

Operating elements



Spoked handwheels

Solid handwheels

Arm handwheels

Crank handles

Disc Hand Wheels

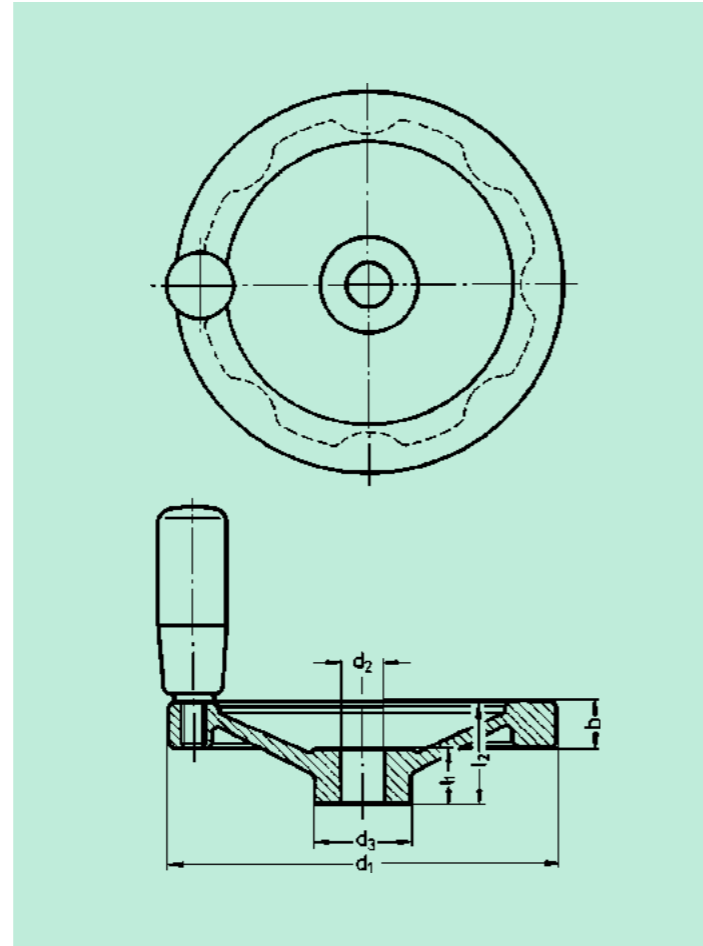
from Aluminium
Modern Design



Model: Aluminium, gravity die-casting, hub machined. Rim of wheel turned and polished.

Type A: without grip.
Type D: with revolving grip from polyamide, black matt.

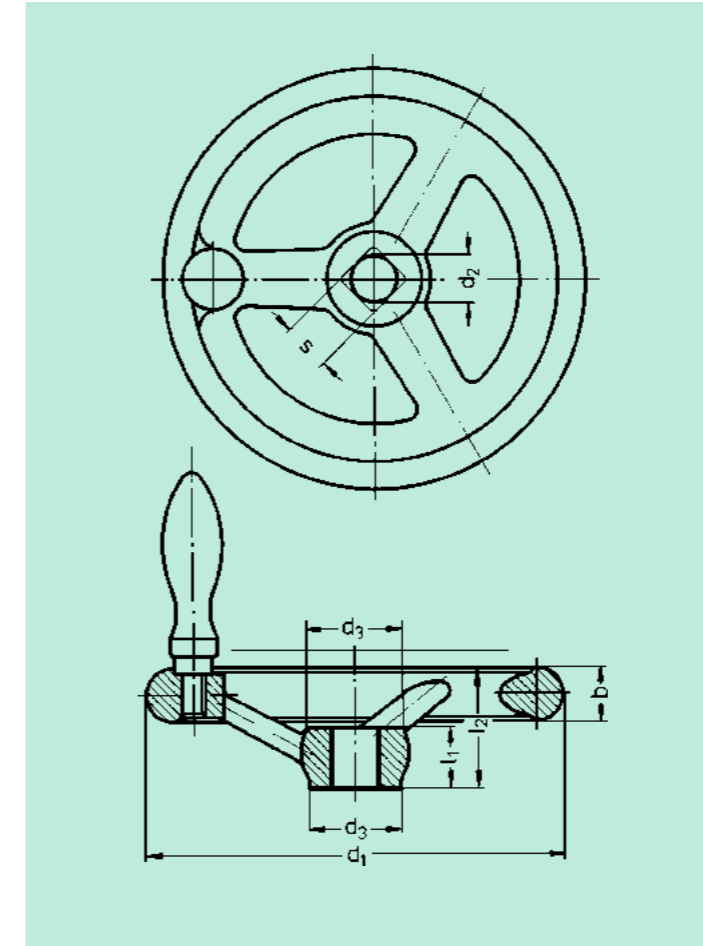
Complete plastic coated disc hand wheels are available on request.



Disc Hand Wheels modern design

Order No. Type A	Order No. Type D	d ₁ mm	Fitting Hole d ₂ H7	b mm	d ₃ mm	l ₁ mm	l ₂ ≈ mm	Ø Cyl. Grip
72 100 10 PBG . A	72 100 10 PBG . D	100	10	14	28	17	30	21
72 125 12 PBG . A	72 125 12 PBG . D	125	12	15	31	18	33	23
72 160 16 PBG . A	72 160 16 PBG . D	160	16	18	36	20	39	26
72 200 20 PBG . A	72 200 20 PBG . D	200	20	20,5	42	24	45	26
72 250 22 PBG . A	72 250 22 PBG . D	250	22	23	48	28	51	28

. Please indicate here: B = without Keyway; K = with Keyway.



Hand Wheels

DIN 950
from Aluminium or cast iron



Hand wheels DIN 950 are supplied with revolving grip DIN 98 from polyamide, black matt and fixed grip DIN 39.

Model: Aluminium
Hub machined, rim of wheel turned and polished.
Unmachined surfaces of Aluminium hand wheels sand-blasted. Keyway P9 DIN 6885, sheet 1.
Cast iron version available on request.
Further dimensions on request.

Type A: without grip.
Type F: with fixed grip DIN 39, steel.
Type D: with revolving grip DIN 98 from polyamide, black matt.

Hand Wheels DIN 950 with Fitting Hole

Order No. Fitting Hole d ₂ H ₇			d ₁ mm	Fitting Hole d ₂ H ₇	d ₃ mm	b mm	l ₁ mm	l ₂ ≈ mm	Ø Ball Grip	No. of Spoke
Type A	Type F	Type D								
70 080 10 PBG . A	70 080 10 PBG . F	70 080 10 PBG . D	80	10	24	14	16	29	16	3
70 100 12 PBG . A	70 100 12 PBG . F	70 100 12 PBG . D	100	12	26	15	17	33	16	3
70 125 14 PBG . A	70 125 14 PBG . F	70 125 14 PBG . D	125	14	28	16	18	36	20	3
70 160 16 PBG . A	70 160 16 PBG . F	70 160 16 PBG . D	160	16	33	18	20	40	25	3
70 200 18 PBG . A	70 200 18 PBG . F	70 200 18 PBG . D	200	18	38	22	24	45	25	3
70 250 22 PBG . A	70 250 22 PBG . F	70 250 22 PBG . D	250	22	45	26	28	50	32	5
70 31522 PBG . A	70 31522 PBG . F	70 31522 PBG . D	315	28	53	28	33	56		5

. Please indicate here: B = without Keyway, K = with Keyway

Hand Wheels DIN 950 with Square Hole

Order No. Square Hole S H ₁₁			d ₁ mm	Square Hole S H ₁₁	d ₃ mm	b mm	l ₁ mm	l ₂ ≈ mm	Ø Ball Grip	No. of Spoke
Type A	Type F	Type D								
70 080 09 VKT A	70 080 09 VKT F	70 080 09 VKT D	80	V 9	24	14	16	29	16	3
70 100 09 VKT A	70 100 09 VKT F	70 100 09 VKT D	100	V 9	26	15	17	33	16	3
70 125 11 VKT A	70 125 11 VKT F	70 125 11 VKT D	125	V 11	28	16	18	36	20	3
70 160 12 VKT A	70 160 12 VKT F	70 160 12 VKT D	160	V 12	33	18	20	40	25	3
70 200 14 VKT A	70 200 14 VKT F	70 200 14 VKT D	200	V 14	38	22	24	45	25	3
70 250 17 VKT A	70 250 17 VKT F	70 250 17 VKT D	250	V 19	45	26	28	50	32	5
70 31522 VKT . A	70 31522 VKT . F	70 31522 VKT . D	315	28	53	28	33	56		5

Hand Wheels

Two Spoke Hand Wheels Modern Design from Aluminium

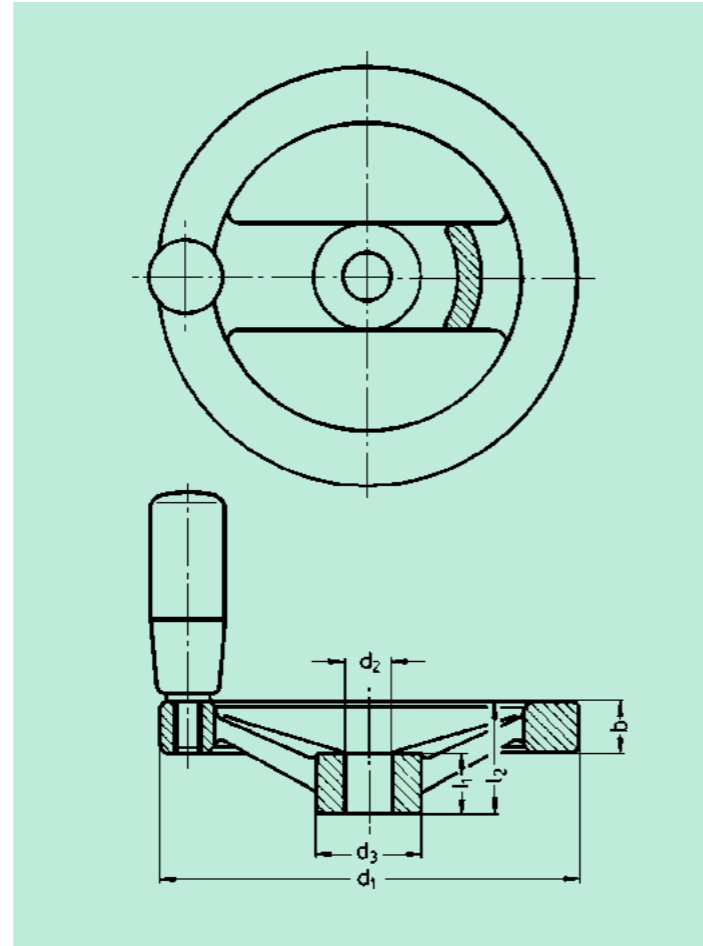


Model: Aluminium, gravity die-casting, hub machined, rim of wheel turned and polished.

Type A: without grip.

Type D: with revolving grip from polyamide, black matt.

Complete plastic coated two spoke hand wheels are available on request.



Two Spoke Hand Wheels - Aluminium

Order No.		d ₁	Fitting Hole	b	d ₃	l ₁	l ₂	Ø Grip
Type A	Type D	mm	d ₂ H7	mm	mm	mm	mm	Cyl. Grip
74 125 12 PBG . A	74 125 12 PBG . D	125	12	15	31	18	33	23
74 160 16 PBG . A	74 160 16 PBG . D	160	16	18	36	20	39	26
74 200 20 PBG . A	74 200 20 PBG . D	200	20	20,5	42	24	45	26
74 250 22 PBG . A	74 250 22 PBG . D	250	22	23	48	28	51	28

. Please indicate here: B = without Keyway, K = with Keyway.

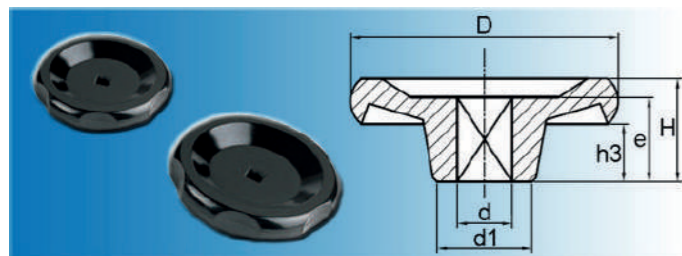
Polyamide handwheels at excellent prices on page 9



Aluminium design awarded handwheels on page 11



Handwheels | smooth with square drive

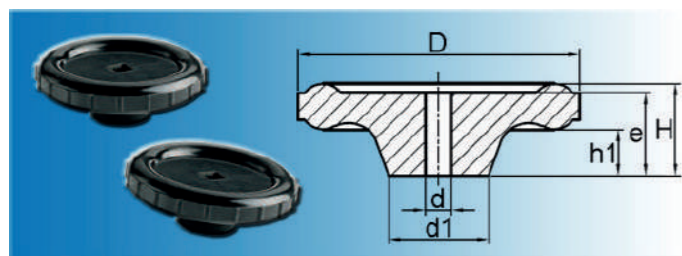


Material: thermoset material FS 31 DIN 7708
Colour: black

Part no.	D	d	d1	H	h3	e
6113206401	65	10	26	20	11	15
6113208401	80	10	34	21	9	15
6113210401	100	10	44	23	5	15

Part no.	D	d	d1	H	h3	e
6113212401	125	12	40	31	10	21
6113215401	150	12	50	32	7	21

Handwheels | knurled with square drive

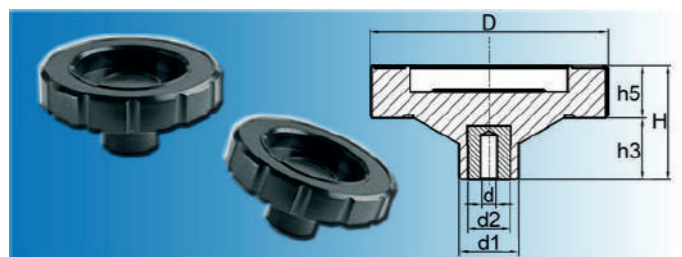


Material: thermoset material FS 31 DIN 7708
Colour: black

Part no.	D	d	d1	h1	H	e
6117335201	35	5	13	9	15	13
6117350201	50	7	21	10	22	17
6117361201	61	7	21	10	20	18

Part no.	D	d	d1	h1	H	e
6117371201	71	7	27	12	24	22
6117386203	86	8	31	15	28	24

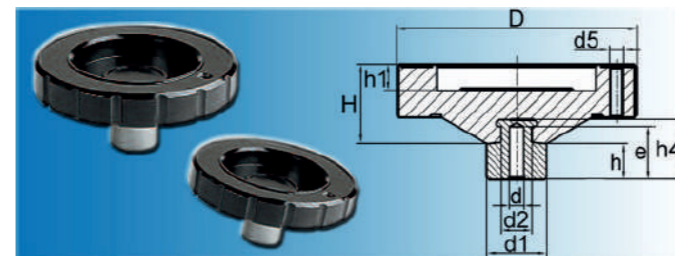
Handwheels | type H



Material: thermoset material FS 31 DIN 7708
Insert of treated steel
Colour: black

Part no.	d	D	H	d2	d1	h3	h5
6118306301	5,25	65	36	18	25	22	15
6118308301	5,25	80	38	18	25	22	16

Handwheels | type A

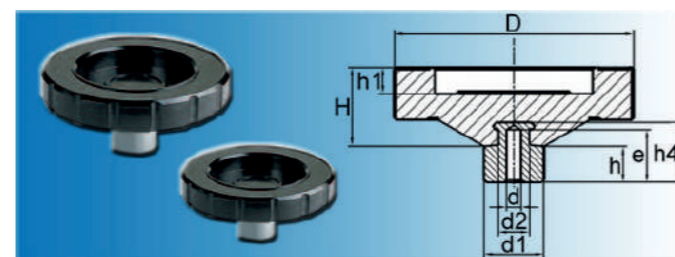


Material: thermoset material FS 31 DIN 7708
Insert of treated steel
Colour: black

Optionally you can combine type A with tapered knobs from product group 61141 (page 67), 61136 (page 65) or 61137 (page 66).

Part no.	d5	d	D	h4	d2	d1	h	e	H	h1
6118310651	M6	5,25	100	29	19	25	15	15	33	11
6118313651	M8	5,25	130	36	20	30	25	24	33	11

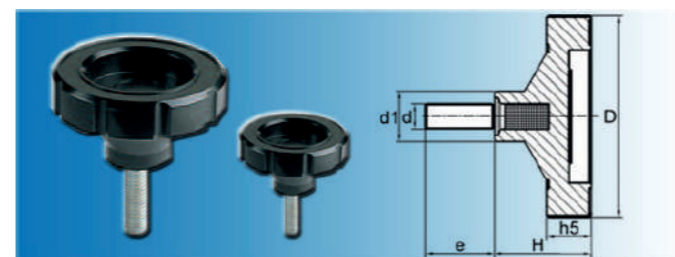
Handwheels | type N



Material: thermoset material FS 31 DIN 7708
Insert of treated steel
Colour: black

Part no.	d	D	h4	d2	d1	h	H	h1	e
6118306601	5,25	65	29	19	25	25	30	10	15
6118308601	5,25	80	29	19	25	15	30	10	15
6118310601	5,25	100	29	19	25	15	33	11	15
6118313601	5,25	130	36	20	30	25	33	11	24

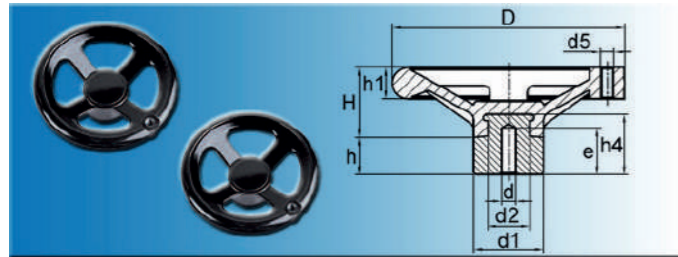
Handwheels | type T



Material: thermoset material FS 31 DIN 7708
Thread of treated steel
Colour: black

Part no.	d	D	e	H	h5	d1
6118306501	M10	65	33	37	15	25
6118308502	M12	80	40	38	16	25

4-spoke handwheels | type A



Material: thermoset material FS 31 DIN 7708
Insert of treated steel
Colour: black

Optionally you can combine type A with tapered knobs from product group 61141 (page 67), 61136 (page 65) or 61137 (page 66).

Part no.	d	d5	D	H	h	d2	h4	d1	e	h1
6113110651	5,25	M6	100	30	20	18	26	30	16	15
6113112651	8,00	M6	125	28	25	28	32	40	22	14
6113115651	10,00	M8	150	48	30	30	55	50	30	18
6113117651	10,00	M10	175	49	30	30	55	50	30	20
6113120651	10,00	M12	200	70	30	30	55	50	30	26

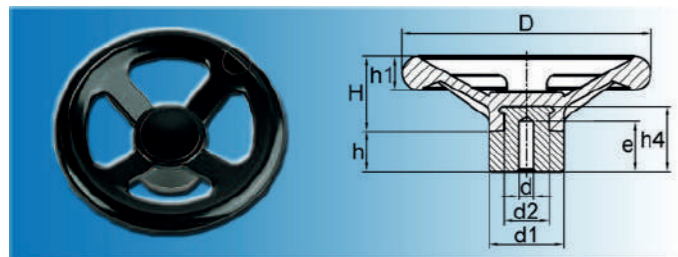
Disc handwheels | type H



Material: thermoset material FS 31 DIN 7708
Insert of treated steel
Colour: black

Part no.	D	H1	h2	h6	d1	d	d4
6113204301	45	26	17	17	20	5,25	14
6113206302	65	30	19	21	25	5,25	16
6113208302	80	37	24	22	30	5,25	18

4-spoke handwheels | type N



Material: thermoset material FS 31 DIN 7708
Insert of treated steel
Colour: black

Part no.	d	D	H	h	d2	h4	d1	e	h1
6113110601	5,25	100	30	20	18	26	30	16	15
6113112601	8,00	125	28	25	28	32	40	22	14
6113115601	10,00	150	48	30	30	55	50	30	18
6113117601	10,00	175	49	30	30	55	50	30	20
6113120601	10,00	200	70	30	30	55	50	30	26
6113130601	10,00	300	86	30	34	60	60	18	30

Disc handwheels | type A



Material: thermoset material FS 31 DIN 7708
Insert of treated steel
Colour: black

Optionally you can combine type A with tapered knobs from product group 61141 (page 67), 61136 (page 65) or 61137 (page 66).

