressure resistance were much higher than 35 bar.

If you need to use the indicator with other oils or fluids and under different pressure and temperature conditions, please contact ELESAGANTER Technical Department.

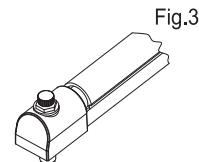
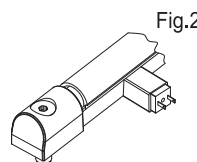
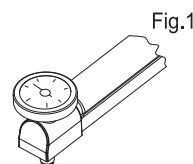
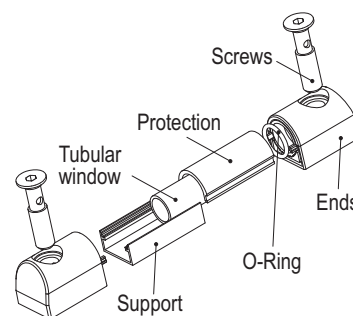
In any case we suggest to verify the suitability of the product under the actual working conditions.

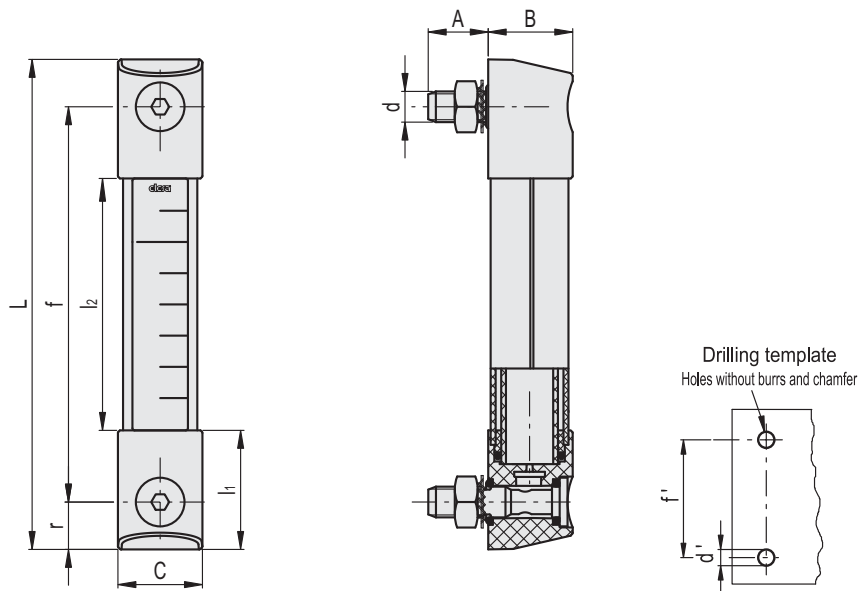
SPECIAL EXECUTIONS ON REQUEST

- Column level window in transparent methylmethacrylate (PMMA) for max 70°C use.
- AISI 303 stainless steel screws with hexagon socket.
- Polyamide based technopolymer float (from HCK.127) red colour.
- Expanded NBR float (from HCK.176) black colour with AISI 316 stainless steel spiral for special executions, viscous liquids, high temperatures.
- Column level window with visibility (l₂) superior to 452 mm and holes centre distance (f) for fixing up to 1.500 mm.
- Electric sensor bracket pre-set at the following temperatures: 50°C, 60°C, 70°C, 80°C.
- Packing rings in special material depending on the customer's needs.
- Built-in thermometer with red indication line.
- External scale thermometer (Fig. 1) with internal probe for fluid temperature.
- SLCK electric level sensor (Fig.2, from HCK.127) which can be fitted along the axis of the indicator according to the actual needs. With right (DX) or left (SX) connectors, normally closed (NC), normally open (NO).
- Special screw with nickel-plated brass tap (Fig. 3) to be fitted to the lower assembly end for any maintenance operation requiring the indicator exclusion.



ELESA Original design





HCK				HCK-NP												
Code	Description	Code	Description	f	d	A	B	C	L	l1	l2	r	d'-0.2	f'	C# [Nm]	
111001	HCK.76-M10	111001-NP	HCK.76-M10-NP	76	M10	20	33	33	113	35.5	42	18.5	10.5	76 ±0.2	12	183
111011	HCK.127-M12	111011-NP	HCK.127-M12-NP	127	M12	20	33	33	164	46.5	71	18.5	12.5	127 ±0.5	12	220
111021	HCK.176-M12	111021-NP	HCK.176-M12-NP	176	M12	20	33	33	213	46.5	120	18.5	12.5	176 ±0.5	12	250
111031	HCK.254-M12	111031-NP	HCK.254-M12-NP	254	M12	20	33	33	291	46.5	198	18.5	12.5	254 ±0.5	12	298
111041	HCK.381-M12	111041-NP	HCK.381-M12-NP	381	M12	20	33	33	418	46.5	325	18.5	12.5	381 ±0.5	12	377
111051	HCK.508-M12	111051-NP	HCK.508-M12-NP	508	M12	20	33	33	545	46.5	452	18.5	12.5	508 ±0.5	12	455

Maximum tightening torque

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Accessories for hydraulic systems

15

Column level indicators

with transparent protection for glycol-based solutions, technopolymer

ASSEMBLY ENDS

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour.

SUPPORT

Aluminium in natural colour.

LEVEL COLUMN WINDOW

Transparent tube in PYREX[®] glass, also suitable for use with glycol-based solutions.

Maximum fluid level visibility even from side positions

TRANSPARENT FRONT PROTECTION (AGAINST ACCIDENTAL SHOCKS)

Polycarbonate (PC), extractable for cleaning operations

SCREWS, NUTS AND WASHERS

- **HCK-GL:** : zinc-plated steel screws with hexagon socket, nuts and washers.
- **HCK-GL-SST:** : AISI 303 stainless steel screws with hexagon socket, AISI 304 stainless steel nuts and washers.

PACKING RINGS

- **HCK-GL:** : NBR rubber O-Ring
- **HCK-GL-SST:** : FKM type VITON[®] synthetic rubber O-Ring.

GRADUATED CONTRAST SCREEN

White lacquered aluminium. It can be taken out before assembly to allow the insertion of level lines or words.

Fitted to the aluminium support.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

- **HCK-GL:** 100°C (with oil, water, glycol-based solutions).
- **HCK-GL-SST:** 130°C (with oil, water, glycol-based solutions). In laboratory tests these indicators showed an excellent resistance to temperatures up to 150/160°C for many hours with pressures of 5/6 bar.

SPECIAL EXECUTIONS ON REQUEST

- Polyamide based technopolymer float (from HCK.127) red colour.
- Expanded NBR float (from HCK.176) black colour with AISI 316 stainless steel spiral for special executions, viscous liquids, high temperatures.
- Column level window with visibility (l₂) superior to 452 mm and holes centre distance (f) for fixing up to 1.500 mm.
- Electric sensor bracket pre-set at the following temperatures: 50°C, 60°C, 70°C, 80°C.
- Packing rings in special material depending on the customer's needs.
- Built-in thermometer with red indication line.
- External scale thermometer (Fig. 1) with internal probe for fluid temperature.
- SLCK electric level sensor (Fig.2, from HCK.127) which can be fitted along the axis of the indicator according to the actual needs. With right (DX) or left (SX) connectors, normally closed (NC), normally open (NO).
- Special screw with nickel-plated brass tap (Fig. 3) to be fitted to the lower assembly end for any maintenance operation requiring the indicator exclusion.

* Registered trademark by Corning Inc.

** Registered trademark by DuPont Dow Elastomers.



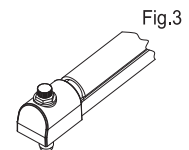
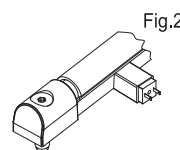
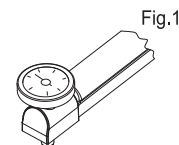
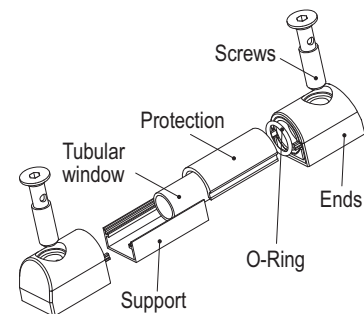
ELESA Original design

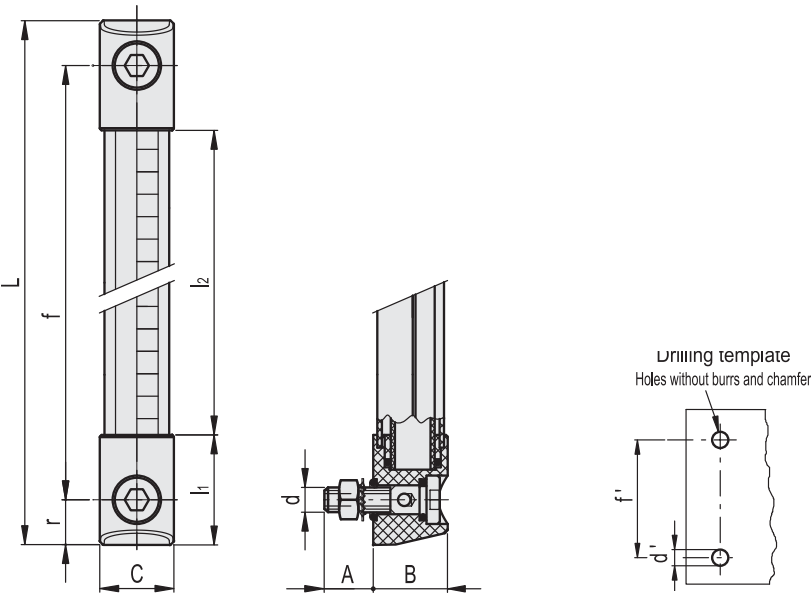
TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the values of pressure resistance were much higher than 35 bar.

If you need to use the indicator with other oils or fluids and under different pressure and temperature conditions, please contact ELESA+GANTER Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.





HCK-GL

Code	Description	f	d	A	B	C	L	l1	l2	r	d'-0.2	f'	C# [Nm]	
111004	HCK.76-GL-M10	76	M10	20	33	33	113	35.5	42	18.5	10.5	76 ±0.2	12	183
111014	HCK.127-GL-M12	127	M12	20	33	33	164	46.5	71	18.5	12.5	127±0.5	12	220
111024	HCK.176-GL-M12	176	M12	20	33	33	213	46.5	120	18.5	12.5	176±0.5	12	250
111034	HCK.254-GL-M12	254	M12	20	33	33	291	46.5	198	18.5	12.5	254±0.5	12	298
111044	HCK.381-GL-M12	381	M12	20	33	33	418	46.5	325	18.5	12.5	381±0.5	12	377
111054	HCK.508-GL-M12	508	M12	20	33	33	545	46.5	452	18.5	12.5	508±0.5	12	455

HCK-GL-SST

STAINLESS STEEL

Code	Description	f	d	A	B	C	L	l1	l2	r	d'-0.2	f'	C# [Nm]	
111005	HCK.76-GL-SST-M10	76	M10	20	33	33	113	35.5	42	18.5	10.5	76 ±0.2	12	183
111015	HCK.127-GL-SST-M12	127	M12	20	33	33	164	46.5	71	18.5	12.5	127±0.5	12	220
111025	HCK.176-GL-SST-M12	176	M12	20	33	33	213	46.5	120	18.5	12.5	176±0.5	12	250
111035	HCK.254-GL-SST-M12	254	M12	20	33	33	291	46.5	198	18.5	12.5	254±0.5	12	298
111045	HCK.381-GL-SST-M12	381	M12	20	33	33	418	46.5	325	18.5	12.5	381±0.5	12	377
111055	HCK.508-GL-SST-M12	508	M12	20	33	33	545	46.5	452	18.5	12.5	508±0.5	12	455

Maximum tightening torque



Kit for the electric control of a fluid level

for HCK. and HCK-GL column level indicators

SENSOR HOLDER BRACKET

In polyamide based (PA) technopolymer, black colour, watertight, with a built-in relay (reed) with two conductors wired to the two-pin connector. It can be moved along the axis of the indicator and secured in the preferred position with the appropriate screw (set screw) in technopolymer.

ELECTRIC SENSOR

- NO: the electric circuit closes on reaching the preset level.
- NC: the electric circuit opens on reaching the preset level.

CONNECTOR

With built-in cable gland and contact holders. Properly set, it offers an effective product protection against water sprays (IP 65 protection class according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. NBR synthetic rubber packing rings.

FLOAT

Polypropylene based (PP) technopolymer, max temperature limit 80° C or polyamide based (PA) technopolymer, max temperature limit 120°C, max chemical compatibility, black colour.

The float incorporates a magnetic element to activate the electric contact. When the float reaches the intervention level set by the user, by suitably positioning the sensor holder along the axis of the indicator, the electrical contact activates.

Max operating pressure 2 bar (operation with oil).

SPACERS

In polyamide based (PA) technopolymer. Essential in cases where the reservoir is made out of ferromagnetic material in order to prevent the interaction between the magnet and the metal mass of the reservoir.

KIT

The kit includes one or two sensor holder brackets, a float, 4 O-rings (2 FKM for HCK-GL and 2 NBR for HCK) and two spacers.

It is possible to apply more than one kit to get the electric control of different levels, consistently with the height of the transparent column.

STANDARD EXECUTIONS

For applications with temperatures up to 80°C: polypropylene based (PP) technopolymer float.

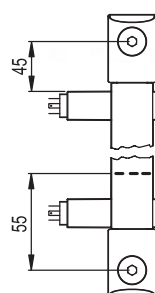
- **SLCK-NO**: with electric contact normally open.
- **SLCK-NC**: with electric contact normally closed.
- **SLCK-NO-NC**: with one electric contact normally open and one electric contact normally closed.
- **SLCK-NC-NC**: with two electric contacts normally closed.
- **SLCK-NO-NO**: with two electric contacts normally open.

For applications with temperatures up to 120°C: polyamide based (PA) technopolymer float.

- **SLCK-HT-NO**: with electrical contact normally open.
- **SLCK-HT-NC**: with electrical contact normally closed.
- **SLCK-HT-NO-NC**: with one electrical contact normally open and one electric contact normally closed.
- **SLCK-HT-NC-NC**: with two electrical contacts normally closed.
- **SLCK-HT-NO-NO**: with two electrical contacts normally opened.



Fig.1



ELESA Original design

FEATURES AND PERFORMANCES

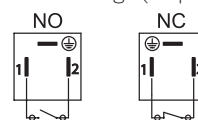
With the application of the SLCK kit, HCK. and HCK-GL column level indicators provide an electric signal when the fluid level reaches the level of preset intervention, besides the visual control of the level. The electric control of the level can be applied on all versions of HCK. from the version with 127 mm hole centre distance while always maintaining the visibility of fluid level even from side positions.

In the highest position, the sensor holder must be positioned at least 45 mm below the axis of the high screw (Fig.1), so that the switching takes place correctly.

In the lowest position, the fluid level which determines the switching of the electric circuit is about 55 mm above the axis of the low screw of fluid supply (data referring to mineral oil type CB68, according to ISO 3498, temperature 23°C) (Fig. 1).

The sensor holder is arranged to be installed to the left with respect to the axis of the indicator. However, if required it can also be mounted on the right. The connector can be rotated by 90° in four positions when wiring.

For a correct assembly see Warnings (on page 1775).



Level sensor electric characteristics

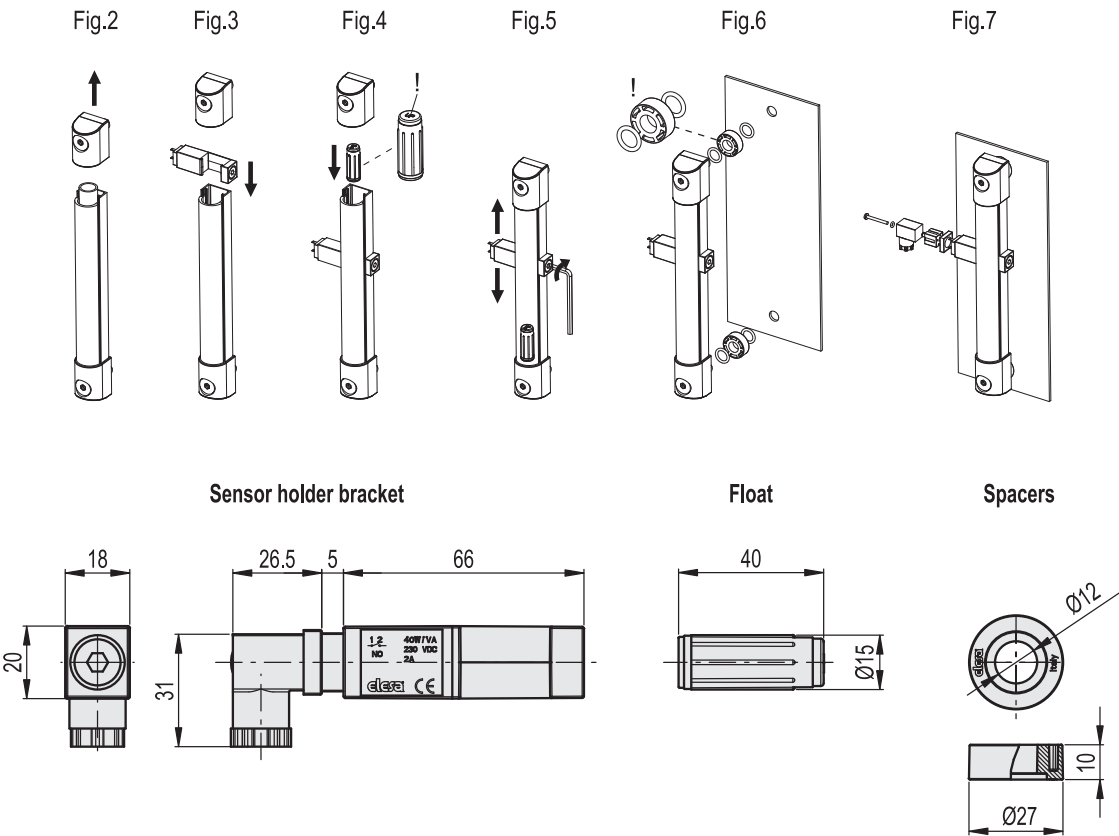
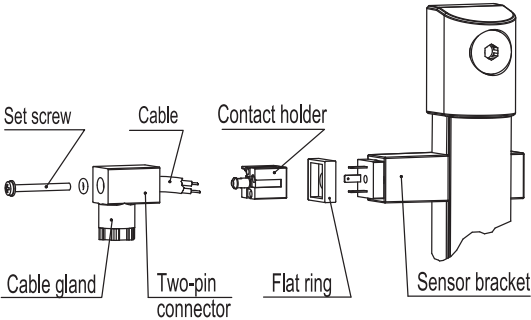
Tension feed	AC/DC
Electric contacts	NO normally open NC normally close
Maximum applicable voltage	230 Vdc / Vac
Max. opening capacity (CC CA)	2 A
Maximum commutable power	40 W / VA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm²
Do not mount this indicator in proximity to magnetic fields.	

KIT ASSEMBLY INSTRUCTIONS

- Remove the assembly end of the indicator (Fig. 2).
- Insert the sensor holder bracket (Fig.3).
- Insert the float with the word "up" to the top and relocate the assembly end in place (Fig.4).
- Clamp the bracket with the set screw to the desired position (Fig. 5).
- Install the indicator on the reservoir using the spacers included in the supply (necessary in case of reservoir made out of ferromagnetic material in order to avoid interaction between the magnet and the metal mass (Fig.6).
- Assemble the two-pin connector (Fig. 7).

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS

1. Remove the connector from the sensor holder bracket by unscrewing the axial set screw, take off the contact holder and unscrew the cable gland as required.
2. Slip on the cable into the connector and connect the wires to the terminals of the contact holder.
3. Assemble by pressing the contact holder into the connector (the contact holder can be rotated by 90° in four positions to have a different orientation of the connector).
4. Screw again the connector to the sensor holder by means of the axial set screw and then tighten the cable gland.



Code	Description	Code	Description	⚖
110081	SLCK-NO	110082	SLCK-HT-NO	235
110083	SLCK-NC	110084	SLCK-HT-NC	235
110085	SLCK-NO-NC	110086	SLCK-HT-NO-NC	235
110087	SLCK-NC-NC	110088	SLCK-HT-NC-NC	235
110089	SLCK-NO-NO	110090	SLCK-HT-NO-NO	235

Column level indicators

with U shaped protection, technopolymer

ASSEMBLY ENDS

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour.

SUPPORT

Aluminium in natural colour. It can be turned by 90°C where necessary.

LEVEL COLUMN WINDOW

Polymethylmethacrylate transparent tube.

SCREWS

Zinc-plated steel with hexagon socket.

PACKING RINGS

NBR synthetic rubber O-Ring.

GRADUATED CONTRAST SCREEN

Plastic material, resistant to oils and greases. Fitted to the aluminium protection by means of an adhesive tape.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

70°C (with oil or water).

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 30 bar (HCL.300), 25 bar (HCL.400) and 20 bar (HCL.500).

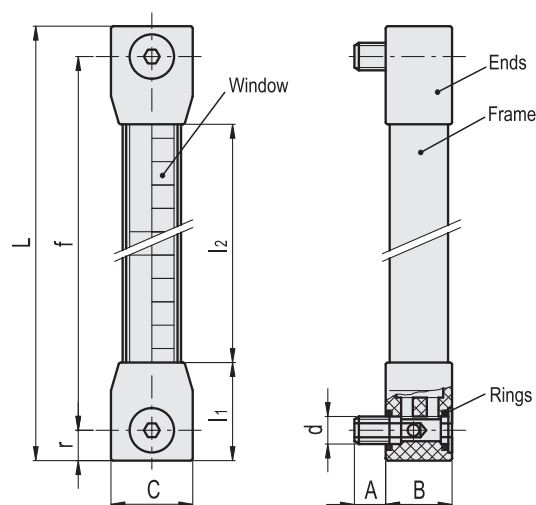
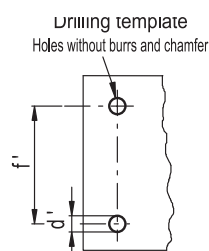
For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST

- Column level indicators with tubes and assembly ends in different materials for the use with special fluids and/or at high temperatures.
- AISI 316 stainless steel or nickel-plated brass screws.
- Polyamide based (PA) technopolymer float, red colour to highlight the level also from a long distance.
- Column level indicators with fitting centre-holes up to 2000 mm.
- HCL-E column oil level indicators including float, minimum level signal, normally closed contacts (NC), normally open (NO) or CHANGE OVER.
- Adjustable level sensors which can be placed along the axis of the indicator, with right (DX) or left (SX) connectors, normally closed (NC), normally open (NO) or CHANGE OVER contacts.
- EPDM or FKM type VITON®* packing rings.

* Registered trademark by DuPont Dow Elastomers.



Code	Description	f	d	A	B	C	L	l1	l2	r	d'±0.2	f'±0.2	C# [Nm]	⚖
111211	HCL-300-M12	300	M12	13.5	28.5	35	326	42	242	13	12.5	300	15	227
111221	HCL-400-M12	400	M12	13.5	28.5	35	426	42	342	13	12.5	400	15	268
111231	HCL-500-M12	500	M12	13.5	28.5	35	526	42	442	13	12.5	500	15	306

Maximum tightening torque

Warnings for an effective protection of the Reed switches

The electric features on the Reed switches, shown in the descriptive tables, are supplied by the manufacturers. For a Reed switch connection, it is recommended to pay special attention to the type of load to which the switch is going to be connected. Inductive, capacitive or lamp loads may produce surges during operation, for their own nature. These surges may damage the Reed switch or drastically reduce its operating life.

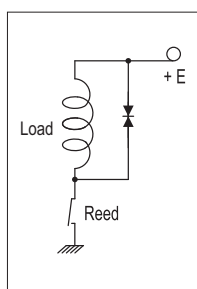
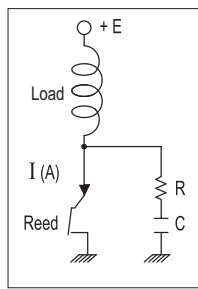
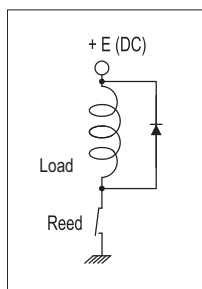
Inductive load

When a Reed switch is used to guide an inductive load such as engines and solenoid valves, the energy stored in the load may cause an inverse voltage when the Reed contact breaks. The voltage depends on the inductance value. The following circuits provide a protection in the cases hereunder mentioned.

In case of continuous voltage, it is enough to introduce a diode in parallel to the load respecting the polarity, to avoid any damage to the Reed switch.

In case of alternating voltage, it is possible to use a resistance and a capacitance in parallel to the Reed switch. The capacitance and resistance values come out from the following formula.

An alternative solution may be to use a varistor in parallel to the load.

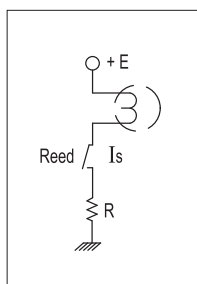


$$C [\mu F] = \frac{I^2}{10}$$

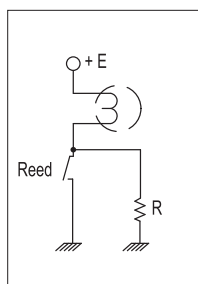
$$R [\Omega] = \frac{E}{10 \cdot I \left(1 + \frac{E}{50}\right)}$$

Lamp load

In case of a tungsten filament lamp, the filament resistance is 10 times smaller when the lamp is switched off (cold filament) than in case of the lamp switched on (hot filament). After the Reed contact commutation and after the lamp turning on, for a short time the in-rush current is 10 times higher than the one circulating in steady state. This flow may damage the Reed contact or jeopardise its duration. In this case, the solution is to introduce a resistance in series to the Reed switch, thus cutting the maximum value of the current, or a resistance in parallel to the Reed switch, to keep the filament hot (by increasing the resistance) without causing the lamp to turn on.



R = Protection resistance
It must be properly chosen so that
 $I_s < 0.5 A$

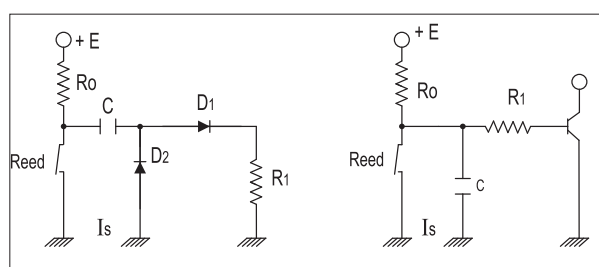


$$R < \frac{\text{Filament resistance}}{3}$$

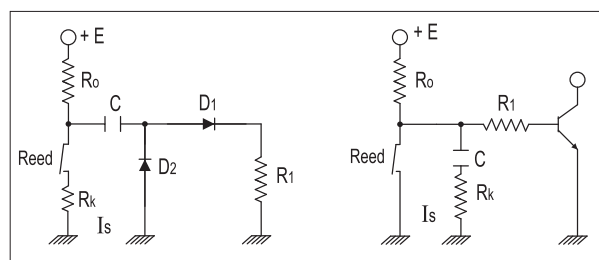
Capacitive load

The in-rush current flowing during charge and discharge of the capacitor will cause deterioration of the Reed contacts in case when a capacitor is connected in series or in parallel with a Reed switch in a closed circuit. In this situation, the easiest and more effective solution is to position a resistance in series to the Reed switch or, in general, a resistance properly set in order to cut the maximum value of the currents of charge and discharge. Here are two examples of a circuit: the energy, stored in the capacitive load "C", generates rush currents discharging through the Reed contact. The use of a properly calibrated resistance reduces the value of these currents and protects the operating life of the Reed contact.

Circuit without protection



Circuit with protection

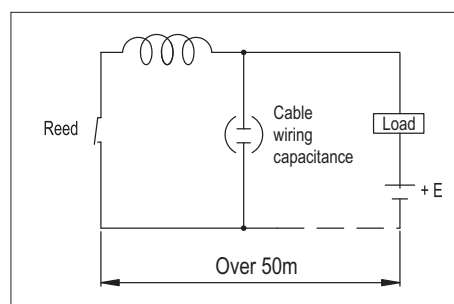


R_k is the resistance limiting the surges.
The R_k resistance value depends
on the circuit electric configuration.
As a general rule:

$$I_s = \frac{V \text{ stored in the load}}{kR [K\Omega]} < 0,1 A$$

Wiring capacitance

In case a Reed switch is connected to a load by a cable, over a long distance, the cable static capacitance will affect the Reed switch. In case the cable length exceeds 50 metres, it is recommended to use a protection for assuring a longer operating life of the Reed switch (although it depends on the type of cable used). In this situation an inductance in series to the Reed switch or a small resistance (current limiting resistance of 10 to 500 ohms) can be inserted.



Column level indicators

with MAX temperature electrical sensor, technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREW, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface $Ra = 3 \mu m$.

MAX TEMPERATURE ELECTRICAL SENSOR (80°C)

Zinc-plated screw with built-in sensor.
Temperature of intervention is 80°C.
For a correct assembly see Warnings (see page 1777).

SWIVELLING TWO-PIN CONNECTOR

With built-in cable gland and contact holder. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. Flat NBR synthetic rubber packing rings.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HGX-ST-NO**: with electrical contact normally open.
- **HGX-ST-NC**: with electrical contact normally closed.

MOUNTING

When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

SPECIAL EXECUTIONS ON REQUEST

- Level indicators with SUPER-technopolymer protection frame.
- Level indicators for use with fluids containing alcohol or with hot water.
- UV resistant transparent technopolymer indicators.
- Temperature electrical sensor with pre-set temperatures different from 80°C.
- Indicators with two red ball-shaped floats.



ELESA Original design

FEATURES AND PERFORMANCES

This column level indicator generates an electric signal when the temperature reaches the pre-set degrees (80°C).
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA

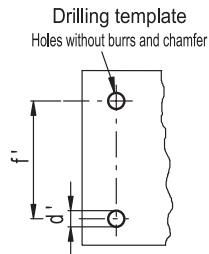
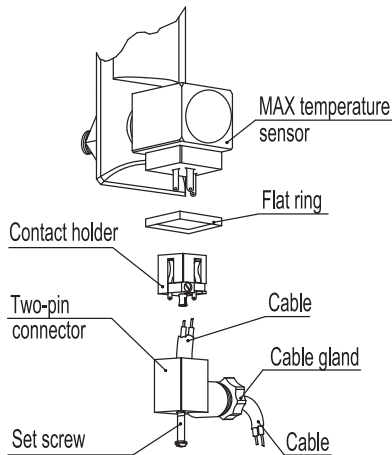
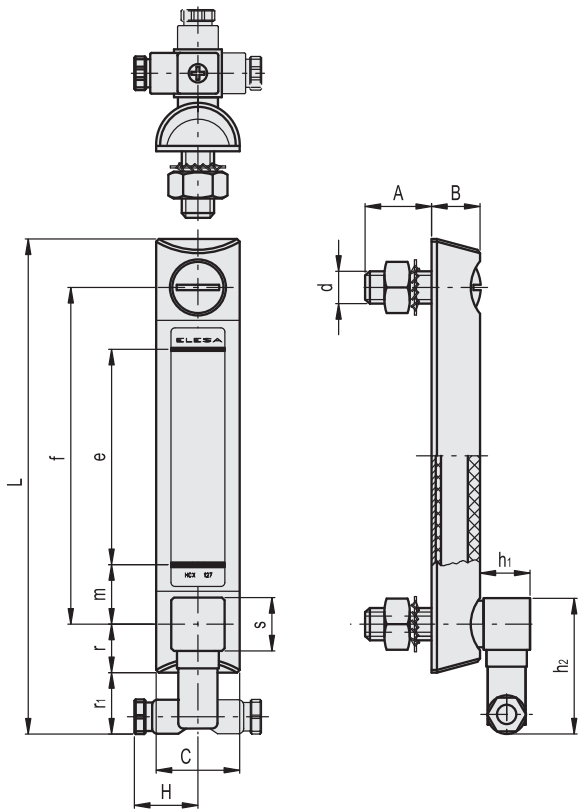
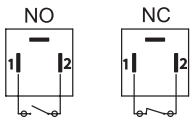
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.127-ST) 12 bar (HCX.254-ST).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

FUNCTIONING

- HCX-ST-NO with electrical contact normally open.
Electrical temperature sensor: the electrical circuit is closed when the pre-set temperature at 80°C is reached.

- HCX-ST-NC with electrical contacts normally closed.
Electrical temperature sensor: the electrical circuit is open when the pre-set temperature at 80°C is reached.

Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally closed	
Voltage / Maximum current	250 Vac - 10 A	(resistive loads)
	48 Vdc - 5 A	
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)	
Conductors cross-section	Max 1.5 mm ²	



Code	Description	f	d	A	B	C	H	L	e	h1	h2	m	r	r1	s	d'±0.2	f'±0.2	C# [Nm]	⚖
11161	HCX.127-ST-NO-M12	127	M12	23	18	31	27	187	80	21	54	23	17	26	22	12.5	127	12	220
11162	HCX.127-ST-NC-M12	127	M12	23	18	31	27	187	80	21	54	23	17	26	22	12.5	127	12	220
11171	HCX.254-ST-NO-M12	254	M12	21	18	35	27	315	203	21	54	26	18.5	24	22	12.5	254	10	265
11172	HCX.254-ST-NC-M12	254	M12	21	18	35	27	315	203	21	54	26	18.5	24	22	12.5	254	10	265

Maximum tightening torque

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Accessories for hydraulic systems 15

Column level indicators

with temperature electrical probe, technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREW, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface $Ra = 3 \mu m$.

TEMPERATURE ELECTRICAL PROBE

Zinc-plated steel screw with built-in probe. The probe is made out of a platinum resistor whose ohmic resistance changes according to the temperature.
For a correct assembly see Warnings (see page 1777).

SWIVELLING TWO-PIN CONNECTOR

With built-in cable gland and contact holder. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. Flat NBR synthetic rubber packing rings.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

MOUNTING

When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

FEATURES AND PERFORMANCES

This column level indicator generates an analogic electric signal of the oil temperature.
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.127-STL) 12 bar (HCX.254-STL).
For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST

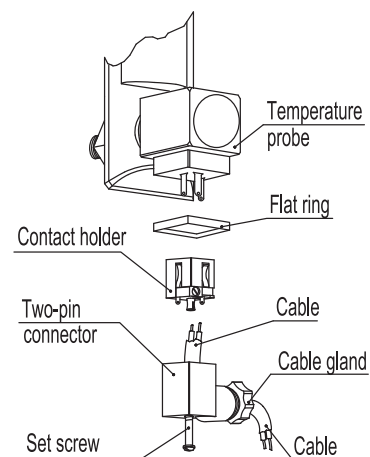
- Level indicators for use with fluids containing alcohol or with hot water.
- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats.



ELESa Original design

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS

1. Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2. Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



FUNCTIONING OF THE TEMPERATURE ELECTRICAL PROBE

The working principle of the temperature probe is to measure the variation of resistance of a platinum element: 100 ohm = 0°C, 138.4 ohm = 100°C.

The function between temperature (T) and resistance (R) is approximately linear over a small temperature range: for example, if you assume that it is linear over the 0° to 100°C range, the error at 50°C is 0.4°C.

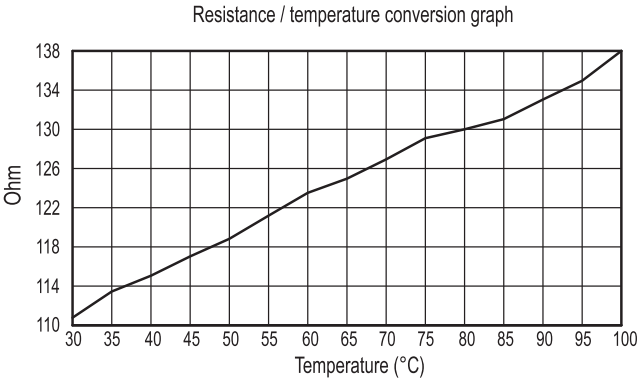
For precision measurement, it is necessary to linearise the resistance to give an accurate temperature. The most recent definition of the function between resistance and temperature is International Temperature Standard 90 (ITS-90). The function between resistance and temperature, obtained in laboratory tests, measuring directly the resistance value on the contacts is shown in the graph.

We suggest, anyway, to set the system in order to compensate both heat dissipation and cable resistance.

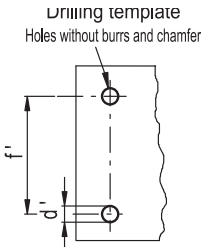
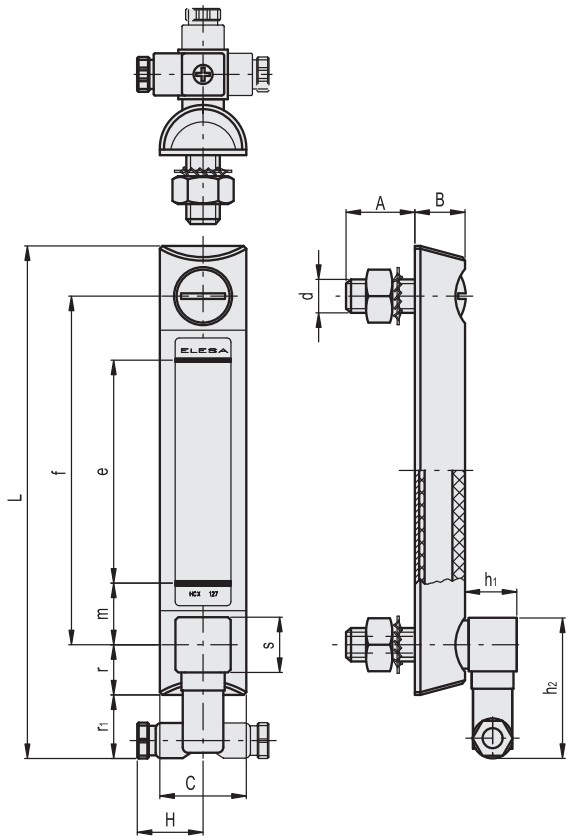
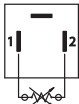
A 1°C temperature change will cause a 0.384 ohm change in resistance, so even a small error in measurement of the resistance (for example, the resistance of the wires leading to the sensor) can cause a large error in the measurement of the temperature.

Because of the low signal levels, it is important to keep any cables away from electric cables, motors, switchgear and other devices that may emit magnetic or electrical noise. Using screened cable, with the screen grounded at one end, may help to reduce interference.

When using long cables, it is necessary to check that the measuring equipment is able to handle the cable resistance.



Electrical features	Temperature probe
Tension feed	AC/DC
Maximum current	2 mA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max 1.5 mm²



Code	Description	f	d	A	B	C	H	L	e	h1	h2	m	r	r1	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11166	HCX.127-STL-M12	127	M12	23	18	31	27	187	80	21	54	23	17	26	22	12.5	127	12	220
11176	HCX.254-STL-M12	254	M12	21	18	35	27	315	203	21	54	26	18.5	24	22	12.5	254	10	265

Maximum tightening torque

Column level indicators

with MIN level electrical sensor, technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.

SCREWS, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface $Ra = 3 \mu m$.

FLOAT

Polyamide based (PA) expanded technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the oil level drops to a minimum; alarm threshold located at about 50 mm from the centre of the lower nut (in presence of mineral oil type CB68, according to ISO 3498, at 23°C).

SENSOR BRACKET

Watertight in polypropylene based (PP) technopolymer, black colour, with a built-in relay (reed) with two conductors wired to the two-pin connector.

For a correct assembly see Warnings (on page 1777).

SWIVELLING TWO-PIN CONNECTOR

With built-in cable gland and contact holder. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table see page A23).

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HCX-E-NO**: with electrical contact normally open.
- **HCX-E-NC**: with electrical contact normally closed.

MOUNTING

When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

FEATURES AND PERFORMANCES

The column level indicator HCX-E, in addition to the visual control, generates an electric signal when the oil level drops to a minimum. Ultrasound welding to guarantee a perfect seal. Maximum fluid level visibility even from side positions. Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 13 bar.

For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.



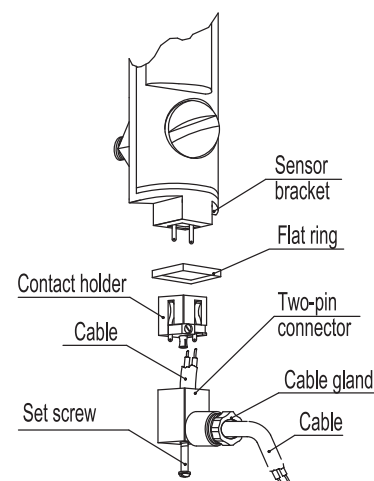
ELESa Original design

SPECIAL EXECUTIONS ON REQUEST

- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer indicators.

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS

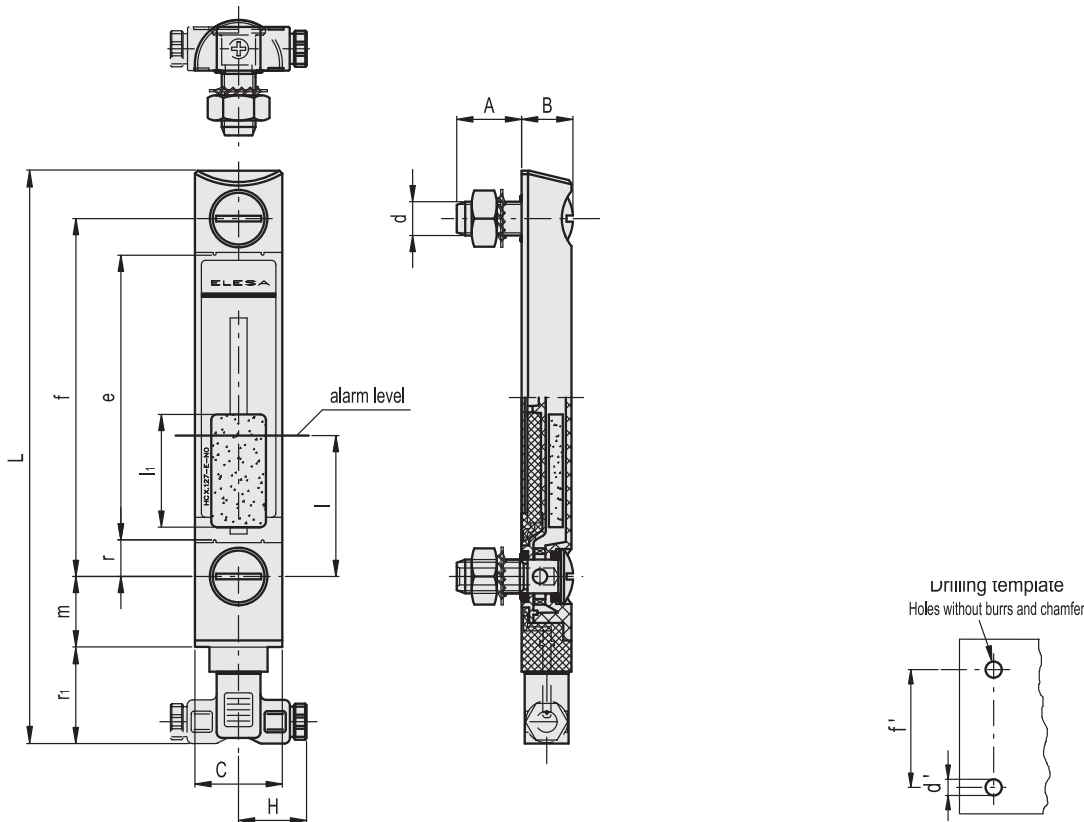
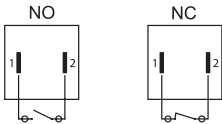
1. Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2. Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



FUNCTIONING OF THE MIN LEVEL ELECTRICAL SENSOR

- HCX-E-NO: the electrical circuit is closed when the minimum level is reached.
- HCX-E-NC: the electrical circuit is open when the minimum level is reached.

Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally close
Maximum applicable voltage	NO: 150 Vac, 100 Vdc NC: 150Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1A NC: 2A
Maximum switching power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm ²
Do not mount this indicator in proximity to magnetic fields.	



Code	Description	f	d	A	B	C	H	L	e	l	l1	m	r	r1	d'-0.2	f'±0.2	C# [Nm]	⚖
11141	HCX.127-E-NO-M12	127	M12	23	20	32	26	202	101	50	40	25	13	32.5	12.5	127	12	150
11142	HCX.127-E-NC-M12	127	M12	23	20	32	26	202	101	50	40	25	13	32.5	12.5	127	12	150
11145	HCX.254-E-NO-M12	254	M12	23	20	31	25	328	228	50	40	25	13	32.5	12.5	254	12	177
11146	HCX.254-E-NC-M12	254	M12	23	20	31	25	328	228	50	40	25	13	32.5	12.5	254	12	177

Maximum tightening torque

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Accessories for hydraulic systems 15

Column level indicators

with MIN level and MAX temperature electrical sensors, technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREW, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface $Ra = 3 \mu m$.

FLOAT

Polyamide based (PA) expanded technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the oil level drops to a minimum; alarm threshold located at about 50 mm from the centre of the lower nut (in presence of mineral oil type CB68, according to ISO 3498, at 23°C).

SENSOR BRACKET

Watertight in polypropylene based (PP) technopolymer, black colour, with a built-in relay (reed) with two conductors wired to the two-pin connector.
For a correct assembly see Warnings (on page 1777).

MAX TEMPERATURE ELECTRICAL SENSOR (80°C)

Zinc-plated screw with built-in sensor.
Temperature of intervention is 80°C.

SWIVELLING TWO-PIN CONNECTORS

With built-in cable glands and contact holders. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. Flat NBR synthetic rubber packing rings.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HCX-E-ST-NO**: with electrical contact normally open.
- **HCX-E-ST-NC**: with electrical contact normally closed.

MOUNTING

When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

SPECIAL EXECUTIONS ON REQUEST

- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer indicators.
- Temperature electrical sensor with pre-set temperatures different from 80°C.



ELESA Original design

FEATURES AND PERFORMANCES

This column level indicator generates two electric signals: one when the oil goes down to the minimum level allowed and the other one when the temperature reaches the pre-set degrees (80°C).

TECHNICAL DATA

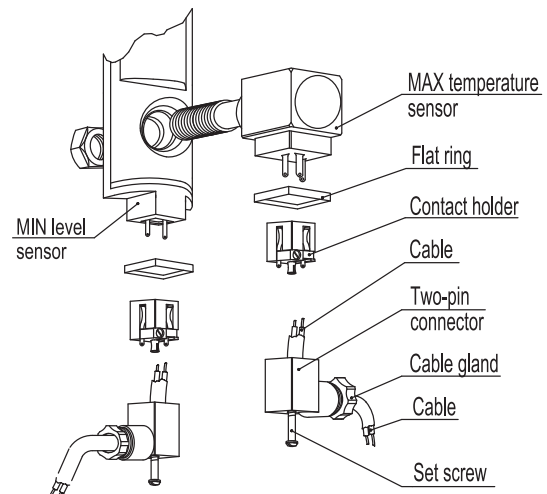
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 13 bar.

For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.

TWO-PIN CONNECTORS ASSEMBLY INSTRUCTIONS

1. Remove the connectors from the indicator by unscrewing the set screw placed in the bottom, take the contact holders out and loosen the cable glands.
2. Slip on the two-pole cable into the connectors (standard connectors) and connect the wires to the terminals nr. 1 and nr. 2 of the relative contact holders.
3. Assemble by pressing the contact holders into the relative connectors in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



FUNCTIONING OF THE ELECTRICAL SENSORS

- HCX-E-ST-NO with electrical contacts normally open.
MIN level electrical sensor: the electrical circuit is closed when the minimum level is reached.

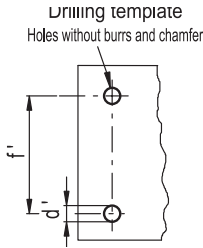
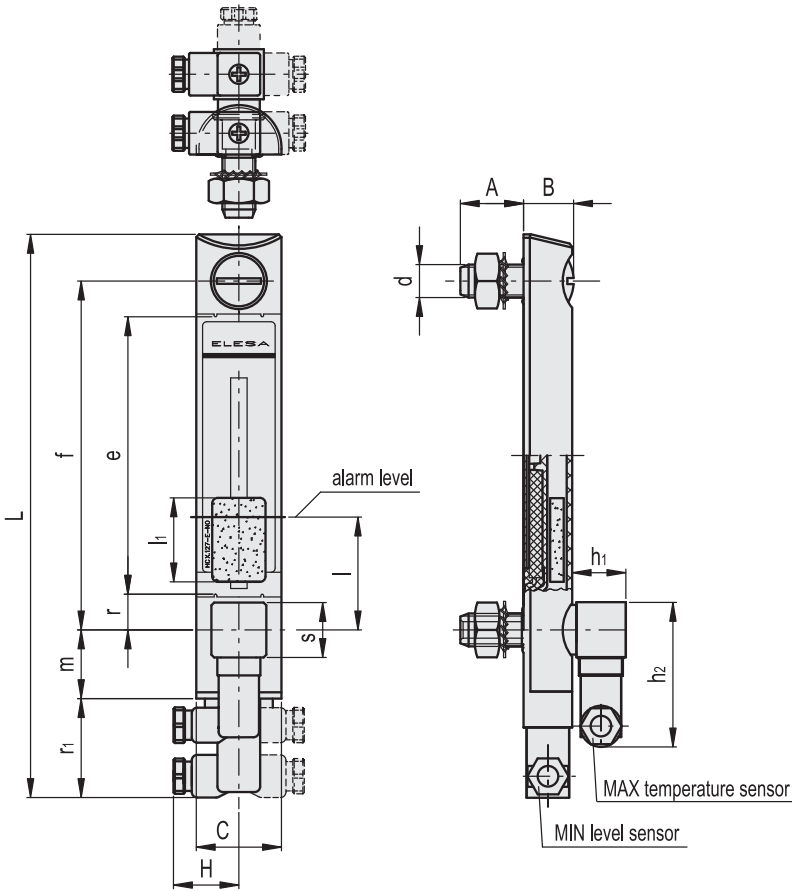
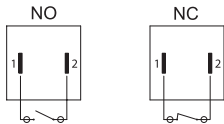
MAX temperature electrical sensor: the electrical circuit is closed when the pre-set temperature at 80°C is reached.

- HCX-E-ST-NC with electrical contacts normally closed.
MIN level electrical sensor: the electrical circuit is open when the minimum level is reached.

MAX temperature electrical sensor: the electrical circuit is open when the pre-set temperature at 80°C is reached.

Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally close	
Voltage / Maximum current	250 Vac - 10 A	(resistive loads)
	48 Vdc - 5 A	
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)	
Conductors cross-section	Max. 1.5 mm²	
Do not mount this indicator in proximity to magnetic fields.		

Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally close
Maximum applicable voltage	NO: 150 Vac, 100 Vdc NC: 150Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1A NC: 2A
Maximum switching power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm²



Code	Description	f	d	A	B	C	H	L	e	h1	h2	l	l1	m	r	r1	s	d'-0.2	f'±0.2	C#	[Nm]	
11151	HCX.127-E-ST-NO-M12	127	M12	23	20	31.5	25	202	101	21	54	50	40	25	13	32.5	22	12.5	127	12	235	
11152	HCX.127-E-ST-NC-M12	127	M12	23	20	31.5	25	202	101	21	54	50	40	25	13	32.5	22	12.5	127	12	235	
11153	HCX.254-E-ST-NO-M12	254	M12	23	20	31	25	328	228	21	54	50	40	25	13	32.5	22	12.5	254	12	262	
11154	HCX.254-E-ST-NC-M12	254	M12	23	20	31	25	328	228	21	54	50	40	25	13	32.5	22	12.5	254	12	262	

Maximum tightening torque

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Accessories for hydraulic systems 15

Column level indicators

with MIN level electrical sensor and temperature electrical probe, technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREW, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

NBR synthetic rubber O-Ring.

Suggested roughness of the packing ring application surface $Ra = 3 \mu m$.

FLOAT

Polyamide based (PA) expanded technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the oil level drops to a minimum; alarm threshold located at about 50 mm from the centre of the lower nut (in presence of mineral oil type CB68, according to ISO 3498, at 23°C).

SENSOR BRACKET

Watertight in polypropylene based (PP) technopolymer, black colour, with a built-in relay (reed) with two conductors wired to the two-pin connector.

For a correct assembly see Warnings (on page 1777).

TEMPERATURE ELECTRICAL PROBE

Zinc-plated steel screw with built-in probe. The probe is made out of a platinum resistor whose ohmic resistance changes according to the temperature.

SWIVELLING TWO-PIN CONNECTORS

With built-in cable glands and contact holders. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. Flat NBR synthetic rubber packing rings.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HGX-E-STL-NO**: with electrical contact normally open.
- **HGX-E-STL-NC**: with electrical contact normally closed.

MOUNTING

When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

SPECIAL EXECUTIONS ON REQUEST

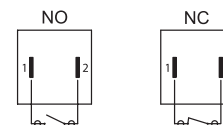
UV resistant transparent technopolymer indicators.



ELESA Original design

FUNCTIONING OF THE MIN LEVEL ELECTRICAL SENSOR

- **HGX-E-STL-NO**: the electrical circuit is closed when the minimum level is reached.
- **HGX-E-STL-NC**: the electrical circuit is open when the minimum level is reached.



Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 150 Vac, 100 Vdc NC: 150 Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1A NC: 2A
Maximum switching power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm ²
Do not mount this indicator in proximity to magnetic fields.	



Electrical features	Temperature probe
Tension feed	DC
Maximum current	2 mA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm ²

FUNCTIONING OF THE TEMPERATURE ELECTRICAL PROBE

The working principle of the temperature probe is to measure the variation of resistance of a platinum element: 100 ohm = 0°C, 138.4 ohm = 100°C.

The function between temperature (T) and resistance (R) is approximately linear over a small temperature range: for example, if you assume that it is linear over the 0° to 100°C range, the error at 50°C is 0.4°C.

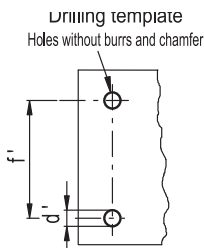
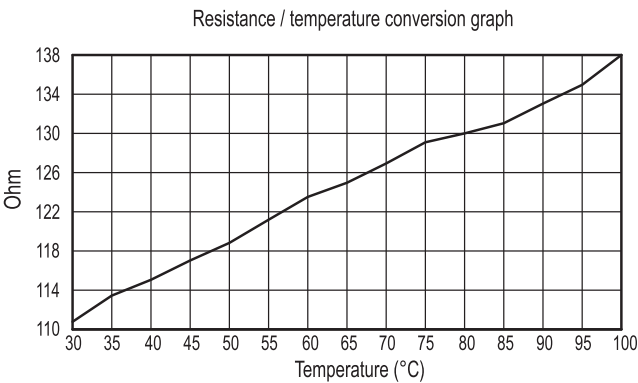
For precision measurement, it is necessary to linearise the resistance to give an accurate temperature. The most recent definition of the function between resistance and temperature is International Temperature Standard 90 (ITS-90). The function between resistance and temperature, obtained in laboratory tests, measuring directly the resistance value on the contacts is shown in the graph.

We suggest, anyway, to set the system in order to compensate both heat dissipation and cable resistance.

A 1°C temperature change will cause a 0.384 ohm change in resistance, so even a small error in measurement of the resistance (for example, the resistance of the wires leading to the sensor) can cause a large error in the measurement of the temperature.

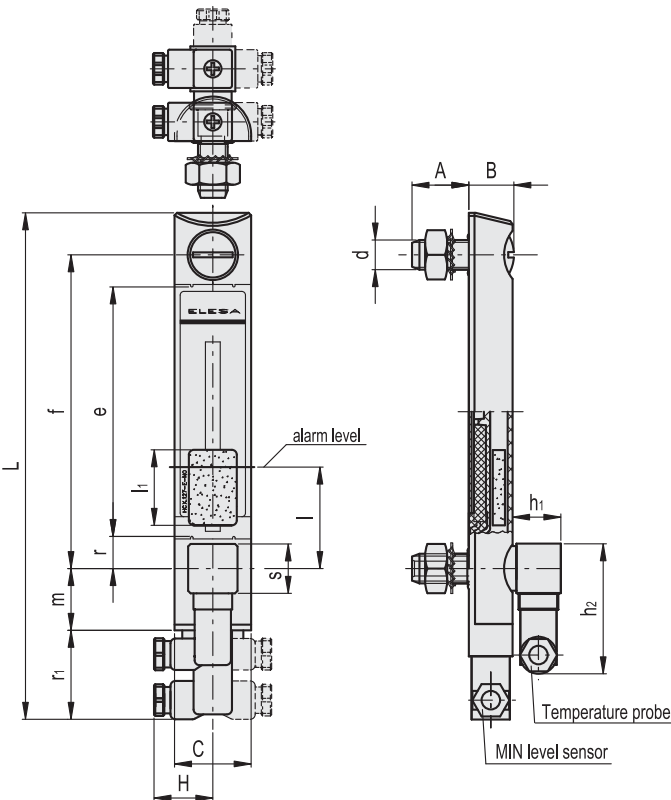
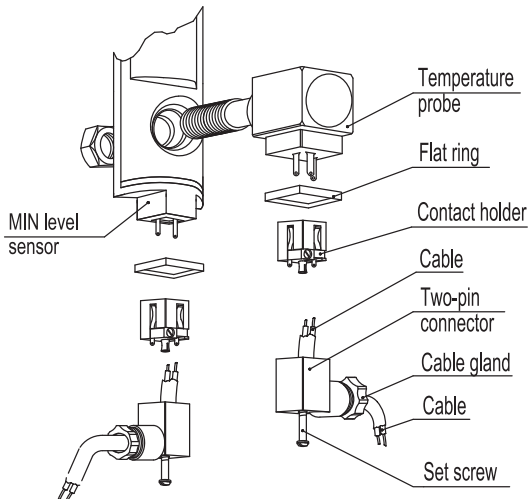
Because of the low signal levels, it is important to keep any cables away from electric cables, motors, switchgear and other devices that may emit magnetic or electrical noise. Using screened cable, with the screen grounded at one end, may help to reduce interference.

When using long cables, it is necessary to check that the measuring equipment is able to handle the cable resistance.



TWO-PIN CONNECTORS ASSEMBLY INSTRUCTIONS

1. Remove the connectors from the indicator by unscrewing the set screw placed in the bottom, take the contact holders out and loosen the cable glands.
2. Slip on the two-pole cable into the connectors (standard connectors) and connect the wires to the terminals nr. 1 and nr. 2 of the relative contact holders.
3. Assemble by pressing the contact holders into the relative connectors in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



Code	Description	f	d	A	B	C	H	L	e	h1	h2	l	l1	m	r	r1	s	d'-0.2 f'±0.2	C#	[Nm]	⚖
11156	HCX.127-E-STL-NO-M12	127	M12	23	20	31.5	25	202	101	21	54	50	40	25	13	32.5	22	12.5	127	12	236
11157	HCX.127-E-STL-NC-M12	127	M12	23	20	31.5	25	202	101	21	54	50	40	25	13	32.5	22	12.5	127	12	236
11158	HCX.254-E-STL-NO-M12	254	M12	23	20	31	25	328	228	21	54	50	40	25	13	32.5	22	12.5	254	12	263
11159	HCX.254-E-STL-NC-M12	254	M12	23	20	31	25	328	228	21	54	50	40	25	13	32.5	22	12.5	254	12	263

Maximum tightening torque

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Accessories for hydraulic systems 15

Column level indicators

with MAX temperature electrical sensor

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head.

Suggested roughness of the packing ring application surface $R_a = 3 \mu m$.

SENSOR BRACKET

Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with MAX temperature sensor (80°C). For a correct assembly see Warnings (on page 1777).

SWIVELLING CONNECTOR

With built-in cable gland and contact holder. Front or axial output (high or low) ensuring protection against water sprays (protection class IP 65 according to table EN 60529 table on page A23).

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HCV-ST-NO**: with electric contact normally open (NO).
- **HCV-ST-NC**: with electric contact normally closed (NC).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

FEATURES AND PERFORMANCES

In addition to the visual control, HCV-ST column level indicator, generates an electric signal when the temperature reaches the pre-set degrees (80°C).

Ultrasound welding to guarantee a perfect seal.

Maximum fluid level visibility even from side positions.

Lens effect for a better visibility of the fluid level.

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254).

For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST

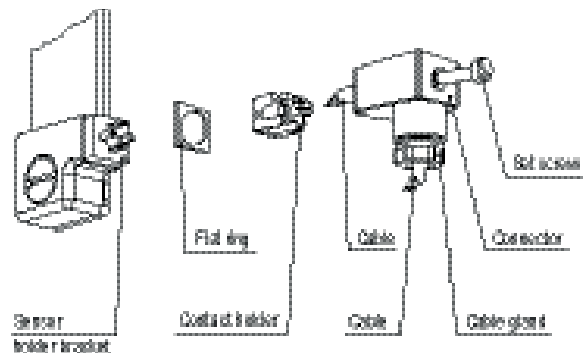
- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.
- MAX temperature electrical sensor with trigger threshold at 70°C or 90°C.



ELESa Original design

CONNECTOR ASSEMBLY INSTRUCTIONS

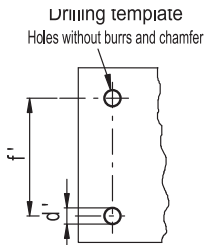
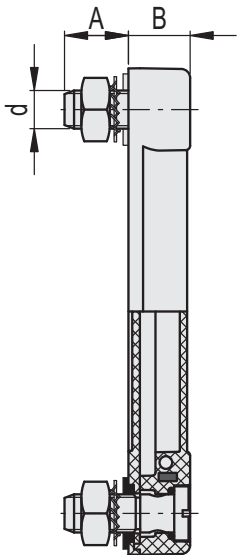
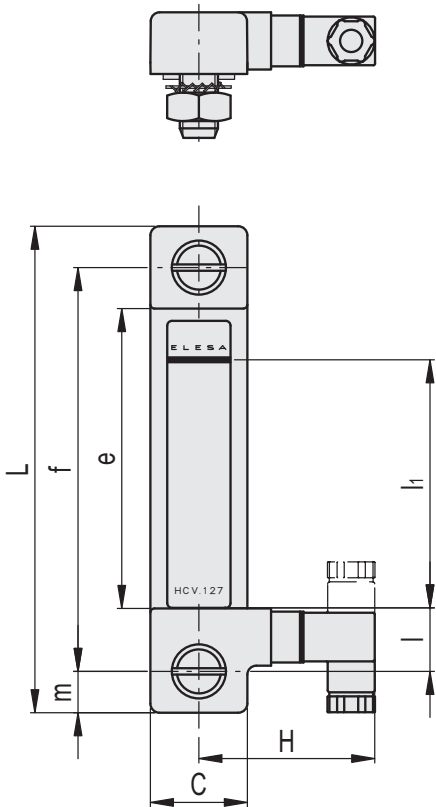
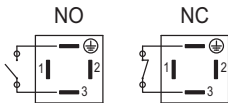
1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 3 and earth of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



FUNCTIONING OF THE MAX LEVEL ELECTRICAL SENSOR

- HCV-ST-NO: the electrical contact closes when the pre-set temperature is reached at 80°C.
- HCV-ST-NC: the electrical contact opens when the pre-set temperature at 80°C is reached.

Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally closed	
Voltage / Maximum current	250 Vac - 2 A	(resistive loads)
	115 Vac- 3A	
	24 Vdc - 3 A	
	12 Vdc - 4 A	
Minimum current	50 mA	
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)	
Conductors cross-section	Max. 1.5 mm ²	



Code	Description	f	d	A	B	C	H	L	e	l	l1	m	d'±0.2	f'±0.2	C# [Nm]	⚖
11112	HCV.127-ST-NO-M12	127	M12	20	19.5	30.5	55	153	97	20	78.5	13	12.5	127	12	149
11113	HCV.127-ST-NC-M12	127	M12	20	19.5	30.5	55	153	97	20	78.5	13	12.5	127	12	149
11122	HCV.254-ST-NO-M12	254	M12	20	19.5	30.5	55	280	224	20	205.5	13	12.5	254	12	176
11123	HCV.254-ST-NC-M12	254	M12	20	19.5	30.5	55	280	224	20	205.5	13	12.5	254	12	176

Maximum tightening torque

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Accessories for hydraulic systems 15

Column level indicators

with temperature electrical probe

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head.

Suggested roughness of the packing ring application surface $R_a = 3 \mu m$.

TEMPERATURE PROBE BRACKET

Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with temperature electrical probe, made out of a platinum resistor whose ohmic resistance changes according to the temperature.

For a correct assembly see Warnings (on page 1777).

SWIVELLING CONNECTOR

With built-in cable gland and contact holder. Front or axial output (high or low) ensuring protection against water sprays (protection class IP 65 according to table EN 60529 table on page A23).

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

FEATURES AND PERFORMANCES

In addition to the visual control, HCV-STL column level indicator generates an analogue electric signal of oil temperature.

Ultrasound welding to guarantee a perfect seal.

Maximum fluid level visibility even from side positions.

Lens effect for a better visibility of the fluid level.

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254).

For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST

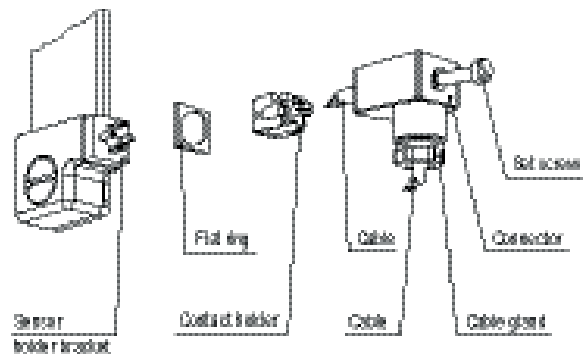
- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.



ELESa Original design

CONNECTOR ASSEMBLY INSTRUCTIONS

1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 3 and earth of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



FUNCTIONING OF THE TEMPERATURE ELECTRICAL PROBE

The working principle of the temperature probe is to measure the variation of resistance of a platinum element: 100 ohm = 0°C, 138.4 ohm = 100°C.

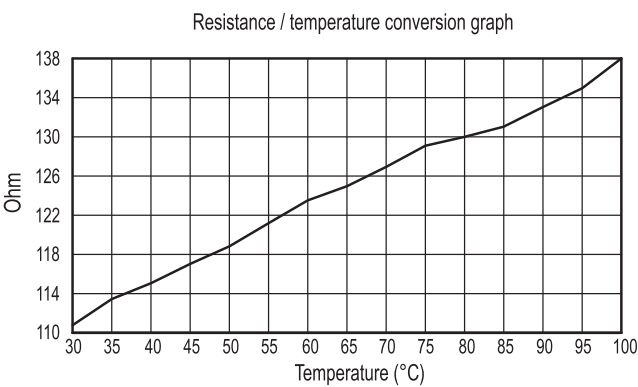
The function between temperature (T) and resistance (R) is approximately linear over a small temperature range: for example, if you assume that it is linear over the 0° to 100°C range, the error at 50°C is 0.4°C.

For precision measurement, it is necessary to linearise the resistance to give an accurate temperature. The most recent definition of the function between resistance and temperature is International Temperature Standard 90 (ITS-90). The function between resistance and temperature, obtained in laboratory tests, measuring directly the resistance value on the contacts is shown in the graph. We suggest, anyway, to set the system in order to compensate both heat dissipation and cable resistance.

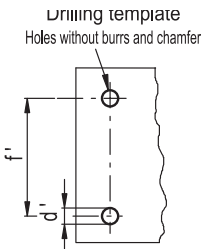
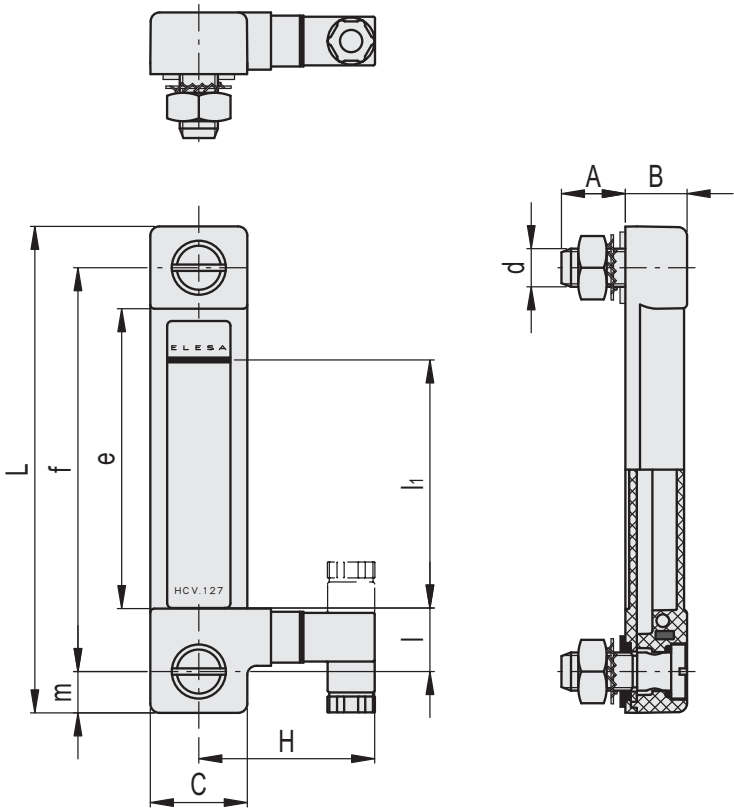
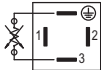
A 1°C temperature change will cause a 0.384 ohm change in resistance, so even a small error in measurement of the resistance (for example, the resistance of the wires leading to the sensor) can cause a large error in the measurement of the temperature.

Because of the low signal levels, it is important to keep any cables away from electric cables, motors, switchgear and other devices that may emit magnetic or electrical noise. Using screened cable, with the screen grounded at one end, may help to reduce interference.

When using long cables, it is necessary to check that the measuring equipment is able to handle the cable resistance.



Electrical features	Temperature probe
Tension feed	AC/DC
Maximum current	1mA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm²
Do not mount this indicator in proximity to magnetic fields.	



Code	Description	f	d	A	B	C	H	L	e	I	li	m	d'-0.2	f'±0.2	C# [Nm]	⚖
11114	HCV.127-STL-M12	127	M12	20	19.5	30.5	55	153	97	20	78.5	13	12.5	127	12	149
11124	HCV.254-STL-M12	254	M12	20	19.5	30.5	55	280	224	20	205.5	13	12.5	254	12	176

Maximum tightening torque

15

Accessories for hydraulic systems

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Column level indicators

with MIN level electrical sensor

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head. Suggested roughness of the packing ring application surface $R_a = 3 \mu m$.

FLOAT

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the float reaches the contact threshold located at about 50 mm above the axis of the lower screw (data referred to mineral oil type CB68, according to ISO 3498, temperature 23°C).

SENSOR BRACKET

Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in relay (reed) with two conductors (NO and NC versions) at the output or three connectors (SW version). For a correct assembly see Warnings (on page 1777).

SWIVELLING CONNECTOR

With built-in cable gland and contact holder. Front or axial output (high or low) ensuring protection against water sprays (protection class IP 65 according to table EN 60529 table on page A23).

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HCV-E-NO**: with electric contact normally open (NO).
- **HCV-E-NC**: with electric contact normally closed (NC).
- **HCV-E-SW**: with change-over electrical contact (SW).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

FEATURES AND PERFORMANCES

The column level indicator HCV-E, in addition to the visual control, generates an electric signal when the oil level drops to a minimum. Ultrasound welding to guarantee a perfect seal. Thanks to the side output of the connector, HCV-E level indicator allows to minimise the level of intervention of the sensor. Maximum fluid level visibility even from side positions. Lens effect for a better visibility of the fluid level.

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254). For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department. In any case we suggest to verify the suitability of the product under the actual working conditions.



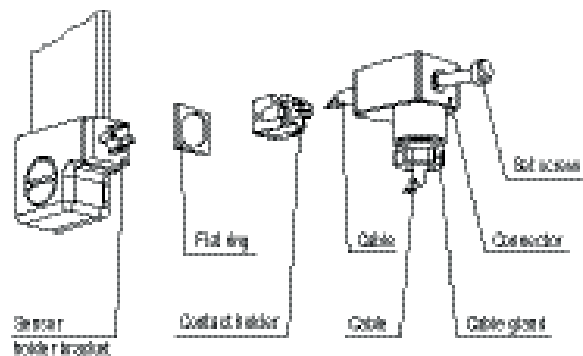
ELESa Original design

SPECIAL EXECUTIONS ON REQUEST

- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.

CONNECTOR ASSEMBLY INSTRUCTIONS

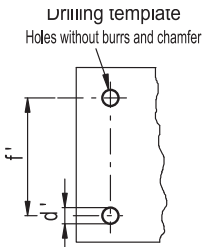
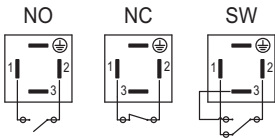
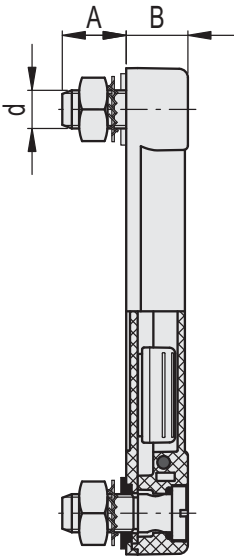
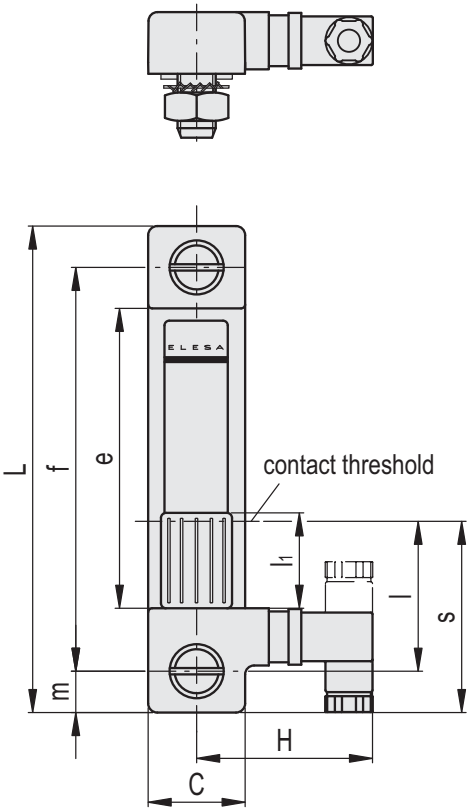
1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 1 and 2 (NO and NC version) or 1,2 and 3 (SW version) of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



FUNCTIONING OF THE MIN LEVEL ELECTRICAL SENSOR

- HCV-E-NO: the electrical contact closes on reaching the minimum level.
- HCV-E-NC: the electrical contact is opened when it reaches the minimum level.
- HCV-E-SW (change-over electrical contact): the electrical contact switches between the two terminals.

Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed SW change-over contact
Maximum applicable voltage	NO: 140 Vac, 200 Vdc NC: 140 Vac, 150 Vdc SW: 140 Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1.2A NC: 2A SW: 2A
Maximum commutable power	NO: 10 Va NC: 20 Va SW: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm²
Do not mount this indicator in proximity to magnetic fields.	



Code	Description	f	d	A	B	C	H	L	e	l	l1	m	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11131	HCV.127-E-NO-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11132	HCV.127-E-NC-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11133	HCV.127-E-SW-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11135	HCV.254-E-NO-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180
11136	HCV.254-E-NC-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180
11137	HCV.254-E-SW-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180

Maximum tightening torque

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Accessories for hydraulic systems 15

Column level indicators

with MIN level and MAX temperature electrical sensors

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head.

Suggested roughness of the packing ring application surface $R_a = 3 \mu m$.

FLOAT

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the float reaches the contact threshold located at about 50 mm above the axis of the lower screw (data referred to mineral oil type CB68, according to ISO 3498, temperature 23°C).

BRACKET WITH LEVEL AND TEMPERATURE SENSORS.

Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in relay (reed) with two conductors and a MAX temperature sensor (80°C). For a correct assembly see Warnings (on page 1777).

SWIVELLING CONNECTOR

With built-in cable gland and contact holder. Front or axial output (high or low) ensuring protection against water sprays (protection class IP 65 according to table EN 60529 table on page A23).

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HCV-E-ST-NO**: with electric contacts normally open (NO).
- **HCV-E-ST-NC**: with electric contacts normally closed (NC).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

FEATURES AND PERFORMANCES

In addition to the visual control, HCV-E-ST column level indicator, generates also an electric signal when the oil level drops to a minimum and an electric signal when the temperature reaches the max pre-set degrees (80°C).

Ultrasound welding to guarantee a perfect seal.

Thanks to the side output of the connector, HCV-E-ST level indicator allows to minimise the level of intervention of the sensor.

Maximum fluid level visibility even from side positions.

Lens effect for a better visibility of the fluid level.

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254).

For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.



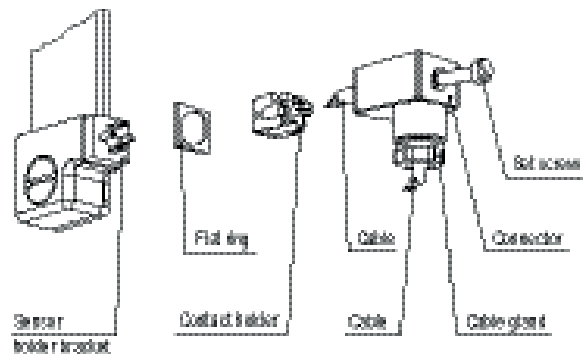
ELESa Original design

SPECIAL EXECUTIONS ON REQUEST

- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.
- MAX temperature electrical sensor with trigger threshold at 70°C or 90°C.

CONNECTOR ASSEMBLY INSTRUCTIONS

1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 1 and 2 for the functioning of the MIN level sensor, to the terminals 3 and earth for the functioning of the MAX temperature sensor.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.

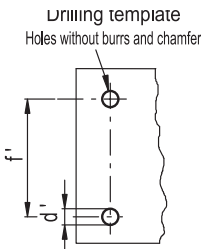
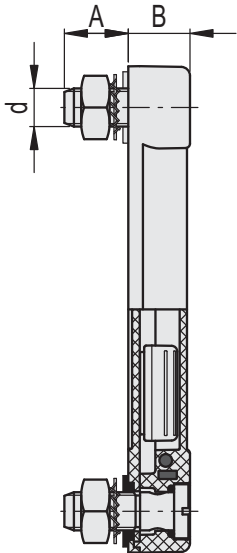
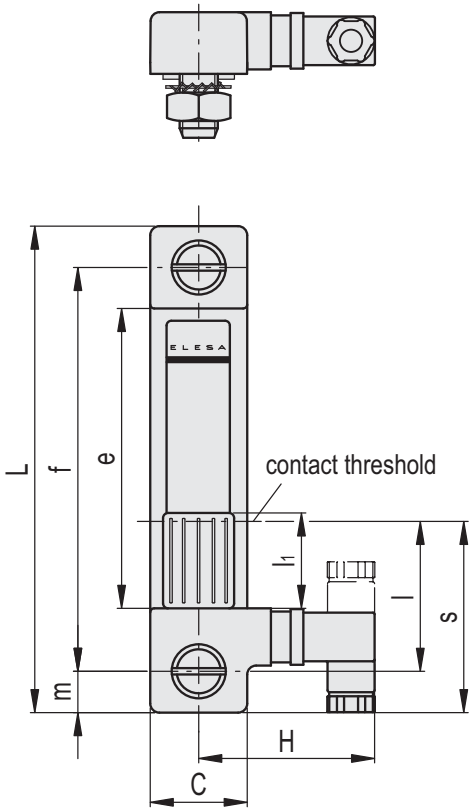
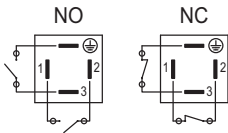


FUNCTIONING OF THE SENSOR

- HCV-E-ST-NO: the electrical contact closes when the minimum level and/or the pre-set temperature at 80°C is reached.
- HCV-E-ST-NC: the electrical contact opens when the minimum level and/or the pre-set temperature at 80°C is reached.

Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally closed	
Voltage / Maximum current	250 Vac - 2 A	(resistive loads)
	115 Vac- 3A	
	24 Vdc - 3 A	
	12 Vdc - 4 A	
Minimum current	50 mA	
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)	
Conductors cross-section	Max. 1.5 mm ²	

Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 140 Vac, 200 Vdc NC: 140Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1.2A NC: 2A
Maximum commutable power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm²
Do not mount this indicator in proximity to magnetic fields.	



Code	Description	f	d	A	B	C	H	L	e	I	II	m	s	d'±0.2	f'±0.2	C# [Nm]	⚖
11115	HCV.127-E-ST-NO-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11116	HCV.127-E-ST-NC-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11125	HCV.254-E-ST-NO-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180
11126	HCV.254-E-ST-NC-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180

Maximum tightening torque

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Accessories for hydraulic systems

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Column level indicators

with MIN level electrical sensor and temperature electrical probe

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS

Zinc-plated steel.

PACKING RINGS

Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head. Suggested roughness of the packing ring application surface $R_a = 3 \mu m$.

FLOAT

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the float reaches the contact threshold located at about 50 mm above the axis of the lower screw (data referred to mineral oil type CB68, according to ISO 3498, temperature 23°C).

BRACKET WITH LEVEL SENSOR AND TEMPERATURE PROBE

Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in relay (reed) with two conductors and a temperature electrical probe, made out of a platinum resistor whose ohmic resistance changes according to the temperature.

For a correct assembly see Warnings (on page 1777).

SWIVELLING CONNECTOR

With built-in cable gland and contact holder. Front or axial output (high or low) ensuring protection against water sprays (protection class IP 65 according to table EN 60529 table on page A23).

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HCV-E-STL-NO**: with electric contact normally open (NO).
- **HCV-E-STL-NC**: with electric contact normally closed (NC).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

90°C (with oil).

FEATURES AND PERFORMANCES

In addition to the visual control, HCV-E-STL column level indicator generates an electric signal when the oil level drops to a minimum and an analogic electric signal of the oil temperature. Ultrasound welding to guarantee a perfect seal. Thanks to the side output of the connector, HCV-E-STL level indicator allows to minimise the level of intervention of the sensor. Maximum fluid level visibility even from side positions. Lens effect for a better visibility of the fluid level.

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254). For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department. In any case we suggest to verify the suitability of the product under the actual working conditions.



ELESa Original design

SPECIAL EXECUTIONS ON REQUEST

- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.

FUNCTIONING OF THE TEMPERATURE ELECTRICAL PROBE

The working principle of the temperature probe is to measure the variation of resistance of a platinum element: 100 ohm = 0°C, 138.4 ohm = 100°C.

The function between temperature (T) and resistance (R) is approximately linear over a small temperature range: for example, if you assume that it is linear over the 0° to 100°C range, the error at 50°C is 0.4°C.

For precision measurement, it is necessary to linearise the resistance to give an accurate temperature. The most recent definition of the function between resistance and temperature is International Temperature Standard 90 (ITS-90). The function between resistance and temperature, obtained in laboratory tests, measuring directly the resistance value on the contacts is shown in the graph. We suggest, anyway, to set the system in order to compensate both heat dissipation and cable resistance.

A 1°C temperature change will cause a 0.384 ohm change in resistance, so even a small error in measurement of the resistance (for example, the resistance of the wires leading to the sensor) can cause a large error in the measurement of the temperature.