Part no.	D	d5	H	h	h1	h4	e	d	d1	d2
6113210651	100	M6	52	25	34	32	25	8	35	28
6113212651	125	M8	64	25	43	32	25	8	40	28
6113215651	150	M10	82	30	57	50	30	10	50	35
6113217651	175	M10	84	30	64	50	30	10	50	35
6113220651	200	M12	86	30	64	50	30	10	50	35

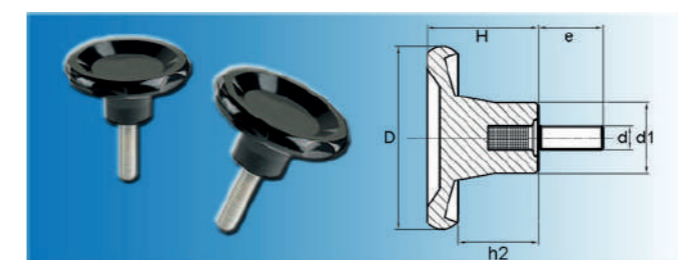
Disc handwheels | type N



Material: thermoset material FS 31 DIN 7708
Insert of treated steel
Colour: black

Part no.	D	H	h	h1	h4	e	d	d1	d2
6113204601	45	33	18	21	20	11	5,25	20	11
6113206601	65	39	22	28	29	22	5,25	25	19
6113208601	80	43	20	31	26	25	5,25	30	18
6113210601	100	52	25	34	32	25	8,00	35	28
6113212601	125	64	25	43	32	25	8,00	40	28
6113215601	150	82	30	57	50	30	10,00	50	35
6113217601	175	84	30	64	50	30	10,00	50	35
6113220601	200	86	30	64	50	30	10,00	50	35

Disc handwheels | type T



Material: thermoset material FS 31 DIN 7708
Thread of treated steel
Colour: black

Part no.	D	H	d	e	d1	h2	Part no.	D	H	d	e	d1	h2
6113204501	45	26	M8	27	20	16	6113208502	80	37	M12	40	30	24
6113206506	65	30	M10	33	25	19							

Straight Crank Handles

DIN 469

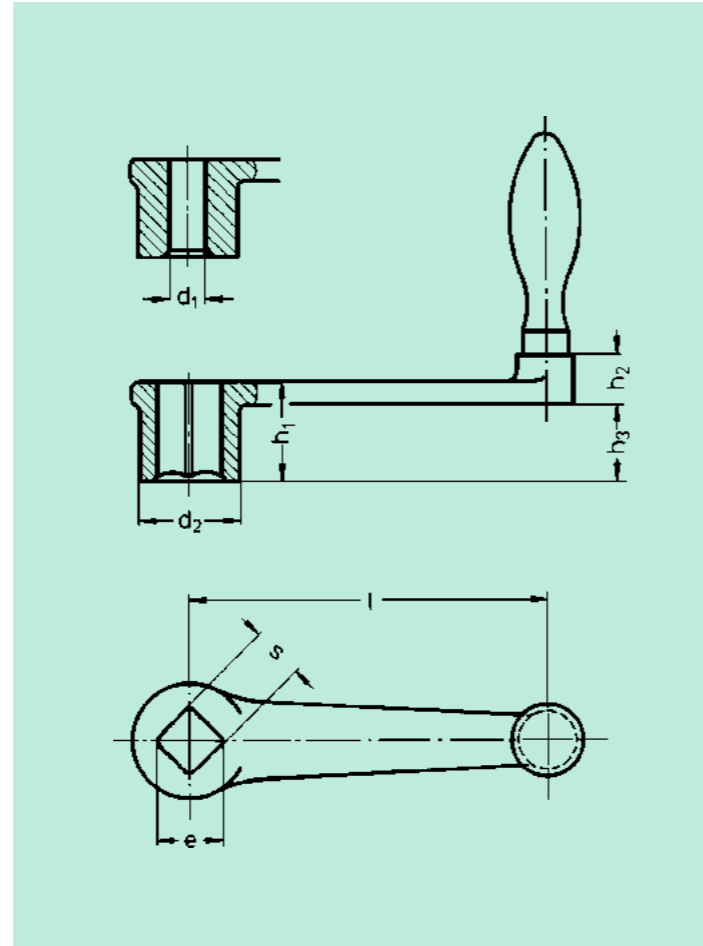


Crank handles DIN 469 are available as standard with steel grips. Grip from plastic (only Type D) can be supplied on request.

Model:
Crank body cast iron (GGG):
Hub machined, cast edge deburred and sand-blasted.
Also available: plastic coated, black, textured finish.

Type C: straight crank with fixed grip.
Type D: straight crank with revolving grip.

Plastic crank handles are available on request.



Straight Crank Handles DIN 469

Order No.	Order No.	Order No.	Order No.	Square Hole SH ₁₁	e mm	Fitting Hole d ₁ H ₇	l mm	d ₂ mm	h ₁ mm	h ₂ mm	h ₃ ≈ mm	∅ Ball Grip
Type C with Square Hole S H ₁₁	Type C with Fitting Hole d ₁ H ₇	Type D with Square Hole S H ₁₁	Type D with Fitting Hole d ₁ H ₇									
65 080 10 VKT C	65 080 08 PBG C	65 080 10 VKT D	65 080 08 PBG D	V 10	13,1	8	80	24	24	13	18	18
65 100 12 VKT C	65 100 10 PBG C	65 100 12 VKT D	65 100 10 PBG D	V 12	16,1	10	100	28	28	13	21	20
65 125 14 VKT C	65 125 10 PBG C	65 125 14 VKT D	65 125 10 PBG D	V 14	18,1	10	125	34	34	14	26	22
65 160 17 VKT C	65 160 14 PBG C	65 160 17 VKT D	65 160 14 PBG D	V 17	22,2	14	160	38	38	14	29	25
65 200 19 VKT C	65 200 17 PBG C	65 200 19 VKT D	65 200 17 PBG D	V 19	25,2	17	200	44	44	21	34	28
65 250 22 VKT C	65 250 17 PBG C	65 250 22 VKT D	65 250 17 PBG D	V 22	28,2	17	250	48	48	21	36	32

Also available: l=63mm

Offset Crank Handles

DIN 468

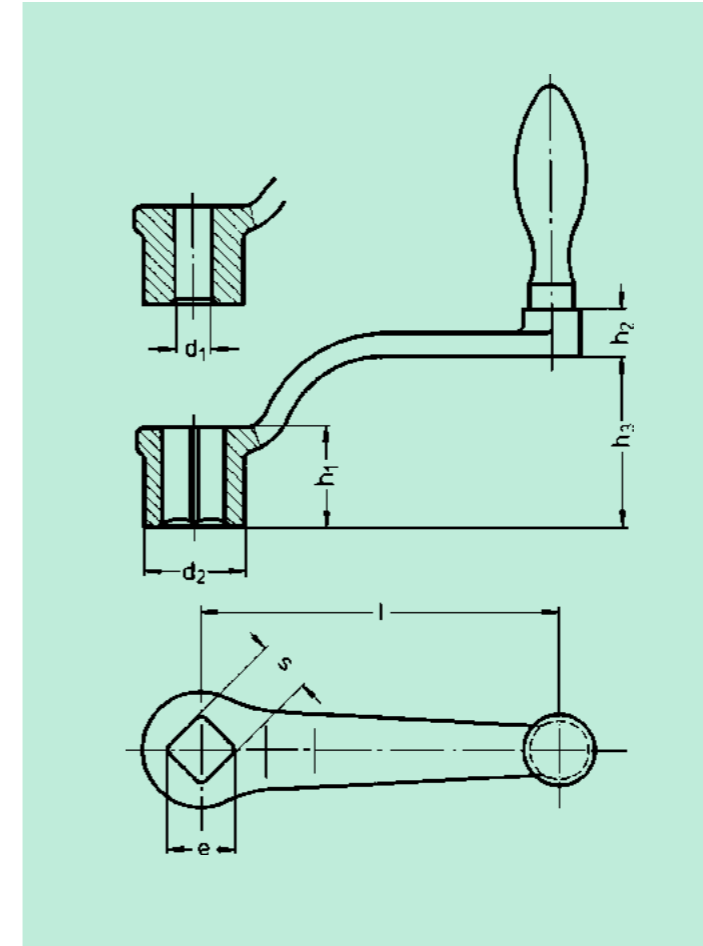


Crank Handles DIN 468 are available as standard with steel grips. Grip from plastic (only Type B) can be supplied on request.

Model:
Crank body cast iron (GGG):
Hub machined, cast edge deburred and sand-blasted.
Plastic coated, black textured finish also available.

Type A: with fixed grip.
Type B: with revolving grip.

Plastic crank handles are available on request.



Offset Crank Handles DIN 468

Order No.	Order No.	Order No.	Order No.	Square Hole SH ₁₁	e mm	Fitting Hole d ₁ H ₇	l mm	d ₂ mm	h ₁ mm	h ₂ mm	h ₃ ≈ mm	∅ Ball Grip
Type A with Square Hole S H ₁₁	Type A with Fitting Hole d ₁ H ₇	Type B with Square Hole S H ₁₁	Type B with Fitting Hole d ₁ H ₇									
65 080 10 VKT A	65 080 08 PBG A	65 080 10 VKT B	65 080 08 PBG B	V 10	13,1	8	80	24	24	13	18	18
65 100 12 VKT A	65 100 10 PBG A	65 100 12 VKT B	65 100 10 PBG B	V 12	16,1	10	100	28	28	13	21	20
65 125 14 VKT A	65 125 10 PBG A	65 125 14 VKT B	65 125 10 PBG B	V 14	18,1	10	125	34	34	14	26	22
65 160 17 VKT A	65 160 14 PBG A	65 160 17 VKT B	65 160 14 PBG B	V 17	22,2	14	160	38	38	14	29	25
65 200 19 VKT A	65 200 17 PBG A	65 200 19 VKT B	65 200 17 PBG B	V 19	25,2	17	200	44	44	21	34	28
65 250 22 VKT A	65 250 17 PBG A	65 250 22 VKT B	65 250 17 PBG B	V 22	28,2	17	250	48	48	21	36	32

Also available: l=63mm, l=315mm

Revolving Grips

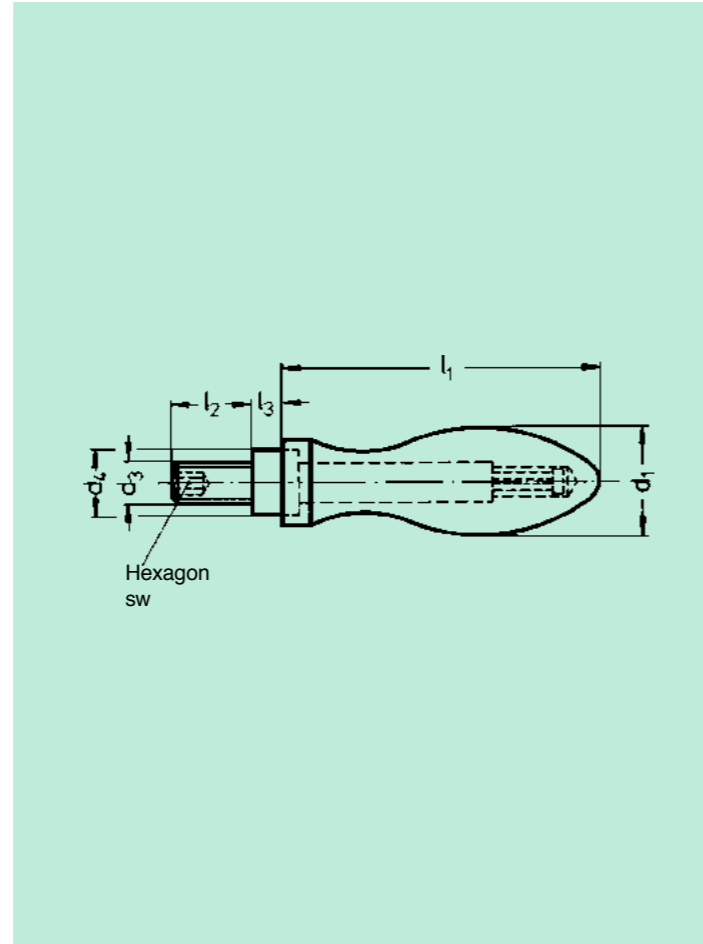
DIN 98 Grip from Aluminium resp. Plastic



Type A: Grip from Aluminium polished, spindle from steel, zinc-plated.

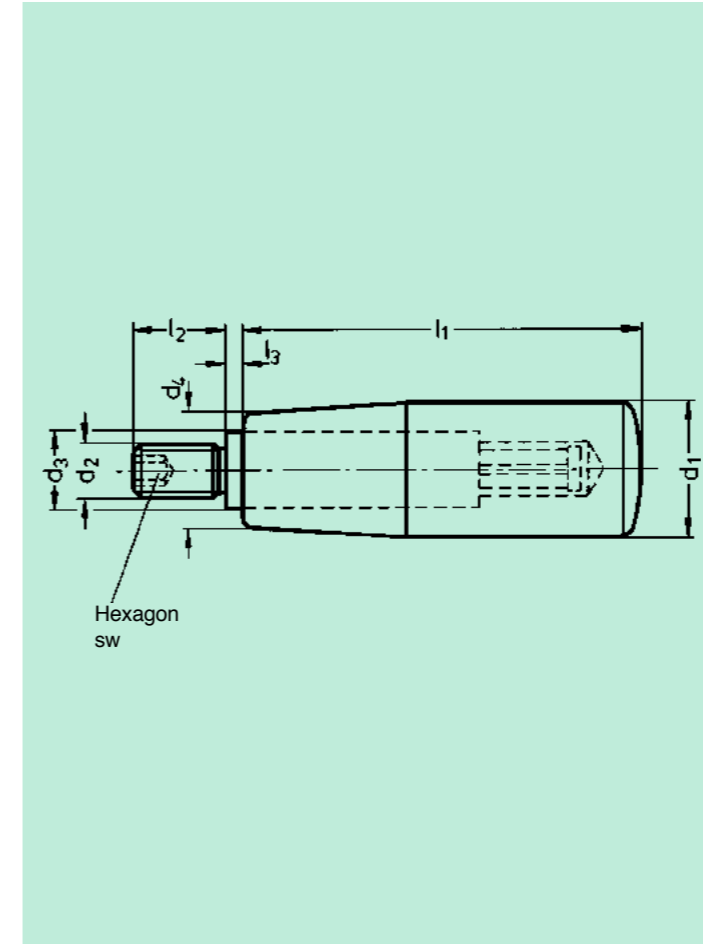
Type K: Grip from polyamide, black matt, spindle from steel, zinc-plated.

Assembling Instructions: Mount the bolt without the grip part. Then push the grip on the bolt by hand. Through light stroke with plastic hammer, the grip is connected with the bolt. Now the grip will revolve freely, but cannot be pulled back off the bolt by hand.



Revolving Grips DIN 98

Order No. Type A	Order No. Type K	d ₁ mm	Thread d ₃	d _{4 h13} mm	l ₁ ⊕ mm	l ₂ ⊕ mm	l ₃ mm	sw
60 16 06 11 A	60 16 06 11 K	16	M 6	10	49	11	5,5	3
60 20 08 13 A	60 20 08 13 K	20	M 8	13	61	13	6	4
60 25 10 14 A	60 25 10 14 K	25	M 10	16	75	14	8	5
60 32 12 21 A	60 32 12 21 K	32	M 12	20	95	21	10,5	6



Revolving Grips

Spindle from Steel resp. Stainless Steel

INOX



Revolving grips in modern form and compact plastic grip. Suitable especially for rectangular shaped rim handwheels.

Model: Grip from polyamide, black matt. Spindle from zinc-plated steel resp. from stainless steel 1.4305.

Assembling Instructions: Mount the bolt without the grip part. Then push the grip on the bolt by hand. Through light stroke with plastic hammer, the grip is connected with the bolt. Now the grip will revolve freely, but cannot be pulled back off the bolt by hand.

Revolving Grips

Order No. Spindle from Steel	Order No. Spindle from Stainless Steel	d ₁ mm	Thread d ₂	d ₃ mm	d ₄ mm	l ₁ mm	l ₂ mm	l ₃ mm	sw
39 18 06 12	39 18 06 12 E0A	18	M 6	10	15	40	12	2,5	3
39 21 06 13	39 21 06 13 E0A	21	M 6	10	17	50	13	2,5	3
39 21 08 13		21	M 8	10	17	50	13	2,5	4
39 23 08 14	39 23 08 14 E0A	23	M 8	13	19	65	14	2,5	4
39 26 10 16	39 26 10 16 E0A	26	M 10	13	21	80	16	2,5	5
39 28 10 16		28	M 10	13	22	90	16	2,5	5

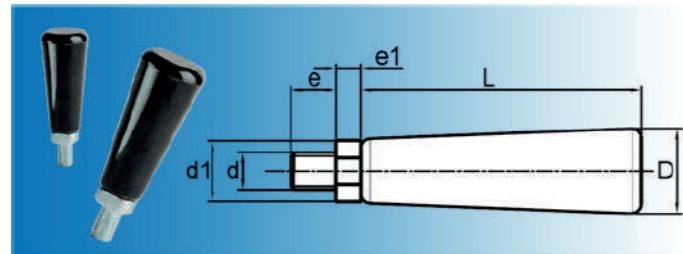
MODULAR HANDLE



IMPUGNATURE INOX

CODICE - CODE	descrizione - description
40020L	IMPUGNATURA INOX D20 M8 LUCIDA
40020S	IMPUGNATURA INOX D20 M8 SABBIAITA

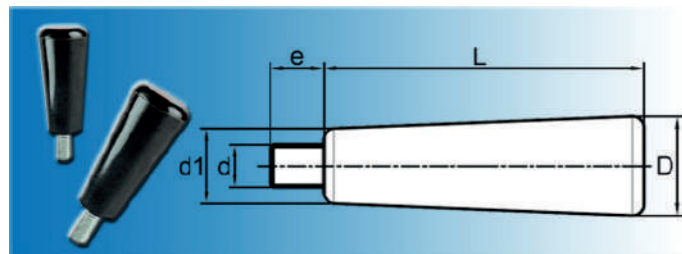
Hand grips / tapered grips | Swivelling grips with male thread



Material: thermoset material FS 31 DIN 7708
thread of treated steel
Colour: black

Part no.	d	D	d1	L	e	e1
6113720501	M6	20	13	45	12	5,0
6113724501	M8	24	16	53	15	5,5

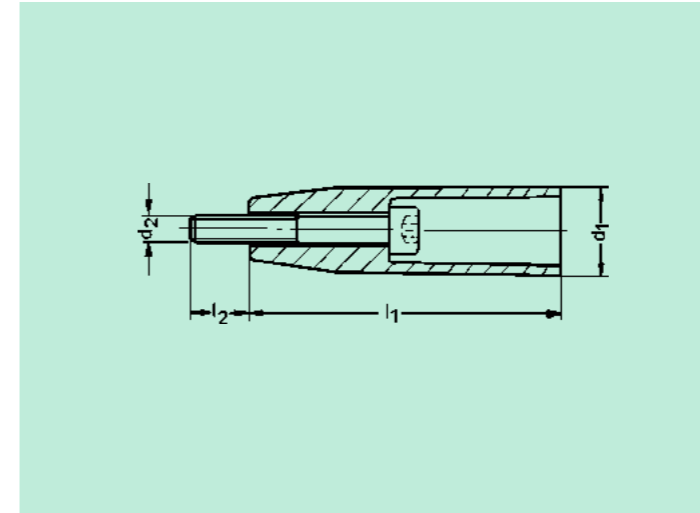
Hand grips / tapered grips | Fixed grips with male thread



Material: thermoset material FS 31 DIN 7708
thread of treated steel
Colour: black

Part no.	d	D	d1	L	e
6113620501	M6	20	130	45	15
6113624501	M8	24	16	53	15

Fixed Grips



Model:

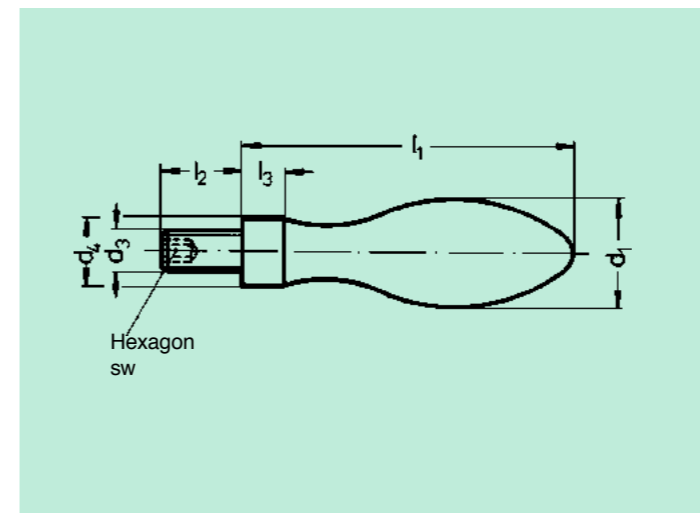
Grip from polyamide, black matt. Thread bolt from steel, zinc-plated.

Fixed Grips

Order No.	d1 mm	Thread d2	Length of Screw l2 mm	l1 mm
61 21 08 015	21	M 8	15	50
61 23 10 015	23	M 10	15	70
61 26 12 015	26	M 12	15	90

Fixed Grips

DIN 39



Model:

Type S: Complete from steel, polished. Thread bolt zinc-plated.

Type K: Grip from polyamide, black matt. Thread bolt from steel, zinc-plated.

Fixed Grips DIN 39

Order No. Type S	Order No. Type K	d1 mm	Thread d3	Length of Screw l2 mm	l1 ⊕ mm	d4 h13 mm	l3 mm	sw
62 16 06 011 S		16	M 6	11	50	10	7	3
62 20 08 013 S	62 20 08 013 K	20	M 8	13	64	13	8	4
62 25 10 014 S	62 25 10 014 K	25	M 10	14	80	16	10	5
62 32 12 021 S	62 32 12 021 K	32	M 12	21	100	20	13	6

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).

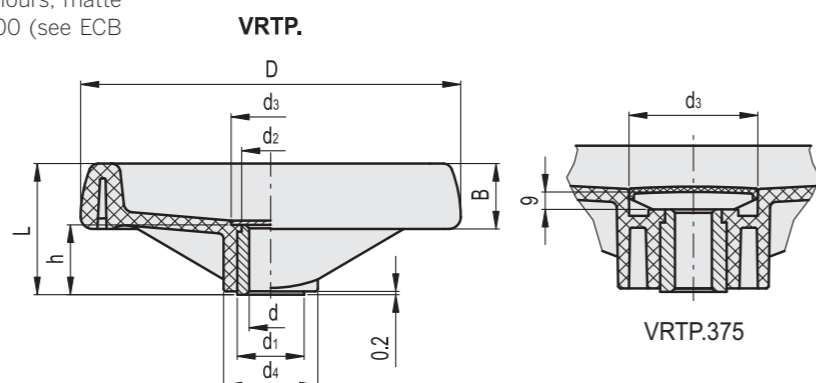
ACCESSORIES ON REQUEST

- 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

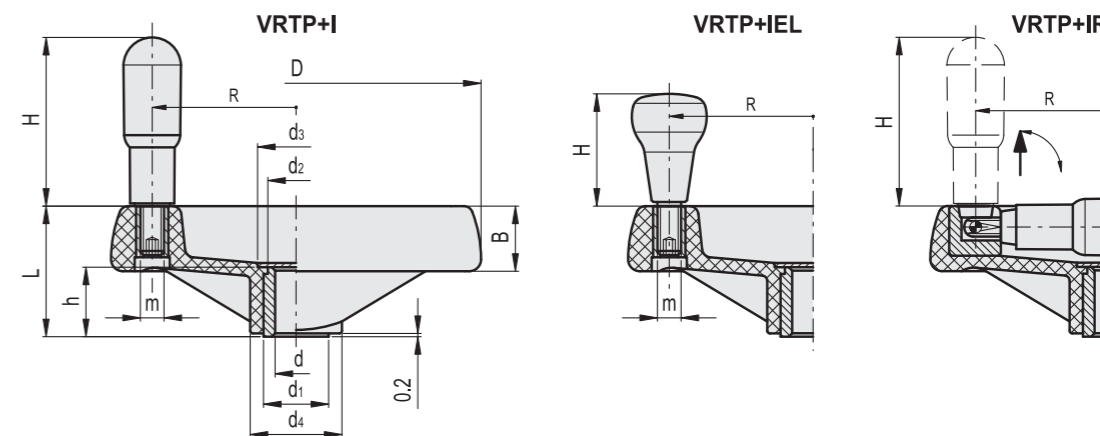


VRTP.

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.

Spoked handwheels



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.



Material suitable for food contact

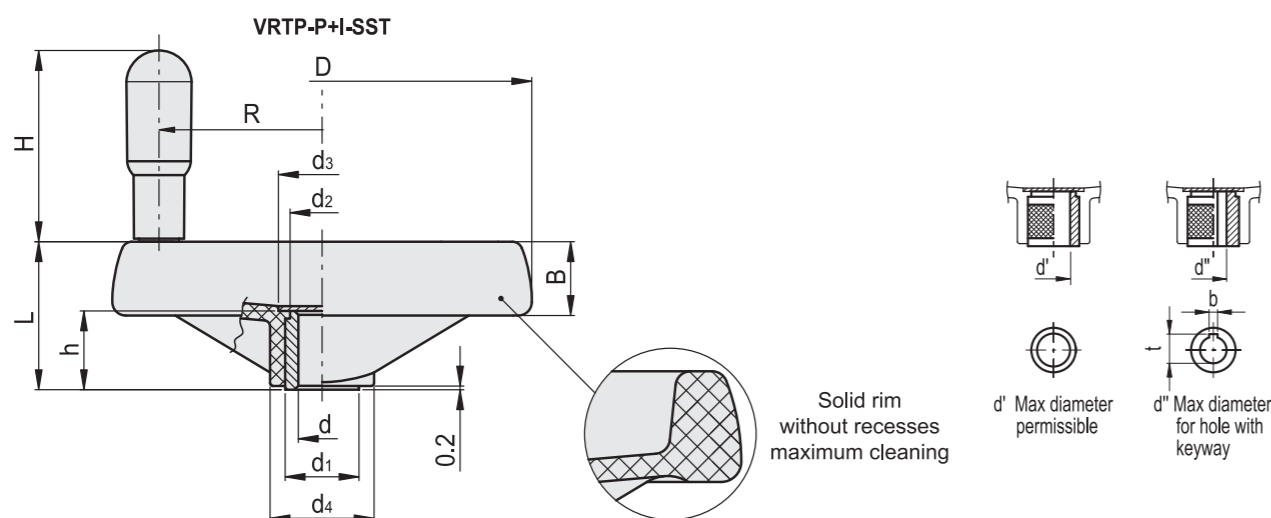
Technopolymer handwheel and handle.
Certified in compliance with FDA (U.S. Food and Drug Administration).

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

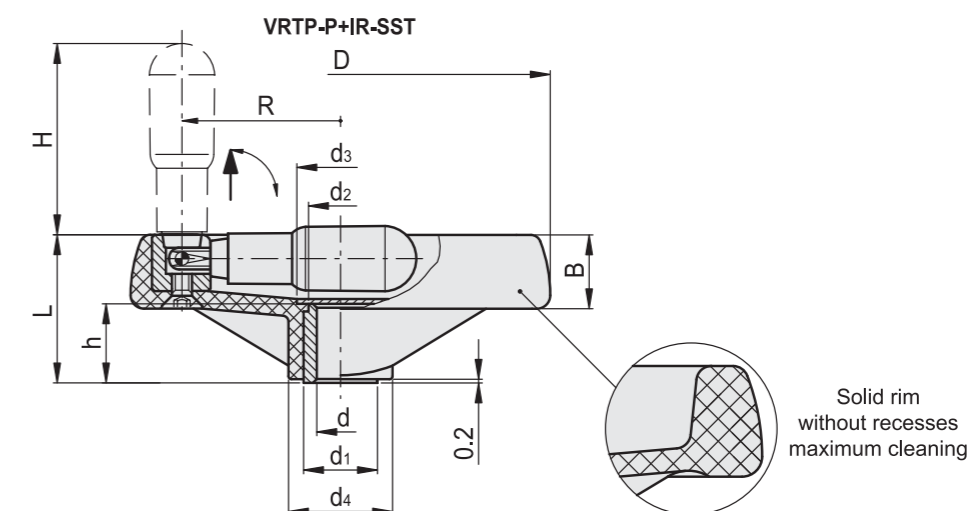


VRTP-P+I-SST

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.



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.

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



reddot design award

INFORMATION

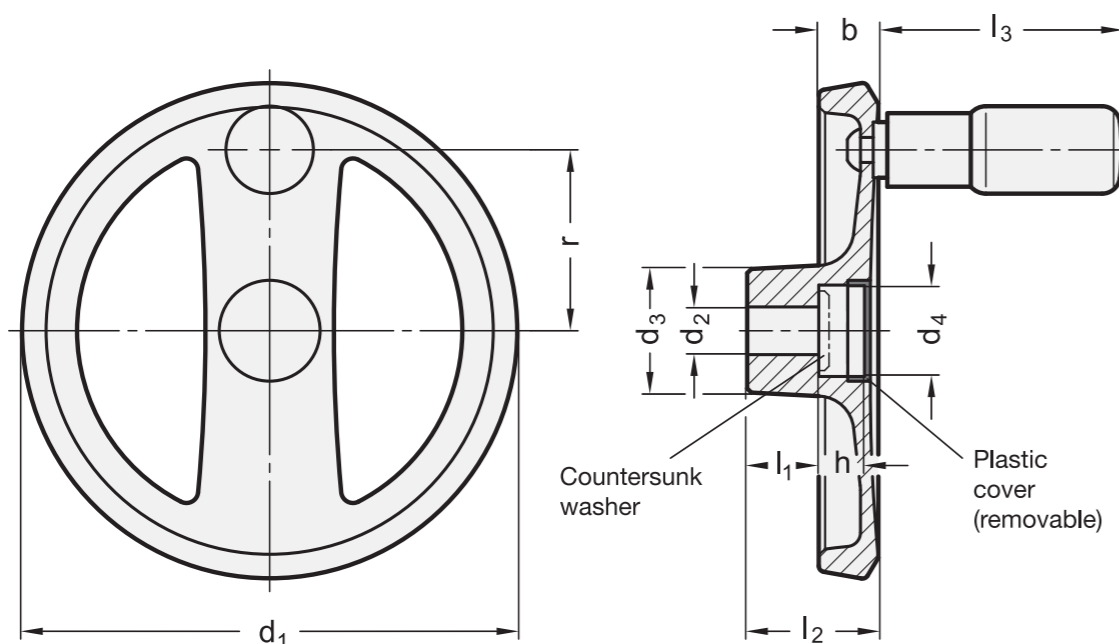
Spoked handwheels GN 924 are distinguished by modern design. The removable plastic cover shrouds the fixing components such as screws, countersunk washers as well as the shaft end.

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)



* 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

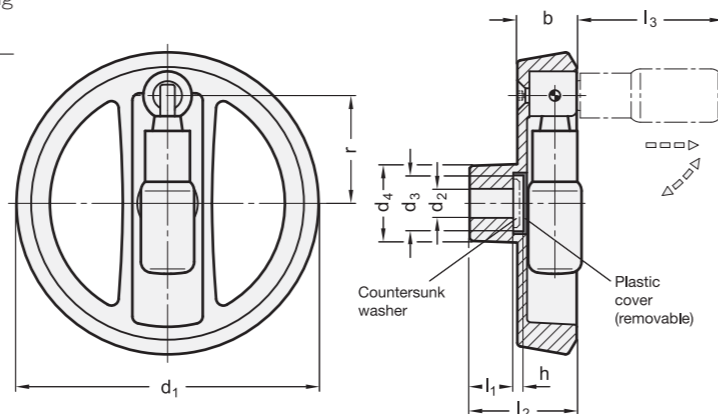
The handle in these handwheels is locked in a conical bore in the operating position.

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 RAL9005
SR 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

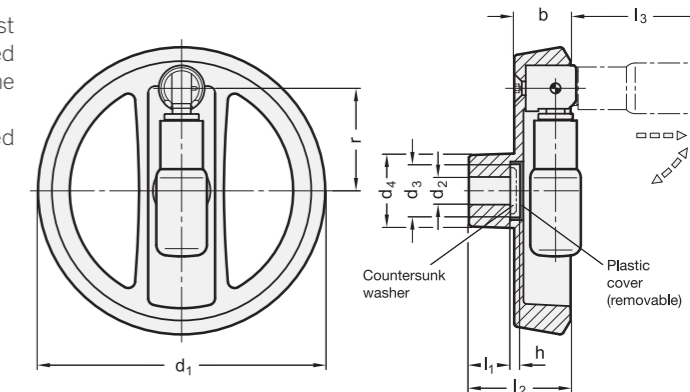
INFORMATION

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 RAL9005
SR 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

For stainless steel
handwheels see pages 19-21.



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



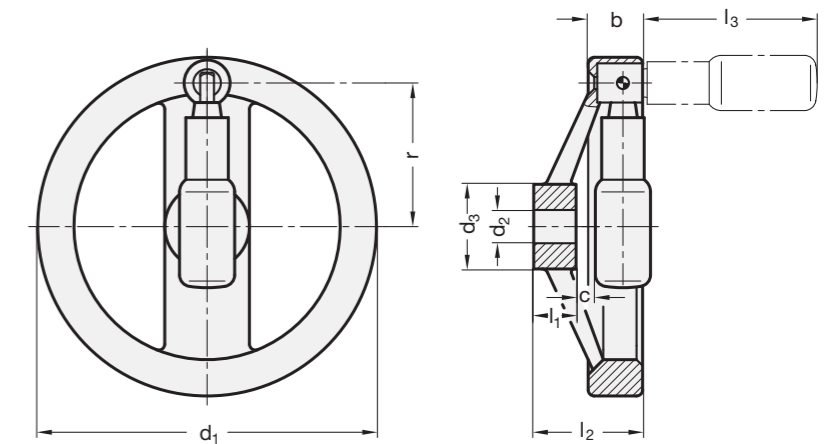
INFORMATION

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

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)

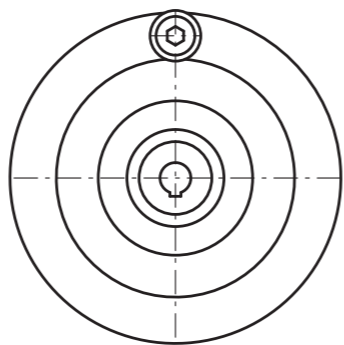
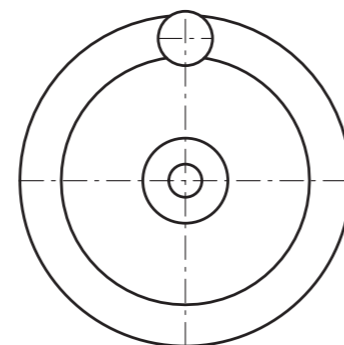
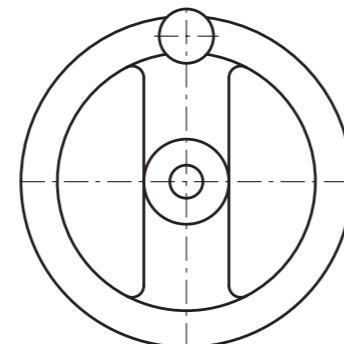
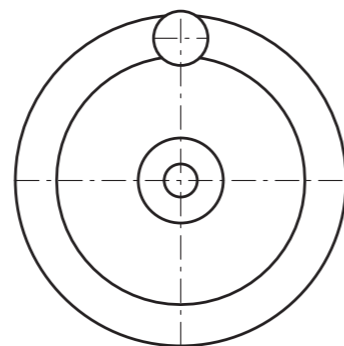
Steel
plastic coated
black, textured finish

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

Duroplast

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

Duroplast



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)

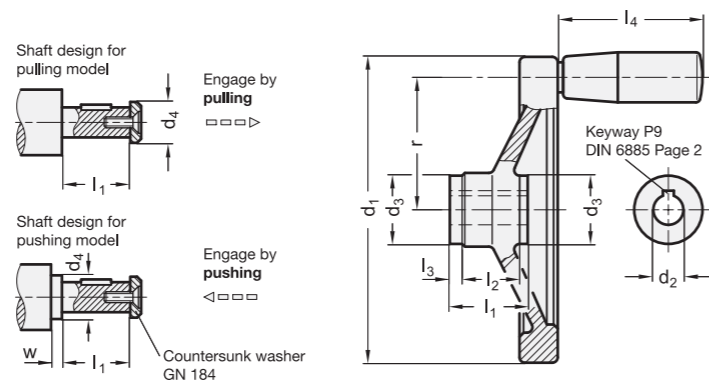
Steel, plastic coated, black, matt



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	⚖
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.	∅ Handle	Coupling	⚖
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.

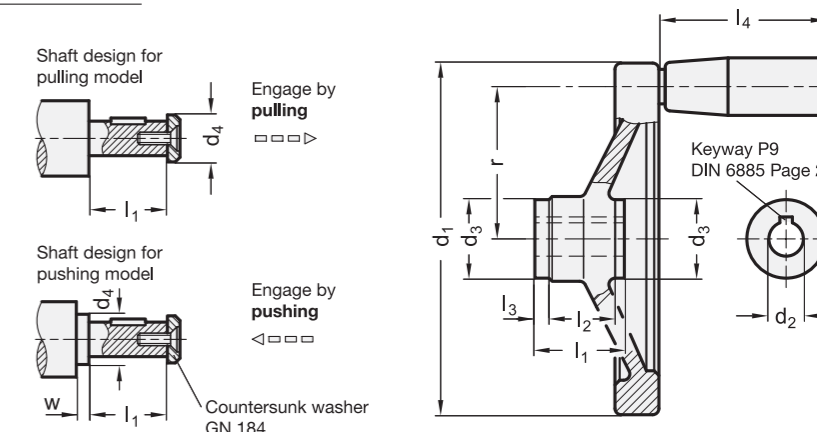
- Instructions for safety handwheels (see page 133)

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



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.	∅ 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



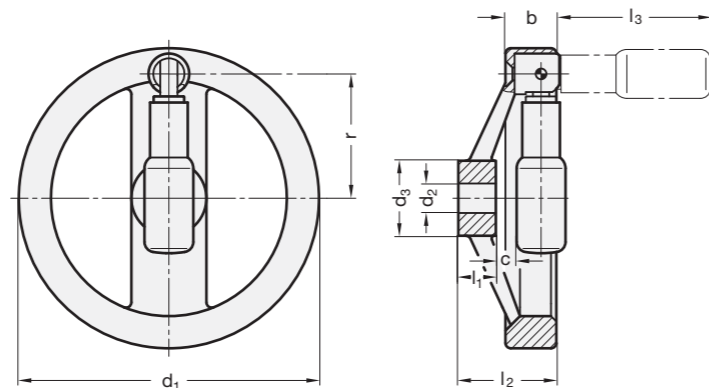
INFORMATION

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	ΔΔ
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

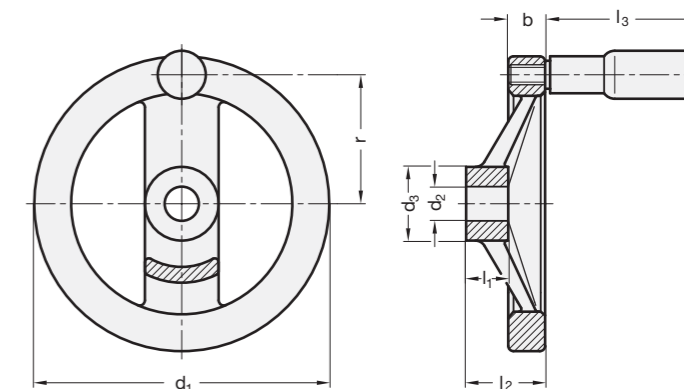
Cylindrical Revolving handles GN 798 (see page 577)

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	ΔΔ
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	ΔΔ
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.

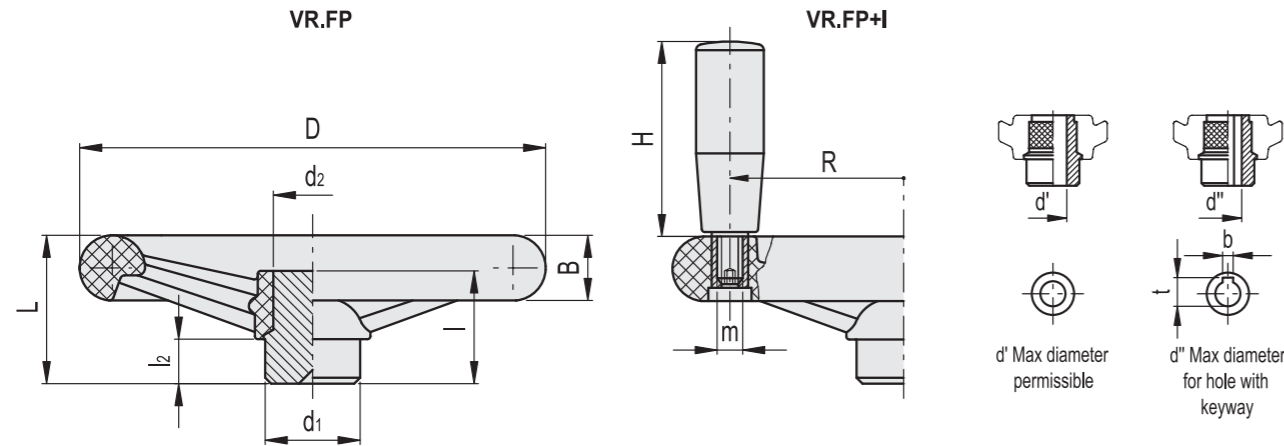
STANDARD EXECUTIONS

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).



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.

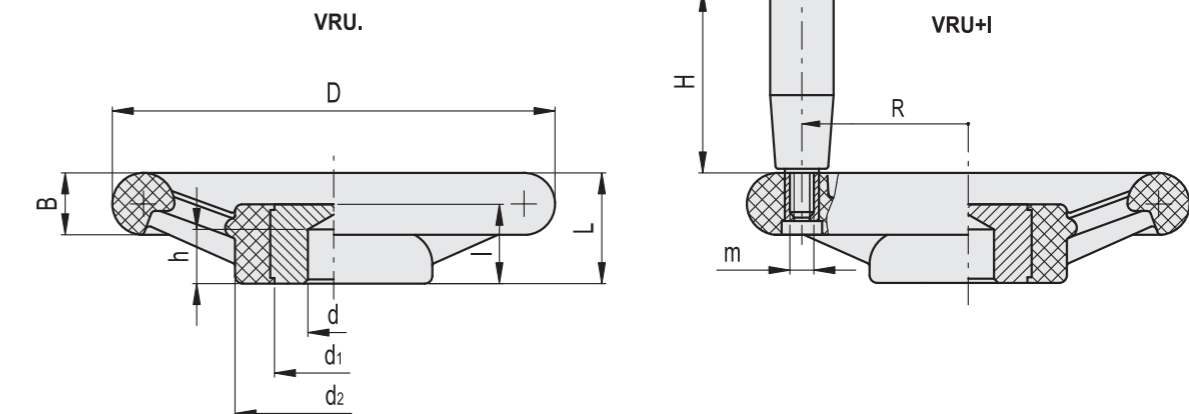
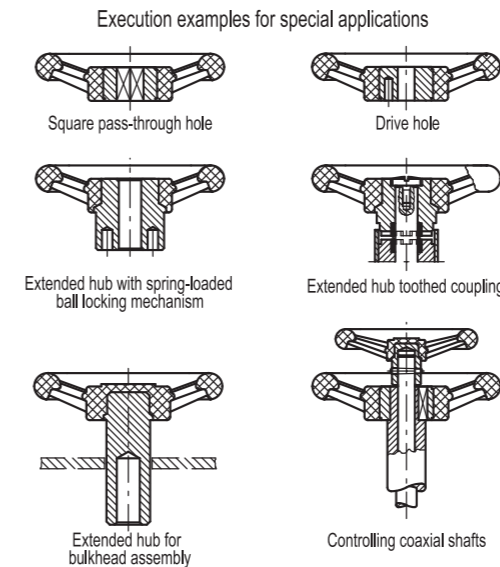
STANDARD EXECUTIONS

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).



VRU.

Code	Description	D	dH9	L	B	d1	d2	l	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	l	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.

For Pressed steel handwheels
for valves see page 21.