Because of the low signal levels, it is important to keep any cables away from electric cables, motors, switchgear and other devices that may emit magnetic or electrical noise. Using screened cable, with the screen grounded at one end, may help to reduce interference.

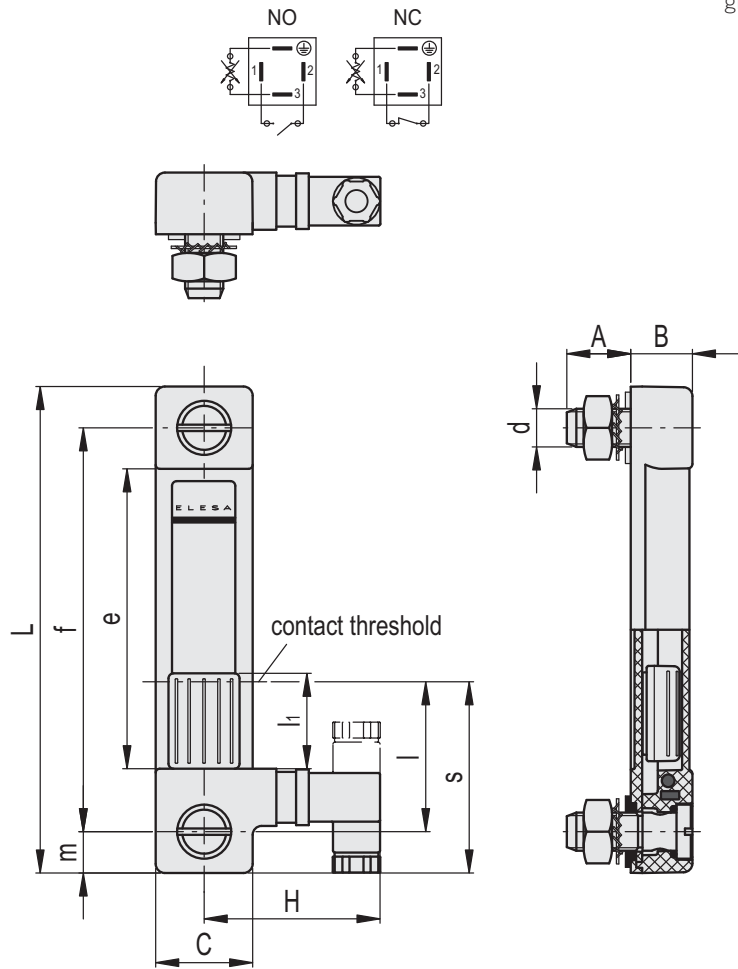
When using long cables, it is necessary to check that the measuring equipment is able to handle the cable resistance.

Electrical features	Temperature probe
Tension feed	AC/DC
Maximum current	1mA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm ²
Do not mount this indicator in proximity to magnetic fields.	

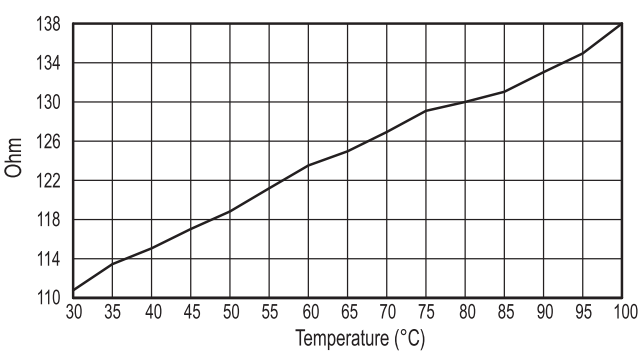
FUNCTIONING OF THE MIN LEVEL ELECTRICAL SENSOR

- HCV-E-STL-NO: the electrical contact closes on reaching the minimum level.
- HCV-E-STL-NC: the electrical contact is opened when it reaches the minimum level.

Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 140 Vac, 200 Vdc NC: 140Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1.2A NC: 2A
Maximum commutable power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm²
Do not mount this indicator in proximity to magnetic fields.	

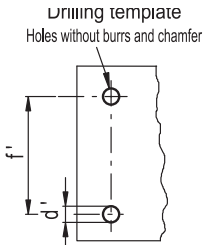
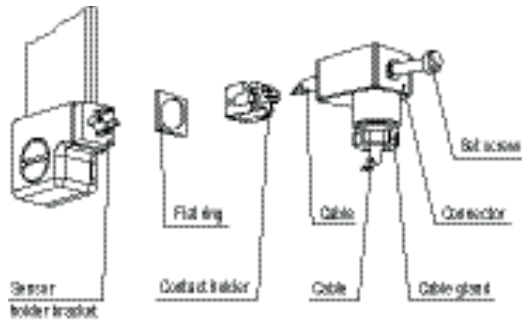


Resistance / temperature conversion graph



CONNECTOR ASSEMBLY INSTRUCTIONS

1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 1 and 2 for the functioning of the MIN level sensor, to the terminals 3 and earth for the functioning of the temperature probe.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



Code	Description	f	d	A	B	C	H	L	e	I	II	m	s	d'±0.2	f'±0.2	C# [Nm]	⚖
11117	HCV.127-E-STL-NO-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11118	HCV.127-E-STL-NC-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11127	HCV.254-E-STL-NO-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180
11128	HCV.254-E-STL-NC-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180

Maximum tightening torque



Column level indicators

with MIN level electrical sensor, technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREWS

Nickel-plated brass with hexagon socket.

PACKING RINGS

NBR synthetic rubber O-Ring.

FLOAT

Polyamide based (PA) technopolymer in red colour, with a built-in magnetic element to activate the electric contact when the oil level drops to the minimum set at 40mm over the screw axis (dimension I).

SENSOR BRACKET

Watertight, black colour, with a built-in relay (reed). For a correct assembly see Warnings (see page 1777).

CONNECTOR

Right side output including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23).

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.

It can be taken out before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS

- **HCY-E-NO**: with electrical contact normally open.
- **HCY-E-NC**: with electrical contact normally closed.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

80°C (with oil).

TECHNICAL DATA

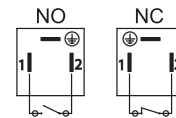
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 14 bar (HCY.76), 9 bar (HCY.127) and 8 bar (HCY.254).

For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST

- Column level indicators in different materials (polycarbonate), for use with special fluids and/or at high temperatures.
- AISI 316 stainless steel or nickel-plated brass screws
- Column level indicators with change-over electrical contact.



Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 150 Vac, 150 Vdc NC: 230Vac, 230 Vdc
Maximum commutable opening capacity	NO: 1A NC: 2A
Maximum commutable power	NO: 20 W / 20 V.A. NC: 40 W / 40 V.A.
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm ²
Do not mount this indicator in proximity to magnetic fields.	

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS

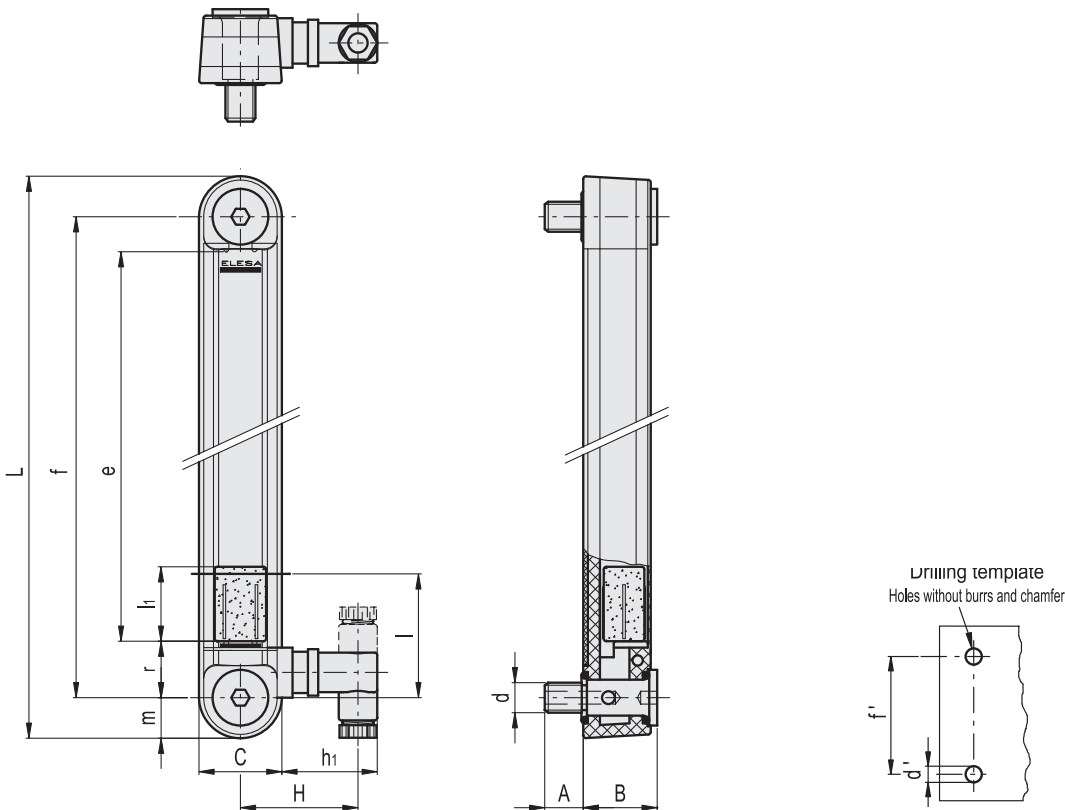
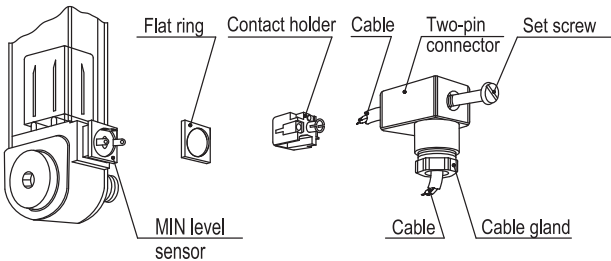
1.

Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2.

Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
3.

Assemble by pressing the contact holder into the connector in the required position.
4.

Screw the connectors to the indicator and then tighten the cable glands.



Code	Description	f	d	A	A1	B	C	H	L	e	h1	l	l1	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
111101	HCY.76-E-NO-M10	76	M10	16	16	29	32	46	108	41	37	40	17	16	20	10.5	76	12	150
111102	HCY.76-E-NC-M10	76	M10	16	16	29	32	46	108	41	37	40	17	16	20	10.5	76	12	150
111111	HCY.127-E-NO-M12	127	M12	16	16	29	32	46	159	93	37	40	29	16	20	12.5	127	12	170
111112	HCY.127-E-NC-M12	127	M12	16	16	29	32	46	159	93	37	40	29	16	20	12.5	127	12	170
111121	HCY.254-E-NO-M12	254	M12	16	16	29	32	46	286	219	37	40	29	16	20	12.5	254	10	215
111122	HCY.254-E-NC-M12	254	M12	16	16	29	32	46	286	219	37	40	29	16	20	12.5	254	10	215

Maximum tightening torque

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Accessories for hydraulic systems 15

Column level indicators

with MIN level and MAX temperature electrical sensors, technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters. Avoid contact with alcohol or detergents containing alcohol.

SCREWS

Nickel-plated brass with hexagon socket.

PACKING RINGS

NBR synthetic rubber O-Ring.

FLOAT

Polyamide based (PA) technopolymer in red colour, with a built-in magnetic element to activate the electric contact when the oil level drops to the minimum set at 40mm over the screw axis (dimension I).

MIN LEVEL ELECTRICAL SENSOR

It generates an electric signal when the oil level reaches the minimum level.

The inside of the cavity where the sensor is contained is completely resinated in order to increase the thermal and electric insulation.

CONNECTOR

Right side output including protection against water sprays (protection class IP 65 according to EN 60529 on page A23).

MAX TEMPERATURE ELECTRICAL SENSOR (80°C)

It is set at a standard intervention temperature of 80°C, placed close to a metallic plate which serves as a conductor of the heat of the fluid for a faster transmission and a lower dissipation. The inside of the cavity where the sensor is contained is completely resinated in order to increase the thermal and electric insulation.

For a correct assembly see Warnings (on page 1777).

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.

It can be taken out before assembly to allow the insertion of level lines or words.

SCREW-COVERS

Polyamide based technopolymer, grey colour.

STANDARD EXECUTIONS

- **HCY-E-ST-NO**: with electrical contact normally open.
- **HCY-E-ST-NC**: with electrical contact normally closed.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

80°C (with oil).

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 14 bar (HCY.76), 9 bar (HCY.127) and 8 bar (HCY.254).

For use with other fluids and under different pressure and temperature conditions, please contact ELESa Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.

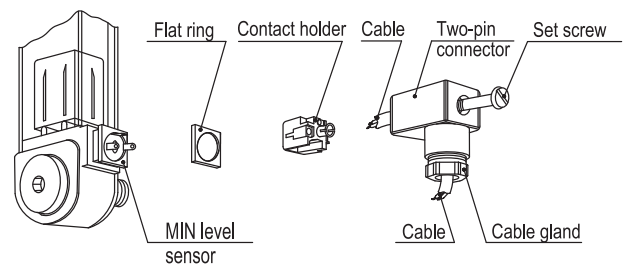


SPECIAL EXECUTIONS ON REQUEST

- Column level indicators in different materials (polycarbonate), for use with special fluids and/or at high temperatures.
- AISI 316 stainless steel or nickel-plated brass screws
- Column level indicators with change-over electrical contact.
- Execution with PT100 temperature electrical probe for connection to PLC.
- Electrical sensors set at the following temperatures: 50°, 60°, 70°C.

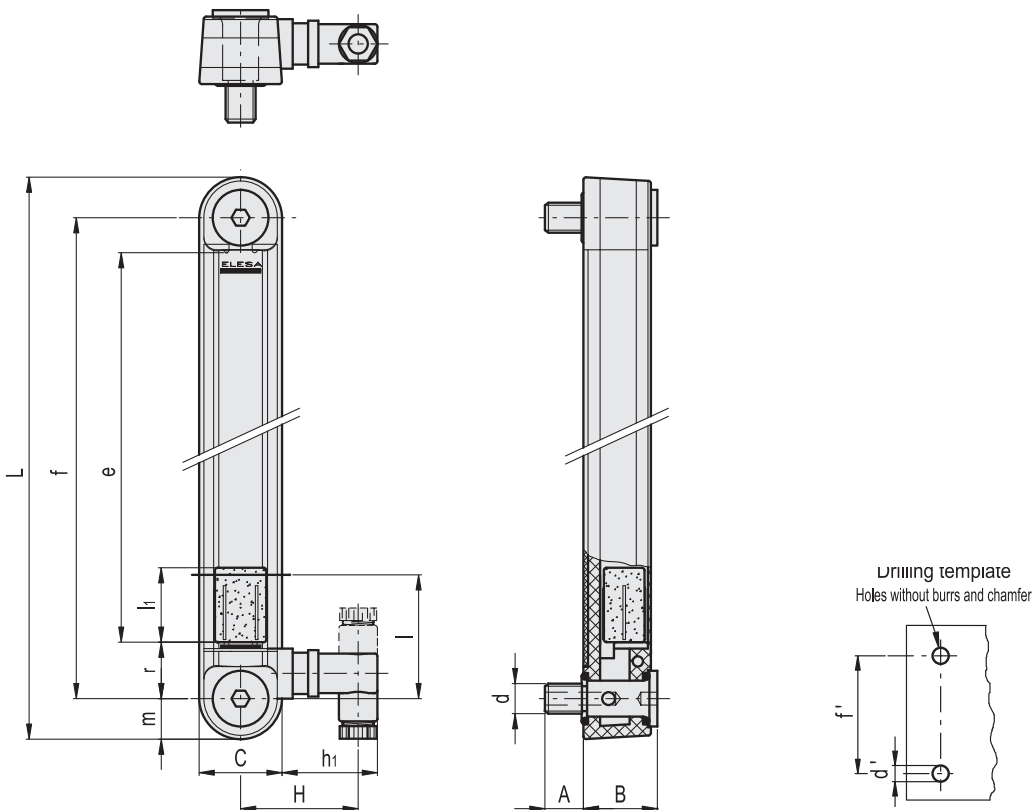
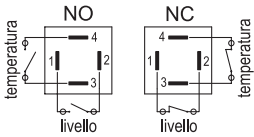
TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS

1. Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2. Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 150 Vac, 150 Vdc NC: 230Vac, 230 Vdc
Maximum commutable opening capacity	NO: 1A NC: 2A
Maximum commutable power	NO: 20 W / 20 V.A. NC: 40 W / 40 V.A.
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm ²

Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally closed	
Voltage / Maximum applicable voltage	250 Vac- 10 A	(resistive loads)
	60 Vdc - 3 A	
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)	
Conductors cross-section	Max. 1.5 mm ²	
Do not mount this indicator in proximity to magnetic fields.		



Code	Description	f	d	A	A1	B	C	H	L	e	h1	l	l1	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
111151	HCY.76-E-ST-NO-M12	76	M12	22	16	29	32	46	108	41	37	40	17	16	20	10.5	76	12	175
111152	HCY.76-E-ST-NC-M12	76	M12	22	16	29	32	46	108	41	37	40	17	16	20	10.5	76	12	175
111161	HCY.127-E-ST-NO-M12	127	M12	22	16	29	32	46	159	93	37	40	29	16	20	12.5	127	12	173
111162	HCY.127-E-ST-NC-M12	127	M12	22	16	29	32	46	159	93	37	40	29	16	20	12.5	127	12	173
111171	HCY.254-E-ST-NO-M12	254	M12	22	16	29	32	46	286	219	37	40	29	16	20	12.5	254	10	240
111172	HCY.254-E-ST-NC-M12	254	M12	22	16	29	32	46	286	219	37	40	29	16	20	12.5	254	10	240

Maximum tightening torque

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Accessories for hydraulic systems 15

Rapid levels with float

Technopolymer

MATERIAL

Polyamide-based (PA) technopolymer, grey colour.

PACKING RINGS

- TPE flat gasket (HFL-EF).
- NBR synthetic rubber O-Ring (HFL-ER).

CONNECTOR WITH SENSOR BLOCK

Right side output including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23). For a correct assembly see Warnings (on page 1777).

DIPSTICK

AISI 304 stainless steel tube, fastened to the body by a nickel-plated brass coupler.

FLOAT

NBR synthetic rubber.

STANDARD EXECUTIONS

- **HFL-EF**: assembly by means of a flange with 3 holes at 120° for 3 zinc-plated steel screws with hexagon socket, supplied. It can be assembled also with 2 holes at 180°.
- **HFL-ER**: assembly by means of a 1" Gas threaded coupler.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

80°C.

FEATURES AND APPLICATIONS

HFL-E rapid levels show a minimum or maximum default level, according to the application needs.

Highly versatile, these rapid levels allow to define the most accurate set point by simply disassembling the dipstick float and cutting the dipstick exactly where needed, according to the specifications shown in the table.

Free from magnetic parts, the float is integral to the dipstick making this level indicator ideal for use in tanks containing dirty liquids, water, oil, coolant oil, also with iron metal parts or foams. Moreover, the operation is independent of the fluid electrical conductivity.

To ensure utmost safety, the electrical components are separated from the tank and perfectly sealed by means of ultrasound welding.

SPECIAL EXECUTIONS ON REQUEST

- Level indicators in different materials for use with particularly aggressive fluids and/or maximum working temperature up to 120°C.
- Dipsticks in different lengths and/or in AISI 316 stainless steel.
- Float with through holes to allow positioning according to different needs, avoiding cutting the dipstick.
- Double dipstick and double float manufactured for double minimum and maximum level reading.

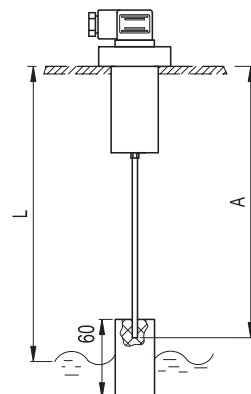
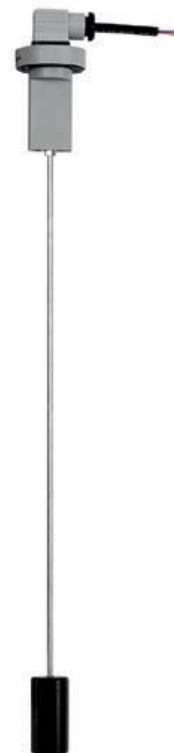


Table for cutting dipstick

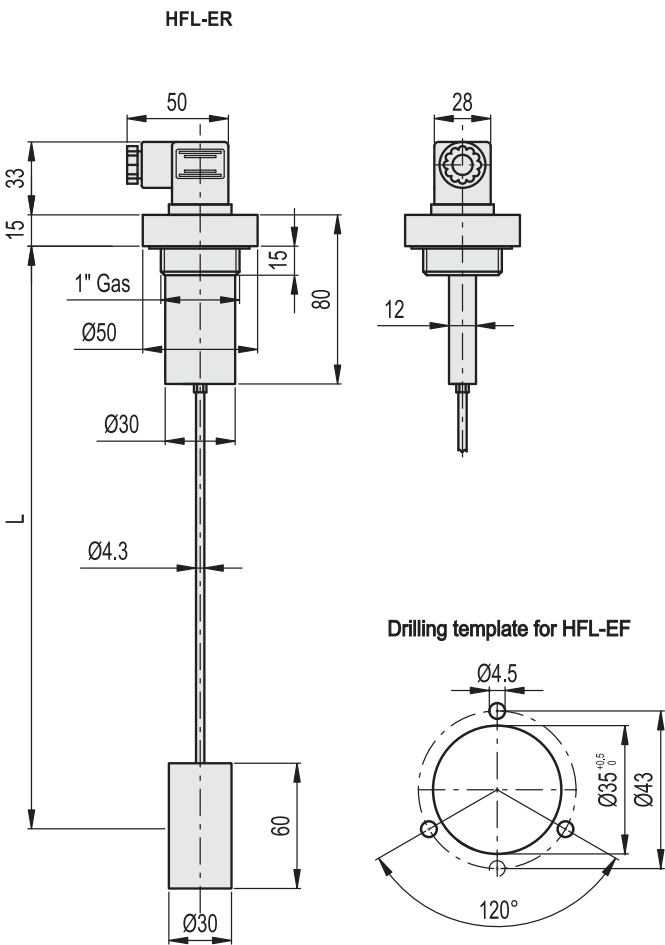
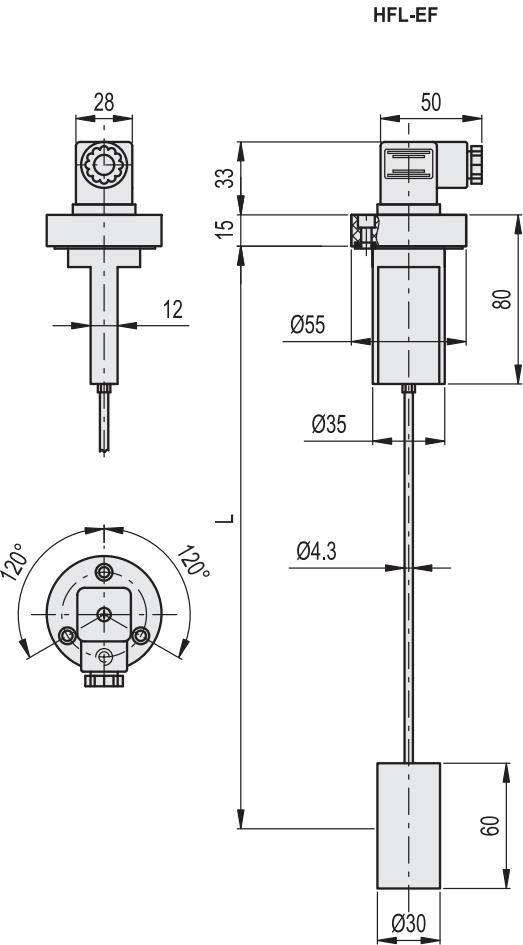
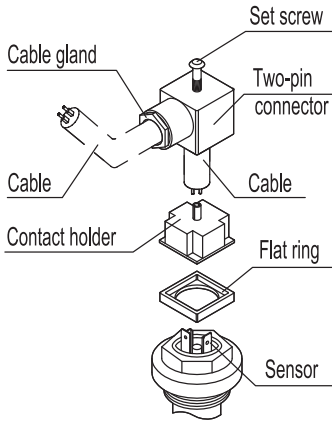
Control quote L = (mm)	Dipstick cut quote for minimum level A = (mm)
120	116
140	137
160	158
180	179
200	200
220	221
240	242
260	263
280	284
300	305
320	326
340	347
360	368
380	389
400	410
420	431
440	452
460	473
480	494
500	515



Electrical features	
Tension feed	AC/DC
Electric contacts	NO normally open in the presence of liquid NC normally closed Pin the presence of liquid
Maximum commutable voltage	230 Vdc, 230 Vac
Maximum opening capacity	3 A
Commutable power	60 W 60 VA
Cable gland	Pg 9 / Pg 11 UNIFIED
Conductors cross-section	Max. 1.5 mm²

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS

1. Remove the connectors from the indicator by unscrewing the set screw placed in the bottom, take the contact holders out and loosen the cable glands.
2. Slip on the two-pole cable into the connectors (standard connectors) and connect the wires to the terminals nr. 1 and nr. 2 of the relative contact holders.
3. Assemble by pressing the contact holders into the realtive connectors in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



HFL-EF			
Code	Description	L	⚖
111281	HFL-EF-NO	500	135
111283	HFL-EF-NC	500	135

HFL-ER			
Code	Description	L	⚖
111286	HFL-ER-NO	500	135
111288	HFL-ER-NC	500	135

Rapid levels with float

Technopolymer

MATERIAL

Body, dipstick and float: polyamide based (PA) technopolymer, grey colour.

PACKING RINGS

- TPE flat gasket (HFLT-EF).
- NBR synthetic rubber O-Ring (HFLT-ER).

CONNECTOR

EN 175301-803 (A and C shape) / ISO 4400

DIPSTICK

Featuring two raised scales (for floatation in oil or water)

STANDARD EXECUTIONS

- **HFLT-EF**: assembly by means of a flange with 3 holes at 120° for 3 zinc-plated steel screws with hexagon socket, supplied, and a threaded coupler.
- **HFLT-ER**: assembly by means of a 1" Gas threaded coupler.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

80° C.

FEATURES AND APPLICATIONS

HFLT-E rapid levels detects a predefined minimum or maximum level, according to the application needs.

Highly versatile, these rapid levels allow to define both the most accurate set point required by simply disassembling the dipstick float and cutting the dipstick exactly where needed, and the kind of operation required, with normally open (NO) or normally closed (NC) contact in presence of liquid, by loosening the fastening nut on the opposite end of the dipstick and positioning the inner magnet according to specific requirements (refer to the adhesive label).

The magnet is generally supplied with normally open (NO) contact in presence of liquid.

Free from magnetic parts, the float is integral to the dipstick making this level indicator ideal for use in tanks containing dirty liquids, water, oil, coolant oil, also with iron metal parts or foams. Moreover, the operation is independent of the fluid electrical conductivity.

To ensure utmost safety, the electrical components are separated from the tank and perfectly sealed by means of ultrasound welding.

SPECIAL EXECUTIONS ON REQUEST

- Polypropylene body (PP).
- With flange with 6 holes for fastening with cylindrical head screws (supplied), in addition to the threaded body.
- For use with maximum working temperature up to 120°C.

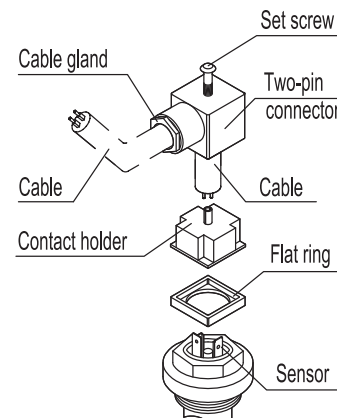
TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS

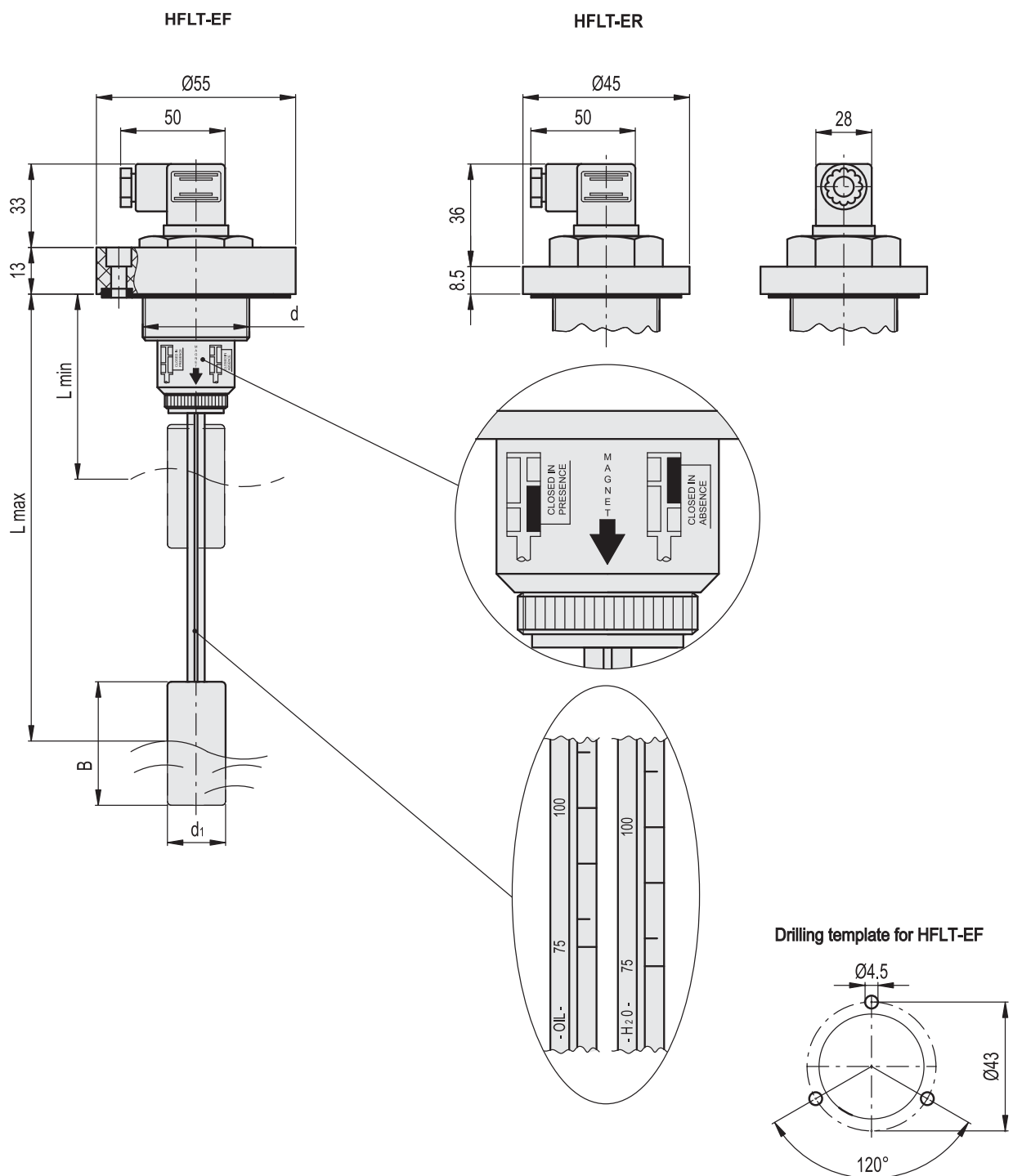
1. Remove the connectors from the indicator by unscrewing the set screw placed in the bottom, take the contact holders out and loosen the cable glands.
2. Slip on the two-pole cable into the connectors (standard connectors) and connect the wires to the terminals nr. 1 and nr. 2 of the relative contact holders.
3. Assemble by pressing the contact holders into the relative connectors in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



Electrical features

Tension feed	AC/DC
Electric contacts	NO normally open in the presence of liquid NC normally closed in the presence of liquid
Maximum commutable voltage	230 Vdc, 230 Vac
Maximum opening capacity	2 A
Commutable power	40 W 40 VA
Cable gland	Pg 9 / Pg 11 UNIFIED
Conductors cross-section	Max. 1.5 mm ²





HFLT-EF							
Code	Description	d	B	Lmin	Lmax	d1	
111276	HFLT-EF-3/4	G 3/4	50	75	250	23	110
111278	HFLT-EF-1	G 1	60	85	360	30	110

HFLT-ER							
Code	Description	d	B	Lmin	Lmax	d1	
111271	HFLT-ER-3/4	G 3/4	50	75	250	23	110
111273	HFLT-ER-1	G 1	60	85	360	30	110

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Accessories for hydraulic systems

15



Tube clamp connectors



Tube clamp connectors are clamping components made of **aluminum** or **Stainless Steel** which offer the facility for simply and rapidly constructing jigs, fixtures and operating systems using standard round and square section tubings.

The vast range of clamp connectors in split monoblock or multi-part form offer almost unlimited possibilities.

Split monoblock clamp connectors give very robust and sturdy tubular constructions. For this purpose only precision tubings DIN 2391, with an outside diameter which lies within relatively tight tolerances, should be used. (Construction tubes GN 990 see page 1902).

Multi-part clamp connectors (consisting of two or more separate parts) are not tied to tight tolerances as they can be used with square tubes (Construction tubes GN 990 see page 1902) thus allowing incorporation into already existing systems.

As clamping screws there is a choice of either cap head screws to DIN 912 or adjustable clamping kits GN 911 if repeated removal and re-installation is required. As for nuts, hexagon nuts DIN 985 (ISO 10511) which are self-locking with polyamide ring are recommended.

The clamping points are provided on **both sides** with sockets, cast in the component, which give a free choice for positioning hexagon nuts and clamping connectors.

Within the tube clamp connectors range there are numerous clamping components available...

The tube clamp connector program offers a wide range of components that can be used in connection with **linear actuators** (tubes with adjustable spindle) see page 1910 and following pages.

Two-way connector clamps
(see page 1812)

Flanged two-way connector clamps
(see page 1820)

Flanged connector clamps
(see page 1821)

Base plate connector clamps
(see page 1827)

Flanged base plate connector clamps
(see page 1832)

T-Angle connector clamps
(see page 1834)

Tube connectors
(see page 1843)

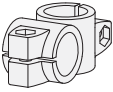
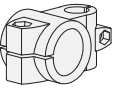
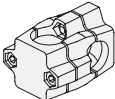
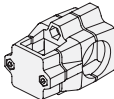
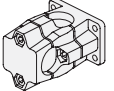
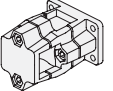
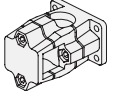
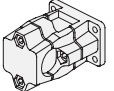
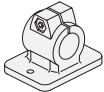
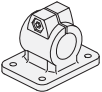
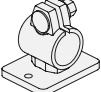
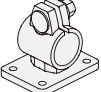
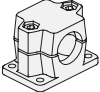
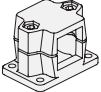
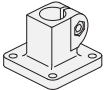
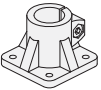
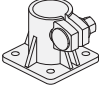
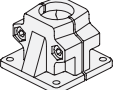
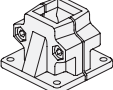
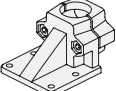
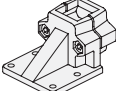
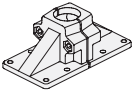
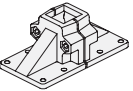
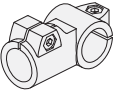
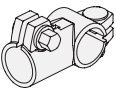
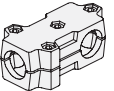
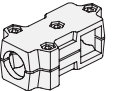
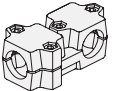
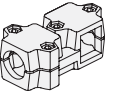
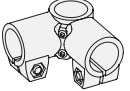
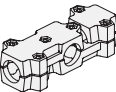
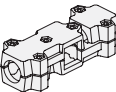
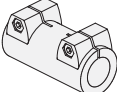
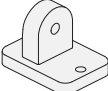
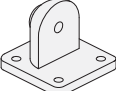
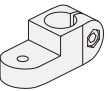
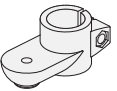
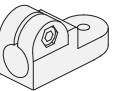
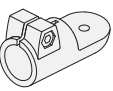
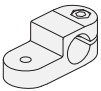
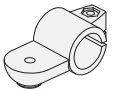
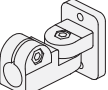
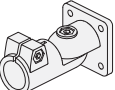
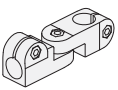
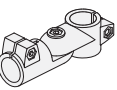
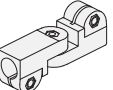
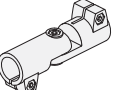
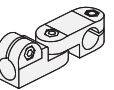
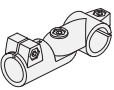
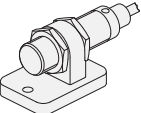
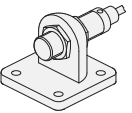
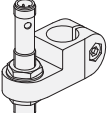
Swivel clamp connectors
(see page 1847)

Swivel clamp connector joints
(see page 1859)

Sensor holders
(see page 1872)

Tube clamp connectors

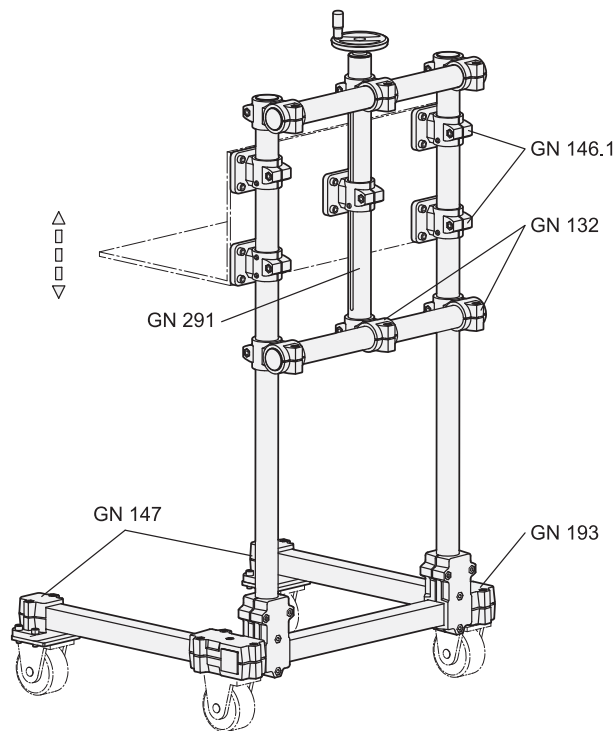
Design shapes

 GN 131	 GN 132	 GN 132.5	 GN 133	 GN 134	 GN 135		
 GN 141		 GN 141		 GN 141		 GN 141	
 GN 145	 GN 146.3	 GN 146	 GN 146.6	 GN 146.5	 GN 147	 GN 147	
 GN 162	 GN 162.3	 GN 163	 GN 163.5	 GN 165	 GN 165		
 GN 166	 GN 166	 GN 167	 GN 167				
 GN 191	 GN 192	 GN 192.5	 GN 193	 GN 193	 GN 194	 GN 194	 GN 196
 GN 195	 GN 195	 GN 241	 GN 241	 GN 242			
 GN 271	 GN 272	 GN 273	 GN 274	 GN 275	 GN 276	 GN 277	 GN 278
 GN 281	 GN 282	 GN 283	 GN 284	 GN 285	 GN 286	 GN 287	 GN 288
 GN 271.4		 GN 272.4		 GN 273.4			

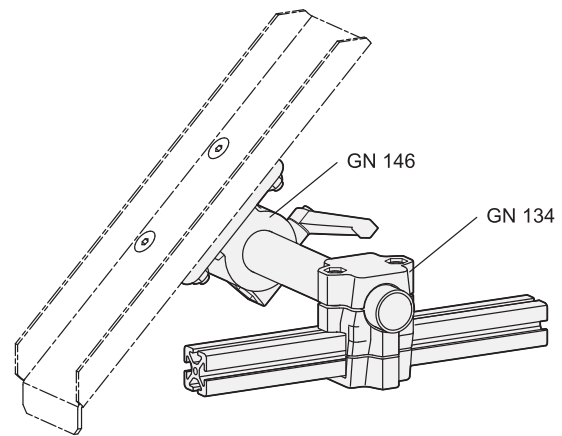


Tube clamp connectors

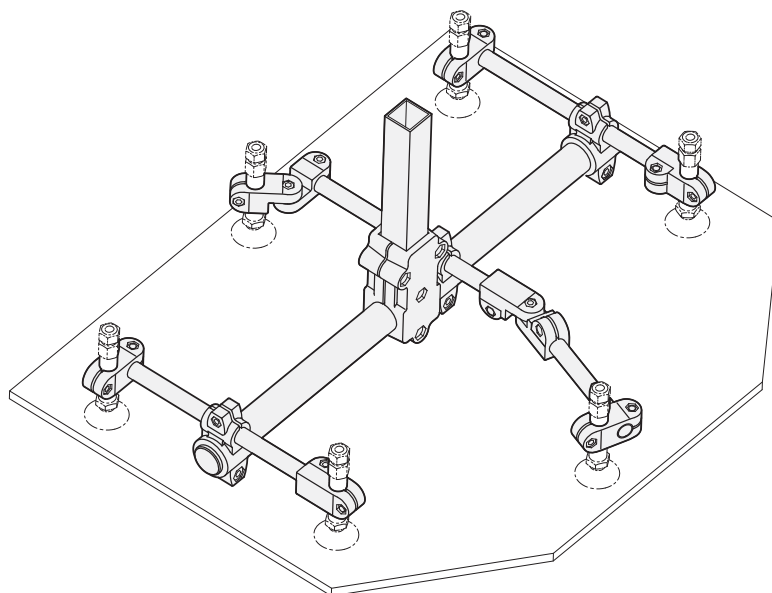
Installation examples



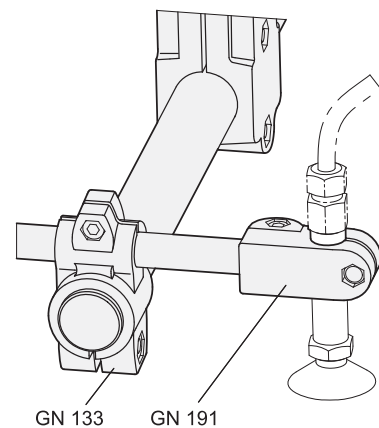
Mobile lifting table



Workpiece chute
Transfer to aluminum profile system

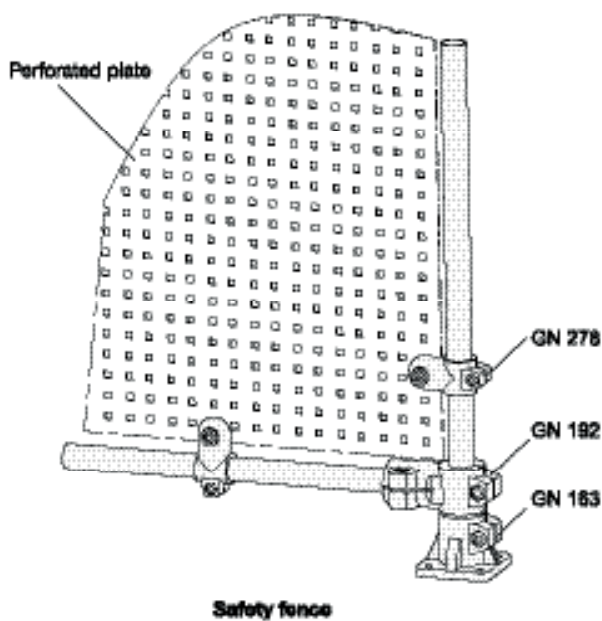
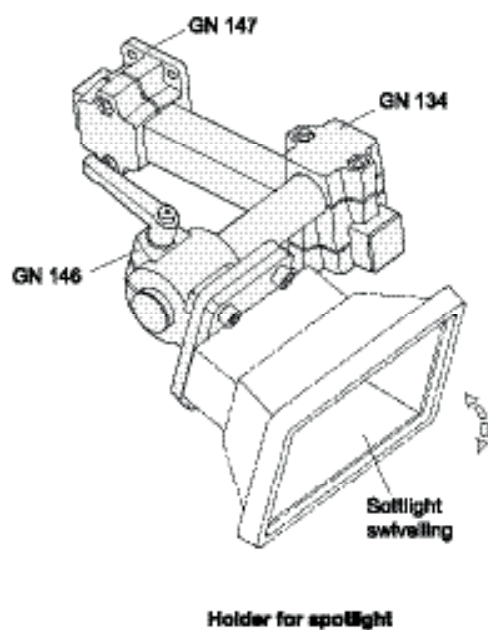
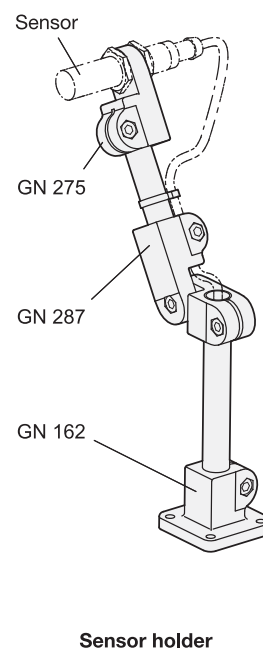
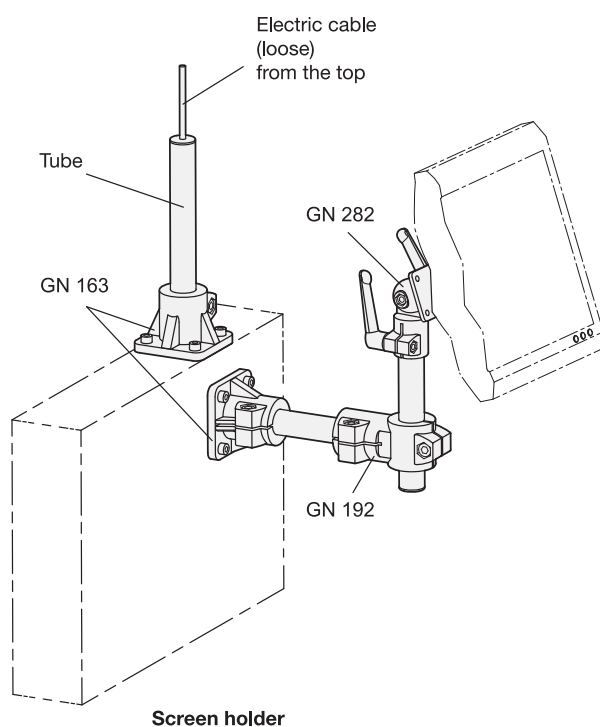


Vacuum gripper



Tube clamp connectors

Installation examples



Two-way connector clamps

Aluminium / Stainless Steel

SPECIFICATION

Identification No.

No. 2: with 2 Stainless Steel-Clamping screws DIN 912

Version in Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Version in Stainless Steel NI

AISI CF-8

matt shot-blasted

Clamping bores mechanically machined

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bores of GN 131 two-way connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

ON REQUEST

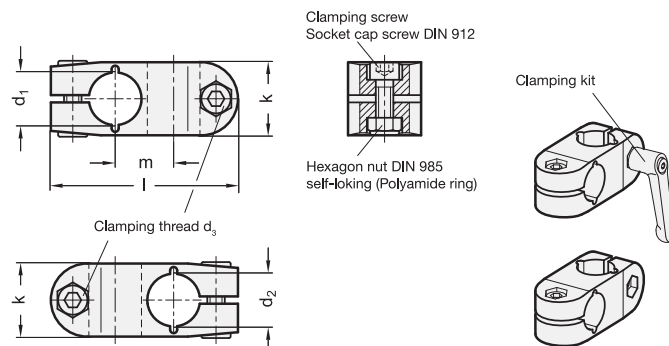
- d₁ / d₂ with different bores

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

* Complete with colour index of the Two-way connector clamps (SW or BL)

SW **BL**
RAL9005 blank



GN 131

Description	d1	d2	d3	k	l	m	Clamping kits for d3	⚖
GN 131-B10-B10-2-*	B 10	B 10	M 6	25	64	20	GN 911-M6-22	180
GN 131-B12-B12-2-*	B 12	B 12	M 6	25	64	20	GN 911-M6-22	203
GN 131-B14-B14-2-*	B 14	B 14	M 6	25	64	20	GN 911-M6-22	190
GN 131-B15-B15-2-*	B 15	B 15	M 6	25	64	20	GN 911-M6-22	190
GN 131-B16-B16-2-*	B 16	B 16	M 6	25	64	20	GN 911-M6-22	170
GN 131-B18-B18-2-*	B 18	B 18	M 6	25	64	20	GN 911-M6-22	148

Weight BL

GN 131-NI

STAINLESS STEEL

Description	d1	d2	d3	k	l	m	Clamping kits for d3	⚖
GN 131-B12-B12-2-NI	B 12	B 12	M 6	25	64	20	GN 911.3-M6-22	203
GN 131-B14-B14-2-NI	B 14	B 14	M 6	25	64	20	GN 911.3-M6-22	190
GN 131-B15-B15-2-NI	B 15	B 15	M 6	25	64	20	GN 911.3-M6-22	190
GN 131-B16-B16-2-NI	B 16	B 16	M 6	25	64	20	GN 911.3-M6-22	170
GN 131-B18-B18-2-NI	B 18	B 18	M 6	25	64	20	GN 911.3-M6-22	148
GN 131-B20-B20-2-NI	B 20	B 20	M 6	25	64	20	GN 911.3-M6-22	140

Stainless Steel-
Two-way connector clamps

SPECIFICATION

Types

- Type **A**: without sealing
- Type **B**: with sealing

Stainless Steel

- AISI CF-8
- matt shot-blasted

Clamping bores
mechanically machined

Carriage bolt DIN 603

Stainless Steel A2

Cap nuts DIN 917

Stainless Steel A2

Sealings

Washers

Plastic (Polyacetal POM)

Edge ring

Silicon, 40 ... 60 Shore A



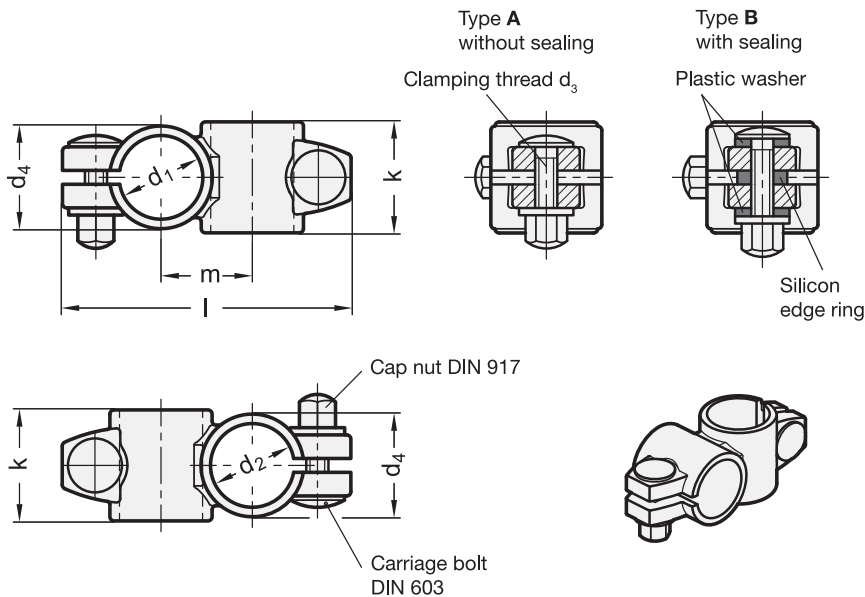
INFORMATION

The clamping bores of GN 132.5 Stainless Steel-Two-way connector clamps are mechanically machined and designed for construction tubings GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The shape of the clamping screws / nuts prevents the formation of wetness due to dammed-up water. The designs with sealing (Type B) also seals bore holes and threads.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 132.5

STAINLESS STEEL

Description	d1	d2	k	d3	d4	l	m	⚖
GN 132.5-B30-B30-40-A	B 30	B 30	40	M 8	37	104	33	296
GN 132.5-B30-B30-40-B	B 30	B 30	40	M 8	37	104	33	296
GN 132.5-B50-B50-65-A	B 50	B 50	65	M 10	60	150	53	312
GN 132.5-B50-B50-65-B	B 50	B 50	65	M 10	60	150	53	312

Two-way connector clamps

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

The clamping bores of GN 132 two-way connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

TECHNICAL INFORMATION

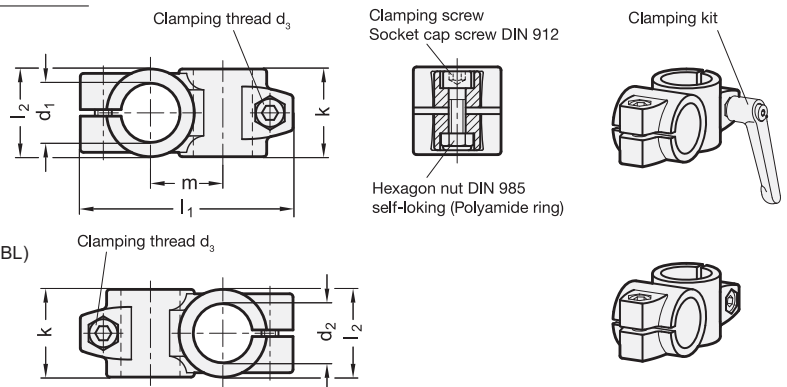
- Stainless Steel characteristics (see page A26)

ACCESSORY

- Clamping kits GN 911 (see page 1874)

ON REQUEST

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Two-way connector clamps (SW or BL)

SW **BL**
RAL9005 blank

GN 132

Description	d1	d2	k	d3	l1	l2	m	Clamping kits for d3	⚖
GN 132-B20-B20-40-2-*	B 20	B 20	40	M 8	97	40	33	GN 911-M8-32	245
GN 132-B25-B25-40-2-*	B 25	B 25	40	M 8	97	40	33	GN 911-M8-32	220
GN 132-B30-B30-40-2-*	B 30	B 30	40	M 8	97	40	33	GN 911-M8-32	150
GN 132-B30-B30-56-2-*	B 30	B 30	56	M 10	125	56	45	GN 911-M10-40	600
GN 132-B32-B32-56-2-*	B 32	B 32	56	M 10	125	56	45	GN 911-M10-40	620
GN 132-B35-B35-56-2-*	B 35	B 35	56	M 10	125	56	45	GN 911-M10-40	580
GN 132-B40-B40-56-2-*	B 40	B 40	56	M 10	125	56	45	GN 911-M10-40	500
GN 132-B40-B40-65-2-*	B 40	B 40	65	M 10	143	65	53	GN 911-M10-55	890
GN 132-B42-B42-65-2-*	B 42	B 42	65	M 10	143	65	53	GN 911-M10-55	780
GN 132-B45-B45-65-2-*	B 45	B 45	65	M 10	143	65	53	GN 911-M10-55	720
GN 132-B48-B48-65-2-*	B 48	B 48	65	M 10	143	65	53	GN 911-M10-55	700
GN 132-B50-B50-65-2-*	B 50	B 50	65	M 10	143	65	53	GN 911-M10-55	610
GN 132-B50-B50-80-2-*	B 50	B 50	80	M 10	169	80	65	GN 911-M10-55	1460
GN 132-B55-B55-80-2-*	B 55	B 55	80	M 10	169	80	65	GN 911-M10-55	1260
GN 132-B60-B60-80-2-*	B 60	B 60	80	M 10	169	80	65	GN 911-M10-55	1060

Weight BL

Two-way connector clamps

Aluminium / multi part assembly / unequal bore dimensions d_1 / s_1 and d_2 / s_2

SPECIFICATION

Identification No.

No. **2**: with 4 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores not machined

Cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bores of GN 135 two-way connector clamps are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The square designs are also suitable for use in **profile systems**.

The bore holes and squares must be put together such that an adaptation between different tube cross-sections is possible.

The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

ON REQUEST

- other bores and square combinations d_1 / s_1 and d_2 / s_2

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

* Complete with colour index of the Two-way connector clamps (SW or BL)

SW **BL**
RAL9005 blank

GN 135

Description	d_1	s_1	d_2	s_2	k_1	k_2	d_3	d_4	l_1	l_2	l_3	m	Clamping kits for d_3	Clamping kits for d_4	
GN 135-B30-B40-60-2-*	B 30	-	B 40	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	500
GN 135-B30-B48-60-2-*	B 30	-	B 48	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	486
GN 135-B30-B50-60-2-*	B 30	-	B 50	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	479
GN 135-B40-B48-60-2-*	B 40	-	B 48	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	461
GN 135-B40-B50-60-2-*	B 40	-	B 50	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	454
GN 135-B30-V40-60-2-*	B 30	-	-	V 40	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	900
GN 135-B30-V50-60-2-*	B 30	-	-	V 50	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	599
GN 135-B40-V50-60-2-*	B 40	-	-	V 50	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	800
GN 135-V30-V40-60-2-*	-	V 30	-	V 40	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	900
GN 135-V30-V50-60-2-*	-	V 30	-	V 50	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	750
GN 135-V40-V50-60-2-*	-	V 40	-	V 50	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	750
GN 135-V30-B40-60-2-*	-	V 30	B 40	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	600
GN 135-V30-B48-60-2-*	-	V 30	B 48	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	479
GN 135-V30-B50-60-2-*	-	V 30	B 50	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	450
GN 135-V40-B48-60-2-*	-	V 40	B 48	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	447
GN 135-V40-B50-60-2-*	-	V 40	B 50	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	830

Weight BL



Two-way connector clamps

Aluminium, different bore diameter d_1 / d_2

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bores of GN 133 two-way connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

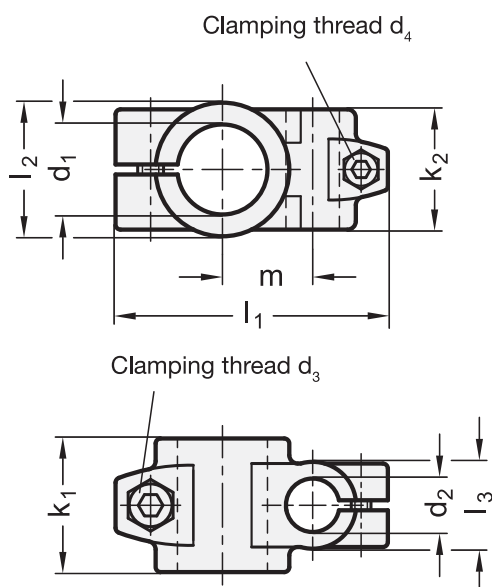
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

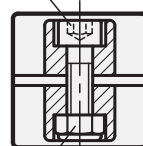
- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

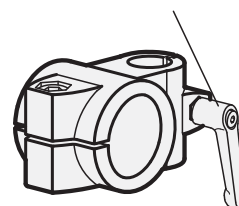


Clamping screw
Socket cap screw DIN 912



Hexagon nut DIN 985
self-locking (Polyamide ring)

Clamping kit



*Complete with colour index of the Two-way connector clamps (SW or BL)

■ SW BL
RAL9005 blank

GN 133

Description	d1	d2	d3	d4	k1	k2	l1	l2	l3	m	Clamping kits for d3	Clamping kits for d4	⚖
GN 133-B20-B12-2-*	B 20	B 12	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	175
GN 133-B20-B14-2-*	B 20	B 14	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	174
GN 133-B20-B16-2-*	B 20	B 16	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	170
GN 133-B20-B18-2-*	B 20	B 18	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	170
GN 133-B25-B12-2-*	B 25	B 12	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	160
GN 133-B25-B14-2-*	B 25	B 14	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	155
GN 133-B25-B16-2-*	B 25	B 16	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	150
GN 133-B25-B18-2-*	B 25	B 18	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	145
GN 133-B30-B12-2-*	B 30	B 12	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	135
GN 133-B30-B14-2-*	B 30	B 14	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	128
GN 133-B30-B16-2-*	B 30	B 16	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	128
GN 133-B30-B18-2-*	B 30	B 18	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	124
GN 133-B40-B20-2-*	B 40	B 20	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	600
GN 133-B40-B25-2-*	B 40	B 25	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	600
GN 133-B40-B30-2-*	B 40	B 30	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	570
GN 133-B42-B20-2-*	B 42	B 20	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	550
GN 133-B42-B25-2-*	B 42	B 25	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	600
GN 133-B42-B30-2-*	B 42	B 30	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	600
GN 133-B45-B20-2-*	B 45	B 20	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	510
GN 133-B45-B25-2-*	B 45	B 25	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	510
GN 133-B45-B30-2-*	B 45	B 30	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	510
GN 133-B48-B20-2-*	B 48	B 20	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	475
GN 133-B48-B25-2-*	B 48	B 25	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	475
GN 133-B48-B30-2-*	B 48	B 30	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	475
GN 133-B50-B20-2-*	B 50	B 20	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	505
GN 133-B50-B25-2-*	B 50	B 25	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	480
GN 133-B50-B30-2-*	B 50	B 30	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	450

Weight BL



Two-way connector clamps

Aluminium / multi part assembly, same bore dimensions d_1/d_2 and s_1/s_2

SPECIFICATION

Identification No.

No. **2**: with 4 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores not machined

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bores of the flanged two-way connector clamps GN 134 are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The square designs are also suitable for use in **profile systems**.

Bores and square bores of the same nominal size can be assembled in any combination. For instance, nominal size 20 has the following combination options: B20-B20, B20-V20, V20-B20 and V20-V20.

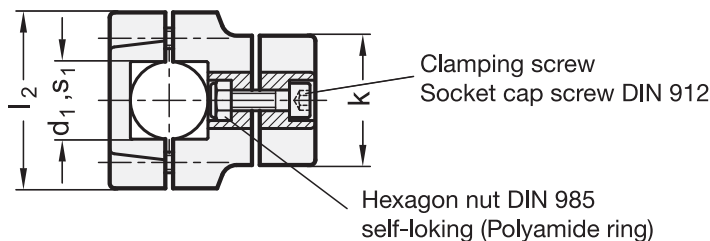
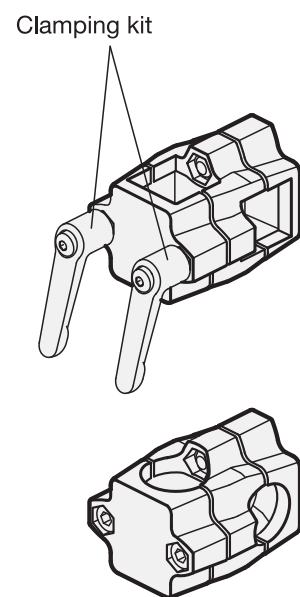
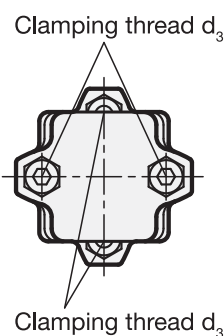
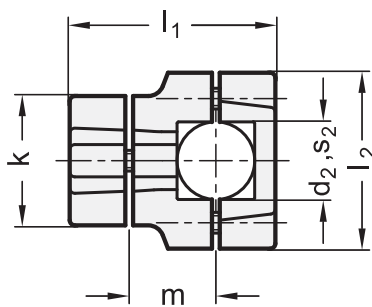
The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



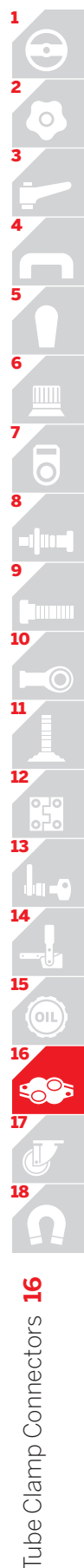
* Complete with colour index of the Two-way connector clamps (SW or BL)

SW BL
RAL9005 blank

GN 134

Description	d1	s1	d2	s2	k	d3	l1	l2	m	Clamping kits for d3	⚖
GN 134-B20-B20-50-2-*	B 20	-	B 20	-	50	M 8	79.5	68	33.5	GN 911-M8-35	352
GN 134-B25-B25-50-2-*	B 25	-	B 25	-	50	M 8	79.5	68	33.5	GN 911-M8-35	330
GN 134-B30-B30-50-2-*	B 30	-	B 30	-	50	M 8	79.5	68	33.5	GN 911-M8-35	310
GN 134-B30-B30-60-2-*	B 30	-	B 30	-	60	M 8	109	79	50	GN 911-M8-55	700
GN 134-B32-B32-60-2-*	B 32	-	B 32	-	60	M 8	109	79	50	GN 911-M8-55	690
GN 134-B35-B35-60-2-*	B 35	-	B 35	-	60	M 8	109	79	50	GN 911-M8-55	680
GN 134-B40-B40-60-2-*	B 40	-	B 40	-	60	M 8	109	79	50	GN 911-M8-55	620
GN 134-B40-B40-76-2-*	B 40	-	B 40	-	76	M 10	125	98	55	GN 911-M10-63	890
GN 134-B42-B42-76-2-*	B 42	-	B 42	-	76	M 10	125	98	55	GN 911-M10-63	945
GN 134-B45-B45-76-2-*	B 45	-	B 45	-	76	M 10	125	98	55	GN 911-M10-63	915
GN 134-B48-B48-76-2-*	B 48	-	B 48	-	76	M 10	125	98	55	GN 911-M10-63	915
GN 134-B50-B50-76-2-*	B 50	-	B 50	-	76	M 10	125	98	55	GN 911-M10-63	885
GN 134-B20-V20-50-2-*	B 20	-	-	V 20	50	M 8	79.5	68	33.5	GN 911-M8-35	350
GN 134-B25-V25-50-2-*	B 25	-	-	V 25	50	M 8	79.5	68	33.5	GN 911-M8-35	310
GN 134-B30-V30-50-2-*	B 30	-	-	V 30	50	M 8	79.5	68	33.5	GN 911-M8-35	310
GN 134-B30-V30-60-2-*	B 30	-	-	V 30	60	M 8	109	79	50	GN 911-M8-55	680
GN 134-B35-V35-60-2-*	B 35	-	-	V 35	60	M 8	109	79	50	GN 911-M8-55	640
GN 134-B40-V40-60-2-*	B 40	-	-	V 40	60	M 8	109	79	50	GN 911-M8-55	580
GN 134-B40-V40-76-2-*	B 40	-	-	V 40	76	M 10	125	98	55	GN 911-M8-55	950
GN 134-B45-V45-76-2-*	B 45	-	-	V 45	76	M 10	125	98	55	GN 911-M10-63	835
GN 134-B50-V50-76-2-*	B 50	-	-	V 50	76	M 10	125	98	55	GN 911-M10-63	773
GN 134-V20-V20-50-2-*	-	V 20	-	V 20	50	M 8	79.5	68	33.5	GN 911-M8-35	350
GN 134-V25-V25-50-2-*	-	V 25	-	V 25	50	M 8	79.5	68	33.5	GN 911-M8-35	325
GN 134-V30-V30-50-2-*	-	V 30	-	V 30	50	M 8	79.5	68	33.5	GN 911-M8-35	300
GN 134-V30-V30-60-2-*	-	V 30	-	V 30	60	M 8	109	79	50	GN 911-M8-55	660
GN 134-V35-V35-60-2-*	-	V 35	-	V 35	60	M 8	109	79	50	GN 911-M8-55	620
GN 134-V40-V40-60-2-*	-	V 40	-	V 40	60	M 8	109	79	50	GN 911-M8-55	560
GN 134-V40-V40-76-2-*	-	V 40	-	V 40	76	M 10	125	98	55	GN 911-M10-63	945
GN 134-V45-V45-76-2-*	-	V 45	-	V 45	76	M 10	125	98	55	GN 911-M10-63	825
GN 134-V50-V50-76-2-*	-	V 50	-	V 50	76	M 10	125	98	55	GN 911-M10-63	825
GN 134-V20-B20-50-2-*	-	V 20	B 20	-	50	M 8	79.5	68	33.5	GN 911-M8-35	350
GN 134-V25-B25-50-2-*	-	V 25	B 25	-	50	M 8	79.5	68	33.5	GN 911-M8-35	330
GN 134-V30-B30-50-2-*	-	V 30	B 30	-	50	M 8	79.5	68	33.5	GN 911-M8-35	314
GN 134-V30-B30-60-2-*	-	V 30	B 30	-	60	M 8	109	79	50	GN 911-M8-55	680
GN 134-V35-B35-60-2-*	-	V 35	B 35	-	60	M 8	109	79	50	GN 911-M8-55	640
GN 134-V40-B40-60-2-*	-	V 40	B 40	-	60	M 8	109	79	50	GN 911-M8-55	580
GN 134-V40-B40-76-2-*	-	V 40	B 40	-	76	M 10	125	98	55	GN 911-M10-63	890
GN 134-V45-B45-76-2-*	-	V 45	B 45	-	76	M 10	125	98	55	GN 911-M10-63	835
GN 134-V50-B50-76-2-*	-	V 50	B 50	-	76	M 10	125	98	55	GN 911-M10-63	830

Weight BL



Flanged two-way connector clamps

Aluminium / multi part assembly

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores not machined

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

The clamping bores of GN 141 flanged two-way connector clamps are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The square designs are also suitable for use in **profile systems**.

Bores and square bores of the same nominal size can be assembled in any combination. For instance, nominal size 20 has the following combination options: B20-B20, B20-V20, V20-B20 and V20-V20.

The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

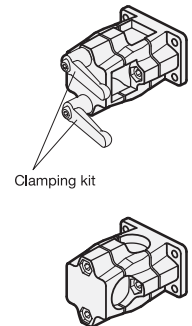
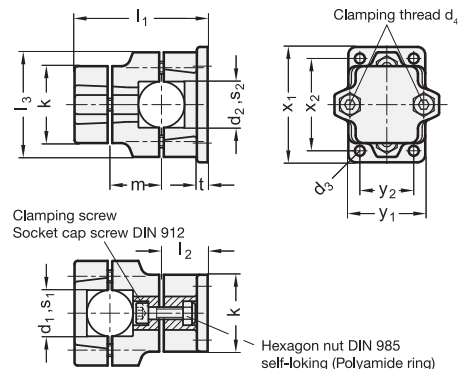
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

* Complete with colour index of the Flanged two-way connector clamps (SW or BL)

SW
RAL9005

BL
blank



GN 141

Description	d1	s1	d2	s2	d3	d4	k	l1	l2	l3	m	t	x1	x2	y1	y2	Clamping kits for d4	⚖
GN 141-B20-V20-2-* B 20	-	-	V 20	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	395	
GN 141-B25-V25-2-* B 25	-	-	V 25	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	375	
GN 141-B30-V30-2-* B 30	-	-	V 30	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	355	
GN 141-B40-V40-2-* B 40	-	-	V 40	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	1000	
GN 141-B45-V45-2-* B 45	-	-	V 45	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	945	
GN 141-B50-V50-2-* B 50	-	-	V 50	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	920	
GN 141-V20-V20-2-*	-	V 20	-	V 20	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	390
GN 141-V25-V25-2-*	-	V 25	-	V 25	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	365
GN 141-V30-V30-2-*	-	V 30	-	V 30	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	340
GN 141-V40-V40-2-*	-	V 40	-	V 40	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	1090
GN 141-V45-V45-2-*	-	V 45	-	V 45	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	1040
GN 141-V50-V50-2-*	-	V 50	-	V 50	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	975
GN 141-V20-B20-2-*	-	V 20 B 20	-	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	395	
GN 141-V25-B25-2-*	-	V 25 B 25	-	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	375	
GN 141-V30-B30-2-*	-	V 30 B 30	-	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	355	
GN 141-V40-B40-2-*	-	V 40 B 40	-	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	1030	
GN 141-V45-B45-2-*	-	V 45 B 45	-	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	980	
GN 141-V50-B50-2-*	-	V 50 B 50	-	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	950	

Weight BL

Flanged connector clamps

Aluminium / Stainless Steel, with 2 mounting holes

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Version in Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Version in Stainless Steel NI

AISI CF-8

matt shot-blasted

Clamping bores mechanically machined

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bores of GN 145 flanged connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

GN 145 flanged connector clamps are also suitable for mounting on **profile systems**.

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (article code see table of dimensions).

ACCESSORY

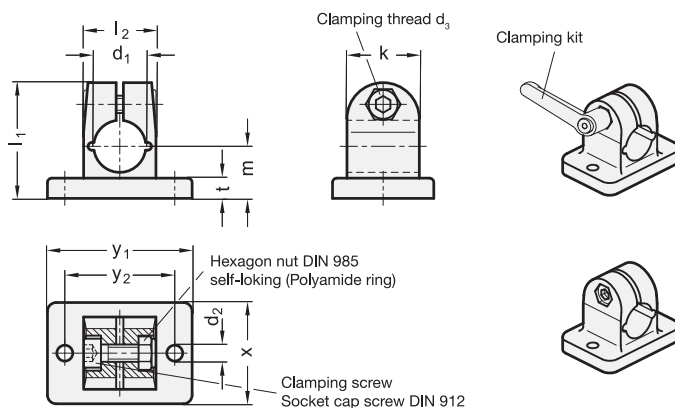
- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (article code see table of dimensions).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

* Complete with colour index of the Flanged connector clamps (SW or BL)

SW **BL**
RAL9005 blank



GN 145

Description	d1	d2	d3	k	l1	l2	m	t	x	y1	y2	Clamping kits for d3
GN 145-B10-2-*	B 10	5.5	M 6	25	40	25	18	7	35	50	38	GN 911-M6-22
GN 145-B12-2-*	B 12	5.5	M 6	25	40	25	18	7	35	50	38	GN 911-M6-22
GN 145-B14-2-*	B 14	5.5	M 6	25	40	25	18	7	35	50	38	GN 911-M6-22
GN 145-B15-2-*	B 15	5.5	M 6	25	40	25	18	7	35	50	38	GN 911-M6-22
GN 145-B16-2-*	B 16	5.5	M 6	25	40	25	18	7	35	50	38	GN 911-M6-22
GN 145-B18-2-*	B 18	5.5	M 6	25	40	25	18	7	35	50	38	GN 911-M6-22

Weight BL

GN 145-NI

STAINLESS STEEL

Description	d1	d2	d3	k	l1	l2	m	t	x	y1	y2	Clamping kits for d3	Weight
GN 145-B12-2-NI	B 12	5.5	M 6	25	40	25	18	7	35	50	38	GN 911.3-M6-22	180
GN 145-B14-2-NI	B 14	5.5	M 6	25	40	25	18	7	35	50	38	GN 911.3-M6-22	170
GN 145-B15-2-NI	B 15	5.5	M 6	25	40	25	18	7	35	50	38	GN 911.3-M6-22	170
GN 145-B16-2-NI	B 16	5.5	M 6	25	40	25	18	7	35	50	38	GN 911.3-M6-22	164
GN 145-B18-2-NI	B 18	5.5	M 6	25	40	25	18	7	35	50	38	GN 911.3-M6-22	159
GN 145-B20-2-NI	B 20	5.5	M 6	25	40	25	18	7	35	50	38	GN 911.3-M6-22	153

Flanged connector clamps

Aluminium / with 4 retaining bores

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

The clamping bores of GN 146 flanged connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

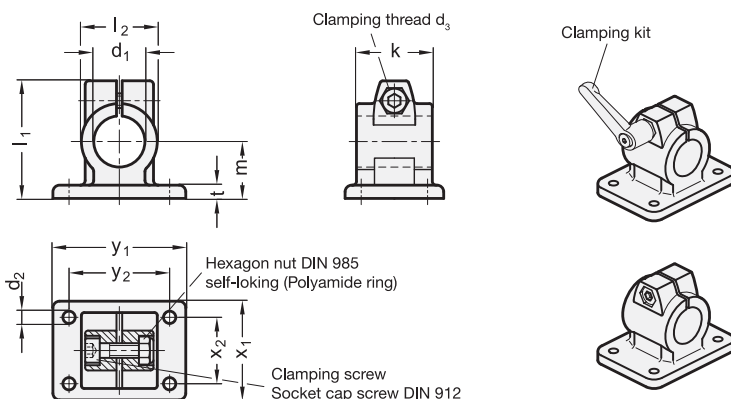
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kit GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Flanged connector clamps (SW or BL)

SW **BL**
RAL9005 blank

GN 146

Description	d1	k	d2	d3	l1	l2	m	t	x1	x2	y1	y2	Clamping kits for d3	Weight
GN 146-B20-40-2-*	B 20	40	6.5	M 8	62	40	30	7	52	35	70	53	GN 911-M8-32	194
GN 146-B25-40-2-*	B 25	40	6.5	M 8	62	40	30	7	52	35	70	53	GN 911-M8-32	179
GN 146-B30-40-2-*	B 30	40	6.5	M 8	62	40	30	7	52	35	70	53	GN 911-M8-32	160
GN 146-B30-56-2-*	B 30	56	8.5	M 10	83	56	42	10	78	52	108	82	GN 911-M10-40	510
GN 146-B32-56-2-*	B 32	56	8.5	M 10	83	56	42	10	78	52	108	82	GN 911-M10-40	476
GN 146-B35-56-2-*	B 35	56	8.5	M 10	83	56	42	10	78	52	108	82	GN 911-M10-40	480
GN 146-B40-56-2-*	B 40	56	8.5	M 10	83	56	42	10	78	52	108	82	GN 911-M10-40	435
GN 146-B40-65-2-*	B 40	65	11	M 10	95	65	50	14	92	62	128	98	GN 911-M10-55	790
GN 146-B42-65-2-*	B 42	65	11	M 10	95	65	50	14	92	62	128	98	GN 911-M10-55	760
GN 146-B45-65-2-*	B 45	65	11	M 10	95	65	50	14	92	62	128	98	GN 911-M10-55	736
GN 146-B48-65-2-*	B 48	65	11	M 10	95	65	50	14	92	62	128	98	GN 911-M10-55	694
GN 146-B50-65-2-*	B 50	65	11	M 10	95	65	50	14	92	62	128	98	GN 911-M10-55	680
GN 146-B50-80-2-*	B 50	80	11	M 10	112	80	60	14	110	74	154	118	GN 911-M10-55	1300
GN 146-B55-80-2-*	B 55	80	11	M 10	112	80	60	14	110	74	154	118	GN 911-M10-55	1220
GN 146-B60-80-2-*	B 60	80	11	M 10	112	80	60	14	110	74	154	118	GN 911-M10-55	1120

Weight BL

Flanged connector clamps

Aluminium / with 2 retaining bores

SPECIFICATION

Identification No.

No. 2: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bores of GN 146.3 flanged connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

GN 146.3 flanged connector clamps are also suitable for mounting on **profile systems**.

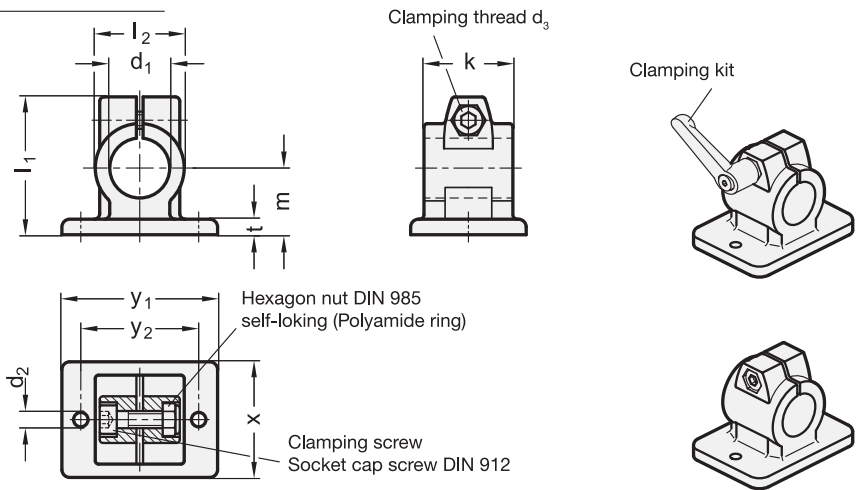
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Flanged connector clamps (SW or BL)

SW BL
RAL9005 blank

GN 146.3

Description	d1	k	d2	d3	l1	l2	m	t	x	y1	y2	Clamping kits for d3	⚖
GN 146.3-B20-40-2-*	B 20	40	6.5	M 8	62	40	30	7	52	70	53	GN 911-M8-32	180
GN 146.3-B25-40-2-*	B 25	40	6.5	M 8	62	40	30	7	52	70	53	GN 911-M8-32	180
GN 146.3-B30-40-2-*	B 30	40	6.5	M 8	62	40	30	7	52	70	53	GN 911-M8-32	160
GN 146.3-B30-56-2-*	B 30	56	8.5	M 10	83	56	42	10	78	108	82	GN 911-M10-40	450
GN 146.3-B32-56-2-*	B 32	56	8.5	M 10	83	56	42	10	78	108	82	GN 911-M10-40	480
GN 146.3-B35-56-2-*	B 35	56	8.5	M 10	83	56	42	10	78	108	82	GN 911-M10-40	480
GN 146.3-B40-56-2-*	B 40	56	8.5	M 10	83	56	42	10	78	108	82	GN 911-M10-40	420

Weight BL

Stainless Steel-Flanged connector clamps

with 4 holes

SPECIFICATION

Types

- Type **A**: without sealing
- Type **B**: with sealing

Stainless Steel

- AISI CF-8
- matt shot-blasted

Clamping bores mechanically machined

Carriage bolt DIN 603

Stainless Steel A2

Cap nuts DIN 917

Stainless Steel A2

Sealings

Washers

Plastic (Polyacetal POM)

Edge ring

Silicon, 40 ... 60 Shore A

INFORMATION

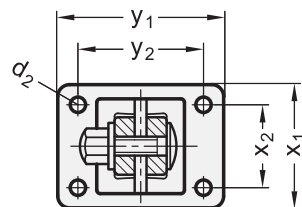
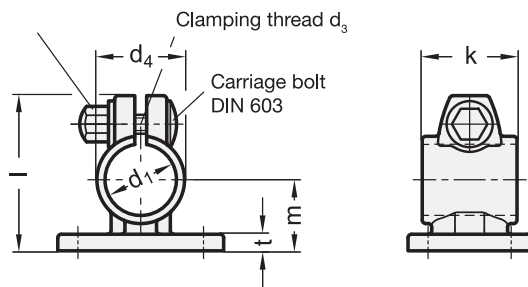
The clamping bores of GN 146.5 Stainless Steel-Flanged connector clamps are mechanically machined and designed for construction tubings GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The shape of the clamping screws / nuts prevents the formation of wetness due to dammed-up water. The designs with sealing (Type B) also seals bore holes and threads.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

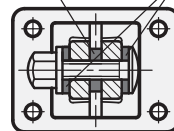
Cap nut DIN 917



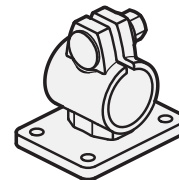
Type **A**
without sealing

Silicon sealing disc

Plastic washers



Type **B**
with sealing



GN 146.5

STAINLESS STEEL

Description	d1	k	d2	d3	d4	l	m	t	x1	x2	y1	y2	⚖
GN 146.5-B30-40-A	B 30	40	6.5	M 8	37	65	30	7	52	35	71	53	270
GN 146.5-B30-40-B	B 30	40	6.5	M 8	37	65	30	7	52	35	71	53	270
GN 146.5-B50-65-A	B 50	65	10.7	M 10	60	98.5	50	9	92	62	128	98	1081
GN 146.5-B50-65-B	B 50	65	10.7	M 10	60	98.5	50	9	92	62	128	98	1081

Stainless Steel-Flanged
connector clamps
with 2 holes

SPECIFICATION

Types

- Type **A**: without sealing
- Type **B**: with sealing

Stainless Steel

- AISI CF-8
- matt shot-blasted

Clamping bores
mechanically machined

Carriage bolt DIN 603

Stainless Steel A2

Cap nuts DIN 917

Stainless Steel A2

Sealings

Washers

Plastic (Polyacetal POM)

Edge ring

Silicon, 40 ... 60 Shore A

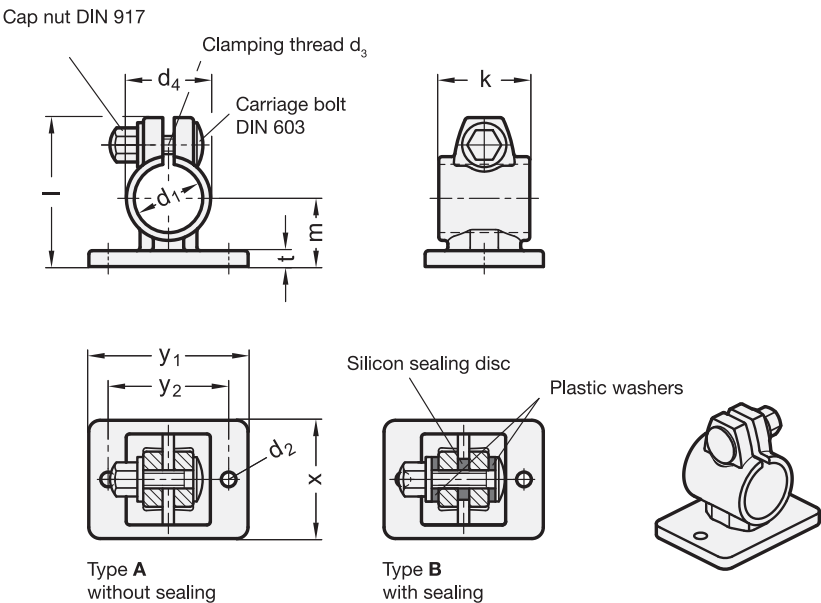
INFORMATION

The clamping bores of GN 146.6 Stainless Steel-Flanged connector clamps are mechanically machined and designed for construction tubings GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The shape of the clamping screws / nuts prevents the formation of wetness due to dammed-up water. The designs with sealing (Type B) also seals bore holes and threads.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 146.6

STAINLESS STEEL

Description	d1	k	d2	d3	d4	l	m	t	x1	x2	y1	y2	⚖
GN 146.6-B30-40-A	B 30	40	6.5	M 8	37	65	30	7	52	32	71	53	300
GN 146.6-B30-40-B	B 30	40	6.5	M 8	37	65	30	7	52	32	71	53	270

Flanged connector clamps

Aluminum / split assembly, with 4 mounting holes

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bores of GN 147 flanged connector clamps are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The square designs are also suitable for use in **profile systems**.