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

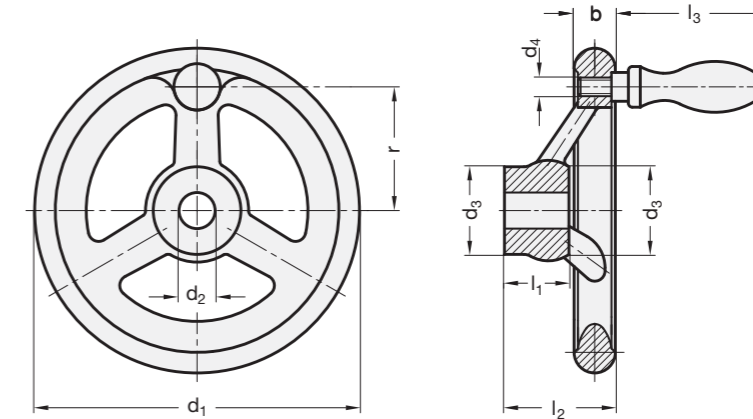


INFORMATION

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	Δ
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	Δ
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

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

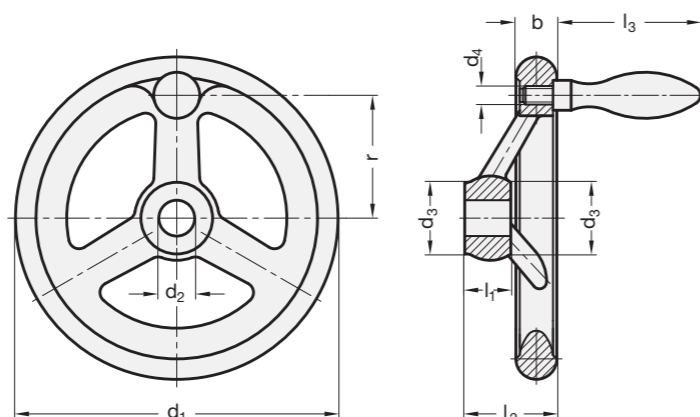
The dimensions of the Stainless Steel-Handwheels GN 950.6 comply extensively with Handwheels DIN 950 (see page 140).

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

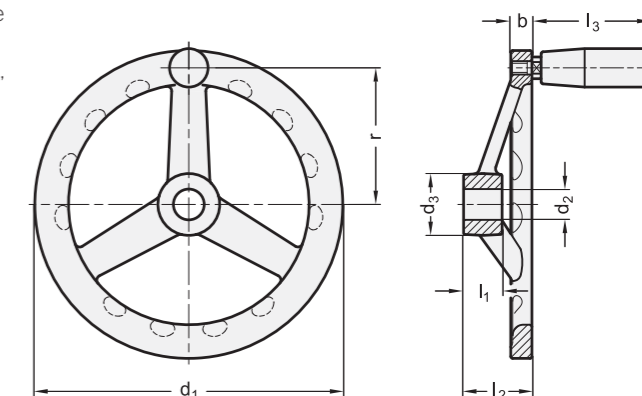
- Plastic Duroplast, black, shiny finish
- Spindle Stainless Steel AISI 304



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

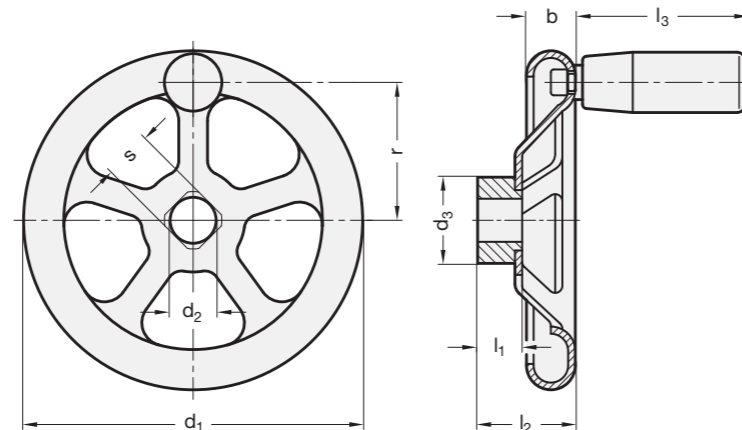
INFORMATION

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	∅ 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).

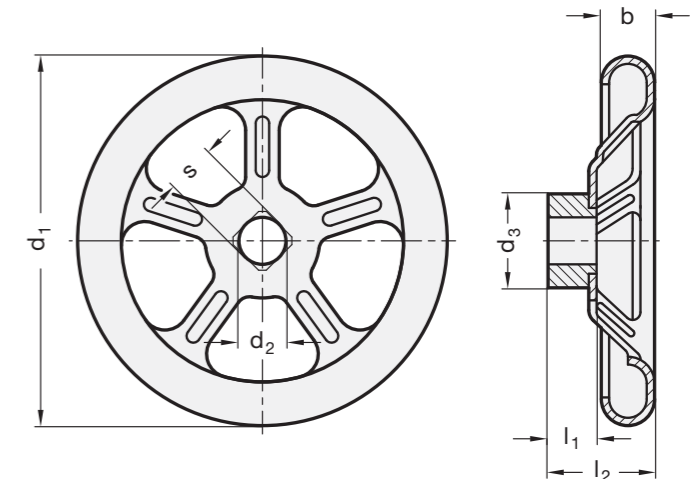
Pressed steel handwheels GN 227.1 are renowned for their high mechanical strength. They are not affected by shock and knocks.

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**

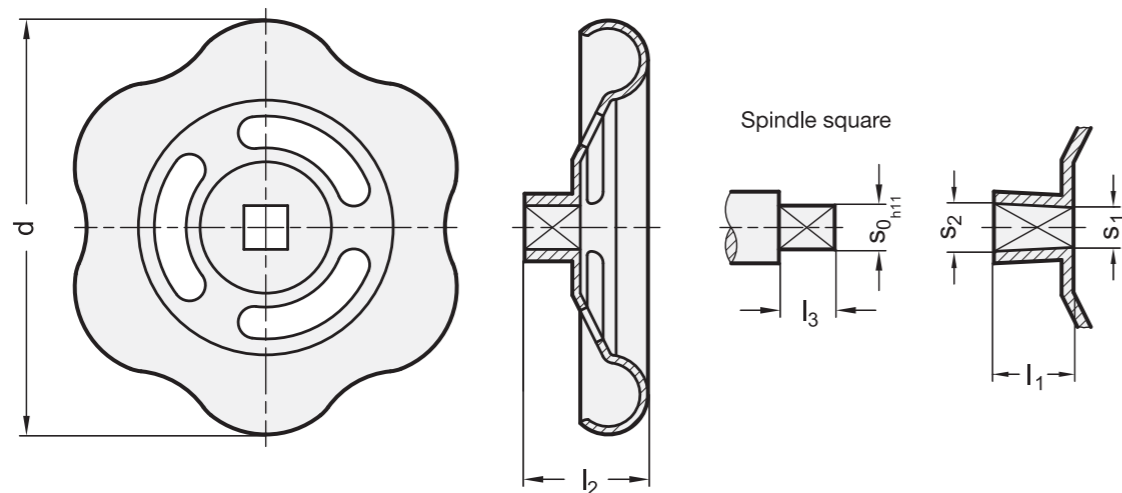
INFORMATION

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	Δ
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

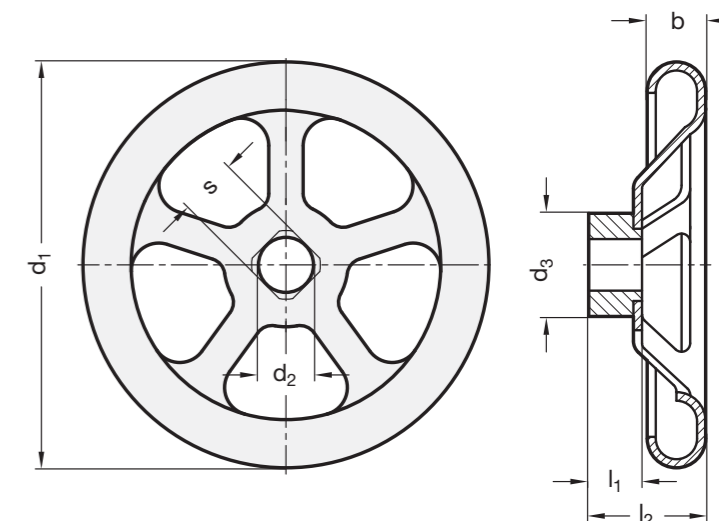
The hub lengths of the pressed Stainless Steel-Handwheels GN 227.4 conform to DIN 950 (see page 140).

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

Description	d1	d2 H9	s H11	b	d3	l1	l2 ≈	No. of spokes	Thickness	Δ
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

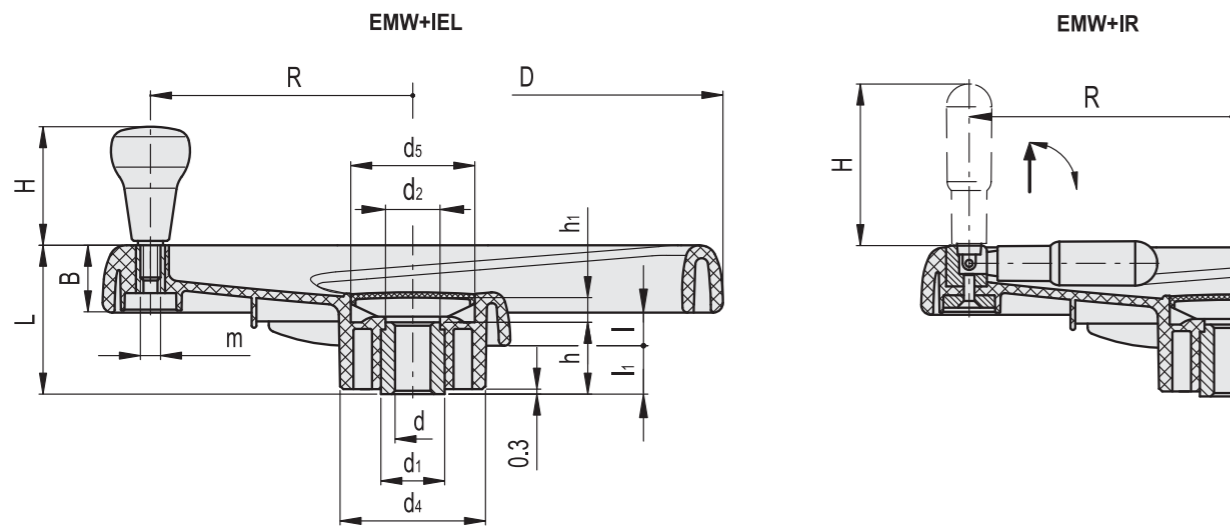
Axial retaining washer GN 184 (see page 971).

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).



* 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).

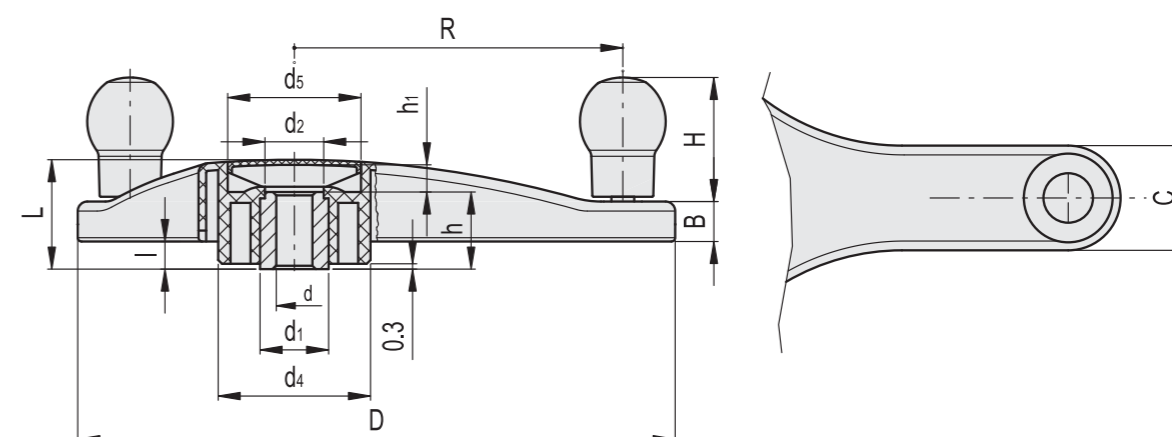
For sufficient quantities: executions with locking device (Elesa patent) (see page 155).

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.



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 1.631+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).

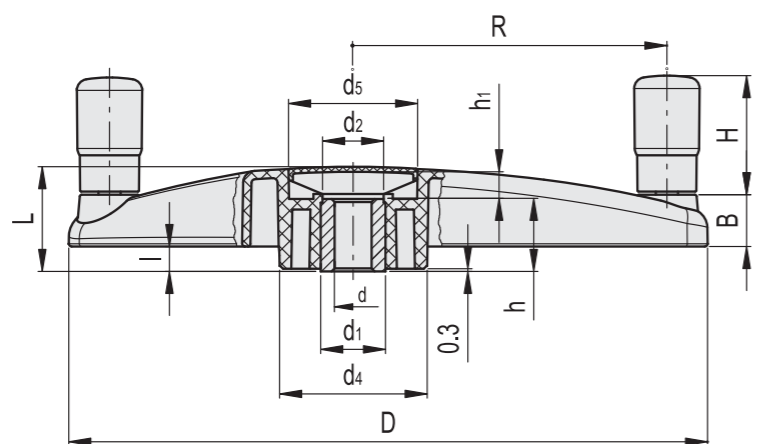
The three-arm handwheels can be customised with marks, logo or special graphics (tampoprinting). The handwheels or handles can be supplied also in special coloured technopolymer.

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

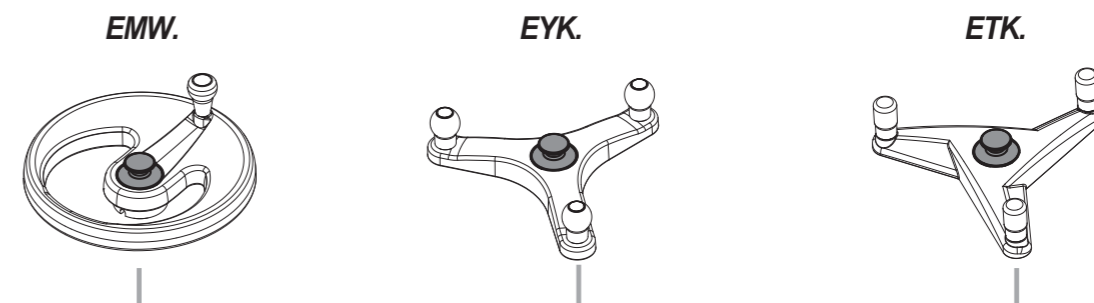
C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

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.

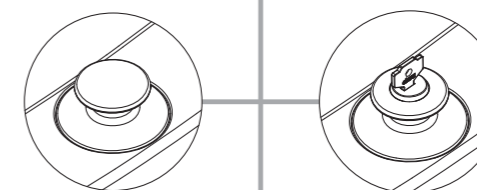
Executions on request with locking and status indicators

Elesa European and US patent



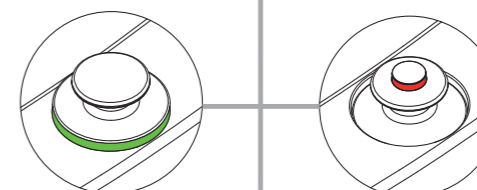
- L Simple actuator

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



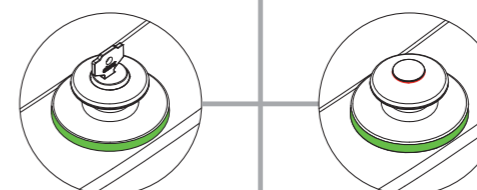
- L-K Actuator with lock

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



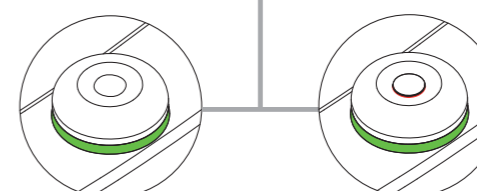
- LCV Actuator with green collar

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).



- 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-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.

- LCV-R Actuator with green collar and red ring

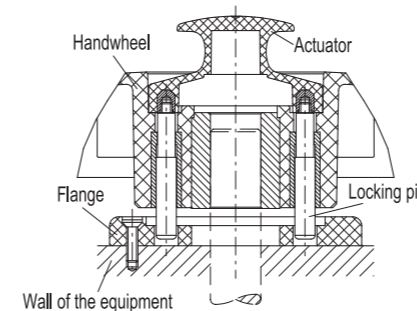
The green collar indicates that the handwheel is free and it can be operated (the red ring is not visible). By pressing the actuator the rotation of the handwheel locks. The red ring comes out from the actuator and indicates that the handwheel is locked (the green collar is no longer visible).

- PHCV "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).

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

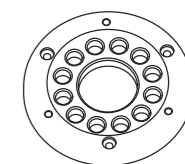
The green collar indicates that the handwheel is free and it can be operated (the red ring is not visible). By pressing the actuator the rotation of the handwheel locks or unlocks. The red ring comes out from the actuator and indicates that the handwheel is locked (the green collar is no longer visible).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



Fitting to shaft by means of a transversal screw

- 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).

To request the handwheels with locking device, contact Elesa sales office specifying: type of handwheel (eg. EYK.), locking device (eg. LCV), any pre-loaded pin (PP) and locking flange (FF).

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 6885/1tolerance 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

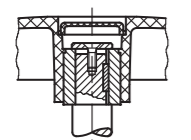
- Axial retaining washer in black-oxide steel GN 184 (see page 971) or in AISI 303 stainless steel GN 184.5 (see page 971).
- VDS.125, VDS.150 and VDS.175 are available also with technopolymer boss caps in one of the Ergostyle colours (see ECB. table).



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

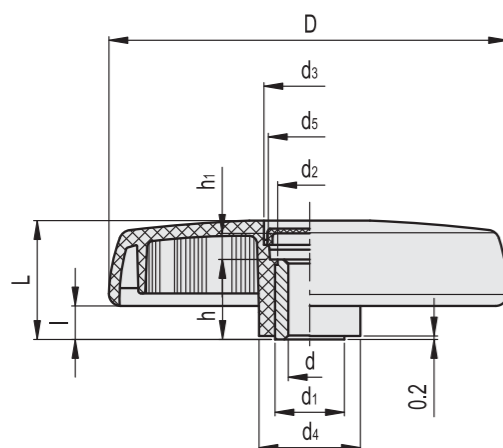
* Complete with colour index (C1, ..., C6).

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

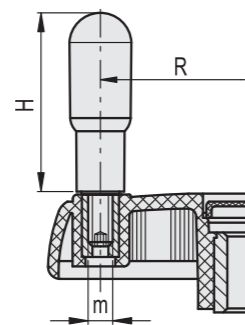


Assembly example with keyway and axial set screw

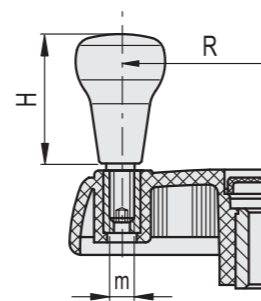
VDS.
VDS-SST



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

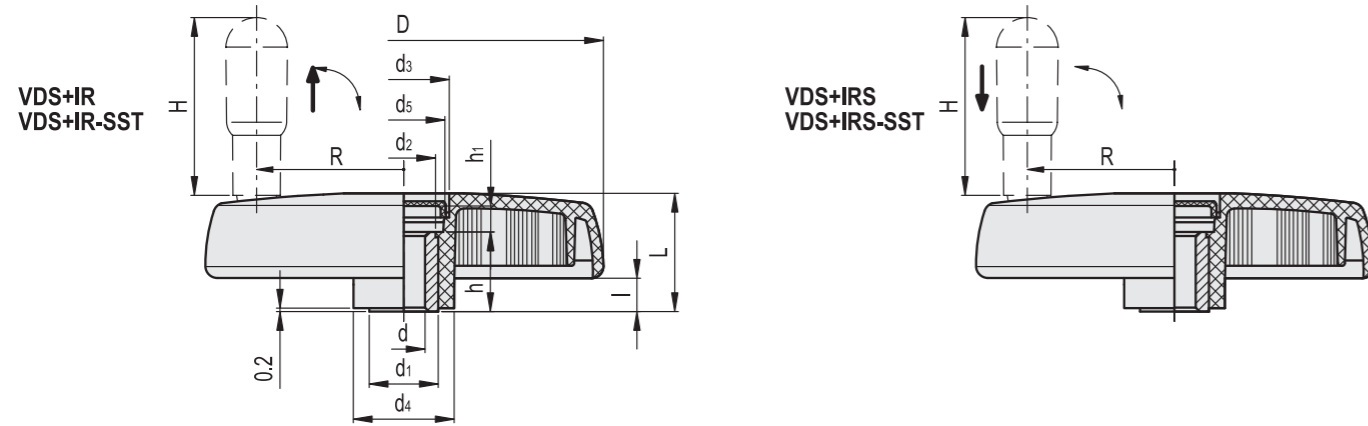
STAINLESS STEEL

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	90	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]	Δ
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]	Δ
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]	Δ
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]	Δ
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.



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).

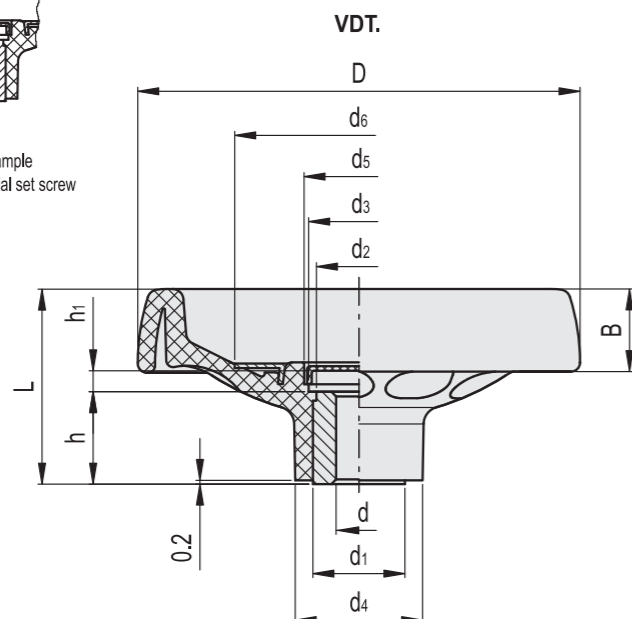
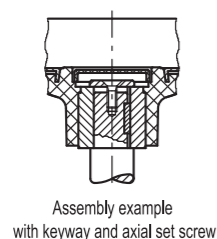
To order the handwheel with keyway complete code and description with the index -K (i.e. 170307-K VDT.100 A-10-K).

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.



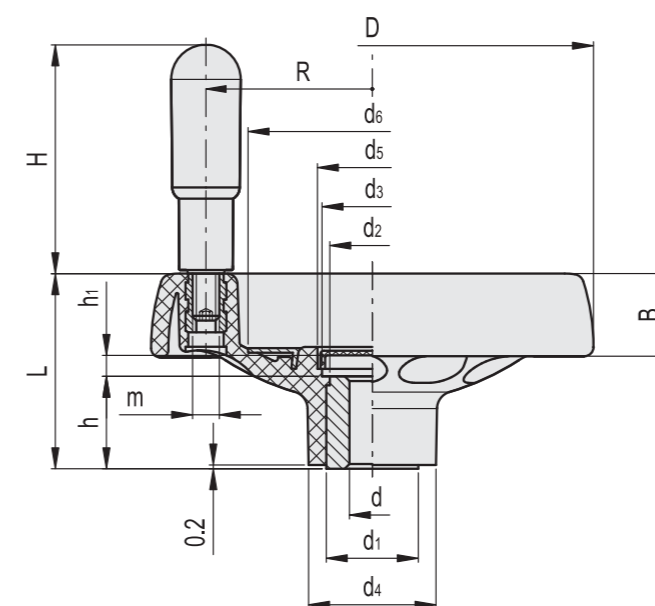
VDT.

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

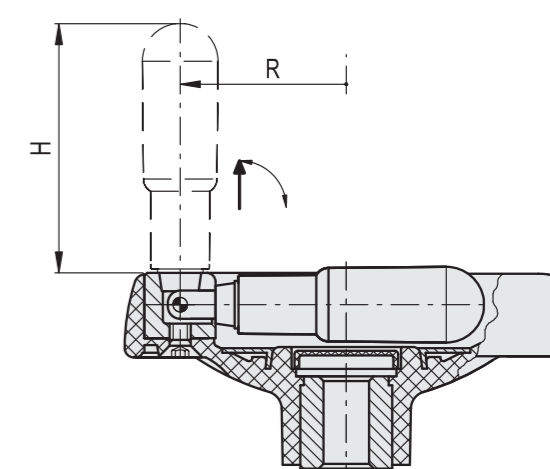
For maximum torque (C) and impact strength (L) see Technical Data on page A3.



VDT+I



VDT+IR



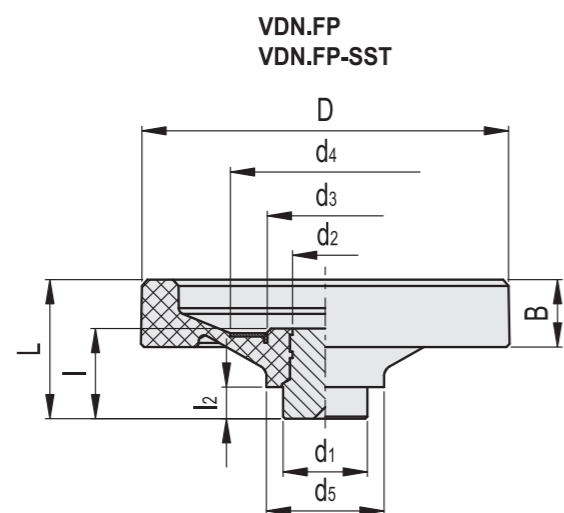
VDT+I

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.



VDN.FP

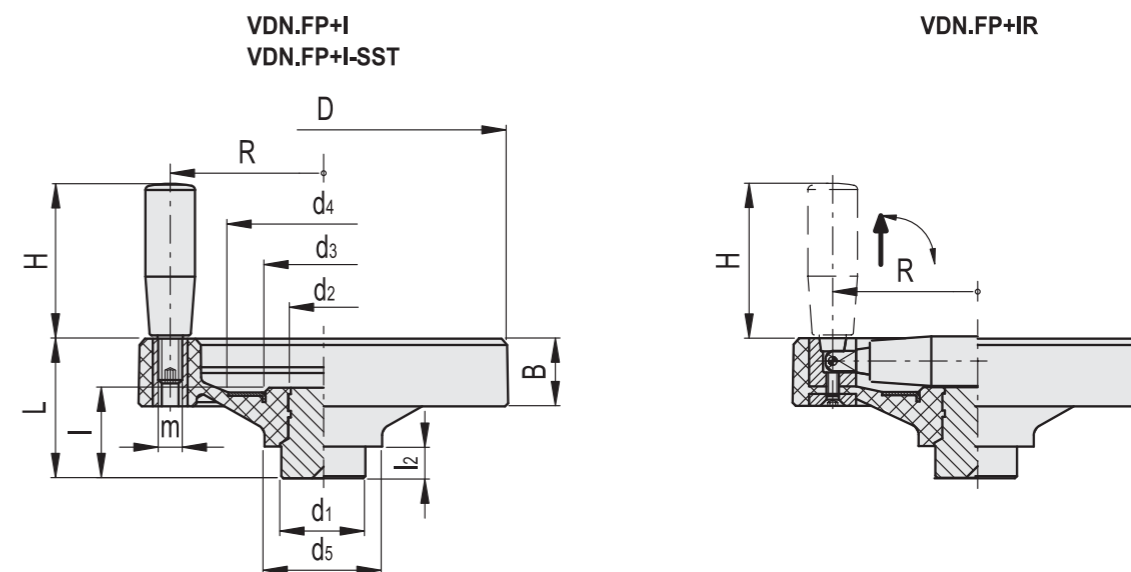
Code	Description	D	L	B	d1	d2	d3	d4	d5	l	l2	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73650	VDN.50 FP	50	22	12	16	16	-	25	26	19	9	12	10	11.4	3	55	3	60
73670	VDN.63 FP	63	28	13	20	20	-	31	28	24	10	13	11	12.8	4	75	4	115
73690	VDN.80 FP	80	31	14	20	18	28	43	30	28	10	13	11	12.8	4	120	5	145
73709	VDN.100 FP	100	40	15	24	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	l	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	l	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	l	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 l.301+x (see page 574) in Duroplast.

SPECIAL EXECUTIONS ON REQUEST

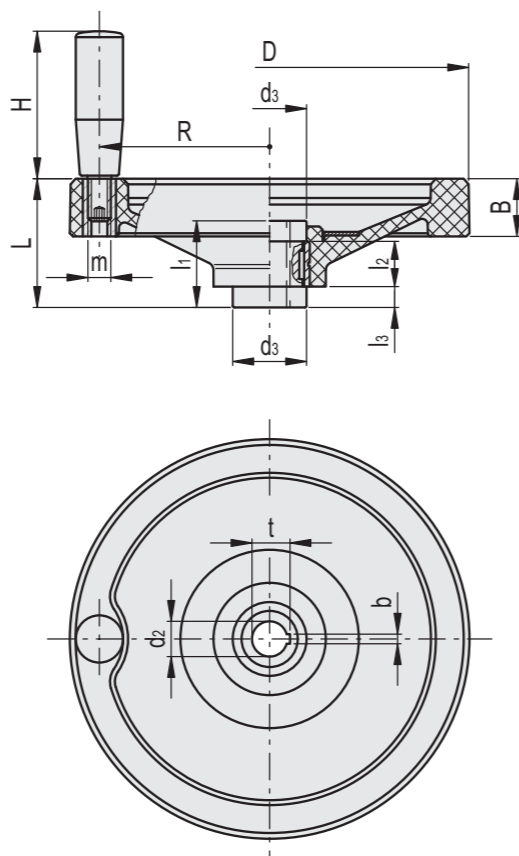
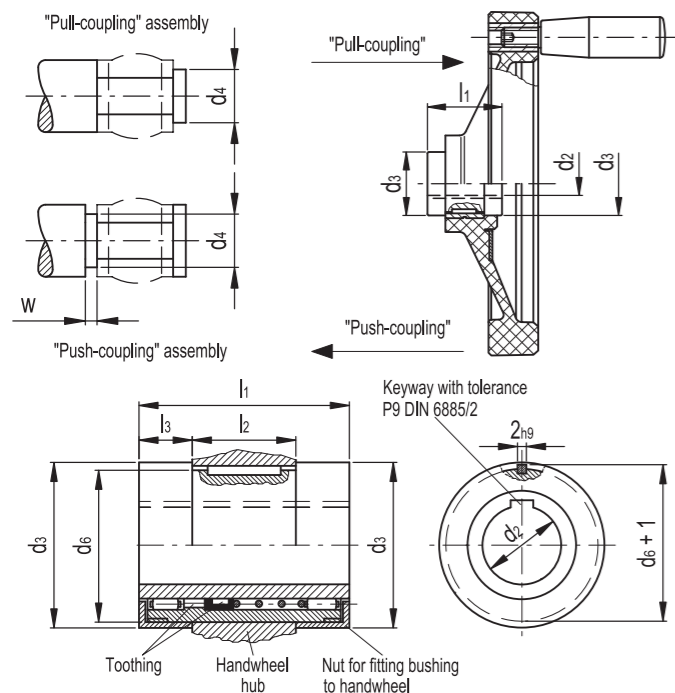
These handwheels can be supplied with "Push-coupling". By inserting the bushing the other way round, the handwheel operates opposite to the standard way.

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.



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

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)

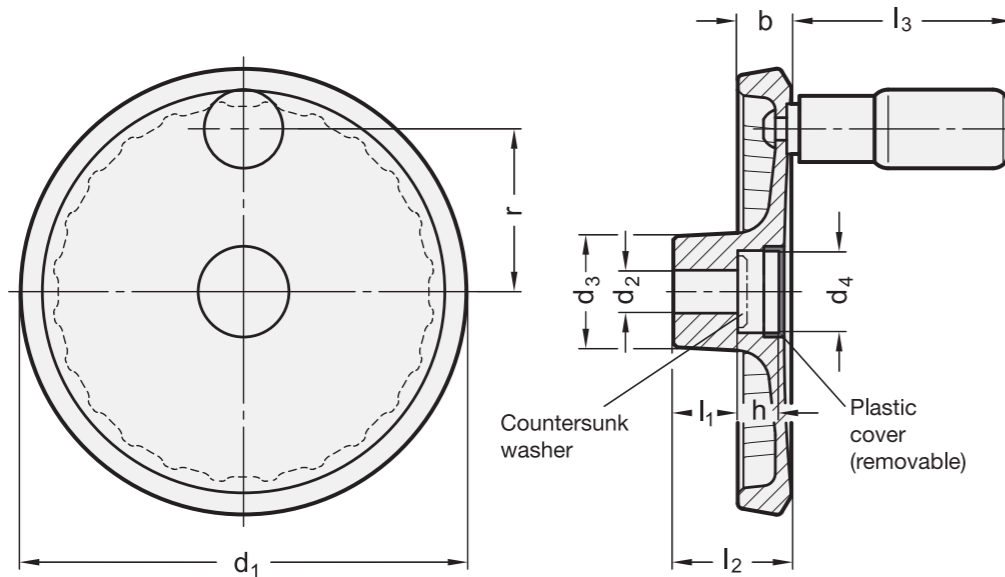
SW RAL9005 SR RAL9006

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-B14-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

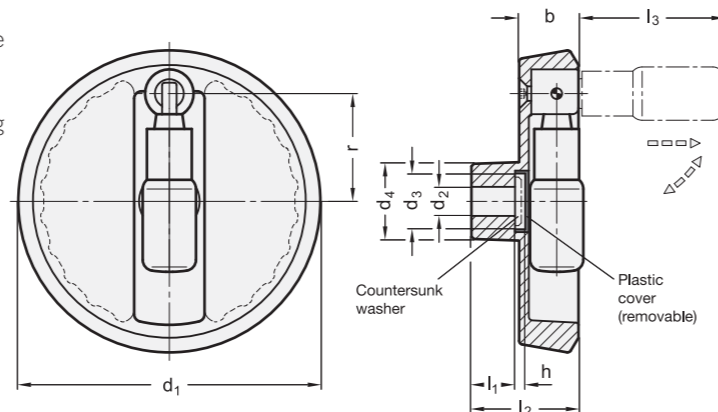


INFORMATION

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

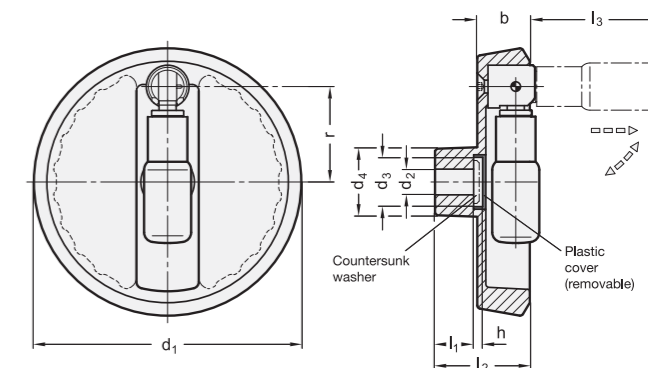


INFORMATION

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

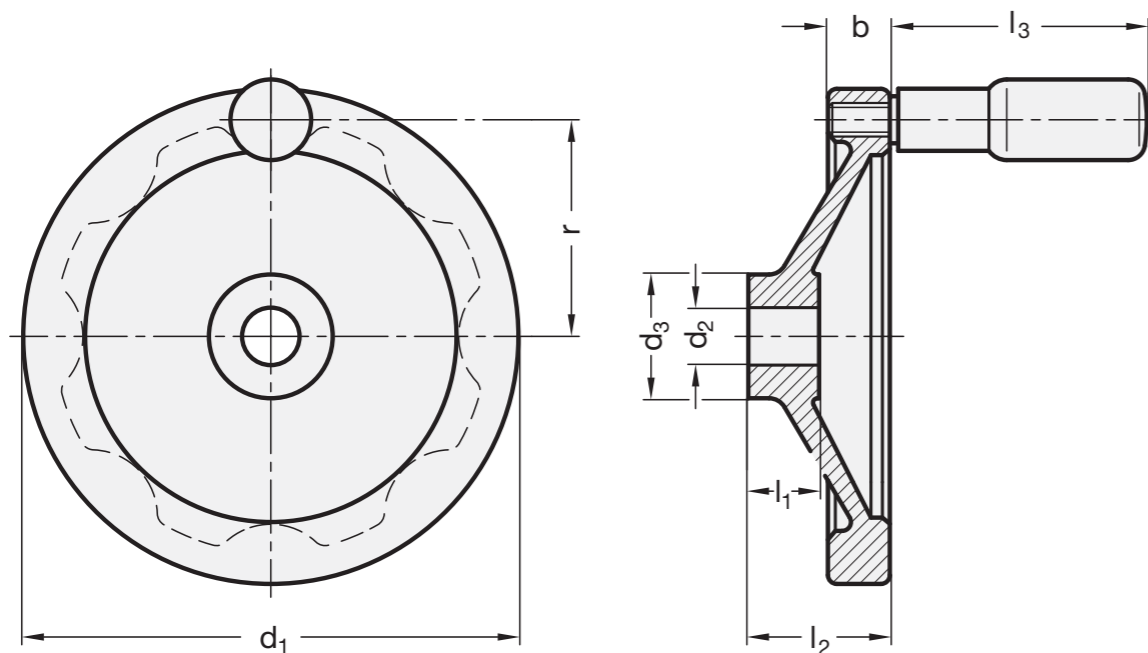


INFORMATION

- 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)



*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

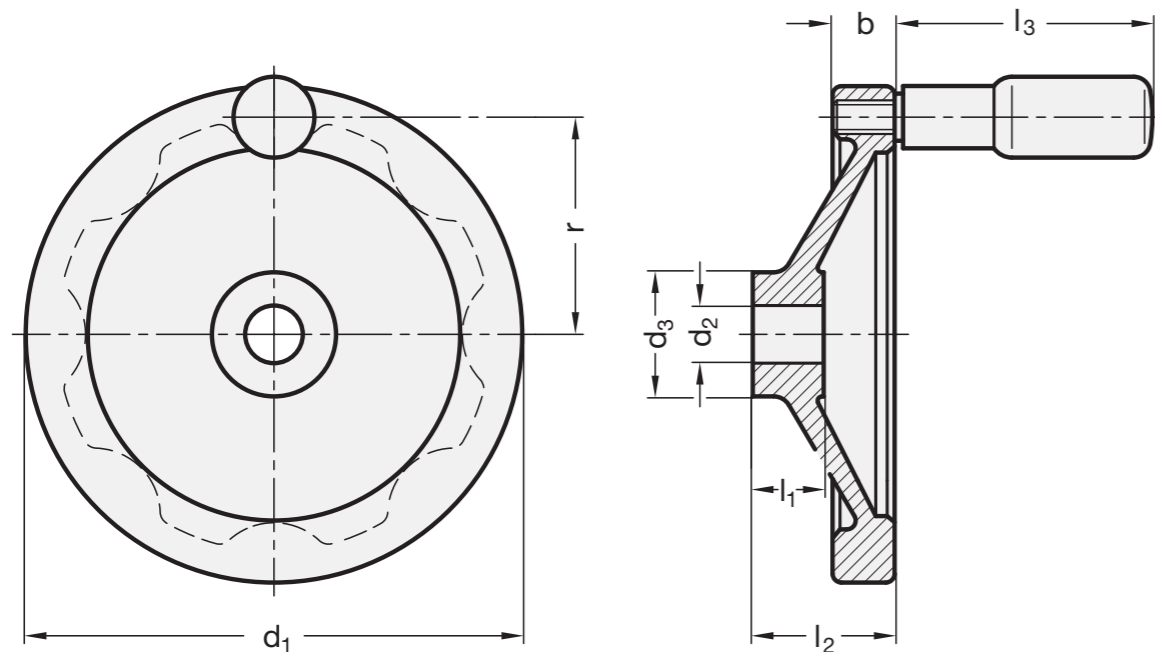
Cylindrical Revolving handles GN 798 (see page 577)
Plastic, Technopolymer
black, matt

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 ≈	Δ
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	Δ
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)

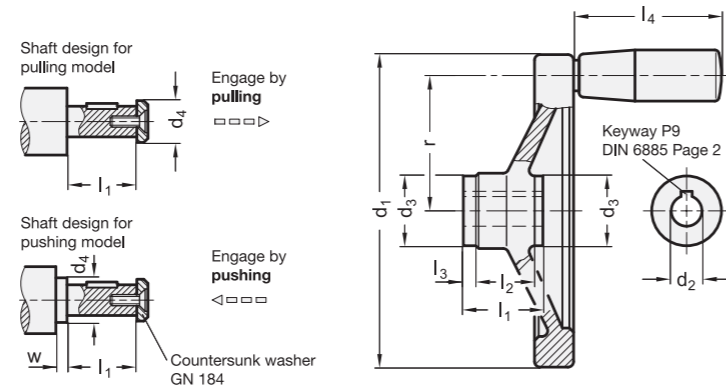
Steel, plastic coated
black, matt



INFORMATION

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

- Instructions for safety handwheels (see page 133)



* 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	⚖
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.	∅ Handle	Coupling	⚖
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



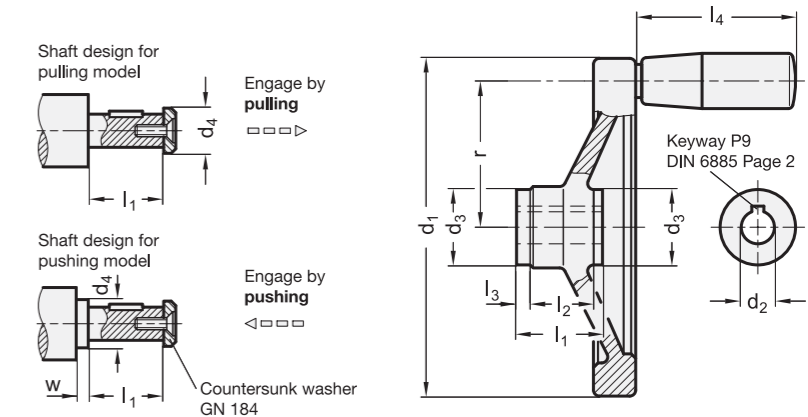
INFORMATION

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	∅ 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)

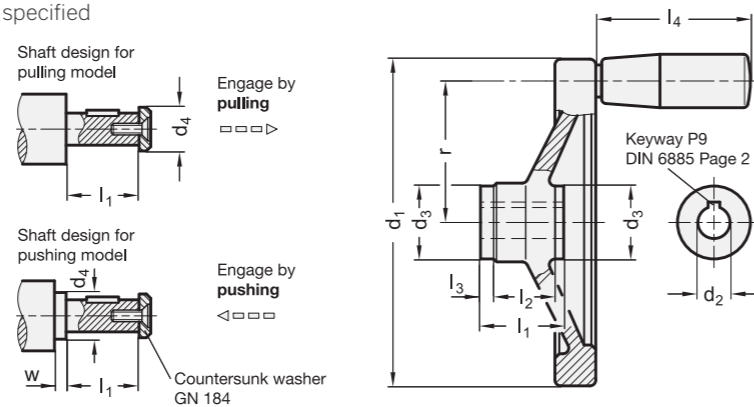
Steel, plastic coated
black, matt



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	⚖
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.	∅ Handle	Coupling	⚖
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



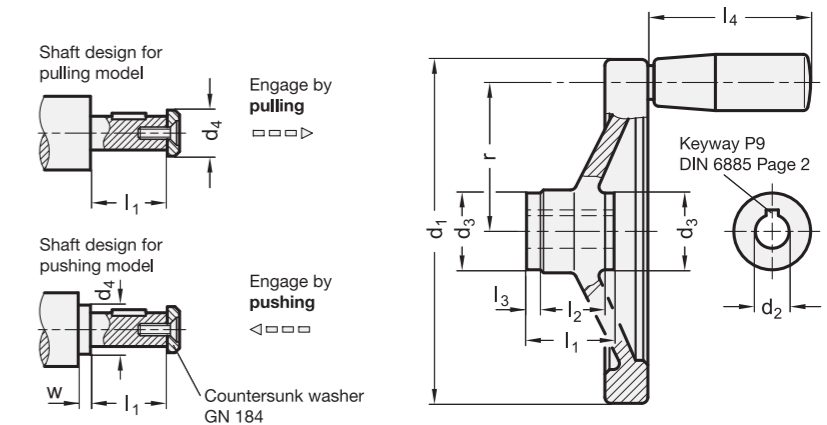
INFORMATION

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	∅ 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.