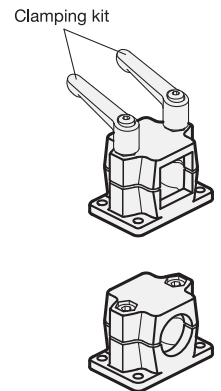
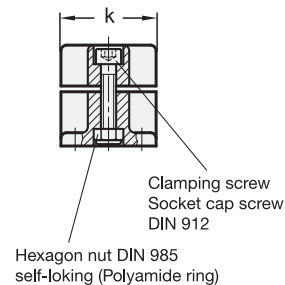
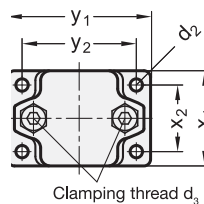
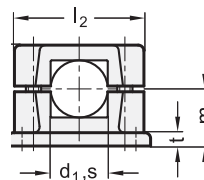
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Flanged connector clamps (SW or BL)

SW **BL**
RAL9005 blank

GN 147

Description	d1	s	d2	d3	k	l1	l2	m	t	x1	x2	y1	y2	Clamping kits for d3	Weight
GN 147-B20-2-*	B 20	-	6.5	M 8	50	53	68	30	7	50	35	75	60	GN 911-M8-45	245
GN 147-B25-2-*	B 25	-	6.5	M 8	50	53	68	30	7	50	35	75	60	GN 911-M8-45	240
GN 147-B30-2-*	B 30	-	6.5	M 8	50	53	68	30	7	50	35	75	60	GN 911-M8-45	190
GN 147-B40-2-*	B 40	-	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	665
GN 147-B42-2-*	B 42	-	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	650
GN 147-B45-2-*	B 45	-	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	640
GN 147-B48-2-*	B 48	-	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	631
GN 147-B50-2-*	B 50	-	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	620
GN 147-V20-2-*	-	V 20	6.5	M 8	50	53	68	30	7	50	35	75	60	GN 911-M8-45	240
GN 147-V25-2-*	-	V 25	6.5	M 8	50	53	68	30	7	50	35	75	60	GN 911-M8-45	230
GN 147-V30-2-*	-	V 30	6.5	M 8	50	53	68	30	7	50	35	75	60	GN 911-M8-45	220
GN 147-V40-2-*	-	V 40	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	700
GN 147-V45-2-*	-	V 45	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	625
GN 147-V50-2-*	-	V 50	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	595

Weight BL

Base plate connector clamps

Aluminium / Stainless Steel, with 4 mounting holes

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Version in Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Version in Stainless Steel NI

AISI CF-8

matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

Clamping bores of the base plate clamps GN 162 are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

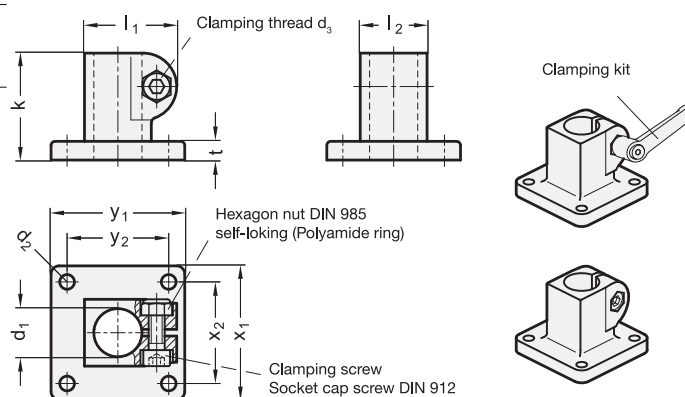
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

* Complete with colour index of the Base plate connector clamps (SW or BL)

SW
RAL9005

BL
blank



GN 162

Description	d1	d2	d3	k	l1	l2	t	x1	x2	y1	y2	Clamping kits for d3
GN 162-B10-2-*	B 10	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911-M6-22
GN 162-B12-2-*	B 12	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911-M6-22
GN 162-B14-2-*	B 14	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911-M6-22
GN 162-B15-2-*	B 15	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911-M6-22
GN 162-B16-2-*	B 16	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911-M6-22
GN 162-B18-2-*	B 18	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911-M6-22

Weight BL

GN 162-NI

STAINLESS STEEL

Description	d1	d2	d3	k	l1	l2	t	x1	x2	y1	y2	Clamping kits for d3	⚖
GN 162-B12-2-NI	B 12	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911.3-M6-22	238
GN 162-B14-2-NI	B 14	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911.3-M6-22	227
GN 162-B15-2-NI	B 15	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911.3-M6-22	213
GN 162-B16-2-NI	B 16	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911.3-M6-22	207
GN 162-B18-2-NI	B 18	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911.3-M6-22	200
GN 162-B20-2-NI	B 20	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911.3-M6-22	180

Base plate connector clamps

Aluminium / Stainless Steel, with 2 mounting holes

SPECIFICATION

Identification No.

No. 2: with Stainless Steel-Clamping screw DIN 912

Version in Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Version in Stainless Steel NI

AISI CF-8

matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bore of the base plate connector clamps GN 162.3 is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

GN 162.3 base plate connector clamps are also suitable for mounting on **profile systems**.

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

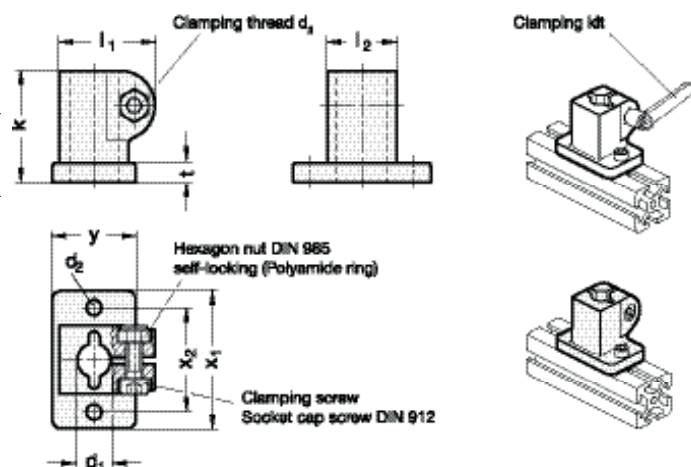
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

* Complete with colour index of the Base plate connector clamps (SW or BL)

SW
RAL9005

BL
blank



GN 162.3

Description	d1	d2	d3	k	l1	l2	t	x1	x2	y	Clamping kits for d3	⚖
GN 162.3-B10-2-*	B 10	5.5	M 6	40	34.5	25	7	50	38	30	GN 911-M6-22	120
GN 162.3-B12-2-*	B 12	5.5	M 6	40	34.5	25	7	50	38	30	GN 911-M6-22	110
GN 162.3-B14-2-*	B 14	5.5	M 6	40	34.5	25	7	50	38	30	GN 911-M6-22	90
GN 162.3-B15-2-*	B 15	5.5	M 6	40	34.5	25	7	50	38	30	GN 911-M6-22	80
GN 162.3-B16-2-*	B 16	5.5	M 6	40	34.5	25	7	50	38	30	GN 911-M6-22	73
GN 162.3-B18-2-*	B 18	5.5	M 6	40	34.5	25	7	50	38	30	GN 911-M6-22	60

Weight BL

GN 162.3-NI

STAINLESS STEEL

Description	d1	d2	d3	k	l1	l2	t	x1	x2	y	Clamping kits for d3	⚖
GN 162.3-B12-2-NI	B 12	5.5	M 6	40	34.5	25	7	50	38	30	GN 911.3-M6-22	194
GN 162.3-B14-2-NI	B 14	5.5	M 6	40	34.5	25	7	50	38	30	GN 911.3-M6-22	185
GN 162.3-B15-2-NI	B 15	5.5	M 6	40	34.5	25	7	50	38	30	GN 911.3-M6-22	186
GN 162.3-B16-2-NI	B 16	5.5	M 6	40	34.5	25	7	50	38	30	GN 911.3-M6-22	174
GN 162.3-B18-2-NI	B 18	5.5	M 6	40	34.5	25	7	50	38	30	GN 911.3-M6-22	162

Base plate connector clamps

Aluminium

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bores of GN 163 base plate connector clamps are mechanically machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

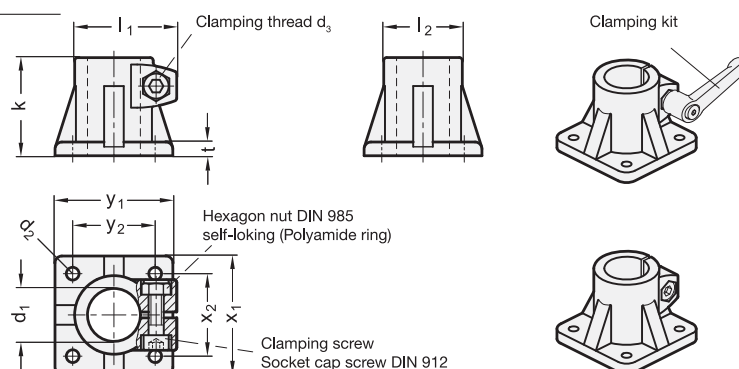
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kit GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Base plate connector clamps (SW or BL)

SW
RAL9005

BL
blank

GN 163

Description	d1	k	d2	d3	l1	l2	t	x1	x2	y1	y2	Clamping kits for d3	Weight
GN 163-B20-50-2-*	B 20	50	6.5	M 8	52	40	7	60	42	60	42	GN 911-M8-32	199
GN 163-B25-50-2-*	B 25	50	6.5	M 8	52	40	7	60	42	60	42	GN 911-M8-32	176
GN 163-B30-50-2-*	B 30	50	6.5	M 8	52	40	7	60	42	60	42	GN 911-M8-32	149
GN 163-B30-70-2-*	B 30	70	8.5	M 10	68	56	10	90	64	90	64	GN 911-M10-40	510
GN 163-B32-70-2-*	B 32	70	8.5	M 10	68	56	10	90	64	90	64	GN 911-M10-40	505
GN 163-B35-70-2-*	B 35	70	8.5	M 10	68	56	10	90	64	90	64	GN 911-M10-40	485
GN 163-B40-70-2-*	B 40	70	8.5	M 10	68	56	10	90	64	90	64	GN 911-M10-40	437
GN 163-B40-85-2-*	B 40	85	11	M 10	77.5	65	14	105	74	105	74	GN 911-M10-55	850
GN 163-B42-85-2-*	B 42	85	11	M 10	77.5	65	14	105	74	105	74	GN 911-M10-55	829
GN 163-B45-85-2-*	B 45	85	11	M 10	77.5	65	14	105	74	105	74	GN 911-M10-55	775
GN 163-B48-85-2-*	B 48	85	11	M 10	77.5	65	14	105	74	105	74	GN 911-M10-55	740
GN 163-B50-85-2-*	B 50	85	11	M 10	77.5	65	14	105	74	105	74	GN 911-M10-55	710
GN 163-B55-100-2-*	B 55	100	11	M 10	92	80	14	125	89	125	89	GN 911-M10-55	1020
GN 163-B60-100-2-*	B 60	100	11	M 10	92	80	14	125	89	125	89	GN 911-M10-55	910

Weight BL



Stainless Steel-Base plate connector clamps

SPECIFICATION

Types

- Type **A**: without sealing
- Type **B**: with sealing

Stainless Steel

- AISI CF-8
- matt shot-blasted

Clamping bores
mechanically machined

Carriage bolt DIN 603
Stainless Steel A2

Cap nuts DIN 917
Stainless Steel A2

Sealings

Washers
Plastic (Polyacetal POM)

Edge ring
Silicon, 40 ... 60 Shore A



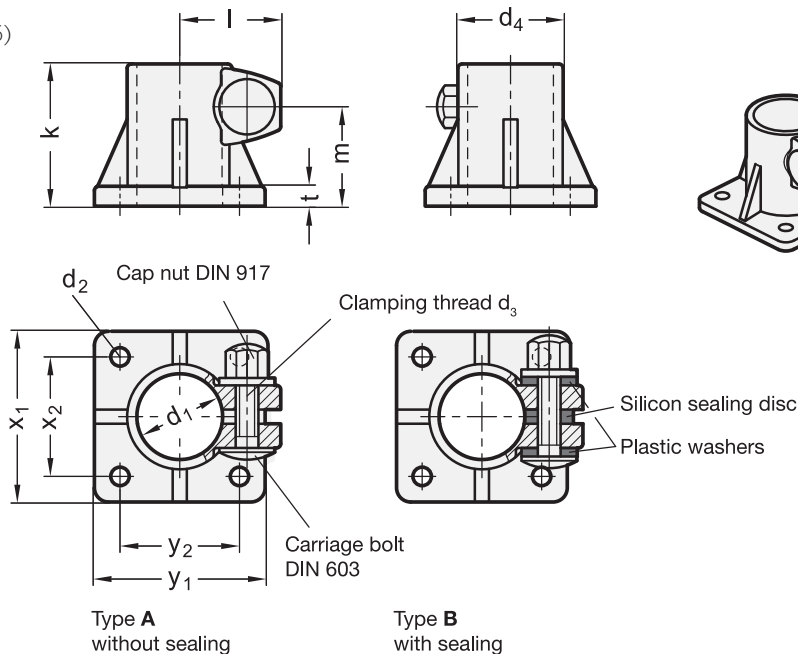
INFORMATION

The clamping bores of the Stainless Steel-Base plate connector clamps GN 163.5 are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The shape of the clamping screws / nuts prevents the formation of wetness due to dammed-up water. The designs with sealing (Type B) also seals bore holes and threads.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 163.5

STAINLESS STEEL

Description	d1	k	d2	d3	d4	l	m	t	x1	x2	y1	y2	△
GN 163.5-B30-50-A	B 30	50	6.5	M 8	37	36	35	6.5	60	42	60	42	265
GN 163.5-B30-50-B	B 30	50	6.5	M 8	37	36	35	6.5	60	42	60	42	265
GN 163.5-B50-85-A	B 50	85	10.7	M 10	60	48.5	60	9	105	74	105	74	305
GN 163.5-B50-85-B	B 50	85	10.7	M 10	60	48.5	60	9	105	74	105	74	305

Base plate connector clamps

Aluminum / split assembly

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

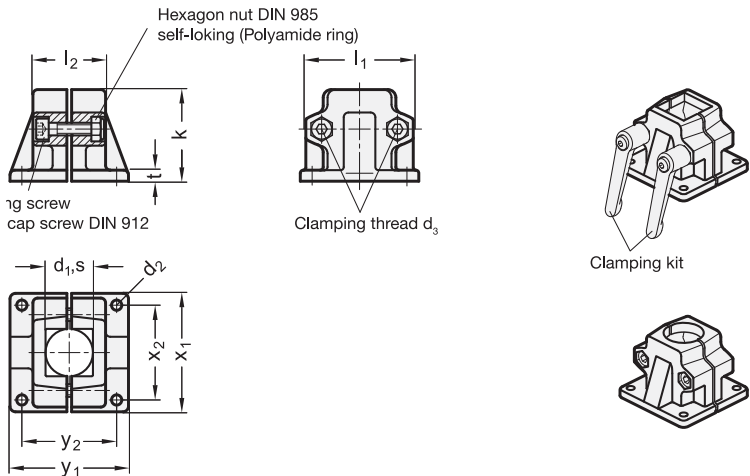
The clamping bores of the base plate connector clamps GN 165 are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The square versions are also suitable for **profile systems**. The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kit GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Base plate connector clamps (SW or BL)

SW	BL
RAL9005	blank

GN 165

Description	d1	s	d2	d3	k	l1	l2	t	x1	x2	y1	y2	Clamping kits for d3	⚖
GN 165-B20-2-*	B 20	-	7	M 8	58	69	46	7	75	60	75	60	GN 911-M8-40	300
GN 165-B25-2-*	B 25	-	7	M 8	58	69	46	7	75	60	75	60	GN 911-M8-40	295
GN 165-B30-2-*	B 30	-	7	M 8	58	69	46	7	75	60	75	60	GN 911-M8-40	290
GN 165-B40-2-*	B 40	-	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	945
GN 165-B42-2-*	B 42	-	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	905
GN 165-B45-2-*	B 45	-	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	878
GN 165-B48-2-*	B 48	-	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	840
GN 165-B50-2-*	B 50	-	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	810
GN 165-V20-2-*	-	V 20	7	M 8	58	69	46	7	75	60	75	60	GN 911-M8-40	300
GN 165-V25-2-*	-	V 25	7	M 8	58	69	46	7	75	60	75	60	GN 911-M8-40	285
GN 165-V30-2-*	-	V 30	7	M 8	58	69	46	7	75	60	75	60	GN 911-M8-40	270
GN 165-V40-2-*	-	V 40	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	920
GN 165-V45-2-*	-	V 45	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	885
GN 165-V50-2-*	-	V 50	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	880

Weight BL

Off-set base plate connector clamps

Aluminium / split assembly

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

The clamping bores of GN 166 off-set base plate connector clamps are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The square designs are also suitable for use in **profile systems**.

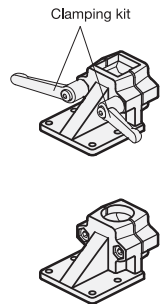
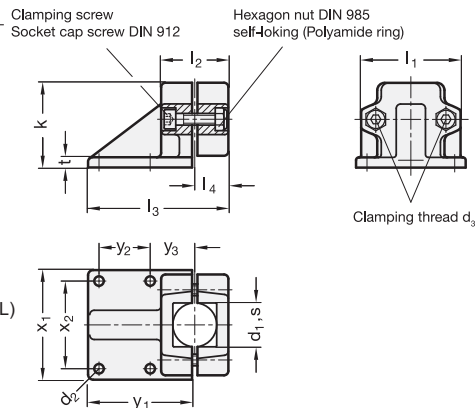
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Off-set base plate connector clamps (SW or BL)

SW **BL**
RAL9005 blank

GN 166

Description	d1	s	d2	d3	k	l1	l2	l3	l4	t	x1	x2	y1	y2	y3	Clamping kits for d3	Weight
GN 166-B20-2-*	B 20	-	7	M 8	58	69	46	96	23	7	75	60	72	35	30	GN 911-M8-40	297
GN 166-B25-2-*	B 25	-	7	M 8	58	69	46	96	23	7	75	60	72	35	30	GN 911-M8-40	291
GN 166-B30-2-*	B 30	-	7	M 8	58	69	46	96	23	7	75	60	72	35	30	GN 911-M8-40	286
GN 166-B40-2-*	B 40	-	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	870
GN 166-B42-2-*	B 42	-	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	850
GN 166-B45-2-*	B 45	-	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	840
GN 166-B48-2-*	B 48	-	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	830
GN 166-B50-2-*	B 50	-	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	815
GN 166-V20-2-*	-	V 20	7	M 8	58	69	46	96	23	7	75	60	72	35	30	GN 911-M8-40	290
GN 166-V25-2-*	-	V 25	7	M 8	58	69	46	96	23	7	75	60	72	35	30	GN 911-M8-40	280
GN 166-V30-2-*	-	V 30	7	M 8	58	69	46	96	23	7	75	60	72	35	30	GN 911-M8-40	270
GN 166-V40-2-*	-	V 40	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	840
GN 166-V45-2-*	-	V 45	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	815
GN 166-V50-2-*	-	V 50	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	775

Weight BL

Wide base plate connector clamps

Aluminium / split assembly

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

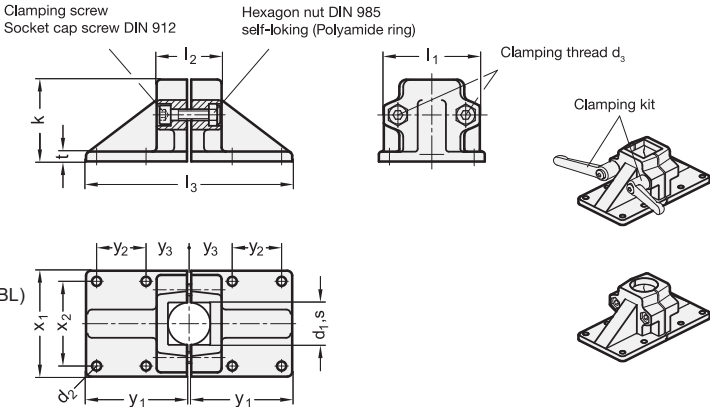
The clamping bores of GN 167 wide base plate connector clamps are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The square designs are also suitable for use in **profile systems**. The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Wide base plate connector clamps (SW or BL)

SW **BL**
RAL9005 blank

GN 167

Description	d1	s	d2	d3	k	l1	l2	l3	t	x1	x2	y1	y2	y3	Clamping kits for d3	⚖
GN 167-B20-2-*	B 20	-	7	M 8	58	69	46	146	7	75	60	72	35	30	GN 911-M8-40	394
GN 167-B25-2-*	B 25	-	7	M 8	58	69	46	146	7	75	60	72	35	30	GN 911-M8-40	388
GN 167-B30-2-*	B 30	-	7	M 8	58	69	46	146	7	75	60	72	35	30	GN 911-M8-40	384
GN 167-B40-2-*	B 40	-	11	M 10	91	98	70	218	14	75	60	72	35	30	GN 911-M8-40	222
GN 167-B42-2-*	B 42	-	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1194
GN 167-B45-2-*	B 45	-	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1182
GN 167-B48-2-*	B 48	-	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1172
GN 167-B50-2-*	B 50	-	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1154
GN 167-V20-2-*	-	V 20	7	M 8	58	69	46	146	7	75	60	72	35	30	GN 911-M8-40	398
GN 167-V25-2-*	-	V 25	7	M 8	58	69	46	146	7	75	60	72	35	30	GN 911-M8-40	374
GN 167-V30-2-*	-	V 30	7	M 8	58	69	46	146	7	75	60	72	35	30	GN 911-M8-40	368
GN 167-V40-2-*	-	V 40	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1176
GN 167-V45-2-*	-	V 45	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1148
GN 167-V50-2-*	-	V 50	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1094

Weight BL

T-Angle connector clamps

Aluminium / Stainless Steel

SPECIFICATION

Identification No.

No. 2: with two Stainless Steel-Clamping screws DIN 912

Version in Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Version in Stainless Steel NI

AISI CF-8

matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bores of the T-Angle connector clamps GN 191 are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

ON REQUEST

- d1 / d2 with different bores

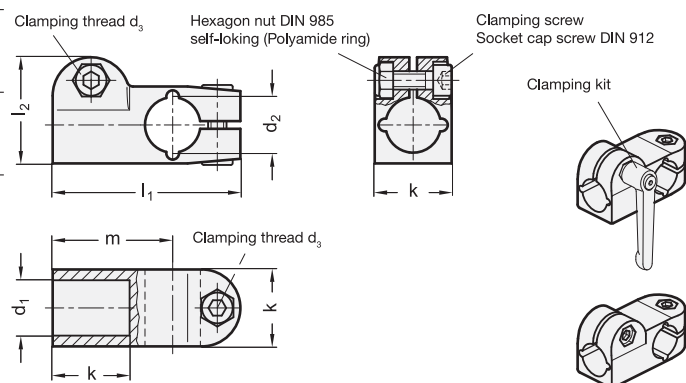
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

* Complete with colour index of the T-angle connector clamps (SW or BL)

SW
RAL9005

BL
blank



GN 191

Description	d1	d2	d3	k	l1	l2	m	Clamping kits for d3	⚖
GN 191-B10-B10-2-*	B 10	B 10	M 6	25	61	34.5	39	GN 911-M6-22	97
GN 191-B12-B12-2-*	B 12	B 12	M 6	25	61	34.5	39	GN 911-M6-22	93
GN 191-B14-B14-2-*	B 14	B 14	M 6	25	61	34.5	39	GN 911-M6-22	86
GN 191-B15-B15-2-*	B 15	B 15	M 6	25	61	34.5	39	GN 911-M6-22	86
GN 191-B16-B16-2-*	B 16	B 16	M 6	25	61	34.5	39	GN 911-M6-22	84
GN 191-B18-B18-2-*	B 18	B 18	M 6	25	61	34.5	39	GN 911-M6-22	84

Weight BL

GN 191-NI

STAINLESS STEEL

Description	d1	d2	d3	k	l1	l2	m	Clamping kits for d3	⚖
GN 191-B12-B12-2-NI	B 12	B 12	M 6	25	61	34.5	39	GN 911.3-M6-22	240
GN 191-B14-B14-2-NI	B 14	B 14	M 6	25	61	34.5	39	GN 911.3-M6-22	220
GN 191-B15-B15-2-NI	B 15	B 15	M 6	25	61	34.5	39	GN 911.3-M6-22	210
GN 191-B16-B16-2-NI	B 16	B 16	M 6	25	61	34.5	39	GN 911.3-M6-22	200
GN 191-B18-B18-2-NI	B 18	B 18	M 6	25	61	34.5	39	GN 911.3-M6-22	175
GN 191-B20-B20-2-NI	B 20	B 20	M 6	25	61	34.5	39	GN 911.3-M6-22	171

T-Angle connector clamps

Aluminium / multi part assembly

SPECIFICATION

Identification No.

No. **2**: with 6 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bores not machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

The clamping bores of the T-Angle connector clamps GN 195 are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The square designs are also suitable for use in **profile systems**.

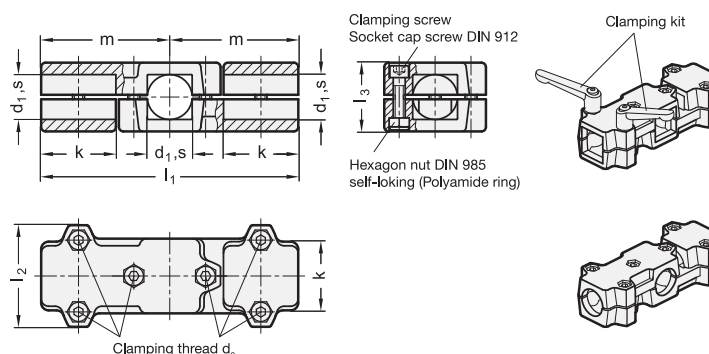
The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with colour index of the T-angle connector clamps (SW or BL)

SW
RAL9005

BL
blank

GN 195

Description	d1	s	k	d2	l1	l2	l3	m	Clamping kits for d2	⚖
GN 195-B20-50-2-*	B 20	-	50	M 8	172	68	46	86	GN 911-M8-40	600
GN 195-B25-50-2-*	B 25	-	50	M 8	172	68	46	86	GN 911-M8-40	585
GN 195-B30-50-2-*	B 30	-	50	M 8	172	68	46	86	GN 911-M8-40	565
GN 195-B30-60-2-*	B 30	-	60	M 8	203	79	59	101.5	GN 911-M8-55	1160
GN 195-B32-60-2-*	B 32	-	60	M 8	203	79	59	101.5	GN 911-M8-55	1159
GN 195-B35-60-2-*	B 35	-	60	M 8	203	79	59	101.5	GN 911-M8-55	1109
GN 195-B40-60-2-*	B 40	-	60	M 8	203	79	59	101.5	GN 911-M8-55	1076
GN 195-B40-76-2-*	B 40	-	76	M 10	254	98	70	127	GN 911-M10-63	1590
GN 195-B42-76-2-*	B 42	-	76	M 10	254	98	70	127	GN 911-M10-63	1586
GN 195-B45-76-2-*	B 45	-	76	M 10	254	98	70	127	GN 911-M10-63	1550
GN 195-B48-76-2-*	B 48	-	76	M 10	254	98	70	127	GN 911-M10-63	1510
GN 195-B50-76-2-*	B 50	-	76	M 10	254	98	70	127	GN 911-M10-63	1470
GN 195-V20-50-2-*	-	V 20	50	M 8	172	68	46	86	GN 911-M8-40	600
GN 195-V25-50-2-*	-	V 25	50	M 8	172	68	46	86	GN 911-M8-40	565
GN 195-V30-50-2-*	-	V 30	50	M 8	172	68	46	86	GN 911-M8-40	530
GN 195-V30-60-2-*	-	V 30	60	M 8	203	79	59	101.5	GN 911-M8-55	787
GN 195-V35-60-2-*	-	V 35	60	M 8	203	79	59	101.5	GN 911-M8-55	761
GN 195-V40-60-2-*	-	V 40	60	M 8	203	79	59	101.5	GN 911-M8-55	723
GN 195-V40-76-2-*	-	V 40	76	M 10	254	98	70	127	GN 911-M10-63	1550
GN 195-V45-76-2-*	-	V 45	76	M 10	254	98	70	127	GN 911-M10-63	1480
GN 195-V50-76-2-*	-	V 50	76	M 10	254	98	70	127	GN 911-M10-63	1390

T-Angle connector clamps

Aluminium

SPECIFICATION

Identification No.

No. **2**: with two Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

The clamping bores of GN 192 T-Angle connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

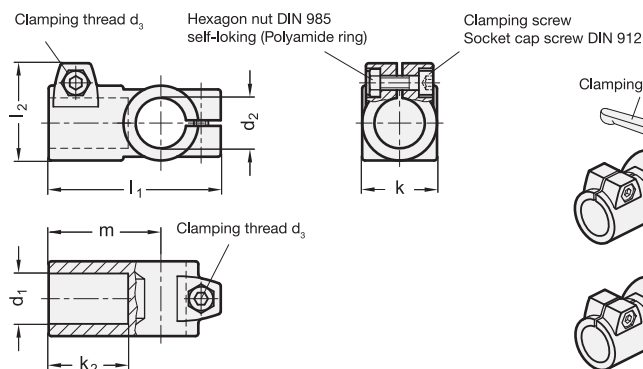
- Clamping kits GN 911 (see page 1874)

ON REQUEST

- d_1 / d_2 with different bores

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the T-angle connector clamps (SW or BL)

SW **BL**
RAL9005 blank

GN 192

Description	d1	d2	k1	d3	k2	l1	l2	m	Clamping kits for d3	Weight
GN 192-B20-B20-40-2-*	B 20	B 20	40	M 8	42.5	92	52	60	GN 911-M8-32	250
GN 192-B25-B25-40-2-*	B 25	B 25	40	M 8	42.5	92	52	60	GN 911-M8-32	231
GN 192-B30-B30-40-2-*	B 30	B 30	40	M 8	42.5	92	52	60	GN 911-M8-32	186
GN 192-B30-B30-56-2-*	B 30	B 30	56	M 10	62	129	69	88	GN 911-M8-32	661
GN 192-B32-B32-56-2-*	B 32	B 32	56	M 10	62	129	69	88	GN 911-M10-40	619
GN 192-B35-B35-56-2-*	B 35	B 35	56	M 10	62	129	69	88	GN 911-M10-40	570
GN 192-B40-B40-56-2-*	B 40	B 40	56	M 10	62	129	69	88	GN 911-M10-40	481
GN 192-B40-B40-65-2-*	B 40	B 40	65	M 10	75	148	77.5	103	GN 911-M10-40	922
GN 192-B42-B42-65-2-*	B 42	B 42	65	M 10	75	148	77.5	103	GN 911-M10-55	889
GN 192-B45-B45-65-2-*	B 45	B 45	65	M 10	75	148	77.5	103	GN 911-M10-55	732
GN 192-B48-B48-65-2-*	B 48	B 48	65	M 10	75	148	77.5	103	GN 911-M10-55	676
GN 192-B50-B50-65-2-*	B 50	B 50	65	M 10	75	148	77.5	103	GN 911-M10-55	660
GN 192-B50-B50-80-2-*	B 50	B 50	80	M 10	80	177	92	125	GN 911-M10-55	1460
GN 192-B55-B55-80-2-*	B 55	B 55	80	M 10	80	177	92	125	GN 911-M10-55	1260
GN 192-B60-B60-80-2-*	B 60	B 60	80	M 10	80	177	92	125	GN 911-M10-55	1000

Weight BL

Stainless Steel-T-Angle connector clamps

SPECIFICATION

Types

- Type **A**: without sealing
- Type **B**: with sealing

Stainless Steel

- AISI CF-8
- matt shot-blasted

Clamping bores mechanically machined

Carriage bolt DIN 603

Stainless Steel A2

Cap nuts DIN 917

Stainless Steel A2

Sealings

Washers

Plastic (Polyacetal POM)

Edge ring

Silicon, 40 ... 60 Shore A



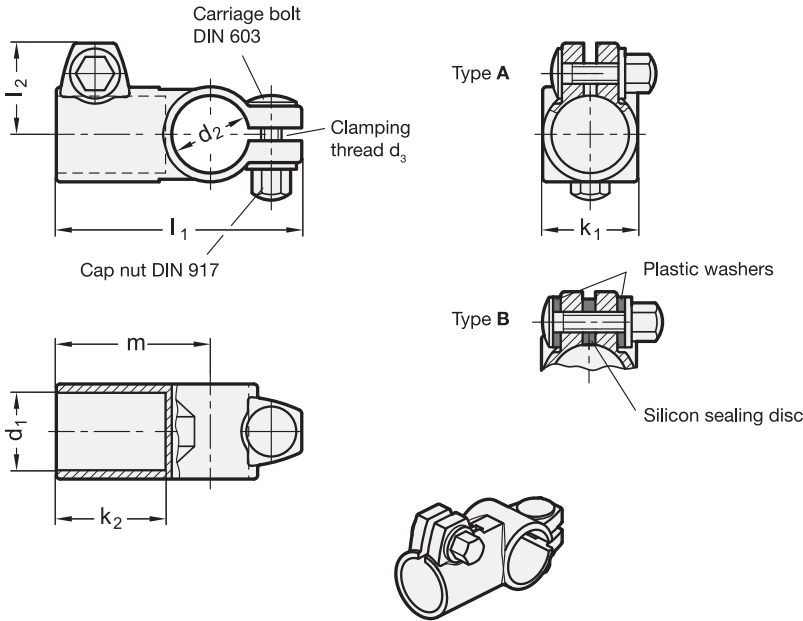
INFORMATION

The clamping bores of the Stainless Steel-T-Angle connector clamps GN 192.5 are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The shape of the clamping screws / nuts prevents the formation of wetness due to dammed-up water. The designs with sealing (Type B) also seals bore holes and threads.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 192.5

STAINLESS STEEL

Description	d1	d2	k1	d3	k2	l1	l2	m	⚖
GN 192.5-B30-B30-37-A	B 30	B 30	37	M 8	42	96	35	60	320
GN 192.5-B30-B30-37-B	B 30	B 30	37	M 8	42	96	35	60	320
GN 192.5-B50-B50-65-A	B 50	B 50	65	M 10	75	151.5	48.5	103	350
GN 192.5-B50-B50-65-B	B 50	B 50	65	M 10	75	151.5	48.5	103	350

T-Angle connector clamps

Aluminium / split assembly

SPECIFICATION

Identification No.

No. **2**: with 4 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bores of the T-Angle connector clamps GN 193 are not machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The versions with square bores are also suitable for **profile systems**. Bores and square bores of the same nominal size can be assembled in any combination. For instance, nominal size 20 has the following combination options: B20-B20, B20-V20, V20-B20 and V20-V20.

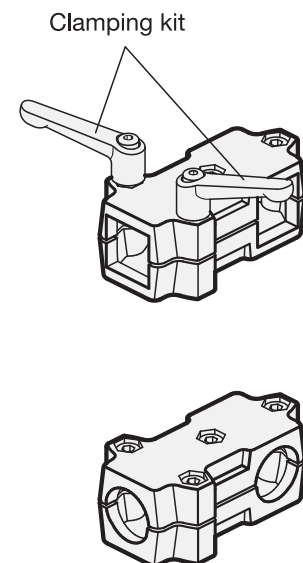
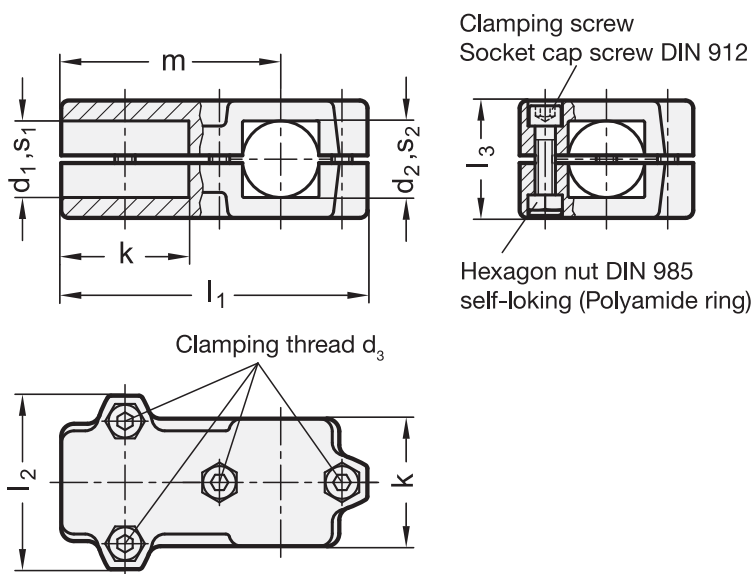
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kit GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with colour index of the T-angle connector clamps (SW or BL)

SW
RAL9005

BL
blank

GN 193

Description	d1	s1	d2	s2	k	d3	l1	l2	l3	m	Clamping kits for d3	⚖
GN 193-B20-B20-50-2-*	B 20	-	B 20	-	50	M 8	120	68	46	85	GN 911-M8-40	446
GN 193-B25-B25-50-2-*	B 25	-	B 25	-	50	M 8	120	68	46	85	GN 911-M8-40	436
GN 193-B30-B30-50-2-*	B 30	-	B 30	-	50	M 8	120	68	46	85	GN 911-M8-40	422
GN 193-B30-B30-60-2-*	B 30	-	B 30	-	60	M 8	141	79	59	101.5	GN 911-M8-55	800
GN 193-B32-B32-60-2-*	B 32	-	B 32	-	60	M 8	141	79	59	101.5	GN 911-M8-55	773
GN 193-B35-B35-60-2-*	B 35	-	B 35	-	60	M 8	141	79	59	101.5	GN 911-M8-55	750
GN 193-B40-B40-60-2-*	B 40	-	B 40	-	60	M 8	141	79	59	101.5	GN 911-M8-55	720
GN 193-B40-B40-76-2-*	B 40	-	B 40	-	76	M 10	176	98	70	126	GN 911-M10-63	1198
GN 193-B42-B42-76-2-*	B 42	-	B 42	-	76	M 10	176	98	70	126	GN 911-M10-63	1188
GN 193-B45-B45-76-2-*	B 45	-	B 45	-	76	M 10	176	98	70	126	GN 911-M10-63	1164
GN 193-B48-B48-76-2-*	B 48	-	B 48	-	76	M 10	176	98	70	126	GN 911-M10-63	1134
GN 193-B50-B50-76-2-*	B 50	-	B 50	-	76	M 10	176	98	70	126	GN 911-M10-63	1104
GN 193-B20-V20-50-2-*	B 20	-	-	V 20	50	M 8	120	68	46	85	GN 911-M8-40	476
GN 193-B25-V25-50-2-*	B 25	-	-	V 25	50	M 8	120	68	46	85	GN 911-M8-40	452
GN 193-B30-V30-50-2-*	B 30	-	-	V 30	50	M 8	120	68	46	85	GN 911-M8-40	428
GN 193-B30-V30-60-2-*	B 30	-	-	V 30	60	M 8	141	79	59	101.5	GN 911-M8-55	443
GN 193-B35-V35-60-2-*	B 35	-	-	V 35	60	M 8	141	79	59	101.5	GN 911-M8-55	443
GN 193-B40-V40-60-2-*	B 40	-	-	V 40	60	M 8	141	79	59	101.5	GN 911-M8-55	443
GN 193-B40-V40-76-2-*	B 40	-	-	V 40	76	M 10	176	98	70	126	GN 911-M10-63	1133
GN 193-B45-V45-76-2-*	B 45	-	-	V 45	76	M 10	176	98	70	126	GN 911-M10-63	1118
GN 193-B50-V50-76-2-*	B 50	-	-	V 50	76	M 10	176	98	70	126	GN 911-M10-63	1086
GN 193-V20-V20-50-2-*	-	V 20	-	V 20	50	M 8	120	68	46	85	GN 911-M8-40	430
GN 193-V25-V25-50-2-*	-	V 25	-	V 25	50	M 8	120	68	46	85	GN 911-M8-40	420
GN 193-V30-V30-50-2-*	-	V 30	-	V 30	50	M 8	120	68	46	85	GN 911-M8-40	410
GN 193-V30-V30-60-2-*	-	V 30	-	V 30	60	M 8	141	79	59	101.5	GN 911-M8-55	750
GN 193-V35-V35-60-2-*	-	V 35	-	V 35	60	M 8	141	79	59	101.5	GN 911-M8-55	660
GN 193-V40-V40-60-2-*	-	V 40	-	V 40	60	M 8	141	79	59	101.5	GN 911-M8-55	660
GN 193-V40-V40-76-2-*	-	V 40	-	V 40	76	M 10	176	98	70	126	GN 911-M10-63	1158
GN 193-V45-V45-76-2-*	-	V 45	-	V 45	76	M 10	176	98	70	126	GN 911-M10-63	1104
GN 193-V50-V50-76-2-*	-	V 50	-	V 50	76	M 10	176	98	70	126	GN 911-M10-63	1054
GN 193-V20-B20-50-2-*	-	V 20	B 20	-	50	M 8	120	68	46	85	GN 911-M8-40	450
GN 193-V25-B25-50-2-*	-	V 25	B 25	-	50	M 8	120	68	46	85	GN 911-M8-40	430
GN 193-V30-B30-50-2-*	-	V 30	B 30	-	50	M 8	120	68	46	85	GN 911-M8-40	410
GN 193-V30-B30-60-2-*	-	V 30	B 30	-	60	M 8	141	79	59	101.5	GN 911-M8-55	480
GN 193-V35-B35-60-2-*	-	V 35	B 35	-	60	M 8	141	79	59	101.5	GN 911-M8-55	395
GN 193-V40-B40-60-2-*	-	V 40	B 40	-	60	M 8	141	79	59	101.5	GN 911-M8-55	395
GN 193-V40-B40-76-2-*	-	V 40	B 40	-	76	M 10	176	98	70	126	GN 911-M10-63	1150
GN 193-V45-B45-76-2-*	-	V 45	B 45	-	76	M 10	176	98	70	126	GN 911-M10-63	1110
GN 193-V50-B50-76-2-*	-	V 50	B 50	-	76	M 10	176	98	70	126	GN 911-M10-63	1070

Weight BL



T-Angle connector clamps

Aluminium / multi part assembly

SPECIFICATION

Identification No.

No. **2**: with 4 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bores not machined

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bores of the T-Angle connector clamps GN 194 are not machined and designed for construction tubings GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The versions with square bores are also suitable for **profile systems**. Bores and square bores of the same nominal size can be assembled in any combination. For instance, nominal size 20 has the following combination options: B20-B20, B20-V20, V20-B20 and V20-V20.

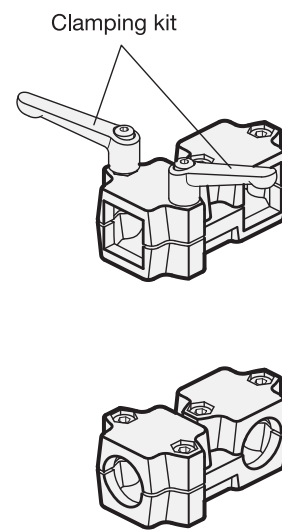
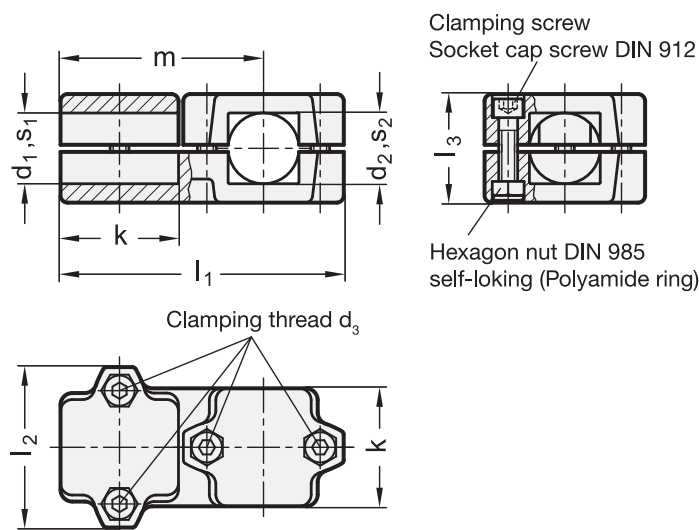
The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the T-angle connector clamps (SW or BL)

SW
RAL9005

BL
blank

GN 194

Description	d1	s1	d2	s2	k	d3	l1	l2	l3	m	Clamping kits for d3	
GN 194-B20-B20-50-2-*	B 20	-	B 20	-	50	M 8	120	68	46	85	GN 911-M8-40	423
GN 194-B25-B25-50-2-*	B 25	-	B 25	-	50	M 8	120	68	46	85	GN 911-M8-40	412
GN 194-B30-B30-50-2-*	B 30	-	B 30	-	50	M 8	120	68	46	85	GN 911-M8-40	399
GN 194-B30-B30-60-2-*	B 30	-	B 30	-	60	M 8	141	79	59	101.5	GN 911-M8-55	448
GN 194-B32-B32-60-2-*	B 32	-	B 32	-	60	M 8	141	79	59	101.5	GN 911-M8-55	773
GN 194-B35-B35-60-2-*	B 35	-	B 35	-	60	M 8	141	79	59	101.5	GN 911-M8-55	742
GN 194-B40-B40-60-2-*	B 40	-	B 40	-	60	M 8	141	79	59	101.5	GN 911-M8-55	700
GN 194-B40-B40-76-2-*	B 40	-	B 40	-	76	M 10	176	98	70	126	GN 911-M10-63	752
GN 194-B42-B42-76-2-*	B 42	-	B 42	-	76	M 10	176	98	70	126	GN 911-M10-63	752
GN 194-B45-B45-76-2-*	B 45	-	B 45	-	76	M 10	176	98	70	126	GN 911-M10-63	1080
GN 194-B48-B48-76-2-*	B 48	-	B 48	-	76	M 10	176	98	70	126	GN 911-M10-63	1055
GN 194-B50-B50-76-2-*	B 50	-	B 50	-	76	M 10	176	98	70	126	GN 911-M10-63	1028
GN 194-B50-B50-76-2-*	B 50	-	B 50	-	76	M 10	176	98	70	126	GN 911-M10-63	1028
GN 194-B20-V20-50-2-*	B 20	-	-	V 20	50	M 8	120	68	46	85	GN 911-M8-40	395
GN 194-B25-V25-50-2-*	B 25	-	-	V 25	50	M 8	120	68	46	85	GN 911-M8-40	395
GN 194-B30-V30-50-2-*	B 30	-	-	V 30	50	M 8	120	68	46	85	GN 911-M8-55	342
GN 194-B30-V30-60-2-*	B 30	-	-	V 30	60	M 8	141	79	59	101.5	GN 911-M8-55	760
GN 194-B35-V35-60-2-*	B 35	-	-	V 35	60	M 8	141	79	59	101.5	GN 911-M8-55	583
GN 194-B40-V40-60-2-*	B 40	-	-	V 40	60	M 8	141	79	59	101.5	GN 911-M10-63	680
GN 194-B40-V40-76-2-*	B 40	-	-	V 40	76	M 10	176	98	70	126	GN 911-M10-63	1110
GN 194-B45-V45-76-2-*	B 45	-	-	V 45	76	M 10	176	98	70	126	GN 911-M10-63	1065
GN 194-B50-V50-76-2-*	B 50	-	-	V 50	76	M 10	176	98	70	126	GN 911-M10-63	1015
GN 194-V20-V20-50-2-*	-	V 20	-	V 20	50	M 8	120	68	46	85	GN 911-M8-40	419
GN 194-V25-V25-50-2-*	-	V 25	-	V 25	50	M 8	120	68	46	85	GN 911-M8-40	398
GN 194-V30-V30-50-2-*	-	V 30	-	V 30	50	M 8	120	68	46	85	GN 911-M8-55	376
GN 194-V30-V30-60-2-*	-	V 30	-	V 30	60	M 8	141	79	59	101.5	GN 911-M8-55	581
GN 194-V35-V35-60-2-*	-	V 35	-	V 35	60	M 8	141	79	59	101.5	GN 911-M8-55	555
GN 194-V40-V40-60-2-*	-	V 40	-	V 40	60	M 8	141	79	59	101.5	GN 911-M10-63	650
GN 194-V40-V40-76-2-*	-	V 40	-	V 40	76	M 10	176	98	70	126	GN 911-M10-63	650
GN 194-V45-V45-76-2-*	-	V 45	-	V 45	76	M 10	176	98	70	126	GN 911-M10-63	1036
GN 194-V50-V50-76-2-*	-	V 50	-	V 50	76	M 10	176	98	70	126	GN 911-M10-63	975
GN 194-V20-B20-50-2-*	-	V 20	B 20	-	50	M 8	120	68	46	85	GN 911-M10-63	436
GN 194-V25-B25-50-2-*	-	V 25	B 25	-	50	M 8	120	68	46	85	GN 911-M8-40	417
GN 194-V30-B30-50-2-*	-	V 30	B 30	-	50	M 8	120	68	46	85	GN 911-M8-55	397
GN 194-V30-B30-60-2-*	-	V 30	B 30	-	60	M 8	141	79	59	101.5	GN 911-M8-55	580
GN 194-V35-B35-60-2-*	-	V 35	B 35	-	60	M 8	141	79	59	101.5	GN 911-M8-55	559
GN 194-V40-B40-60-2-*	-	V 40	B 40	-	60	M 8	141	79	59	101.5	GN 911-M10-63	540
GN 194-V40-B40-76-2-*	-	V 40	B 40	-	76	M 10	176	98	70	126	GN 911-M10-63	1100
GN 194-V45-B45-76-2-*	-	V 45	B 45	-	76	M 10	176	98	70	126	GN 911-M10-63	1060
GN 194-V50-B50-76-2-*	-	V 50	B 50	-	76	M 10	176	98	70	126	GN 911-M10-63	1005

Weight BL



Angle connector clamps

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

Grub screws DIN 913

Stainless Steel AISI 304



INFORMATION

The clamping bores of the Angle connector clamps GN 196 are specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

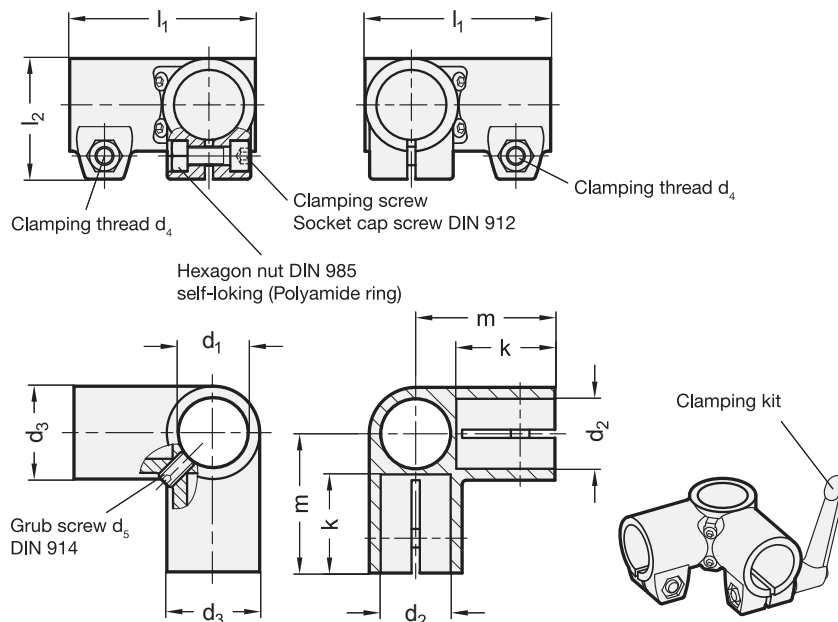
- Clamping kits GN 911 (see page 1874)

ON REQUEST

- d₁ / d₂ with different bores

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 196

Description	d1	d2	k Clamping length	d3	d4	d5	m	l1	l2	Clamping kits for d4	
GN 196-B20-B20-2-BL	B 20	B 20	40	40	M 8	M 8	60	80	52	GN 911-M8-32	345
GN 196-B20-B20-2-SW	B 20	B 20	40	40	M 8	M 8	60	80	52	GN 911-M8-32	345
GN 196-B25-B25-2-BL	B 25	B 25	40	40	M 8	M 8	60	80	52	GN 911-M8-32	287
GN 196-B25-B25-2-SW	B 25	B 25	40	40	M 8	M 8	60	80	52	GN 911-M8-32	287
GN 196-B30-B30-2-BL	B 30	B 30	40	40	M 8	M 8	60	80	52	GN 911-M8-32	216
GN 196-B30-B30-2-SW	B 30	B 30	40	40	M 8	M 8	60	80	52	GN 911-M8-32	216

Tube connector joints

Aluminium / split assembly

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bores of GN 241 tube connector joints are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. GN 231 tube supports are also suitable for mounting on **profile systems**.

The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

* Complete with colour index of the Tube connector joints (SW or BL)

SW
RAL9005

BL
blank

GN 241

Description	d1	s	k	d2	l1	l2	l3	Clamping kits for d2	⚖
GN 241-B20-50-2-*	B 20	-	50	M 8	68	46	48	GN 911-M8-40	195
GN 241-B25-50-2-*	B 25	-	50	M 8	68	46	48	GN 911-M8-40	190
GN 241-B30-50-2-*	B 30	-	50	M 8	68	46	48	GN 911-M8-40	190
GN 241-B30-60-2-*	B 30	-	60	M 8	79	59	58	GN 911-M8-55	390
GN 241-B32-60-2-*	B 32	-	60	M 8	79	59	58	GN 911-M8-55	380
GN 241-B35-60-2-*	B 35	-	60	M 8	79	59	58	GN 911-M8-55	360
GN 241-B40-60-2-*	B 40	-	60	M 8	79	59	58	GN 911-M8-55	350
GN 241-B40-76-2-*	B 40	-	76	M 10	98	70	73	GN 911-M10-63	505
GN 241-B42-76-2-*	B 42	-	76	M 10	98	70	73	GN 911-M10-63	505
GN 241-B45-76-2-*	B 45	-	76	M 10	98	70	73	GN 911-M10-63	505
GN 241-B48-76-2-*	B 48	-	76	M 10	98	70	73	GN 911-M10-63	505
GN 241-B50-76-2-*	B 50	-	76	M 10	98	70	73	GN 911-M10-63	505
GN 241-V20-50-2-*	-	V 20	50	M 8	68	46	48	GN 911-M8-40	180
GN 241-V25-50-2-*	-	V 25	50	M 8	68	46	48	GN 911-M8-40	180
GN 241-V30-50-2-*	-	V 30	50	M 8	68	46	48	GN 911-M8-40	180
GN 241-V30-60-2-*	-	V 30	60	M 8	79	59	58	GN 911-M8-55	360
GN 241-V35-60-2-*	-	V 35	60	M 8	79	59	58	GN 911-M8-55	350
GN 241-V40-60-2-*	-	V 40	60	M 8	79	59	58	GN 911-M8-55	300
GN 241-V40-76-2-*	-	V 40	76	M 10	98	70	73	GN 911-M10-63	450
GN 241-V45-76-2-*	-	V 45	76	M 10	98	70	73	GN 911-M10-63	450
GN 241-V50-76-2-*	-	V 50	76	M 10	98	70	73	GN 911-M10-63	450

Weight BL



Tube supports

Aluminium / split assembly

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bores of GN 231 tube supports are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

GN 231 tube supports are also suitable for mounting on **profile systems**.

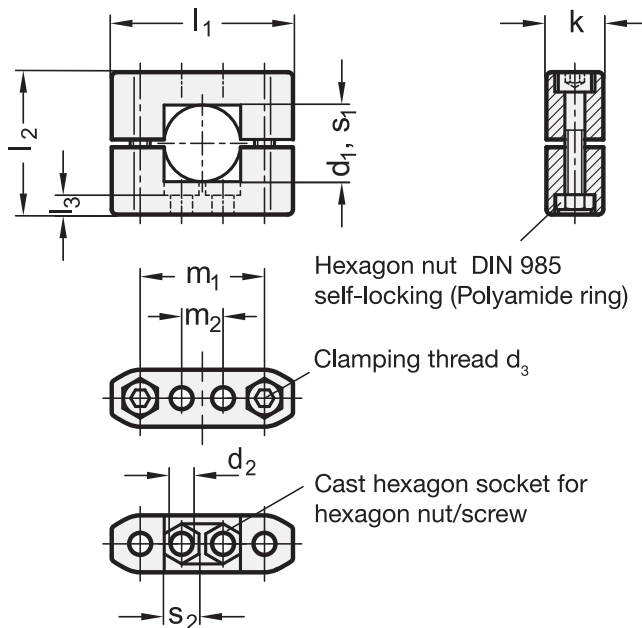
The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

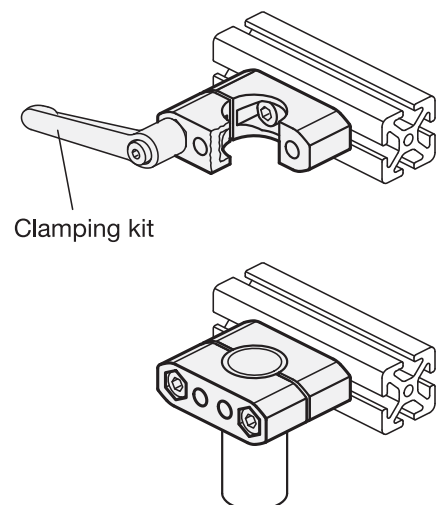
- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Application example:
Tube support mounted
on aluminum profile



* Complete with colour index of the Tube supports (SW or BL)

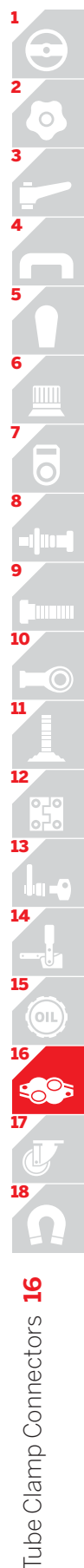
SW
RAL9005

BL
blank

GN 231

Description	d1	s1	d2	d3	k	l1	l2	l3	m1	m2	s2	Clamping kits for d3	△
GN 231-B8-2-*	B 8	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	140
GN 231-B10-2-*	B 10	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	106
GN 231-B12-2-*	B 12	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	100
GN 231-B14-2-*	B 14	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	90
GN 231-B15-2-*	B 15	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	80
GN 231-B16-2-*	B 16	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	70
GN 231-B18-2-*	B 18	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	60
GN 231-B20-2-*	B 20	-	8.5	M 8	22	70	55	4	48	16	13	GN 911-M8-50	160
GN 231-B25-2-*	B 25	-	8.5	M 8	22	70	55	4	48	16	13	GN 911-M8-50	160
GN 231-B30-2-*	B 30	-	8.5	M 8	22	70	55	4	48	16	13	GN 911-M8-50	160
GN 231-B40-2-*	B 40	-	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	420
GN 231-B42-2-*	B 42	-	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	400
GN 231-B45-2-*	B 45	-	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	385
GN 231-B48-2-*	B 48	-	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	375
GN 231-B50-2-*	B 50	-	11	M 10	27	100	80	5	73	30	17	GN 911-M10-80	359
GN 231-B55-2-*	B 55	-	11	M 10	27	100	90	5	78	30	17	GN 911-M10-80	350
GN 231-B60-2-*	B 60	-	11	M 10	27	100	90	5	78	30	17	GN 911-M10-80	270
GN 231-V8-2-*	-	V 8	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	110
GN 231-V10-2-*	-	V 10	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	106
GN 231-V12-2-*	-	V 12	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	100
GN 231-V14-2-*	-	V 14	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	90
GN 231-V15-2-*	-	V 15	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	80
GN 231-V16-2-*	-	V 16	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	70
GN 231-V18-2-*	-	V 18	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	60
GN 231-V20-2-*	-	V 20	8.5	M 8	22	70	55	4	48	16	13	GN 911-M8-50	170
GN 231-V25-2-*	-	V 25	8.5	M 8	22	70	55	4	48	16	13	GN 911-M8-50	170
GN 231-V30-2-*	-	V 30	8.5	M 8	22	70	55	4	48	16	13	GN 911-M8-50	155
GN 231-V40-2-*	-	V 40	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	380
GN 231-V45-2-*	-	V 45	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	360
GN 231-V50-2-*	-	V 50	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	340
GN 231-V55-2-*	-	V 55	11	M 10	27	100	90	5	78	30	17	GN 911-M10-80	320
GN 231-V60-2-*	-	V 60	11	M 10	27	100	90	5	78	30	17	GN 911-M10-80	300

Weight BL



Tube connector joints

Aluminum

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

blank

matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

The clamping bores of GN 242 tube connector joints are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

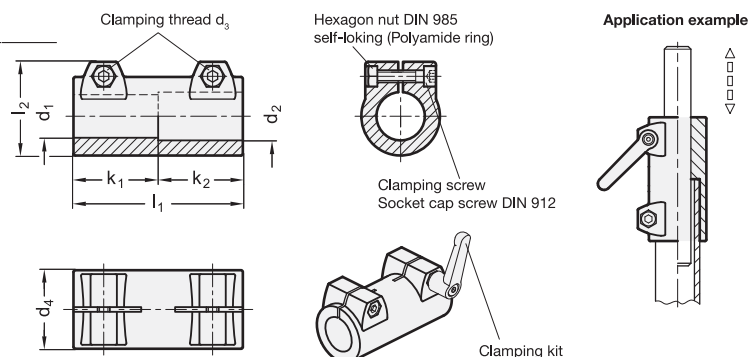
- Clamping kits GN 911 (see page 1874)

ON REQUEST

- d₁ / d₂ with different bores

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Tube connector joints (SW or BL)

SW
RAL9005

BL
blank

GN 242

Description	d1	d2	d3	d4	k1	k2	l1	l2	Clamping kits for d3	Weight
GN 242-B20-B20-2-*	B 20	B 20	M 8	40	45	45	90	52	GN 911-M8-32	290
GN 242-B20-B25-2-*	B 20	B 25	M 8	40	45	45	90	52	GN 911-M8-32	290
GN 242-B20-B30-2-*	B 20	B 30	M 8	40	45	45	90	52	GN 911-M8-32	260
GN 242-B25-B25-2-*	B 25	B 25	M 8	40	45	45	90	52	GN 911-M8-32	242
GN 242-B25-B30-2-*	B 25	B 30	M 8	40	45	45	90	52	GN 911-M8-32	214
GN 242-B30-B30-2-*	B 30	B 30	M 8	40	45	45	90	52	GN 911-M8-32	202
GN 242-B40-B40-2-*	B 40	B 40	M 10	65	70	70	140	77.5	GN 911-M10-55	960
GN 242-B40-B45-2-*	B 40	B 45	M 10	65	70	70	140	77.5	GN 911-M10-55	869
GN 242-B40-B48-2-*	B 40	B 48	M 10	65	70	70	140	77.5	GN 911-M10-55	865
GN 242-B40-B50-2-*	B 40	B 50	M 10	65	70	70	140	77.5	GN 911-M10-55	834
GN 242-B42-B42-2-*	B 42	B 42	M 10	65	70	70	140	77.5	GN 911-M10-55	802
GN 242-B42-B48-2-*	B 42	B 48	M 10	65	70	70	140	77.5	GN 911-M10-55	800
GN 242-B42-B50-2-*	B 42	B 50	M 10	65	70	70	140	77.5	GN 911-M10-55	772
GN 242-B45-B45-2-*	B 45	B 45	M 10	65	70	70	140	77.5	GN 911-M10-55	760
GN 242-B45-B50-2-*	B 45	B 50	M 10	65	70	70	140	77.5	GN 911-M10-55	737
GN 242-B48-B48-2-*	B 48	B 48	M 10	65	70	70	140	77.5	GN 911-M10-55	700
GN 242-B50-B50-2-*	B 50	B 50	M 10	65	70	70	140	77.5	GN 911-M10-55	680

Weight BL

Swivel clamp connector bases

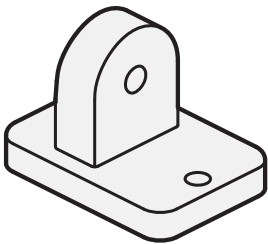
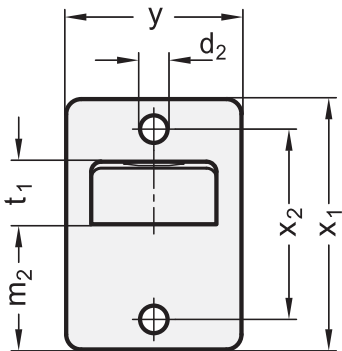
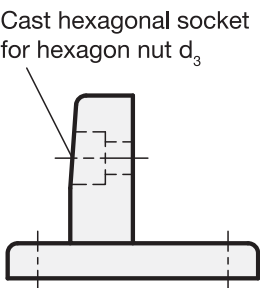
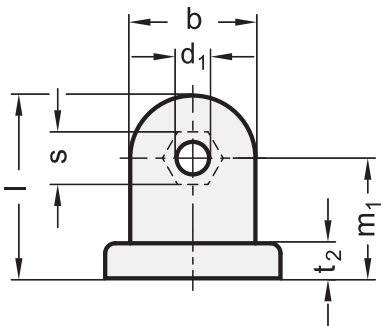
Aluminum

SPECIFICATION

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**
blank **BL**
matt shot-blasted

INFORMATION

Swivel clamp connector bases GN 271 can be assembled with the swivel clamp connectors GN 273 (see page 1849), GN 275 (see page 1854) or GN 277 (see page 1855) to create swivel clamp connector joints.
GN 271 swivel clamp connector bases are also suitable for mountings on **profile systems**.



GN 271

Description	b	d1	d2	d3	l	m1	m2	t1	t2	s	x1	x2	y	
GN 271-25-BL	25	6.5	5.5	M 6	36.5	24	25	12.5	7	10	50	38	35	44
GN 271-25-SW	25	6.5	5.5	M 6	36.5	24	25	12.5	7	10	50	38	35	44



Swivel clamp connector bases

Aluminum

SPECIFICATION

Types

- Type **OZ**: without centring step (smooth)
- Type **MZ**: with centring step
- Type **AV**: with male serration
- Type **IV**: with female serration

Aluminium

plastic coated

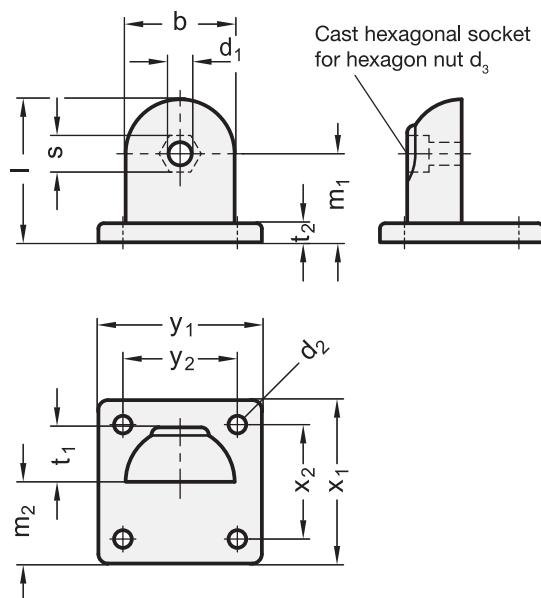
black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

INFORMATION

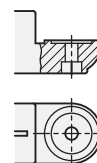
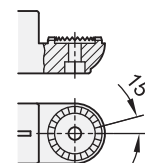
GN 272 swivel clamp connector bases can be assembled with swivel clamp connectors GN 274 (see page 1850), GN 276 (see page 1852) or GN 278 (see page 1856) to create swivel clamp connector joints.



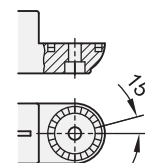
Type **OZ**
without centring step
(smooth)



Type **AV**
with male serration



Type **MZ**
with centring step



Type **IV**
with female serration

GN 272

Description	b	d1	d2	d3	l	m1	m2	t1	t2	s	x1	x2	y1	y2	△
GN 272-40-AV-BL	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	120
GN 272-40-AV-SW	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	120
GN 272-65-AV-BL	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	555
GN 272-65-AV-SW	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	555
GN 272-40-MZ-BL	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	120
GN 272-40-MZ-SW	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	120
GN 272-65-MZ-BL	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	555
GN 272-65-MZ-SW	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	555
GN 272-40-IV-BL	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	110
GN 272-40-IV-SW	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	110
GN 272-65-IV-BL	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	535
GN 272-65-IV-SW	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	535
GN 272-40-OZ-BL	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	120
GN 272-40-OZ-SW	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	120
GN 272-65-OZ-BL	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	555
GN 272-65-OZ-SW	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	555

Swivel clamp connectors

Aluminium

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bore of GN 273 swivel clamp connectors is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

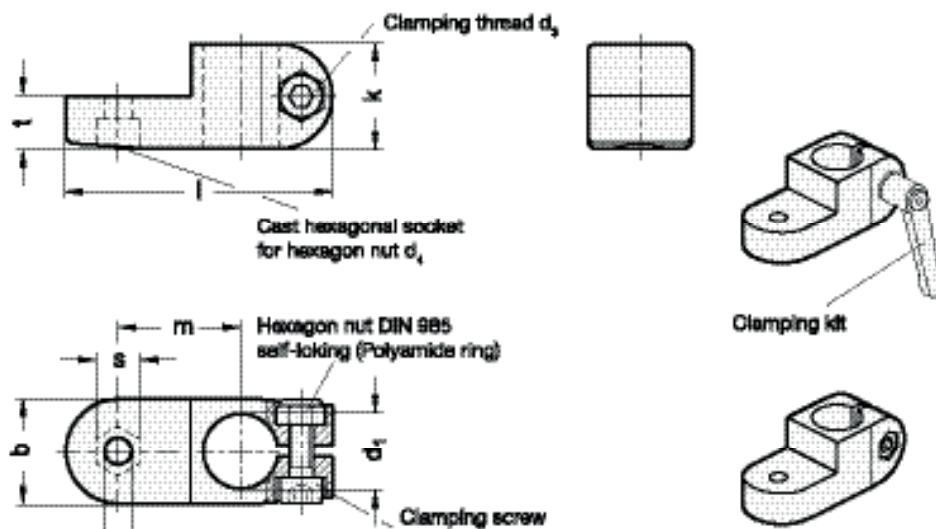
GN 273 swivel clamp connectors can be assembled with swivel clamp connectors GN 271 (see page 1847), GN 275 (see page 1854) or GN 277 (see page 1855) to create swivel clamp connector joints.

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see pag



GN 273

Description	d1	b	d2	d3	d4	k	l	m	s	t	Clamping kits for d3	⚖
GN 273-B12-2-SW	B 12	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	65
GN 273-B12-2-BL	B 12	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	65
GN 273-B14-2-SW	B 14	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	62
GN 273-B14-2-BL	B 14	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	62
GN 273-B16-2-SW	B 16	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	60
GN 273-B16-2-BL	B 16	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	60
GN 273-B18-2-SW	B 18	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	55
GN 273-B18-2-BL	B 18	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	55

Swivel clamp connectors

Aluminium

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-clamping screw DIN 912

Types

- Type **OZ**: without centring step (smooth)
- Type **MZ**: with centring step
- Type **AV**: with male serration
- Type **IV**: with female serration

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

The clamping bore of the swivel clamp connectors GN 274 is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

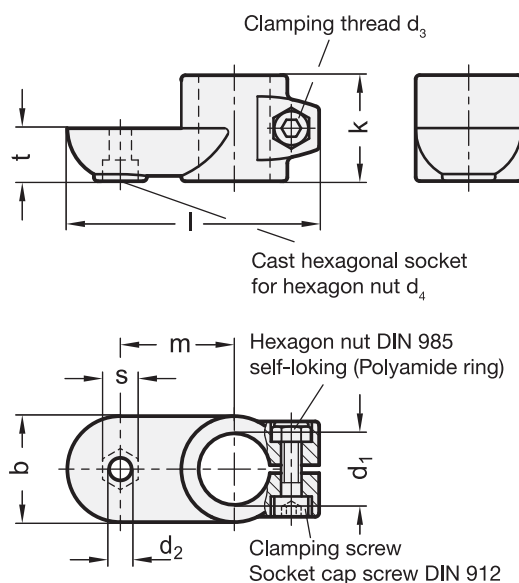
GN 274 swivel clamp connectors can be assembled with swivel clamp connectors GN 272 (see page 1848), GN 276 (see page 1852) or GN 278 (see page 1856) to create swivel clamp connector joints.

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

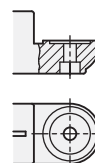
- Stainless Steel characteristics (see page A26)



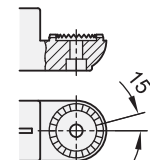
Type **OZ**
without centring step
(smooth)



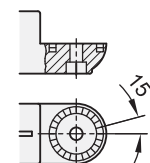
Type **MZ**
with centring step



Type **AV**
with male serration



Type **IV**
with female serration



* Complete with colour index of the Swivel clamp connectors (SW or BL)

SW
RAL9005

BL
blank

GN 274

Description	d1	b	d2	d3	d4	k	l	m	s	t	Clamping kits for d3	⚖
GN 274-B20-OZ-2-*	B 20	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	190
GN 274-B25-OZ-2-*	B 25	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	164
GN 274-B30-OZ-2-*	B 30	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	150
GN 274-B40-OZ-2-*	B 40	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	710
GN 274-B42-OZ-2-*	B 42	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	685
GN 274-B45-OZ-2-*	B 45	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	650
GN 274-B48-OZ-2-*	B 48	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	610
GN 274-B50-OZ-2-*	B 50	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	585
GN 274-B20-MZ-2-*	B 20	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	190
GN 274-B25-MZ-2-*	B 25	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	170
GN 274-B30-MZ-2-*	B 30	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	150
GN 274-B40-MZ-2-*	B 40	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	700
GN 274-B42-MZ-2-*	B 42	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	690
GN 274-B45-MZ-2-*	B 45	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	655
GN 274-B48-MZ-2-*	B 48	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	615
GN 274-B50-MZ-2-*	B 50	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	585
GN 274-B20-AV-2-*	B 20	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	185
GN 274-B25-AV-2-*	B 25	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	170
GN 274-B30-AV-2-*	B 30	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	150
GN 274-B40-AV-2-*	B 40	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	710
GN 274-B42-AV-2-*	B 42	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	690
GN 274-B45-AV-2-*	B 45	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	655
GN 274-B48-AV-2-*	B 48	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	620
GN 274-B50-AV-2-*	B 50	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	585
GN 274-B20-IV-2-*	B 20	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	180
GN 274-B25-IV-2-*	B 25	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	160
GN 274-B30-IV-2-*	B 30	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	160
GN 274-B40-IV-2-*	B 40	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	690
GN 274-B42-IV-2-*	B 42	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	665
GN 274-B45-IV-2-*	B 45	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	635
GN 274-B48-IV-2-*	B 48	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	600
GN 274-B50-IV-2-*	B 50	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	570

Weight BL



Swivel clamp connectors

Aluminium

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Types

- Type **OZ**: without centring step (smooth)
- Type **MZ**: with centring step
- Type **AV**: with male serration
- Type **IV**: with female serration

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

The clamping bore of GN 276 swivel clamp connectors is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

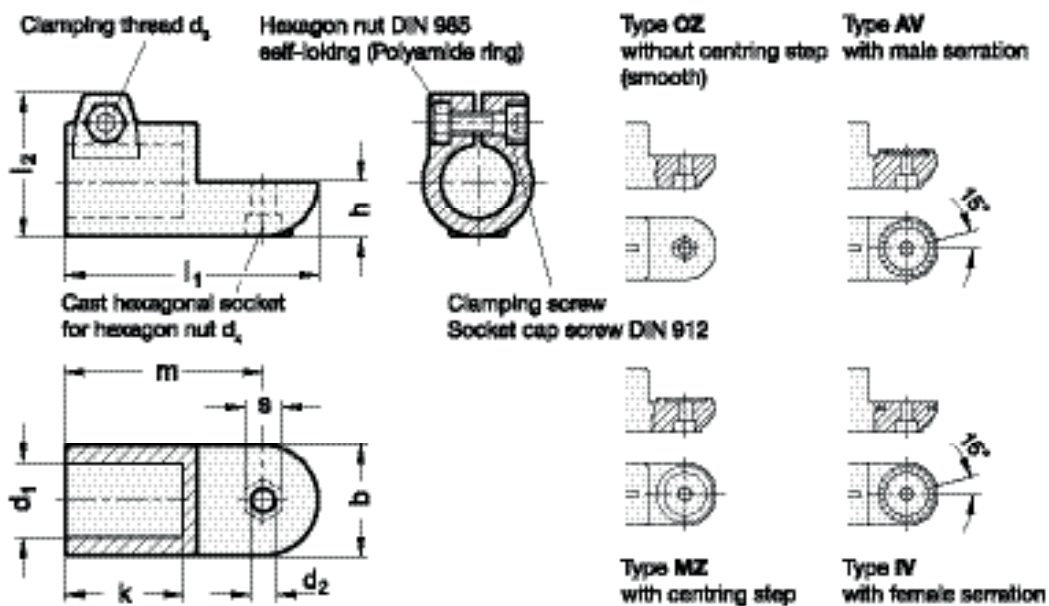
GN 276 swivel clamp connectors can be assembled with swivel clamp connectors GN 272 (see page 1848), GN 274 (see page 1850) or GN 278 (see page 1856) to create swivel clamp connector joints.

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



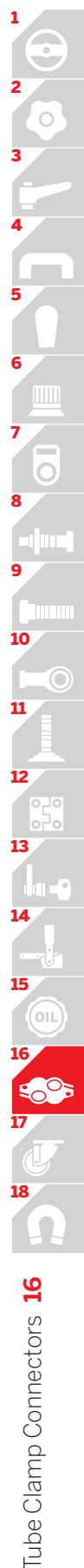
* Complete with colour index of the Swivel clamp connectors (SW or BL)

SW **BL**
RAL9005 blank

GN 276

Description	d1	b	d2	d3	d4	h	k	l1	l2	m	s	Clamping kits for d3	
GN 276-B20-OZ-2-*	B 20	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	210
GN 276-B25-OZ-2-*	B 25	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	185
GN 276-B30-OZ-2-*	B 30	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	160
GN 276-B40-OZ-2-*	B 40	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	775
GN 276-B42-OZ-2-*	B 42	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	750
GN 276-B45-OZ-2-*	B 45	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	725
GN 276-B48-OZ-2-*	B 48	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	675
GN 276-B50-OZ-2-*	B 50	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	650
GN 276-B20-MZ-2-*	B 20	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	210
GN 276-B25-MZ-2-*	B 25	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	190
GN 276-B30-MZ-2-*	B 30	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	160
GN 276-B40-MZ-2-*	B 40	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	765
GN 276-B42-MZ-2-*	B 42	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	755
GN 276-B45-MZ-2-*	B 45	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	705
GN 276-B48-MZ-2-*	B 48	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	665
GN 276-B50-MZ-2-*	B 50	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	630
GN 276-B20-AV-2-*	B 20	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	210
GN 276-B25-AV-2-*	B 25	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	190
GN 276-B30-AV-2-*	B 30	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	165
GN 276-B40-AV-2-*	B 40	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	770
GN 276-B42-AV-2-*	B 42	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	755
GN 276-B45-AV-2-*	B 45	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	715
GN 276-B48-AV-2-*	B 48	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	665
GN 276-B50-AV-2-*	B 50	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	660
GN 276-B20-IV-2-*	B 20	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	200
GN 276-B25-IV-2-*	B 25	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	180
GN 276-B30-IV-2-*	B 30	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	180
GN 276-B40-IV-2-*	B 40	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	760
GN 276-B42-IV-2-*	B 42	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	740
GN 276-B45-IV-2-*	B 45	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	700
GN 276-B48-IV-2-*	B 48	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	655
GN 276-B50-IV-2-*	B 50	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	650

Weight BL



Swivel clamp connectors

Aluminium

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bore of GN 275 swivel clamp connectors is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

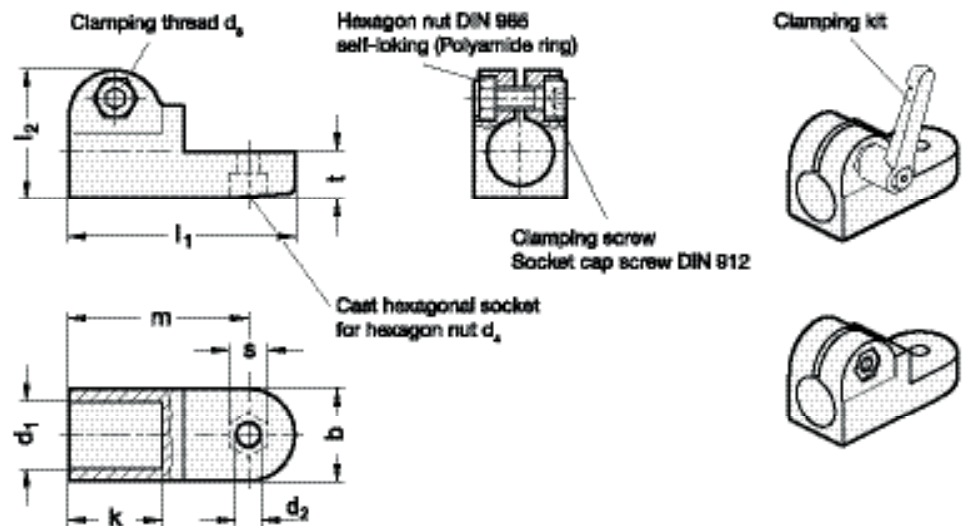
GN 275 swivel clamp connectors can be assembled with swivel clamp connectors GN 271 (see page 1847), GN 273 (see page 1849) or GN 277 (see page 1855) to create swivel clamp connector joints.

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 275

Description	d1	b	d2	d3	d4	k	l1	l2	m	s	t	Clamping kits for d3	⚖
GN 275-B12-2-BL	B 12	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	74
GN 275-B12-2-SW	B 12	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	74
GN 275-B14-2-BL	B 14	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	70
GN 275-B14-2-SW	B 14	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	70
GN 275-B16-2-BL	B 16	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	68
GN 275-B16-2-SW	B 16	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	68
GN 275-B18-2-BL	B 18	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	64
GN 275-B18-2-SW	B 18	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	65

Swivel clamp connectors

Aluminium

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

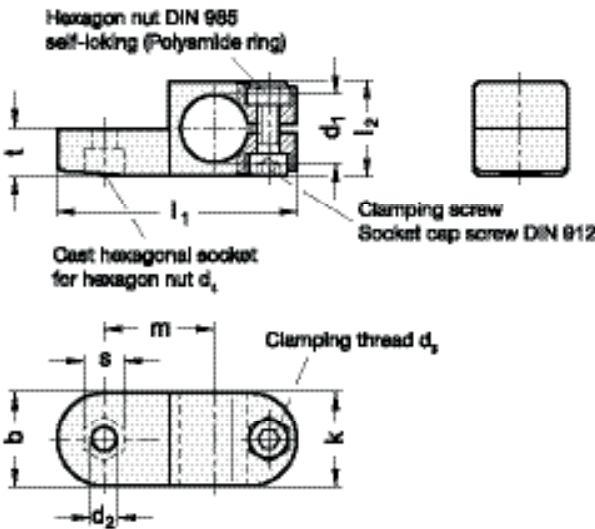
The clamping bore of GN 277 swivel clamp connectors is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions). GN 277 swivel clamp connectors can be assembled with swivel clamp connectors GN 271 (see page 1847), GN 273 (see page 1849) or GN 275 (see page 1854) to create swivel clamp connector joints.

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 277

Description	d1	b	d2	d3	d4	k	l1	l2	m	s	t	Clamping kits for d3	⚖
GN 277-B12-2-BL	B 12	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-22	63
GN 277-B12-2-SW	B 12	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-23	63
GN 277-B14-2-BL	B 14	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-24	60
GN 277-B14-2-SW	B 14	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-25	60
GN 277-B16-2-BL	B 16	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-26	59
GN 277-B16-2-SW	B 16	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-27	59
GN 277-B18-2-BL	B 18	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-28	56
GN 277-B18-2-SW	B 18	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-29	56

Aluminium

Identification No.

Types

- Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



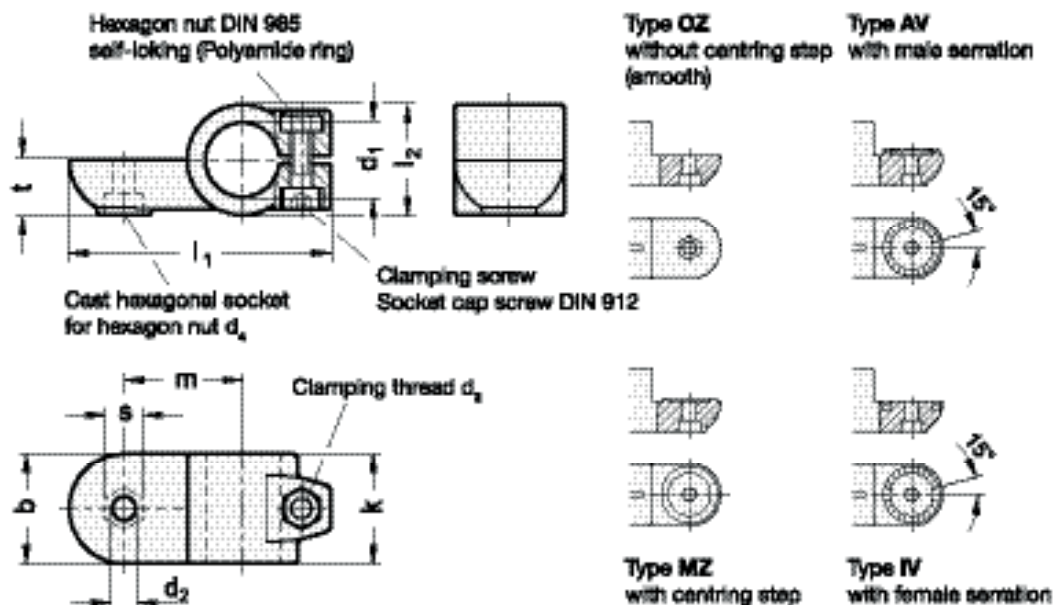
The clamping bore of GN 278 swivel clamp connectors is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

GN 278 swivel clamp connectors can be assembled with swivel clamp connectors GN 272 (see page 1848), GN 274 (see page 1850) or GN 278 (see page 1856) to create swivel clamp connector joints.

- Clamping kits GN 911 (see page 1874)

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Swivel clamp connectors (SW or BL)

SW
RAL9005

BL
blank

GN 278

Description	d1	b	d2	d3	d4	k	l1	l2	m	s	t	Clamping kits for d3	⚖
GN 278-B20-OZ-2-*	B 20	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	185
GN 278-B25-OZ-2-*	B 25	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	170
GN 278-B30-OZ-2-*	B 30	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	145
GN 278-B40-OZ-2-*	B 40	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	705
GN 278-B42-OZ-2-*	B 42	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	675
GN 278-B45-OZ-2-*	B 45	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	645
GN 278-B48-OZ-2-*	B 48	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	610
GN 278-B50-OZ-2-*	B 50	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	585
GN 278-B20-MZ-2-*	B 20	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	185
GN 278-B25-MZ-2-*	B 25	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	170
GN 278-B30-MZ-2-*	B 30	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	145
GN 278-B40-MZ-2-*	B 40	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	695
GN 278-B42-MZ-2-*	B 42	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	675
GN 278-B45-MZ-2-*	B 45	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	645
GN 278-B48-MZ-2-*	B 48	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	605
GN 278-B50-MZ-2-*	B 50	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	575
GN 278-B20-AV-2-*	B 20	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	190
GN 278-B25-AV-2-*	B 25	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	170
GN 278-B30-AV-2-*	B 30	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	150
GN 278-B40-AV-2-*	B 40	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	690
GN 278-B42-AV-2-*	B 42	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	675
GN 278-B45-AV-2-*	B 45	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	640
GN 278-B48-AV-2-*	B 48	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	600
GN 278-B50-AV-2-*	B 50	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	580
GN 278-B20-IV-2-*	B 20	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	180
GN 278-B25-IV-2-*	B 25	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	160
GN 278-B30-IV-2-*	B 30	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	140
GN 278-B40-IV-2-*	B 40	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	685
GN 278-B42-IV-2-*	B 42	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	665
GN 278-B45-IV-2-*	B 45	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	620
GN 278-B48-IV-2-*	B 48	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	585
GN 278-B50-IV-2-*	B 50	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	565

Weight BL



Swivel clamp connectors

Aluminium / split assembly

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-clamping screw DIN 912

Type

- Type **OZ**: without centring step

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bore not machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

The clamping bore of GN 279 swivel clamp connectors is not machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The square designs are also suitable for use in **profile systems**.

The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

Two GN 279 swivel clamp connectors can be combined to GN 289 (see page 1870) swivel clamp connector joints.

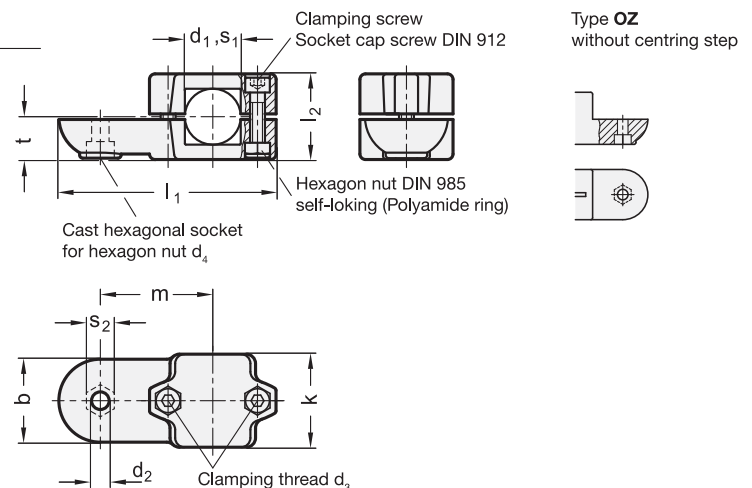
GN 279 swivel clamp connectors can be assembled with swivel clamp connectors GN 272 (see page 1848), GN 274 (see page 1850) or GN 276 (see page 1852) to create swivel clamp connector joints.

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Swivel clamp connectors (SW or BL)

SW RAL9005
BL blank

GN 279

Description	d1	s1	b	d2	d3	k	l1	l2	m	s2	t	Clamping kits for d3	⚖
GN 279-B40-OZ-2-*	B 40	-	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	861
GN 279-B42-OZ-2-*	B 42	-	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	840
GN 279-B45-OZ-2-*	B 45	-	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	829
GN 279-B48-OZ-2-*	B 48	-	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	808
GN 279-B50-OZ-2-*	B 50	-	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	800
GN 279-V40-OZ-2-*	-	V 40	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	952
GN 279-V45-OZ-2-*	-	V 45	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	908
GN 279-V50-OZ-2-*	-	V 50	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	868

Weight BL

Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

GN 281 swivel clamp connector joints are an assembly of the swivel clamp connectors GN 271 (see page 1847) and GN 275 (see page 1854).

The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

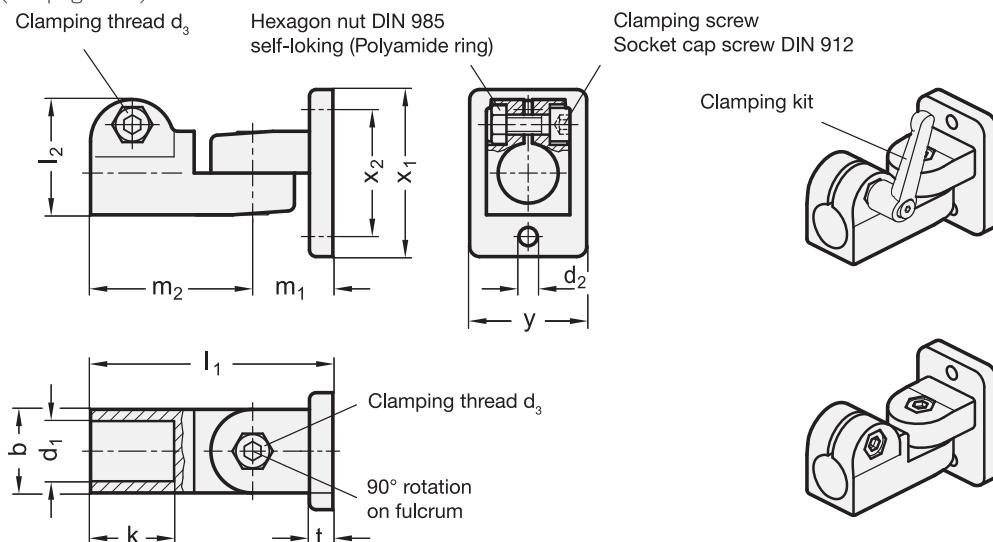
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 281

Description	d1	b	d2	d3	k	l1	l2	m1	m2	t	x1	x2	y	Clamping kits for d3	⚖
GN 281-B12-2-BL	B 12	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	126
GN 281-B12-2-SW	B 12	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	126
GN 281-B14-2-BL	B 14	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	122
GN 281-B14-2-SW	B 14	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	122
GN 281-B16-2-BL	B 16	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	120
GN 281-B16-2-SW	B 16	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	120
GN 281-B18-2-BL	B 18	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	116
GN 281-B18-2-SW	B 18	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	116

Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-clamping screws DIN 912

Types

- Type **S**: stepless adjustment
- Type **T**: adjustment by 15°- division (serration)

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

The swivel clamp connector joints GN 282 are an assembly of of the swivel clamp connectors GN 272 (see page 1848) and GN 276 (see page 1852).

For the type with stepless adjustment (Type S) swivel clamp connectors with a centring step are used.

The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

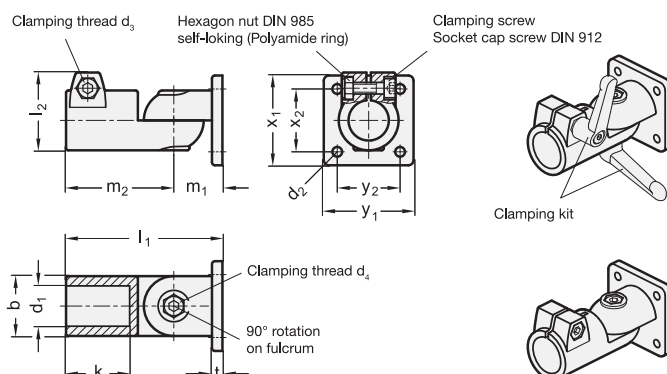
The standard clamping screws are socket cap screws DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

* Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW RAL9005 **BL** blank



GN 282

Description	d1	b	d2	d3	d4	k	l1	l2	m1	m2	t	x1	x2	y1	y2	Clamping kits for d3	Clamping kits for d4	
GN 282-B20-S-2-* B 20	40	6.5	M 8	M 8	42.5	104.5	52	32.5	72	7	60	42	60	42	42	GN 911-M8-32	GN 911-M8-35	342
GN 282-B25-S-2-* B 25	40	6.5	M 8	M 8	42.5	104.5	52	32.5	72	7	60	42	60	42	42	GN 911-M8-32	GN 911-M8-35	323
GN 282-B30-S-2-* B 30	40	6.5	M 8	M 8	42.5	104.5	52	32.5	72	7	60	42	60	42	42	GN 911-M8-32	GN 911-M8-35	300
GN 282-B40-S-2-* B 40	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	74	GN 911-M10-55	GN 911-M10-63	1380
GN 282-B42-S-2-* B 42	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	74	GN 911-M10-55	GN 911-M10-63	1340
GN 282-B45-S-2-* B 45	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	74	GN 911-M10-55	GN 911-M10-63	1300
GN 282-B48-S-2-* B 48	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	74	GN 911-M10-55	GN 911-M10-63	1255
GN 282-B50-S-2-* B 50	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	74	GN 911-M10-55	GN 911-M10-63	1200
GN 282-B20-T-2-* B 20	40	6.5	M 8	M 8	42.5	104.5	52	32.5	72	7	60	42	60	42	42	GN 911-M8-35	GN 911-M8-35	342
GN 282-B25-T-2-* B 25	40	6.5	M 8	M 8	42.5	104.5	52	32.5	72	7	60	42	60	42	42	GN 911-M8-35	GN 911-M8-35	323
GN 282-B30-T-2-* B 30	40	6.5	M 8	M 8	42.5	104.5	52	32.5	72	7	60	42	60	42	42	GN 911-M8-35	GN 911-M8-35	298
GN 282-B40-T-2-* B 40	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	74	GN 911-M10-55	GN 911-M10-63	1390
GN 282-B42-T-2-* B 42	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	74	GN 911-M10-55	GN 911-M10-63	1345
GN 282-B45-T-2-* B 45	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	74	GN 911-M10-55	GN 911-M10-63	1310
GN 282-B48-T-2-* B 48	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	74	GN 911-M10-55	GN 911-M10-63	1265
GN 282-B50-T-2-* B 50	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	74	GN 911-M10-55	GN 911-M10-63	1255

Weight BL

Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 3 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

GN 283 swivel clamp connector joints are an assembly of the swivel clamp connectors GN 273 (see page 1849) and GN 275 (see page 1854). Since the swivel clamp connectors have an identical swivel width "b", all bores "d1 / d2" can be combined as required.

The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

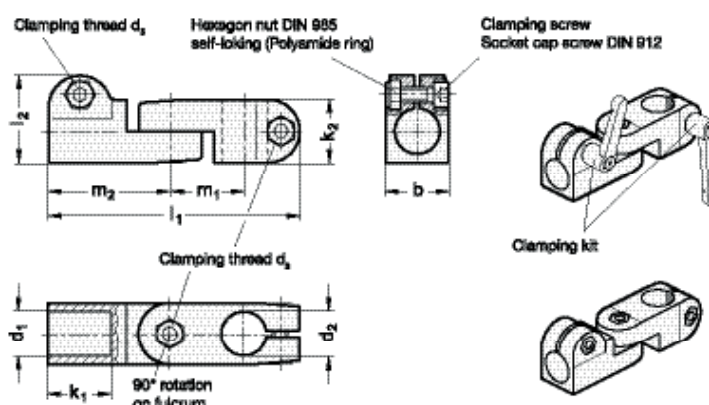
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

* Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW
RAL9005

BL
blank



GN 283

Description	d1	d2	b	d3	k1	k2	l1	l2	m1	m2	Clamping kits for d3	⚖
GN 283-B12-B12-2-*	B 12	B 12	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B12-B14-2-*	B 12	B 14	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B12-B16-2-*	B 12	B 16	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B12-B18-2-*	B 12	B 18	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B14-B12-2-*	B 14	B 12	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B14-B14-2-*	B 14	B 14	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B14-B16-2-*	B 14	B 16	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B14-B18-2-*	B 14	B 18	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B16-B12-2-*	B 16	B 12	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B16-B14-2-*	B 16	B 14	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B16-B16-2-*	B 16	B 16	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B16-B18-2-*	B 16	B 18	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B18-B12-2-*	B 18	B 12	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B18-B14-2-*	B 18	B 14	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B18-B16-2-*	B 18	B 16	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B18-B18-2-*	B 18	B 18	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	127

Weight BL

Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 3 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

GN 285 swivel clamp connector joints are an assembly of two GN 275 (see page 1854) swivel clamp connectors.

Since the swivel clamp connectors have an identical swivel width "b", all bores „d₁/ d₂“ can be combined as required.

The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

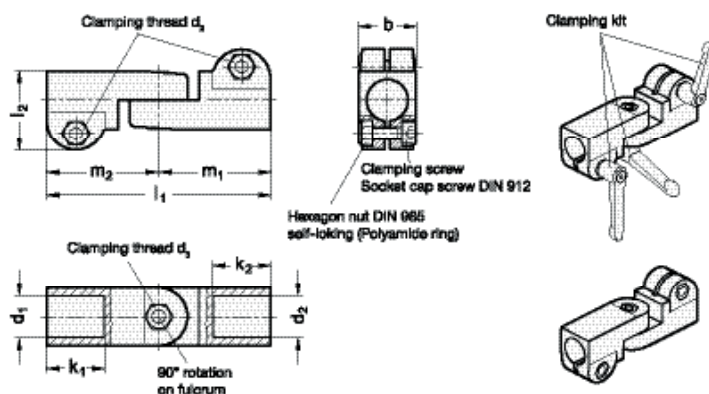
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW RAL9005
BL blank

GN 285

Description	d1	d2	b	d3	k1	k2	l1	l2	m1	m2	Clamping kits for d3	⚖
GN 285-B12-B12-2-*	B 12	B 12	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	156
GN 285-B12-B14-2-*	B 12	B 14	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B12-B16-2-*	B 12	B 16	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B12-B18-2-*	B 12	B 18	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B14-B12-2-*	B 14	B 12	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B14-B14-2-*	B 14	B 14	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B14-B16-2-*	B 14	B 16	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B14-B18-2-*	B 14	B 18	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B16-B12-2-*	B 16	B 12	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B16-B14-2-*	B 16	B 14	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B16-B16-2-*	B 16	B 16	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	144
GN 285-B16-B18-2-*	B 16	B 18	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	144
GN 285-B18-B12-2-*	B 18	B 12	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B18-B14-2-*	B 18	B 14	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B18-B16-2-*	B 18	B 16	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B18-B18-2-*	B 18	B 18	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	136

Weight BL

Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 3 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

GN 287 swivel clamp connector joints are an assembly of swivel clamp connectors GN 275 (see page 1854), and GN 277 (see page 1855).

Since the swivel clamp connectors have an identical swivel width "b", all bores "d1/d2" can be combined as required.

The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

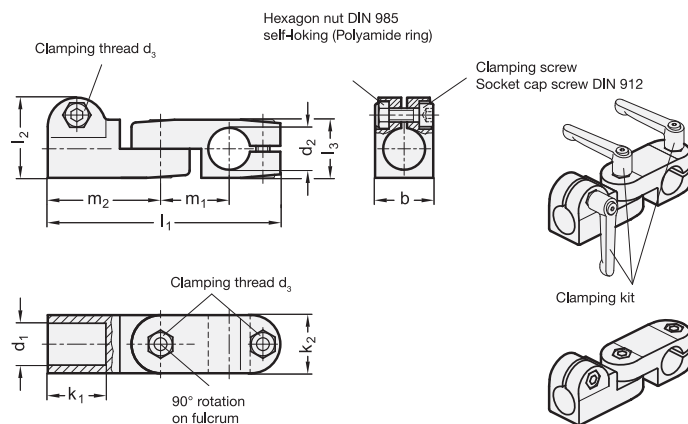
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW
RAL9005

BL
blank

GN 287

Description	d1	d2	b	d3	k1	k2	l1	l2	l3	m1	m2	Clamping kits for d3	Weight
GN 287-B12-B12-2-*	B 12	B 12	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	145
GN 287-B12-B14-2-*	B 12	B 14	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	145
GN 287-B12-B16-2-*	B 12	B 16	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	145
GN 287-B12-B18-2-*	B 12	B 18	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	145
GN 287-B14-B12-2-*	B 14	B 12	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	140
GN 287-B14-B14-2-*	B 14	B 14	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	140
GN 287-B14-B16-2-*	B 14	B 16	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	135
GN 287-B14-B18-2-*	B 14	B 18	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	130
GN 287-B16-B12-2-*	B 16	B 12	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	145
GN 287-B16-B14-2-*	B 16	B 14	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	140
GN 287-B16-B16-2-*	B 16	B 16	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	135
GN 287-B16-B18-2-*	B 16	B 18	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	130
GN 287-B18-B12-2-*	B 18	B 12	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	145
GN 287-B18-B14-2-*	B 18	B 14	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	140
GN 287-B18-B16-2-*	B 18	B 16	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	135
GN 287-B18-B18-2-*	B 18	B 18	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	130

Weight BL

Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 3 Stainless Steel-Clamping screws DIN 912

Types

- Type **S**: stepless adjustment
- Type **T**: adjustment by 15°-division (serration)

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

GN 284 swivel clamp connector joints are an assembly of the swivel clamp connectors GN 274 (see page 1850) and GN 276 (see page 1852). For the type with stepless adjustment (Type S) swivel clamp connectors with a centring step are used. Within the identical swivel width "b", all bores „d₁ / d₂" can be combined as required.

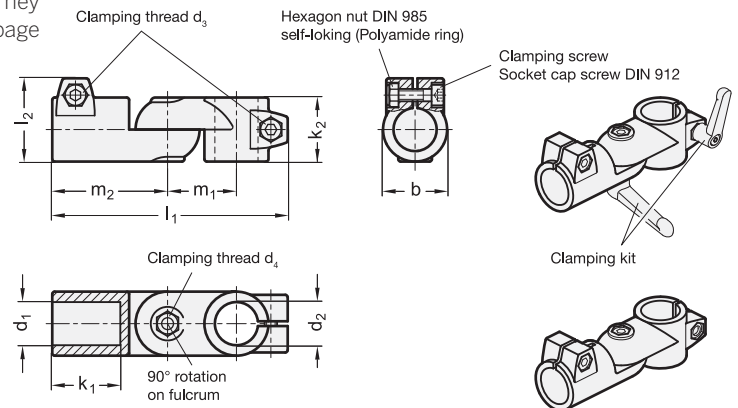
The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW RAL9005
BL blank

GN 284

Description	d1	d2	b	d3	d4	k1	k2	l1	l2	m1	m2	Clamping kits for d3	Clamping kits for d4	
GN 284-B20-B20-S-2-*	B 20	B 20	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B20-B25-S-2-*	B 20	B 25	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B20-B30-S-2-*	B 20	B 30	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B25-B20-S-2-*	B 25	B 20	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B25-B25-S-2-*	B 25	B 25	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B25-B30-S-2-*	B 25	B 30	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B30-B20-S-2-*	B 30	B 20	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B30-B25-S-2-*	B 30	B 25	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B30-B30-S-2-*	B 30	B 30	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	325
GN 284-B40-B40-S-2-*	B 40	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B42-S-2-*	B 40	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B45-S-2-*	B 40	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B48-S-2-*	B 40	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B50-S-2-*	B 40	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B50-B48-T-2-*	B 50	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B50-T-2-*	B 50	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1280

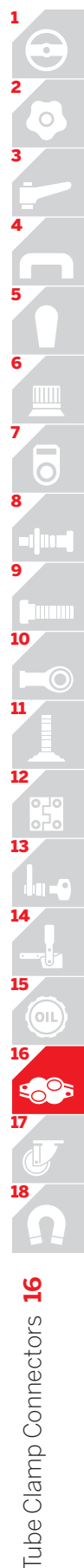
* Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW
RAL9005BL
blank

GN 284

Description	d1	d2	b	d3	d4	k1	k2	l1	l2	m1	m2	Clamping kits for d3	Clamping kits for d4	⚖
GN 284-B42-B40-S-2-*	B 42	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1485
GN 284-B42-B42-S-2-*	B 42	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1470
GN 284-B42-B45-S-2-*	B 42	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1435
GN 284-B42-B48-S-2-*	B 42	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1410
GN 284-B42-B50-S-2-*	B 42	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1370
GN 284-B45-B40-S-2-*	B 45	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B45-B42-S-2-*	B 45	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B45-B45-S-2-*	B 45	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1360
GN 284-B45-B48-S-2-*	B 45	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1355
GN 284-B45-B50-S-2-*	B 45	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1340
GN 284-B48-B40-S-2-*	B 48	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B42-S-2-*	B 48	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B45-S-2-*	B 48	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B48-S-2-*	B 48	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1350
GN 284-B48-B50-S-2-*	B 48	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1350
GN 284-B50-B40-S-2-*	B 50	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B42-S-2-*	B 50	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B45-S-2-*	B 50	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B48-S-2-*	B 50	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B50-S-2-*	B 50	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1270
GN 284-B20-B20-T-2-*	B 20	B 20	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	410
GN 284-B20-B25-T-2-*	B 20	B 25	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	405
GN 284-B20-B30-T-2-*	B 20	B 30	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	405
GN 284-B25-B20-T-2-*	B 25	B 20	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	405
GN 284-B25-B25-T-2-*	B 25	B 25	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	380
GN 284-B25-B30-T-2-*	B 25	B 30	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	360
GN 284-B30-B20-T-2-*	B 30	B 20	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	405
GN 284-B30-B25-T-2-*	B 30	B 25	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	405
GN 284-B30-B30-T-2-*	B 30	B 30	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	330
GN 284-B40-B40-T-2-*	B 40	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1510
GN 284-B40-B42-T-2-*	B 40	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B45-T-2-*	B 40	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B48-T-2-*	B 40	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B50-T-2-*	B 40	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B42-B40-T-2-*	B 42	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1485
GN 284-B42-B42-T-2-*	B 42	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1480
GN 284-B42-B45-T-2-*	B 42	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1435
GN 284-B42-B48-T-2-*	B 42	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1410
GN 284-B42-B50-T-2-*	B 42	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1370
GN 284-B45-B40-T-2-*	B 45	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B45-B42-T-2-*	B 45	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B45-B45-T-2-*	B 45	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B45-B48-T-2-*	B 45	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B45-B50-T-2-*	B 45	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B48-B40-T-2-*	B 48	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B42-T-2-*	B 48	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B45-T-2-*	B 48	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B48-T-2-*	B 48	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B50-T-2-*	B 48	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B50-B40-T-2-*	B 50	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B42-T-2-*	B 50	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B45-T-2-*	B 50	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B48-T-2-*	B 50	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B50-T-2-*	B 50	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1280

Weight BL



Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 3 Stainless Steel-Clamping screws DIN 912

Types

- Type **S**: stepless adjustment
- Type **T**: adjustment by 15°-division (serration)

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

GN 286 swivel clamp connector joints are an assembly of two GN 276 (see page 1852) swivel clamp connectors.

For the type with stepless adjustment (Type S) swivel clamp connectors with a centring step are used. Within the identical swivel width „b“, all bores „d₁/ d₂“ can be combined as required. The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

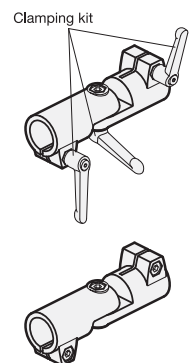
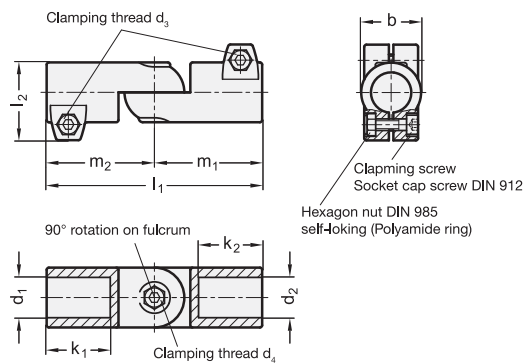
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW RAL9005 **BL** blank

GN 286

Description	d1	d2	b	d3	d4	k1	k2	l1	l2	m1	m2	Clamping kits for d3	Clamping kits for d4	Weight
GN 286-B20-B20-S-2-*	B 20	B 20	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B20-B25-S-2-*	B 20	B 25	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B20-B30-S-2-*	B 20	B 30	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B25-B20-S-2-*	B 25	B 20	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	435
GN 286-B25-B25-S-2-*	B 25	B 25	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	390
GN 286-B25-B30-S-2-*	B 25	B 30	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	330
GN 286-B30-B20-S-2-*	B 30	B 20	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B30-B25-S-2-*	B 30	B 25	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B30-B30-S-2-*	B 30	B 30	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	340
GN 286-B40-B40-S-2-*	B 40	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1575
GN 286-B40-B42-S-2-*	B 40	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1558
GN 286-B40-B45-S-2-*	B 40	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1355
GN 286-B40-B48-S-2-*	B 40	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1355
GN 286-B40-B50-S-2-*	B 40	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1355
GN 286-B50-B50-T-2-*	B 50	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1590

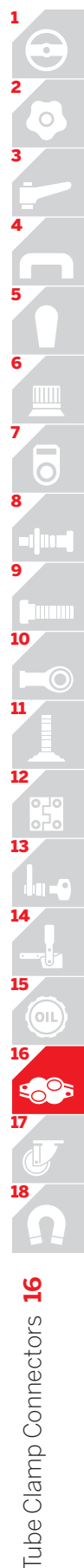
* Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW
RAL9005BL
blank

GN 286

Description	d1	d2	b	d3	d4	k1	k2	l1	l2	m1	m2	Clamping kits for d3	Clamping kits for d4	⚖
GN 286-B42-B40-S-2-*	B 42	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1560
GN 286-B42-B42-S-2-*	B 42	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1540
GN 286-B42-B45-S-2-*	B 42	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B42-B48-S-2-*	B 42	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1460
GN 286-B42-B50-S-2-*	B 42	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1435
GN 286-B45-B40-S-2-*	B 45	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1520
GN 286-B45-B42-S-2-*	B 45	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B45-B45-S-2-*	B 45	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B45-B48-S-2-*	B 45	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1420
GN 286-B45-B50-S-2-*	B 45	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1395
GN 286-B48-B40-S-2-*	B 48	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1510
GN 286-B48-B42-S-2-*	B 48	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B48-B45-S-2-*	B 48	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B48-B48-S-2-*	B 48	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1440
GN 286-B48-B50-S-2-*	B 48	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1370
GN 286-B50-B40-S-2-*	B 50	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1466
GN 286-B50-B42-S-2-*	B 50	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1456
GN 286-B50-B45-S-2-*	B 50	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1406
GN 286-B50-B48-S-2-*	B 50	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1366
GN 286-B50-B50-S-2-*	B 50	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1575
GN 286-B20-B20-T-2-*	B 20	B 20	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	435
GN 286-B20-B25-T-2-*	B 20	B 25	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	435
GN 286-B20-B30-T-2-*	B 20	B 30	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	435
GN 286-B25-B20-T-2-*	B 25	B 20	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B25-B25-T-2-*	B 25	B 25	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B25-B30-T-2-*	B 25	B 30	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B30-B20-T-2-*	B 30	B 20	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B30-B25-T-2-*	B 30	B 25	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B30-B30-T-2-*	B 30	B 30	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	320
GN 286-B40-B40-T-2-*	B 40	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1590
GN 286-B40-B42-T-2-*	B 40	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1558
GN 286-B40-B45-T-2-*	B 40	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1558
GN 286-B40-B48-T-2-*	B 40	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1558
GN 286-B40-B50-T-2-*	B 40	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1558
GN 286-B42-B40-T-2-*	B 42	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1570
GN 286-B42-B42-T-2-*	B 42	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1550
GN 286-B42-B45-T-2-*	B 42	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1520
GN 286-B42-B48-T-2-*	B 42	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1475
GN 286-B42-B50-T-2-*	B 42	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1460
GN 286-B45-B40-T-2-*	B 45	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1530
GN 286-B45-B42-T-2-*	B 45	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1515
GN 286-B45-B45-T-2-*	B 45	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B45-B48-T-2-*	B 45	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1430
GN 286-B45-B50-T-2-*	B 45	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1420
GN 286-B48-B40-T-2-*	B 48	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1510
GN 286-B48-B42-T-2-*	B 48	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1510
GN 286-B48-B45-T-2-*	B 48	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B48-B48-T-2-*	B 48	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B48-B50-T-2-*	B 48	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B50-B40-T-2-*	B 50	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1471
GN 286-B50-B42-T-2-*	B 50	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1456
GN 286-B50-B45-T-2-*	B 50	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1416
GN 286-B50-B48-T-2-*	B 50	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1366
GN 286-B50-B50-T-2-*	B 50	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1300

Weight BL



Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 3 Stainless Steel-Clamping screws DIN 912

Types

- Type **S**: stepless adjustment
- Type **T**: adjustment by 15°-division (serration)

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

GN 288 swivel clamp connector joints are an assembly of swivel clamp connectors GN 276 (see page 1852) and GN 278 (see page 1856) to create swivel clamp connector joints.

For the type with stepless adjustment (Type S) swivel clamp connectors with a centring step are used. Within the identical swivel width "b", all bores "d₁/d₂" can be combined as required. The clamping bores are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

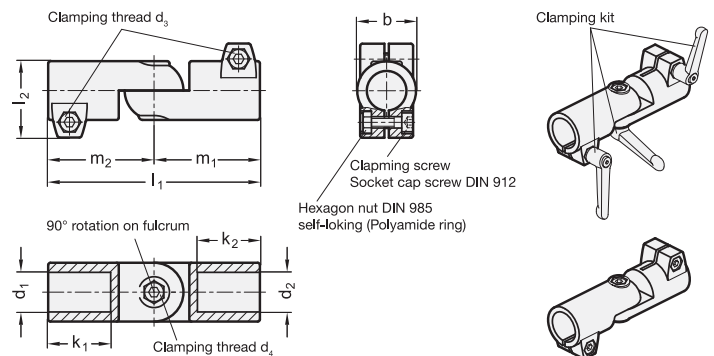
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping lever GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW RAL9005
BL blank

GN 288

Description	d1	d2	b	d3	d4	k1	k2	l1	l2	l3	m1	m2	Clamping kits for d3	Clamping kits for d4	⚖
GN 288-B20-B20-S-2-*	B 20	B 20	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	410
GN 288-B20-B25-S-2-*	B 20	B 25	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	410
GN 288-B20-B30-S-2-*	B 20	B 30	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	350
GN 288-B25-B20-S-2-*	B 25	B 20	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	375
GN 288-B25-B25-S-2-*	B 25	B 25	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	375
GN 288-B25-B30-S-2-*	B 25	B 30	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	375
GN 288-B30-B20-S-2-*	B 30	B 20	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	325
GN 288-B30-B25-S-2-*	B 30	B 25	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	325
GN 288-B30-B30-S-2-*	B 30	B 30	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	325
GN 288-B40-B40-S-2-*	B 40	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 288-B40-B42-S-2-*	B 40	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 288-B40-B45-S-2-*	B 40	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 288-B40-B48-S-2-*	B 40	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 288-B40-B50-S-2-*	B 40	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1490

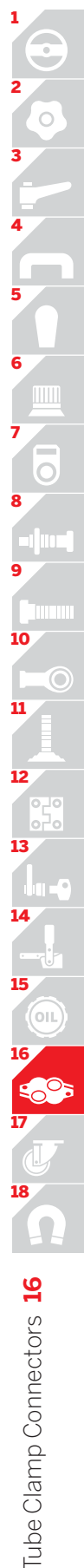
* Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW
RAL9005BL
blank

GN 288

Description	d1	d2	b	d3	d4	k1	k2	l1	l2	l3	m1	m2	Clamping kits for d3	Clamping kits for d4	⚖
GN 288-B42-B40-S-2-*	B 42	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1470
GN 288-B42-B42-S-2-*	B 42	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1465
GN 288-B42-B45-S-2-*	B 42	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1460
GN 288-B42-B48-S-2-*	B 42	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1455
GN 288-B42-B50-S-2-*	B 42	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1450
GN 288-B45-B40-S-2-*	B 45	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1410
GN 288-B45-B42-S-2-*	B 45	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1405
GN 288-B45-B45-S-2-*	B 45	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 288-B45-B48-S-2-*	B 45	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1395
GN 288-B45-B50-S-2-*	B 45	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1390
GN 288-B48-B40-S-2-*	B 48	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1270
GN 288-B48-B42-S-2-*	B 48	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1265
GN 288-B48-B45-S-2-*	B 48	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1260
GN 288-B48-B48-S-2-*	B 48	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1255
GN 288-B48-B50-S-2-*	B 48	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1250
GN 288-B50-B40-S-2-*	B 50	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1275
GN 288-B50-B42-S-2-*	B 50	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1275
GN 288-B50-B45-S-2-*	B 50	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1270
GN 288-B50-B48-S-2-*	B 50	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1275
GN 288-B50-B50-S-2-*	B 50	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1275
GN 288-B20-B20-T-2-*	B 20	B 20	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	420
GN 288-B20-B25-T-2-*	B 20	B 25	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	420
GN 288-B20-B30-T-2-*	B 20	B 30	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	420
GN 288-B25-B20-T-2-*	B 25	B 20	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	380
GN 288-B25-B25-T-2-*	B 25	B 25	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	380
GN 288-B25-B30-T-2-*	B 25	B 30	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	375
GN 288-B30-B20-T-2-*	B 30	B 20	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	345
GN 288-B30-B25-T-2-*	B 30	B 25	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	340
GN 288-B30-B30-T-2-*	B 30	B 30	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	330
GN 288-B40-B40-T-2-*	B 40	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1510
GN 288-B40-B42-T-2-*	B 40	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1510
GN 288-B40-B45-T-2-*	B 40	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 288-B40-B48-T-2-*	B 40	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 288-B40-B50-T-2-*	B 40	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1490
GN 288-B42-B40-T-2-*	B 42	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1470
GN 288-B42-B42-T-2-*	B 42	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1480
GN 288-B42-B45-T-2-*	B 42	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1460
GN 288-B42-B48-T-2-*	B 42	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1455
GN 288-B42-B50-T-2-*	B 42	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1450
GN 288-B45-B40-T-2-*	B 45	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1410
GN 288-B45-B42-T-2-*	B 45	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1410
GN 288-B45-B45-T-2-*	B 45	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1410
GN 288-B45-B48-T-2-*	B 45	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1395
GN 288-B45-B50-T-2-*	B 45	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1390
GN 288-B48-B40-T-2-*	B 48	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1270
GN 288-B48-B42-T-2-*	B 48	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1265
GN 288-B48-B45-T-2-*	B 48	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1260
GN 288-B48-B48-T-2-*	B 48	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1255
GN 288-B48-B50-T-2-*	B 48	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1255
GN 288-B50-B40-T-2-*	B 50	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1275
GN 288-B50-B42-T-2-*	B 50	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1275
GN 288-B50-B45-T-2-*	B 50	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1270
GN 288-B50-B48-T-2-*	B 50	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1265
GN 288-B50-B50-T-2-*	B 50	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1255

Weight BL



Swivel clamp connector joints

Aluminium / with two-part clamp pieces

SPECIFICATION

Identification No.

No. **2**: with 5 Stainless Steel-Clamping screws DIN 912

Type

Type **S**: stepless adjustment

Aluminium

plastic coated

black RAL 9005, textured finish **SW**

blank **BL**

matt shot-blasted

Clamping bores not machined

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

GN 289 swivel clamp connector joints are an assembly of two GN 279 (see page 1858) swivel clamp connectors.

The clamping bores of the swivel clamp connector joints GN 289 are not machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The swivel clamp connectors have an identical swivel width "b", so that all bores „d₁/s₁" and „d₂/s₂" can be combined as required.

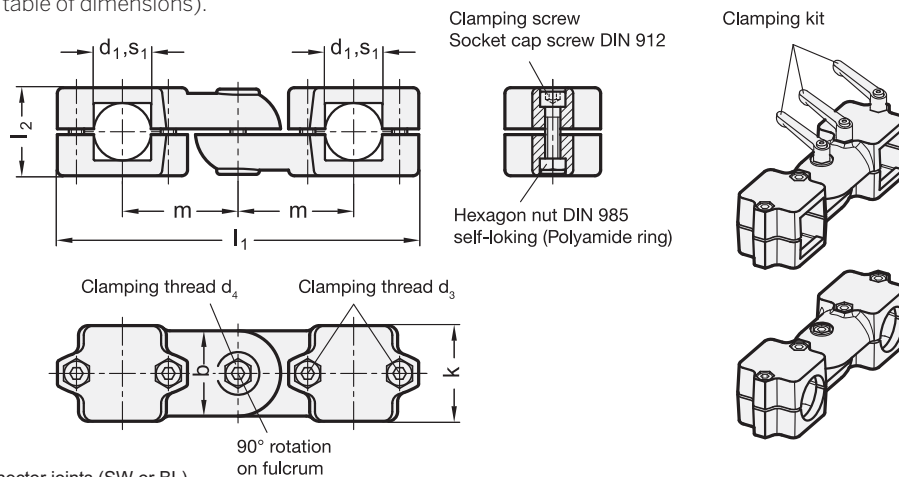
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW
RAL9005

BL
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GN 289

Description	d1	s1	d2	s2	b	d3	d4	k	l1	l2	m	Clamping kits for d3	Clamping kits for d4	
GN 289-B40-B40-S-2-*	B 40	-	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1855
GN 289-B40-B42-S-2-*	B 40	-	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1731
GN 289-B40-B45-S-2-*	B 40	-	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1720
GN 289-B40-B48-S-2-*	B 40	-	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1699
GN 289-B40-B50-S-2-*	B 40	-	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1691
GN 289-B42-B40-S-2-*	B 42	-	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1979
GN 289-B42-B42-S-2-*	B 42	-	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1855
GN 289-B42-B45-S-2-*	B 42	-	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1844
GN 289-B42-B48-S-2-*	B 42	-	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1823
GN 289-B42-B50-S-2-*	B 42	-	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1815

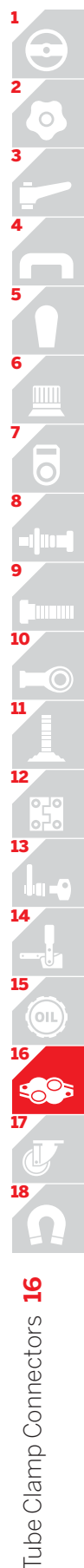
* Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW
RAL9005BL
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GN 289

Description	d1	s1	d2	s2	b	d3	d4	k	l1	l2	m	Clamping kits for d3	Clamping kits for d4	⚖
GN 289-B45-B40-S-2-*	B 45	-	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1979
GN 289-B45-B42-S-2-*	B 45	-	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1855
GN 289-B45-B45-S-2-*	B 45	-	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1844
GN 289-B45-B48-S-2-*	B 45	-	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1823
GN 289-B45-B50-S-2-*	B 45	-	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1815
GN 289-B48-B40-S-2-*	B 48	-	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1823
GN 289-B48-B42-S-2-*	B 48	-	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1699
GN 289-B48-B45-S-2-*	B 48	-	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1688
GN 289-B48-B48-S-2-*	B 48	-	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1760
GN 289-B48-B50-S-2-*	B 48	-	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1659
GN 289-B50-B40-S-2-*	B 50	-	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1823
GN 289-B50-B42-S-2-*	B 50	-	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1760
GN 289-B50-B45-S-2-*	B 50	-	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1699
GN 289-B50-B48-S-2-*	B 50	-	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1680
GN 289-B50-B50-S-2-*	B 50	-	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1760
GN 289-B50-V40-S-2-*	B 50	-	-	V 40	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1803
GN 289-B50-V45-S-2-*	B 50	-	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1759
GN 289-B50-V50-S-2-*	B 50	-	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1719
GN 289-B45-V40-S-2-*	B 45	-	-	V 40	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1832
GN 289-B45-V45-S-2-*	B 45	-	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1788
GN 289-B45-V50-S-2-*	B 45	-	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1748
GN 289-B40-V40-S-2-*	B 40	-	-	V 40	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1843
GN 289-B40-V45-S-2-*	B 40	-	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1799
GN 289-B40-V50-S-2-*	B 40	-	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1759
GN 289-V40-B40-S-2-*	-	V 40	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	2000
GN 289-V40-B42-S-2-*	-	V 40	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1967
GN 289-V40-B45-S-2-*	-	V 40	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1832
GN 289-V40-B48-S-2-*	-	V 40	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1811
GN 289-V40-B50-S-2-*	-	V 40	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1803
GN 289-V45-B40-S-2-*	-	V 45	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1799
GN 289-V45-B42-S-2-*	-	V 45	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1823
GN 289-V45-B45-S-2-*	-	V 45	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1788
GN 289-V45-B48-S-2-*	-	V 45	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1767
GN 289-V45-B50-S-2-*	-	V 45	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1759
GN 289-V50-B40-S-2-*	-	V 50	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1883
GN 289-V50-B42-S-2-*	-	V 50	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1759
GN 289-V50-B45-S-2-*	-	V 50	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1748
GN 289-V50-B48-S-2-*	-	V 50	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1727
GN 289-V50-B50-S-2-*	-	V 50	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1719
GN 289-V50-V40-S-2-*	-	V 50	-	V 40	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1871
GN 289-V50-V45-S-2-*	-	V 50	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1827
GN 289-V50-V50-S-2-*	-	V 50	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1787
GN 289-V40-V40-S-2-*	-	V 40	-	V 40	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1740
GN 289-V40-V45-S-2-*	-	V 40	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1711
GN 289-V40-V50-S-2-*	-	V 40	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1700
GN 289-V45-V40-S-2-*	-	V 45	-	V 40	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1911
GN 289-V45-V45-S-2-*	-	V 45	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1867
GN 289-V45-V50-S-2-*	-	V 45	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1827
GN 289-V50-V40-S-2-*	-	V 50	-	V 40	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1871
GN 289-V50-V45-S-2-*	-	V 50	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1827
GN 289-V50-V50-S-2-*	-	V 50	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1787

Weight BL

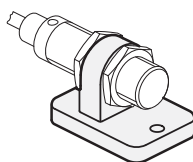
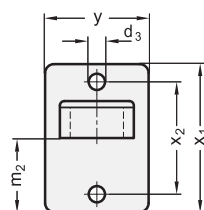
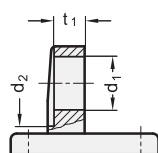
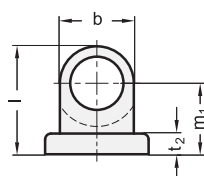


Sensor holders

Aluminium

SPECIFICATION

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

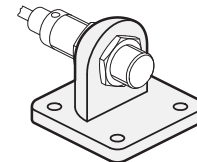
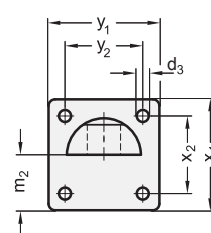
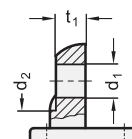
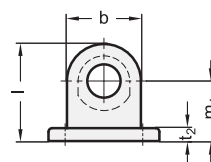


Sensor holders

Aluminium

SPECIFICATION

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**



GN 271.4

Description	d1	b	d2	d3	l	m1	m2	t1	t2	x1	x2	y	
GN 271.4-B12-25-SW	B 12	25	30	5.5	36.5	24	25	11.5	7	50	38	35	40
GN 271.4-B18-25-SW	B 18	25	30	5.5	36.5	24	25	11.5	7	50	38	35	38

GN 272.4

Description	d1	b	d2	d3	l	m1	m2	t1	t2	x1	x2	y1	y2	
GN 272.4-B18-40-SW	B 18	40	50	6.5	52.5	32.5	30	10	7	60	42	60	42	110
GN 272.4-B30-40-SW	B 30	40	50	6.5	52.5	32.5	30	10	7	60	42	60	42	100

Sensor holders

Aluminium

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

Clamping bore mechanically machined

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

The clamping bore of the sensor holders GN 273.4 is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

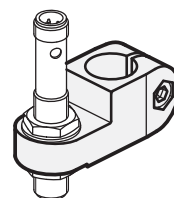
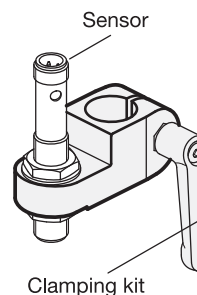
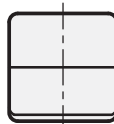
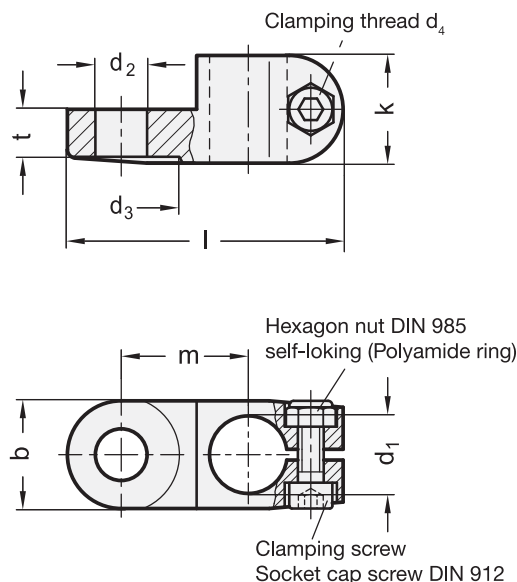
The Aluminium design guarantees a highly safe and secure clamping action and safe positioning.

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 273.4

Description	d1	d2	b	d3	d4	k	l	m	t -0.5	Clamping kits for d4	⚖
GN 273.4-B12-B12-2-SW	B 12	B 12	25	27	M 6	25	64	29.5	11	GN 911-M6-22	77
GN 273.4-B12-B18-2-SW	B 12	B 18	25	27	M 6	25	64	29.5	11	GN 911-M6-22	77
GN 273.4-B14-B12-2-SW	B 14	B 12	25	27	M 6	25	64	29.5	11	GN 911-M6-22	60
GN 273.4-B14-B18-2-SW	B 14	B 18	25	27	M 6	25	64	29.5	11	GN 911-M6-22	60
GN 273.4-B16-B12-2-SW	B 16	B 12	25	27	M 6	25	64	29.5	11	GN 911-M6-22	62
GN 273.4-B16-B18-2-SW	B 16	B 18	25	27	M 6	25	64	29.5	11	GN 911-M6-22	60
GN 273.4-B18-B12-2-SW	B 18	B 12	25	27	M 6	25	64	29.5	11	GN 911-M6-22	60
GN 273.4-B18-B18-2-SW	B 18	B 18	25	27	M 6	25	64	29.5	11	GN 911-M6-22	60

Clamping lever kits

adjustable, for connector clamps

SPECIFICATION

Handle

Zinc die casting

plastic coated

silver, RAL 9006, textured finish

Threaded stud / Distance bushing

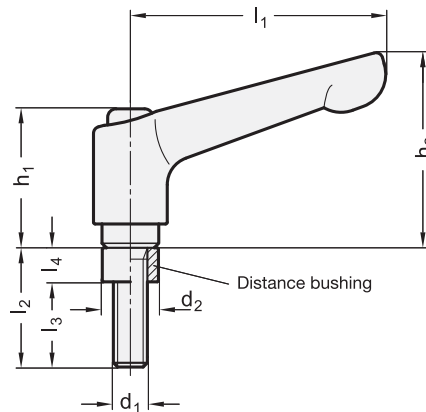
Stainless Steel AISI 303

INFORMATION

The clamping kits GN 911 replace the hexagon socket screws DIN 912 of the connector clamps.

The table of dimensions of the connector clamps shows the corresponding clamping kits for each clamping thread.

The distance bushing is included part of the order.



GN 911

Description	d1	l2	d2	l1	l3	l4	h1	h2	⚖
GN 911-M6-22	M 6	22	9.9	45	19	3	24.5	35	51
GN 911-M6-25	M 6	25	9.9	45	22	3	24.5	35	53
GN 911-M6-32	M 6	32	9.9	45	29	3	24.5	35	55
GN 911-M8-32	M 8	32	12.9	63	27.5	4.5	31	45	103
GN 911-M8-35	M 8	35	12.9	63	30.5	4.5	31	45	105
GN 911-M8-40	M 8	40	12.9	63	35.5	4.5	31	45	107
GN 911-M8-45	M 8	45	12.9	63	40.5	4.5	31	45	109
GN 911-M8-50	M 8	50	12.9	63	45.5	4.5	31	45	111
GN 911-M8-55	M 8	55	12.9	63	50.5	4.5	31	45	115
GN 911-M10-40	M 10	40	16.9	78	34.5	5.5	36	55	174
GN 911-M10-50	M 10	50	16.9	78	44.5	5.5	36	55	179
GN 911-M10-55	M 10	55	16.9	78	49.5	5.5	36	55	180
GN 911-M10-63	M 10	63	16.9	78	57.5	5.5	36	55	183
GN 911-M10-70	M 10	70	16.9	78	64.5	5.5	36	55	188
GN 911-M10-80	M 10	80	16.9	78	74.5	5.5	36	55	197

Stainless Steel-
Clamping lever kits
adjustable, for connector clamps

SPECIFICATION

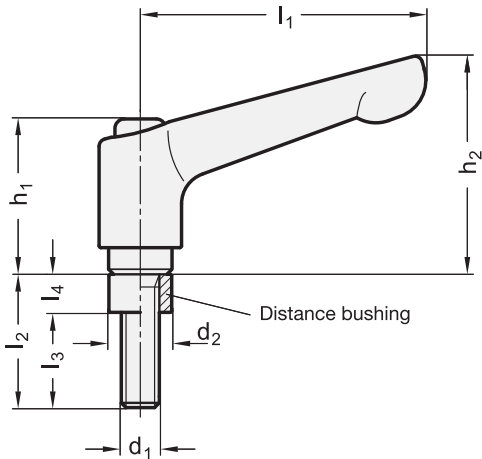
Handle
Stainless Steel precision casting
- AISI CF-8
- matt shot-blasted
Threaded stud / Distance bushing
Stainless Steel AISI 303

INFORMATION

The clamping kits GN 911.3 replace the hexagon socket screws DIN 912 of the connector clamps.
The table of dimensions of the connector clamps shows the corresponding clamping kits for each clamping thread.
The distance bushing is included part of the order.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 911.3

STAINLESS STEEL

Description	d1	l2	d2	l1	l3	l4	h1	h2	⚖
GN 911.3-M6-22	M 6	22	9.9	45	19	3	24.5	35	50



Clamp mountings

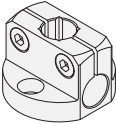
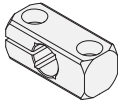
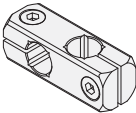
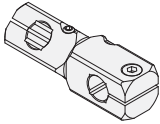
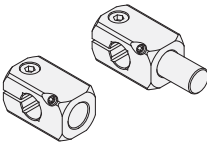
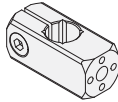
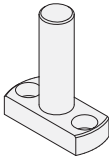
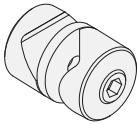
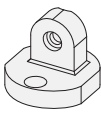
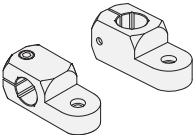
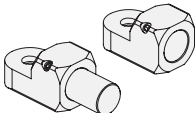
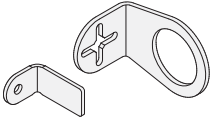
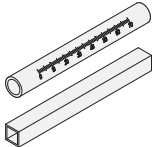
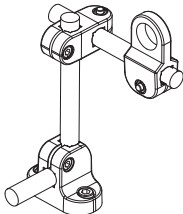
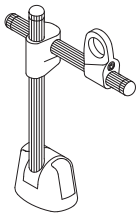
Range

With clamp mountings, tubes and rods can be fixed with better clamping pressure with minimum space requirement. Standardized hole spacings and thread dimensions make the replacement of mounting clamps very simple and efficient during assembly. In particular, swivel clamp mountings can be combined to jointed clamp mountings.

The aluminum-alloy used for the clamp mountings has excellent strength and good chemical resistance. The version with a black anodized surface is additionally protected against corrosion. Technopolymer bases and clamps are lightweight and resistant to solvents, oils, greases and other chemical agents. The special knurling on the tube of MSR. prevents the risk of free rotation of the tube itself. Together with fastening and clamping screws made from corrosion resistant A2 stainless steel the use under unfavorable ambient conditions is possible.

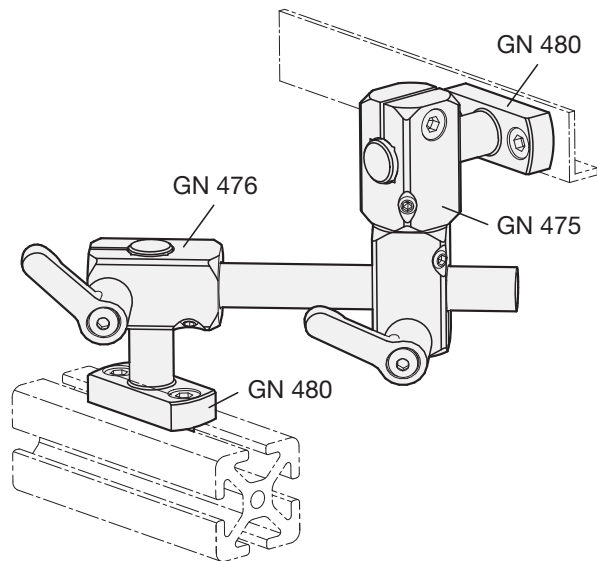
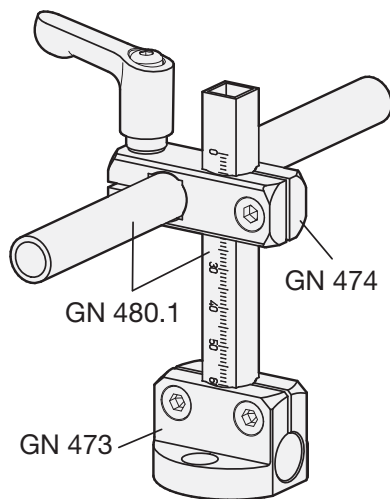
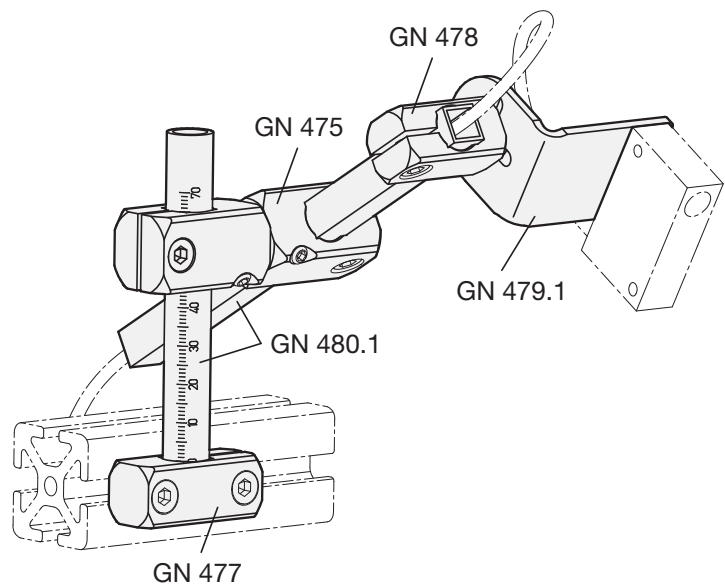
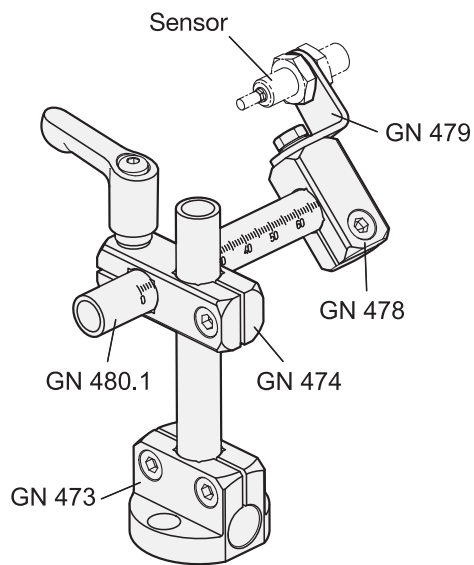
Accessories such as sensor plates, retaining rods and tubes as well as clamping kits complete the range. If required, a suitable retaining magnet (GN 51.6 see page 2032) is available to facilitate rapid repositioning.

Positioning of sensors, scanners, reflectors, cameras, coolant pipes and air nozzles is a typical practical application.

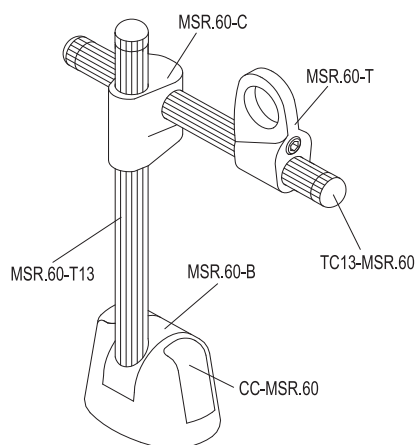
Base plate clamp mountings GN 473 (see page 1878) Aluminium		Clamp mountings GN 477 (see page 1879) Aluminium	
Two-way clamp mountings GN 474 (see page 1880) Aluminium		Twistable two-way clamp mountings GN 475 (see page 1882) Aluminium	
T-Clamp mountings GN 476 (see page 1883) Aluminium		Attachment clamp mountings GN 478 (see page 1884) Aluminium	
Flanged bolts GN 480 (see page 1185) Steel zinc plated		Twistable two-way clamp mountings GN 490 (see page 1886) Aluminium	
Swivel clamp connector bases GN 485 (see page 1887) Aluminium		Swivel clamp mountings GN 482 (see page 1890) Aluminium	
T-Swivel clamp mountings GN 483 (see page 1891) Aluminium		Attachment clamp mountings GN 484 (see page 1892) Aluminium	
Sensor holders GN 479 (see page 1895) Retaining plates GN 479.1 (see page 1896)		Retaining rods Retaining tubes GN 480.1 (see page 1994)	
Connecting clamps MSX. (see page 1906) Technopolymer		Connecting clamps MSR. (see page 1908) Technopolymer	

Clamp mountings

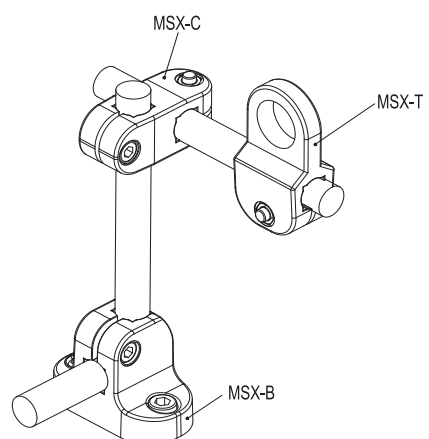
Application example



MSR.



MSX.



Base plate clamp mountings

Aluminium

SPECIFICATION

Aluminium

- matt, slide ground **MT**
- anodized, black **ELS**

Socket cap screws DIN 912

Stainless Steel AISI 304

INFORMATION

The base plate clamp mountings GN 473 have a horizontal and a vertical clamping bore. The vertical clamping bore is additionally fitted with a square.

The bore distance m of the base plate mountings GN 473 is matched with the clamp mountings GN 477 (see page 1879) and the flanged bolts GN 480 (see page 1885) as well as retaining magnets GN 51.6 (see page 2032).

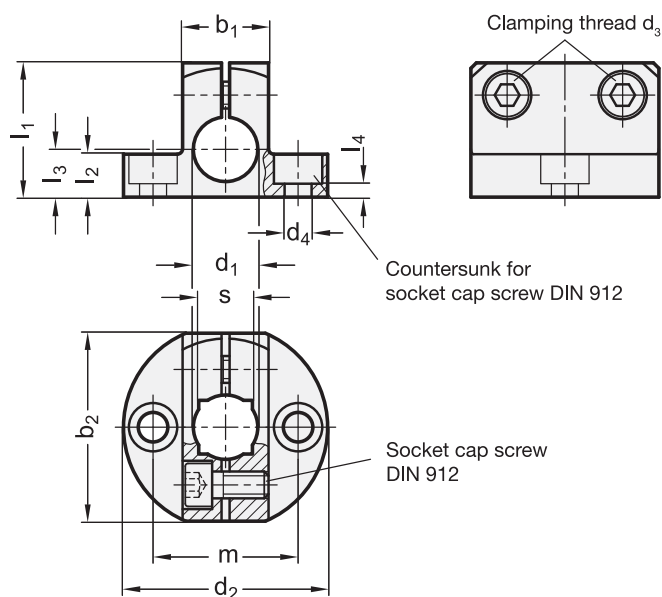
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by an adjustable clamping kits GN 511 (see page 1893) (see table of dimensions).

TECHNICAL INFORMATION

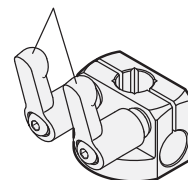
- Stainless Steel characteristics (see page A26)

ACCESSORY

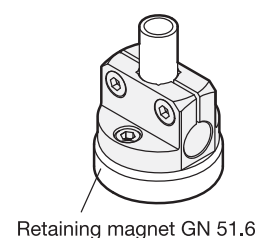
- Clamping kits GN 511 (see page 1893)



Clamping kit GN 511



Application example



* Complete with Finish of the Base plate clamp mountings (MT or ELS)

MT matt, slide ground
ELS anodized, black

GN 473

Description	d1 For shaft tolerance h11	b1	b2	d2	d3	d4	l1	l2	l3	l4	m	s	Clamping kits for d3	
GN 473-B8-*	B 8	14	29	31.5	M 4	M 4	20	7	7	3	22	-	GN 511-M4-14	23
GN 473-B10-*	B 10	16	35	38	M 5	M 5	24	8	8	2.5	27	8	GN 511-M5-16	33
GN 473-B12-*	B 12	16	35	38	M 5	M 5	25	8	8	2.5	27	10	GN 511-M5-16	36
GN 473-B15-*	B 15	20	41	45	M 6	M 6	30	10	10	4	32	12	GN 511-M6-20	57
GN 473-B16-*	B 16	20	41	45	M 6	M 6	31	10	10	4	32	-	GN 511-M6-20	57
GN 473-B20-*	B 20	25	44	50	M 6	M 6	35	12.5	12.5	6.5	36	16	GN 511-M6-25	76

Weight ELS

Clamp mountings

Aluminium

SPECIFICATION

Aluminium

- matt, slide ground **MT**
- anodized, black **ELS**

Clamping kits GN 511 (see page 1893)

Zinc die casting

Inserts / Distance bushings

Stainless Steel AISI 303

INFORMATION

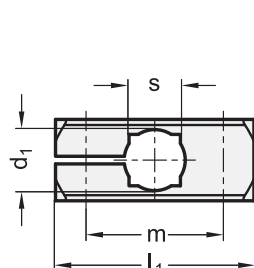
The clamp mountings GN 477 have no thread. Fixing or clamping is made via two threads on the attachment side. The bore distance m of the clamp mountings GN 477 is matched with the foot clamp mountings GN 473 (see page 1878) and the flanged bolts GN 480 (see page 1885) as well as retaining magnets GN 51.6 (see page 2032).

TECHNICAL INFORMATION

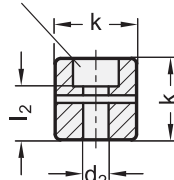
- Stainless Steel characteristics (see page A26)

ACCESSORY

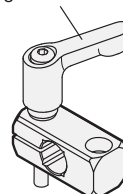
- Clamping kits GN 511 (see page 1893)



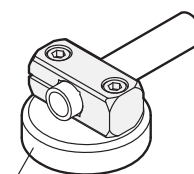
Countersunk for
socket cap screw DIN 912



Clamping kit



Application example



Retaining magnet GN 51.6

GN 477

Description	d1 For shaft tolerance h11	k	d2	l1	l2	m	s	Clamping kits for d2	⚖
GN 477-B8-ELS	B 8	14	M 4	31.5	10	22	-	GN 511-M4-20	11
GN 477-B8-MT	B 8	14	M 4	31.5	10	22	-	GN 511-M4-20	11
GN 477-B10-ELS	B 10	16	M 5	38	10.5	27	8	GN 511-M5-25	18
GN 477-B10-MT	B 10	16	M 5	38	10.5	27	8	GN 511-M5-25	17
GN 477-B12-ELS	B 12	16	M 5	38	10.5	27	10	GN 511-M5-25	16
GN 477-B12-MT	B 12	16	M 5	38	10.5	27	10	GN 511-M5-25	16
GN 477-B15-ELS	B 15	20	M 6	45	14	32	12	GN 511-M6-25	31
GN 477-B15-MT	B 15	20	M 6	45	14	32	12	GN 511-M6-25	30
GN 477-B16-ELS	B 16	20	M 6	45	14	32	-	GN 511-M6-25	29
GN 477-B16-MT	B 16	20	M 6	45	14	32	-	GN 511-M6-25	29
GN 477-B20-ELS	B 20	25	M 6	50	19	36	16	GN 511-M6-32	52
GN 477-B20-MT	B 20	25	M 6	50	19	36	16	GN 511-M6-32	52

Two-way clamp mountings

Aluminium

SPECIFICATION

Aluminium

- matt, slide ground **MT**
- anodized, black **ELS**

Socket cap screws DIN 912

Stainless Steel AISI 304

INFORMATION

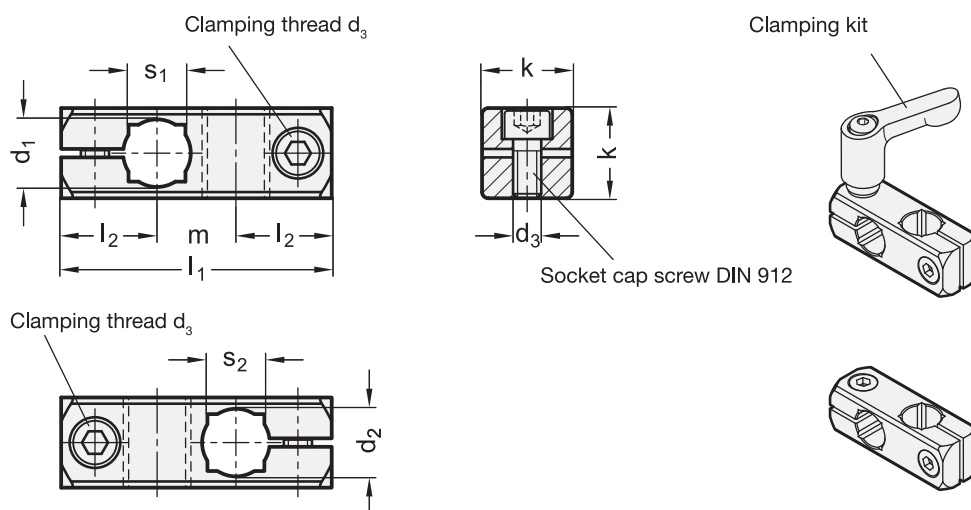
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by an adjustable clamping kit GN 511 (see page 1893) (see table of dimensions).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

- Clamping kits GN 511 (see page 1893)



* Complete with Finish of the Two-way clamp mountings (MT or ELS)

MT
matt, slide ground

ELS
anodized, black

GN 474

Description	d1 For shaft tolerance h11	d2 For shaft tolerance h11	k	d3	l1	l2	m	s1	s2	Clamping kits for d3	
GN 474-B8-B8-*	B 8	B 8	14	M 4	37	13.5	10	-	-	GN 511-M4-14	16
GN 474-B10-B10-*	B 10	B 10	16	M 5	46	17	12	8	8	GN 511-M5-16	25
GN 474-B10-B8-*	B 10	B 8	16	M 5	46	17	12	8	-	GN 511-M5-16	27
GN 474-B12-B12-*	B 12	B 12	16	M 5	48	17	14	10	10	GN 511-M5-16	25
GN 474-B12-B8-*	B 12	B 8	16	M 5	48	17	14	10	-	GN 511-M5-16	27
GN 474-B15-B10-*	B 15	B 10	20	M 6	58	20.5	17	12	8	GN 511-M6-20	51
GN 474-B15-B12-*	B 15	B 12	20	M 6	58	20.5	17	12	10	GN 511-M6-20	49
GN 474-B15-B15-*	B 15	B 15	20	M 6	58	20.5	17	12	12	GN 511-M6-20	44
GN 474-B16-B12-*	B 16	B 12	20	M 6	59	20.5	18	-	10	GN 511-M6-20	49
GN 474-B16-B16-*	B 16	B 16	20	M 6	59	20.5	18	-	-	GN 511-M6-20	44
GN 474-B20-B15-*	B 20	B 15	25	M 6	65	21.5	22	16	12	GN 511-M6-25	80
GN 474-B20-B16-*	B 20	B 16	25	M 6	65	21.5	22	16	-	GN 511-M6-25	77
GN 474-B20-B20-*	B 20	B 20	25	M 6	65	21.5	22	16	16	GN 511-M6-25	67

Weight ELS

Two-way clamp mountings

Aluminium

SPECIFICATION

Aluminium

- matt, tumbled finish **MT**
- anodized black **ELS**

Socket cap screws DIN 912

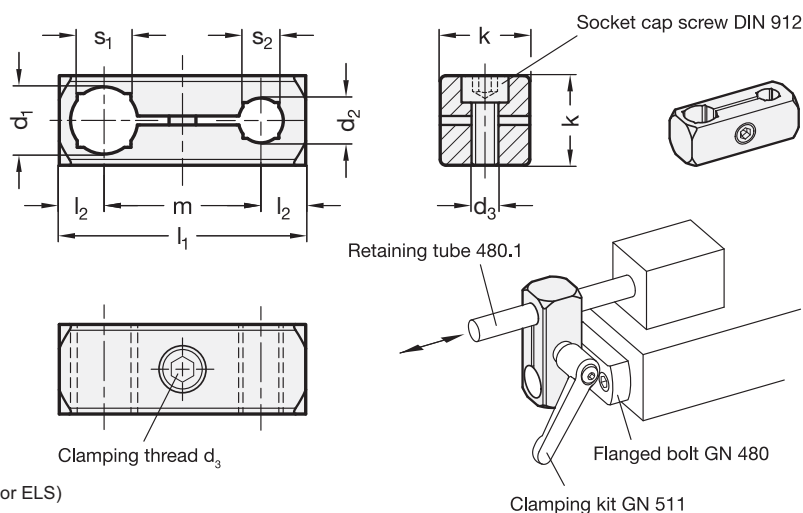
Stainless Steel AISI 304

INFORMATION

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 511 (see page 1893).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with Finish of the Two-way clamp mountings (MT or ELS)

MT **ELS**
matt, tumbled ground anodized, black

GN 474.1

Description	d1 For shaft tolerance h11	d2 For shaft tolerance h11	k	d3	l1	l2	m	s1	s2	Clamping kits for d3	
GN 474.1-B8-B8-*	B 8	B 8	14	M 4	38	7	24	-	-	GN 511-M4-14	16
GN 474.1-B10-B8-*	B 10	B 10	16	M 5	44	8	28	8	-	GN 511-M5-16	24
GN 474.1-B10-B10-*	B 10	B 10	16	M 5	44	8	28	8	8	GN 511-M5-16	23
GN 474.1-B12-B8-*	B 12	B 8	16	M 5	45	8	29	10	-	GN 511-M5-16	23
GN 474.1-B12-B10-*	B 12	B 10	16	M 5	45	8	29	10	8	GN 511-M5-16	21
GN 474.1-B12-B12-*	B 12	B 12	16	M 5	45	8	29	10	10	GN 511-M5-16	21
GN 474.1-B15-B10-*	B 15	B 10	20	M 6	55	10	35	12	8	GN 511-M6-20	45
GN 474.1-B15-B12-*	B 15	B 12	20	M 6	55	10	35	12	10	GN 511-M6-20	43
GN 474.1-B15-B15-*	B 15	B 15	20	M 6	55	10	35	12	12	GN 511-M6-20	40
GN 474.1-B16-B10-*	B 16	B 10	20	M 6	55	10	35	-	8	GN 511-M6-20	42
GN 474.1-B16-B12-*	B 16	B 12	20	M 6	55	10	35	-	10	GN 511-M6-20	42
GN 474.1-B16-B15-*	B 16	B 15	20	M 6	55	10	35	-	12	GN 511-M6-20	38
GN 474.1-B16-B16-*	B 16	B 16	20	M 6	55	10	35	-	-	GN 511-M6-20	38
GN 474.1-B20-B12-*	B 20	B 12	25	M 6	66	12.5	41	16	10	GN 511-M6-25	75
GN 474.1-B20-B15-*	B 20	B 15	25	M 6	66	12.5	41	16	12	GN 511-M6-25	75
GN 474.1-B20-B16-*	B 20	B 16	25	M 6	66	12.5	41	16	-	GN 511-M6-25	74
GN 474.1-B20-B20-*	B 20	B 20	25	M 6	66	12.5	41	16	16	GN 511-M6-25	66

Weight ELS

Twistable two-way clamp mountings

Aluminium

SPECIFICATION

Aluminium

- matt, slide ground **MT**
- anodized, black **ELS**

Socket cap screws DIN 912
Stainless Steel AISI 304

Grub screw DIN 915
Stainless Steel AISI 304

Clamping kits GN 511 (see page 1893)



INFORMATION

Twistable two-way clamp mountings GN 475 connect rods and tubes within the clamp mounting system under any adjustable angle. With the angle adjustment released, the clamp mounting halves stay connected with formlocking effect.

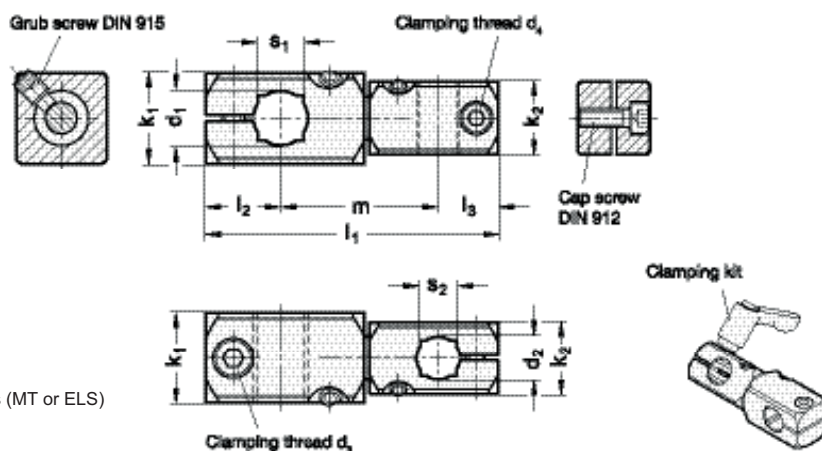
The standard version of the clamping screws at the clamping threads d_3 and d_4 are socket cap screws with hexagonal socket DIN 912. They can be replaced by an adjustable clamping lever GN 511 (see page 1893).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

- Clamping kits GN 511 (see page 1893)



* Complete with Finish of the Twistable two-way clamp mountings (MT or ELS)

MT matt, slide ground
ELS anodized, black

GN 475

Description	d1 For shaft tolerance h11	d2 For shaft tolerance h11	k1	k2	d3	d4	l1	l2	l3	m	s1	s2	Clamping kits for d3	Clamping kits for d4	Weight
GN 475-B8-B8-*	B 8	B 8	16	16	M 4	M 4	52.5	13	13	26.5	-	-	GN 511-M4-16	GN 511-M4-16	34
GN 475-B10-B8-*	B 10	B 8	20	16	M 5	M 4	58	15.5	13	29.5	8	-	GN 511-M5-20	GN 511-M4-16	50
GN 475-B10-B10-*	B 10	B 10	20	20	M 5	M 5	63.5	15.5	15.5	32.5	8	8	GN 511-M5-20	GN 511-M5-20	65
GN 475-B12-B8-*	B 12	B 8	20	16	M 5	M 4	62	16.5	13	32.5	10	-	GN 511-M5-20	GN 511-M4-16	54
GN 475-B12-B12-*	B 12	B 12	20	20	M 5	M 5	71.5	16.5	16.5	38.5	10	10	GN 511-M5-20	GN 511-M5-20	73
GN 475-B15-B10-*	B 15	B 10	25	20	M 6	M 5	75.5	20	15.5	40	12	8	GN 511-M6-25	GN 511-M5-20	105
GN 475-B15-B12-*	B 15	B 12	25	20	M 6	M 5	79.5	20	16.5	43	12	10	GN 511-M6-25	GN 511-M5-20	108
GN 475-B15-B15-*	B 15	B 15	25	25	M 6	M 6	87.5	20	20	47.5	12	12	GN 511-M6-25	GN 511-M6-25	143
GN 475-B16-B12-*	B 16	B 12	25	20	M 6	M 5	81	20	16.5	44.5	-	10	GN 511-M6-25	GN 511-M5-20	112
GN 475-B16-B16-*	B 16	B 16	25	25	M 6	M 6	90.5	20	20	50.5	-	-	GN 511-M6-25	GN 511-M6-25	139
GN 475-B20-B15-*	B 20	B 15	30	25	M 6	M 6	95	22	20	53	16	12	GN 511-M6-30	GN 511-M6-25	193
GN 475-B20-B16-*	B 20	B 16	30	25	M 6	M 6	96.5	22	20	54.5	16	-	GN 511-M6-30	GN 511-M6-25	196
GN 475-B20-B20-*	B 20	B 20	30	30	M 6	M 6	102.5	22	22	58.5	16	16	GN 511-M6-30	GN 511-M6-30	242

Weight ELS

T-Clamp mountings

Aluminium

SPECIFICATION

Types

- Type **A**: with bore
- Type **W**: with bolt

Aluminium

- matt, slide ground **MT**
- anodized, black **ELS**

Bolt (Type W)

Stainless Steel AISI 303

Socket cap screw DIN 912

Stainless Steel AISI 304

Grub screw DIN 913 (Type A)

Stainless Steel AISI 304

Grub screw DIN 915 (Type W)

Stainless Steel AISI 304

Clamping kits GN 511 (see page 1893)

INFORMATION

The T-Clamp mountings GN 476 (Type W) are an alternative to twistable two-way clamp mountings GN 475 (see page 1882) if high angular forces are required.