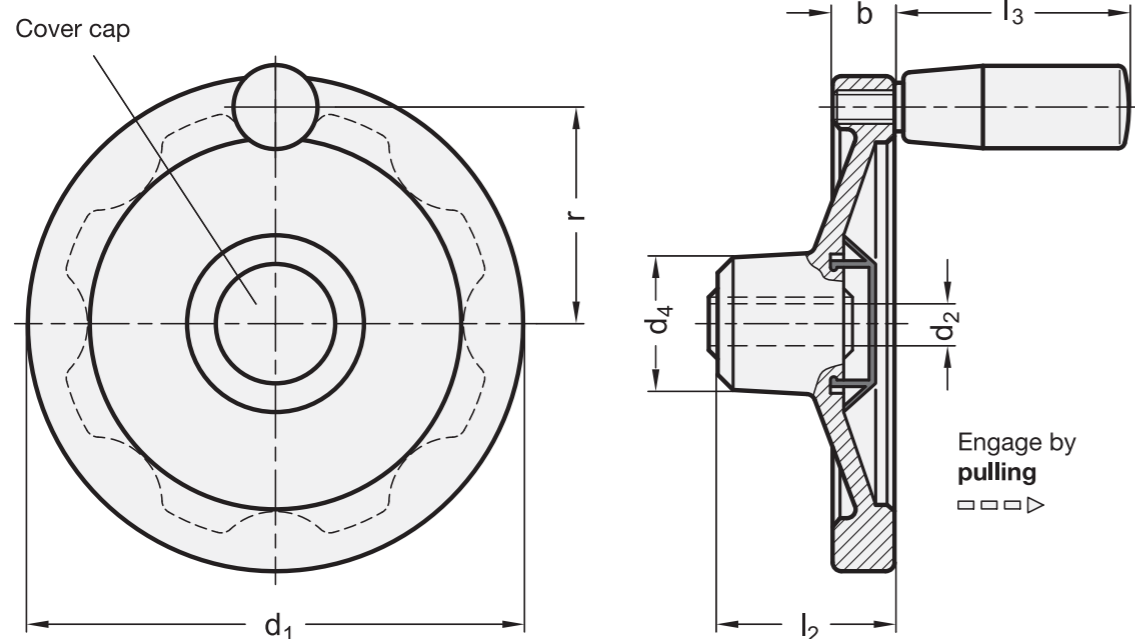
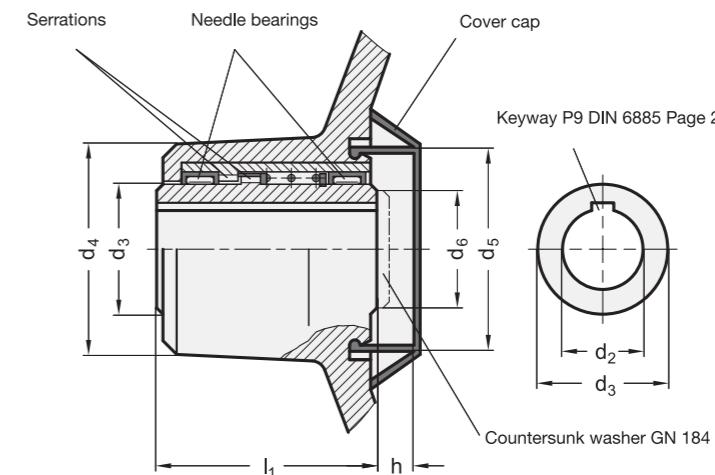
The wheel hub is fitted with an inside groove to retain the hub cap on its segmented edge.

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	∅ 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.

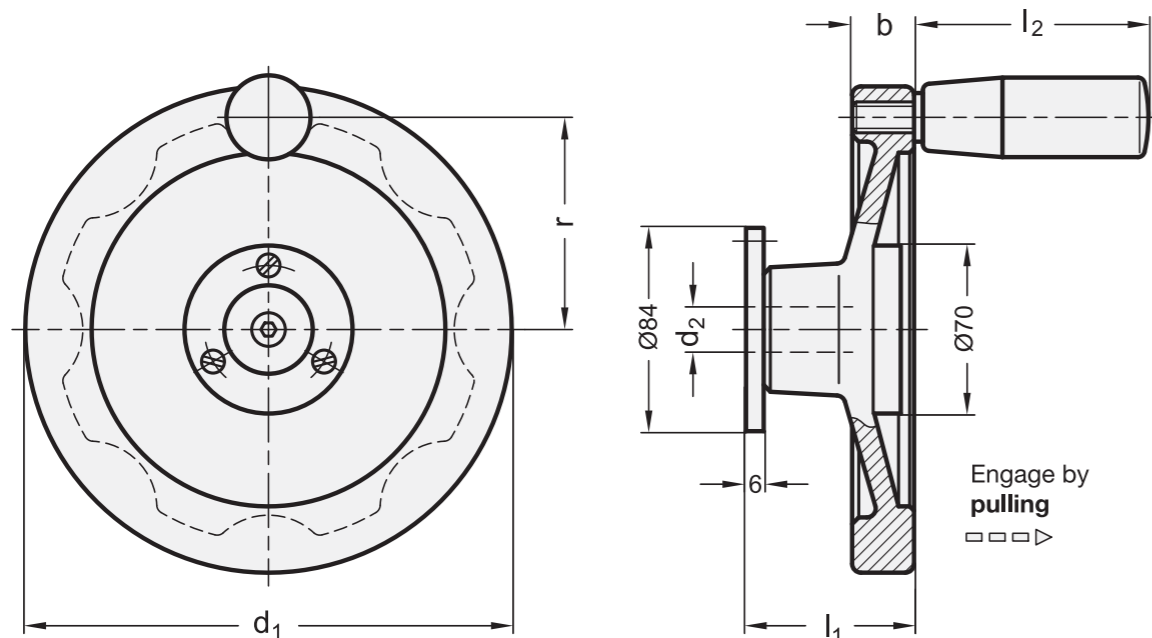
The bearing flange can also accept the bearing of the shaft via the bearing bushing (code No. 1). This bearing bushing is a dry bearing (DU bushing). Normally, the shaft has a separate bearing and the bearing bushing serves to center the bearing flange.

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:

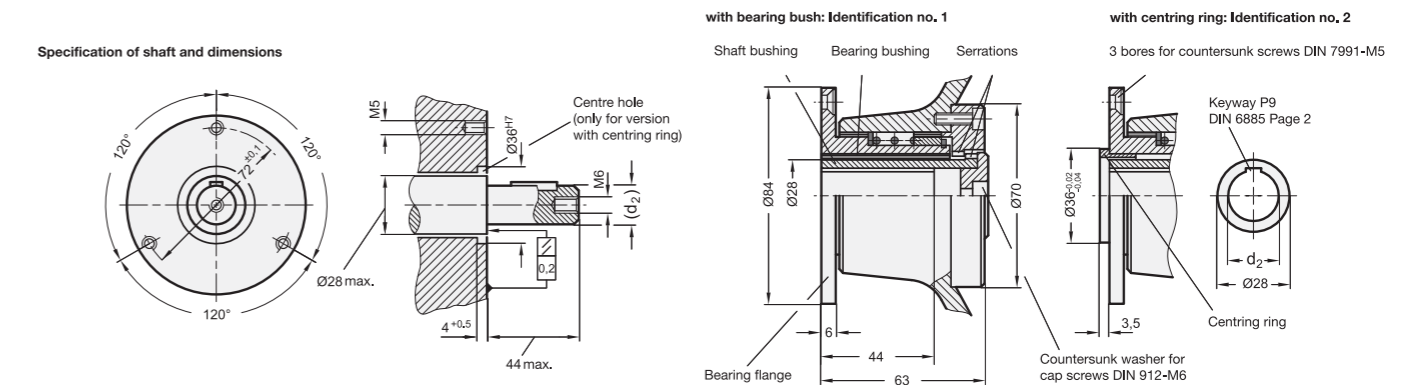
- shaft bush and bearing surface are level with each other
- the shaft axis lies at a right angle to the bearing surface on the machine side.

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.



*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

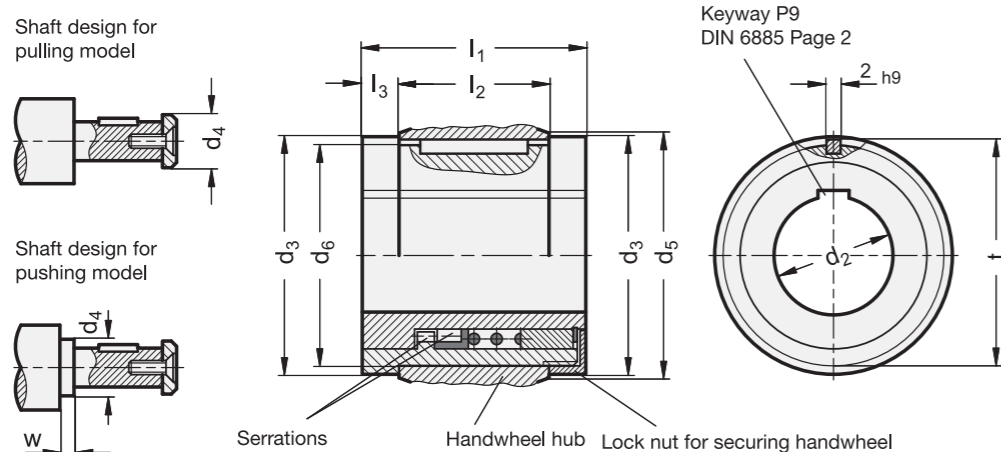
INFORMATION

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)



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

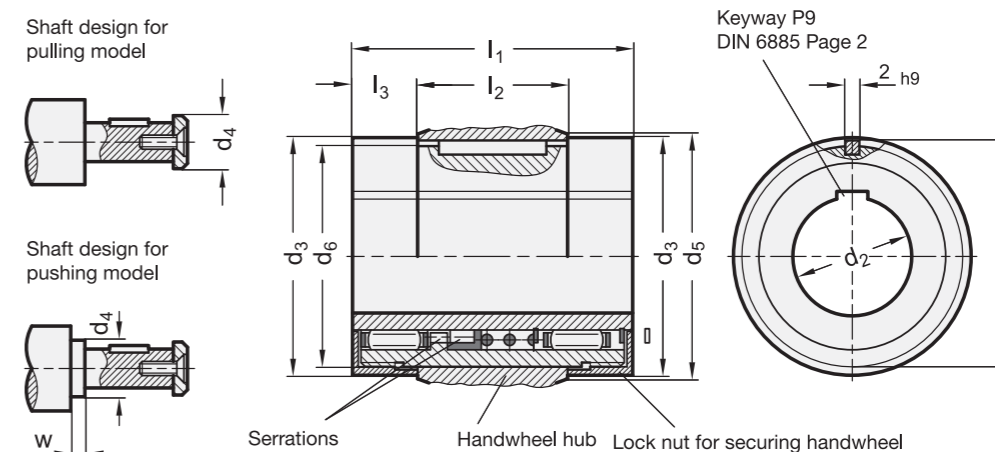
The use of needle bearings and the hardened bearing surfaces make the clutch engagement extremely easy. This is also assisted by the finer teeth of the clutch and the increased length of the coupling attachment.

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



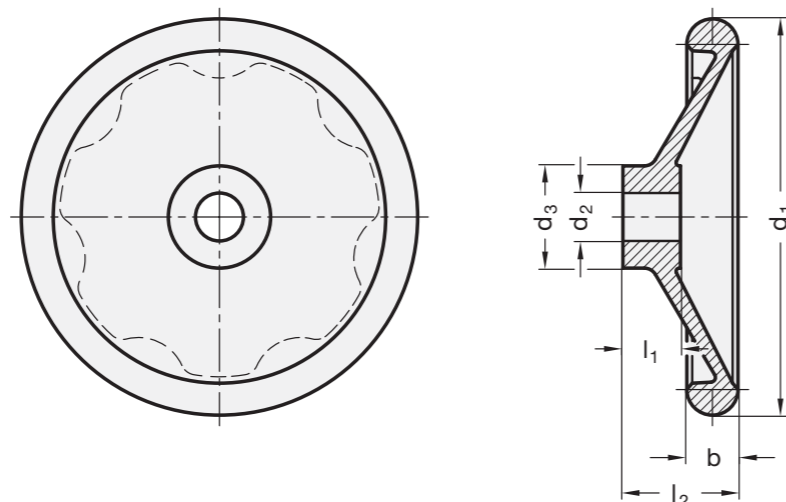
INFORMATION

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	d1	d2 H7	d3	b	l1	l2 ≈	⚖
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

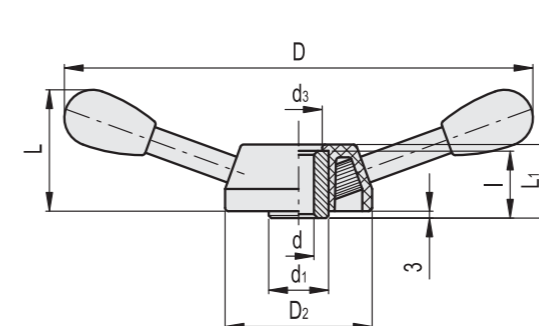
Matte chrome-plated steel complete with handles type I.622 (see page 535) in technopolymer.

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).



Code	Description	D	dH9	L	L1	D2	d1	d3	l	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

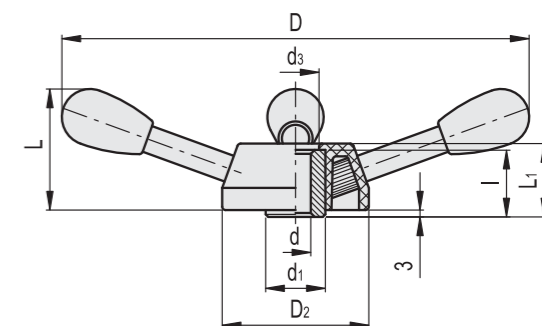
Matte chrome-plated steel complete with handles type I.622 (see page 535) in technopolymer.

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).



Code	Description	D	dH9	L	L1	D2	d1	d3	l	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

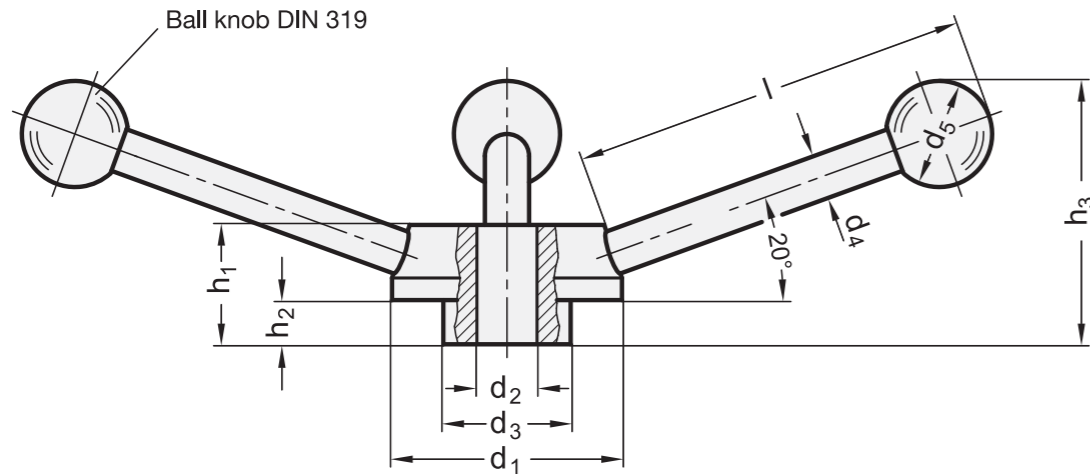
Steel
blackened
Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

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 ≈	ΔΔ
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

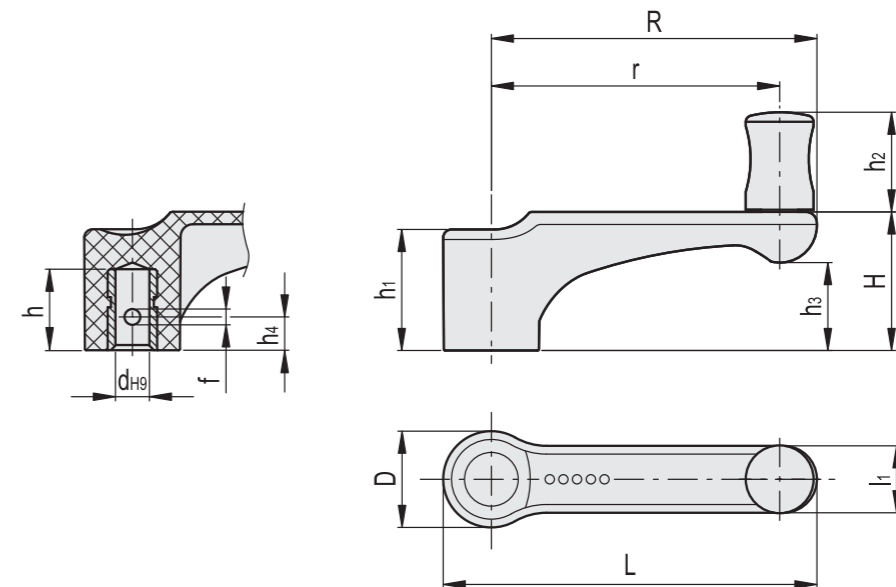
Glass-fibre reinforced polyamide based (PA) technopolymer, greyblack colour, matte finish.

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	ΔΔ
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

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 l.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 l.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

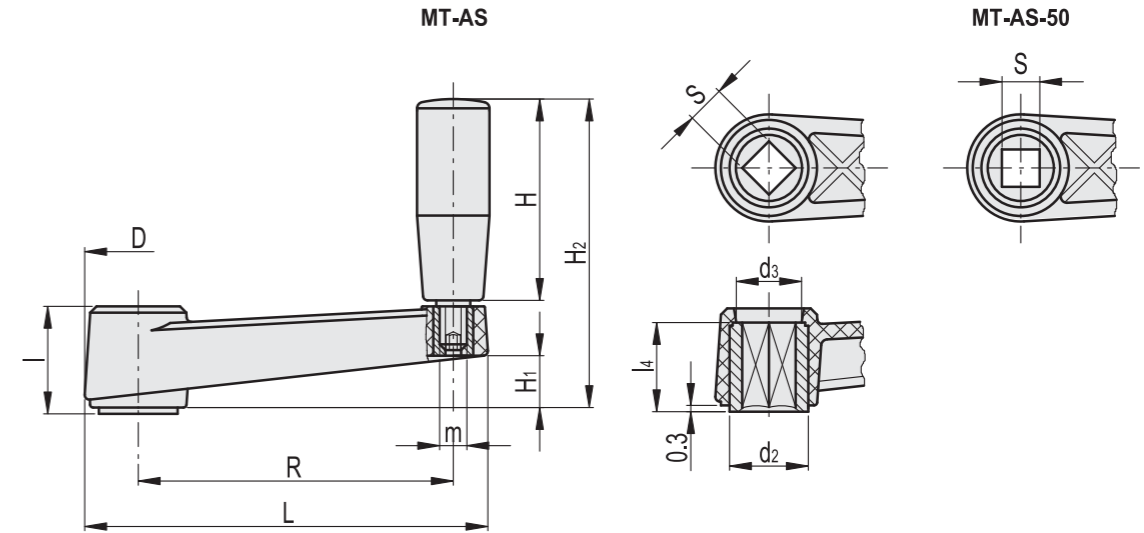
The reticular structure of the crank arm and the technopolymer used make this handle very strong and therefore suitable for transmitting high torque values.

ACCESSORIES ON REQUEST

Axial retaining washer GN 184 (see page 971).