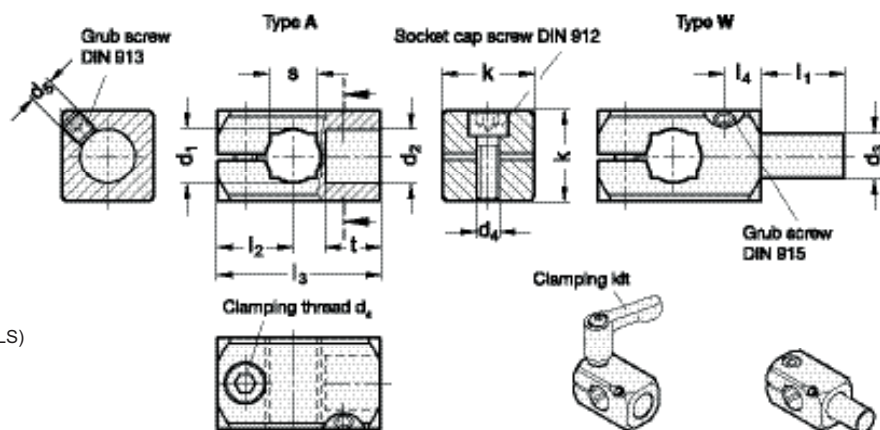
The standard version of the clamping screw at the clamping thread d_4 is a socket cap screw with hexagonal socket DIN 912. It can be replaced by an adjustable clamping lever GN 511 (see page 1893) (description see table of dimensions).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

- Clamping kits GN 511 (see page 1893)



* Complete with Finish of the T-Clamp mountings (MT or ELS)

MT	ELS
matt, slide ground	anodized, black

GN 476

Description	d1 For shaft tolerance h11	d2	d3	k	d4	d5	l1	l2	l3	l4	t	s	Clamping kits for d4	△
GN 476-B8-B8-A-*	B 8	B 8	-	16	M 4	M 4	16	13	26	5.5	8	-	GN 511-M4-16	20
GN 476-B10-B10-A-*	B 10	B 10	-	20	M 5	M 5	17	15.5	31.5	7	10	8	GN 511-M5-20	28
GN 476-B12-B12-A-*	B 12	B 12	-	20	M 5	M 5	19	16.5	35.5	8	12	10	GN 511-M5-20	28
GN 476-B15-B15-A-*	B 15	B 15	-	25	M 6	M 6	21	20	43.5	10	15	12	GN 511-M6-25	54
GN 476-B16-B16-A-*	B 16	B 16	-	25	M 6	M 6	24	20	45	11	16	-	GN 511-M6-25	54
GN 476-B20-B20-A-*	B 20	B 20	-	30	M 6	M 6	26	22	51	12	18	16	GN 511-M6-30	80
GN 476-B8-8-W-*	B 8	-	8	16	M 4	M 4	16	13	26	5.5	8	-	GN 511-M4-16	25
GN 476-B10-10-W-*	B 10	-	10	20	M 5	M 5	17	15.5	31.5	7	10	8	GN 511-M5-20	45
GN 476-B12-12-W-*	B 12	-	12	20	M 5	M 5	19	16.5	35.5	8	12	10	GN 511-M5-20	57
GN 476-B15-15-W-*	B 15	-	15	25	M 6	M 6	21	20	43.5	10	15	12	GN 511-M6-25	103
GN 476-B16-16-W-*	B 16	-	16	25	M 6	M 6	24	20	45	11	16	-	GN 511-M6-25	120
GN 476-B20-20-W-*	B 20	-	20	30	M 6	M 6	26	22	51	12	18	16	GN 511-M6-30	191

Weight ELS

Clamp mountings

Aluminium

SPECIFICATION

Aluminium

- matt, slide ground **MT**
- anodized, black **ELS**

Socket cap screw DIN 912

Stainless Steel AISI 304

Clamping kits GN 511 (see page 1893)

- Zinc die casting
- Inserts / Distance bushings, Stainless Steel AISI 303

INFORMATION

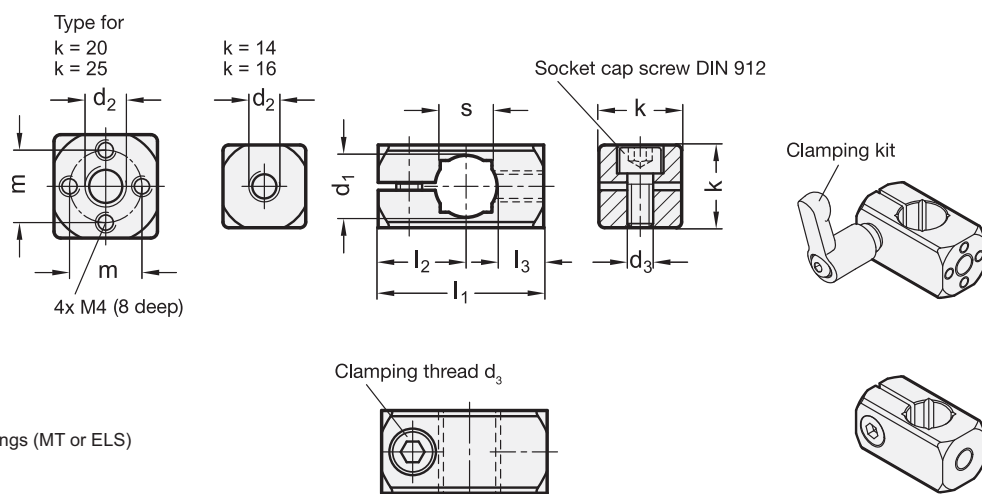
Attachment clamp mountings GN 478 are primarily designed for mounting sensor holders GN 479 (see page 1895) and retaining plates GN 479.1 (see page 1896). They are fitted with a central thread and with $d_1 = B15$ bore and higher, an additional bore template $4 \times M4$. The standard clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by an clamping kit GN 511 (see page 1893) (see table of dimensions).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

- Clamping kits GN 511 (see page 1893)



* Complete with Finish of the Clamp mountings (MT or ELS)

MT

matt, slide ground

ELS

anodized, black

GN 478

Description	d1 For shaft tolerance h11	d2	d3	k	m	l1	l2	l3	s	Clamping kits for d3	Weight
GN 478-B8-M5-*	B 8	M 5	M 4	14	-	25	13.5	7.5	-	GN 511-M4-14	11
GN 478-B10-M5-*	B 10	M 5	M 5	16	-	30	17	8	8	GN 511-M5-16	16
GN 478-B10-M6-*	B 10	M 6	M 5	16	-	30	17	8	8	GN 511-M5-16	16
GN 478-B10-M8-*	B 10	M 8	M 5	16	-	30	17	8	8	GN 511-M5-16	16
GN 478-B12-M5-*	B 12	M 5	M 5	16	-	32	17	9	10	GN 511-M5-16	16
GN 478-B12-M6-*	B 12	M 6	M 5	16	-	32	17	9	10	GN 511-M5-16	17
GN 478-B12-M8-*	B 12	M 8	M 5	16	-	32	17	9	10	GN 511-M5-16	17
GN 478-B15-M6-*	B 15	M 6	M 6	20	14	40	20.5	12	12	GN 511-M6-20	32
GN 478-B15-M8-*	B 15	M 8	M 6	20	14	40	20.5	12	12	GN 511-M6-20	31
GN 478-B16-M6-*	B 16	M 6	M 6	20	14	40	20.5	11.5	-	GN 511-M6-20	31
GN 478-B16-M8-*	B 16	M 8	M 6	20	14	40	20.5	11.5	-	GN 511-M6-20	30
GN 478-B20-M8-*	B 20	M 8	M 6	25	17	45	21.5	12	16	GN 511-M6-25	51
GN 478-B20-M10-*	B 20	M 10	M 6	25	17	45	21.5	12	16	GN 511-M6-25	50

Weight ELS

Flanged bolts

for clamp mountings

SPECIFICATION

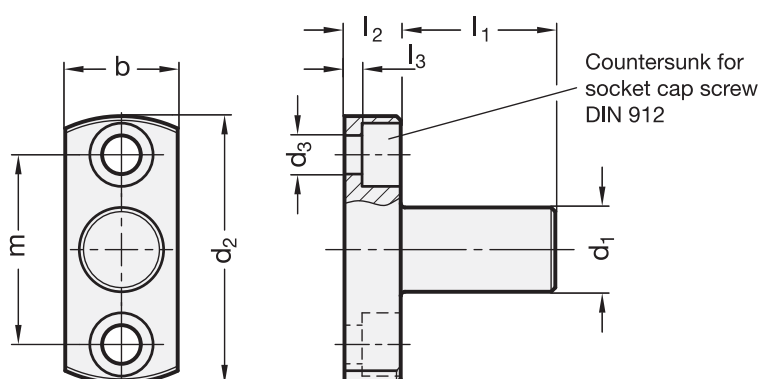
Steel zinc plated, blue passivated

INFORMATION

GN 480 Flanged bolts are used in connection with clamp mountings, as foot or as connecting element, e.g. for adjustments in width or height.

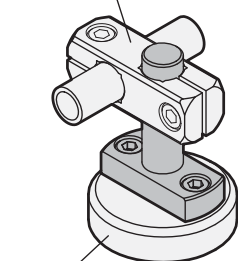
With their low flange height, they provide an alternative for the foot clamp mounting GN 473 (see page 1878) in applications where clamping is required at low height above the clamping surface.

The bore distance m of the flanged bolts GN 480 is matched with the clamp mountings GN 473 (see page 1878) and GN 477 (see page 1879) as well as with retaining magnets GN 51.6 (see page 2032).



Application example

Clamp mounting GN 474



Retaining magnet GN 51.6

GN 480

Description	d1 h9	l1	b	d2	d3	l2	l3	m	⚖
GN 480-8-18	8	18	14	31.5	M 4	6	2	22	23
GN 480-8-32	8	32	14	31.5	M 4	6	2	22	40
GN 480-10-21	10	21	16	38	M 5	8	2.5	27	43
GN 480-10-37	10	37	16	38	M 5	8	2.5	27	52
GN 480-12-22	12	22	16	38	M 5	8	2.5	27	49
GN 480-12-39	12	39	16	38	M 5	8	2.5	27	64
GN 480-15-27.5	15	27.5	20	45	M 6	10	4	32	94
GN 480-15-47.5	15	47.5	20	45	M 6	10	4	32	122
GN 480-16-28	16	28	20	45	M 6	10	4	32	100
GN 480-16-49	16	49	20	45	M 6	10	4	32	133
GN 480-20-35	20	35	25	50	M 6	10	4	36	166
GN 480-20-60	20	60	25	50	M 6	10	4	36	240



Twistable two-way clamp mountings

Aluminium

SPECIFICATION

Types

- Type **A**: with cylinder head screw DIN 912
- Type **B**: with adjustable clamping lever GN 300.1 (see page 324)

Aluminium

plain, matte tumbled finish **MT**

plastic coated

black, RAL 9005, textured finish **SW**

Socket cap screws DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

Adjustable clamping lever GN 300.1 (see page 324)

Zinc die casting

plastic coated

silver, RAL 9006, textured finish

Inserts / Distance bushing

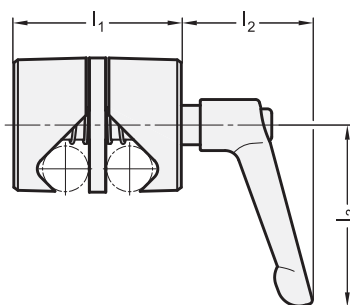
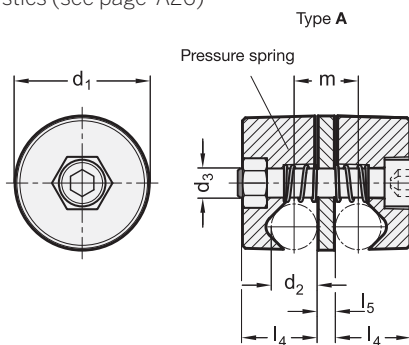
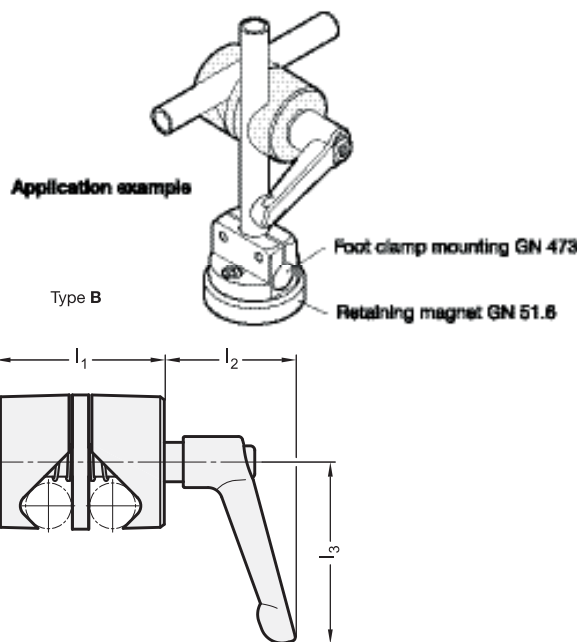
Stainless Steel AISI 303

INFORMATION

Twistable two-way clamp mountings GN 490 clamp the rods or tubes via a prism, allowing a greater Ø tolerance to be bridged. The pressure spring makes clamping and releasing easier.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 490

Description	d1	d2	d3	l1	l2	l3	l4	l5	m	Δ
GN 490-28-8-A-MT	28	8	M 6	33	-	-	14	5	13	52
GN 490-28-8-A-SW	28	8	M 6	33	-	-	14	5	13	52
GN 490-32-10-A-MT	32	10	M 8	45	-	-	20	5	15	95
GN 490-32-10-A-SW	32	10	M 8	45	-	-	20	5	15	96
GN 490-36-12-A-MT	36	12	M 8	47	-	-	21	5	17	118
GN 490-36-12-A-SW	36	12	M 8	47	-	-	21	5	17	118
GN 490-46-16-A-MT	46	16	M 10	57	-	-	25.5	6	22	221
GN 490-46-16-A-SW	46	16	M 10	57	-	-	25.5	6	22	225
GN 490-28-8-B-MT	28	8	M 6	33	35	45	14	5	13	89
GN 490-28-8-B-SW	28	8	M 6	33	35	45	14	5	13	85
GN 490-32-10-B-MT	32	10	M 8	45	45	63	20	5	15	172
GN 490-32-10-B-SW	32	10	M 8	45	45	63	20	5	15	173
GN 490-36-12-B-MT	36	12	M 8	47	45	63	21	5	17	193
GN 490-36-12-B-SW	36	12	M 8	47	45	63	21	5	17	195
GN 490-46-16-B-MT	46	16	M 10	57	55	78	25.5	6	22	354
GN 490-46-16-B-SW	46	16	M 10	57	55	78	25.5	6	22	354

Swivel clamp connector bases

Aluminium

SPECIFICATION

- Aluminium
- matt, tumbled finish **MT**
 - anodized, black **ELS**

INFORMATION

Swivel clamp connector bases GN 485 can be combined with swivel clamp mountings GN 482 (see page 1890), T-swivel clamp mountings GN 483 (see page 1891) and attachment clamp mountings GN 484 (see page 1892) with the same k dimensions into swivel clamp mounting joints. Clamping kits GN 511.1 (see page 1894) with screw (type S) and adjustable hand lever (type K) are available to connect the joints and bases (code no. for ordering is shown in the dimensional table).

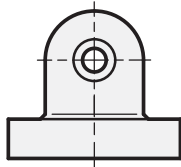
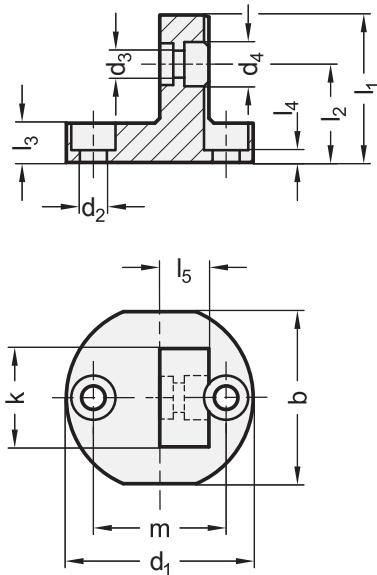
The center to center mounting hole distance m of the swivel clamp connector bases GN 485 matches the base plate clamp mountings GN 473 (see page 1878), clamp mountings GN 477 (see page 1879), flanged bolts GN 480 (see page 1885) as well as retaining magnets GN 51.6 (see page 2032).

TECHNICAL INFORMATION

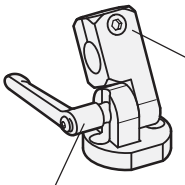
- Stainless Steel characteristics (see page A26)

ACCESSORY

- Clamping kits GN 511.1 (see page 1893)



Clamping kit
GN 511.1, Type S



Swivel clamp mounting joint
with swivel clamp mounting
GN 482

Clamping kit
GN 511.1, Type K

GN 485

Description	k	b	d1	d2	d3	d4	l1	l2	l3	l4	l5	m	Clamping kits for d3 Type K	Clamping kits for d3 Type S	⚖
GN 485-16-MT	16	29	31.5	M 4	4.5	7.5	25	17	7	3	8	22	GN 511.1-M4-16-K	GN 511.1-M4-16-S	18
GN 485-20-MT	20	35	38	M 5	5.5	9	30	20	8	2.5	10	27	GN 511.1-M5-20-K	GN 511.1-M5-20-S	31
GN 485-25-MT	25	41	45	M 6	6.5	10.5	37	24.5	10	4	12.5	32	GN 511.1-M6-25-K	GN 511.1-M6-25-S	55
GN 485-30-MT	30	44	50	M 6	6.5	10.5	44.5	29.5	12.5	6.5	15	36	GN 511.1-M6-30-K	GN 511.1-M6-30-S	90
GN 485-16-ELS	16	29	31.5	M 4	4.5	7.5	25	17	7	3	8	22	GN 511.1-M4-16-K	GN 511.1-M4-16-S	20
GN 485-20-ELS	20	35	38	M 5	5.5	9	30	20	8	2.5	10	27	GN 511.1-M5-20-K	GN 511.1-M5-20-S	33
GN 485-25-ELS	25	41	45	M 6	6.5	10.5	37	24.5	10	4	12.5	32	GN 511.1-M6-25-K	GN 511.1-M6-25-S	57
GN 485-30-ELS	30	44	50	M 6	6.5	10.5	44.5	29.5	12.5	6.5	15	36	GN 511.1-M6-30-K	GN 511.1-M6-30-S	92



Stainless Steel-Hose adapters

Barbed fitting / Thread

SPECIFICATION

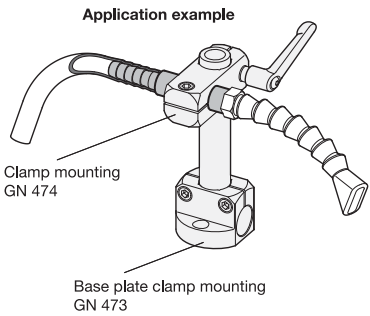
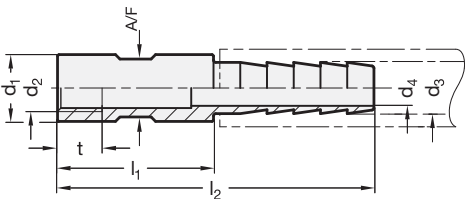
- Stainless Steel
- AISI 304
 - blank, unfinished

INFORMATION

GN 480.7 hose adapters can attach e.g. air nozzles or coolant nozzles and their feed pipes with clamp mountings and hold them in position. The d2 / d3 thread and barbed fitting diameters are compatible with the most common bolt and internal hose diameters. Hose lines are attached to the barbed fitting with suitable hose clamps, securing them against slipping off.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 480.7

STAINLESS STEEL

Description	d1 h9	d2 - t	d3	d4	l1	l2	A/F	⚙
GN 480.7-D10-M5-4	D 10	M 5 - 8.5	4	2.5	30	48	8	16
GN 480.7-D10-M6-4	D 10	M 6 - 10.5	4	2.5	30	48	8	15
GN 480.7-D10-M5-6	D 10	M 5 - 8.5	6	4.5	30	57	8	19
GN 480.7-D10-M6-6	D 10	M 6 - 10.5	6	4.5	30	57	8	17
GN 480.7-D12-M7-6	D 12	M 7 - 11.5	6	4.5	30	57	10	23
GN 480.7-D12-M8x1-6	D 12	M 8x1 - 10	6	4.5	30	57	10	21
GN 480.7-D12-M7-9	D 12	M 7 - 11.5	9	7	30	63	10	28
GN 480.7-D12-M8x1-9	D 12	M 8x1 - 10	9	7	30	63	10	25
GN 480.7-D15-M10x1-9	D 15	M 10x1 - 10	9	7	35	68	13	40
GN 480.7-D15-G1/8-9	D 15	G 1/8 - 8	9	7	35	68	13	41
GN 480.7-D15-M10x1-10	D 15	M 10x1 - 10	10	8	35	71	13	41
GN 480.7-D15-G1/8-10	D 15	G 1/8 - 8	10	8	35	71	13	42
GN 480.7-D16-M12x1,5-10	D 16	M 12x1.5 - 14	10	8	35	71	14	42
GN 480.7-D16-G1/8-10	D 16	G 1/8 - 8	10	8	35	71	14	49
GN 480.7-D16-M12x1,5-12	D 16	M 12x1.5 - 14	12	9	35	71	14	47
GN 480.7-D16-G1/8-12	D 16	G 1/8 - 8	12	8	35	71	14	59
GN 480.7-D20-M16x1,5-12	D 20	M 16x1.5 - 15	12	9	40	76	18	64
GN 480.7-D20-G3/8-12	D 20	G 3/8 - 12	12	9	40	76	18	60
GN 480.7-D20-G1/4-12	D 20	G 1/4 - 12	12	9	40	76	18	83
GN 480.7-D20-M16x1,5-16	D 20	M 16x1.5 - 15	16	12	40	76	18	68
GN 480.7-D20-G3/8-16	D 20	G 3/8 - 12	16	12	40	76	18	69
GN 480.7-D20-G1/4-16	D 20	G 1/4 - 12	16	12	40	76	18	69

Stainless Steel- Thread adapters

Thread / Thread

SPECIFICATION

Stainless Steel

- AISI 304
- blank, unfinished

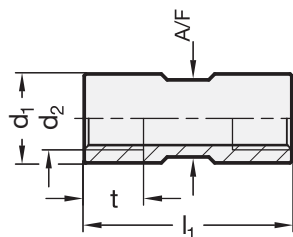
INFORMATION

GN 480.8 thread adapters can attach e.g. air nozzles or coolant nozzles and their feed pipes with clamp mountings and hold them in position.

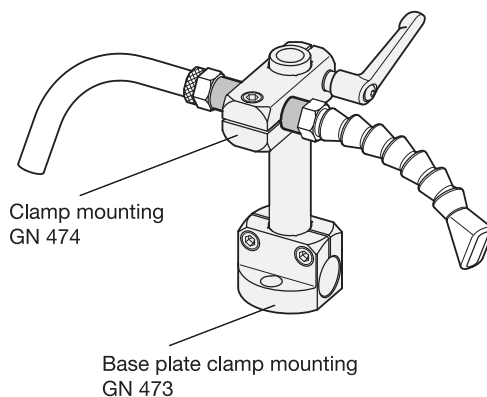
The d2 thread diameters are compatible with the most common bolt diameters.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Application example



GN 480.8

STAINLESS STEEL

Description	d1 h9	d2 - t	l1	A/F	⚖
GN 480.8-D10-M5	D 10	M 5 - 8.5	30	8	14
GN 480.8-D10-M6	D 10	M 6 - 10.5	30	8	13
GN 480.8-D12-M7	D 12	M 7 - 11.5	30	10	18
GN 480.8-D12-M8x1	D 12	M 8x1 - 10	30	10	16
GN 480.8-D15-M10x1	D 15	M 10x1 - 10	35	13	29
GN 480.8-D15-G1/8	D 15	G 1/8 - 8	35	13	30
GN 480.8-D16-M12x1,5	D 16	M 12x1.5 - 14	35	14	37
GN 480.8-D16-G1/8	D 16	G 1/8 - 8	35	14	37
GN 480.8-D20-M16x1,5	D 20	M 16x1.5 - 15	40	18	40
GN 480.8-D20-G3/8	D 20	G 3/8 - 12	40	18	36
GN 480.8-D20-G1/4	D 20	G 1/4 - 12	40	18	40



Swivel clamp mountings

Aluminium

SPECIFICATION

Types

- Type **Q**: Clamping bore transverse to the swivel axis
- Type **P**: Clamping bore parallel to the swivel axis

Aluminium

- matt, slide ground **MT**
- anodized black **ELS**

Cylinder head screws DIN 912

Stainless Steel AISI 304

INFORMATION

Swivel clamp mountings GN 482 can be combined with T-Swivel clamp mountings GN 483 (see page 1891) and attachment clamp mountings GN 484 (see page 1892) with the same k dimensions into swivel clamp mounting joints. Clamping kits GN 511.1 (see page 1894) with screw (type S) and adjustable hand lever (type K) are available for this combination.

Also, the clamping screw d₄ which is a cylinder head screw with DIN 912 hexagonal recess in the standard design - can be replaced by a clamping kit GN 511 (see page 1893).

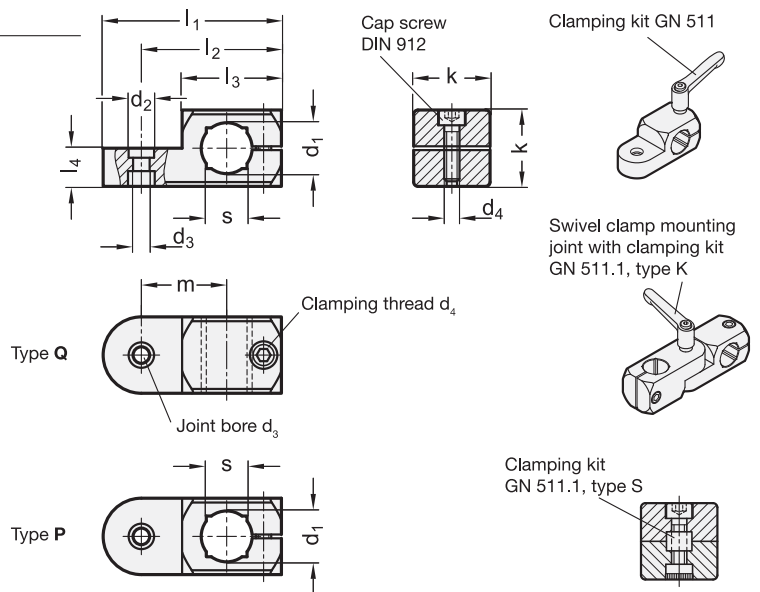
The description for ordering is shown in the dimensional table.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

- Clamping kits GN 511 (see page 1893)
- Clamping kits GN 511.1 (see page 1894)



* Complete with Finish of the Swivel clamp mountings (MT or ELS)

MT	ELS
matt, slide ground	anodized, black

GN 482

Description	d ₁ For shaft tolerance h11	k	d ₂	d ₃	d ₄	l ₁	l ₂	l ₃	m	l ₄	s	Clamping kits for d ₃ Type S/K	Clamping kits for d ₄	
GN 482-B8-16-P-*	B 8	16	7	4.5	M 4	40	32	23	18.5	8	-	GN 511.1-M4-16-S/K	GN 511-M4-16	19
GN 482-B10-20-P-*	B 10	20	8.5	5.5	M 5	50	40	29	23	10	8	GN 511.1-M5-20-S/K	GN 511-M5-20	36
GN 482-B12-20-P-*	B 12	20	8.5	5.5	M 5	50	40	29	23	10	10	GN 511.1-M5-20-S/K	GN 511-M5-20	34
GN 482-B15-25-P-*	B 15	25	10	6.5	M 6	62	49.5	36	29	12.5	12	GN 511.1-M6-25-S/K	GN 511-M6-25	67
GN 482-B16-25-P-*	B 16	25	10	6.5	M 6	62	49.5	36	29	12.5	-	GN 511.1-M6-25-S/K	GN 511-M5-25	66
GN 482-B20-30-P-*	B 20	30	10	6.5	M 6	70	55	39	33.5	15	16	GN 511.1-M6-30-S/K	GN 511-M6-32	99
GN 482-B8-16-Q-*	B 8	16	7	4.5	M 4	40	32	23	18.5	8	-	GN 511.1-M4-16-S/K	GN 511-M4-16	19
GN 482-B10-20-Q-*	B 10	20	8.5	5.5	M 5	50	40	29	23	10	8	GN 511.1-M5-20-S/K	GN 511-M5-20	36
GN 482-B12-20-Q-*	B 12	20	8.5	5.5	M 5	50	40	29	23	10	10	GN 511.1-M5-20-S/K	GN 511-M5-20	35
GN 482-B15-25-Q-*	B 15	25	10	6.5	M 6	62	49.5	36	29	12.5	12	GN 511.1-M6-25-S/K	GN 511-M6-25	60
GN 482-B16-25-Q-*	B 16	25	10	6.5	M 6	62	49.5	36	29	12.5	-	GN 511.1-M6-25-S/K	GN 511-M5-25	65
GN 482-B20-30-Q-*	B 20	30	10	6.5	M 6	70	55	39	33.5	15	16	GN 511.1-M6-30-S/K	GN 511-M6-32	99

Weight ELS

T-swivel clamp mountings

Aluminium

SPECIFICATION

Types

- Type **A**: with bore
- Type **W**: with bolt

Aluminium

- matt, slide ground **MT**
- anodized black **ELS**

Bolt (Type W)

Steel zinc-plated, blue passivated

Grub screw DIN 913 (Type A)

Stainless Steel AISI 304

Grub screw DIN 915 (Type W)

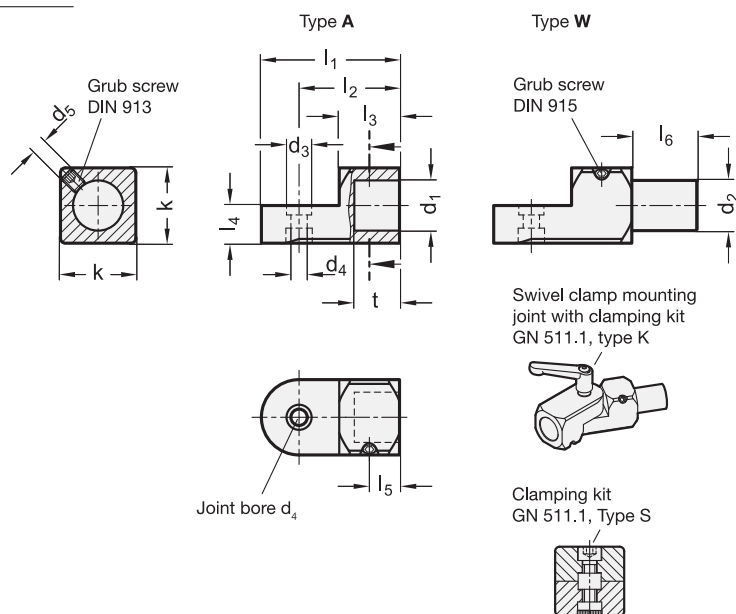
Stainless Steel AISI 304

INFORMATION

T-Swivel clamp mountings GN 483 can be combined with swivel clamp mountings GN 482 (see page 1890) and attachment clamp mountings GN 484 (see page 1892) with the same k dimensions into articulated swivel clamp mounting joints. Clamping kits GN 511.1 (see page 1894) with screw, type S and adjustable hand lever, type K are available for this purpose (description see table of dimensions).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with Finish of the T-Swivel clamp mountings (MT or ELS)

MT matt, slide ground
ELS anodized, black

GN 483

STAINLESS STEEL

Description	d1	d2	k	d3	d4	d5	l1	l2	l3	l4	l5	l6	t	Clamping kits for d4 Type S	Clamping kits for d3 Type K	Weight
GN 483-B8-16-A-*	B 8	-	16	7	4.5	M 4	30	22	13	8	5.5	16	8	GN 511.1-M4-16-S	GN 511.1-M4-16-K	12
GN 483-B10-20-A-*	B 10	-	20	8.5	5.5	M 5	38	28	17	10	7	17	10	GN 511.1-M5-20-S	GN 511.1-M5-20-K	20
GN 483-B12-20-A-*	B 12	-	20	8.5	5.5	M 5	38	28	17	10	8	19	12	GN 511.1-M5-20-S	GN 511.1-M5-20-K	20
GN 483-B15-25-A-*	B 15	-	25	10	6.5	M 6	46	33.5	20	12.5	10	21	15	GN 511.1-M6-25-S	GN 511.1-M6-25-K	40
GN 483-B16-25-A-*	B 16	-	25	10	6.5	M 6	46	33.5	20	12.5	11	24	16	GN 511.1-M6-25-S	GN 511.1-M6-25-K	40
GN 483-B20-30-A-*	B 20	-	30	10	6.5	M 6	55	40	24	15	12	26	18	GN 511.1-M6-30-S	GN 511.1-M6-30-K	80
GN 483-8-16-W-*	-	8	16	7	4.5	M 4	30	22	13	8	5.5	16	8	GN 511.1-M4-16-S	GN 511.1-M4-16-K	20
GN 483-10-20-W-*	-	10	20	8.5	5.5	M 5	38	28	17	10	7	17	10	GN 511.1-M5-20-S	GN 511.1-M5-20-K	42
GN 483-12-20-W-*	-	12	20	8.5	5.5	M 5	38	28	17	10	8	19	12	GN 511.1-M5-20-S	GN 511.1-M5-20-K	51
GN 483-15-25-W-*	-	15	25	10	6.5	M 6	46	33.5	20	12.5	10	21	15	GN 511.1-M6-25-S	GN 511.1-M6-25-K	94
GN 483-16-25-W-*	-	16	25	10	6.5	M 6	46	33.5	20	12.5	11	24	16	GN 511.1-M6-25-S	GN 511.1-M6-25-K	106
GN 483-20-30-W-*	-	20	30	10	6.5	M 6	55	40	24	15	12	26	18	GN 511.1-M6-30-S	GN 511.1-M6-30-K	180

Weight ELS



Attachment clamp mountings

Aluminium

SPECIFICATION

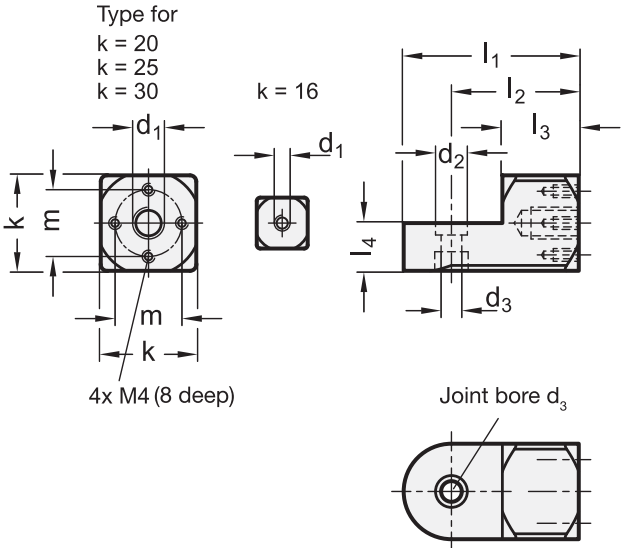
Aluminium

- matt, slide ground **MT**
- anodized black **ELS**

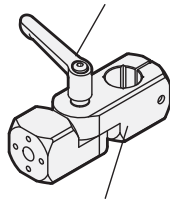
INFORMATION

Attachment clamp mountings GN 484 are primarily designed for mounting sensor holders GN 479 (see page 1895) and retaining plate GN 479.1 (see page 1896). They are fitted with a central thread and for the size with $k = 20$ and higher, an additional bore template $4 \times M4$.

Using swivel clamp mountings GN 482 (see page 1890) and T-Swivel clamp mountings GN 483 (see page 1891) with the same k dimensions, attachment clamp mountings GN 484 are easily combined into articulated swivel clamp mounting joints. Clamping kits GN 511.1 (see page 1894) with screw, type S and adjustable hand lever, type K are available for this purpose (description see table of dimensions).

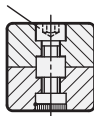


Swivel clamp mounting joint with clamping kit GN 511.1, type K



Swivel clamp mounting GN 482, type P

Clamping kit GN 511.1, Type S



* Complete with Finish of the Attachment clamp mountings (MT or ELS)

MT

matt, slide ground

ELS

anodized, black

GN 484

Description	d1	k	d2	d3	l1	l2	l3	l4	m	Clamping kits for d3 Type S	Clamping kits for d3 Type K	△
GN 484-M5-16-*	M 5	16	7	4.5	30	22	13	8	-	GN 511.1-M4-16-S	GN 511.1-M4-16-K	12
GN 484-M6-16-*	M 6	16	7	4.5	30	22	13	8	-	GN 511.1-M4-16-S	GN 511.1-M4-16-K	12
GN 484-M8-16-*	M 8	16	7	4.5	30	22	13	8	-	GN 511.1-M4-16-S	GN 511.1-M4-16-K	11
GN 484-M6-20-*	M 6	20	8.5	5.5	38	28	17	10	14	GN 511.1-M5-20-S	GN 511.1-M5-20-K	24
GN 484-M8-20-*	M 8	20	8.5	5.5	38	28	17	10	14	GN 511.1-M5-20-S	GN 511.1-M5-20-K	23
GN 484-M8-25-*	M 8	25	10	6.5	46	33.5	20	12.5	17	GN 511.1-M6-25-S	GN 511.1-M6-25-K	46
GN 484-M10-25-*	M 10	25	10	6.5	46	33.5	20	12.5	17	GN 511.1-M6-25-S	GN 511.1-M6-25-K	45
GN 484-M8-30-*	M 8	30	10	6.5	55	40	24	15	20	GN 511.1-M6-30-S	GN 511.1-M6-30-K	84
GN 484-M10-30-*	M 10	30	10	6.5	55	40	24	15	20	GN 511.1-M6-30-S	GN 511.1-M6-30-K	82
GN 484-M12-30-*	M 12	30	10	6.5	55	40	24	15	20	GN 511.1-M6-30-S	GN 511.1-M6-30-K	80

Weight ELS

Clamping lever kits
adjustable, for clamp mountings

SPECIFICATION

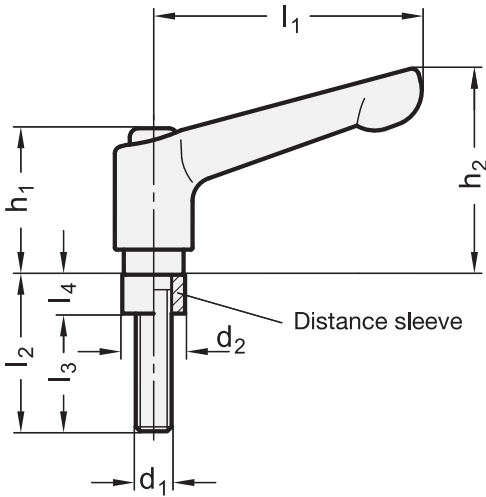
Handle
Zinc die casting
plastic coated
silver, RAL 9006, textured finish
Insert / Distance bushing
Stainless Steel AISI 303

INFORMATION

For clamp mountings, the clamping kits GN 511 replace the hexagon socket screw DIN 912. It is used on all clamping points where repeated clamping actions are required, e.g. for adjusting a stop mechanism. The matching clamping kits for each clamping thread are listed in the dimensional tables of the clamp mountings.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 511

Description	d1	l2	d2	l1	l3	l4	h1	h2	⚖
GN 511-M4-14	M 4	14	7.5	30	9.5	4.5	24.5	30.5	39
GN 511-M4-16	M 4	16	7.5	30	11.5	4.5	24.5	30.5	39
GN 511-M4-20	M 4	20	7.5	30	15.5	4.5	24.5	30.5	41
GN 511-M5-16	M 5	16	9	30	10	6	24.5	30.5	41
GN 511-M5-20	M 5	20	9	30	14	6	24.5	30.5	41
GN 511-M5-25	M 5	25	9	30	19	6	24.5	30.5	41
GN 511-M6-20	M 6	20	10.5	45	13.5	6.5	24.5	35	41
GN 511-M6-25	M 6	25	10.5	45	18.5	6.5	24.5	35	51
GN 511-M6-30	M 6	30	10.5	45	23.5	6.5	24.5	35	52
GN 511-M6-32	M 6	32	10.5	45	25.5	6.5	24.5	35	52



Clamping kits for swivel clamp mountings

SPECIFICATION

Types

- Type **S**: with cylinder head screw DIN 912
- Type **K**: with adjustable hand levers

Handle

Zinc die casting
plastic coated
silver, RAL 9006, textured finish

Threaded insert, distance sleeve,
centering bushing, threaded bushing
Stainless Steel AISI 303

Cylinder head screw DIN 912
Stainless Steel AISI 304

INFORMATION

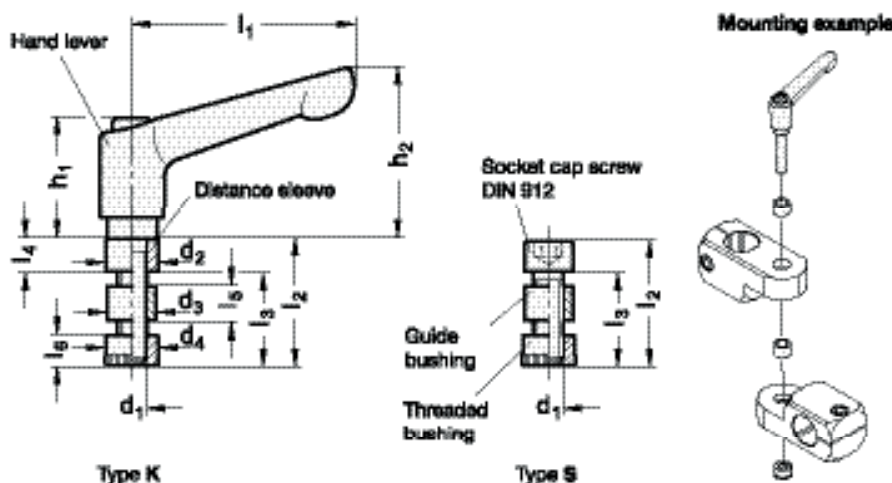
With clamping kits GN 511.1 swivel clamp mountings GN 482 (see page 1890) can be combined with T-Swivel clamp mountings GN 483 (see page 1891) and attachment clamp mountings GN 484 (see page 1892) with the same k-dimensions into swivel clamp mounting joints.

The centering bush positions the swivel clamp mountings in relation to each other. During assembly, the knurled threaded bushing is inserted by the clamping screw itself and by pressing into one of the two swivel clamp mountings and so serves to clamp the articulated joint.

The matching clamping kits are shown in the dimensional tables of the appropriate swivel clamp mountings.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 511.1

Description	d1	l2	d2	d3	d4	l1	l3	l4	l5	l6	h1	h2	Swivel clamp mounting k dimension	
GN 511.1-M4-16-K	M 4	16	7.5	6.9	7.5	30	11.5	4.5	4	4	24.5	30.5	16	30
GN 511.1-M4-16-S	M 4	16	7.5	6.9	7.5	-	11.5	-	4	4	-	-	16	34
GN 511.1-M5-20-K	M 5	20	9	8.4	9	30	14	6	5	5	24.5	30.5	20	12
GN 511.1-M5-20-S	M 5	20	9	8.4	9	-	14	-	5	5	-	-	20	15
GN 511.1-M6-25-K	M 6	25	10.5	9.9	10.5	45	18.5	6.5	7	6	24.5	35	25	120
GN 511.1-M6-25-S	M 6	25	10.5	9.9	10.5	-	18.5	-	7	6	-	-	25	150
GN 511.1-M6-30-K	M 6	30	10.5	9.9	10.5	45	23.5	6.5	7	6	24.5	35	30	150
GN 511.1-M6-30-S	M 6	30	10.5	9.9	10.5	-	23.5	-	7	6	-	-	30	200

Sensor holders

for clamp mountings with threaded holes GN 478 / GN 484

SPECIFICATION

Stainless Steel AISI 303
matt-shot blasted

INFORMATION

The sensor holders GN 479 are designed for holding sensors attached with two lock nuts.

The attachment bore matches the central thread of clamp mountings GN 478 (see page 1884) and attachment clamp mountings GN 484 (see page 1892). For $k=30$, the cross-shaped slotted holes provide extra adjustability and allow the use of two fixing screws.

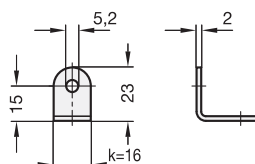
Fixing screws have to be ordered separately.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



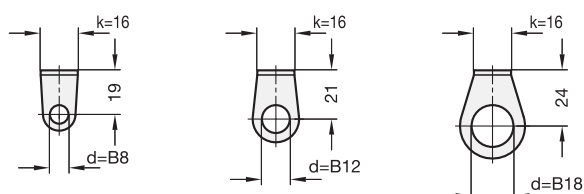
Swivel width $k=16$



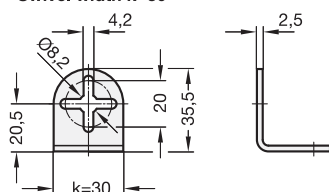
Clamp mounting GN 478

Sensor holder

Front views for different bore- $\varnothing d$



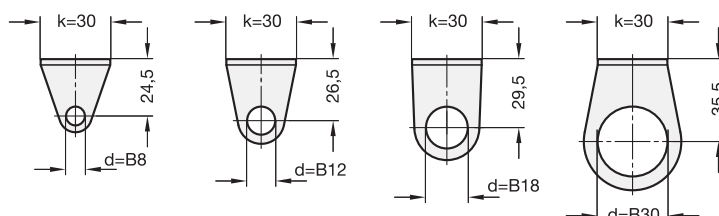
Swivel width $k=30$



Clamp mounting GN 478

Sensor holder

Front views for different bore- $\varnothing d$



GN 479

STAINLESS STEEL

Description	d	k	⚖
GN 479-B8-16	B 8	16	9
GN 479-B8-30	B 8	30	24
GN 479-B12-16	B 12	16	10
GN 479-B12-30	B 12	30	26
GN 479-B18-16	B 18	16	13
GN 479-B18-30	B 18	30	30
GN 479-B30-30	B 30	30	36

Retaining plates

for clamp mountings with threaded holes
GN 478 / GN 484

SPECIFICATION

Stainless Steel AISI 303
matt-shot blasted

INFORMATION

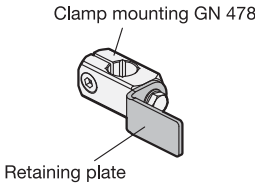
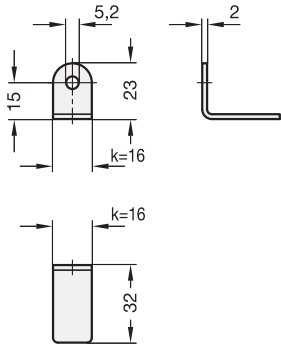
Retaining plates GN 479.1 are designed as universal mounting elements, e.g. for integrating specific hole patterns..
The attachment bore matches the central thread of clamp mountings GN 478 (see page 1884) and attachment clamp mountings GN 484 (see page 1892). For k=30, the cross-shaped slotted holes provide extra adjustability and allow the use of two fixing screws. Fixing screws have to be ordered separately.

TECHNICAL INFORMATION

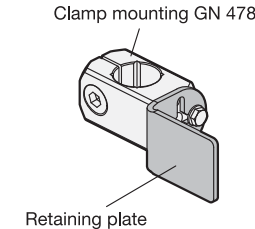
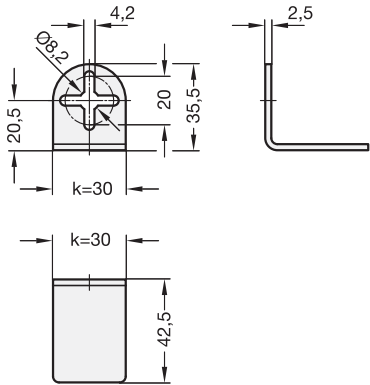
- Stainless Steel characteristics (see page A26)



Swivel width k=16



Swivel width k=30



GN 479.1

STAINLESS STEEL

Description	k	⚖
GN 479.1-16	16	10
GN 479.1-30	30	37

Angled pieces for profile systems 30 / 40 / 45

for slot widths 8 / 10, assembly with T-Nuts / T-Slot bolts

SPECIFICATION

Types

- Type **A**: without assembly set, without cover
- Type **B**: with assembly set, with cover
- Type **C**: with assembly set, without cover

Aluminium

Die casting

matt shot-blasted **MT**

plastic coated

black, RAL 9005, textured finish **SW**

silver, RAL 9006, textured finish **SR**

T-Slot bolt GN 505.4 (see page 980)

with Hexagon flange nut DIN 6923

Steel

zinc plated, blue passivated

T-Nuts GN 505 (see page 979)

with Socket head cap screw DIN 7984

Steel

zinc plated, blue passivated

Cover

Plastic (Polyamide PA)

black, matt

INFORMATION

To fix the angle pieces GN 960 in place, insert the assembly sets into the profile slot through the opening. When tightened, the nut or screw will be cross-positioned and so anchored in the slot.

For crossing profiles or when using the angle piece with elements without slot, the superfluous guide steps can be simply broken out.

After assembly, the cover caps are snapped into place via four lugs. They lend the angle piece an attractive appearance and protect against dirt.

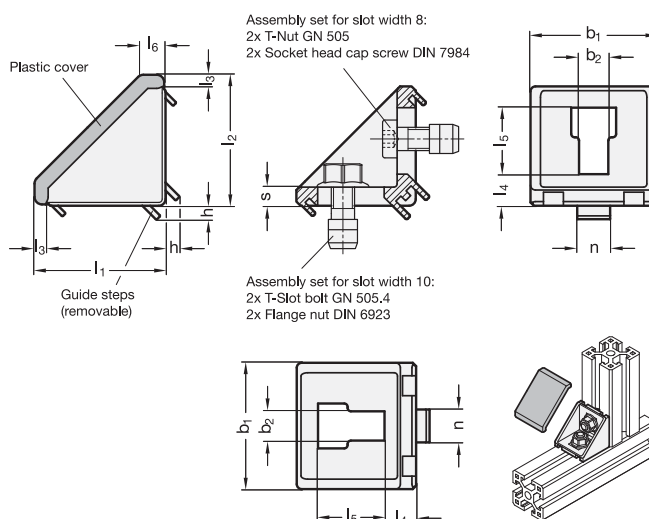
Even after repeated use, the cover caps will remain firmly in place inside the angle pieces thanks to the elastic snap-type lugs. If required, these are also available individually under standard GN 963 (see page 1900).

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)

* Complete with Finish of the Angle pieces for profile systems

MT	SW	SR
matt	RAL9005	RAL9006



GN 960

Description	b Nominal size	b Actual size	n	l1	l2	b2	h	l3	l4	l5	l6	s	⚖
GN 960-30-8-30-30-A-*	30	28	8	30	30	6.3	2.1	-	9.7	10.4	6.8	5.9	23
GN 960-40-10-40-40-A-*	40	38	10	40	40	8.5	4.1	-	9.5	20	7.2	5.6	37
GN 960-45-10-45-45-A-*	45	43	10	45	45	8.5	4.1	-	15.7	18.7	11.5	9.7	63
GN 960-30-8-30-30-B-*	30	28	8	30	30	6.3	2.1	3	9.7	10.4	6.8	5.9	40
GN 960-40-10-40-40-B-*	40	38	10	40	40	8.5	4.1	4	9.5	20	7.2	5.6	80
GN 960-45-10-45-45-B-*	45	43	10	45	45	8.5	4.1	4	15.7	18.7	11.5	9.7	110
GN 960-30-8-30-30-C-*	30	28	8	30	30	6.3	2.1	-	9.7	10.4	6.8	5.9	40
GN 960-40-10-40-40-C-*	40	38	10	40	40	8.5	4.1	-	9.5	20	7.2	5.6	80
GN 960-45-10-45-45-C-*	45	43	10	45	45	8.5	4.1	-	15.7	18.7	11.5	9.7	110

Weight SW

Angled pieces for profile systems 30 / 40

for slot widths 6 / 8, assembly with T-nuts with guide step GN 506

SPECIFICATION

Types

- Type **A**: without assembly set, without cover
- Type **B**: with assembly set, with cover
- Type **C**: with assembly set, without cover

Aluminium

Die casting

matt shot-blasted **MT**

plastic coated

black, RAL 9005, textured finish **SW**

silver, RAL 9006, textured finish **SR**

T-Nuts with guide step GN 506 (see page 982)

Steel

zinc plated, blue passivated

Slotted fillister head screw ISO 7380

Steel

zinc plated, blue passivated

Cover

Plastic (Polyamide PA)

black, matt



INFORMATION

To fix the angle pieces GN 961 in place, first insert the nuts of the assembly set into the profile slot and fix the angle piece with the slotted fillister head screw. The guide step of the nut will then position these in parallel and centered to the slot; the spring element counteracts inadvertent sideways slip.

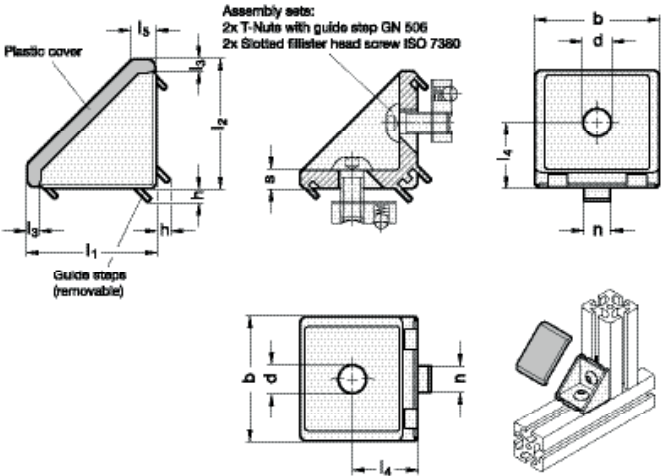
For crossing profiles or when using the angle piece with elements without slot, the superfluous guide steps can be simply broken out.

After assembly, the cover caps are snapped into place via four lugs. They lend the angle piece an attractive appearance and protect against dirt.

Even after repeated use, the cover caps will remain firmly in place inside the angle pieces thanks to the elastic snap-type lugs. If required, these are also available individually under standard GN 963 (see page 1900).

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



* Complete with Finish of the Angle pieces for profile systems

MT **SW** **SR**
matt RAL9005 RAL9006

GN 961

Description	b Nominal size	b Actual size	n	l1	l2	d	h	l3	l4	l5	s	△
GN 961-30-6-30-30-A-*	30	28	6	30	30	6.3	2.6	3	15	6.8	5.9	24
GN 961-40-8-40-40-A-*	40	38	8	40	40	8.5	4.1	4	20	7.2	5.6	40
GN 961-30-6-30-30-B-*	30	28	6	30	30	6.3	2.6	3	15	6.8	5.9	46
GN 961-40-8-40-40-B-*	40	38	8	40	40	8.5	4.1	4	20	7.2	5.6	80
GN 961-30-6-30-30-C-*	30	28	6	30	30	6.3	2.6	3	15	6.8	5.9	40
GN 961-40-8-40-40-C-*	40	38	8	40	40	8.5	4.1	4	20	7.2	5.6	80

Weight SW

Angles for profile structures

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, grey colour similar to RAL 7046, matte finish.

STANDARD EXECUTIONS

- **SQT-A**: with two slots for M8 screws.
- **SQT-F**: with two holes for M8 screws and centering slides.
- **SQT-AF**: with slot and hole for M8 screws and centering slides. In case of assembly with the screws in the slots, we suggest you use screws type UNI 9327.

In case of assembly with the screws in the slots, we suggest you use screws type UNI 9327.

FEATURES AND APPLICATIONS

SQT. connecting angles are particularly suitable for the assembly, in a very easy way, of structures made out of aluminium profiles for safety protections of machines and equipment.

The shape, the sections and the material used guarantee high mechanical characteristics of rigidity, dimensional stability and high resistance to temperature.

TECHNICAL DATA

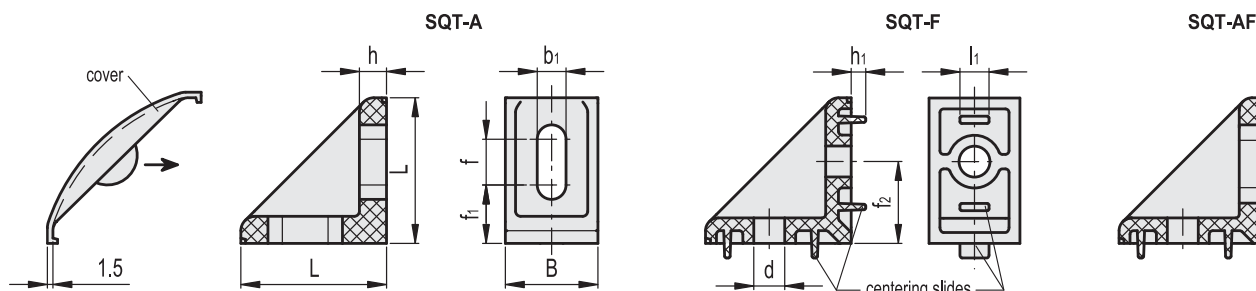
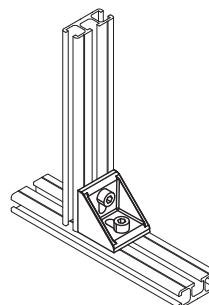
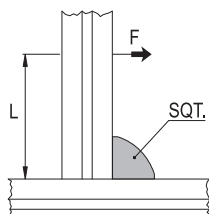
For the correct use, the stresses applied to the angles must satisfy the conditions indicated hereunder.

Code	Description	Covers for
156101	CO.SQT.40-18	SQT.40-18
156103	CO.SQT.40-25	SQT.40-25
156105	CO.SQT.43-43	SQT.43-43

ACCESSORIES ON REQUEST

Polyester based (PBT) technopolymer covers series CO.SQT, grey colour similar to RAL 7046, semi-glossy finish, in order to avoid any deposit of dirt and dust inside the angles.

Description	F [N]	F•L [Nm]
SQT.40-18	< 600	< 25
SQT.40-25	< 700	< 30
SQT.43-43	< 750	< 35



Code	Description	L	B	h	h1	l1	b1	f	f1	f2	d	C# [Nm]	⚖
156111	SQT.40-18-A-8	40	18.5	7	-	-	8.5	13	14.5	-	-	5	12
156113	SQT.40-18-F-8	40	18.5	7	4	8	-	-	-	22.5	8.5	5	14
156115	SQT.40-18-AF-8	40	18.5	7	4	8	8.5	13	14.5	22.5	8.5	5	13
156121	SQT.40-25-A-8	40	25	7	-	-	8.5	13	14.5	-	-	5	18
156123	SQT.40-25-F-8	40	25	7	4	8	-	-	-	22.5	8.5	5	20
156125	SQT.40-25-AF-8	40	25	7	4	8	8.5	13	14.5	22.5	8.5	5	19
156131	SQT.43-43-A-8	43	43	8	-	-	8.5	13	17	-	-	5	32

Suggested tightening torque for assembly screws.

Cover caps

for angle pieces for profile systems

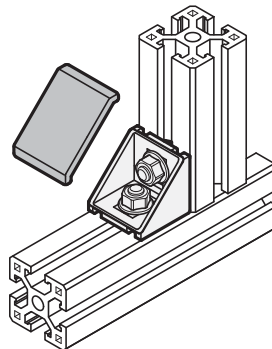
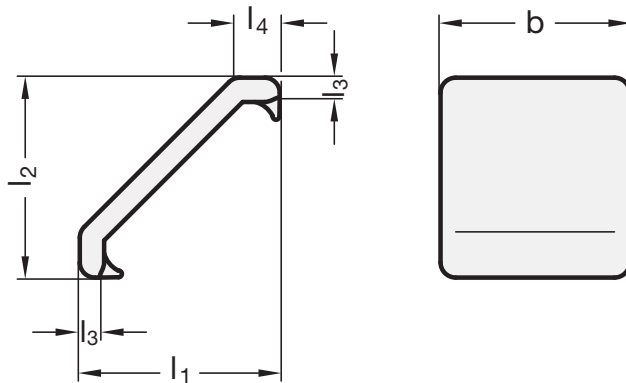
SPECIFICATION

Plastic (Polyamide PA)
black, RAL 9005, textured finish **SW**

INFORMATION

The cover caps GN 963 are suitable for use with angle pieces for profile systems GN 960 (see page 1897) and GN 961 (see page 1898). After assembly the angle pieces, the cover caps are snapped into place via four lugs. They lend the angle piece an attractive appearance and protect against dirt.

Even after repeated use, the cover caps will remain firmly in place inside the angle pieces thanks to the elastic snap-type lugs.



GN 963

Description	b Nominal size	b Actual size	l1	l2	l3	l4	⚖
GN 963-30-30-30-SW	30	28	30	30	3	6.8	3
GN 963-40-40-40-SW	40	38	40	40	4	7.2	6
GN 963-45-45-45-SW	45	43	45	45	4	11.5	9

Tube end plugs

for construction tubes GN 990

SPECIFICATION

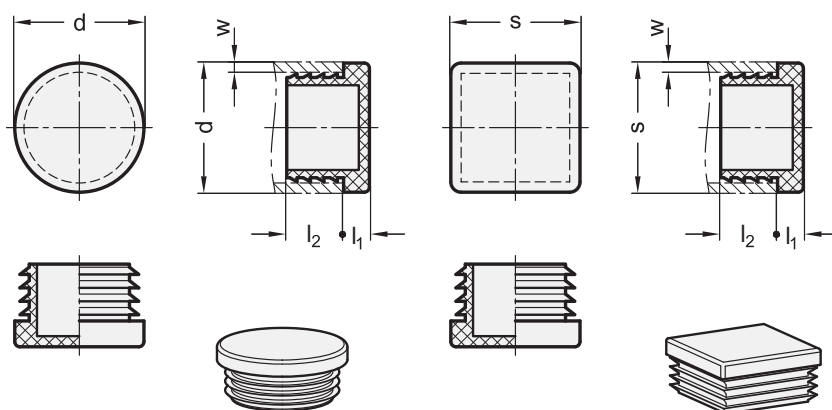
Plastic (Polyethylen PE)
black

INFORMATION

Tube end plugs GN 991 have been designed for sealing tube ends for safety or optical reasons.
They are pressed into the tube end either by hand or with a mallet.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



GN 991

Description	d	w	l1	l2	For tube GN 990	
GN 991-D10	D 10	1 ... 2	3.5	11	D 10	1
GN 991-D12	D 12	1 ... 2	3.5	11	D 12	1
GN 991-D14	D 14	1 ... 2	5	11.5	D 14	1
GN 991-D15	D 15	1 ... 2	3	11.5	D 15	1
GN 991-D16	D 16	1 ... 2	5	11	D 16	1
GN 991-D18	D 18	1 ... 2	5	11.5	D 18	2
GN 991-D20	D 20	1 ... 2	5	11.5	D 20	2
GN 991-D25	D 25	1 ... 2	5	11.5	D 25	3
GN 991-D30	D 30	1 ... 2	5	11.5	D 30	3
GN 991-D32	D 32	1 ... 2	5	12	D 32	4
GN 991-D35	D 35	1 ... 2	5	11.5	D 35	5
GN 991-D40	D 40	1 ... 2	5	11.5	D 40	6
GN 991-D42	D 42	1 ... 2	5	11.5	D 42	6
GN 991-D45	D 45	1 ... 2	5	11	D 45	7
GN 991-D48	D 48	1 ... 2	5	11.5	D 48	8
GN 991-D50	D 50	1 ... 2	5	11.5	D 50	10
GN 991-D55	D 55	1 ... 2	5	14.5	D 55	11
GN 991-D60	D 60	1 ... 2	5	17.5	D 60	14

GN 991

Description	s	w	l1	l2	For tube GN 990	
GN 991-V10	V 10	0.8 ... 2.5	4	8	V 10	1
GN 991-V12	V 12	1 ... 2	4	8	V 12	1
GN 991-V16	V 16	1 ... 2.5	5	6.5	V 16	3
GN 991-V20	V 20	1 ... 3	5	6.5	V 20	3
GN 991-V25	V 25	1 ... 3	5	6.5	V 25	4
GN 991-V30	V 30	1 ... 3	5	6.5	V 30	4
GN 991-V35	V 35	1 ... 3	5	9.5	V 35	7
GN 991-V40	V 40	1 ... 3	5	9.5	V 40	10
GN 991-V45	V 45	1 ... 3	5	9.5	V 45	10
GN 991-V50	V 50	2.6 ... 4	5	9.5	V 50	16



Construction tubes

Steel / Aluminium / Stainless Steel,
for tube clamp connectors

SPECIFICATION

Version in Steel ST

zinc plated, blue passivated **ZB**

Version in Aluminium AL

- blank, untreated **BL**
- anodized, natural colour **EL**

Version in Stainless Steel AISI 304 NI

blank, untreated **BL**

Sawed cross sections deburred blank,
i.e. not surface treated



INFORMATION

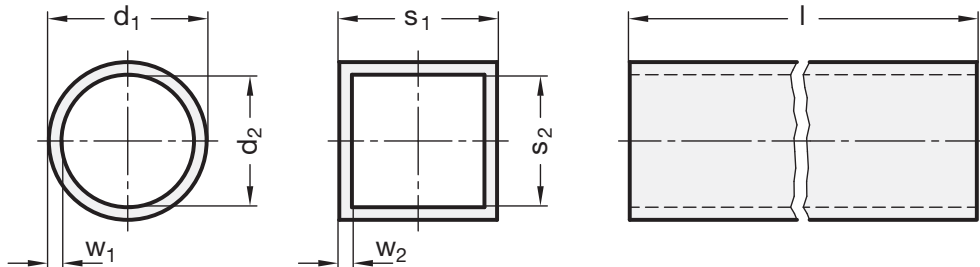
Construction tubes GN 990 can be supplied in any length up to 3000 mm.

The tolerances specified for the outside diameter of the round construction tubes comply with the requirements for split mono-block connector clamps. Otherwise the tolerances comply with DIN 2391, DIN 2395 and DIN 2462.

Two-piece connector clamps allow obviously larger tolerances on construction tubes.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A2)



GN 990

Description	d1	s1	l ±0.5	d2	w1	⚖
GN 990-ST-D10-100-ZB	D 10 ±0.1	-	*	7	1.5	31
GN 990-ST-D12-100-ZB	D 12 ±0.1	-	*	9	1.5	40
GN 990-ST-D14-100-ZB	D 14 ±0.1	-	*	11	1.5	46
GN 990-ST-D15-100-ZB	D 15 ±0.1	-	*	12	1.5	52
GN 990-ST-D16-100-ZB	D 16 ±0.1	-	*	13	1.5	54
GN 990-ST-D18-100-ZB	D 18 ±0.1	-	*	15	1.5	61
GN 990-ST-D20-100-ZB	D 20 ±0.1	-	*	16	2	82
GN 990-ST-D25-100-ZB	D 25 ±0.1	-	*	21	2	113
GN 990-ST-D30-100-ZB	D 30 ±0.1	-	*	26	2	138
GN 990-ST-D32-100-ZB	D 32 ±0.15	-	*	28	2	148
GN 990-ST-D35-100-ZB	D 35 ±0.15	-	*	31	2	163
GN 990-ST-D40-100-ZB	D 40 ±0.15	-	*	34	3	274
GN 990-ST-D42-100-ZB	D 42 ±0.2	-	*	36	3	288
GN 990-ST-D45-100-ZB	D 45 ±0.15	-	*	39	3	312
GN 990-ST-D48-100-ZB	D 48 ±0.2	-	*	42	3	334
GN 990-ST-D50-100-ZB	D 50 ±0.2	-	*	44	3	348
GN 990-ST-D55-100-ZB	D 55 ±0.25	-	*	47	4	503
GN 990-ST-D60-100-ZB	D 60 ±0.25	-	*	52	4	552

* available in all lengths from 50 to 3000 mm (in 1 mm steps)

GN 990

Description	s1	l ±0.5	s2	w2	⚖
GN 990-ST-V20-100-ZB	V 20	*	16	2	112
GN 990-ST-V25-100-ZB	V 25	*	21	2	144
GN 990-ST-V30-100-ZB	V 30	*	26	2	175
GN 990-ST-V35-100-ZB	V 35	*	31	2	206
GN 990-ST-V40-100-ZB	V 40	*	34	3	333
GN 990-ST-V45-100-ZB	V 45	*	39	3	380
GN 990-ST-V50-100-ZB	V 50	*	44	3	428

* available in all lengths from 50 to 3000 mm (in 1 mm steps)

GN 990-AL

Description	d1	s1	l ±0.5	d2	s2	w1	w2	⚖
GN 990-AL-D10-100-BL	D 10 ±0.1	-	*	7	-	1.5	-	11
GN 990-AL-D12-100-BL	D 12 ±0.1	-	*	9	-	1.5	-	14
GN 990-AL-D14-100-BL	D 14 ±0.1	-	*	11	-	1.5	-	16
GN 990-AL-D15-100-BL	D 15 ±0.1	-	*	12	-	1.5	-	18
GN 990-AL-D16-100-BL	D 16 ±0.1	-	*	13	-	1.5	-	18
GN 990-AL-D18-100-BL	D 18 ±0.1	-	*	15	-	1.5	-	21
GN 990-AL-D20-100-BL	D 20 ±0.1	-	*	16	-	2	-	31
GN 990-AL-D25-100-BL	D 25 ±0.1	-	*	21	-	2	-	39
GN 990-AL-D30-100-BL	D 30 ±0.1	-	*	26	-	2	-	48
GN 990-AL-D32-100-BL	D 32 ±0.15	-	*	28	-	2	-	51
GN 990-AL-D35-100-BL	D 35 ±0.15	-	*	31	-	2	-	56
GN 990-AL-D40-100-BL	D 40 ±0.15	-	*	34	-	3	-	93
GN 990-AL-D45-100-BL	D 45 ±0.2	-	*	39	-	3	-	107
GN 990-AL-D48-100-BL	D 48 ±0.2	-	*	42	-	3	-	115
GN 990-AL-D50-100-BL	D 50 ±0.5	-	*	44	-	3	-	120
GN 990-AL-D60-100-BL	D 60 ±0.25	-	*	52	-	4	-	190
GN 990-AL-D10-100-EL	D 10 ±0.1	-	*	7	-	1.5	-	5
GN 990-AL-D12-100-EL	D 12 ±0.1	-	*	9	-	1.5	-	14
GN 990-AL-D14-100-EL	D 14 ±0.1	-	*	11	-	1.5	-	16
GN 990-AL-D15-100-EL	D 15 ±0.1	-	*	12	-	1.5	-	18
GN 990-AL-D16-100-EL	D 16 ±0.1	-	*	13	-	1.5	-	18
GN 990-AL-D18-100-EL	D 18 ±0.1	-	*	15	-	1.5	-	21
GN 990-AL-D20-100-EL	D 20 ±0.1	-	*	16	-	2	-	31
GN 990-AL-D25-100-EL	D 25 ±0.1	-	*	21	-	2	-	39
GN 990-AL-D30-100-EL	D 30 ±0.1	-	*	26	-	2	-	48
GN 990-AL-D32-100-EL	D 32 ±0.15	-	*	28	-	2	-	51
GN 990-AL-D35-100-EL	D 35 ±0.15	-	*	31	-	2	-	56
GN 990-AL-D40-100-EL	D 40 ±0.15	-	*	34	-	3	-	94
GN 990-AL-D45-100-EL	D 45 ±0.2	-	*	39	-	3	-	107
GN 990-AL-D48-100-EL	D 48 ±0.2	-	*	42	-	3	-	115
GN 990-AL-D50-100-EL	D 50 ±0.5	-	*	44	-	3	-	120
GN 990-AL-D60-100-EL	D 60 ±0.25	-	*	52	-	4	-	190
GN 990-AL-V10-100-BL	-	V 10	*	7	7	-	1.5	10
GN 990-AL-V12-100-BL	-	V 12	*	9	9	-	1.5	12
GN 990-AL-V16-100-BL	-	V 16	*	13	13	-	1.5	16
GN 990-AL-V20-100-BL	-	V 20	*	16	16	-	2	39
GN 990-AL-V25-100-BL	-	V 25	*	21	21	-	2	50
GN 990-AL-V30-100-BL	-	V 30	*	26	26	-	2	61
GN 990-AL-V35-100-BL	-	V 35	*	31	31	-	2	71
GN 990-AL-V40-100-BL	-	V 40	*	34	34	-	3	120
GN 990-AL-V45-100-BL	-	V 45	*	39	39	-	3	136
GN 990-AL-V50-100-BL	-	V 50	*	44	44	-	3	152
GN 990-AL-V10-100-EL	-	V 10	*	7	7	-	1.5	10
GN 990-AL-V12-100-EL	-	V 12	*	9	9	-	1.5	12
GN 990-AL-V16-100-EL	-	V 16	*	13	13	-	1.5	16
GN 990-AL-V20-100-EL	-	V 20	*	16	16	-	2	39
GN 990-AL-V25-100-EL	-	V 25	*	21	21	-	2	50
GN 990-AL-V30-100-EL	-	V 30	*	26	26	-	2	61
GN 990-AL-V35-100-EL	-	V 35	*	31	31	-	2	71
GN 990-AL-V40-100-EL	-	V 40	*	34	34	-	3	120
GN 990-AL-V45-100-EL	-	V 45	*	39	39	-	3	137
GN 990-AL-V50-100-EL	-	V 50	*	44	44	-	3	152

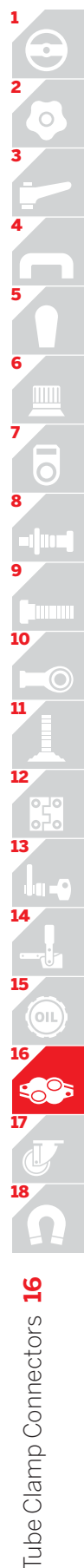
* available in all lengths from 50 to 3000 mm (in 1 mm steps)

GN 990-NI

STAINLESS STEEL

Description	d1	s1	l ±0.5	d2	s2	w1	w2	⚖
GN 990-NI-D10-100-BL	D 10 ±0.1	-	*	7	-	1.5	-	32
GN 990-NI-D12-100-BL	D 12 ±0.1	-	*	9	-	1.5	-	40
GN 990-NI-D14-100-BL	D 14 ±0.1	-	*	11	-	1.5	-	47
GN 990-NI-D15-100-BL	D 15 ±0.1	-	*	12	-	1.5	-	49
GN 990-NI-D16-100-BL	D 16 ±0.1	-	*	13	-	1.5	-	54
GN 990-NI-D18-100-BL	D 18 ±0.1	-	*	15	-	1.5	-	61
GN 990-NI-D20-100-BL	D 20 ±0.1	-	*	16	-	2	-	89
GN 990-NI-D25-100-BL	D 25 ±0.1	-	*	21	-	2	-	114
GN 990-NI-D30-100-BL	D 30 ±0.1	-	*	26	-	2	-	139
GN 990-NI-D32-100-BL	D 32 ±0.15	-	*	28	-	2	-	149
GN 990-NI-D35-100-BL	D 35 ±0.15	-	*	31	-	2	-	164
GN 990-NI-D40-100-BL	D 40 ±0.15	-	*	34	-	3	-	176
GN 990-NI-D42,4-100-BL	D 42.4 (1 1/4")	-	*	37.2	-	2.6	-	253
GN 990-NI-D48,3-100-BL	D 48.3 (1 1/2")	-	*	43.1	-	2.6	-	260
GN 990-NI-D50-100-BL	D 50 ±0.2	-	*	44	-	3	-	350
GN 990-NI-D60-100-BL	D 60 ±0.25	-	*	52	-	4	-	511
GN 990-NI-D60,3-100-BL	D 60.3 (2")	-	*	53.1	-	3.6	-	556
GN 990-NI-V20-100-BL	-	V 20	*	16	16	-	2	120
GN 990-NI-V25-100-BL	-	V 25	*	21	21	-	2	145
GN 990-NI-V30-100-BL	-	V 30	*	26	26	-	2	176
GN 990-NI-V40-100-BL	-	V 40	*	34	34	-	3	335
GN 990-NI-V45-100-BL	-	V 45	*	39	39	-	3	382
GN 990-NI-V50-100-BL	-	V 50	*	44	44	-	3	431

* available in all lengths from 50 to 3000 mm (in 1 mm steps)



Retaining rods / Retaining tubes

Aluminium / Stainless Steel, for clamp mountings

SPECIFICATION

Types

- Type **OS**: without scale
- Type **LS**: with scale (mm-graduation)

Version in Stainless Steel NI

Retaining rods / tubes, round
Stainless Steel AISI 304
ground

Version in Aluminium AL

Retaining square tubes
Aluminium
anodized natural colour
Longitudinal scale engraved
in laser precision



INFORMATION

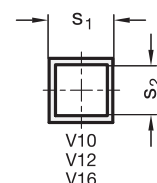
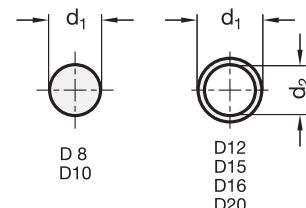
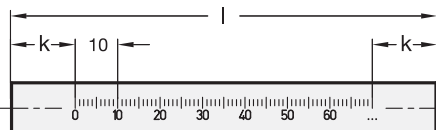
The outside dimensions of the retaining rods / retaining tubes GN 480.1 are matched for use with clamp mountings.
The retaining tubes can also be used as cable lead-through.

ON REQUEST

- Special scales

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 480.1

Description	s1	l	s2	k	⚖
GN 480.1-V10-100-AL-OS	V 10	100	7	15	11
GN 480.1-V10-150-AL-OS	V 10	150	7	15	19
GN 480.1-V10-200-AL-OS	V 10	200	7	15	25
GN 480.1-V10-250-AL-OS	V 10	250	7	15	32
GN 480.1-V10-300-AL-OS	V 10	300	7	15	38
GN 480.1-V10-350-AL-OS	V 10	350	7	15	44
GN 480.1-V10-400-AL-OS	V 10	400	7	15	51
GN 480.1-V12-100-AL-OS	V 12	100	9	15	15
GN 480.1-V12-150-AL-OS	V 12	150	9	15	23
GN 480.1-V12-200-AL-OS	V 12	200	9	15	31
GN 480.1-V12-250-AL-OS	V 12	250	9	15	39
GN 480.1-V12-300-AL-OS	V 12	300	9	15	46
GN 480.1-V12-350-AL-OS	V 12	350	7	15	54
GN 480.1-V12-400-AL-OS	V 12	400	7	15	65
GN 480.1-V16-100-AL-OS	V 16	100	13	20	21
GN 480.1-V16-150-AL-OS	V 16	150	13	20	32
GN 480.1-V16-200-AL-OS	V 16	200	13	20	43
GN 480.1-V16-250-AL-OS	V 16	250	13	20	53
GN 480.1-V16-300-AL-OS	V 16	300	13	20	64
GN 480.1-V16-350-AL-OS	V 16	350	7	15	74
GN 480.1-V16-400-AL-OS	V 16	400	7	15	85

GN 480.1

Description	s1	l	s2	k	⚖
GN 480.1-V10-100-AL-LS	V 10	100	7	15	20
GN 480.1-V10-150-AL-LS	V 10	150	7	15	20
GN 480.1-V10-200-AL-LS	V 10	200	7	15	25
GN 480.1-V10-250-AL-LS	V 10	250	7	15	32
GN 480.1-V10-300-AL-LS	V 10	300	7	15	38
GN 480.1-V10-350-AL-LS	V 10	350	7	15	44
GN 480.1-V10-400-AL-LS	V 10	400	7	15	51
GN 480.1-V12-100-AL-LS	V 12	100	9	15	15
GN 480.1-V12-150-AL-LS	V 12	150	9	15	23
GN 480.1-V12-200-AL-LS	V 12	200	9	15	31
GN 480.1-V12-250-AL-LS	V 12	250	9	15	39
GN 480.1-V12-300-AL-LS	V 12	300	9	15	46
GN 480.1-V12-350-AL-LS	V 12	350	9	15	54
GN 480.1-V12-400-AL-LS	V 12	400	9	15	65
GN 480.1-V16-100-AL-LS	V 16	100	13	20	21
GN 480.1-V16-150-AL-LS	V 16	150	13	20	32
GN 480.1-V16-200-AL-LS	V 16	200	13	20	43
GN 480.1-V16-250-AL-LS	V 16	250	13	20	53
GN 480.1-V16-300-AL-LS	V 16	300	13	20	64
GN 480.1-V16-350-AL-LS	V 16	350	13	20	80
GN 480.1-V16-400-AL-LS	V 16	400	13	20	100

GN 480.1-NI

STAINLESS STEEL

Description	d1	l	d2	k	
GN 480.1-D8-100-NI-OS	D 8	100	-	15	39
GN 480.1-D8-150-NI-OS	D 8	150	-	15	59
GN 480.1-D8-200-NI-OS	D 8	200	-	15	78
GN 480.1-D8-250-NI-OS	D 8	250	-	15	98
GN 480.1-D8-300-NI-OS	D 8	300	-	15	118
GN 480.1-D8-350-NI-OS	D 8	350	-	15	138
GN 480.1-D8-400-NI-OS	D 8	400	-	15	158
GN 480.1-D10-100-NI-OS	D 10	100	-	15	62
GN 480.1-D10-150-NI-OS	D 10	150	-	15	92
GN 480.1-D10-200-NI-OS	D 10	200	-	15	123
GN 480.1-D10-250-NI-OS	D 10	250	-	15	154
GN 480.1-D10-300-NI-OS	D 10	300	-	15	185
GN 480.1-D10-350-NI-OS	D 10	350	-	15	217
GN 480.1-D10-400-NI-OS	D 10	400	-	15	250
GN 480.1-D12-100-NI-OS	D 12	100	9	15	37
GN 480.1-D12-150-NI-OS	D 12	150	9	15	56
GN 480.1-D12-200-NI-OS	D 12	200	9	15	74
GN 480.1-D12-250-NI-OS	D 12	250	9	15	93
GN 480.1-D12-300-NI-OS	D 12	300	9	15	112
GN 480.1-D12-350-NI-OS	D 12	350	9	15	129
GN 480.1-D12-400-NI-OS	D 12	400	9	15	148
GN 480.1-D15-100-NI-OS	D 15	100	12	20	46
GN 480.1-D15-150-NI-OS	D 15	150	12	20	69
GN 480.1-D15-200-NI-OS	D 15	200	12	20	96
GN 480.1-D15-250-NI-OS	D 15	250	12	20	114
GN 480.1-D15-300-NI-OS	D 15	300	12	20	146
GN 480.1-D15-350-NI-OS	D 15	350	12	20	156
GN 480.1-D15-400-NI-OS	D 15	400	12	20	188
GN 480.1-D16-100-NI-OS	D 16	100	13	20	50
GN 480.1-D16-150-NI-OS	D 16	150	13	20	76
GN 480.1-D16-200-NI-OS	D 16	200	13	20	101
GN 480.1-D16-250-NI-OS	D 16	250	13	20	126
GN 480.1-D16-300-NI-OS	D 16	300	13	20	151
GN 480.1-D16-350-NI-OS	D 16	350	13	20	184
GN 480.1-D16-400-NI-OS	D 16	400	13	20	209
GN 480.1-D20-100-NI-OS	D 20	100	16	25	85
GN 480.1-D20-150-NI-OS	D 20	150	16	25	133
GN 480.1-D20-200-NI-OS	D 20	200	16	25	170
GN 480.1-D20-250-NI-OS	D 20	250	16	25	213
GN 480.1-D20-300-NI-OS	D 20	300	16	25	256
GN 480.1-D20-350-NI-OS	D 20	350	16	25	288
GN 480.1-D20-400-NI-OS	D 20	400	16	25	356

GN 480.1-NI

STAINLESS STEEL

Description	d1	l	d2	k	
GN 480.1-D8-100-NI-LS	D 8	100	-	15	39
GN 480.1-D8-150-NI-LS	D 8	150	-	15	59
GN 480.1-D8-200-NI-LS	D 8	200	-	15	78
GN 480.1-D8-250-NI-LS	D 8	250	-	15	98
GN 480.1-D8-300-NI-LS	D 8	300	-	15	118
GN 480.1-D8-350-NI-LS	D 8	350	-	15	118
GN 480.1-D8-400-NI-LS	D 8	400	-	15	150
GN 480.1-D10-100-NI-LS	D 10	100	-	15	62
GN 480.1-D10-150-NI-LS	D 10	150	-	15	95
GN 480.1-D10-200-NI-LS	D 10	200	-	15	123
GN 480.1-D10-250-NI-LS	D 10	250	-	15	154
GN 480.1-D10-300-NI-LS	D 10	300	-	15	180
GN 480.1-D10-350-NI-LS	D 10	350	-	15	217
GN 480.1-D10-400-NI-LS	D 10	400	-	15	247
GN 480.1-D12-100-NI-LS	D 12	100	9	15	37
GN 480.1-D12-150-NI-LS	D 12	150	9	15	56
GN 480.1-D12-200-NI-LS	D 12	200	9	15	74
GN 480.1-D12-250-NI-LS	D 12	250	9	15	93
GN 480.1-D12-300-NI-LS	D 12	300	9	15	112
GN 480.1-D12-350-NI-LS	D 12	350	9	15	120
GN 480.1-D12-400-NI-LS	D 12	400	9	15	150
GN 480.1-D15-100-NI-LS	D 15	100	12	20	90
GN 480.1-D15-150-NI-LS	D 15	150	12	20	90
GN 480.1-D15-200-NI-LS	D 15	200	12	20	90
GN 480.1-D15-250-NI-LS	D 15	250	12	20	90
GN 480.1-D15-300-NI-LS	D 15	300	12	20	140
GN 480.1-D15-350-NI-LS	D 15	350	12	20	156
GN 480.1-D15-400-NI-LS	D 15	400	12	20	190
GN 480.1-D16-100-NI-LS	D 16	100	13	20	50
GN 480.1-D16-150-NI-LS	D 16	150	13	20	80
GN 480.1-D16-200-NI-LS	D 16	200	13	20	100
GN 480.1-D16-250-NI-LS	D 16	250	13	20	120
GN 480.1-D16-300-NI-LS	D 16	300	13	20	160
GN 480.1-D16-350-NI-LS	D 16	350	13	20	184
GN 480.1-D16-400-NI-LS	D 16	400	13	20	210
GN 480.1-D20-100-NI-LS	D 20	100	16	25	85
GN 480.1-D20-150-NI-LS	D 20	150	16	25	127
GN 480.1-D20-200-NI-LS	D 20	200	16	25	170
GN 480.1-D20-250-NI-LS	D 20	250	16	25	213
GN 480.1-D20-300-NI-LS	D 20	300	16	25	256
GN 480.1-D20-350-NI-LS	D 20	350	16	25	300
GN 480.1-D20-400-NI-LS	D 20	400	16	25	340



Connecting clamps

Technopolymer

STANDARD COMPONENTS

- **MSX-B base:** glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish. Fitting by means of a stainless steel M5 cylindrical-head screw with hexagon socket and nut.
- **MSX-C T-shaped clamp:** glass-fibre reinforced technopolymer, black colour, matte finish. Fitting by means of stainless steel M5 cylindrical-head screws with hexagon socket and nuts.
- **MSX-TA-TB-TC-TD-TE-TF device clamps:** glass-fibre reinforced technopolymer, black colour, matte finish. Fitting by means of a stainless steel M5 cylindrical-head screw with hexagon socket and nut.

FEATURES AND APPLICATIONS

The geometry of the holes of MSX. series connecting clamps are designed to fit both tubes with round cross section and tubes with square cross section; the latter prevents the elements from rotating (see Fig. 1).

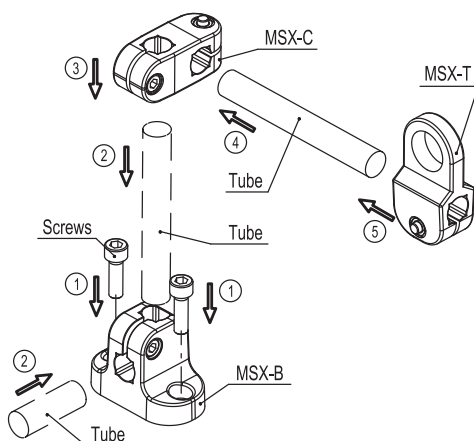
ASSEMBLY INSTRUCTIONS

1. Assemble the base by means of 2 M6 cylindrical head screws with hexagon socket (not supplied).
2. Fit the connecting tube into the hole of the base and clamp it by screwing the set screw. Suggested tightening torque 5Nm.
3. Insert the connecting tube in the shaped hole of the two-way clamp.
4. Fit the other connecting tube into the hole of the two-way clamp.
5. Fit on the connecting tube the proper device clamp, chosen within the six available. After the positioning of the components, clamp them by screwing the set screws. Suggested tightening torque 5Nm.

Fig.1



Assembly instructions



FM design





MSX-B

Code	Description	d	s	Pull out resistance# [N]	Rotation resistance# [Nm]	⚖
440101	MSX.56-B-8-10	10	8	900	4	32
440102	MSX.56-B-10-12	12	10	1000	4.5	31
440103	MSX.56-B-12-14	14	12	1100	5	28



MSX-C

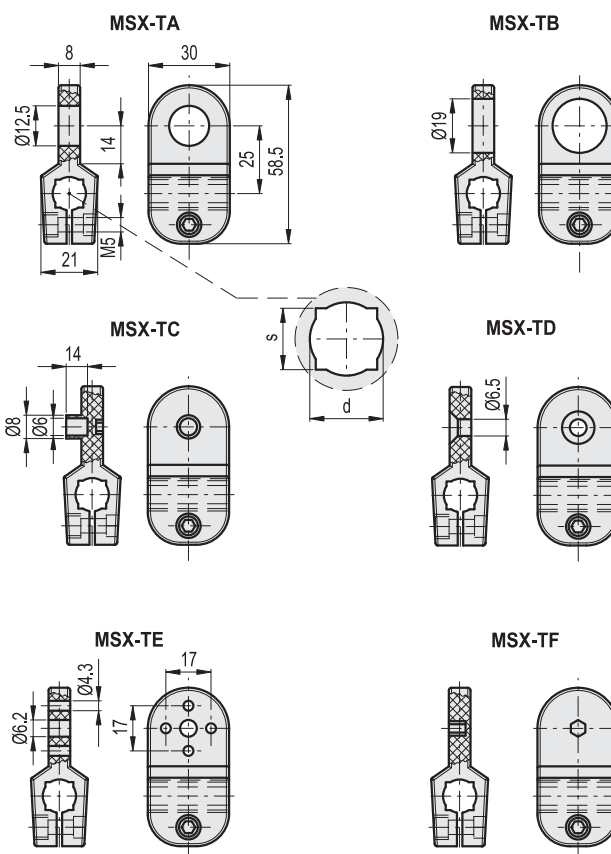
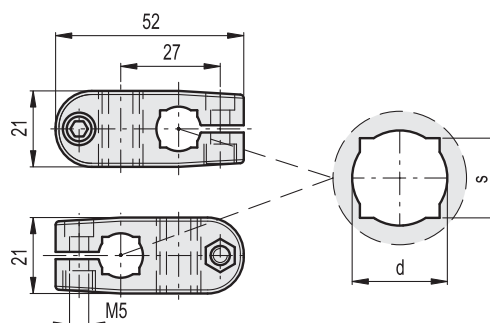
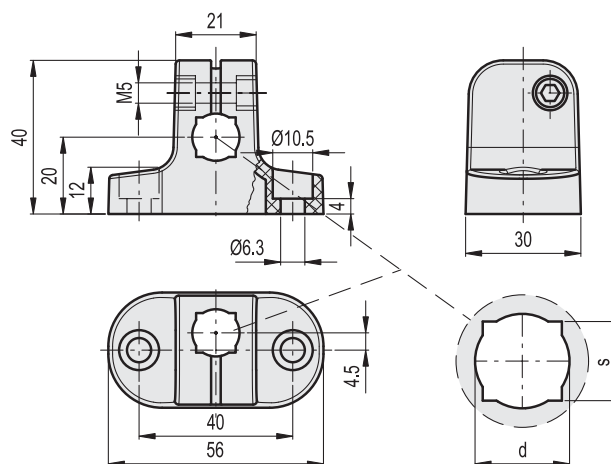
Code	Description	d	s	Pull out resistance# [N]	Rotation resistance# [Nm]	⚖
440121	MSX.56-C-8-10	10	8	900	4.5	24
440122	MSX.56-C-10-12	12	10	1000	5	23
440123	MSX.56-C-12-14	14	12	1100	5.5	20



MSX-TA-TB-TC-TD-TE-TF

Code	Description	d	s	Pull out resistance# [N]	Rotation resistance# [Nm]	⚖
440131	MSX.56-TA-8-10	10	8	900	4	23
440132	MSX.56-TA-10-12	12	10	1000	4.5	22
440133	MSX.56-TA-12-14	14	12	1100	5	21
440135	MSX.56-TB-8-10	10	8	900	4	21
440136	MSX.56-TB-10-12	12	10	1000	4.5	20
440137	MSX.56-TB-12-14	14	12	1100	5	19
440139	MSX.56-TC-8-10	10	8	900	4	25
440140	MSX.56-TC-10-12	12	10	1000	4.5	24
440141	MSX.56-TC-12-14	14	12	1100	5	23
440143	MSX.56-TD-8-10	10	8	900	4	24
440144	MSX.56-TD-10-12	12	10	1000	4.5	23
440145	MSX.56-TD-12-14	14	12	1100	5	22
440147	MSX.56-TE-8-10	10	8	900	4	23
440148	MSX.56-TE-10-12	12	10	1000	4.5	22
440149	MSX.56-TE-12-14	14	12	1100	5	21
440151	MSX.56-TF-8-10	10	8	900	4	24
440152	MSX.56-TF-10-12	12	10	1000	4.5	23
440153	MSX.56-TF-12-14	14	12	1100	5	22

Tests carried out with round tube.



Connecting clamps

Technopolymer and aluminium

STANDARD COMPONENTS

- **MSR.60-B base:** glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
- **CC-MSR.60 screw covers:** technopolymer in six colours, glossy finish. Supplied, push-fit assembly, removable by a screwdriver. Available also as accessories sold separately (see table CC-MSR).

Code	Description	Boss cap for
440011-*	CC-MSR.60-*	MSR.60-B

* Complete with colour index (C1, ..., C6).

- **MSR.60-C Two-way clamp:** glass-fibre reinforced technopolymer, black colour, matte finish.
- **MSR.60-TA-TB-TC-TD-TE-TF device clamps:** glass-fibre reinforced technopolymer, black colour, matte finish.
- **MSR.60-T13 connecting tubes:** aluminium profile available with standard lengths from 100 to 2000 mm. On request and for sufficient quantities other lengths are available.
- **Connecting tube closing caps:** glass-fibre reinforced technopolymer, black colour, matte finish. Supplied, push-fit assembly. To be ordered also separately (code 440016 description TC13-MSR.60).

FEATURES AND APPLICATIONS

MSR. connecting clamps, designed according to ELESIA patent, allow an easy and efficient connection between the components, preventing the risk of rotating freely. The system allows the axial, perpendicular or angled positioning of the connecting tube to the base.

ADVANTAGES

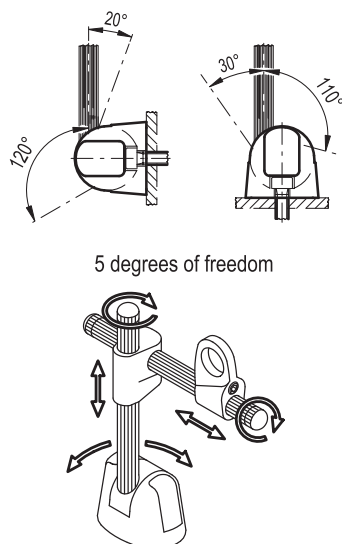
The slot-shaped connecting tube preventing free rotation. Tube and components clamped by the aid of only one screw. Easy adjustments by five degrees of freedom of the clamped devices (see drawing). Lack of cavities to avoid the deposit of dirt and undesired substances. Easy identification of the clamped device using different coloured caps on the base.



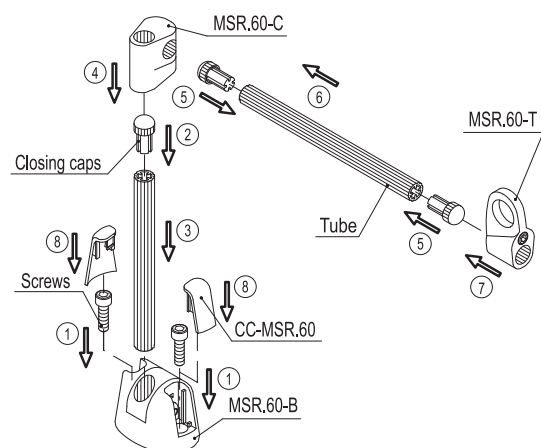
FM design

ASSEMBLY INSTRUCTIONS

1. Assemble the base by means of 2 M6 cylindrical head screws with hexagon socket (not supplied).
2. Fit one of the closing caps to the end of the connecting tube by tapping gently with a plastic mallet until firmly in place. Be careful not to assemble the cap to the end fitted to the base.
3. Insert the connecting tube in the shaped hole of the base and clamp it by screwing the set screw. Suggested tightening torque 5 Nm.
4. Insert the connecting tube in the shaped hole of the two-way clamp.
5. Fit the closing caps to the connecting tube.
6. Insert the connecting tube in the shaped hole of the two-way clamp.
7. Fit on the connecting tube the proper device clamp, chosen within the six available. After the positioning of the components, clamp them by screwing the set screws. Suggested tightening torque 3 Nm. We recommend not to exceed this value.
8. Once the adjustment has been set, fit the screw covers on the base.



Assembly instructions





* Complete with colour index, example: 440001-C9 MSR.60-B-C9

C9
C2
C3
C4
C5
C6
 RAL9005 RAL2004 RAL7035 RAL1021 RAL5024 RAL3000

MSR.60-B

Code	Description	Pull out resistance [N]	⚖
440001-*	MSR.60-B-*	300	50



MSR.60-C

Code	Description	Pull out resistance [N]	⚖
440021	MSR.60-C	300	19



MSR.60-TA-TB-TC-TD-TE-TF

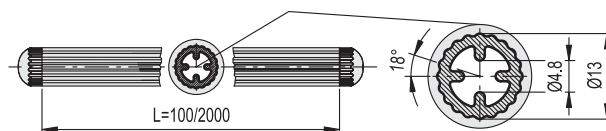
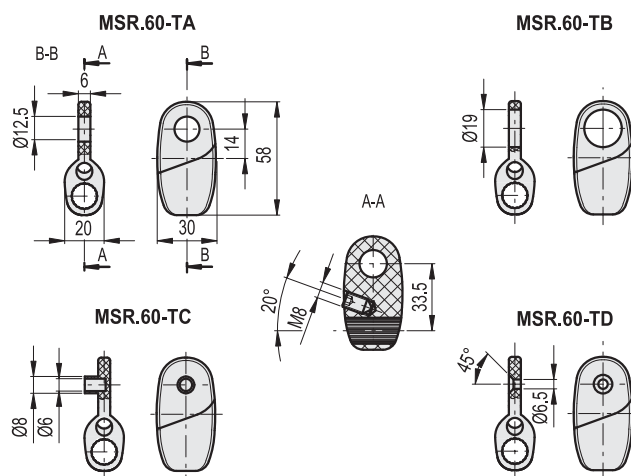
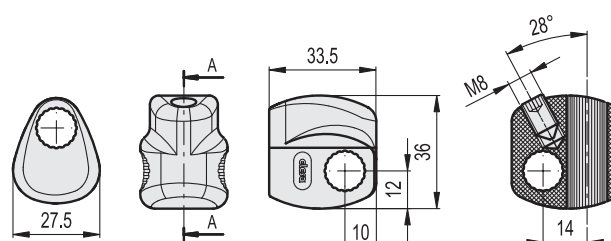
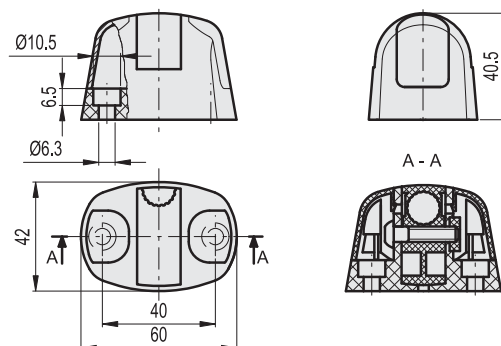
Code	Description	Pull out resistance [N]	⚖
440031	MSR.60-TA	300	18
440032	MSR.60-TB	300	17
440033	MSR.60-TC	300	19
440034	MSR.60-TD	300	18
440035	MSR.60-TE	300	18
440036	MSR.60-TF	300	20



MSR.60-T13

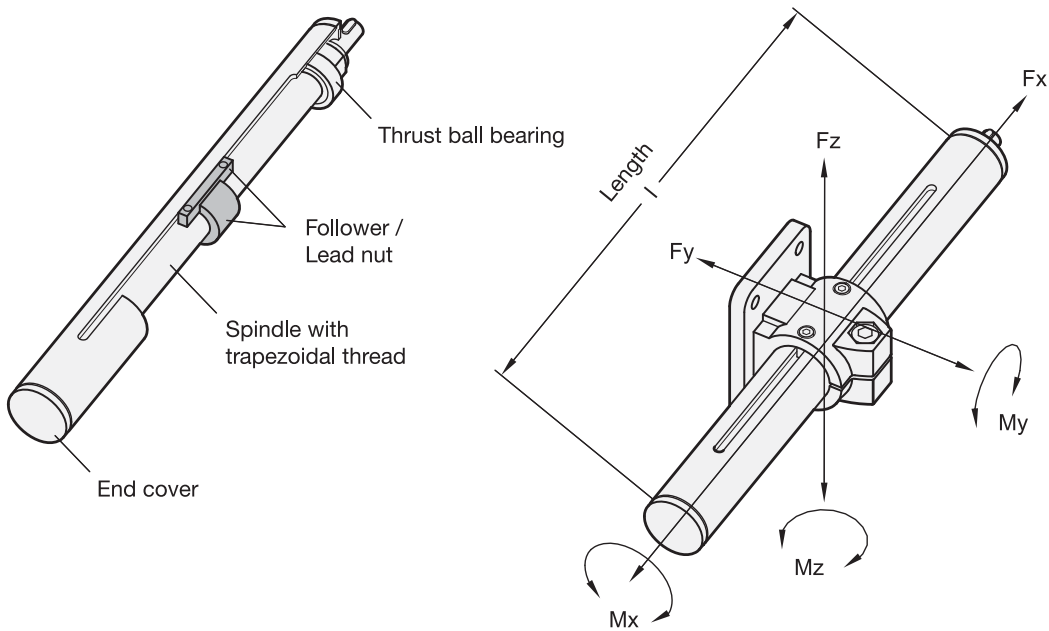
Code	Description	L	⚖
440050	MSR.60-T13-100	100	20
440055	MSR.60-T13-150	150	28
440060	MSR.60-T13-200	200	36
440065	MSR.60-T13-250	250	44
440070	MSR.60-T13-300	300	52
440200	MSR.60-T13-2000*	2000	320

* Supplied without closing caps.



Linear actuators

Technical description



Ø Linear actuator	Fx in N	Fy in N			Fz in N			Mx in Nm	My in Nm	Mz in Nm
		l = 500	l = 1000	l = 1500	l = 500	l = 1000	l = 1500			
18	400	80	-	-	65	-	-	1.5	4.5	4.5
30	850	500	70	15	550	55	10	6.5	15	15
40	1100	2150	250	65	1900	150	50	15	42	42
50	1750	3100	650	150	3100	650	150	29	69	69
60	2600	4550	1500	400	4550	1400	350	45	125	125

The load data are applicable to linear actuators GN 291 (see page 1912), GN 292 (see page 1914), GN 293 (see page 1915) made of Steel (SCR) or Stainless Steel (NI).

The specified forces F_y and F_z cause a flexure of the guide tube of approx. 0.5 mm.

A lead nut moves in axial direction over the ball bearing trapezoidal thread spindle of the linear actuator. The follower ensures the anti-rotation and makes the link to the different linear actuator connectors. The linear actuators have been designed for manual operation (handwheel).

The positioning accuracy is 0.2 mm / 300 mm stroke, the maximum reverse play is 0.1 mm.

Guide tubes are available in chromed Steel (SCR) or Stainless Steel (NI) non-rusting. They are made with the tolerance range of precision steel tubes DIN 2391 or DIN 2462.

A wide variety of different components are available in the tube clamp connector program to fix the linear actuators in place and to upgrade these into linear actuator connectors.

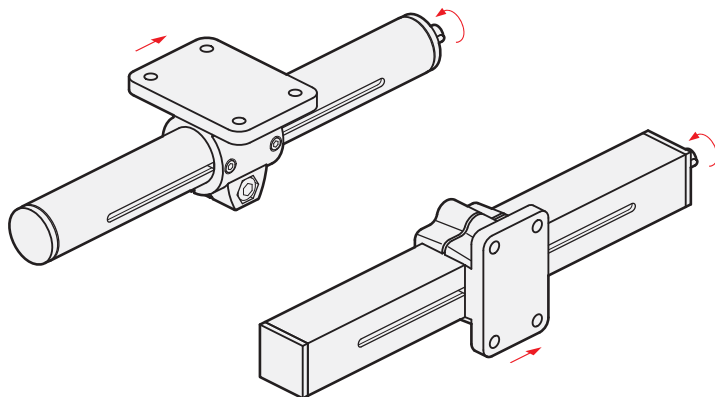
Also, digital position indicators (DD52, see page 721 / DD51, see page 718 / DD52R-E, see page 726 / DD51-E, see page 724) may be attached to measure the displacement or the positioning.

In applications where high torsion forces M_x occur, linear actuators with square tubing or double tube linear actuators should be given preference.

A wide variety of different components from the tube clamp connector program is also available for the square tubings. The linear actuator connectors are composed of two-part elements, with the effect that the precision of the square tubes involves no special requirements.

Linear actuators

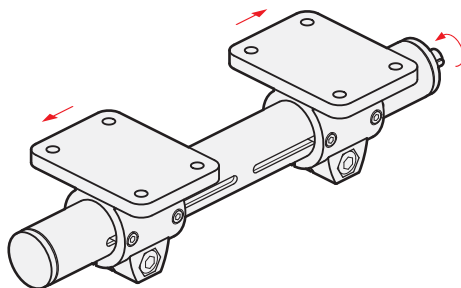
Types



DESCRIPTION

Linear actuator **GN 291** (see page 1912) with right **or** left hand thread, with shaft journal at either one or both ends, with a linear actuator connector **GN 146.1** (see page 1923).

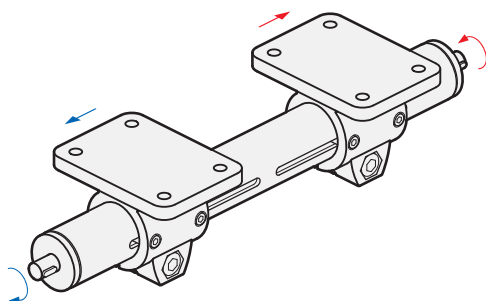
Square linear actuator GN 291.1 (see page 1930) with right **or** left hand thread, shaft journal at either one or both ends, with a linear actuator connector **GN 147.1** (see page 1933).



DESCRIPTION

Linear actuator **GN 292** (see page 1914) with left **and** right hand thread, shaft journal at either one or both ends, with two linear actuator connectors **GN 146.1** (see page 1923), the two connectors move symmetrically.

Square linear actuators **GN 292.1** on request.



DESCRIPTION

Linear actuator **GN 293** (see page 1915) with two separate threaded spindles, each with right **or** left hand thread with two linear actuator connectors **GN 146.1** (see page 1923), the two connectors move independently of one another.

Square linear actuators **GN 293.1** on request.

Linear actuators

Steel / Stainless Steel, with right or left hand thread

SPECIFICATION

Types

- Type **R1**: Right hand thread, shaft journal at one end
- Type **R2***: Right hand thread, shaft journal at both ends
- Type **L1**: Left hand thread, shaft journal at one end
- Type **L2***: Left hand thread, shaft journal at both ends

* usually not available from stock

Guide tube

Version in Steel

Tube DIN 2391

Steel, chrome-plated **SCR**

Version in Stainless Steel*

Tube DIN 2462

Stainless Steel AISI 304 **NI**

* usually not available from stock

Spindle with trapezoidal thread

- Steel respectively, Stainless Steel AISI 303
- ball bearing

Lead nut

Gunmetal

End cap

Plastic



ACCESSORY

- Linear actuator connectors, tube clamp connectors have to be ordered separately.

ON REQUEST

- Tube DIN 2462 in Stainless Steel **NI**

INFORMATION

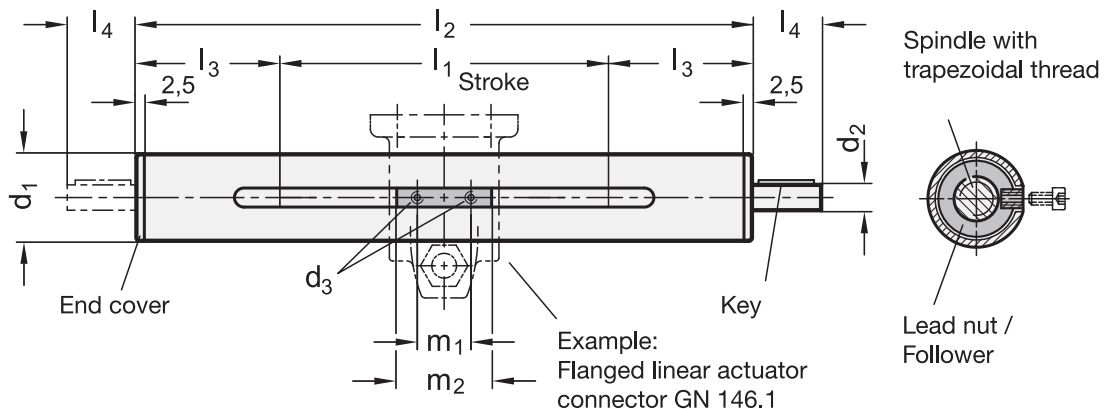
In addition to the standard stroke lengths specified in the above table for linear actuators GN 291 any stroke inside the maximum stroke length is available.

Besides the extensive range of tube clamp connectors there are a number of different components for fixing the linear actuators and to build linear actuator connectors.

In order to measure the displacement and positioning of the linear actuator connectors, digital as well as analogue position indicators can be installed and furthermore the guide tube can be provided with a longitudinal scale.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Technical description of Linear actuators (see page 1910)



GN 291

Description	d1	l1	Max. stroke	Threaded spindle	d2 f7	d3	l2	l3	l4	m1	m2	For key DIN 6885	
GN 291-18-65-R1-SCR	18	65	350	TR10x3	6	M 3	l1+140	70	16	17	24	A2x2x12	230
GN 291-18-165-R1-SCR	18	165	350	TR10x3	6	M 3	l1+140	70	16	17	24	A2x2x12	330
GN 291-18-265-R1-SCR	18	265	350	TR10x3	6	M 3	l1+140	70	16	17	24	A2x2x12	430
GN 291-30-100-R1-SCR	30	100	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	780
GN 291-30-150-R1-SCR	30	150	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	890
GN 291-30-200-R1-SCR	30	200	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	1000
GN 291-30-300-R1-SCR	30	300	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	1210
GN 291-40-70-R1-SCR	40	70	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	1640
GN 291-40-170-R1-SCR	40	170	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2080
GN 291-40-220-R1-SCR	40	220	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2310
GN 291-40-270-R1-SCR	40	270	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2530
GN 291-40-320-R1-SCR	40	320	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2750
GN 291-50-65-R1-SCR	50	65	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	2410
GN 291-50-115-R1-SCR	50	115	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	2720
GN 291-50-215-R1-SCR	50	215	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3000
GN 291-50-265-R1-SCR	50	265	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3670
GN 291-50-315-R1-SCR	50	315	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3990
GN 291-60-220-R1-SCR	60	220	1520	TR24x5	14	M 8	l1+285	142.5	19	58	70	A5x5x16	5300
GN 291-60-720-R1-SCR	60	720	1520	TR24x5	14	M 8	l1+285	142.5	19	58	70	A5x5x16	10000
GN 291-18-65-L1-SCR	18	65	350	TR10x3	6	M 3	l1+140	70	16	17	24	A2x2x12	230
GN 291-18-165-L1-SCR	18	165	350	TR10x3	6	M 3	l1+140	70	16	17	24	A2x2x12	330
GN 291-18-265-L1-SCR	18	265	350	TR10x3	6	M 3	l1+140	70	16	17	24	A2x2x12	430
GN 291-30-100-L1-SCR	30	100	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	780
GN 291-30-150-L1-SCR	30	150	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	890
GN 291-30-200-L1-SCR	30	200	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	1000
GN 291-30-300-L1-SCR	30	300	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	1210
GN 291-40-70-L1-SCR	40	70	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	1640
GN 291-40-170-L1-SCR	40	170	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2080
GN 291-40-220-L1-SCR	40	220	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2310
GN 291-40-270-L1-SCR	40	270	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2530
GN 291-40-320-L1-SCR	40	320	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2750
GN 291-50-65-L1-SCR	50	65	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3000
GN 291-50-115-L1-SCR	50	115	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	2720
GN 291-50-215-L1-SCR	50	215	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3360
GN 291-50-265-L1-SCR	50	265	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3670
GN 291-50-315-L1-SCR	50	315	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3990
GN 291-60-220-L1-SCR	60	220	1520	TR24x5	14	M 8	l1+285	142.5	19	58	70	A5x5x16	5300
GN 291-60-720-L1-SCR	60	720	1520	TR24x5	14	M 8	l1+285	142.5	19	58	70	A5x5x16	9800



Linear actuators

Steel / Stainless Steel, with right and left hand thread

SPECIFICATION

Types

- Type **RL1**: Shaft journal at one end
- Type **RL2**: Shaft journal at both ends

Guide tube

Version in Steel

Tube DIN 2391

Steel, chrome-plated **SCR**

Version in Stainless Steel*

Tube DIN 2462

Stainless Steel AISI 304 **NI**

* usually not available from stock

Spindle with trapezoidal thread

Steel respectively

Stainless Steel AISI 303

ball bearing

Lead nut

Gunmetal

End cap

Plastic



ACCESSORY

- Linear actuator connectors, tube clamp connectors and accessory have to be ordered separately.

ON REQUEST

- Special lengths

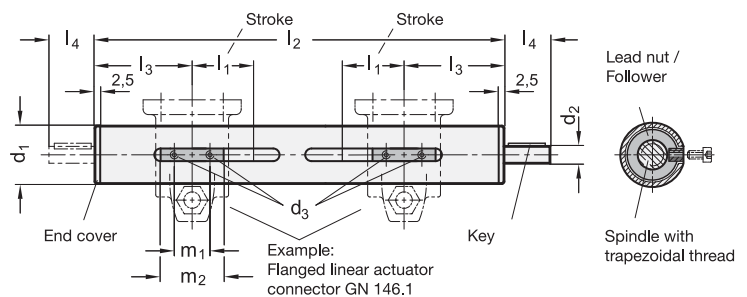
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Technical description of Linear actuators (see page 1910)

INFORMATION

In addition to the standard stroke lengths specified in the above table for linear actuators GN 292 any stroke inside the maximum stroke length is available. Besides the extensive range of tube clamp connectors there are a number of different components for fixing the linear actuators and to build linear actuator connectors.

In order to measure the displacement and positioning of the linear actuator connectors, digital as well as analogue position indicators can be installed and furthermore the guide tube can be provided with a longitudinal scale.



GN 292

Description	d1	l1	Max. stroke	Threaded spindle	d2 f7	d3	l2	l3	l4	m1	m2	For key DIN 6885	
GN 292-18-120-RL1-SCR	18	120*	every 167	TR10x3	6	M 3	2x l1+171	70	16	17	24	A2x2x12	440
GN 292-30-130-RL1-SCR	30	130*	every 601	TR14x4	8	M 4	2x l1+253	102.5	16	23	38	A2x2x12	1250
GN 292-40-205-RL1-SCR	40	205*	every 753	TR20x4	12	M 5	2x l1+299	117.5	17	42	54	A4x4x12	3130
GN 292-40-255-RL1-SCR	40	255*	every 753	TR20x4	12	M 5	2x l1+299	117.5	17	42	54	A4x4x12	3560
GN 292-50-300-RL1-SCR	50	300*	every 748	TR20x4	12	M 6	2x l1+309	120	18	42	54	A4x4x12	6400
GN 292-50-350-RL1-SCR	50	350*	every 748	TR20x4	12	M 6	2x l1+309	120	18	42	54	A4x4x12	6700
GN 292-60-300-RL1-SCR	60	300*	every 715	TR24x5	14	M 8	2x l1+375	142.5	19	58	70	A5x5x16	9900
GN 292-18-120-RL2-SCR	18	120*	every 167	TR10x3	6	M 3	2x l1+171	70	16	17	24	A2x2x12	458
GN 292-30-130-RL2-SCR	30	130*	every 601	TR14x4	8	M 4	2x l1+253	102.5	16	23	38	A2x2x12	1233
GN 292-40-205-RL2-SCR	40	205*	every 753	TR20x4	12	M 5	2x l1+299	117.5	17	42	54	A4x4x12	3057
GN 292-40-255-RL2-SCR	40	255*	every 753	TR20x4	12	M 5	2x l1+299	117.5	17	42	54	A4x4x12	3800
GN 292-50-300-RL2-SCR	50	300*	every 748	TR20x4	12	M 6	2x l1+309	120	18	42	54	A4x4x12	6520
GN 292-50-350-RL2-SCR	50	350*	every 748	TR20x4	12	M 6	2x l1+309	120	18	42	54	A4x4x12	6520
GN 292-60-300-RL2-SCR	60	300*	every 715	TR24x5	14	M 8	2x l1+375	142.5	19	58	70	A5x5x16	7960

* usually not available from stock

Linear actuators

Steel / Stainless Steel, with 2 separate threaded spindles

SPECIFICATION

Types

- Type **RL2**: one spindle right hand thread, one spindle left hand thread
- Type **RR2**: both spindles right hand thread
- Type **LL2**: both spindles left hand thread

Guide tube

Version in Steel

Tube DIN 2391

Steel, chrome-plated **SCR**

Version in Stainless Steel*

Tube DIN 2462

Stainless Steel AISI 304 **NI**

* usually not available from stock

Spindle with trapezoidal thread

- Steel respectively
- Stainless Steel AISI 303

ball bearing

Lead nut

Gunmetal

End cap

Plastic

INFORMATION

In addition to the standard stroke lengths specified in the above table for linear actuators GN 293 any stroke inside the maximum stroke length is available. Besides the extensive range of tube clamp connectors there are a number of different components for fixing the linear actuators and to build linear actuator connectors.

In order to measure the displacement and positioning of the linear actuator connectors, digital as well as analogue position indicators can be installed and furthermore the guide tube can be provided with a longitudinal scale.



ACCESSORY

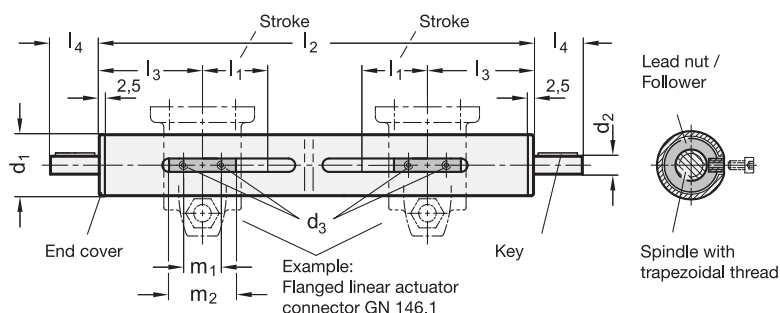
- Linear actuator connectors, tube clamp connectors and accessory have to be ordered separately.

ON REQUEST

- Special lengths

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Technical description of Linear actuators (see page 1910)



GN 293

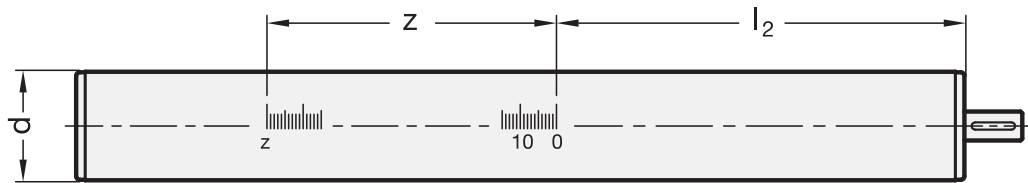
Description	d1	l1	Max. stroke	Threaded spindle	d2 f7	d3	l2	l3	l4	m1	m2	For key DIN 6885	
GN 293-30-100-RL2-SCR	30	100*	every 601	TR14x4	8	M 4	2x11+253	102.5	16	23	38	A2x2x12	1178
GN 293-30-100-RR2-SCR	30	100*	every 601	TR14x4	8	M 4	2x11+253	102.5	16	23	38	A2x2x12	1110
GN 293-30-100-LL2-SCR	30	100*	every 601	TR14x4	8	M 4	2x11+253	102.5	16	23	38	A2x2x12	1110
GN 293-40-170-RL2-SCR	40	170*	every 753	TR20x4	12	M 5	2x11+299	117.5	17	42	54	A4x4x12	3300
GN 293-40-170-RR2-SCR	40	170*	every 753	TR20x4	12	M 5	2x11+299	117.5	17	42	54	A4x4x12	3300
GN 293-40-170-LL2-SCR	40	170*	every 753	TR20x4	12	M 5	2x11+299	117.5	17	42	54	A4x4x12	3300
GN 293-50-200-RL2-SCR	50	200*	every 748	TR20x4	12	M 6	2x11+309	120	18	42	54	A4x4x12	4940
GN 293-50-200-RR2-SCR	50	200*	every 748	TR20x4	12	M 6	2x11+309	120	18	42	54	A4x4x12	4940
GN 293-50-200-LL2-SCR	50	200*	every 748	TR20x4	12	M 6	2x11+309	120	18	42	54	A4x4x12	4940
GN 293-60-250-RL2-SCR	60	250*	every 715	TR24x5	14	M 8	2x11+375	142.5	19	58	70	A5x5x16	6580
GN 293-60-250-RR2-SCR	60	250*	every 715	TR24x5	14	M 8	2x11+375	142.5	19	58	70	A5x5x16	6580
GN 293-60-250-LL2-SCR	60	250*	every 715	TR24x5	14	M 8	2x11+375	142.5	19	58	70	A5x5x16	6580

* usually not available from stock

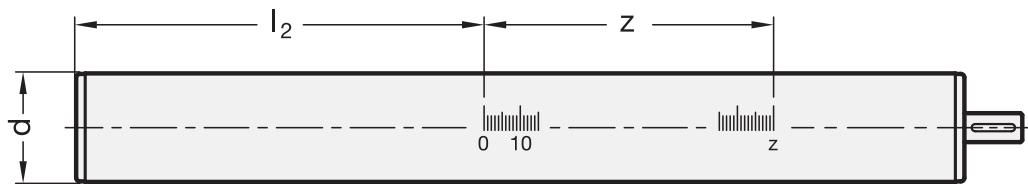


Longitudinal scales GN 299

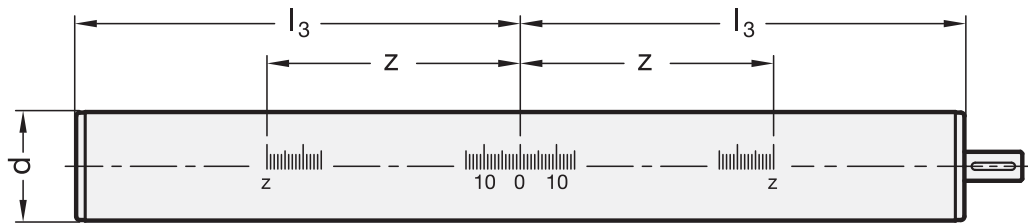
for standard stroke lengths l_1 of the linear actuators GN 291



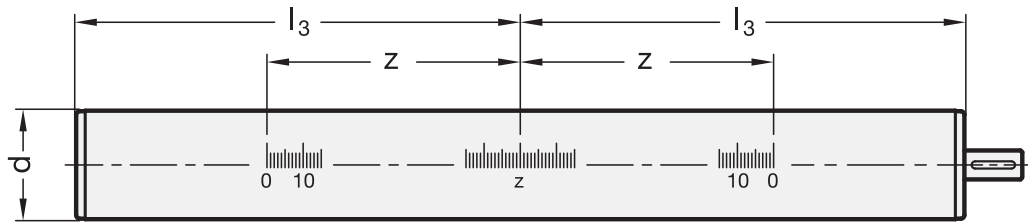
Type A
Scale values ascending to the left



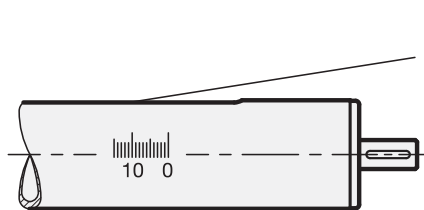
Type B
Scale values ascending to the right



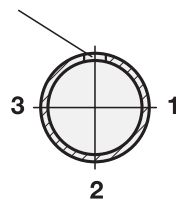
Type C
Scale values decreasing towards middle



Type D
Scale values ascending towards middle



Guide slot for linear actuator connectors



The identification numbers 1, 2 or 3 determine the positioning of the scale relative to the guide slot.

Longitudinal scales GN 299

for standard stroke lengths l1 of the linear actuators GN 291

SPECIFICATION

Scale engraved
with laser precision

INFORMATION

The longitudinal scales GN 299 of type A and B are normally used in connection with the linear actuators GN 291 (see page 1912) and GN 291.1 (see page 1930). The scales of type C and D are normally used for the linear actuators GN 292 (see page 1914) and GN 293 (see page 1915). Longitudinal scales can **only** be ordered together with linear actuators.

* Complete with Identification no. of the Longitudinal scales

1 2 3

GN 299

Description	d Ø Linear actuator	l1	l2	l3	z Scale length respectively highest figure
GN 299-18-65-A-*	18	65	82.5	147.5	90
GN 299-18-65-B-*	18	65	82.5	147.5	90
GN 299-18-65-C-*	18	65	82.5	147.5	90
GN 299-18-65-D-*	18	65	82.5	147.5	90
GN 299-18-165-A-*	18	165	82.5	247.5	190
GN 299-18-165-B-*	18	165	82.5	247.5	190
GN 299-18-165-C-*	18	165	82.5	247.5	190
GN 299-18-165-D-*	18	165	82.5	247.5	190
GN 299-18-265-A-*	18	265	82.5	347.5	290
GN 299-18-265-B-*	18	265	82.5	347.5	290
GN 299-18-265-C-*	18	265	82.5	347.5	290
GN 299-18-265-D-*	18	265	82.5	347.5	290
GN 299-30-100-A-*	30	100	122.5	222.5	120
GN 299-30-100-B-*	30	100	122.5	222.5	120
GN 299-30-100-C-*	30	100	122.5	222.5	120
GN 299-30-100-D-*	30	100	122.5	222.5	120
GN 299-30-150-A-*	30	150	122.5	272.5	170
GN 299-30-150-B-*	30	150	122.5	272.5	170
GN 299-30-150-C-*	30	150	122.5	272.5	170
GN 299-30-150-D-*	30	150	122.5	272.5	170
GN 299-30-200-A-*	30	200	122.5	322.5	220
GN 299-30-200-B-*	30	200	122.5	322.5	220
GN 299-30-200-C-*	30	200	122.5	322.5	220
GN 299-30-200-D-*	30	200	122.5	322.5	220
GN 299-30-300-A-*	30	300	122.5	422.5	320
GN 299-30-300-B-*	30	300	122.5	422.5	320
GN 299-30-300-C-*	30	300	122.5	422.5	320
GN 299-30-300-D-*	30	300	122.5	422.5	320
GN 299-40-70-A-*	40	70	142.5	217.5	90
GN 299-40-70-B-*	40	70	142.5	217.5	90
GN 299-40-70-C-*	40	70	142.5	217.5	90
GN 299-40-70-D-*	40	70	142.5	217.5	90
GN 299-40-170-A-*	40	170	142.5	317.5	190
GN 299-40-170-B-*	40	170	142.5	317.5	190
GN 299-40-170-C-*	40	170	142.5	317.5	190
GN 299-40-170-D-*	40	170	142.5	317.5	190
GN 299-40-220-A-*	40	220	142.5	367.5	240
GN 299-40-220-B-*	40	220	142.5	367.5	240
GN 299-40-220-C-*	40	220	142.5	367.5	240
GN 299-40-220-D-*	40	220	142.5	367.5	240



GN 299

Description	d Ø Linear actuator	l1	l2	l3	z Scale length respectively highest figure
GN 299-40-270-A-*	40	270	142.5	417.5	290
GN 299-40-270-B-*	40	270	142.5	417.5	290
GN 299-40-270-C-*	40	270	142.5	417.5	290
GN 299-40-270-D-*	40	270	142.5	417.5	290
GN 299-40-320-A-*	40	320	142.5	467.5	340
GN 299-40-320-B-*	40	320	142.5	467.5	340
GN 299-40-320-C-*	40	320	142.5	467.5	340
GN 299-40-320-D-*	40	320	142.5	467.5	340
GN 299-50-65-A-*	50	65	147.5	217.5	90
GN 299-50-65-B-*	50	65	147.5	217.5	90
GN 299-50-65-C-*	50	65	147.5	217.5	90
GN 299-50-65-D-*	50	65	147.5	217.5	90
GN 299-50-115-A-*	50	115	147.5	267.5	190
GN 299-50-115-B-*	50	115	147.5	267.5	190
GN 299-50-115-C-*	50	115	147.5	267.5	190
GN 299-50-115-D-*	50	115	147.5	267.5	190
GN 299-50-215-A-*	50	215	147.5	367.5	240
GN 299-50-215-B-*	50	215	147.5	367.5	240
GN 299-50-215-C-*	50	215	147.5	367.5	240
GN 299-50-215-D-*	50	215	147.5	367.5	240
GN 299-50-265-A-*	50	265	147.5	417.5	290
GN 299-50-265-B-*	50	265	147.5	417.5	290
GN 299-50-265-C-*	50	265	147.5	417.5	290
GN 299-50-265-D-*	50	265	147.5	417.5	290
GN 299-50-315-A-*	50	315	147.5	467.5	340
GN 299-50-315-B-*	50	315	147.5	467.5	340
GN 299-50-315-C-*	50	315	147.5	467.5	340
GN 299-50-315-D-*	50	315	147.5	467.5	340
GN 299-60-220-A-*	60	220	182.5	402.5	240
GN 299-60-220-B-*	60	220	182.5	402.5	240
GN 299-60-220-C-*	60	220	182.5	402.5	240
GN 299-60-220-D-*	60	220	182.5	402.5	240
GN 299-60-720-A-*	60	720	182.5	902.5	740
GN 299-60-720-B-*	60	720	182.5	902.5	740
GN 299-60-720-C-*	60	720	182.5	902.5	740
GN 299-60-720-D-*	60	720	182.5	902.5	740



Linear actuator connectors

for linear actuators Ø18, for single axis system

SPECIFICATION

Identification No.

No. 2: with 2 Stainless Steel-Clamping screws DIN 912

Version in Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

Version in Stainless Steel AISI CF-8 NI

- matt shot-blasted
- Bore only with slide bushing (G18)

Clamping bores mechanically machined

Slide bushing
Polyamide

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

GN 131.1 linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.

By means of the clamping screws on the guide bores d₁ / d₂ the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).

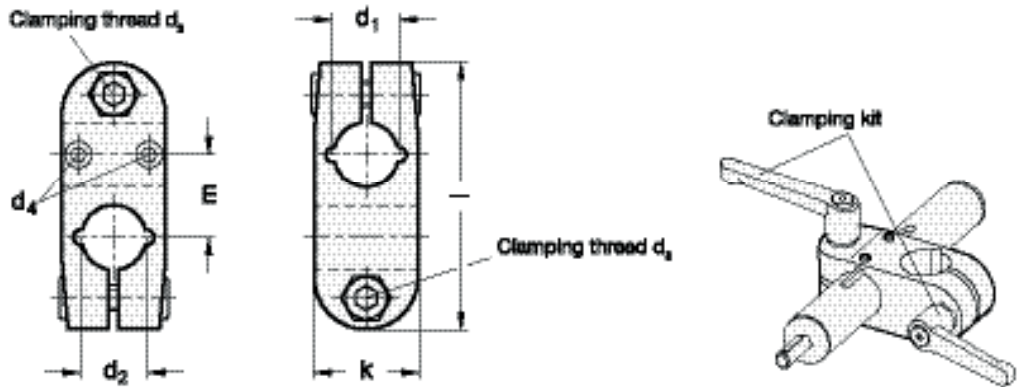
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 131.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k	l	m	Clamping kits for d3	⚖
GN 131.1-B18-B18-2-SW	B 18	-	B 18	M 6	M 3	25	64	20	GN 911-M6-22	66
GN 131.1-G18-B18-2-SW	-	G 18	B 18	M 6	M 3	25	64	20	GN 911-M6-22	64

GN 131.1-NI

STAINLESS STEEL

Description	d1 Bore G with slide bushing	d2	d3	d4	k	l	m	Clamping kits for d3	⚖
GN 131.1-G18-B18-2-NI	G 18	B 18	M 6	M 3	25	64	20	GN 911.3-M6-22	142

Linear actuator connectors for linear actuators Ø18, for two-way axis system

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Version in Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

Version in Stainless Steel AISI CF-8 NI

- matt shot-blasted

Clamping bores mechanically machined

Slide bushing

Polyamide

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

GN 131.2 linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.

By means of the clamping screws on the guide bores d_1 / d_2 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).

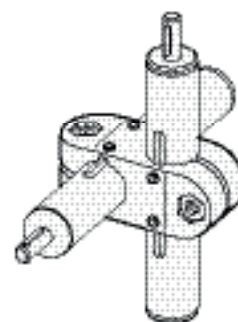
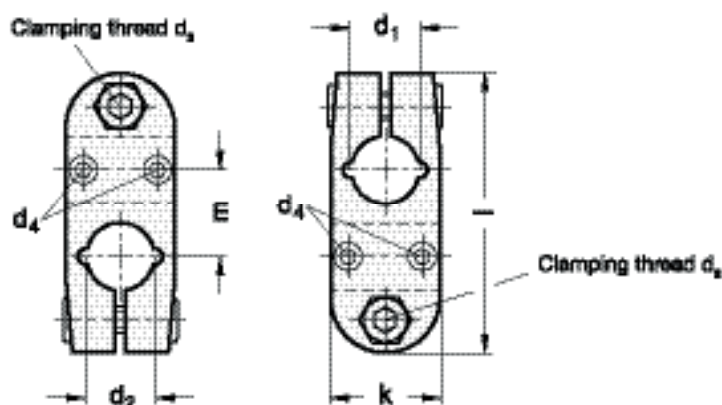
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911.3 (see page 1875) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 131.2

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k	l	m	Clamping kits for d3	⚖
GN 131.2-B18-B18-2-SW	B 18	-	B 18	M 6	M 3	25	64	20	GN 911-M6-22	62
GN 131.2-G18-G18-2-SW	-	G 18	G 18	M 6	M 3	25	64	20	GN 911-M6-22	62

GN 131.2-NI

STAINLESS STEEL

Description	d1 Bore G with slide bushing	d2	d3	d4	k	l	m	Clamping kits for d3	⚖
GN 131.2-G18-G18-2-NI	G 18	G 18	M 6	M 3	25	64	20	GN 911.3-M6-22	148

Linear actuator connectors

for linear actuators Ø30, Ø40, Ø50 and Ø60,
single axis system

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

Clamping bores mechanically machined

Slide bushing

Polyamide

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

GN 132.1 linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.

By means of the clamping screws on the guide bores d_1 / d_2 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).

The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (see table of dimensions).

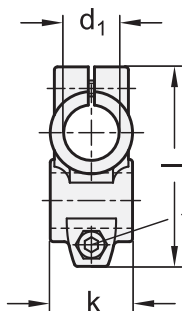
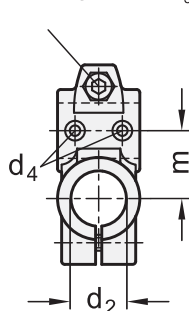
ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

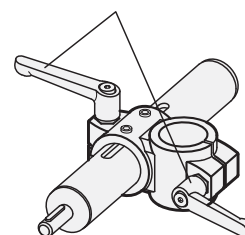
- Stainless Steel characteristics (see page A26)

Clamping thread d_3



Clamping thread d_3

Clamping kit



GN 132.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k	l	m	Clamping kits for d3	⚖
GN 132.1-B30-B30-2-SW	B 30	-	B 30	M 8	M 4	40	97	33	GN 911-M8-32	155
GN 132.1-B40-B40-2-SW	B 40	-	B 40	M 10	M 5	56	125	45	GN 911-M10-40	410
GN 132.1-B50-B50-2-SW	B 50	-	B 50	M 10	M 6	65	143	53	GN 911-M10-55	600
GN 132.1-B60-B60-2-SW	B 60	-	B 60	M 10	M 8	80	169	65	GN 911-M10-55	1000
GN 132.1-G30-B30-2-SW	-	G 30	B 30	M 8	M 4	40	97	33	GN 911-M8-32	155
GN 132.1-G40-B40-2-SW	-	G 40	B 40	M 10	M 5	56	125	45	GN 911-M10-40	410
GN 132.1-G50-B50-2-SW	-	G 50	B 50	M 10	M 6	65	143	53	GN 911-M10-55	600
GN 132.1-G60-B60-2-SW	-	G 60	B 60	M 10	M 8	80	169	65	GN 911-M10-55	1000

Linear actuator connectors

for linear actuators Ø30, Ø40, Ø50 and Ø60,
two-way axis system

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

Clamping bores mechanically machined

Slide bushing

Polyamide

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

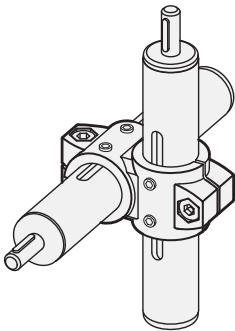
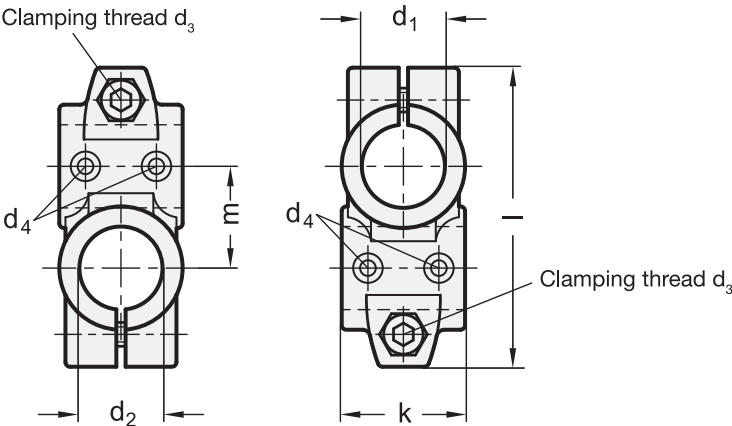
GN 132.2 linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control. By means of the clamping screws on the guide bores d₁ / d₂ the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment). The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 132.2

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2 Bore B without slide bushing	d2 Bore G with slide bushing	d3	d4	k	l	m	Clamping kits for d3	⚖
GN 132.2-B30-B30-2-SW	B 30	-	B 30	-	M 8	M 4	40	97	33	GN 911-M8-32	168
GN 132.2-B40-B40-2-SW	B 40	-	B 40	-	M 10	M 5	56	125	45	GN 911-M10-40	500
GN 132.2-B50-B50-2-SW	B 50	-	B 50	-	M 10	M 6	65	143	53	GN 911-M10-55	670
GN 132.2-B60-B60-2-SW	B 60	-	B 60	-	M 10	M 8	80	169	65	GN 911-M10-55	1000
GN 132.2-G30-G30-2-SW	-	G 30	-	G 30	M 8	M 4	40	97	33	GN 911-M8-32	168
GN 132.2-G40-G40-2-SW	-	G 40	-	G 40	M 10	M 5	56	125	45	GN 911-M10-40	400
GN 132.2-G50-G50-2-SW	-	G 50	-	G 50	M 10	M 6	65	143	53	GN 911-M10-55	560
GN 132.2-G60-G60-2-SW	-	G 60	-	G 60	M 10	M 8	80	169	65	GN 911-M10-55	1000

Flanged linear actuator connectors

Aluminium / Stainless Steel, for linear actuators Ø18

SPECIFICATION

Identification No.

No. 2: with Stainless Steel-Clamping screw DIN 912

Version in Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

Version in Stainless Steel AISI CF-8 NI

- matt shot-blasted
- Bore only with slide bush (G18)

Guide bore mechanically machined

Slide bushing
Polyamide

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

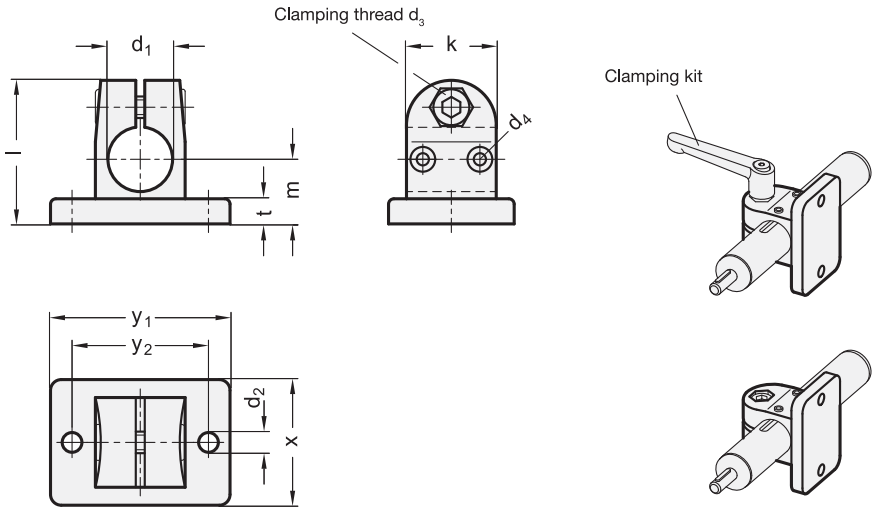
GN 145.1 linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.
By means of the clamping screw on the guide bore d₁ the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 145.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k	l	m	t	x	y1	y2	Clamping kits for d3	⚖
GN 145.1-B18-2-SW	B 18	-	5.5	M 6	M 3	25	40	18	7	35	50	38	GN 911-M6-22	60
GN 145.1-G18-2-SW	-	G 18	5.5	M 6	M 3	25	40	18	7	35	50	38	GN 911-M6-22	60

GN 145.1-NI

STAINLESS STEEL

Description	d1 Bore G with slide bushing	d2	d3	d4	k	l	m	t	x	y1	y2	Clamping kits for d3	⚖
GN 145.1-G18-2-NI	G 18	5.5	M 6	M 3	25	40	18	7	35	50	38	GN 911.3-M6-22	145

Flanged linear actuator connectors

Aluminium, for linear actuators Ø30, Ø40, Ø50, Ø60

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Guide bore mechanically machined

Slide bushing
Polyamide

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

GN 146.1 linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control. By means of the clamping screw on the guide bore d_1 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).

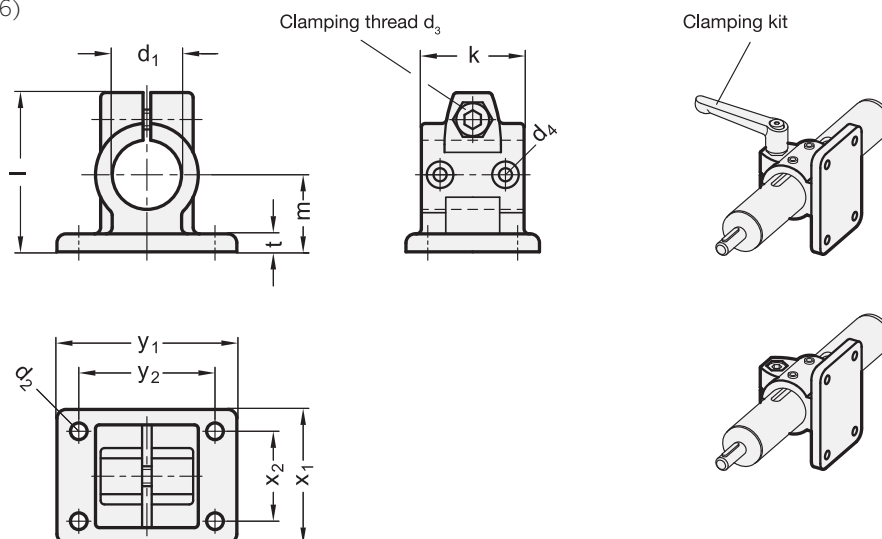
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 146.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k	l	m	t	x1	x2	y1	y2	Clamping kits for d3	⚖
GN 146.1-B30-2-SW	B 30	-	6.5	M 8	M 4	40	62	30	7	52	35	70	53	GN 911-M8-32	154
GN 146.1-B40-2-SW	B 40	-	8.5	M 10	M 5	56	83	42	10	78	52	108	82	GN 911-M10-40	430
GN 146.1-B50-2-SW	B 50	-	11	M 10	M 6	65	95	50	14	92	62	128	98	GN 911-M10-55	675
GN 146.1-B60-2-SW	B 60	-	11	M 10	M 8	80	112	60	14	110	74	154	118	GN 911-M10-55	1130
GN 146.1-G30-2-SW	-	G 30	6.5	M 8	M 4	40	62	30	7	52	35	70	53	GN 911-M8-32	140
GN 146.1-G40-2-SW	-	G 40	8.5	M 10	M 5	56	83	42	10	78	52	108	82	GN 911-M10-40	420
GN 146.1-G50-2-SW	-	G 50	11	M 10	M 6	65	95	50	14	92	62	128	98	GN 911-M10-55	720
GN 146.1-G60-2-SW	-	G 60	11	M 10	M 8	80	112	60	14	110	74	154	118	GN 911-M10-55	1130

GN 162.1

Base plate linear actuator connectors

Aluminium / Stainless Steel, for linear actuators Ø 18

SPECIFICATION

Identification No.

No. 2: with Stainless Steel-Clamping screw DIN 912

Version in Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

Version in Stainless Steel AISI CF-8 NI

- matt shot-blasted

- Bore only with slide bushing (G18)

Guide bore mechanically machined

Slide bushing

Polyamide

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304



INFORMATION

GN 162.1 base plate linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.

By means of the clamping screw on the guide bore d_1 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).

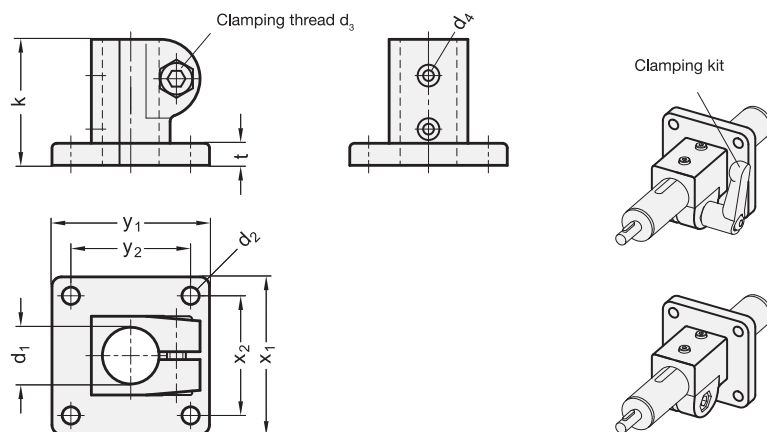
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 162.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k	t	x1	x2	y1	y2	Clamping kits for d3	△
GN 162.1-B18-2-SW	B 18	-	5.5	M 6	M 3	40	7	50	38	50	38	GN 911-M6-22	75
GN 162.1-G18-2-SW	-	G 18	5.5	M 6	M 3	40	7	50	38	50	38	GN 911-M6-22	79

GN 162.1-NI

STAINLESS STEEL

Description	d1 Bore G with slide bushing	d2	d3	d4	k	t	x1	x2	y1	y2	Clamping kits for d3	△
GN 162.1-G18-2-NI	G 18	5.5	M 6	M 3	40	7	50	38	50	38	GN 911.3-M6-22	190

Base plate linear actuator connectors

for linear actuators Ø30, Ø40, Ø50, Ø60

SPECIFICATION

Identification No.

No. 2: with Stainless Steel-Clamping screw DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Guide bore mechanically machined

Slide bushing
Polyamide

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

GN 163.1 base plate linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.

By means of the clamping screw on the guide bore d1 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).

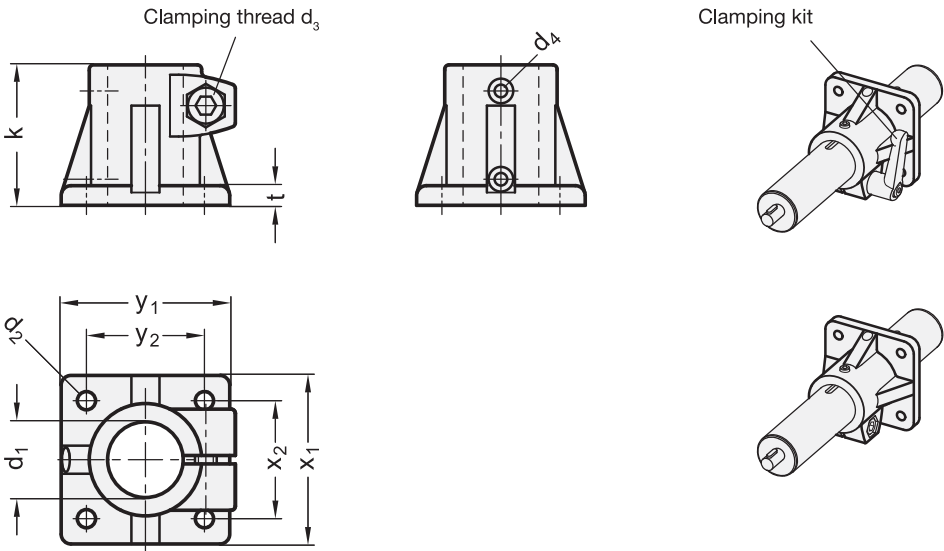
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 163.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k	t	x1	x2	y1	y2	Clamping kits for d3	⚖
GN 163.1-B30-2-SW	B 30	-	6.5	M 8	M 4	50	7	60	42	60	42	GN 911-M8-32	145
GN 163.1-B40-2-SW	B 40	-	8.5	M 10	M 5	70	10	90	64	90	64	GN 911-M10-40	430
GN 163.1-B50-2-SW	B 50	-	11	M 10	M 6	85	14	105	74	105	74	GN 911-M10-55	711
GN 163.1-B60-2-SW	B 60	-	11	M 10	M 8	100	14	125	89	125	89	GN 911-M10-55	1020
GN 163.1-G30-2-SW	-	G 30	6.5	M 8	M 4	50	7	60	42	60	42	GN 911-M8-32	130
GN 163.1-G40-2-SW	-	G 40	8.5	M 10	M 5	70	10	90	64	90	64	GN 911-M10-40	400
GN 163.1-G50-2-SW	-	G 50	11	M 10	M 6	85	14	105	74	105	74	GN 911-M10-55	650
GN 163.1-G60-2-SW	-	G 60	11	M 10	M 8	100	14	125	89	125	89	GN 911-M10-55	1020

T-Angle linear actuator connectors

Aluminium / Stainless Steel, for linear actuators Ø18

SPECIFICATION

Identification No.

No. 2: with 2 Stainless Steel-Clamping screws DIN 912

Version in Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

Version in Stainless Steel AISI CF-8 NI

- matt shot-blasted
- Bore only with slide bush (G18)

Guide bores / Clamping bores
mechanically machined

Slide bushing
Polyamide

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

GN 191.1 T-angle linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.

By means of the clamping screw on the guide bore d₁ the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

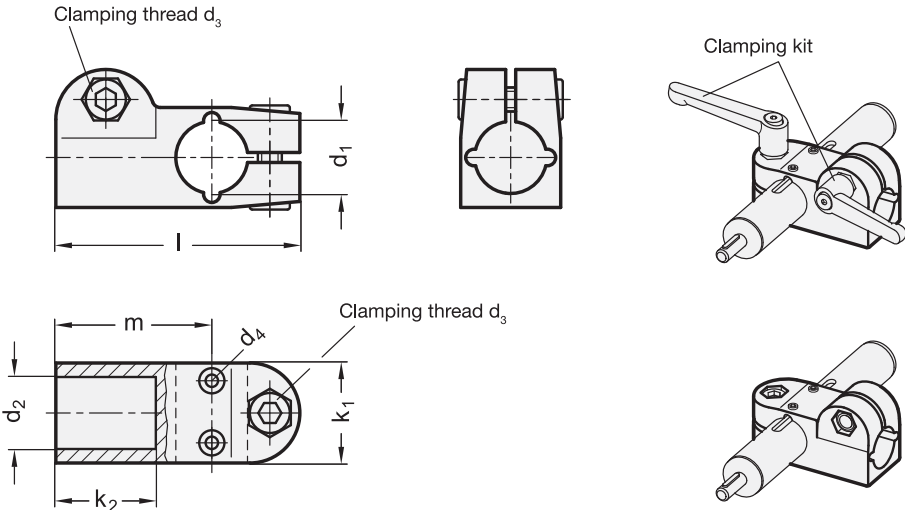


ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 191.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k1	k2	l	m	Clamping kits for d3	⚖
GN 191.1-B18-B18-2-SW	B 18	-	B 18	M 6	M 3	25	25	61	39	GN 911-M6-22	77
GN 191.1-G18-B18-2-SW	-	G 18	B 18	M 6	M 3	25	25	61	39	GN 911-M6-22	77

GN 191.1-NI

STAINLESS STEEL

Description	d1 Bore G with slide bushing	d2	d3	d4	k1	k2	l	m	Clamping kits for d3	⚖
GN 191.1-G18-B18-2-NI	G 18	B 18	M 6	M 3	25	25	61	39	GN 911.3-M6-22	78

T-Angle linear actuator connectors

for linear actuators Ø30, Ø40, Ø50, Ø60

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Guide bores / Clamping bores
mechanically machined

Slide bushing
Polyamide

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

GN 192.1 T-angle linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.

By means of the clamping screw on the guide bore d_1 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

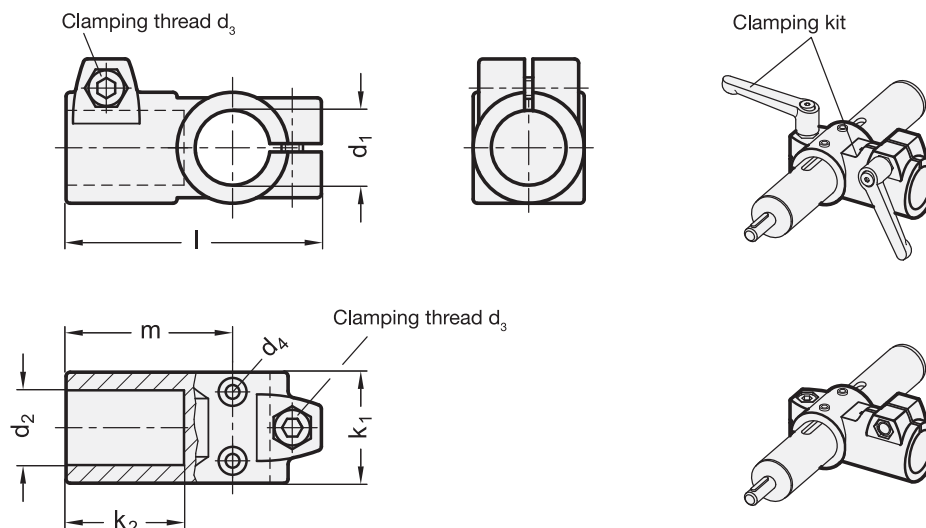


ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 192.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k1	k2	l	m	Clamping kits for d3	⚖
GN 192.1-B30-B30-2-SW	B 30	-	B 30	M 8	M 4	40	42.5	92	60	GN 911-M8-32	185
GN 192.1-B40-B40-2-SW	B 40	-	B 40	M 10	M 5	56	62	129	88	GN 911-M10-40	450
GN 192.1-B50-B50-2-SW	B 50	-	B 50	M 10	M 6	65	75	148	103	GN 911-M10-55	620
GN 192.1-B60-B60-2-SW	B 60	-	B 60	M 10	M 8	80	80	177	125	GN 911-M10-55	1260
GN 192.1-G30-B30-2-SW	-	G 30	B 30	M 8	M 4	40	42.5	92	60	GN 911-M8-32	185
GN 192.1-G40-B40-2-SW	-	G 40	B 40	M 10	M 5	56	62	129	88	GN 911-M10-40	450
GN 192.1-G50-B50-2-SW	-	G 50	B 50	M 10	M 6	65	75	148	103	GN 911-M10-55	620
GN 192.1-G60-B60-2-SW	-	G 60	B 60	M 10	M 8	80	80	177	125	GN 911-M10-55	1260

Swivel clamp linear actuator connectors

for linear actuators Ø18

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Guide bore mechanically machined

Slide bushing
Polyamide

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

GN 273.1 swivel clamp linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.

By means of the clamping screw on the guide bore d₁ the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).

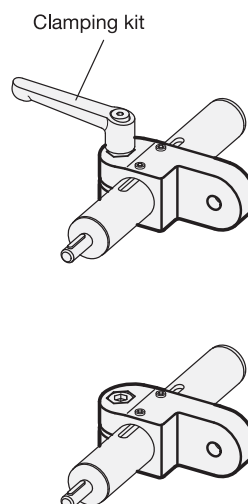
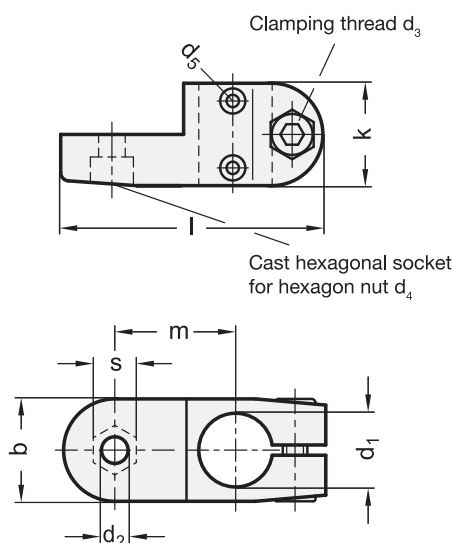
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 273.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	b	d2	d3	d4	d5	k	l	m	s	Clamping kits for d3	⚖
GN 273.1-B18-2-SW	B 18	-	25	6.5	M 6	M 6	M 3	25	64	29.5	10	GN 911-M6-22	55
GN 273.1-G18-2-SW	-	G 18	25	6.5	M 6	M 6	M 3	25	64	29.5	10	GN 911-M6-22	53

Swivel clamp linear actuator connectors

for linear actuators Ø30, Ø40, Ø50

SPECIFICATION

Identification No.

No. 2: with Stainless Steel-Clamping screw DIN 912

Types

- Type **OZ**: without centring step (smooth)
- Type **MZ**: with centring step
- Type **AV**: with male serration
- Type **IV**: with female serration

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Guide bore mechanically machined

Slide bush
Polyamide

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

GN 274.1 swivel clamp linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.

By means of the clamping screw on the guide bore d₁ the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).

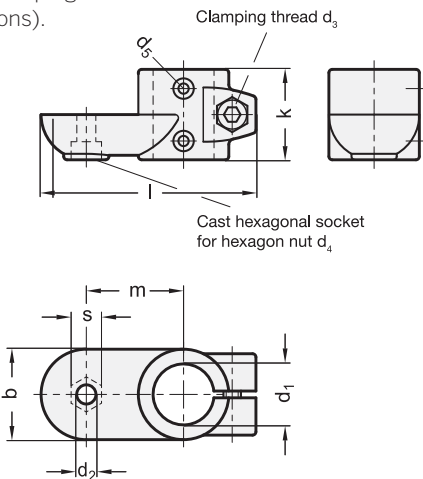
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

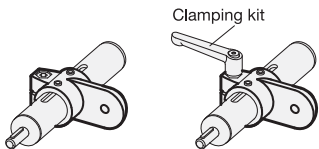
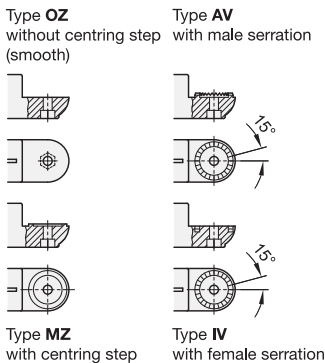
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with Type of the Swivel clamp linear actuator connectors

OZ MZ AV IV



GN 274.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	b	d2	d3	d4	d5	k	l	m	s	Clamping kits for d3	145
GN 274.1-B30-*-2-SW	B 30	-	40	8.5	M 8	M 8	M 4	40	95	43	13	GN 911-M8-32	145
GN 274.1-B40-*-2-SW	B 40	-	65	10.5	M 10	M 10	M 5	65	148	70	17	GN 911-M10-55	630
GN 274.1-B50-*-2-SW	B 50	-	65	10.5	M 10	M 10	M 6	65	148	70	17	GN 911-M10-55	700
GN 274.1-G30-*-2-SW	-	G 30	40	8.5	M 8	M 8	M 4	40	95	43	13	GN 911-M8-32	130
GN 274.1-G40-*-2-SW	-	G 40	65	10.5	M 10	M 10	M 5	65	148	70	17	GN 911-M10-55	580
GN 274.1-G50-*-2-SW	-	G 50	65	10.5	M 10	M 10	M 6	65	148	70	17	GN 911-M10-55	670

Weight Type OZ

Square linear actuators

with right or left hand thread

SPECIFICATION

Types

- Type **R1**: Right hand thread, shaft journal at one end
- Type **R2***: Right hand thread, shaft journal at both ends
- Type **L1**: Left hand thread, shaft journal at one end
- Type **L2***: Left hand thread, shaft journal at both ends

* usually not available from stock

Square tube

Steel, chrome-plated **SCR**

Spindle with trapezoidal thread

- Steel
- ball bearing

Lead nut

Gunmetal

End cap

Plastic



INFORMATION

GN 291.1 Square linear actuators are used if the linear actuator connectors are exposed to high torsion forces.

In addition to the standard stroke lengths specified in the above table for linear actuators any stroke inside the maximum stroke length is available. Besides the extensive range of two-part tube clamp connectors there are a number of different components for fixing the linear actuators and to build linear actuator connectors.

In order to measure the displacement and positioning of the linear actuator connectors, the square tube can be provided with a longitudinal scale.

ACCESSORY

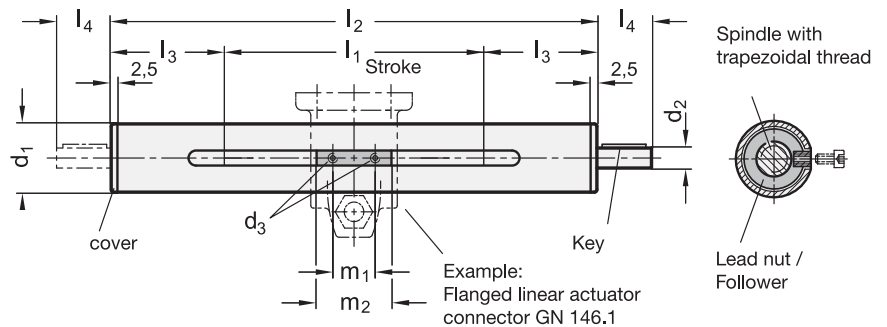
- Linear actuator connectors, tube clamp connectors and accessory have to be ordered separately.

ON REQUEST

- Square linear actuators GN 291.1 made of Stainless Steel.

TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)



Linear actuator connectors

Aluminium, same bore dimensions d_1 / s_1 and d_2 / s_2

SPECIFICATION

Identification No.

No. **2**: with 4 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

Clamping bores not machined

Fastening elements / Transfer elements

- Socket cap screws DIN 912
- Hexagon nuts DIN 985
- Centering bushings, follower

Stainless Steel AISI 304

INFORMATION

GN 134.1 linear actuator connectors are normally supplied **mounted** only in connection with a square linear actuator and for function control.

The fixing bores for the follower are always located in the lid of the bore d_1 and/or the square s_1 . Centering bushings in the through-hole eliminate the axial clearance. The width of the s_1 square is dimensionally aligned with the play of the square linear actuators.

The square s_2 of the linear actuator connector is supplied not machined in the standard design.

The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).