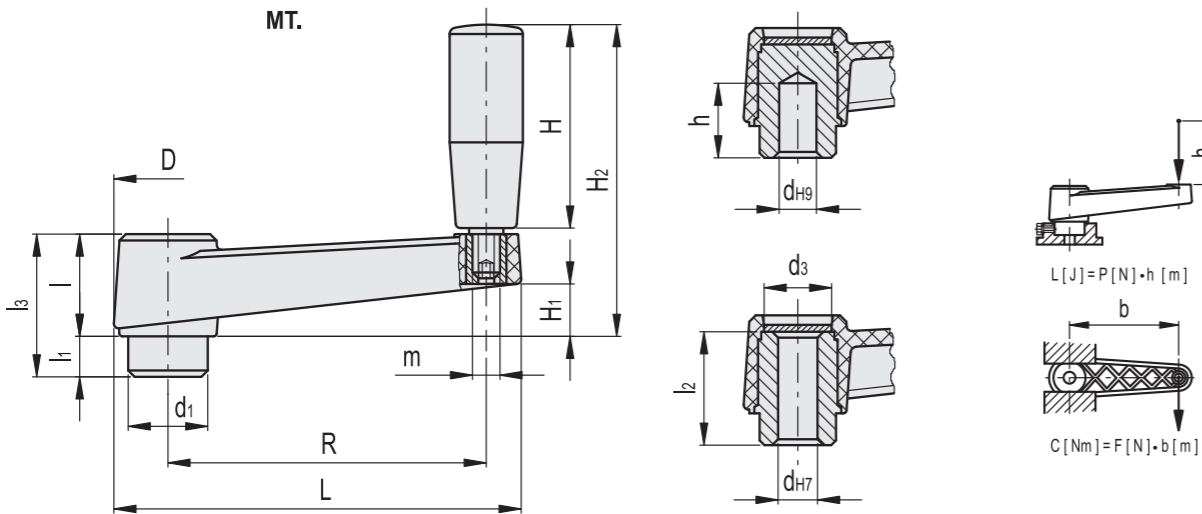


Crank handles



MT-AS

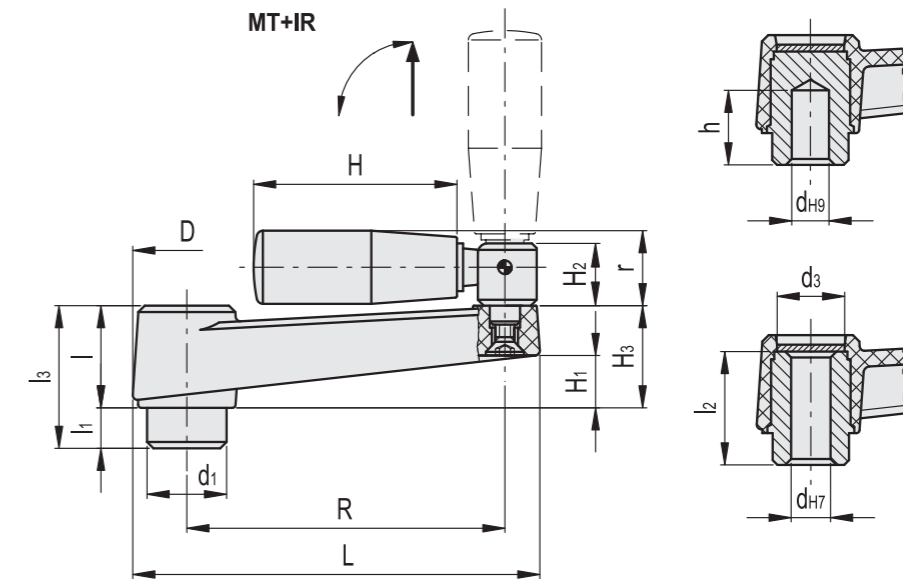
Code	Description	R	SH9	L	D	d2	d3	l	l4	H	H1	H2	m	C# [Nm]	L# [J]	⚖
44052	MT.50 AS-6x6	50	6	69	23	-	13	21	18	28	10	49	-	60	7	35
44111	MT.64 AS-8x8	64	8	86	27	18	16	23	19	40	10	63	M6	120	11	78
44211	MT.80 AS-10x10	80	10	105	30	20	17	26	22	50	13	76	M6	180	15	105
44311	MT.100 AS-12x12	100	12	128	34	25	21	30	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.

Code	Description	R	dH7	dH9	L	D	d1	d3	l	l1	l2	l3	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-A10	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+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

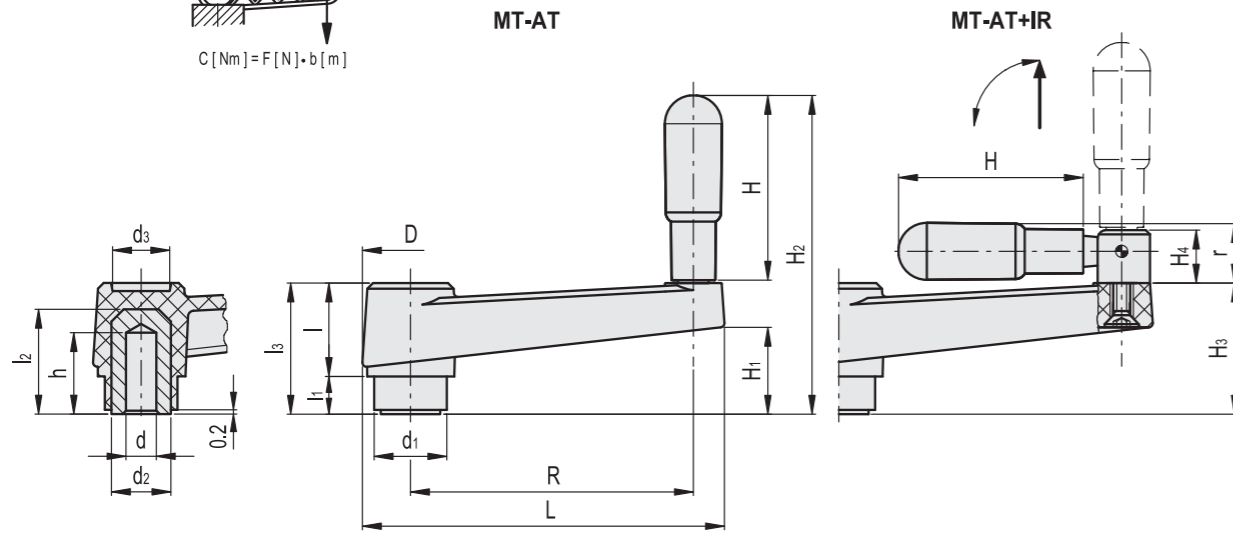
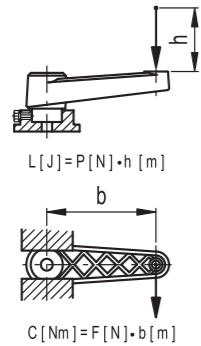
Black-oxide steel boss, H9 reamed hole.

- **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.



MT-AT

Code	Description	R	dH9	L	D	d1	d2	d3	l	l1	l2	l3	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	l	l1	l2	l3	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.

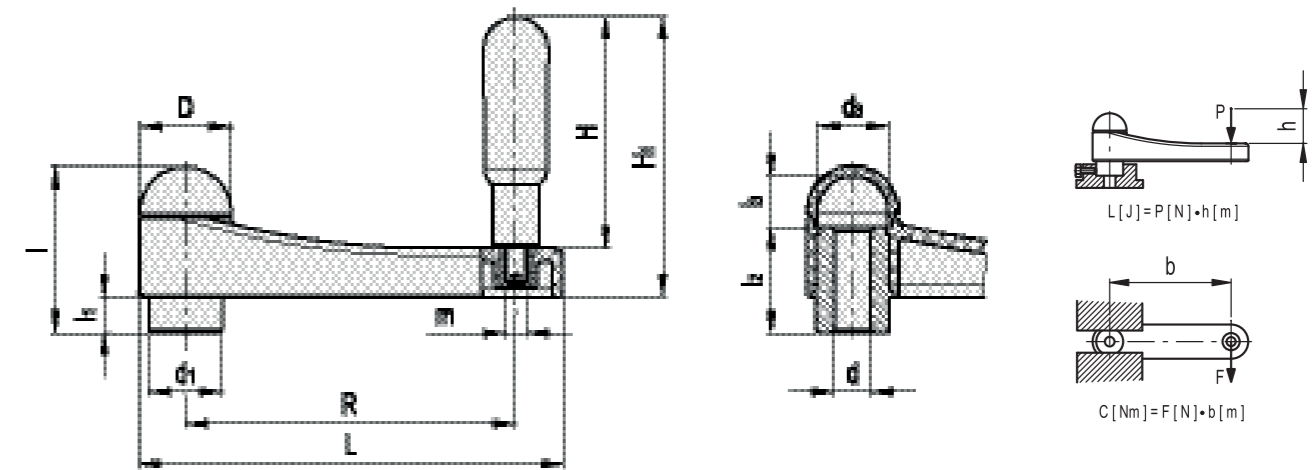
Revolving handle I.621+x (see page 576) in technopolymer.

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 RAL7021
 C2 RAL2004
 C3 RAL7035
 C4 RAL1021
 C5 RAL5024
 C6 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.

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.

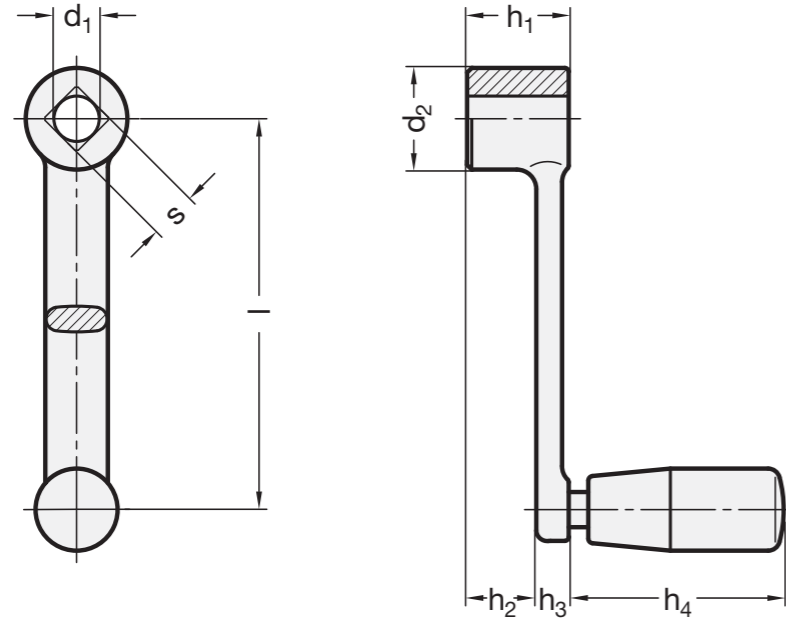
The cylindrical handles are made of thermoset material which in general provides good stability when exposed to chemicals.

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

Crankes

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

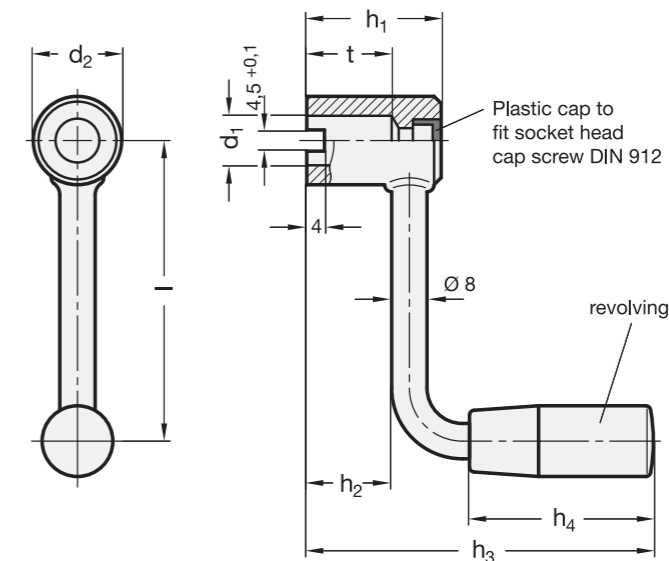
Crankes GN 369 are for light duty applications and are of extremely good value.

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.

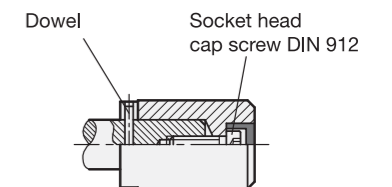
Due to the production method which is not dependent on a specific shape, these cranked handles can be produced as specials at a competitive price.

TECHNICAL INFORMATION

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



Mounting information



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

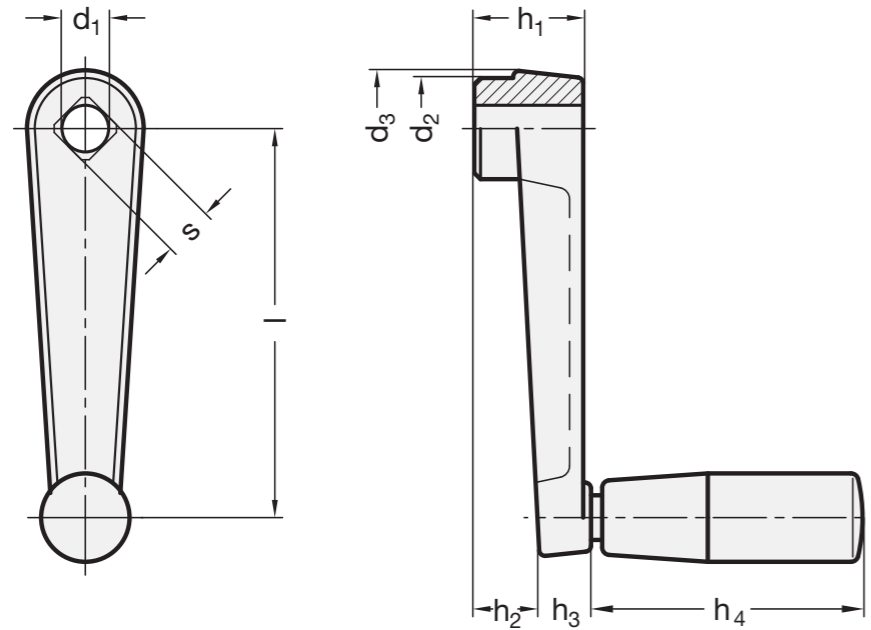
- Aluminium
- plastic coated, black, textured finish
- hub machined

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)

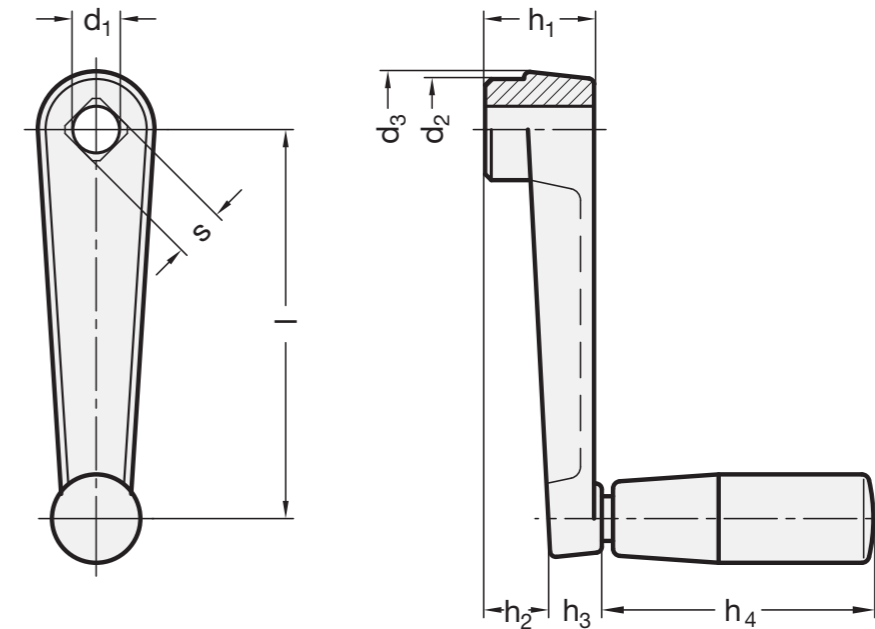
Plastic, Technopolymer, black matt

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.

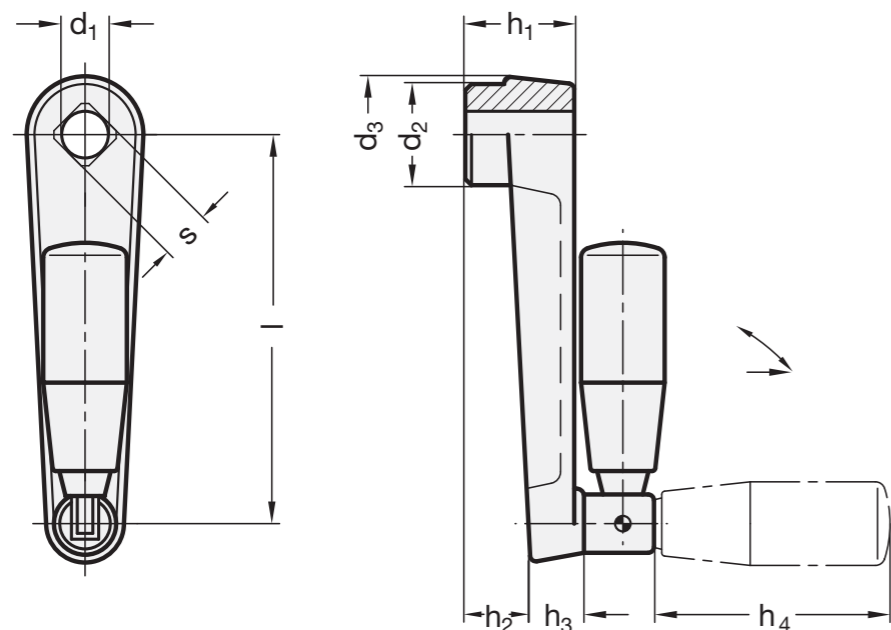
A compression spring holds the handle in both end positions. When folded out, it automatically re-engages.

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.

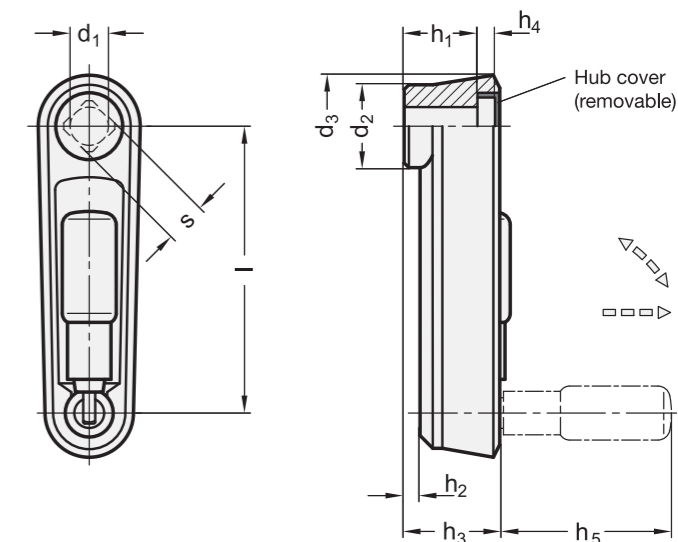
A compression spring holds the handle in both end positions. When folded out, it automatically re-engages.

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



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



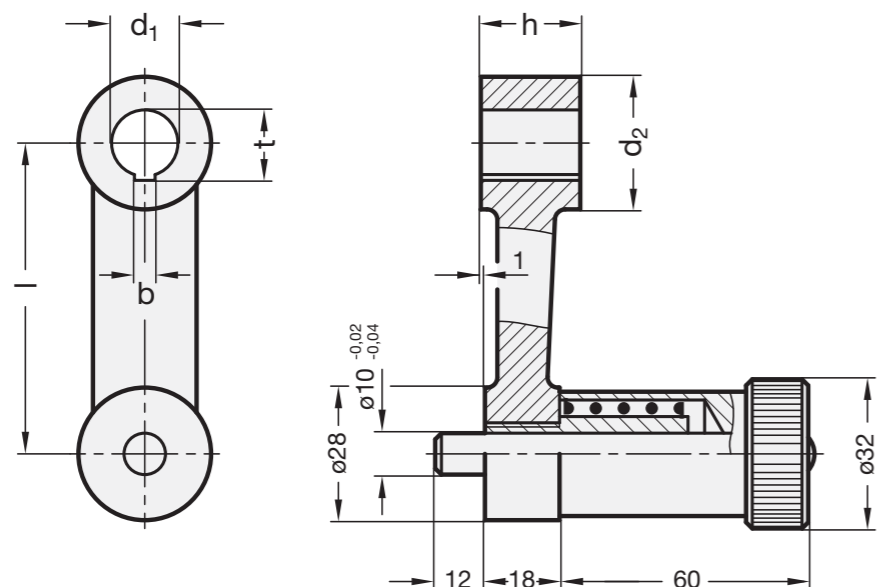
INFORMATION

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	ΔΔ
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

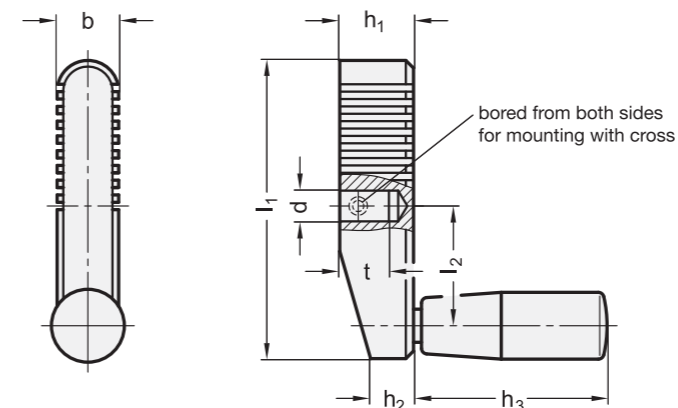
INFORMATION

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)



GN 112.1

Description	l1	d H7	b	h1	h2	h3 ≈	l2	t min.	Hand-le	ΔΔ
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



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

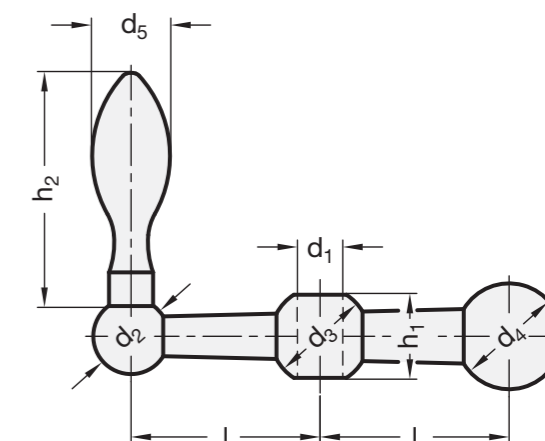
INFORMATION

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 10

Description	No.	d1 H7	d2	d3	d4	d5	h1	h2 ≈	l	ΔΔ
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

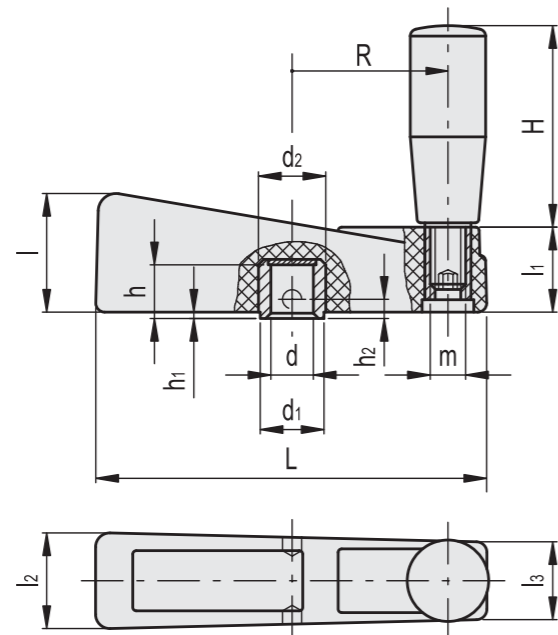
Reinforced phenolic based (PF) Duroplast. Polyamide based (PA) technopolymer for ME.95, black colour, glossy finish. Balancing by means of an incorporated counterweight

FRONT PLATE

Matte anodised aluminium

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 $l.301+x$ (see page 574) in Duroplast.



Code	Description	dH7	L	d1	d2	l	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

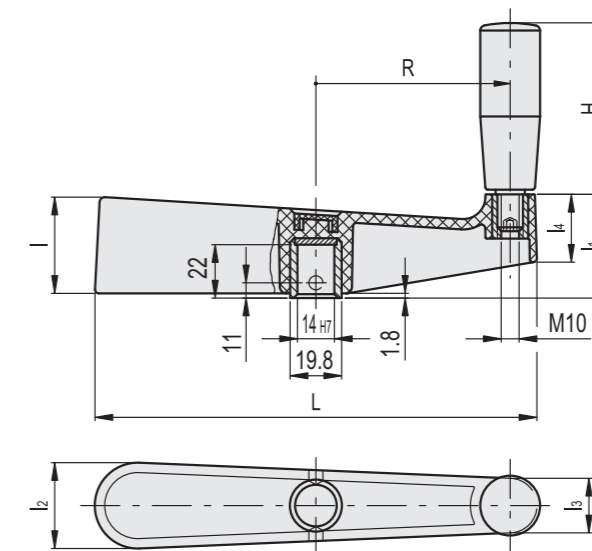
Technopolymer, black colour. On request and for sufficient quantities it can be supplied in other colours and customised with marks or words.

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.



Code	Description	dH7	L	l	l1	l2	l3	l4	H	R	⚖️
38901	METP.170	14	170	37	39	33	21	25	65	74	275

Countersunk washers

SPECIFICATION

Steel

- turned
- blackened

INFORMATION

Countersunk washers GN 184 are retained to the face of the shaft end with a countersunk head screw DIN ISO 2009 or DIN 7991 forming a clean-look end cap.

A typical application is the retention of handwheels with hub keyed to the shaft.

Stainless Steel-Countersunk washers

SPECIFICATION

Stainless Steel AISI 303

- turned
- matt shot-blasted

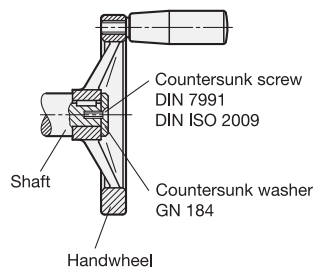
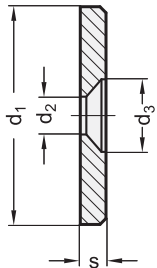
INFORMATION

Stainless Steel-Countersunk washers GN 184.5 are retained to the face of the shaft end with a countersunk head screw DIN ISO 2009 or DIN 7991 forming a clean-look end cap.

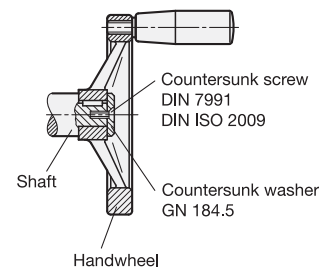
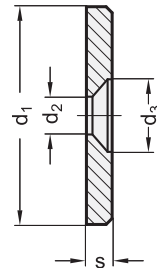
A typical application is the retention of handwheels with hub keyed to the shaft.



Example of application:
Fixing
of a handwheel
with keyway
on the shaft



Example of application:
Fixing
of a handwheel
with keyway
on the shaft



GN 184

Description	d1	d2	d3	s	For counter-sunk screws DIN 7991 DIN ISO 2009	⚖️
GN 184-16	16	4.3	8	3	M 4	4
GN 184-20	20	4.3	8	3	M 4	6
GN 184-22	22	5.3	10	3.5	M 5	9
GN 184-25	25	5.3	10	3.5	M 5	12
GN 184-28	28	5.3	10	3.5	M 5	15
GN 184-32	32	6.4	12	4	M 6	21
GN 184-36	36	6.4	12	4	M 6	29
GN 184-40	40	6.4	12	5	M 6	46
GN 184-45	45	6.4	12	6	M 6	71
GN 184-52	52	6.4	12	6	M 6	90

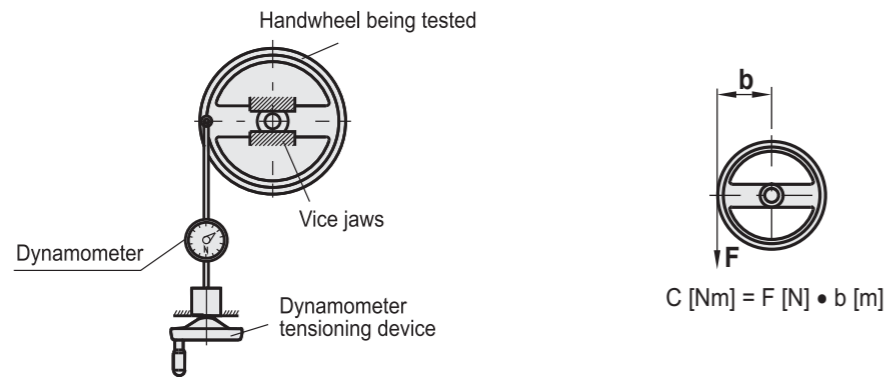
GN 184.5

STAINLESS STEEL

Description	d1	d2	d3	s	For counter-sunk screws DIN 7991 DIN ISO 2009	⚖️
GN 184.5-16	16	4.3	8	3	M 4	4
GN 184.5-20	20	4.3	8	3	M 4	6
GN 184.5-22	22	5.3	10	3.5	M 5	9
GN 184.5-25	25	5.3	10	3.5	M 5	12
GN 184.5-28	28	5.3	10	3.5	M 5	15
GN 184.5-32	32	6.4	12	4	M 6	22
GN 184.5-36	36	6.4	12	4	M 6	32
GN 184.5-40	40	6.4	12	5	M 6	46
GN 184.5-45	45	6.4	12	6	M 6	70
GN 184.5-52	52	6.4	12	6	M 6	94

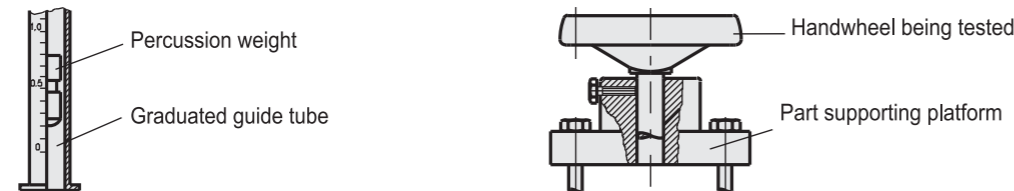
• **Resistance to transmission of torque** (working stress)

Use is made of an electronic dynamometer that applies increasing torque values as shown in the chart hereunder. The dynamometric system in the torque is shown in a traditional way to make the comprehension easier. The mean values of the torque C, obtained in the breaking tests, are shown in the tables for the various components and expressed in [Nm].

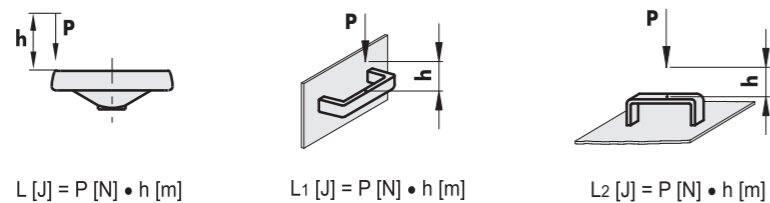


• **Impact strength** (accidental stress)

The special equipment is used as shown in the chart.



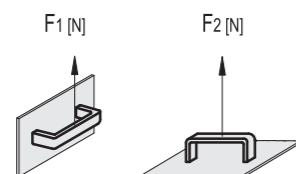
The mean values obtained in the breaking test, shown in the tables for the various models and expressed in [J], correspond to the breaking work L of the element subjected to repeated impacts, with the falling height (h) of the percussion weight (P) being increased by 0.1 m each time. Percussion weight (P): metal cylinder with a rounded ogival shaped end and weighing 0.680 kg (6.7N).



• **Tensile strength of U-shaped handles** (working stress)

This test entails fitting the handle to be tested on an electronic dynamometer, with two types of stress:
– perpendicular to the mounting screws (F1): here the stress on the handle is a mixed combination;
– parallel to the mounting screws (F2).

The load applied by the electronic dynamometer increases gradually in order to obtain a deformation of the tested element within a limit of 20 mm/min.



1.2 Thermal resistance

The use of thermosetting materials and reinforced thermoplastic polymers with a high Thermal resistance enables ELESAGANTER to obtain products with great thermal stability and a limited variation in their mechanical properties at both high and low temperatures. The recommended operating temperature range for each plastic product in this catalogue is indicated by the symbol, which is shown here on the left. Within this temperature range:

- the material is stable and no significant degradation takes place;
- the user does not normally encounter any problem with the basic performance of the product.



10.8 DIN ISO 286 ISO-Fundamental tolerances

This ISO Standard represents the basic for a system of nominal dimensions and sizes whereby the table mirrors the calculated values of basic tolerances relating to basic dimensions.

The use of this table is limited to smooth circular cylindrical workpieces or such with two parallel fitting planes or contact areas.

The values attributed to an ISO tolerance grade (IT) specify the tolerance value and hence the tolerance area. With ascending numbers, the size of the tolerance increases.

For identification purpose of the position of the tolerance area in relation to the nominal dimension (zero), the number chosen as tolerance grade IT is preceded by a letter.

Tolerance area H is the most common value for bores. It specifies that the minimum dimension of the bore corresponds to the nominal dimension.

The permissible maximum dimension corresponds to the nominal dimension plus the IT tolerance.

Examples:

bore 20 H7 = 20 + 0.021/0 bore 8 H11 = 8 + 0.090/0
min. dimension: 20.000 min. dimension: 8.000
max. dimension: 20.021 max. dimension: 8.090

ISO-Fundamental tolerance series DIN ISO 286													
Tol. (µm)	Nominal sizes												
Grades IT	– ... 3	> 3 ... 6	> 6 ... 10	> 10 ... 18	> 18 ... 30	> 30 ... 50	> 50 ... 80	> 80 ... 120	> 120 ... 180	> 180 ... 250	> 250 ... 315	> 315 ... 400	> 400 ... 500
01	0.3	0.4	0.4	0.5	0.6	0.6	0.8	1	1.2	2	2.5	3	4
0	0.5	0.6	0.6	0.8	1	1	1.2	1.5	2	3	4	5	6
1	0.8	1	1	1.2	1.5	1.5	2	2.5	3.5	4.5	6	7	8
2	1.2	1.5	1.5	2	2.5	2.5	3	4	5	7	8	9	10
3	2	2.5	2.5	3	4	4	5	6	8	10	12	13	15
4	3	4	4	5	6	7	8	10	12	14	16	18	20
5	4	5	6	8	9	11	13	15	18	20	23	25	27
6	6	8	9	11	13	16	19	22	25	29	32	36	40
7	10	12	15	18	21	25	30	35	40	46	52	57	63
8	14	18	22	27	33	39	46	54	63	72	81	89	97
9	25	30	36	43	52	62	74	87	100	115	130	140	155
10	40	48	58	70	84	100	120	140	160	185	210	230	250
11	60	75	90	110	130	160	190	220	250	290	320	360	400
12	100	120	150	180	210	250	300	350	400	460	520	570	630
13	140	180	220	270	330	390	460	540	630	720	810	890	970
14	250	300	360	430	520	620	740	870	1000	1150	1300	1400	1550
15	400	480	580	700	840	900	1200	1400	1600	1850	2100	2300	2500
16	600	750	900	1100	1300	1600	1900	2200	2500	2900	3200	3600	4000
17	1000	1200	1500	1800	2100	2500	3000	3500	4000	4600	5200	5700	6300
18	1400	1800	2200	2700	3300	3900	4600	5400	6300	7200	8100	8900	9700

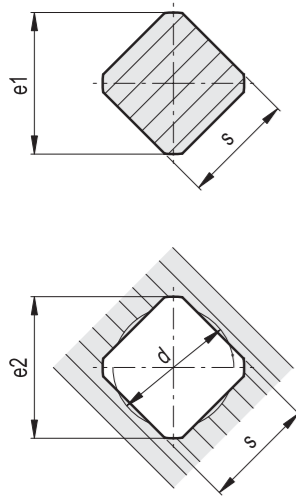


Technical Data



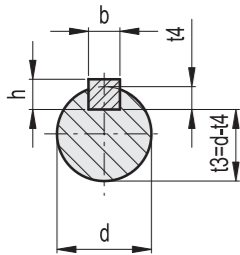
Technical Data

10.2 DIN 79 Square holes and shafts

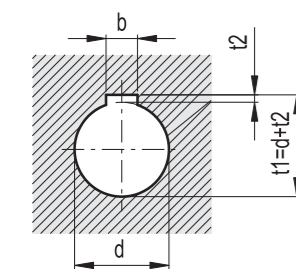


DIN 79 Square holes and shafts					
s H11/h11	d max.	e1 max.	e1 min.	e2 min.	
4	4.2	5	4.8	5.3	
5	5.3	6.5	6	6.6	
5.5	5.8	7	6.6	7.2	
6	6.3	8	7.2	8.1	
7	7.3	9	8.4	9.1	
8	8.4	10	9.6	10.1	
9	9.5	12	10.8	12.1	
10	10.5	13	12	13.1	
11	11.6	14	13.2	14.1	
12	12.6	16	14.4	16.1	
13	13.7	17	15.6	17.1	
14	14.7	18	16.8	18.1	
16	16.8	21	19.2	21.2	
17	17.9	22	20.4	22.2	
19	20	25	22.8	25.2	
22	23.1	28	26.4	28.2	
24	25.3	32	28.8	32.2	
27	28.4	36	32.4	36.2	
30	31.7	40	36	40.2	
32	33.7	42	38.4	42.2	
36	38	48	43.3	48.2	
41	43.2	54	49.3	54.2	
46	48.5	60	55.2	60.2	
50	52.7	65	60	65.2	
55	57.9	72	66	72.2	

10.3 DIN 6885 Keyways

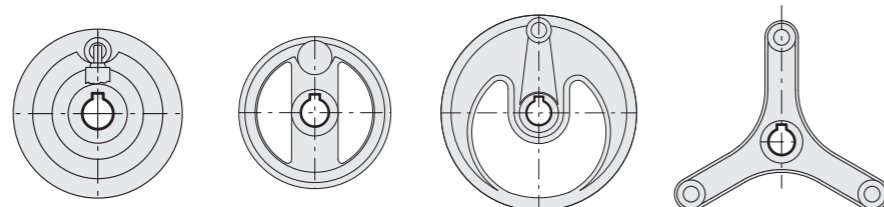


DIN 6885/1 Keyways					
d	b P9/JS9 hole	b P9/N9 shafts	h	t2	t4
from 6 to 8	2	2	2	1+0.1	1.2+0.1
over 8 to 10	3	3	3	1.4+0.1	1.8+0.1
over 10 to 12	4	4	4	1.8+0.1	2.5+0.1
over 12 to 17	5	5	5	2.3+0.1	3+0.1
over 17 to 22	6	6	6	2.8+0.1	3.5+0.1
over 22 to 30	8	8	7	3.3+0.2	4+0.2
over 30 to 38	10	10	8	3.3+0.2	5+0.2
over 38 to 44	12	12	8	3.3+0.2	5+0.2
over 44 to 50	14	14	9	3.8+0.2	5.5+0.2



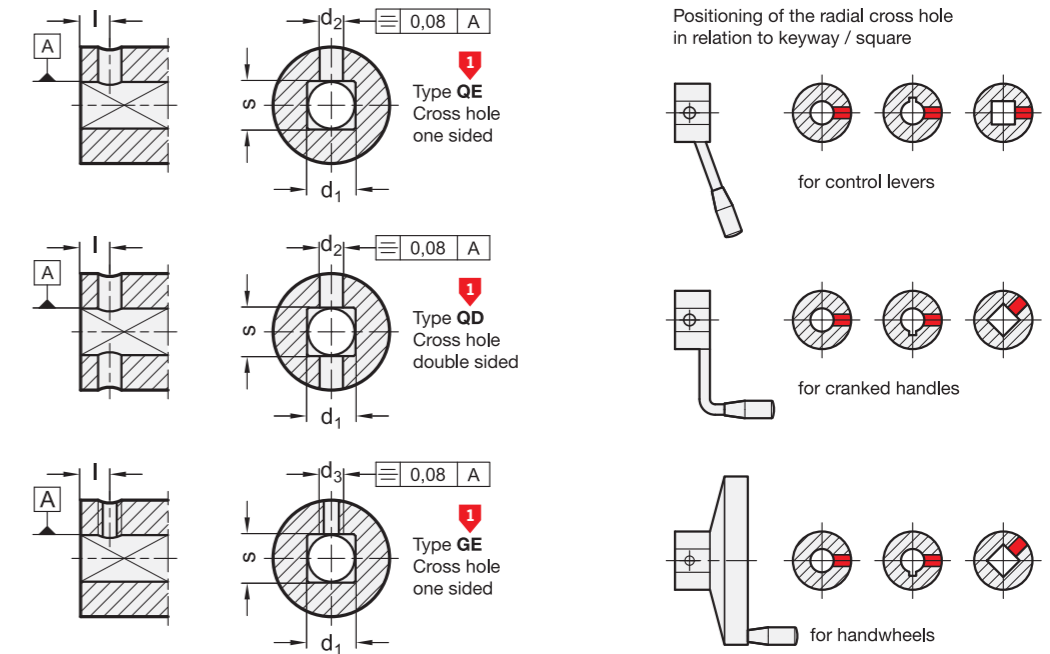
DIN 6885/2 Keyways					
d	b P9/JS9 hole	b P9/N9 shafts	h	t2	t4
from 10 to 12	4	4	4	1.1+0.1	3+0.1
over 12 to 17	5	5	5	1.3+0.1	3.8+0.1
over 17 to 22	6	6	6	1.7+0.1	4.4+0.1
over 22 to 30	8	8	7	1.7+0.2	5.4+0.2
over 30 to 38	10	10	8	2.1+0.2	6+0.2
over 38 to 44	12	12	8	2.1+0.2	6+0.2
over 44 to 50	14	14	9	2.6+0.2	6.5+0.2

Standard positioning of the keyways



10.4 GN 110 and GN 110.1 Transversal holes

GN 110 – Cross holes for mounting of operating elements on shafts



d1 H7 / s H11	d2 H11	d3	Length l –0.1 Standard version	Length l –0.1 Handwheels DIN 950 / GN 949 to Ø 250
6	7	2.5	M 3	4.5
8	9	3	M 5	5.5
10	11	3	M 5	5.5
12	13	4	M 6	6.5
14	15	4	M 6	6.5
16	17	5	M 6	8
18	19	5	M 6	8
20	21	5	M 6	8
22	23	6	M 6	10
24	25	6	M 6	10
26	27	6	M 6	10

Information

The connection between the operating element and the shaft consists very often of a cross pin or a grub screw.

As a result the user is faced with relatively high costs since cross holes on operating elements are in general not readily available.

Components with cross holes to GN 110 are not only offered at very competitive prices but they also save the manufacturer unnecessary drawing work. The geometrical form of some of the operating elements, however, does not lend itself to modification to this particular GN standard.

The pin hole d2 H11 is drilled to suit drive spring pins.

How to order

Handwheel DIN 950-GG-160-B14-A with cross drilled hole
GN 110-QE

Code No.
Type