ACCESSORY

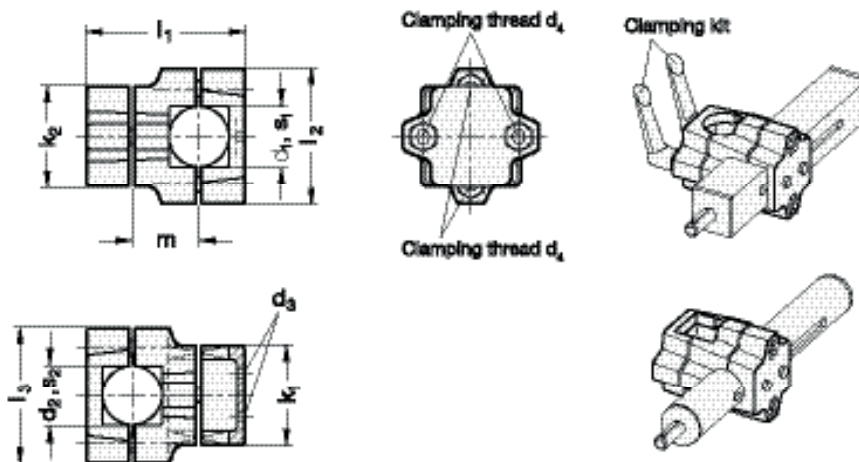
Clamping kits GN 911 (see page 1874)

ON REQUEST

- Linear actuator connectors with little play
- other bore and square combinations
- GN 134.2 linear actuator connectors for double systems

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 134.1

Description	d_1	s_1	d_2	s_2	d_3	d_4	k_1	k_2	l_1	l_2	l_3	m	Clamping kits for d_4	
GN 134.1-B30-B30-2-SW	B 30	-	B 30	-	M 4	M 8	50	50	79.5	68	68	33.5	GN 911-M8-32	326
GN 134.1-B40-B40-2-SW	B 40	-	B 40	-	M 5	M 10	76	76	125	98	98	55	GN 911-M10-55	885
GN 134.1-B50-B50-2-SW	B 50	-	B 50	-	M 6	M 10	76	76	125	98	98	55	GN 911-M10-55	975
GN 134.1-B30-V30-2-SW	B 30	-	-	V 30	M 4	M 8	50	50	79.5	68	68	33.5	GN 911-M8-32	314
GN 134.1-B40-V40-2-SW	B 40	-	-	V 40	M 5	M 10	76	76	125	98	98	55	GN 911-M10-55	773
GN 134.1-B50-V50-2-SW	B 50	-	-	V 50	M 6	M 10	76	76	125	98	98	55	GN 911-M10-55	891
GN 134.1-V30-V30-2-SW	-	V 30	-	V 30	M 4	M 8	50	50	79.5	68	68	33.5	GN 911-M8-32	300
GN 134.1-V40-V40-2-SW	-	V 40	-	V 40	M 5	M 10	76	76	125	98	98	55	GN 911-M10-55	920
GN 134.1-V50-V50-2-SW	-	V 50	-	V 50	M 6	M 10	76	76	125	98	98	55	GN 911-M10-55	969
GN 134.1-V30-B30-2-SW	-	V 30	B 30	-	M 4	M 8	50	50	79.5	68	68	33.5	GN 911-M8-32	300
GN 134.1-V40-B40-2-SW	-	V 40	B 40	-	M 5	M 10	76	76	125	98	98	55	GN 911-M10-55	946
GN 134.1-V50-B50-2-SW	-	V 50	B 50	-	M 6	M 10	76	76	125	98	98	55	GN 911-M10-55	980



Linear actuator connectors

Aluminium / multi part assembly / unequal bore dimensions, d1 / s1 and d2 / s2

SPECIFICATION

Identification No.

No. **2**: with 4 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

Clamping bores not machined

Fastening elements / Transfer elements

- Socket cap screws DIN 912
- Hexagon nuts DIN 985
- Centering bushings, follower

Stainless Steel AISI 304



INFORMATION

GN 135.1 Linear actuator connectors are normally supplied **mounted** only in connection with a square linear actuator and for function control.

The fixing bores for the follower are always located in the lid of the d1 bore and/or the s1 square. Centering bushings in the through-hole eliminate the axial clearance. The width of the s1 square is dimensionally aligned with the play of the square linear actuators.

The square s2 of the linear actuator connector is supplied not machined in the standard design.

The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

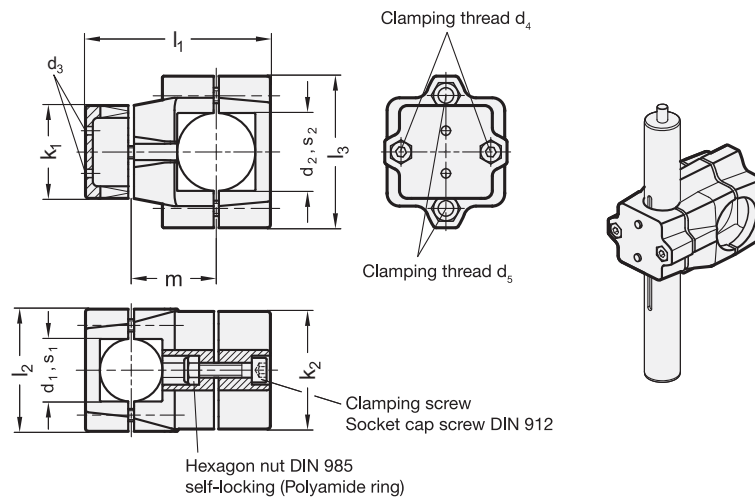
- Clamping kits GN 911 (see page 1874)

ON REQUEST

- Linear actuator connectors with little play
- other bore and square combinations

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 135.1

Description	d1	s1	d2	s2	d3	d4	d5	k1	k2	l1	l2	l3	m	Clamping kits for d4	Clamping kits for d5	
GN 135.1-B30-V40-2-SW	B 30	-	-	V 40	M 4	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	929
GN 135.1-V30-V40-2-SW	-	V 30	-	V 40	M 4	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	838
GN 135.1-B30-B40-2-SW	B 30	-	B 40	-	M 4	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	869
GN 135.1-V30-B40-2-SW	-	V 30	B 40	-	M 4	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	857
GN 135.1-B30-V50-2-SW	B 30	-	-	V 50	M 5	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	802
GN 135.1-V30-V50-2-SW	-	V 30	-	V 50	M 5	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	789
GN 135.1-B30-B50-2-SW	B 30	-	B 50	-	M 5	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	834
GN 135.1-V30-B50-2-SW	-	V 30	B 50	-	M 5	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	825
GN 135.1-B40-B50-2-SW	B 40	-	B 50	-	M 6	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	813
GN 135.1-V40-B50-2-SW	-	V 40	B 50	-	M 6	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	767
GN 135.1-B40-V50-2-SW	B 40	-	-	V 50	M 6	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	785
GN 135.1-V40-V50-2-SW	-	V 40	-	V 50	M 6	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	737

Linear actuators connectors

Aluminum, for square linear actuators

SPECIFICATION

Identification No.

No. 2: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Clamping square not machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

GN 147.1 linear actuator connectors are normally supplied **mounted** only in connection with a square linear actuator and for function control.

The square of the linear actuator connector is supplied not machined in the standard design. Together with the tolerance of the tube, this may result in a relatively large play.

This can be adjusted in one direction using the clamping screws. In the other direction (90° to it), a defined minimum play can be achieved only by appropriate machining (special design) of the square linear actuator connector.

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

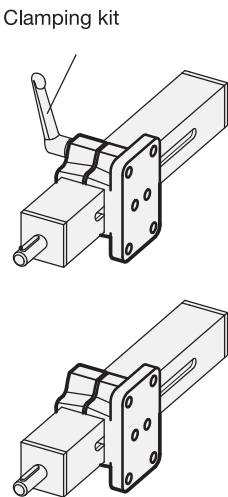
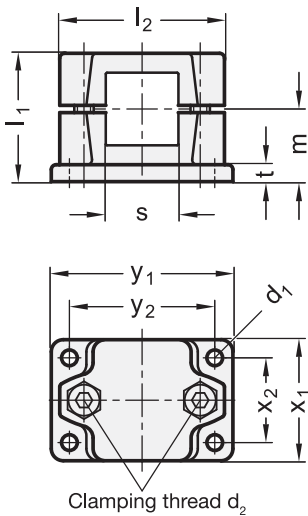
- Clamping kits GN 911 (see page 1874)

ON REQUEST

- Linear actuator connectors with little play

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 147.1

Description	s	d1	d2	d3	k	l1	l2	m	t	x1	x2	y1	y2	Clamping kits for d2	
GN 147.1-V30-2-SW	V 30	6.5	M 8	M 4	50	53	68	30	7	50	35	75	60	GN 911-M8-45	221
GN 147.1-V40-2-SW	V 40	11	M 10	M 5	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	643
GN 147.1-V50-2-SW	V 50	11	M 10	M 6	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	700

Linear actuator connectors

Aluminum, for square linear actuators

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated

black, RAL 9005, textured finish **SW**

Clamping square not machined

Socket cap screw DIN 912

Stainless Steel AISI 304

Hexagon nuts DIN 985

Stainless Steel AISI 304

INFORMATION

GN 165.1 linear actuator connectors are normally supplied **mounted** only in connection with a square linear actuator and for function control.

The square of the linear actuator connector is supplied not machined in the standard design. Together with the tolerance of the tube, this may result in a relatively large play.

This can be adjusted in one direction using the clamping screws. In the other direction (90° to it), a defined minimum play can be achieved only by appropriate machining (special design) of the square linear actuator connector.

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

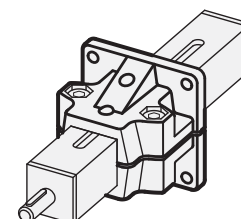
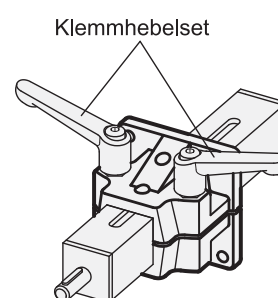
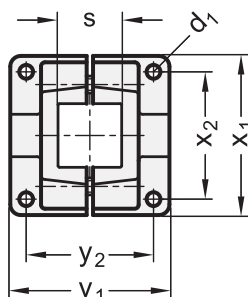
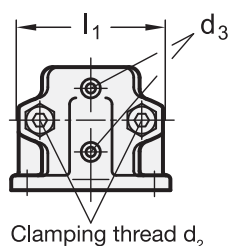
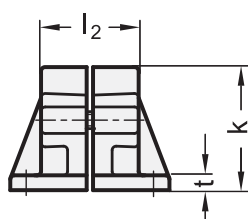
- Clamping kits GN 911 (see page 1874)

ON REQUEST

- Linear actuator connectors with little play

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 165.1

Description	s	d1	d2	d3	k	l1	l2	t	x1	x2	y1	y2	Clamping kits for d2	△
GN 165.1-V30-2-SW	V 30	6.5	M 8	M 4	58	69	46	7	75	60	75	60	GN 911-M8-32	270
GN 165.1-V40-2-SW	V 40	11	M 10	M 5	91	98	70	14	115	90	119	90	GN 911-M10-55	920
GN 165.1-V50-2-SW	V 50	11	M 10	M 6	91	98	70	14	115	90	119	90	GN 911-M10-55	980



Disc handwheel Ø 80
for linear actuators Ø 18

SPECIFICATION

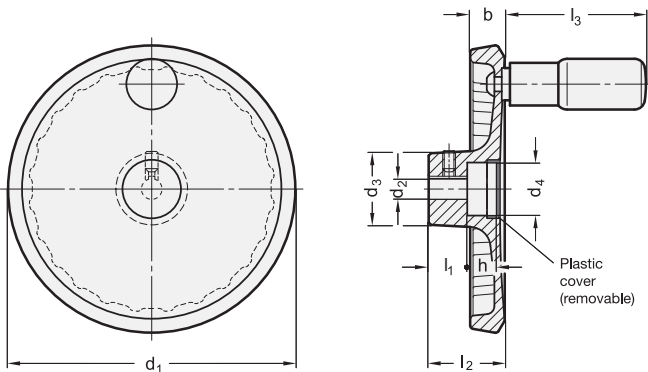
Type
- Type **R**: with revolving handle

Bore code
- Version **K**: with keyway
Aluminium die casting
Hub machined
Rim turned
plastic coated
black, RAL 9005, textured finish **SW**

Concentric runout and axial runout deviation of the rim < 0.4
Revolving handles GN 798.2 (see page 578)
Plastic, Technopolymer
black, matt

INFORMATION

- Linear actuators GN 291 (see page 1912)



GN 923.18

Description	d1	d2	d3	d4	b	h	l1	l2	l3	Ø Handle GN 798	⚖
GN 923.18-80-K6-R	80	6	26	17	13	7	16	26	43.5	16	150



Disc handwheel Ø 100
for linear actuators Ø 30

SPECIFICATION

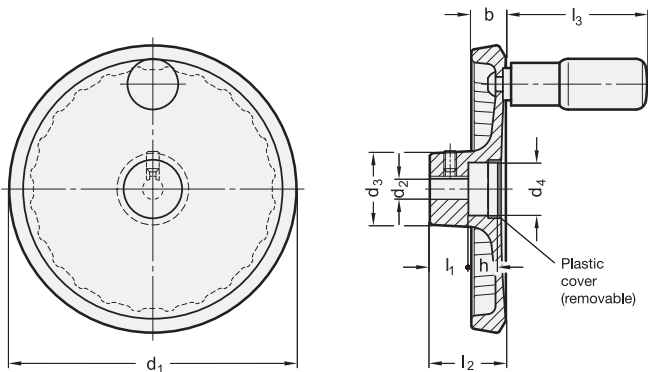
Type
- Type **R**: with revolving handle

Bore code
- Version **K**: with keyway
Aluminium die casting
Hub machined
Rim turned
plastic coated
black, RAL 9005, textured finish **SW**

Concentric runout and axial runout deviation of the rim < 0.4
Revolving handles GN 798.2 (see page 578)
Plastic, Technopolymer
black, matt

INFORMATION

- Linear actuators GN 291 (see page 1912)
- Linear actuators GN 291.1 (see page 1930)



GN 923.30

Description	d1	d2	d3	d4	b	h	l1	l2	l3	Ø Handle GN 798	⚖
GN 923.30-100-K8-R	100	8	28	22	14	9.5	17	30	58	18	200



Disc handwheel Ø 100

for linear actuators Ø 40

SPECIFICATION

Type

- Type **R**: with revolving handle

Bore code

- Version **K**: with keyway

Aluminium die casting

Hub machined

Rim turned

plastic coated

black, RAL 9005, textured finish **SW**

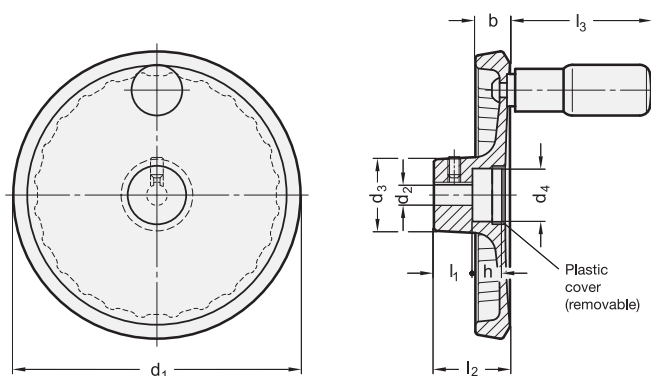
Concentric runout and axial runout deviation of the rim < 0.4

Revolving handles GN 798.2 (see page 578)

Plastic, Technopolymer
black, matt

INFORMATION

- Linear actuators GN 291 (see page 1912)
- Linear actuators GN 291.1 (see page 1930)



Spoked handwheel Ø 125

for linear actuators Ø 40

SPECIFICATION

Type

- Type **R**: with revolving handle

Bore code

- Version **K**: with keyway

Aluminium die casting

Hub machined

Rim turned

plastic coated

black, RAL 9005, textured finish **SW**

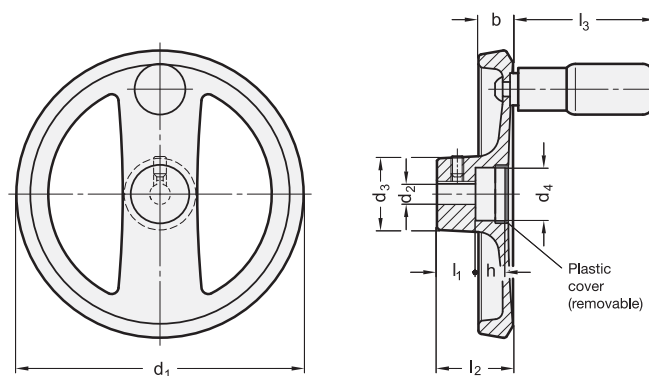
Concentric runout and axial runout deviation of the rim < 0.4

Revolving handles GN 798.2 (see page 578)

Plastic, Technopolymer
black, matt

INFORMATION

- Linear actuators GN 291 (see page 1912)
- Linear actuators GN 291.1 (see page 1930)



GN 923.40

Description	d1	d2	d3	d4	b	h	l1	l2	l3	Ø Handle GN 798	
GN 923.40-100-K12-R	100	12	28	22	14	9.5	17	30	61.5	18	180

GN 924.40

Description	d1	d2	d3	d4	b	h	l1	l2	l3	Ø Handle GN 798	
GN 924.40-125-K12-R	125	12	31	23	15	11	18	33.5	61.5	22	340

Spoked handwheel Ø 140

for linear actuators Ø 50

SPECIFICATION

Type

- Type **R**: with revolving handle

Bore code

- Version **K**: with keyway

Aluminium die casting

Hub machined

Rim turned

plastic coated

black, RAL 9005, textured finish **SW**

Concentric runout and axial runout deviation of the rim < 0.4

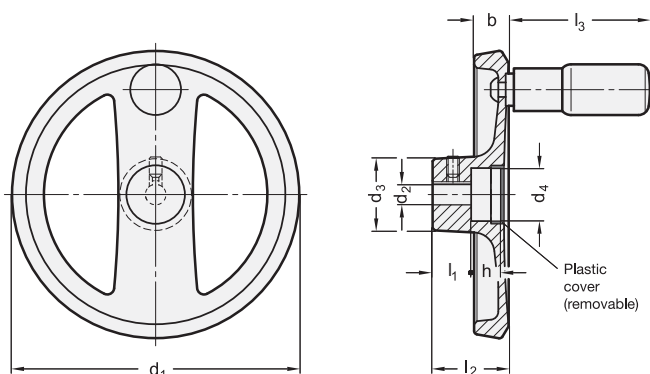
Revolving handles GN 798.2 (see page 578)

Plastic, Technopolymer

black, matt

INFORMATION

- Linear actuators GN 291 (see pag 1912)
- Linear actuators GN 291.1 (see page 1930)



Spoked handwheel Ø 160

for linear actuators Ø 60

SPECIFICATION

Type

- Type **R**: with revolving handle

Bore code

- Version **K**: with keyway

Aluminium die casting

Hub machined

Rim turned

plastic coated

black, RAL 9005, textured finish **SW**

Concentric runout and axial runout deviation of the rim < 0.4

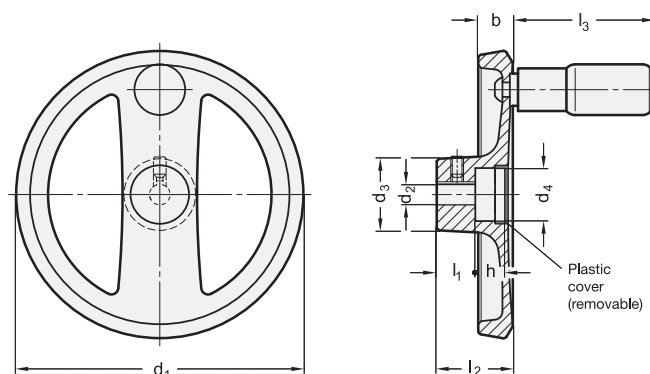
Revolving handles GN 798.2 (see page 578)

Plastic, Technopolymer

black, matt

INFORMATION

- Linear actuators GN 291 (see page 1912)
- Linear actuators GN 291.1 (see page 1930)



GN 924.50

Description	d1	d2	d3	d4	b	h	l1	l2	l3 ≈	Ø Handle GN 798	⚖
GN 924.50-140-K12-R	140	12	36	28	16.5	13	19	36.5	76.5	24	410

GN 924.60

Description	d1	d2	d3	d4	b	h	l1	l2	l3 ≈	Ø Handle GN 798	⚖
GN 924.60-160-K14-R	160	14	36	30	18	14.5	20	39.5	76.5	24	587

Installation kits

for position indicators used on linear actuators
GN 291, GN 292, GN 293, GN 391

SPECIFICATION

Identification no.

No. **1**: for mechanical position indicators DD52R (see page 721) / DD51 (see page 718)

No. **2**: for electronic position indicators DD52R-E (see page 726) / DD51-E (see page 724)

Adaptor shaft

Steel

blackened

Torque support

Aluminium

black anodized

INFORMATION

The GN 295 installation kits are needed for mounting a position indicator on linear units. The installation kits comprise an adaptor shaft and a torque support including attachment screws.

Order mechanical position indicators DD52R (see page 721) / DD51 (see page 718) / DD50 (see page 716) with a counter pitch that corresponds to that of the trapezoidal threaded spindle.

For position indicators DD52R-E (see page 726) / DD51-E (see page 724), the position indicator pitch is programmed.

ACCESSORY

Position indicators and handwheels have to be ordered separately.



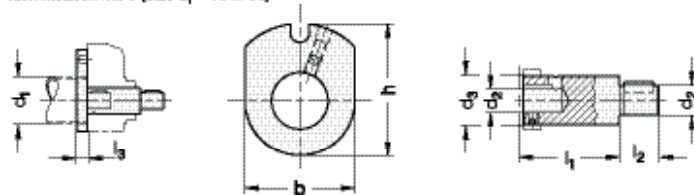
ON REQUEST

- Linear actuators with analogue position indicator GA11 / GA12 (see page 695)

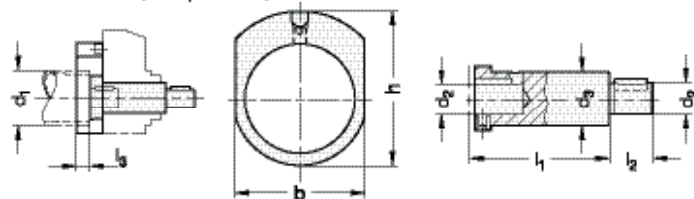
TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)

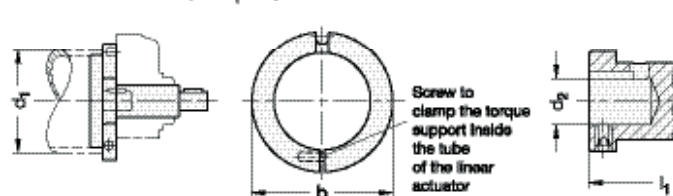
Identification no. 1 (Size $d_1 = 18 \dots 50$)



Identification no. 2 (Size $d_1 = 30 \dots 50$)



Identification no. 1 and 2 (Size $d_1 = 60$)



GN 295

Description	d_1	d_2 f7	b	d_3	h	l_1	l_2	l_3	Position indicator	
GN 295-18-6-1	18	6	24	10	33	28	16	10	DD50	80
GN 295-30-8-1	30	8	35	14	42	35	15	10	DD51 DD51-E	70
GN 295-30-8-2	30	8	35	14	42	36	15	10	DD51 DD51-E	82
GN 295-40-12-1	40	12	47	20	56.5	39	16	10	DD52R DD52R-E	120
GN 295-40-12-2	40	12	47	20	56.5	43	16	10	DD52R DD52R-E	168
GN 295-50-12-1	50	12	58	20	61	39	17	10	DD52R DD52R-E	118
GN 295-50-12-2	50	12	58	20	61	43	17	10	DD52R DD52R-E	162
GN 295-60-14-1	60	14	64	20	-	39	18	-	DD52R DD52R-E	154
GN 295-60-14-2	60	14	64	20	-	43	18	-	DD52R DD52R-E	155

Installation kits

for position indicators used on square linear actuators GN 291.1

SPECIFICATION

Coding

- Coding **1**: for mechanical position indicators DD51 (see page 718) / DD52R (see page 721)
- Coding **2**: for electronic position indicators DD52R-E (see page 726) / DD51-E (see page 724)

Adaptor shaft

Steel
blackened

Torque support
Aluminium
blank, ground

INFORMATION

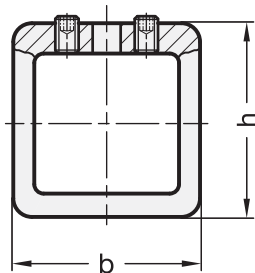
The GN 296 installation kits are needed for mounting a position indicator on linear units. The installation kits comprise an adapter shaft and a torque support including attachment screws.
Order mechanical position indicators DD52R (see page 721) / DD51 (see page 718) / DD50 (see page 716) with a counter pitch that corresponds to that of the trapezoidal threaded spindle.
For position indicators DD52R-E (see page 726) / DD51-E (see page 724), the position indicator pitch is programmed.

ACCESSORY

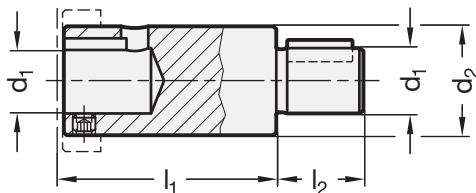
- Position indicators and handwheels have to be ordered seperately.

TECHNICAL INFORMATION

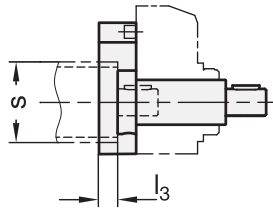
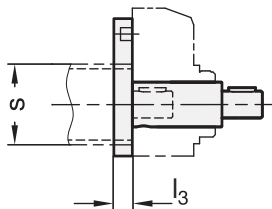
- ISO-Fundamental tolerances (see page A21)



Identification no. 1



Identification no. 2



GN 296

Description	s	d1 f7	d2	b	h	l1	l2	l3	For position indicator	⚖
GN 296-30-8-1	30	8	14	40	43.5	35	15	12	DD51	75
GN 296-40-12-1	40	12	20	50	56.5	39	16	12	DD52R	130
GN 296-50-12-1	50	12	20	60	61.5	39	17	12	DD52R	140
GN 296-30-8-2	30	8	14	40	43.5	36	15	12	DD51	58
GN 296-40-12-2	40	12	20	50	56.5	43	16	12	DD52R	123
GN 296-50-12-2	50	12	20	60	61.5	43	17	12	DD52R	133

Drive / Transfer units

SPECIFICATION

Version in Steel

Tube DIN 2391

Steel, chrome-plated **SCR**

Version in Stainless Steel NI

Tube DIN 2462

Stainless Steel AISI 304

Shaft

- Steel respectively Stainless Steel

- ball bearing

End cap

Plastic



INFORMATION

Transfer units GN 391 are normally used in connection with linear actuators (GN 291 see page 1912, GN 292 see page 1914, GN 293 see page 1915). They are designed to transfer the rotary movement for operating the linear actuators to another or a further position.

The transfer unit in the standard length l_1 is a special design: It is designed to turn the operating axis for the linear actuators (handwheel) by 90° together with an angular gear.

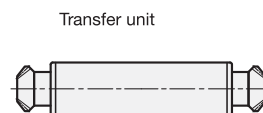
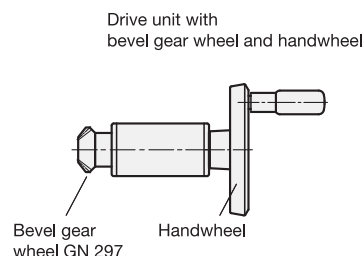
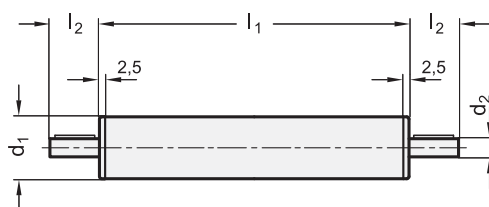
As in linear actuators, digital position indicators can be fitted.

ACCESSORY

- Bevel gear wheels, handwheels, tube clamp connectors and accessory have to be ordered separately.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Assembly and application examples of Transfer units (see page 1944)



GN 391-SCR

Description	d1	l1	Transfer units	d2	l2	△
GN 391-18-47-SCR	18	47	*	6	16	63
GN 391-30-60-SCR	30	60	*	8	16	180
GN 391-40-93-SCR	40	93	*	12	17	506
GN 391-50-93-SCR	50	93	*	12	18	781

GN 391-NI

STAINLESS STEEL

Description	d1	l1	Transfer units	d2	l2	△
GN 391-18-47-NI	18	47	*	6	16	65
GN 391-30-60-NI	30	60	*	8	16	185
GN 391-40-93-NI	40	93	*	12	17	528
GN 391-50-93-NI	50	93	*	12	18	772

* according to customer's requirement

Bevel gear wheels

with spiral bevel for linear actuators / transfer units
with angular gear

SPECIFICATION

Types

- Type **R**: Bevel gear wheel, right-hand pitch
- Type **L**: Bevel gear wheel, left-hand pitch
- Type **W**: Set of bevel gears, 2 bevel gears, 1 x right-hand, 1 x left-hand pitch
- Type **T**: Set of bevel gears, 3 bevel gears, 1 x right-hand, 2 x left-hand pitch

Steel

hardened

Teeth milled

INFORMATION

Bevel gear wheels GN 297 are used for angular / T-gears in connection with linear actuators / transfer units and housings GN 298 (see page 1942).

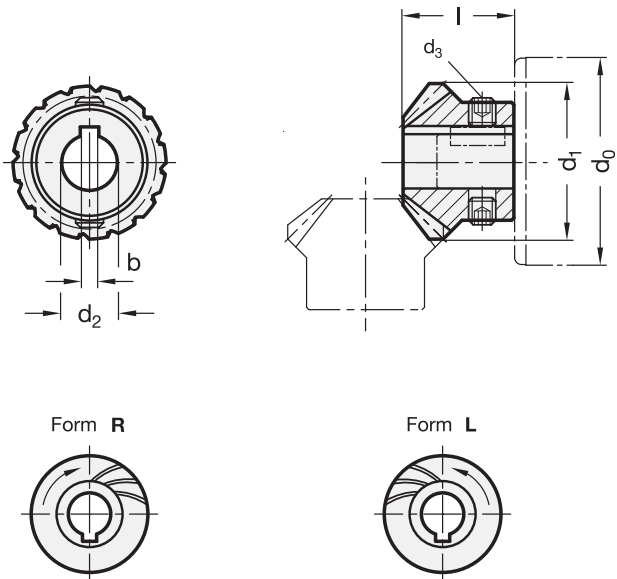
The spiral bevel facilitates both setting the desired clearance and locating the correct position of the bevel gears. Also, gears set up this way run with extremely low noise levels.

Two bevel gears are needed for an angular gear, three bevel gears are needed for a T-gear. These are available as set in Type W and Type T resp.

Please note that only bevel gears with different pitches can be paired. The transmission ratio is always 1:1, because the bevel gears always have the same number of teeth.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Assembly and application examples of Transfer units (see page 1944)



GN 297

Description	d0	d1	d2 H7	b	d3	l	⚖
GN 297-14,5-K6-L	18	14.5	K 6	2	M 4	11	9
GN 297-25-K8-L	30	25	K 8	2	M 6	19	36
GN 297-33-K12-L	40 / 50	33	K 12	4	M 6	23.5	72
GN 297-14,5-K6-R	18	14.5	K 6	2	M 4	11	9
GN 297-25-K8-R	30	25	K 8	2	M 6	19	36
GN 297-33-K12-R	40 / 50	33	K 12	4	M 6	23.5	72
GN 297-14,5-K6-T	18	14.5	K 6	2	M 4	11	150
GN 297-25-K8-T	30	25	K 8	2	M 6	19	150
GN 297-33-K12-T	40 / 50	33	K 12	4	M 6	23.5	220
GN 297-14,5-K6-W	18	14.5	K 6	2	M 4	11	20
GN 297-25-K8-W	30	25	K 8	2	M 6	19	75
GN 297-33-K12-W	40 / 50	33	K 12	4	M 6	23.5	160



Housings

for angular gears / T-gears

SPECIFICATION

Types

- Type **W**: Housing for angular gears
- Type **T**: Housing for T-gears

Aluminium gravity die casting

plastic coated

black, RAL 9005, textured finish **SW**

Thrust screws

Stainless Steel

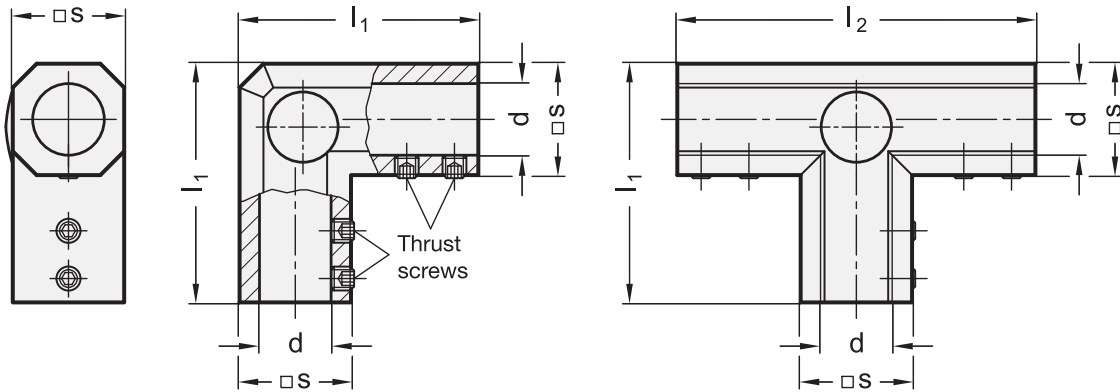
INFORMATION

Housings GN 298 for angular / T-gears are used in connection with bevel gear wheels GN 297 (see page 1942) and linear actuators / transfer units. The angular / T-gears are designed to deflect the rotary movement of a linear actuator / transfer unit by 90°.

An operating instruction with more details and specifications is included with every delivery.

TECHNICAL INFORMATION

- Assembly and application examples of Transfer units (see page 1944)

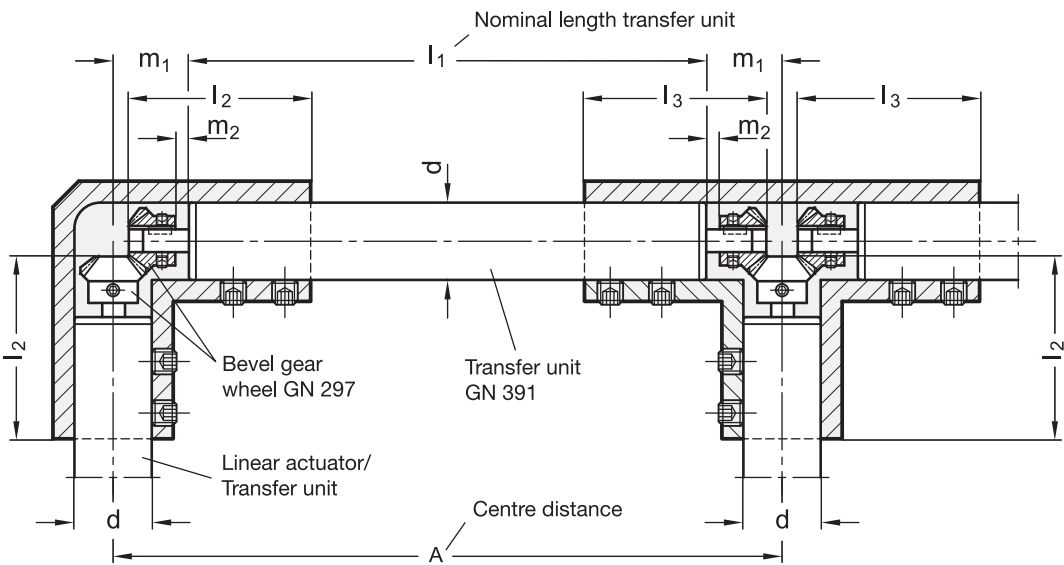


GN 298

Description	s	d	l1	l2	⚖
GN 298-28-B18-W-SW	28	B 18	60	90	107
GN 298-40-B30-W-SW	40	B 30	84	126	240
GN 298-50-B40-W-SW	50	B 40	108	162	434
GN 298-60-B50-W-SW	60	B 50	128	190	700
GN 298-28-B18-T-SW	28	B 18	60	90	139
GN 298-40-B30-T-SW	40	B 30	84	126	280
GN 298-50-B40-T-SW	50	B 40	108	162	542
GN 298-60-B50-T-SW	60	B 50	128	190	851



ASSEMBLY OF LINEAR ACTUATORS AND TRANSFER UNITS WITH BEVEL GEAR WHEELS IN HOUSINGS GN 298

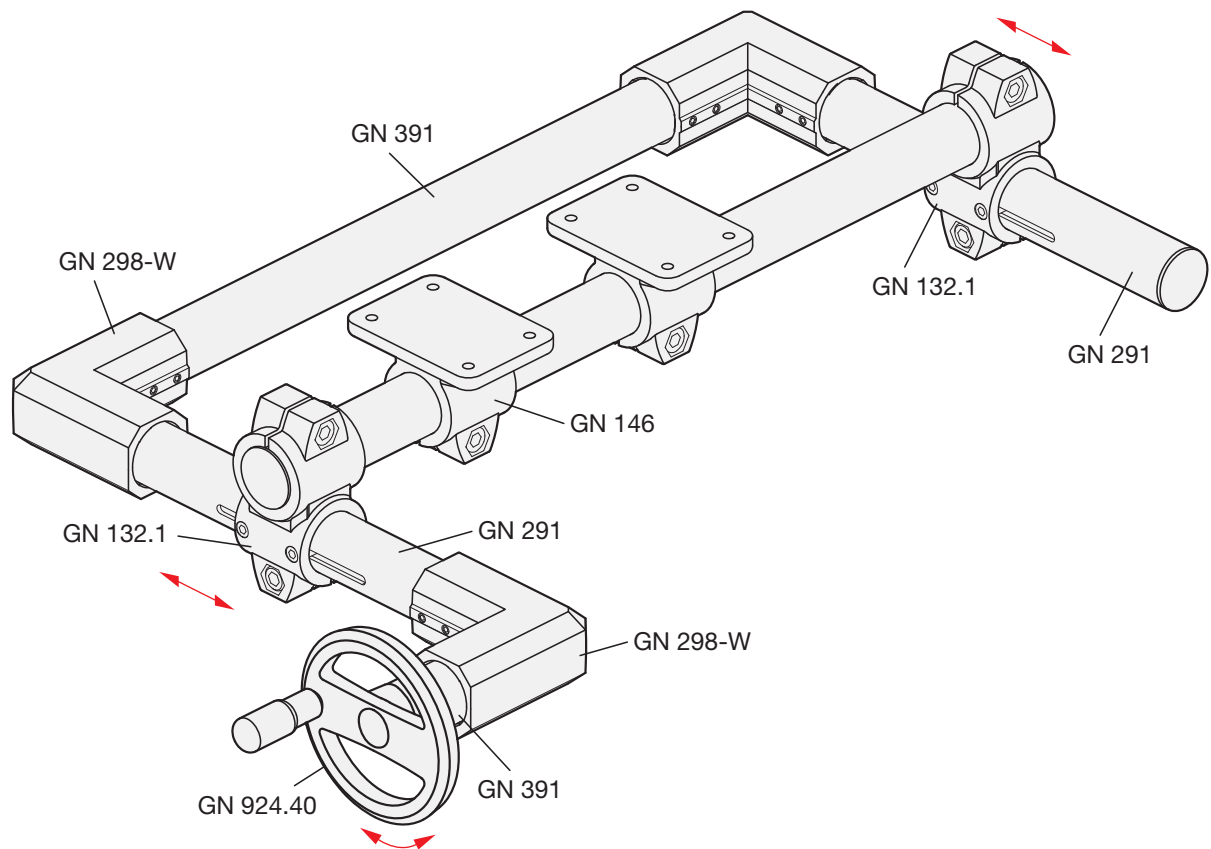


d Ø Linear actuator / transfer unit	l2	l3	m1	m2	Bevel gear wheel	Housing	Length of the transfer unit GN 391: $l_1 = A - 2 \times m_1$
18	41	40	20	4	GN 297-17,5-K6	GN 298-28-B18-W/T-SW	
30	58	57	26	1	GN 297-26-K8	GN 298-40-B30-W/T-SW	
40	75.5	73.5	32	1	GN 297-35-K12	GN 298-50-B40-W/T-SW	
50	90.5	87.5	32	1	GN 297-35-K12	GN 298-60-B50-W/T-SW	



Transfer unit and angular gears

Application example

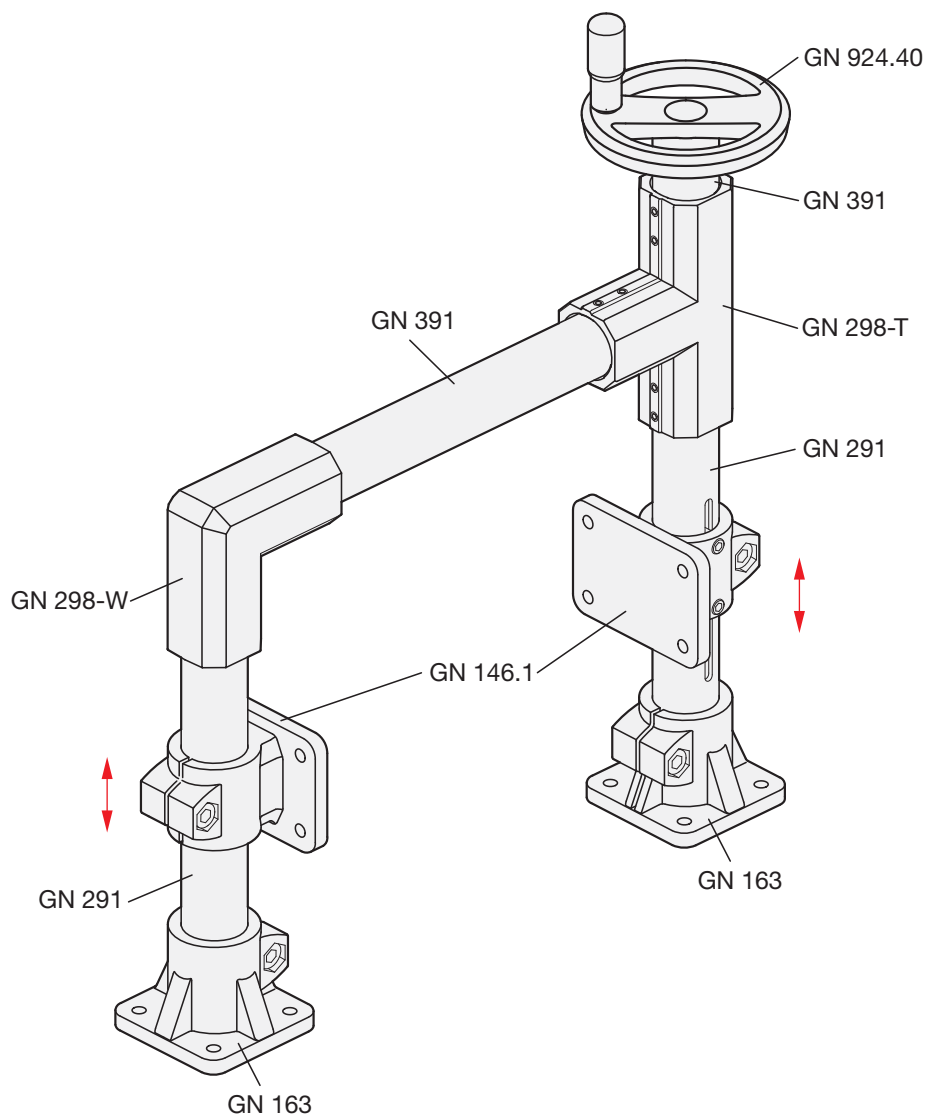


Two parallel sliding linear actuators GN 291 (see page 1912) are connected with a transfer unit GN 391 (see page 1940).

The angular housings GN 298-W (see page 1942) including the bevel gear wheels GN 297 (see page 1941) and another transfer unit GN 391 connect the handwheel with the system. The handwheel is placed in a rectangular position to the moving axes.

Transfer unit and angular gears

Application example



Two flanged linear actuator connectors GN 146.1 (see page 1923) are moved parallel. For this two linear actuators GN 291 (see page 1912) are connected with a transfer unit GN 391 (see page 1940).

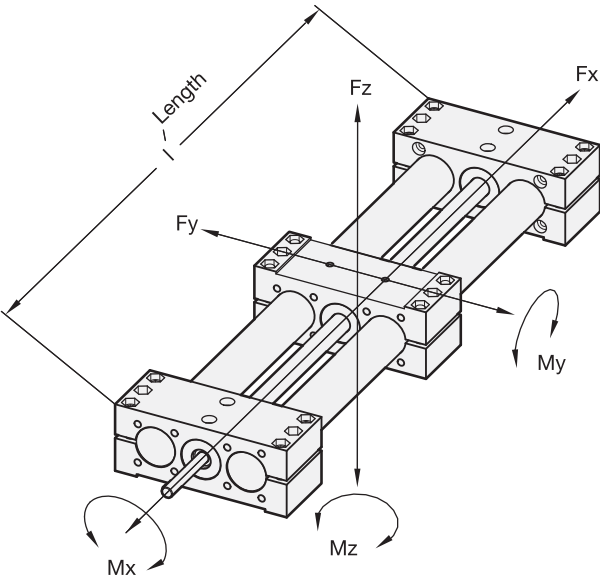
The T- and angular gear GN 298-T/-W (see page 1942) including the bevel gear wheels GN 297 (see page 1941) and another transfer unit GN 391 (see page 1940) connect the handwheel with the system. The handwheel is placed in a parallel position to the moving axes.



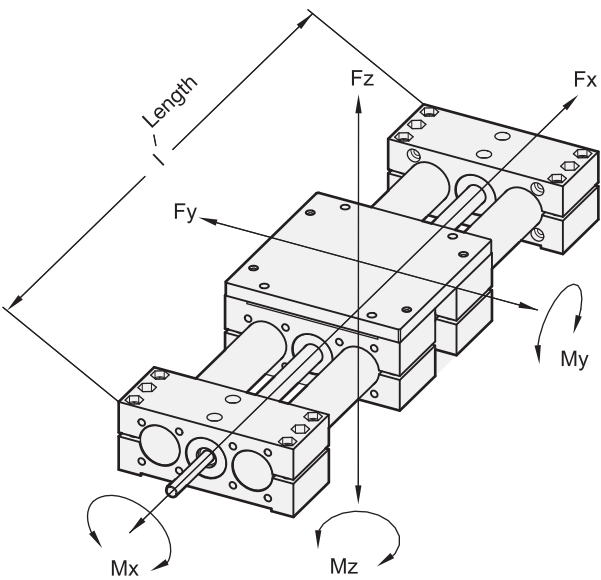
Double tube linear actuators

Technical description

GN 491



GN 492



d	Fx	Fy in N for length l =			Fz in N for length l =			Mx	My	Mz
GN 491	in N	500	1000	1500	500	1000	1500	in Nm	in Nm	in Nm
18	425	215	110	-	105	80	-	22	35	40
30	850	1100	900	550	600	350	150	100	100	100
40	1100	3700	2800	1400	2100	600	130	150	140	170
50	1900	3850	2400	2100	3100	700	200	180	220	290
60	2700	6900	2700	5100	6300	2800	360	320	350	500

d	Fx	Fy in N for length l =			Fz in N for length l =			Mx	My	Mz
GN 492	in N	500	1000	1500	500	1000	1500	in Nm	in Nm	in Nm
18	425	290	180	-	140	105	-	42	50	75
30	850	1550	1300	800	700	550	250	150	150	200
40	1100	6400	3400	1900	2400	750	230	180	210	260
50	1900	7500	5100	2700	3400	850	340	250	350	530
60	2700	11500	9500	8200	7500	3100	610	550	650	980

The specified forces Fy and Fz cause a flexure of the guide tube of approx. 0.5 mm.

DESCRIPTION

The slider is moved via a bearing-type trapezoidal thread spindle and a guide nut. The slider is guided through two parallel chrome-plated tubes, resulting in a high load capacity and allowing high bending moments to be compensated by the linear actuator.

For type GN 492 (see page 1952), a second slider and an adapter plate extend the options for applications.

These double tube linear actuators have been designed for manual operation (handwheel). With the appropriate lubrication, they can also absorb rotary spindle speeds of as much as 250 rpm.

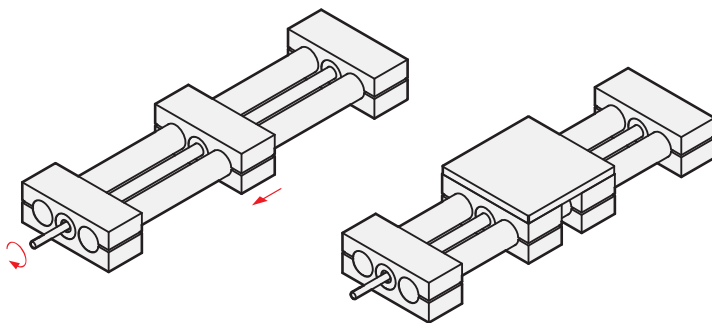
The positioning accuracy is 0.2 mm / 300 mm travel, the maximum reverse play is 0.1 mm.

To measure the adjustment or the positioning, digital position indicators DD52R (see page 721) / DD51 (see page 718) / DD52R-E (see page 726) / DD51-E (see page 722) may be attached. The required extension of the shaft journal is enabled by installation kits GN 491.1 (see page 1955).

Further information see on the standard pages of GN 491 (see page 1948) / GN 492 (see page 1952).

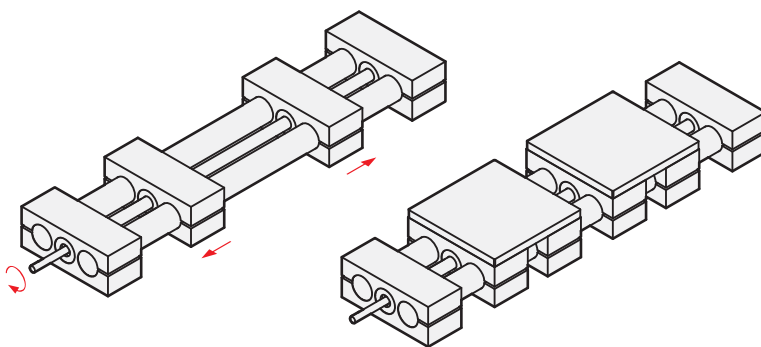
Double tube linear actuators

Technical description



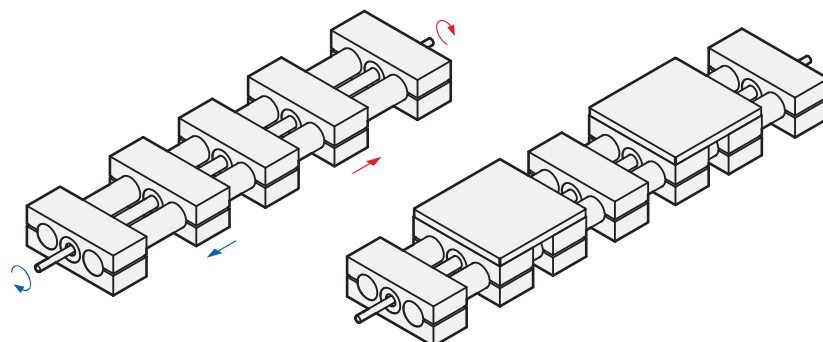
GN 491

GN 492



GN 493

GN 494



GN 495

GN 496

DESCRIPTION

Double tube linear actuators

GN 491 / GN 492

(see page 1948 / see page 1952)
with right or left hand thread,
single shaft end or two shaft ends.

DESCRIPTION

Double tube linear actuators

GN 493 / GN 494

with right and left hand thread,
single shaft end or two shaft ends,
both sliders move symmetrically.

On request:

Double tube linear actuators

GN 493 / GN 494

DESCRIPTION

Double tube linear actuators

GN 495 / GN 496

with two separate spindles,
each with right or left hand thread, both
sliders move independently of each
other.

On request:

Double tube linear actuators

GN 495 / GN 496.



Double tube linear actuators

with right or left hand thread, single slider

SPECIFICATION

Types

- Type **R1**: Right hand thread, shaft journal at one end
- Type **R2***: Right hand thread, shaft journal at both ends
- Type **L1***: Left hand thread, shaft journal at one end
- Type **L2***: Left hand thread, shaft journal at both ends

* normally not available from stock

Guide tube DIN 2391

Steel chrome-plated **SCR**

End pieces / Slider

Aluminium

plastic coated

black, RAL 9005, textured finish

Fixing surface / mounting surface

machined, blank

Spindle with trapezoidal thread

- Steel, blank
- with ball-bearing
- Positioning accuracy ± 0.2 mm/300 mm travel

Follower nut, gun metal

Cylinder head screw DIN 912 /

Hexagon nuts DIN 985

Steel, zinc plated



INFORMATION

In addition to the standard travel lengths specified in the above table for the double tube linear actuator GN 491 any length inside the maximum length is available.

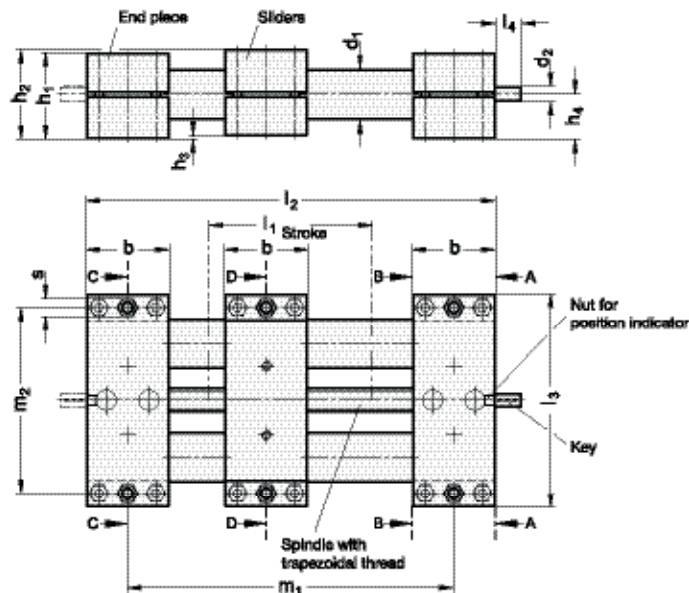
In order to measure the movement and positioning of the sliders, digital position indicators can be added.

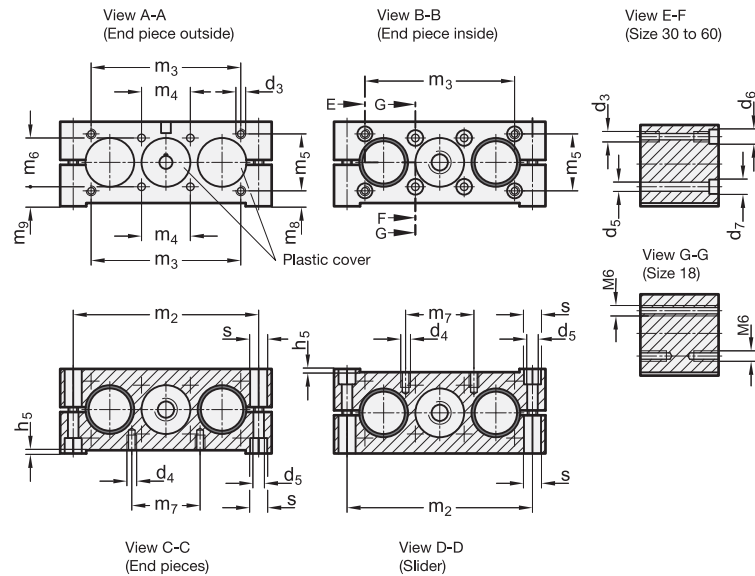
ACCESSORY

- Installation kits GN 491.1 (see page 1955) for position indicators

TECHNICAL INFORMATION

- Mounting facilities of end pieces (see page 1950)
- Technical information / Load data of Double tube linear actuators (see page 1946)





GN 491

Description	d1	l1	Max. travel	Shaft thread	b	d2	d3	d4	d5	d6	For screw DIN 912	For screw DIN 912	d7	d8	h1	h2	h3	h4	h5
GN 491-18-100-R1-SCR	18	100	420	TR10x3	28	6	-	M 5***	5.3	-	-	-	-	M 5	28	29	1	14.5	0.75
GN 491-18-150-R1-SCR	18	150	420	TR10x3	28	6	-	M 5***	5.3	-	-	-	-	M 5	28	29	1	14.5	0.75
GN 491-18-200-R1-SCR	18	200	420	TR10x3	28	6	-	M 5***	5.3	-	-	-	-	M 5	28	29	1	14.5	0.75
GN 491-18-250-R1-SCR	18	250	420	TR10x3	28	6	-	M 5***	5.3	-	-	-	-	M 5	28	29	1	14.5	0.75
GN 491-30-100-R1-SCR	30	100	1500	TR14x4	50	8	M 6**	M 6***	6.5	9	M 5	10.5	M 6	M 6	52	54	2	27	0.85
GN 491-30-150-R1-SCR	30	150	1500	TR14x4	50	8	M 6**	M 6***	6.5	9	M 5	10.5	M 6	M 6	52	54	2	27	0.85
GN 491-30-200-R1-SCR	30	200	1500	TR14x4	50	8	M 6**	M 6***	6.5	9	M 5	10.5	M 6	M 6	52	54	2	27	0.85
GN 491-30-300-R1-SCR	30	300	1500	TR14x4	50	8	M 6**	M 6***	6.5	9	M 5	10.5	M 6	M 6	52	54	2	27	0.85
GN 491-40-100-R1-SCR	40	100	2650	TR20x4	60	12	M 8**	M 8***	8.5	13.5	M 6	13.5	M 8	M 8	60	63	3	31.5	1.05
GN 491-40-150-R1-SCR	40	150	2650	TR20x4	60	12	M 8**	M 8***	8.5	13.5	M 6	13.5	M 8	M 8	60	63	3	31.5	1.05
GN 491-40-200-R1-SCR	40	200	2650	TR20x4	60	12	M 8**	M 8***	8.5	13.5	M 6	13.5	M 8	M 8	60	63	3	31.5	1.05
GN 491-40-300-R1-SCR	40	300	2650	TR20x4	60	12	M 8**	M 8***	8.5	13.5	M 6	13.5	M 8	M 8	60	63	3	31.5	1.05
GN 491-50-100-R1-SCR	50	100	2760	TR20x4	72	12	M 10**	M 8***	8.5	13.5	M 8	13.5	M 8	M 8	72	76	4	38	1.2
GN 491-50-150-R1-SCR	50	150	2760	TR20x4	72	12	M 10**	M 8***	8.5	13.5	M 8	13.5	M 8	M 8	72	76	4	38	1.2
GN 491-50-200-R1-SCR	50	200	2760	TR20x4	72	12	M 10**	M 8***	8.5	13.5	M 8	13.5	M 8	M 8	72	76	4	38	1.2
GN 491-50-300-R1-SCR	50	300	2760	TR20x4	72	12	M 10**	M 8***	8.5	13.5	M 8	13.5	M 8	M 8	72	76	4	38	1.2
GN 491-60-300-R1-SCR	60	300	2740	TR25x5	80	14	M 10**	M 10***	10.5	13.5	M 8	16.5	M 10	M 10	86	88	2	44	1.35
GN 491-60-400-R1-SCR	60	400	2740	TR25x5	80	14	M 10**	M 10***	10.5	13.5	M 8	16.5	M 10	M 10	86	88	2	44	1.35
GN 491-60-500-R1-SCR	60	500	2740	TR25x5	80	14	M 10**	M 10***	10.5	13.5	M 8	16.5	M 10	M 10	86	88	2	44	1.35

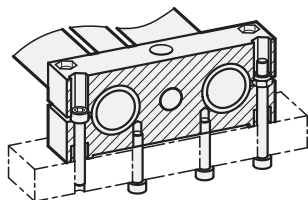
GN 491

Description	l2	l3	l4	m1	m2	m3	m4	m5	m6	m7	m8	m9	s	Shaft key spring DIN 6885	Position indicator	Hand-wheel	⚖
GN 491-18-100-R1-SCR	3xb+I5+l1	81	16	2xb+l1	68	-	20	-	20	18	-	4.5	8	A2x2x12	DD50	GN 923.18	1020
GN 491-18-150-R1-SCR	3xb+I5+l1	81	16	2xb+l1	68	-	20	-	20	18	-	4.5	8	A2x2x12	DD50	GN 923.18	1120
GN 491-18-200-R1-SCR	3xb+I5+l1	81	16	2xb+l1	68	-	20	-	20	18	-	4.5	8	A2x2x12	DD50	GN 923.18	1200
GN 491-18-250-R1-SCR	3xb+I5+l1	81	16	2xb+l1	68	-	20	-	20	18	-	4.5	8	A2x2x12	DD50	GN 923.18	1360
GN 491-30-100-R1-SCR	3xb+I5+l1	130	16	2xb+l1	114	92	30	35	30	42	9.5	12	10	A2x2x12	DD51 DD51-E	GN 923.30	4000
GN 491-30-150-R1-SCR	3xb+I5+l1	130	16	2xb+l1	114	92	30	35	30	42	9.5	12	10	A2x2x12	DD51 DD51-E	GN 923.30	4340
GN 491-30-200-R1-SCR	3xb+I5+l1	130	16	2xb+l1	114	92	30	35	30	42	9.5	12	10	A2x2x12	DD51 DD51-E	GN 923.30	4500
GN 491-30-300-R1-SCR	3xb+I5+l1	130	16	2xb+l1	114	92	30	35	30	42	9.5	12	10	A2x2x12	DD51 DD51-E	GN 923.30	4900
GN 491-40-100-R1-SCR	3xb+I5+l1	180	17	2xb+l1	160	132	39	38	39	62	12.5	12	13	A4x4x12	DD52R DD52R-E	GN 924.40	8650
GN 491-40-150-R1-SCR	3xb+I5+l1	180	17	2xb+l1	160	132	39	38	39	62	12.5	12	13	A4x4x12	DD52R DD52R-E	GN 924.40	9000
GN 491-40-200-R1-SCR	3xb+I5+l1	180	17	2xb+l1	160	132	39	38	39	62	12.5	12	13	A4x4x12	DD52R DD52R-E	GN 924.40	9650
GN 491-40-300-R1-SCR	3xb+I5+l1	180	17	2xb+l1	160	132	39	38	39	62	12.5	12	13	A4x4x12	DD52R DD52R-E	GN 924.40	10150
GN 491-50-100-R1-SCR	3xb+I5+l1	206	18	2xb+l1	184	150	46	50	46	62	13	15	13	A4x4x12	DD52R DD52R-E	GN 924.50	14000
GN 491-50-150-R1-SCR	3xb+I5+l1	206	18	2xb+l1	184	150	46	50	46	62	13	15	13	A4x4x12	DD52R DD52R-E	GN 924.50	14440
GN 491-50-200-R1-SCR	3xb+I5+l1	206	18	2xb+l1	184	150	46	50	46	62	13	15	13	A4x4x12	DD52R DD52R-E	GN 924.50	14860
GN 491-50-300-R1-SCR	3xb+I5+l1	206	18	2xb+l1	184	150	46	50	46	62	13	15	13	A4x4x12	DD52R DD52R-E	GN 924.50	16020
GN 491-60-300-R1-SCR	3xb+I5+l1	240	19	2xb+l1	216	185	55	60	55	74	14	16.5	17	A5x5x16	DD52R DD52R-E	GN 924.60	26900
GN 491-60-400-R1-SCR	3xb+I5+l1	240	19	2xb+l1	216	185	55	60	55	74	14	16.5	17	A5x5x16	DD52R DD52R-E	GN 924.60	28550
GN 491-60-500-R1-SCR	3xb+I5+l1	240	19	2xb+l1	216	185	55	60	55	74	14	16.5	17	A5x5x16	DD52R DD52R-E	GN 924.60	30200

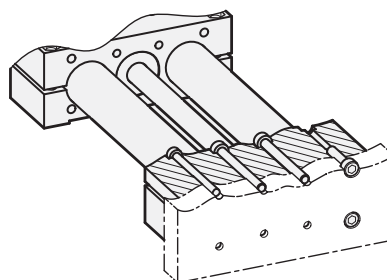
** useable depth of thread from both sides min. 2 x d3 | *** useable depth of thread min. 1.5 x d4

Mounting facilities of the end pieces

Horizontal
with screws for thread d4 or bore d5

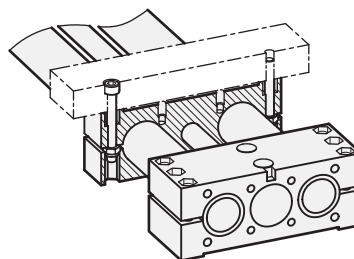
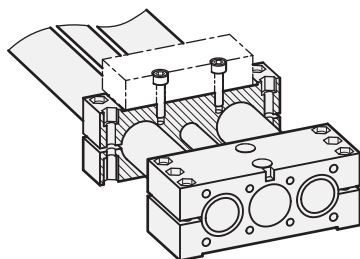


Vertical
From outside, with screws for thread d3
From inside, with screws for bore d6
From inside, with screws for bore d5 / d7



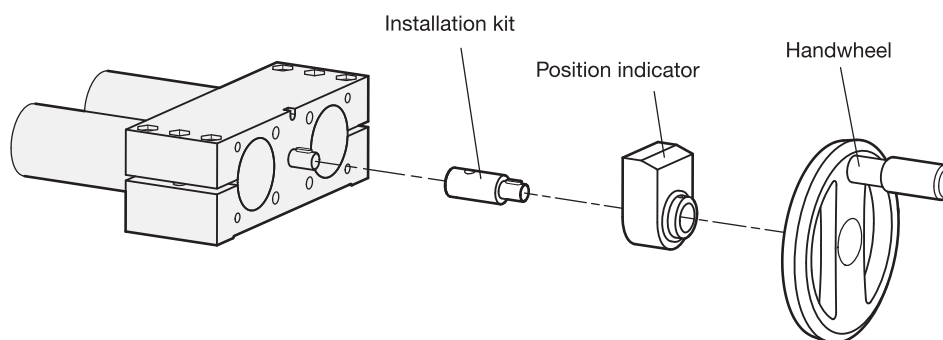
Mounting facilities at the slider

Mounting with screws for thread d4 or bore d5



Assembly of position indicator and handwheel

Usage of installation kit, position indicator and handwheel, see table





Tube Clamp Connectors **16**

Double tube linear actuators

with right or left hand thread, double slider

SPECIFICATION

Types

- Type **R1**: Right hand thread, single shaft end
- Type **R2***: Right hand thread, two shaft ends
- Type **L1***: Left hand thread, single shaft end
- Type **L2***: Left hand thread, two shaft ends

* normally not available from stock

Guide tube DIN 2391

Steel chrome-plated **SCR**

End pieces / Slider / Adapter plated

Aluminium

plastic coated

black, RAL 9005, textured finish

Fixing surface / mounting surface

machined, blank

Spindle with trapezoidal thread

- Steel, blank
- with ball-bearing
- Positioning accuracy ± 0.2 mm/300 mm travel

Follower nut, gun metal

Cylinder head screws DIN 912 /

Hexagon nuts DIN 985

Steel, zinc plated



INFORMATION

In addition to the standard travel lengths specified in the above table for the double tube linear actuator GN 492 any length inside the maximum length is available.

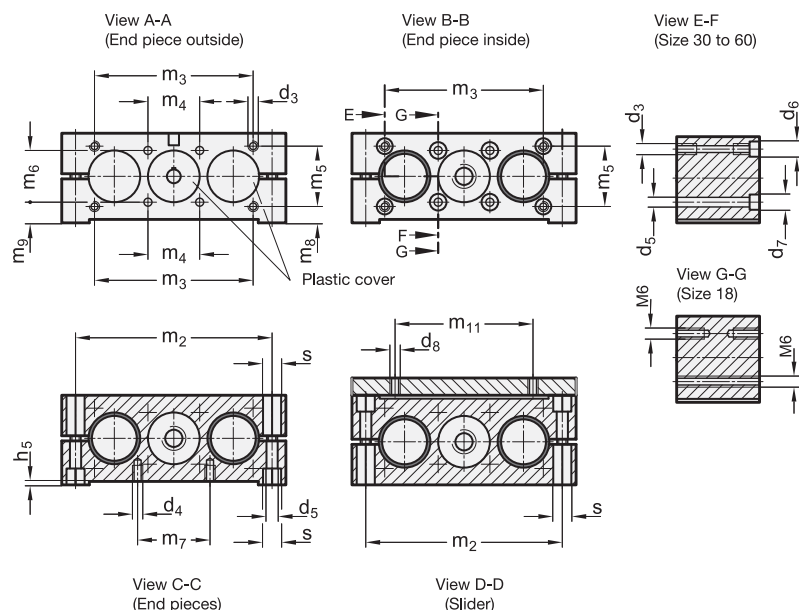
In order to measure the movement and positioning of the sliders, digital position indicators can be added.

ACCESSORY

- Installation kits GN 491.1 (see page 1955) for position indicators

TECHNICAL INFORMATION

- Mounting facilities of end pieces (see page 1950)
- Technical information / Load data of Double tube linear actuators (see page 1946)



GN 492

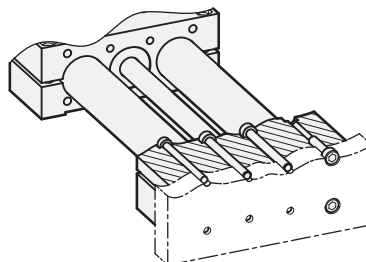
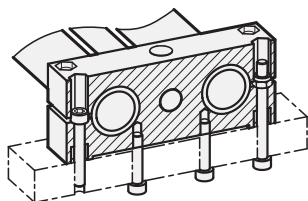
** useable depth of thread from both sides min. 2 x d3 | *** useable depth of thread min. 1.5 x d4

Mounting facilities of the end pieces

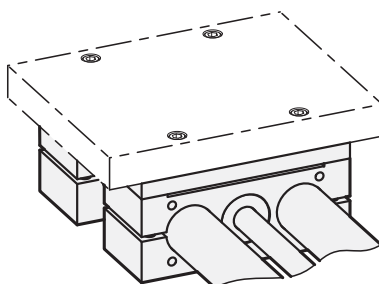
Horizontal
with screws for thread d4 or bore d5

Vertical

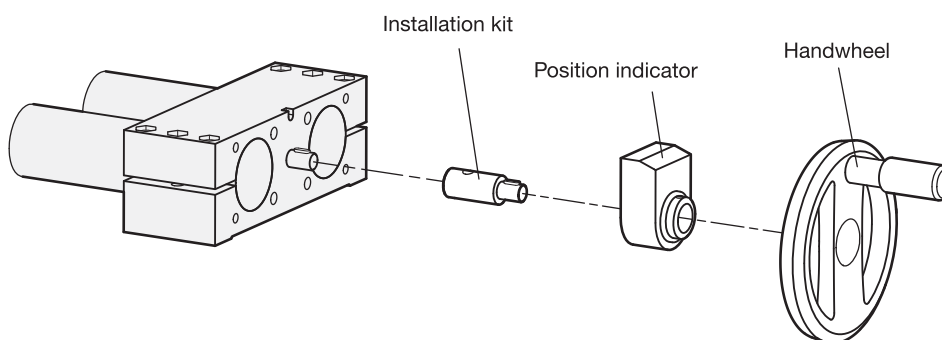
From outside, with screws for thread d3
From inside, with screws for bore d6
From inside, with screws for bore d5 / d7

**Mounting facilities at the slider**

Mounting with screws for thread d8

**Assembly of position indicator and handwheel**

Usage of installation kit, position indicator and handwheel, see table.



Installation kits

for position indicators used on linear actuators
GN 491 / GN 492

SPECIFICATION

Identification no.

- No. **1**: for mechanical position indicators DD52R / DD51 / DD50
- No. **2**: for electrical position indicators DD52R-E / DD51-E

Adaptor shaft

Steel
blackened

Torque support
Aluminium
black anodized

INFORMATION

The installation kits GN 491.1 are required for the attachment of a position indicator to double tube linear actuators. They consist of an adaptor shaft and, depending on the position indicator, a torque support including fixing screws.

Mechanical position indicators DD52R (see page 726)/ DD51 (see page 718) / DD50 (see page 716) must be ordered so that the counter is aligned with the rising of the trapezoidal thread spindle.

For the position indicators DD52R-E (see page 726) / DD51-E (see page 722) the respective rising is set at the position indicator for every programming.

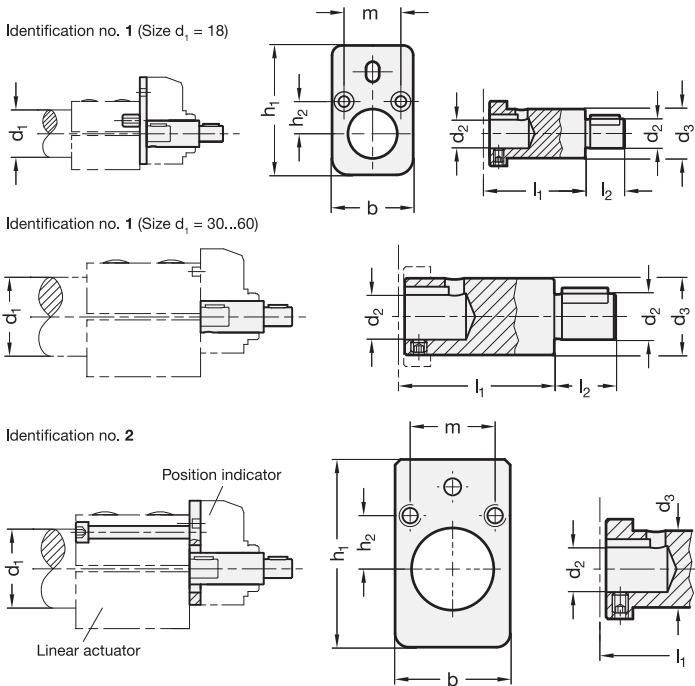


ACCESSORY

Position indicators and handwheels have to be ordered separately.

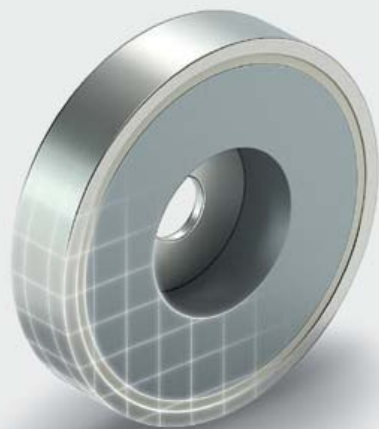
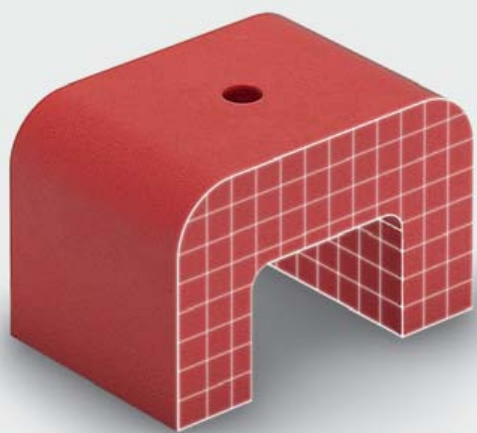
TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)



GN 491.1

Description	d1 Ø Linear actuator	d2 f7	b	d3	l1	l2	h1	h2	m	For position indicator	⚖
GN 491.1-18-6-1	18	6	27	10	30	16	38.5	10	20	DD50	90
GN 491.1-30-8-1	30	8	40	14	35	15	54.5	15	30	DD51 DD51-E	100
GN 491.1-40-12-1	40	12	50	20	39	16	72.5	19.5	39	DD52R DD52R-E	159
GN 491.1-50-12-1	50	12	60	20	39	17	72.5	23	46	DD52R DD52R-E	159
GN 491.1-60-14-1	60	14	70	20	39	18	72.5	27.5	55	DD52R DD52R-E	92
GN 491.1-30-8-2	30	8	40	14	44	15	54.5	15	30	DD51 DD51-E	150
GN 491.1-40-12-2	40	12	50	20	51	16	72.5	19.5	39	DD52R DD52R-E	247
GN 491.1-50-12-2	50	12	60	20	51	17	72.5	23	46	DD52R DD52R-E	271
GN 491.1-60-14-2	60	14	70	20	51	18	72.5	27.5	55	DD52R DD52R-E	324





DESIGNED
FOR ENGINEERING

18



Retaining magnets



Disc-shaped

Rod-shaped

U-Magnets

Raw magnets

Retaining magnets / Raw magnets

Application / Designs / Structure / Materials of the magnets

Application

Magnets are simple elements that help make solving tasks easier, more efficient, and more reliable.

If drilling is not allowed for fastening, for instance, so as not to damage corrosion protection layers, a retrofit/portable installation is desired, or only a temporary fix is required, this product group offers a large selection of suitable magnets.

Designs

There are seven different magnet types based on a conceptual classification with respect to the shape and function:

Button-type magnets and U-magnets as well as retaining magnets that are disc-shaped or rod-shaped form the largest group along with screws with retaining magnet. The name retaining magnet bears such elements that are used for direct fastening. Raw magnets generally help to structure application-specific magnetic systems.

Structure

Apart from button-type magnets / U-magnets and raw magnets, magnetic systems can also be used. Due to their structure, they have only one magnetic contact surface. Through magnetic return plates, the entire magnetic energy is concentrated on the attracting surface and the spatial effect of the magnetic field is restricted in order to prevent any magnetization of the environment.

Materials of the magnet

Within various designs, various materials of the magnet are available to choose from. In order to meet application-specific conditions in as far as possible, the most important characteristics of the respective materials of the magnet are given in the following table.

Materials of the magnet in comparison

Description	Hard ferrite (HF)	AlNiCo (AN)	SmCo (SC)	NdFeB (ND)
Adhesive force	strong	medium	strong	very strong
Max. working temperature *	≈ 200 °C	≈ 450 °C	≈ 200 °C	≈ 80 °C
Adhesive force on heating	lower	constantly good	lower	lower
Corrosion resistance	very good	very good	good	nickel plated - good
Made from	Iron oxide	Aluminum, nickel, cobalt and iron	Samarium and cobalt	Neodymium, iron and boron
Production method	Sintering	Sintering, casting	Sintering	Sintering
Mechanical properties	very hard, brittle	very hard, tough	very hard, brittle	very hard, brittle
Machineability	not possible	diamond grinding possible	not possible	not possible
Demagnetisation capability	moderate, by demagnetising fields	easy, by demagnetising fields	very difficult, only by large demagnetising	difficult, only by large demagnetising
Price	very reasonable	high	very high	reasonable

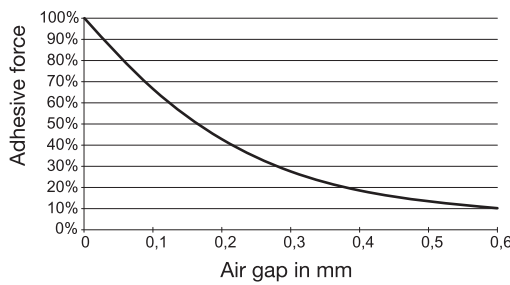
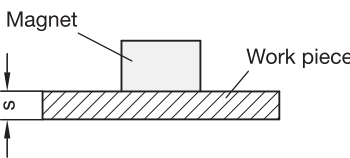
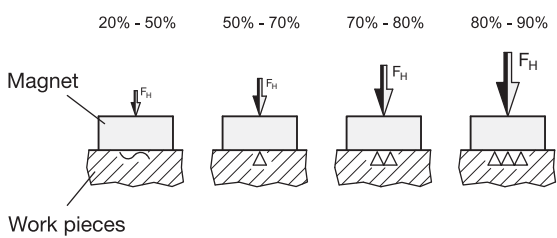
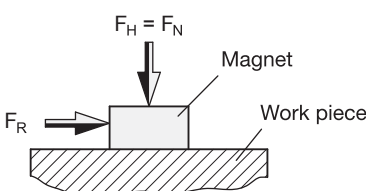
* The max. temperature used is only a guide value because it also depends on the dimensions of the magnet.

Retaining magnets / Raw magnets

Adhesive force / Influence factors

Adhesive force

In addition to their shape and material, the actual achievable adhesive force of the magnets depends on several other factors.

Influence factors																													
Air gap An air gap or materials, which are not magnetically permeable between the work piece and the magnet, have an insulating effect on the magnetic flux. The adhesive force is reduced depending on the distance.																													
Work piece thickness A minimum thickness of the work piece should be maintained in order to not restrict the magnetic flux and therefore the adhesive force.																													
Material Steel and ferrous materials with a low proportion of carbon and alloyed materials promote the magnetic flux. Similarly, non-hardened work pieces conduct the magnetic flux better, which enables greater adhesive forces.	<table><tr><td>100%</td><td>technical pure iron</td><td>86%</td><td>C60, X6Cr17</td></tr><tr><td>95%</td><td>St37, C15</td><td>84%</td><td>42CrMo4</td></tr><tr><td>94%</td><td>St44-2, 34CrNiMo6</td><td>75%</td><td>St50</td></tr><tr><td>93%</td><td>St52-3</td><td>72%</td><td>X155CrMo12</td></tr><tr><td>92%</td><td>90MnV8</td><td>65%</td><td>X210CrW12</td></tr><tr><td>90%</td><td>C45</td><td>50%</td><td>20MnCr5</td></tr><tr><td>87%</td><td>Ck45</td><td>30%</td><td>GG</td></tr></table>	100%	technical pure iron	86%	C60, X6Cr17	95%	St37, C15	84%	42CrMo4	94%	St44-2, 34CrNiMo6	75%	St50	93%	St52-3	72%	X155CrMo12	92%	90MnV8	65%	X210CrW12	90%	C45	50%	20MnCr5	87%	Ck45	30%	GG
100%	technical pure iron	86%	C60, X6Cr17																										
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93%	St52-3	72%	X155CrMo12																										
92%	90MnV8	65%	X210CrW12																										
90%	C45	50%	20MnCr5																										
87%	Ck45	30%	GG																										
Work piece surface Excessive roughness or unevenness have the same effect as an air gap. They reduce the adhesive force.																													
Displacement force The displacement force corresponds to the frictional force and depends on the coefficient of friction between the magnet and the work piece, as well as the adhesive force of the magnet. Due to their higher coefficient of friction, rubberized magnet systems have greater displacement forces.																													

The nominal adhesive forces stated in the tables in the standards are minimum values, which are achieved at room temperature, vertical „pull-off“ and full contact of the magnets with low carbon steel work pieces and a minimum thickness of 10 mm.

Retaining magnets

disc-shaped, without thread

SPECIFICATION

Housing

Steel, zinc plated

Materials of the magnet:

Hard ferrite **HF**

temperature resistant up to 200 °C

SmCo **SC**

Samarium, cobalt

temperature resistant up to 200 °C

NdFeB **ND**

Neodymium, iron, boron

temperature resistant up to 80 °C

INFORMATION

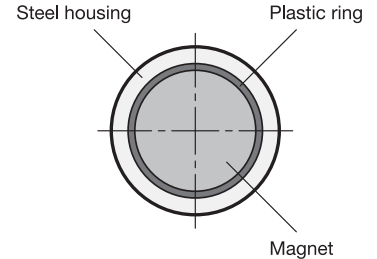
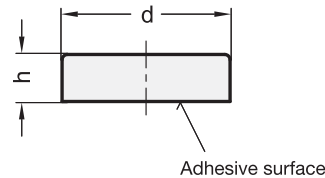
Retaining magnets GN 50.1 are a shielded magnetic system.

Fixed in place by gluing or side-mounted thrust bolt (e.g. GN 913.2, see page 920) grub screw with pointed nose).

- More information to retaining magnets (see page 2022)



View on adhesive surface



GN 50.1

Description	d	h	Nominal adhesive forces in N	
GN 50.1-HF-10	10 ±0.1	4.5 +0.2/-0.1	4	2
GN 50.1-HF-13	13 ±0.1	4.5 +0.2/-0.1	10	3
GN 50.1-HF-16	16 ±0.1	4.5 +0.2/-0.1	18	5
GN 50.1-HF-20	20 ±0.1	6 +0.2/-0.1	30	9
GN 50.1-HF-25	25 ±0.1	7 +0.3/-0.1	40	17
GN 50.1-HF-32	32 ±0.1	7 +0.3/-0.1	80	29
GN 50.1-HF-40	40 +0.2/-0.1	8 +0.4/-0.1	125	54
GN 50.1-HF-50	50 +0.2/-0.1	10 +0.5/-0.1	220	102
GN 50.1-HF-63	63 +0.3/-0.1	14 +0.5/-0.1	350	226
GN 50.1-HF-80	80 +0.5/-0.1	18 +0.5/-0.1	600	468
GN 50.1-HF-100	100 +0.5/-0.1	22 +0.5/-0.1	900	915
GN 50.1-HF-125	125 +0.5/-0.1	26 +0.5/-0.1	1300	1680
GN 50.1-SC-6	6 ±0.1	4.5 ±0.1	5	1
GN 50.1-SC-8	8 ±0.1	4.5 ±0.1	11	2
GN 50.1-SC-10	10 ±0.1	4.5 ±0.1	20	3
GN 50.1-SC-13	13 ±0.1	4.5 ±0.1	40	4
GN 50.1-SC-16	16 ±0.1	4.5 ±0.1	60	7
GN 50.1-SC-20	20 ±0.1	6 ±0.1	90	14
GN 50.1-SC-25	25 ±0.1	7 ±0.2	150	26
GN 50.1-SC-32	32 ±0.1	7 ±0.2	220	42
GN 50.1-ND-6	6 ±0.1	4.5 ±0.1	5	1
GN 50.1-ND-8	8 ±0.1	4.5 ±0.1	13	2
GN 50.1-ND-10	10 ±0.1	4.5 ±0.1	25	2
GN 50.1-ND-13	13 ±0.1	4.5 ±0.1	60	4
GN 50.1-ND-16	16 ±0.1	4.5 ±0.1	95	6
GN 50.1-ND-20	20 ±0.1	6 ±0.1	140	14
GN 50.1-ND-25	25 ±0.1	7 ±0.2	200	26
GN 50.1-ND-32	32 ±0.1	7 ±0.2	350	41

Retaining magnets
disc-shaped, with female thread

SPECIFICATION

Housing / threaded bushing
Steel, zinc plated

Materials of the magnet:

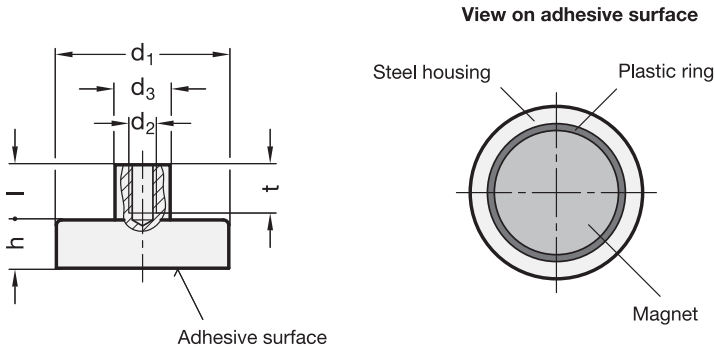
Hard ferrite **HF**
temperature resistant up to 200 °C

SmCo **SC**
Samarium, cobalt
temperature resistant up to 200 °C

NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

INFORMATION

Retaining magnets GN 50.2 are a shielded magnetic system.
- More information to retaining magnets (see page 2022)



GN 50.2

Description	d1	d2	d3	h	l	t	Nominal adhesive forces in N	⚖
GN 50.2-HF-10-M3	10 ±0.1	M 3	6 ±0.1	4.5 +0.2/-0.1	7	5	4	3
GN 50.2-HF-13-M3	13 ±0.1	M 3	6 ±0.1	4.5 +0.2/-0.1	7	5	10	4
GN 50.2-HF-16-M3	16 ±0.1	M 3	6 ±0.1	4.5 +0.2/-0.1	7	5	18	6
GN 50.2-HF-20-M3	20 ±0.1	M 3	6 ±0.1	6 +0.2/-0.1	7	5	30	11
GN 50.2-HF-25-M4	25 ±0.1	M 4	8 ±0.2	7 +0.3/-0.1	8	7	40	20
GN 50.2-HF-32-M4	32 ±0.1	M 4	8 ±0.2	7 +0.3/-0.1	8	7	80	31
GN 50.2-HF-40-M5	40 +0.2/-0.1	M 5	10 ±0.2	8 +0.4/-0.1	10	9	125	59
GN 50.2-HF-50-M6	50 +0.2/-0.1	M 6	12 ±0.2	10 +0.5/-0.1	12	11	220	111
GN 50.2-HF-63-M8	63 +0.3/-0.1	M 8	15 ±0.2	14 +0.5/-0.1	16	14	350	242
GN 50.2-HF-80-M10	80 +0.5/-0.1	M 10	20 ±0.2	18 +0.5/-0.1	16	15	600	500
GN 50.2-HF-100-M12	100 +0.5/-0.1	M 12	22 ±0.2	22 +0.5/-0.1	21	18	900	948
GN 50.2-HF-125-M14	125 +0.5/-0.1	M 14	25 ±0.2	26 +0.5/-0.1	24	20	1300	1732
GN 50.2-SC-6-M3	6 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	5	2
GN 50.2-SC-8-M3	8 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	11	3
GN 50.2-SC-10-M3	10 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	20	4
GN 50.2-SC-13-M3	13 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	40	6
GN 50.2-SC-16-M4	16 ±0.1	M 4	6 ±0.1	4.5 ±0.1	7	6	60	8
GN 50.2-SC-20-M4	20 ±0.1	M 4	8 ±0.2	6 ±0.1	7	7	90	16
GN 50.2-SC-25-M4	25 ±0.1	M 4	8 ±0.2	7 ±0.2	7	7	150	28
GN 50.2-SC-32-M5	32 ±0.1	M 5	10 ±0.2	7 ±0.2	8.5	8	220	47
GN 50.2-ND-6-M3	6 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	5	2
GN 50.2-ND-8-M3	8 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	13	3
GN 50.2-ND-10-M3	10 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	25	4
GN 50.2-ND-13-M3	13 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	60	5
GN 50.2-ND-16-M4	16 ±0.1	M 4	6 ±0.1	4.5 ±0.1	7	6	95	7
GN 50.2-ND-20-M4	20 ±0.1	M 4	8 ±0.2	6 ±0.1	7	7	140	16
GN 50.2-ND-25-M4	25 ±0.1	M 4	8 ±0.2	7 ±0.2	7	7	200	27
GN 50.2-ND-32-M5	32 ±0.1	M 5	10 ±0.2	7 ±0.2	8.5	8	350	45

Retaining magnets

disc-shaped, with threaded stud

SPECIFICATION

Housing / threaded stud
Steel, zinc plated

Materials of the magnet:

Hard ferrite **HF**

temperature resistant up to 200 °C

NdFeB **ND**

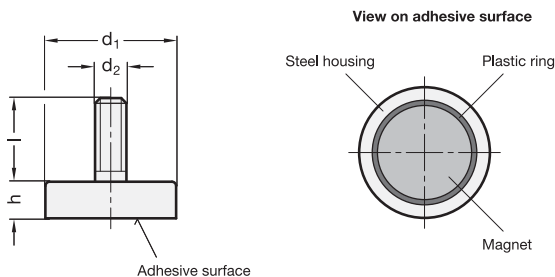
Neodymium, iron, boron

temperature resistant up to 80 °C

INFORMATION

Retaining magnets GN 50.3 are a shielded magnetic system.

- More information to retaining magnets (see page 2022)



GN 50.3

Description	d1	d2	h	l	Nominal adhesive forces in N	
GN 50.3-HF-10-M3	10 ±0.1	M 3	4.5 +0.2/-0.1	7	4	2
GN 50.3-HF-13-M3	13 ±0.1	M 3	4.5 +0.2/-0.1	7	10	3
GN 50.3-HF-16-M3	16 ±0.1	M 3	4.5 +0.2/-0.1	7	18	5
GN 50.3-HF-20-M3	20 ±0.1	M 3	6 +0.2/-0.1	7	30	10
GN 50.3-HF-25-M4	25 ±0.1	M 4	7 +0.3/-0.1	8	40	19
GN 50.3-HF-32-M4	32 ±0.1	M 4	7 +0.3/-0.1	8	80	30
GN 50.3-HF-47-M6	47 +0.2/-0.1	M 6	9 +0.5/-0.1	8	180	85
GN 50.3-HF-63-M6	63 +0.3/-0.1	M 6	14 +0.5/-0.1	15	350	233
GN 50.3-ND-10-M4	10 ±0.1	M 4	4.5 ±0.1	8	25	3
GN 50.3-ND-13-M5	13 ±0.1	M 5	4.5 ±0.1	8	60	5
GN 50.3-ND-16-M6	16 ±0.1	M 6	4.5 ±0.1	8	95	7
GN 50.3-ND-20-M6	20 ±0.1	M 6	6 ±0.1	10	140	15
GN 50.3-ND-25-M6	25 ±0.1	M 6	7 ±0.1	10	200	27
GN 50.3-ND-32-M6	32 ±0.1	M 6	7 ±0.1	10	350	42

Stainless Steel- Retaining magnets

disc-shaped, with female thread

SPECIFICATION

Housing / threaded bushing
Stainless Steel

Material of the magnet:

Hard ferrite **HF**

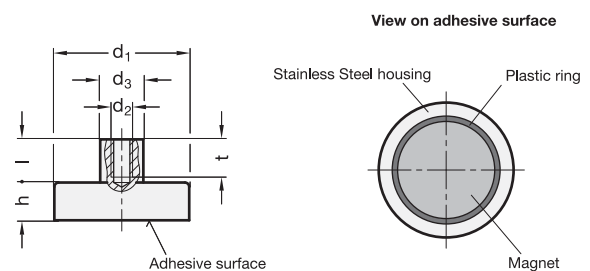
temperature resistant up to 220 °C

INFORMATION

Stainless Steel-Retaining magnets GN 50.25 are a shielded magnetic system.

Owing to the lower magnetic conductivity of the stainless steel housing, the adhesive forces are lower than in steel.

- More information to retaining magnets (see page 2022)



GN 50.25

STAINLESS STEEL

Description	d1	d2	d3	h	l	t	Nominal adhesive forces in N	
GN 50.25-HF-25	25 ±0.1	M 5	8	7 +0.3/-0.1	9	8.25	32	20
GN 50.25-HF-32	32 ±0.1	M 5	8	7 +0.3/-0.1	9	9	64	31
GN 50.25-HF-40	40 +0.2/-0.1	M 5	8	8 +0.3/-0.1	8.5	9	100	56
GN 50.25-HF-50	50 +0.2/-0.1	M 5	8	10 +0.4/-0.1	8.5	9	175	105
GN 50.25-HF-63	63 +0.3/-0.1	M 5	8	14 +0.5/-0.1	8	9	280	228

Retaining magnets

disc-shaped, with bore or female thread

SPECIFICATION

Housing

Steel, zinc plated

Materials of the magnet:

Hard ferrite **HF**

temperature resistant up to 200 °C

NdFeB **ND**

Neodymium, iron, boron

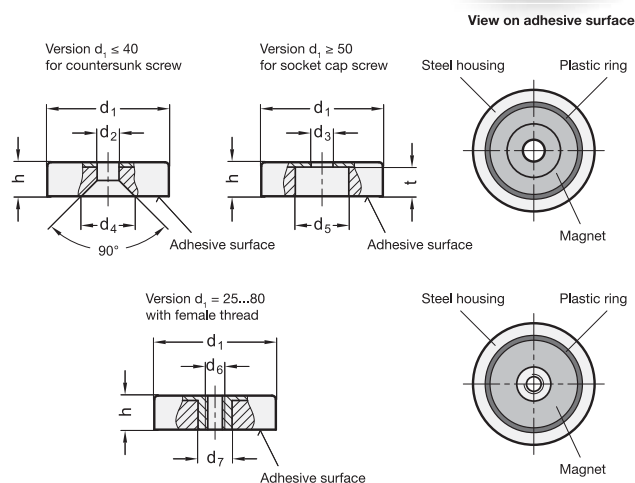
temperature resistant up to 80 °C

INFORMATION

Retaining magnets GN 50.4 are a shielded magnetic system.

To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material (magnetic not conductive).

- More information to retaining magnets (see page 2022)



GN 50.4

Description	d1	d2	d3	d4	d5	d6	d7	t	h	Nominal adhesive forces in N	⚖
GN 50.4-HF-16	16 ±0.1	3.5	-	7.5	-	-	-	-	4.5 +0.2/-0.1	14	4
GN 50.4-HF-20	20 ±0.1	4.1	-	10.5	-	-	-	-	6 +0.2/-0.1	27	9
GN 50.4-HF-25	25 ±0.1	5.5	-	12	-	-	-	-	7 +0.3/-0.2	36	17
GN 50.4-HF-32	32 ±0.1	5.5	-	12	-	-	-	-	7 +0.3/-0.1	72	27
GN 50.4-HF-40	40 +0.2/-0.1	5.5	-	13.5	-	-	-	-	8 +0.4/-0.1	90	52
GN 50.4-HF-50	50 +0.2/-0.1	-	8.5 ±0.2	-	22	-	-	8.5	10 +0.5/-0.1	180	84
GN 50.4-HF-63	63 +0.3/-0.1	-	6.5 ±0.2	-	24	-	-	12	14 +0.5/-0.1	290	197
GN 50.4-HF-80	80 +0.5/-0.1	-	6.5 ±0.2	-	11.5	-	-	15	18 +0.5/-0.1	540	458
GN 50.4-HF-100	100 +0.5/-0.1	-	10.5 ±0.2	-	34	-	-	18	22 +0.5/-0.1	680	815
GN 50.4-ND-16	16 ±0.1	3.5	-	6.6	-	-	-	-	4.5 +0.2/-0.1	75	6
GN 50.4-ND-20	20 ±0.1	4.5	-	9	-	-	-	-	6 +0.2/-0.1	105	13
GN 50.4-ND-25	25 ±0.1	4.5	-	9	-	-	-	-	7 +0.3/-0.2	160	20
GN 50.4-ND-32	32 ±0.1	5.5	-	11	-	-	-	-	7 +0.3/-0.1	310	39
GN 50.4-ND-40	40 +0.2/-0.1	5.5	-	10.6	-	-	-	-	8 +0.4/-0.1	500	73
GN 50.4-HF-25-M4	25 ±0.1	-	-	-	-	M 4	5.2	-	7 +0.3/-0.2	36	17
GN 50.4-HF-32-M4	32 ±0.1	-	-	-	-	M 4	5.2	-	7 +0.3/-0.1	72	29
GN 50.4-HF-40-M4	40 +0.2/-0.1	-	-	-	-	M 4	5.2	-	8 +0.4/-0.1	90	54
GN 50.4-HF-50-M6	50 +0.2/-0.1	-	-	-	-	M 6	12	-	10 +0.5/-0.1	180	96
GN 50.4-HF-50-M8	50 +0.2/-0.1	-	-	-	-	M 8	12	-	10 +0.5/-0.1	180	92
GN 50.4-HF-63-M8	63 +0.3/-0.1	-	-	-	-	M 8	13	-	14 +0.5/-0.1	290	209
GN 50.4-HF-80-M8	80 +0.5/-0.1	-	-	-	-	M 8	14.5	-	18 +0.5/-0.1	540	479
GN 50.4-HF-80-M10	80 +0.5/-0.1	-	-	-	-	M 10	14.5	-	18 +0.5/-0.1	540	382

Stainless Steel-
Retaining magnets
disc-shaped, with bore

SPECIFICATION

Housing
Stainless Steel

Materials of the magnet:

Hard ferrite **HF**
temperature resistant up to 220 °C

SmCo **SC**
Samarium, cobalt
temperature resistant up to 350 °C

INFORMATION

Stainless Steel-Retaining magnets GN 50.45 are a shielded magnetic system.

Owing to the lower magnetic conductivity of the stainless steel housing, the adhesive forces are lower than in steel.

To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material.

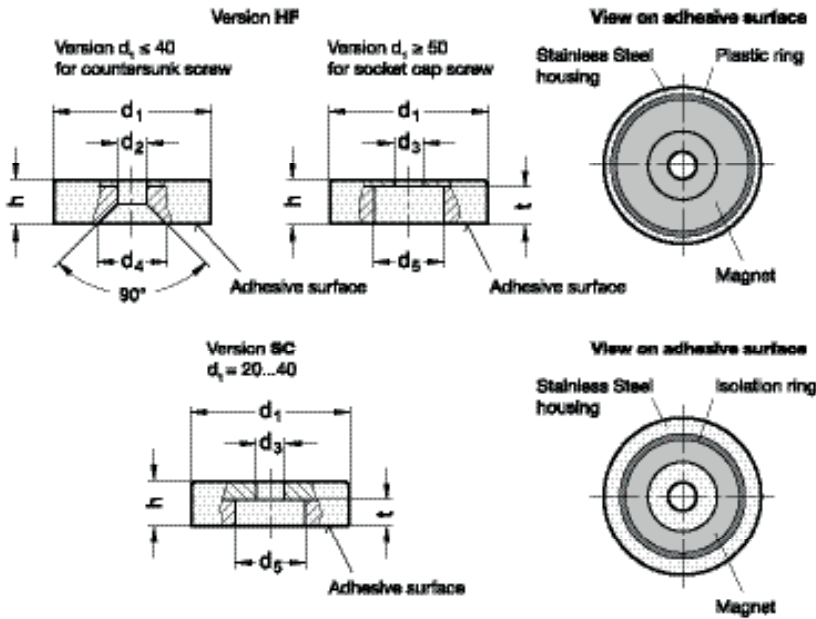
- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ON REQUEST

- Raw magnets in ring shape in hard ferrite (HF)



GN 50.45

STAINLESS STEEL

Description	d1	d2	d3	d4	d5	h	t	Nominal adhesive forces in N	⚖
GN 50.45-HF-20	20 ±0.1	4.1	-	10	-	6 +0.2/-0.1	-	22	11
GN 50.45-HF-25	25 ±0.1	5.5	-	11.5	-	7 +0.3/-0.2	-	29	17
GN 50.45-HF-32	32 ±0.1	5.5	-	11.5	-	7 +0.3/-0.2	-	58	27
GN 50.45-HF-40	40 +0.2/-0.1	5.5	-	11.5	-	8 +0.4/-0.2	-	72	52
GN 50.45-HF-50	50 +0.2/-0.1	-	8.5	-	22	10 +0.5/-0.2	8.5	145	70
GN 50.45-HF-63	63 +0.3/-0.1	-	6.5	-	24	14 +0.5/-0.2	12	230	195
GN 50.45-SC-20	20 ±0.1	-	4.5	-	8	6 ±0.1	3.5	60	13
GN 50.45-SC-25	25 ±0.1	-	4.5	-	8	7 ±0.2	4	80	24
GN 50.45-SC-32	32 ±0.1	-	5.5	-	11	7 ±0.2	4	200	39
GN 50.45-SC-40	40 +0.2/-0.1	-	5.5	-	10.5	8 ±0.2	4	420	75

Retaining magnets

disc-shaped, with hook / with eyelet

SPECIFICATION

Types

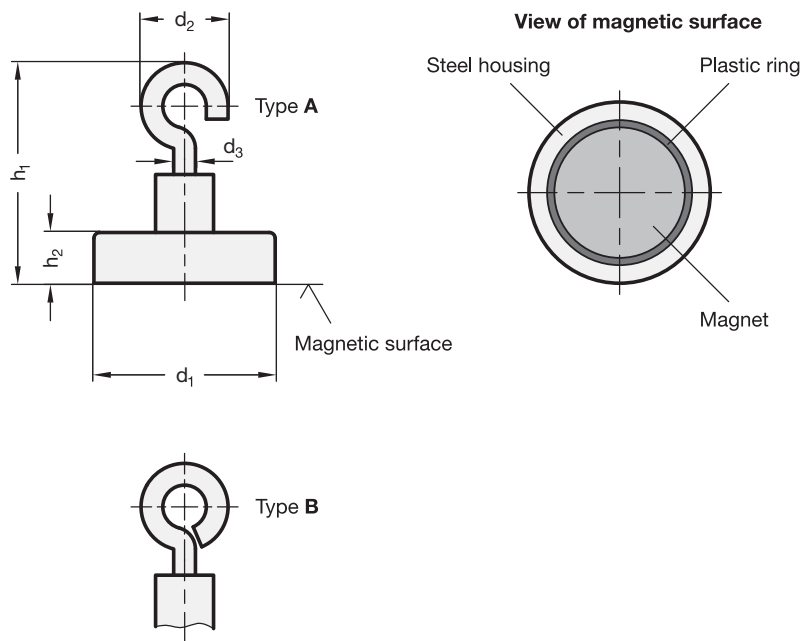
- Type **A**: with hook
- Type **B**: with eyelet

Housing / threaded bushing / hook / eyelet
steel, zinc plated

Material of the magnet:
Hard ferrite **HF**

INFORMATION

Retaining magnets GN 50.6 are a shielded magnetic system.
- More information to retaining magnets (see page 2022)



GN 50.6

Description	d1	d2 ±1	d3	h1 ±1	h2	Nominal adhesive forces in N	⚖
GN 50.6-HF-16-A	16	10	3	24.5	4.5	18	6
GN 50.6-HF-25-A	25	13.5	4	30.5	7	40	23
GN 50.6-HF-32-A	32	13.5	4	30.5	7	80	34
GN 50.6-HF-40-A	40	13.5	4	30.5	8	125	59
GN 50.6-HF-50-A	50	13.5	4	32	10	220	108
GN 50.6-HF-63-A	63	13.5	4	36	14	350	232
GN 50.6-HF-80-A	80	23	6	57.5	18	600	490
GN 50.6-HF-16-B	16	10	3	24.5	4.5	18	5
GN 50.6-HF-25-B	25	12.5	4	30.5	7	40	23
GN 50.6-HF-32-B	32	12.5	4	30.5	7	80	34
GN 50.6-HF-40-B	40	12.5	4	30.5	8	125	59
GN 50.6-HF-50-B	50	12.5	4	35	10	220	108
GN 50.6-HF-63-B	63	12.5	4	38	14	350	232
GN 50.6-HF-80-B	80	20	6	51.5	18	600	496



Retaining magnets

disc-shaped, with female thread

SPECIFICATION

Housing

Steel, zinc plated

Material of the magnet

NdFeB **ND**

Neodymium, iron, boron

temperature resistant up to 80 °C

Plastic cover

Technopolymer (Polyamide PA)

INFORMATION

Retaining magnets GN 50.5 are a shielded magnetic system. For diameter $d_1 \geq 50$ the adhesive surface is lagged with a plastic cover. To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material.

- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)

Pot magnets

with bore

SPECIFICATION

Housing

Steel

Material of the magnet

AlNiCo **AN**

Aluminium, nickel, cobalt

temperature resistant up to 280 °C

Lacquering red

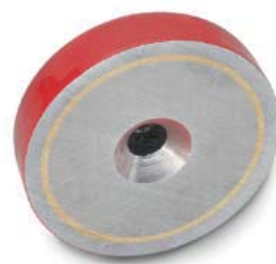
temperature resistant up to 180 °C

INFORMATION

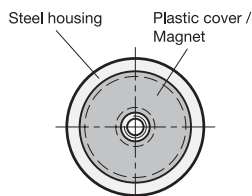
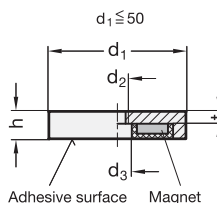
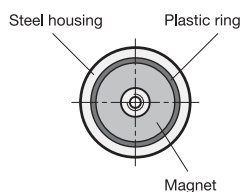
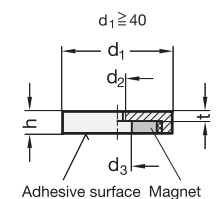
Pot magnets GN 58 are a shielded magnetic system.

To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material. For easier handling and/or to avoid demagnetisation, these magnets have an iron plate on their adhesive surface.

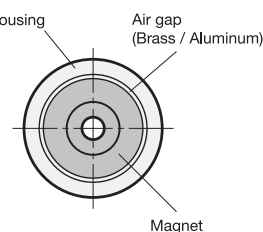
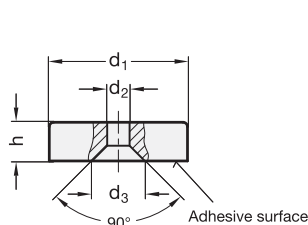
- More information to retaining magnets (see page 2022)



View on adhesive surface



View on adhesive surface



GN 50.5

Description	$d_1 \pm 0.1$	d_2	d_3	$h \pm 0.2$	t	Nominal adhesive forces in N	
GN 50.5-ND-32	32	M 5	5.5	7	3	330	40
GN 50.5-ND-40	40	M 5	10.5	8	6	500	74
GN 50.5-ND-50	50	M 8	10.5	10	5.5	800	140
GN 50.5-ND-63	63	M 10	11.7	14	8.5	1100	315
GN 50.5-ND-75	75	M 10	13	15	8.5	1750	479

GN 58

Description	d_1	d_2	d_3	h	Nominal adhesive forces in N	
GN 58-AN-19	19	3.7	$8.7 + 0.8 / - 0.2$	7.5	30	17
GN 58-AN-29	29	4.8	$10.5 + 1 / 0$	8.5 ± 0.5	50	43
GN 58-AN-38	38	4.8	$10 + 1 / - 0.5$	10.5	130	83

Retaining magnets

disc-shaped, with female thread, with rubber jacket

SPECIFICATION

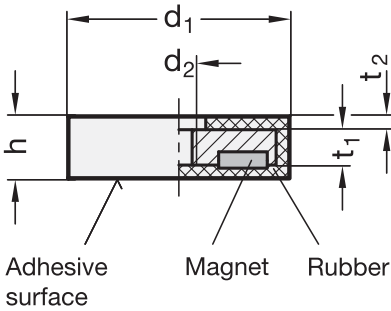
Steel part
zinc plated
Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C
Rubber jacket
Elastomer (TPE)
80 shore A ≈
black **SW**
white **WS**

INFORMATION

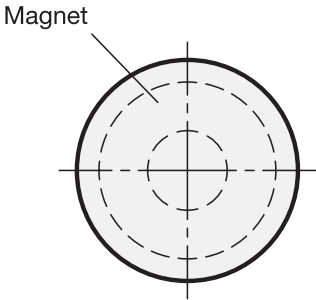
Retaining magnets GN 51.5 are a shielded magnetic system with rubber jacket.
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.
- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



View on adhesive surface



GN 51.5

Description	d1	d2	h	t1	t2	Nominal adhesive forces in N	⚖
GN 51.5-ND-22-SW	22	M 4	6	4.5	0.8	35	9
GN 51.5-ND-22-WS	22	M 4	6	4.5	0.8	35	9
GN 51.5-ND-31-SW	31	M 5	6	4.5	0.8	75	21
GN 51.5-ND-31-WS	31	M 5	6	4.5	0.8	75	21
GN 51.5-ND-43-SW	43	M 4	5.5	4	0.8	85	29
GN 51.5-ND-43-WS	43	M 4	5.5	4	0.8	85	29
GN 51.5-ND-66-SW	66	M 6	8.5	6	1.8	180	100
GN 51.5-ND-66-WS	66	M 6	8.5	6	1.8	180	100
GN 51.5-ND-88-SW	88	M 6	8.5	6	1.8	420	186
GN 51.5-ND-88-WS	88	M 6	8.5	6	1.8	420	186

Retaining magnets

disc-shaped, with bore, with rubber jacket

SPECIFICATION

Steel part
zinc plated

Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

Rubber jacket
Elastomer (TPE)
80 shore A ≈
black **SW**
white **WS**

INFORMATION

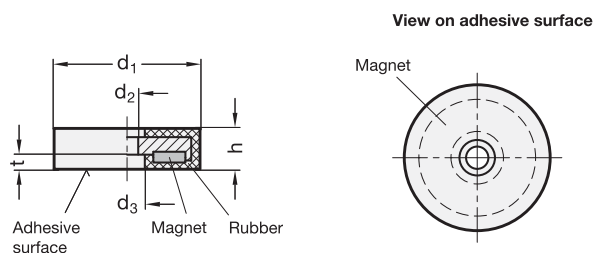
Retaining magnets GN 51.4 are a shielded magnetic system with rubber jacket.

The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.

- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



GN 51.4

Description	d1	d2	d3	t	h	Nominal adhesive forces in N	
GN 51.4-ND-22-SW	22	4	8	3.5	6	35	8
GN 51.4-ND-22-WS	22	4	8	3.5	6	35	8
GN 51.4-ND-31-SW	31	6	9	3.5	6	75	20
GN 51.4-ND-31-WS	31	6	9	3.5	6	75	20
GN 51.4-ND-57-SW	57	8	25.3	3.5	7.5	175	77
GN 51.4-ND-57-WS	57	8	25.3	3.5	7.5	175	77
GN 51.4-ND-66-SW	66	5.5	25	3.5	8.5	210	100
GN 51.4-ND-66-WS	66	5.5	25	3.5	8.5	210	100

Retaining magnets

disc-shaped, with 2 female thread, with rubber jacket

SPECIFICATION

Steel part
zinc plated

Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

Rubber jacket
Elastomer (TPE)
80 shore A ≈
black

INFORMATION

Retaining magnets GN 51.6 are a shielded magnetic system with rubber jacket.

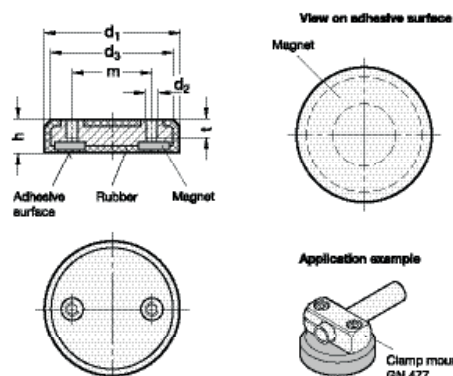
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.

Its dimensions, especially the drill hole spacing m and the thread d2, match the clamp mountings GN 473 (see page 1878), GN 477 (see page 1879) and GN 480 (see page 1885).

- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



GN 51.6

Description	d1	m	d2	d3	h	t	Nominal adhesive forces in N	
GN 51.6-ND-43-22-M4	43	22	M 4	39	10.3	6	85	37
GN 51.6-ND-43-27-M5	43	27	M 5	39	10.3	7	85	36
GN 51.6-ND-57-32-M6	57	32	M 6	53	11.3	7	175	87
GN 51.6-ND-57-36-M6	57	36	M 6	53	11.3	7	175	87

Retaining magnets

disc-shaped, with female thread, with rubber jacket

SPECIFICATION

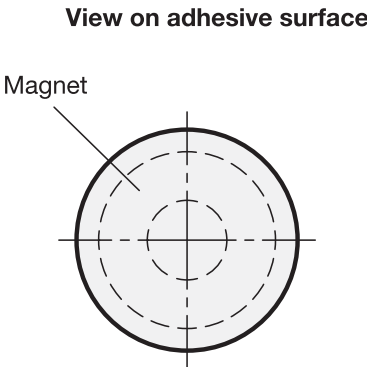
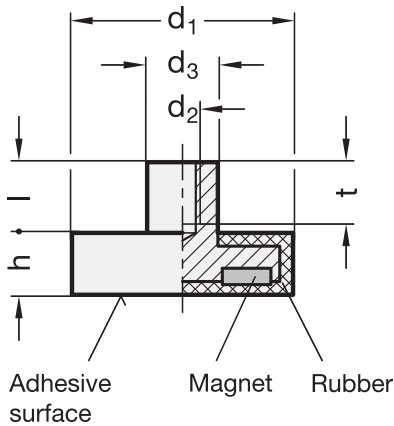
Steel part
zinc plated
Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C
Rubber jacket
Elastomer (TPE)
80 shore A ≈
black **SW**
white **WS**

INFORMATION

Retaining magnets GN 51.2 are a shielded magnetic system with rubber jacket.
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.
- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



GN 51.2

Description	d1	d2	d3	h	l	t min.	Nominal adhesive forces in N	⚖
GN 51.2-ND-12-SW	12	M 4	8	7	8	6	10	6
GN 51.2-ND-12-WS	12	M 4	8	7	8	6	10	6
GN 51.2-ND-22-SW	22	M 4	8	6	5.5	5	50	13
GN 51.2-ND-22-WS	22	M 4	8	6	5.5	5	50	13
GN 51.2-ND-31-SW	31	M 4	8	6	5.5	5	75	22
GN 51.2-ND-31-WS	31	M 4	8	6	5.5	5	75	22
GN 51.2-ND-43-SW	43	M 4	8	6	4.5	5	85	30
GN 51.2-ND-43-WS	43	M 4	8	6	4.5	5	85	30
GN 51.2-ND-66-SW	66	M 5	10	8.5	6.5	8	180	105
GN 51.2-ND-66-WS	66	M 5	10	8.5	6.5	8	180	105
GN 51.2-ND-88-SW	88	M 8	12	8.5	8.5	11	420	192
GN 51.2-ND-88-WS	88	M 8	12	8.5	8.5	11	420	192

Retaining magnets

disc-shaped, with threaded stud, with rubber jacket

SPECIFICATION

Steel part
zinc plated

Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 60 °C

Rubber jacket
Elastomer (TPE)
80 shore A ≈
black **SW**
white **WS**

INFORMATION

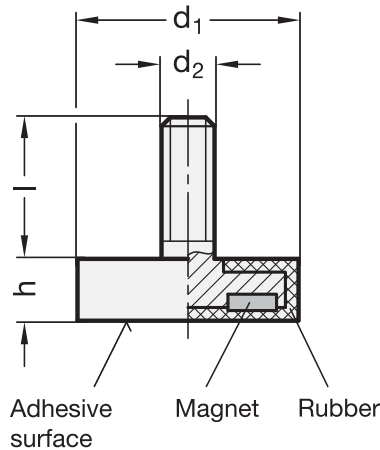
Retaining magnets GN 51.3 are a shielded magnetic system with rubber jacket.

The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.

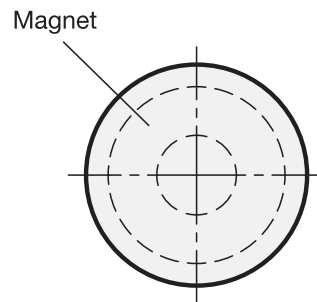
- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



View on adhesive surface



GN 51.3

Description	d1	d2	h	l	Nominal adhesive forces in N	⚖
GN 51.3-ND-22-SW	22	M 4	6	6.5	50	10
GN 51.3-ND-22-WS	22	M 4	6	6.5	50	10
GN 51.3-ND-43-SW	43	M 6	6	15	85	32
GN 51.3-ND-43-WS	43	M 6	6	15	85	32
GN 51.3-ND-66-SW	66	M 8	8.5	15	180	107
GN 51.3-ND-66-WS	66	M 8	8.5	15	180	107
GN 51.3-ND-88-SW	88	M 8	8.5	15	420	193
GN 51.3-ND-88-WS	88	M 8	8.5	15	420	193

Retaining magnets

rod-shaped, without bore

SPECIFICATION

Housing
Brass

Materials of the magnet:

SmCo **SC**
Samarium, cobalt
temperature resistant up to 200 °C

NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

Identification of ND:
blue inked adhesive surface area

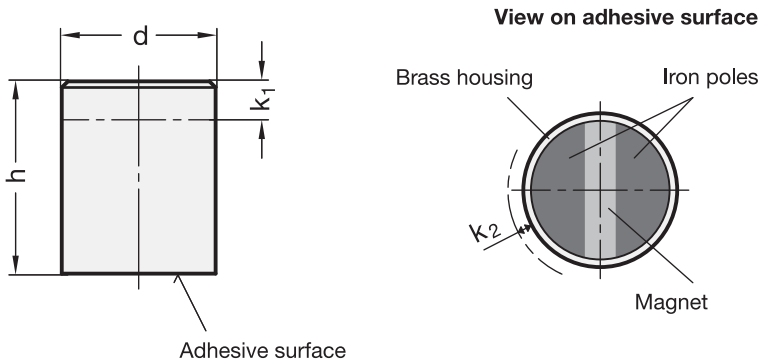
INFORMATION

Retaining magnets GN 54.1 are a shielded magnetic system. The configuration of magnetic and iron poles is known as sandwich magnet system. These retaining magnets deliver ultimate holding power, also with smaller workpieces. Attachment options include pressing in or gluing in.

* k_1 is the maximum dimension by which the retaining magnet can be shortened without losing its properties.

** Mounting these retaining magnets directly in steel components will create a magnetic shortcircuit which reduces the retaining power by as much as 15%. To avoid this effect, the spacings k_2 between brass jacket and steel component should be observed. These spacings should also be maintained if the retaining magnet is shortened.

- More information to retaining magnets (see page 2022)



GN 54.1

Description	d h6	h	k1*	k2**	Nominal adhesive forces in N	⚖
GN 54.1-SC-6	6	20 ±0.2	10	1.5	8	5
GN 54.1-SC-8	8	20 ±0.2	10	1.5	22	8
GN 54.1-SC-10	10	20 ±0.2	8	2	40	12
GN 54.1-SC-13	13	20 ±0.2	6	2.5	60	20
GN 54.1-SC-16	16	20 ±0.2	2	3	125	30
GN 54.1-SC-20	20	25 ±0.2	5	4	250	60
GN 54.1-SC-25	25	35 ±0.3	7	5	400	134
GN 54.1-SC-32	32	40 ±0.3	4.5	6	600	251
GN 54.1-ND-6	6	20 ±0.2	10	1.5	10	5
GN 54.1-ND-8	8	20 ±0.2	10	1.5	22	8
GN 54.1-ND-10	10	20 ±0.2	8	2	45	12
GN 54.1-ND-13	13	20 ±0.2	6	2.5	70	20
GN 54.1-ND-16	16	20 ±0.2	2	3	150	30
GN 54.1-ND-20	20	25 ±0.2	5	4	280	59
GN 54.1-ND-25	25	35 ±0.3	7	5	450	132
GN 54.1-ND-32	32	40 ±0.3	4.5	6	700	246

Retaining magnets

rod-shaped, without bore

SPECIFICATION

Identification No.

- No. **1**: Tolerance $d = \pm 0.2$
- No. **2**: Tolerance $d = h6$

Housing
Steel

- Identification No. 1: zinc plated
- Identification No. 2: blank

Materials of the magnet:

AlNiCo **AN**

Aluminium, nickel, cobalt
temperature resistant up to 450 °C

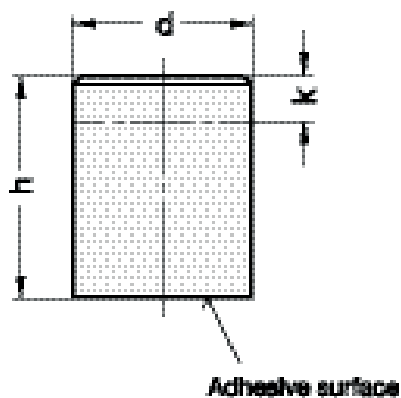
NdFeB **ND**

Neodymium, iron, boron
temperature resistant up to 80 °C

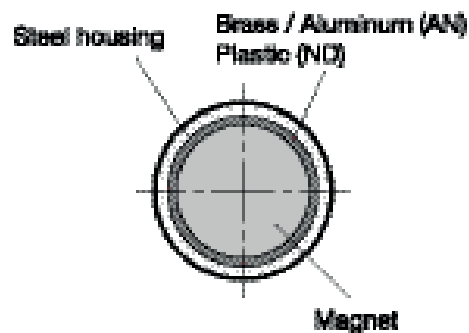


INFORMATION

Retaining magnets GN 52.1 are a shielded magnetic system.
Attachment options include pressing in, shrinking in or gluing in.
- More information to retaining magnets (see page 2022)



View on adhesive surface



GN 52.1

Description	d	h ±0.2	k*	Nominal adhesive forces in N	
GN 52.1-AN-6-1	6	20	12	2	4
GN 52.1-AN-8-1	8	20	11	4	8
GN 52.1-AN-10-1	10	20	10	8.5	12
GN 52.1-AN-13-1	13	20	8	12	19
GN 52.1-AN-16-1	16	20	6	20	30
GN 52.1-AN-20-1	20	25	5	40	58
GN 52.1-AN-25-1	25	35	13	60	125
GN 52.1-AN-32-1	32	40	9	160	220
GN 52.1-AN-40-1	40	50	10	240	440
GN 52.1-AN-50-1	50	60	10	400	813
GN 52.1-AN-63-1	63	65	10	660	1306
GN 52.1-AN-6-2	6	10	2	2	2
GN 52.1-AN-8-2	8	12	3	4	5
GN 52.1-AN-10-2	10	16	6	8.5	10
GN 52.1-AN-13-2	13	18	6	12	18
GN 52.1-AN-16-2	16	20	6	20	30
GN 52.1-AN-20-2	20	25	5	40	57
GN 52.1-AN-25-2	25	30	7	60	106
GN 52.1-AN-32-2	32	35	4	160	187
GN 52.1-AN-40-2	40	45	5	240	390
GN 52.1-AN-50-2	50	50	-	400	639
GN 52.1-AN-63-2	63	60	5	660	1175
GN 52.1-ND-4-1	4	20	15	2.5	2
GN 52.1-ND-5-1	5	20	15	4.5	3
GN 52.1-ND-6-1	6	20	15	6	5
GN 52.1-ND-8-1	8	20	15	12	8
GN 52.1-ND-10-1	10	20	15	24	12
GN 52.1-ND-13-1	13	20	15	60	21
GN 52.1-ND-16-1	16	20	15	90	31
GN 52.1-ND-20-1	20	25	18	135	61
GN 52.1-ND-25-1	25	35	27	190	133
GN 52.1-ND-32-1	32	40	32	340	249
GN 52.1-ND-6-2	6	10	5	6	2
GN 52.1-ND-8-2	8	12	7	12	5
GN 52.1-ND-10-2	10	16	11	24	9
GN 52.1-ND-13-2	13	18	13	60	18
GN 52.1-ND-16-2	16	20	15	90	31
GN 52.1-ND-20-2	20	25	18	135	60
GN 52.1-ND-25-2	25	30	22	190	115
GN 52.1-ND-32-2	32	35	27	340	218

* k is the maximum dimension by which the retaining magnet can be shorted without losing its properties.



Retaining magnets

rod-shaped, with female thread

SPECIFICATION

Housing

Steel, zinc plated

Materials of the magnet:

AlNiCo **AN**

Aluminium, nickel, cobalt

temperature resistant up to 450 °C

NdFeB **ND**

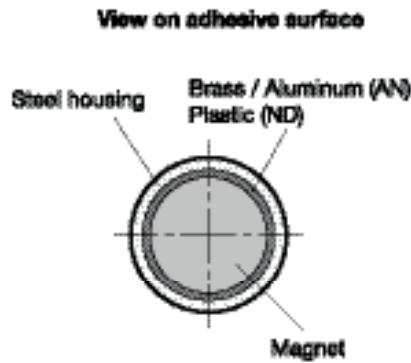
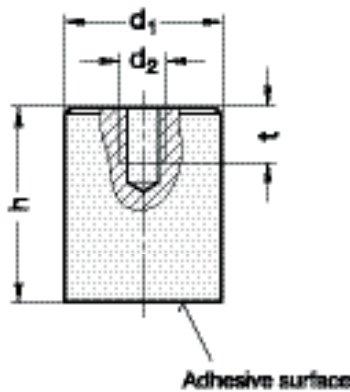
Neodymium, iron, boron

temperature resistant up to 80 °C

INFORMATION

Retaining magnets GN 52.2 are a shielded magnetic system.

- More information to retaining magnets (see page 2022)



GN 52.2

Description	d1 ±0.2	d2	h ±0.2	t min.	Nominal adhesive forces in N	⚖
GN 52.2-AN-6	6	M 3	20	5	2	4
GN 52.2-AN-8	8	M 3	20	5	4	8
GN 52.2-AN-10	10	M 4	20	7	8.5	11
GN 52.2-AN-13	13	M 4	20	7	12	19
GN 52.2-AN-16	16	M 4	20	7	20	30
GN 52.2-AN-20	20	M 6	25	9	40	53
GN 52.2-AN-25	25	M 6	35	9	60	121
GN 52.2-AN-32	32	M 8	40	12	160	212
GN 52.2-AN-40	40	M 8	50	12	240	437
GN 52.2-AN-50	50	M 10	60	12	400	793
GN 52.2-AN-63	63	M 12	65	14	660	1273
GN 52.2-ND-6	6	M 3	20	5	6	4
GN 52.2-ND-8	8	M 3	20	5	12	8
GN 52.2-ND-10	10	M 4	20	7	24	11
GN 52.2-ND-13	13	M 4	20	7	60	19
GN 52.2-ND-16	16	M 4	20	7	90	30
GN 52.2-ND-20	20	M 6	25	9	135	58
GN 52.2-ND-25	25	M 6	35	9	190	131
GN 52.2-ND-32	32	M 8	40	12	340	243
GN 52.2-ND-40	40	M 8	50	12	600	480
GN 52.2-ND-50	50	M 10	60	12	900	904
GN 52.2-ND-63	63	M 12	65	14	1300	1555

Retaining magnets

rod-shaped, with threaded stud

SPECIFICATION

Type

- Type **E**: with threaded stud

Housing

Steel, zinc plated

Materials of the magnet:

AlNiCo **AN**

Aluminium, nickel, cobalt

temperature resistant up to 450 °C

NdFeB **ND**

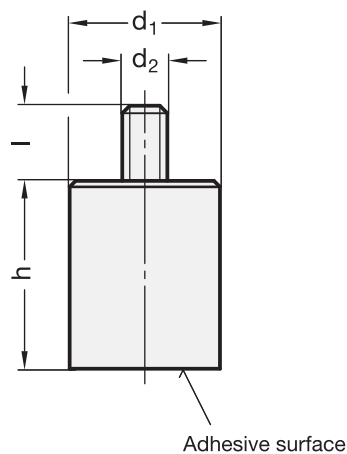
Neodymium, iron, boron

temperature resistant up to 80 °C

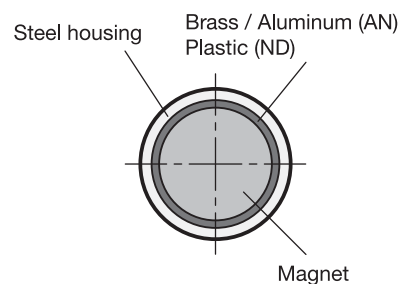
INFORMATION

Retaining magnets GN 52.4 are a shielded magnetic system.

- More information to retaining magnets (see page 2022)



View on adhesive surface



GN 52.4

Description	d1 ±0.2	d2	h ±0.2	l	Nominal adhesive forces in N	⚖
GN 52.4-AN-6-M3-E	6	M 3	20	7	2	5
GN 52.4-AN-8-M3-E	8	M 3	20	7	4	8
GN 52.4-AN-10-M4-E	10	M 4	20	8	8.5	13
GN 52.4-AN-13-M4-E	13	M 4	20	8	12	21
GN 52.4-AN-16-M4-E	16	M 4	20	10	20	31
GN 52.4-AN-20-M6-E	20	M 6	25	10	40	60
GN 52.4-AN-25-M6-E	25	M 6	35	10	60	125
GN 52.4-AN-32-M8-E	32	M 8	40	12	160	217
GN 52.4-AN-40-M8-E	40	M 8	50	15	240	458
GN 52.4-AN-50-M10-E	50	M 10	60	15	400	855
GN 52.4-AN-63-M12-E	63	M 12	65	20	660	1345
GN 52.4-ND-6-M3-E	6	M 3	20	7	6	5
GN 52.4-ND-8-M3-E	8	M 3	20	7	12	9
GN 52.4-ND-10-M4-E	10	M 4	20	8	24	14
GN 52.4-ND-13-M4-E	13	M 4	20	8	60	23
GN 52.4-ND-16-M4-E	16	M 4	20	10	90	33
GN 52.4-ND-20-M6-E	20	M 6	25	10	135	62
GN 52.4-ND-25-M6-E	25	M 6	35	10	190	127
GN 52.4-ND-32-M8-E	32	M 8	40	12	340	220
GN 52.4-ND-40-M8-E	40	M 8	50	15	700	461
GN 52.4-ND-50-M10-E	50	M 10	60	15	1000	860
GN 52.4-ND-63-M12-E	63	M 12	65	20	1700	1350

Retaining magnets

rod-shaped, with female thread

SPECIFICATION

Housing
Steel

Material of the magnet

AlNiCo **AN**

Aluminium, nickel, cobalt

temperature resistant up to 350 °C

Lacquering red

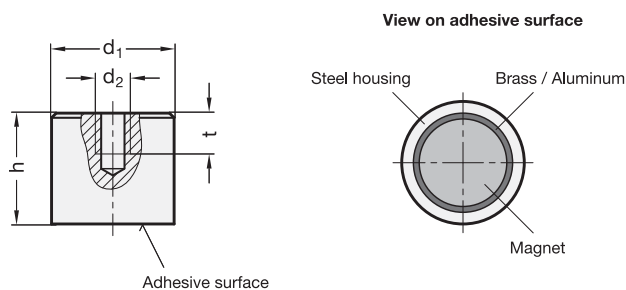
temperature resistant up to 180 °C

INFORMATION

Retaining magnets GN 52.3 are a shielded magnetic system.

For easier handling and/or to avoid demagnetisation, these magnets have an iron plate on their adhesive surface.

- More information to retaining magnets (see page 2022)



GN 52.3

Description	d1 ±0.2	d2	h ±0.2	t	Nominal adhesive forces in N	⚖
GN 52.3-AN-12,5	12.5	M 4	16	7	20	12
GN 52.3-AN-17	17	M 6	16	5	26	29
GN 52.3-AN-21	21	M 6	19	7	40	42
GN 52.3-AN-27	27	M 6	25	9	65	89
GN 52.3-AN-35	35	M 6	30	9	150	190

Stainless Steel- Retaining magnets

rod-shaped, with gummed adhesive surface

SPECIFICATION

Housing

Stainless Steel

Material of the magnet

NdFeB **ND**

temperature resistant up to 80 °C

Rubber

Elastomer (TPE)

80 shore A ≈

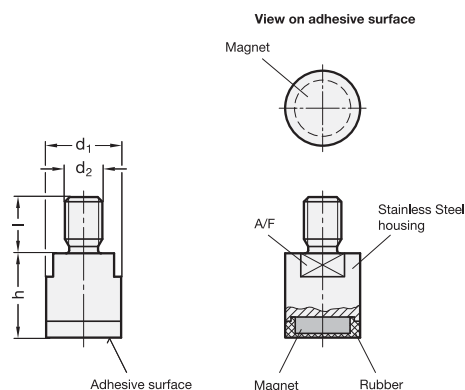
black

INFORMATION

Stainless Steel-Retaining magnets GN 52.5 are a shielded magnetic system with gummed adhesive surface.

They are preferably used for sensitive surfaces. Also, the coefficient of friction is increased, with the effect that high lateral retaining forces are achieved.

- More information to retaining magnets (see page 2022)



GN 52.5

STAINLESS STEEL

Description	d1	d2	h	l	A/F	Nominal adhesive forces in N	⚖
GN 52.5-ND-13-M6	13	M 6	16	10	11	15	16
GN 52.5-ND-16-M8	16	M 8	18	12	13	23	29
GN 52.5-ND-20-M10	20	M 10	20	14	17	46	52

Button-type magnets

with bore

SPECIFICATION

Material of the magnet

AlNiCo **AN**

Aluminium, nickel, cobalt

temperature resistant up to 280 °C

Lacquering red

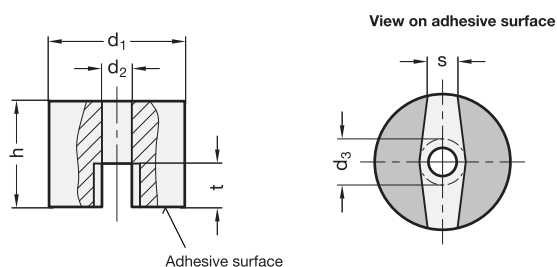
temperature resistant up to 180 °C

INFORMATION

The button-type magnets GN 60 have a split adhesive surface. These are non-shielded magnetic systems made by casting method.

To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material. For easier handling and/or to avoid demagnetisation, these magnets have an iron plate on their adhesive surface.

- More information to retaining magnets (see page 2022)



GN 60

Description	d1 Nominal dimension	d1 Actual dimension	d2	d3 max.	h	s	t	Nominal adhesive forces in N	
GN 60-AN-13	13	13	4.5	7	10	4.5	5	7	6
GN 60-AN-19	19	19.1	4.8	8.7	12.7	5.7	6.5	19	23
GN 60-AN-25	25	25.4	4.5	8.5	20	5.6	8	29	71
GN 60-AN-32	32	31.8	7.1	10	25.4	7.9	12.7	66	132

U-Magnets

with bore

SPECIFICATION

Material of the magnet

AlNiCo **AN**

Aluminium, nickel, cobalt

temperature resistant up to 350 °C

Lacquering red

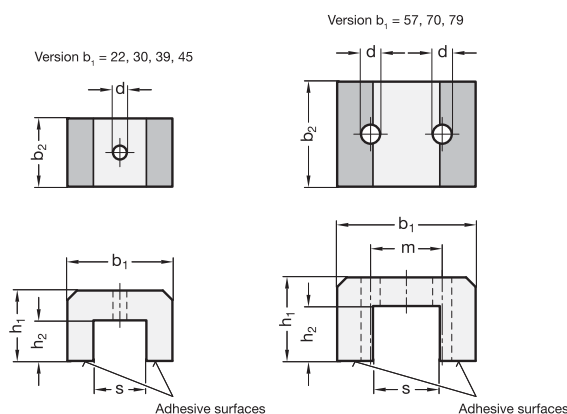
temperature resistant up to 180 °C

INFORMATION

The U-Magnets GN 62 have a split adhesive surface. These are non-shielded magnetic systems made by casting method.

To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material. For easier handling and/or to avoid demagnetisation, these magnets have an iron plate on their adhesive surface.

- More information to retaining magnets (see page 2022)



GN 62

Description	b1	b2	d	h1	h2	m	s	Nominal adhesive forces in N	
GN 62-AN-22	22	25	7	17	9	-	8	30	67
GN 62-AN-30	30	20	5	20	11	-	15	45	72
GN 62-AN-39	39	25.4	4.7	25	14	-	19	90	154
GN 62-AN-45	45	30	4.7	30	17	-	23	120	212
GN 62-AN-57	57	44.5	8	35	23	31.5	27.8	180	501
GN 62-AN-70	70	57	8	41	25	38	35	320	773
GN 62-AN-79	79	82	9.5	54	36	43	38.5	470	1573

Magnets

SPECIFICATION

Housing

Plastic

- white, RAL 9003 **WS**

- grey, RAL 7040 **GR**

- red, RAL 3031 **RT**

Material of the magnet

NdFeB **ND**

Neodymium, iron, boron

temperature resistant up to 80 °C

INFORMATION

Magnets GN 53.1 are primarily used for holding drawings and the like.

The magnetic material ND is characterized by a high adhesive force.

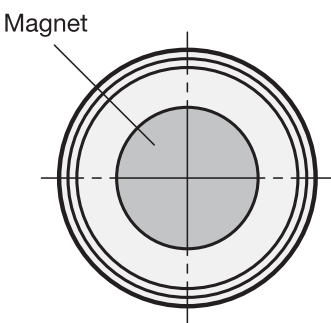
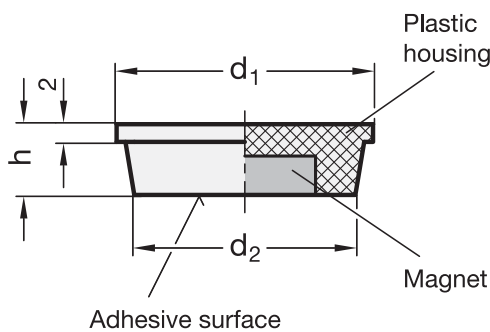
- More information to magnets (see page 2022)

ON REQUEST

- Magnets with custom imprint



View on adhesive surface



GN 53.1

Description	d1	d2	h	Nominal adhesive forces in N	⚖
GN 53.1-ND-18-GR	18	14	8	10	3
GN 53.1-ND-18-RT	18	14	8	10	3
GN 53.1-ND-18-WS	18	14	8	10	3
GN 53.1-ND-25-GR	25	22	8.5	14	8
GN 53.1-ND-25-RT	25	22	8.5	14	8
GN 53.1-ND-25-WS	25	22	8.5	14	8
GN 53.1-ND-30-GR	30	28.5	8.5	27	9
GN 53.1-ND-30-RT	30	28.5	8.5	27	9
GN 53.1-ND-30-WS	30	28.5	8.5	27	9
GN 53.1-ND-36-GR	36	32.5	8.5	35	11
GN 53.1-ND-36-RT	36	32.5	8.5	35	11
GN 53.1-ND-36-WS	36	32.5	8.5	35	11
GN 53.1-ND-40-GR	40	36	8	35	11
GN 53.1-ND-40-RT	40	36	8	35	11
GN 53.1-ND-40-WS	40	36	8	35	11

Magnets

with ball knob / with key ring, with rubber jacket

SPECIFICATION

Types

- Type **A**: with knob
- Type **B**: with key ring

Steel part
nickel plated

Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

Rubber jacket
Elastomer (TPE)
80 shore A ≈
black

Ball knob
Plastic
Technopolymer (Polyamide PA)
black, matt

Key ring
Steel, nickel plated



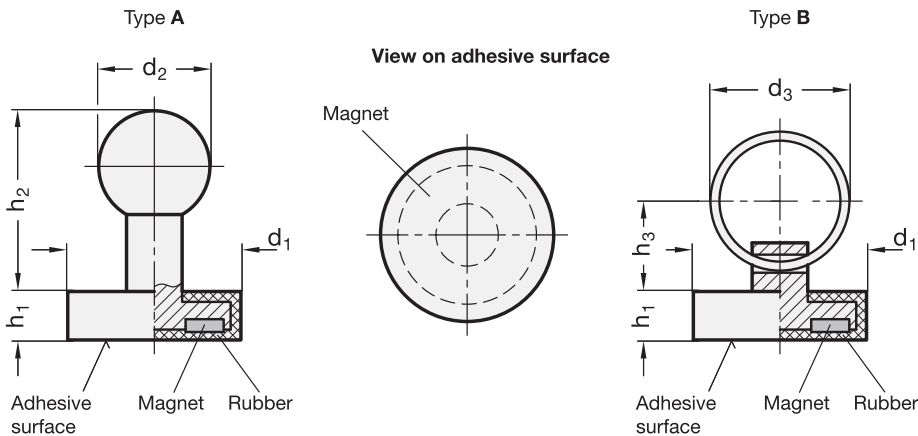
INFORMATION

Magnets GN 51.7 are a shielded magnetic system with rubber jacket. The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.

- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



GN 51.7

Description	d1	d2	d3	h1	h2	h3	Nominal adhesive forces in N	⚖
GN 51.7-ND-22-A	22	16	-	6	25	-	35	17
GN 51.7-ND-31-A	31	16	-	6	25	-	75	28
GN 51.7-ND-43-A	43	16	-	5.5	24	-	85	48
GN 51.7-ND-22-B	22	-	20	6	-	13	35	14
GN 51.7-ND-31-B	31	-	25	6	-	14.5	75	25
GN 51.7-ND-43-B	43	-	30	5.5	-	17	85	34

Setting bolts

with retaining magnet

SPECIFICATION

Screw Steel

- Tensile strength class 5.8
- zinc plated, blue passivated

Hexagon nut Steel

- Tensile strength class 04
- zinc plated, blue passivated

Material of the magnet

NdFeB **ND**

Neodymium, iron boron

temperature resistant up to 80 °C

INFORMATION

Setting bolts GN 251.6 with retaining magnet are a shielded magnetic system.

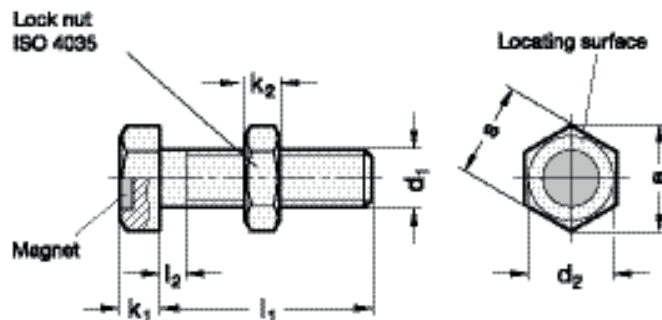
Suitable e.g. as workpiece stop, with the magnet holding the workpiece in place.

The locking nut (included) can be used to secure the stop screw after positioning.

- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Strength values of screws (see page A20)



GN 251.6

Description	d1*	l1	d2	e ≈	k1 -1	k2	l2 max.	s	Nominal adhesive forces in N	Δ
GN 251.6-M6-12-ND	M 6	12	10	11	4	3.2	3	10	25	5
GN 251.6-M6-16-ND	M 6	16	10	11	4	3.2	3	10	25	6
GN 251.6-M6-20-ND	M 6	20	10	11	4	3.2	3	10	25	7
GN 251.6-M6-25-ND	M 6	25	10	11	4	3.2	3	10	25	8
GN 251.6-M6-30-ND	M 6	30	10	11	4	3.2	3	10	25	9
GN 251.6-M8-16-ND	M 8	16	13	14.4	5.3	4	3.7	13	50	13
GN 251.6-M8-20-ND	M 8	20	13	14.4	5.3	4	3.7	13	50	14
GN 251.6-M8-25-ND	M 8	25	13	14.4	5.3	4	3.7	13	50	16
GN 251.6-M8-30-ND	M 8	30	13	14.4	5.3	4	3.7	13	50	17
GN 251.6-M8-40-ND	M 8	40	13	14.4	5.3	4	3.7	13	50	21
GN 251.6-M10-20-ND	M 10	20	17	17.8	6.4	5	4.5	17	75	26
GN 251.6-M10-25-ND	M 10	25	17	17.8	6.4	5	4.5	17	75	30
GN 251.6-M10-30-ND	M 10	30	17	17.8	6.4	5	4.5	17	75	37
GN 251.6-M10-40-ND	M 10	40	17	17.8	6.4	5	4.5	17	75	37
GN 251.6-M10-50-ND	M 10	50	17	17.8	6.4	5	4.5	17	75	42
GN 251.6-M12-25-ND	M 12	25	19	20	7.5	6	5.2	19	110	44
GN 251.6-M12-30-ND	M 12	30	19	20	7.5	6	5.2	19	110	48
GN 251.6-M12-40-ND	M 12	40	19	20	7.5	6	5.2	19	110	55
GN 251.6-M12-50-ND	M 12	50	19	20	7.5	6	5.2	19	110	62
GN 251.6-M12-60-ND	M 12	60	19	20	8.5	6	5.2	19	110	69
GN 251.6-M16-30-ND	M 16	30	24	26.8	10	8	6	24	145	93
GN 251.6-M16-40-ND	M 16	40	24	26.8	10	8	6	24	145	104
GN 251.6-M16-50-ND	M 16	50	24	26.8	10	8	6	24	145	118
GN 251.6-M16-60-ND	M 16	60	24	26.8	10	8	6	24	145	131
GN 251.6-M16-80-ND	M 16	80	24	26.8	10	8	6	24	145	157

* thread: nut mobility

Grub screws

with retaining magnet

SPECIFICATION

Steel

- Tensile strength class 5.8
- zinc plated, blue passivated

Material of the magnet

NdFeB **ND**

Neodymium, iron, boron

temperature resistant up to 80 °C

INFORMATION

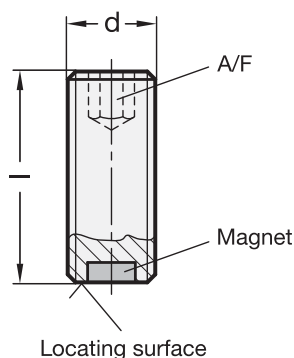
Grub screws GN 913.6 with retaining magnet are a shielded magnetic system.

Suitable e.g. as workpiece stop, with the magnet holding the workpiece in place.

- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Strength values of screws (see page A20)



GN 913.6

Description	d *	l -l	A/F	Nominal adhesive forces in N	⚖
GN 913.6-M6-12-ND	M 6	12	3	2.5	2
GN 913.6-M6-16-ND	M 6	16	3	2.5	2
GN 913.6-M6-20-ND	M 6	20	3	2.5	3
GN 913.6-M6-25-ND	M 6	25	3	2.5	4
GN 913.6-M6-30-ND	M 6	30	3	2.5	5
GN 913.6-M8-16-ND	M 8	16	4	7	4
GN 913.6-M8-20-ND	M 8	20	4	7	5
GN 913.6-M8-25-ND	M 8	25	4	7	7
GN 913.6-M8-30-ND	M 8	30	4	7	8
GN 913.6-M8-40-ND	M 8	40	4	7	11
GN 913.6-M10-20-ND	M 10	20	5	11	8
GN 913.6-M10-25-ND	M 10	25	5	11	10
GN 913.6-M10-30-ND	M 10	30	5	11	13
GN 913.6-M10-40-ND	M 10	40	5	11	18
GN 913.6-M10-50-ND	M 10	50	5	11	23
GN 913.6-M12-25-ND	M 12	25	6	17	14
GN 913.6-M12-30-ND	M 12	30	6	17	18
GN 913.6-M12-40-ND	M 12	40	6	17	25
GN 913.6-M12-50-ND	M 12	50	6	17	32
GN 913.6-M12-60-ND	M 12	60	6	17	39
GN 913.6-M16-30-ND	M 16	30	8	35	32
GN 913.6-M16-40-ND	M 16	40	8	35	46
GN 913.6-M16-50-ND	M 16	50	8	35	58
GN 913.6-M16-60-ND	M 16	60	8	35	71
GN 913.6-M16-80-ND	M 16	80	8	35	97

* thread: nut mobility

Raw magnets

disc-shaped, with bore or countersunk

SPECIFICATION

Materials of the magnet:

SmCo **SC**

Samarium, Cobalt

blank

temperature resistant up to 200 °C

NdFeB **ND**

Neodymium, iron, boron

temperature resistant up to 80 °C

INFORMATION

Raw magnets GN 55.1 are unshielded disc-shaped (annular) magnets.

Owing to their vast range of different magnet materials and sizes, they are suitable for virtually universal use. They are mostly attached by gluing.

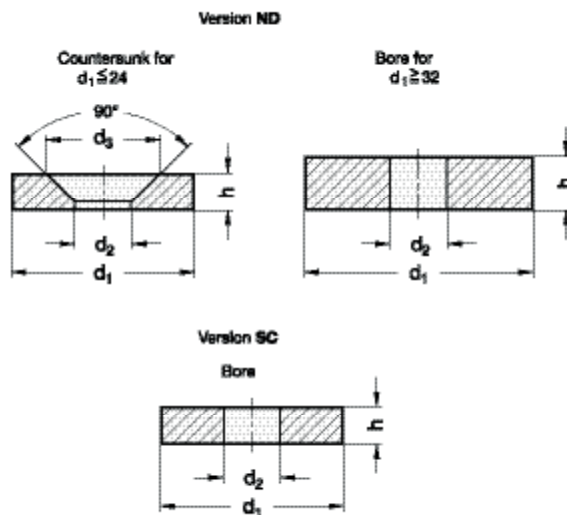
When used without air gap, individual raw magnets always have lower adhesive forces than a magnet system in which shielding and magnetic return enormously intensify the force acting at the adhesion surface. Depending on the air gap between magnet and mating component, individual raw magnets - unlike magnet systems - can have substantially higher adhesive forces.

In the event that no suitable retaining magnets / magnet systems are available, raw magnets may be used in combination with appropriate holding constructions to build up highly specific magnet systems.

- More information to retaining magnets (see page 2022)

ON REQUEST

- made of hard ferrite (HF)



GN 55.1

Description	d1	d2 ±0.1	h ±0.1	d3 +0.5	Nominal adhesive forces in N	Packaging units	⚖
GN 55.1-ND-12-3,5-3	12 ±0,1	3.5	3	6.6	18	20	3
GN 55.1-ND-15-4,5-3,5	15 ±0,1	4.5	3.5	9.3	29	20	4
GN 55.1-ND-18-4,5-4	18 ±0,1	4.5	4	9.3	41	10	8
GN 55.1-ND-24-5,5-4	24 ±0,1	5.5	4	11.5	66	10	14
GN 55.1-ND-32-10,5-2	32 ±0,1	10.5	2	-	42	5	16
GN 55.1-ND-38-12-4	38 ±0,1	12	4	-	110	2	45
GN 55.1-ND-48-15-5	48 ±0,2	15	5	-	165	1	83
GN 55.1-ND-56-15-6	56 ±0,2	15	6	-	230	1	137
GN 55.1-SC-15-8-3,5	15 ±0,1	8	3.5	-	23	20	4
GN 55.1-SC-18-8-4	18 ±0,1	8	4	-	31	10	7
GN 55.1-SC-24-11,5-4	24 ±0,1	11.5	4	-	51	10	12
GN 55.1-SC-32-10-4	32 ±0,1	10	4	-	67	5	27

Raw magnets
disc-shaped, without bore

SPECIFICATION

Materials of the magnet:

SmCo **SC**
Samarium, cobalt
blank
temperature resistant up to 200 °C

NdFeB **ND**
Neodymium, iron, boron
nickel-plated
temperature resistant up to 80 °C

INFORMATION

Raw magnets GN 55.2 are unshielded disc-shaped magnets. Owing to their vast range of different magnet materials and sizes, they are suitable for virtually universal use. They are mostly attached by gluing.

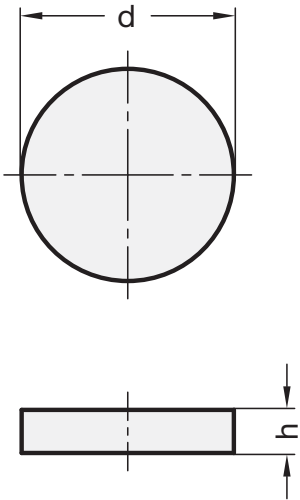
When used without air gap, individual raw magnets always have lower adhesive forces than a magnet system in which shielding and magnetic return enormously intensify the force acting at the adhesion surface. Depending on the air gap between magnet and mating component, individual raw magnets - unlike magnet systems - can have substantially higher adhesive forces.

In the event that no suitable retaining magnets / magnet systems are available, raw magnets may be used in combination with appropriate holding constructions to build up highly specific magnet systems.

- More information to retaining magnets (see page 2022)

ON REQUEST

- made of hard ferrite (HF)



GN 55.2

Description	d ±0.1	h ±0.1	Nominal adhesive forces in N	Packaging units	⚖
GN 55.2-ND-4-3	4	3	4	20	1
GN 55.2-ND-5-3	5	3	5	20	1
GN 55.2-ND-6-3	6	3	7.5	20	1
GN 55.2-ND-8-3	8	3	13	20	1
GN 55.2-ND-10-3	10	3	15	20	2
GN 55.2-ND-12-3	12	3	20	20	3
GN 55.2-ND-15-3	15	3	28	20	4
GN 55.2-ND-18-3	18	3	35	10	7
GN 55.2-ND-20-3	20	3	42	10	9
GN 55.2-ND-24-3	24	3	55	10	12
GN 55.2-SC-4-3	4	3	2.5	20	1
GN 55.2-SC-5-3	5	3	3.5	20	1
GN 55.2-SC-6-3	6	3	4	20	1
GN 55.2-SC-8-3	8	3	8	20	1
GN 55.2-SC-10-3	10	3	10	20	2
GN 55.2-SC-12-3	12	3	11	10	4
GN 55.2-SC-15-3	15	3	16	10	6
GN 55.2-SC-18-3	18	3	25	10	8
GN 55.2-SC-24-3	24	3	36	5	12

Raw magnets

rod-shaped

SPECIFICATION

Material of the magnet

AlNiCo **AN**

Aluminium, nickel, cobalt

blank

INFORMATION

Raw magnets GN 55.3 are unshielded rod-shaped magnets.

Owing to their vast range of different magnet materials and sizes, they are suitable for virtually universal use. They are mostly attached by gluing.

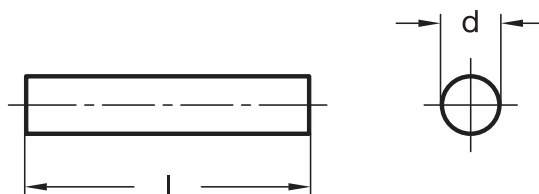
When used without air gap, individual raw magnets always have lower adhesive forces than a magnet system in which shielding and magnetic return enormously intensify the force acting at the adhesion surface. Depending on the air gap between magnet and mating component, individual raw magnets - unlike magnet systems - can have substantially higher adhesive forces.

In the event that no suitable retaining magnets / magnet systems are available, raw magnets may be used in combination with appropriate holding constructions to build up highly specific magnet systems.

- More information to retaining magnets (see page 2022)

ON REQUEST

- special lengths



GN 55.3

Description	d 0/-0.2	l ±0.1	Nominal adhesive forces in N	Temperature resistance in °C	Packaging units	⚖
GN 55.3-AN-3-10	3	10	1.1	450	10	4
GN 55.3-AN-3-12	3	12	1.3	450	10	4
GN 55.3-AN-4-16	4	16	1.9	450	10	5
GN 55.3-AN-4-20	4	20	2	450	10	6
GN 55.3-AN-5-20	5	20	2.3	450	10	7
GN 55.3-AN-6-15	6	15	2.8	350	5	6
GN 55.3-AN-6-24	6	24	2.8	450	5	8
GN 55.3-AN-6-30	6	30	2.8	450	5	9
GN 55.3-AN-8-25	8	25	3.8	450	5	12
GN 55.3-AN-8-32	8	32	3.8	450	5	14
GN 55.3-AN-10-20	10	20	5	350	5	15
GN 55.3-AN-10-40	10	40	7	450	1	29
GN 55.3-AN-12-40	12	40	8	450	1	40
GN 55.3-AN-12-48	12	48	8	450	1	45
GN 55.3-AN-15-30	15	30	10	350	1	45
GN 55.3-AN-15-60	15	60	11	450	1	90
GN 55.3-AN-20-40	20	40	17	350	1	103
GN 55.3-AN-34-80	34	80	61	350	1	558

Raw magnets

block-shaped

SPECIFICATION

Materials of the magnet:

SmCo **SC**
Samarium, cobalt
blank
temperature resistant up to 200 °C

NdFeB **ND**
Neodymium, iron, boron
nickel-plated
temperature resistant up to 80 °C

INFORMATION

Raw magnets GN 55.4 are unshielded block-shaped magnets. Owing to their vast range of different magnet materials and sizes, they are suitable for virtually universal use. They are mostly attached by gluing.

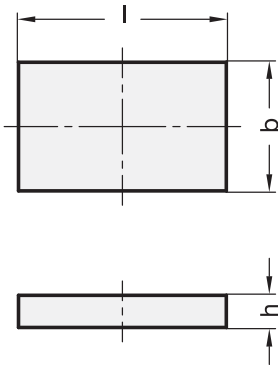
When used without air gap, individual raw magnets always have lower adhesive forces than a magnet system in which shielding and magnetic return enormously intensify the force acting at the adhesion surface. Depending on the air gap between magnet and mating component, individual raw magnets - unlike magnet systems - can have substantially higher adhesive forces.

In the event that no suitable retaining magnets / magnet systems are available, raw magnets may be used in combination with appropriate holding constructions to build up highly specific magnet systems.

- More information to retaining magnets (see page 2022)

ON REQUEST

- in other dimensions
- made of hard ferrite (HF)



GN 55.4

Description	l ±0.1	b ±0.1	h ±0.1	Nominal adhesive forces in N	Packaging units	⚖
GN 55.4-SC-7,5-4-1,5	7.5	4	1.5	3.4	10	1
GN 55.4-SC-7,5-6-2	7.5	6	2	5	10	1
GN 55.4-SC-10-7,5-2	10	7.5	2	7.5	10	2
GN 55.4-SC-12-9,5-2,5	12	9.5	2.5	11	5	4
GN 55.4-SC-16-12,5-2,5	16	12.5	2.5	15	5	4
GN 55.4-SC-18-16,5-4	18	16.5	4	29	5	12
GN 55.4-SC-26-20,3-5	26	20.3	5	51	1	30
GN 55.4-SC-33-26,3-6,5	33	26.3	6.5	85	1	58
GN 55.4-ND-7,5-4-1,5	7.5	4	1.5	5	10	1
GN 55.4-ND-7,5-6-2	7.5	6	2	8	10	1
GN 55.4-ND-10-7,5-2	10	7.5	2	11	10	2
GN 55.4-ND-12-9,5-2,5	12	9.5	2.5	17	5	2
GN 55.4-ND-16-12,5-2,5	16	12.5	2.5	24	5	4
GN 55.4-ND-18-16,5-4	18	16.5	4	50	5	10
GN 55.4-ND-26-20,3-5	26	20.3	5	77	1	26
GN 55.4-ND-33-26,3-6,5	33	26.3	6.5	125	1	56

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Magnets 18

Retaining magnets

for profile systems

SPECIFICATION

Plastic
Technopolymer (Polyamide PA)
black, matt **SW**

Material of the magnet
NdFeB
Neodymium, iron, boron
temperature resistant up to 80 °C

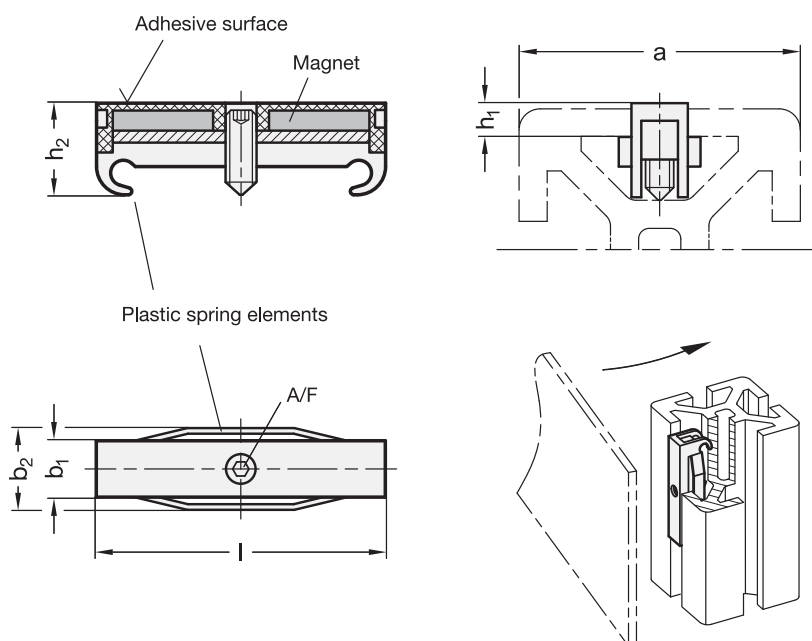
Steel insert, grub screw
zinc plated, blue passivated

INFORMATION

With GN 56 retaining magnets doors, covers or even tools and accessories can simply be attached to profile systems using magnets.

Thanks to the side-mounted plastic spring elements the retaining magnet can be introduced into a profile nut at any point. When affixed this way, the magnet holds with a multiple of its magnet nominal holding force in the nut. If necessary, the retaining magnet can be taken out of the nut again with a suitable screw driver via the recesses on the front.

Lightly turning the threaded pin against the groove base stops the retaining magnet from moving in the direction of the nut. Additional protection against sideward movement can be achieved with nuts for T-nuts GN 506 (see page 982), for example.



GN 56

Description	b1	a	b2	h1	h2	l	A/F	Nominal adhesive forces in N	
GN 56-6-30-SW	6	30	9.5	3	10.2	41	1.5	10	6
GN 56-8-30-SW	8	30	11.6	2.3	9.3	41	2	18	6
GN 56-8-40-SW	8	40	12.5	4.8	12.9	41	2	18	6
GN 56-10-45-SW	10	45	13.2	6	13.2	41	2	18	10

Holding discs

Steel / Stainless Steel, for retaining magnets

SPECIFICATION

Type

- Type **A**: flat

Version in Steel ST

zinc plated

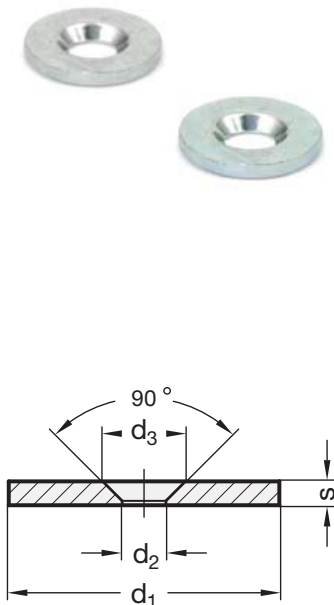
Version in Stainless Steel NI

magnetic

INFORMATION

Holding discs GN 70 are used as companion parts for retaining magnets, e.g. if a magnet is to be used in connection with non-magnetic materials.

They can be fixed with countersunk screws (e.g. DIN 7991), but also with any commercial wood or sheet metal countersunk screws.



GN 70

Description	d1	d2 +0.3	d3	s	
GN 70-12-A-ST	12 ±0.1	4	6.5 -0.2/+0.5	2	4
GN 70-17-A-ST	17 ±0.1	6	8.5 +0.5	2	6
GN 70-27-A-ST	27 ±0.2	6	11 +0.5	3	15
GN 70-34-A-ST	34 +0.3/+0.7	6	11 +0.5	3	23
GN 70-45-A-ST	45 +0.1/+0.5	5.5	11 +0.5	3	39
GN 70-64-A-ST	64 ±0.3	6	11 +0.5	3	77

GN 70-NI

STAINLESS STEEL

Description	d1	d2 ±0.3	d3 ±0.5	s	
GN 70-27-A-NI	27 +0.1/+0.5	5.5	11	3	15
GN 70-45-A-NI	45 ±0.2	6	8.5	2	27

Adhesive discs

self-adhesive, for retaining magnets

SPECIFICATION

Steel

- zinc plated, blue passivated **ZB**

- zinc plated, blue passivated, white laquered **WS**

Adhesive pad

Scotch-Mount™ 4032

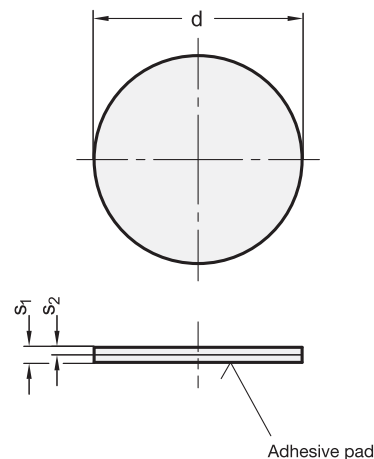
- doubled-sided

- with polyurethane foam backing

INFORMATION

Adhesive discs GN 70.1 are used as counter piece for retaining magnets if a magnet is to be used on a non-magnetic surface, for instance.

After pulling off the protective film from the adhesive pad at the back, they can be attached to any suitable and clean surfaces.



GN 70.1

Description	d	s1	s2	
GN 70.1-20-ZB	20	2	1	3
GN 70.1-20-WS	20	2	1	3
GN 70.1-30-ZB	30	2	1	6
GN 70.1-30-WS	30	2	1	6
GN 70.1-40-ZB	40	2	1	10
GN 70.1-40-WS	40	2	1	10
GN 70.1-60-ZB	60	2.5	1.5	35
GN 70.1-60-WS	60	2.5	1.5	35