



+

DESIGNED
FOR ENGINEERING

6



Control elements



Control knobs

Control levers

Linear slides

Bull's eye levels

GN 164
Scale rings
Steel, blank



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GN 164
Scale rings
Steel, matt chrome plated




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Graduations
Graduation for control knobs



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GN 264
Graduated rings
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GN 726
Knurled Control knobs
Aluminium



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GN 726.1
Knurled Control knobs
Aluminium



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GN 726.2
Knurled Control knobs
Aluminium



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GN 436
Stainless Steel-Control knobs



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GN 436.1
Stainless Steel-Knurled Control knobs



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GN 723.3
Reference flanges
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IZN.380
Knurled control knobs
Plain
Technopolymer



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IZN.380+K
Knurled control knobs
With triangular index
Technopolymer




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IZN.380+FGS
Knurled control knobs
With graduation
Technopolymer



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IZP.
Knurled control knobs
Plain
Technopolymer



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IZP+K
Knurled control knobs
With triangular index
Technopolymer



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IZP+GS
Knurled control knobs
With graduation
Technopolymer



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F.N
Flanges for graduations
Plain for IZN. 380 control knobs




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F.K
Flanges for graduations
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F.GS
Flanges for graduations
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MS.
Ball and spring
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MI.204
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VC.192+F
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VC.192+IN
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GN 729
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EGK.SOFT
Grip knobs
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GN 736
Control handwheels
Aluminium black, anodized



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GN 736.1
Control handwheels with scale lug
Aluminium



page 617

GN 736.1
Control handwheels with scale lug
Aluminium, with standard scale



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MBT+I
Diamond cut knurled control knobs
with revolving handle,
technopolymer



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VL.140+I
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Duroplast



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GN 200-A
Indexing mechanisms
without scale



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GN 200-AS
Indexing mechanisms
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GN 200-B
Indexing mechanisms
with 1 tension lever



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GN 200-C
Indexing mechanisms
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GN 200-A-NI
Indexing mechanisms
Stainless Steel,
without scale




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GN 200-AS-NI
Indexing mechanisms
Stainless Steel,
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GN 700
Adjustable knobs
with stepless positioning




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Pictorial Index


Pictorial Index

GN 750
Control levers
Steel, blackened




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LBR-A
Control levers
With black-oxide steel boss, plain hole arranged for clicking operation, technopolymer



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LBR-N
Control levers
Without boss, with plain hole and flat face arranged for clicking operation, technopolymer




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ELC.
Control levers
arranged for clicking operation, technopolymer




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ELCR.
Control lever
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GN 711
Rulers
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GN 711-NI
Rulers
Stainless Steel self-adhesive



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GN 711.2
Rulers
with mounting holes Ø 3.3




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GN 711.1
Indicator arrows for rulers
self-adhesive



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GN 711.3
Indicator arrow scale for GN 711.2
with mounting holes Ø 3.3



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GN 2402
Linear slides
with no extension




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GN 2404
Telescopic linear slides
with partial extension



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GN 2406
Telescopic linear slides
with one side extension, S-shaped




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GN 2408
Telescopic linear slides
with H-shaped rail



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GN 2410
Telescopic linear slides
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Cam roller linear guide rails
for linear guide rail systems, C-profile




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Cam roller carriages
for cam roller linear guide rails GN 2422



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GN 2424.1
Open-end wrenches
for cam roller carriages GN 2424



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GN 2426
Cam rollers
for cam roller linear guide rails GN 2422



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Pictorial Index

Pictorial Index

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Aluminum



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Fastening units
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GN 900.2
Connecting sets X-Y
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GN 900.3
Connecting sets X-Z
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GN 900.4
Mounting plates
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GN 2278
Bull's eye levels
for insertion into bore holes




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GN 2277
Bull's eye levels
with mounting flange



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GN 2279
Bull's eye levels
for surface mounting



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GN 2280
Bull's eye levels
adjustable




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GN 2281
Bull's eye levels
for installation in plates and housings



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GN 2282
Screw-on levels
for mounting with screws



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Scale rings

SPECIFICATION

Types

Type **MCR**: matt chrome plated
 Type **MCRS**: matt chrome plated, standard scale 0...90,
 100 graduations, acc. scale scheme d1/100 A RA 0-10-20...90/10

Bore codes

- Version **B**: without friction ring
- Version **R**: with friction ring

Steel

- Knurl milled
- Scale lug d1 fine turned
- blank (standard version)
- matt chrome plated **MCR**
- matt chrome plated with standard scale **MCRS**

Scale

engraved with laser precision, black

Clamp ring Rubber

Friction ring Polyamide

INFORMATION

The non-wearing friction ring ensures perfect engagement of the scale ring when re-aligning the spindle. In addition it allows the setting of the scale ring on a static shaft.

Also this scale rings can be supplied with any type of graduation.

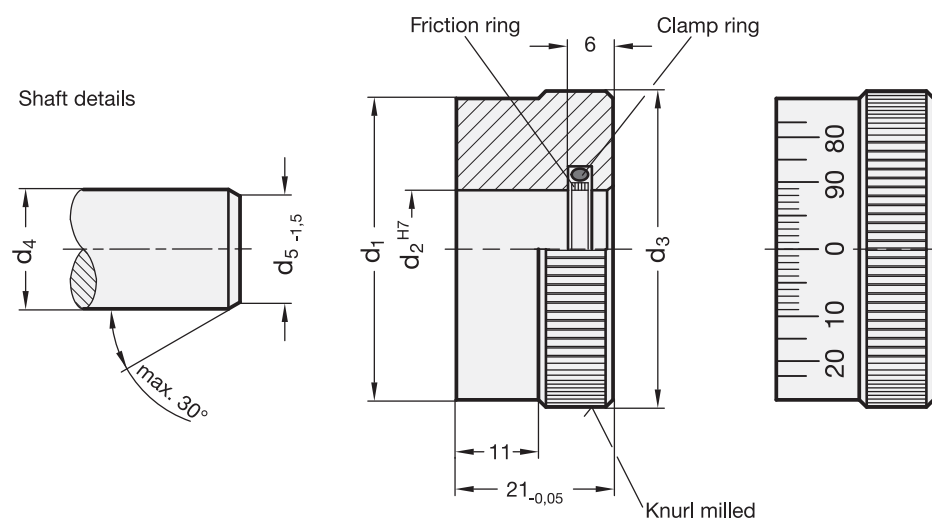
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 164

Description	d1 ±0.02	d2 H7	d3	d4 -0.02/-0.05	d5	⚖
GN 164-30-B12	30	12	31.7	12	10.5	98
GN 164-30-B14	30	14	31.7	14	10.5	90
GN 164-40-B14	40	14	41.3	14	12.5	180
GN 164-40-B16	40	16	41.3	16	12.5	172
GN 164-50-B16	50	16	51.8	16	14.5	292
GN 164-50-B18	50	18	51.8	18	14.5	282
GN 164-60-B18	60	18	61.4	18	16.5	420
GN 164-60-B20	60	20	61.4	20	16.5	413
GN 164-30-R12	30	12	31.7	12	10.5	100
GN 164-30-R14	30	14	31.7	12	10.5	92
GN 164-40-R14	40	14	41.3	14	12.5	182
GN 164-40-R16	40	16	41.3	16	12.5	174
GN 164-50-R16	50	16	51.8	16	14.5	293
GN 164-50-R18	50	18	51.8	18	14.5	283
GN 164-60-R18	60	18	61.4	18	16.5	424
GN 164-60-R20	60	20	61.4	20	16.5	413

GN 164-MCR/MCRS

Description	d1 ±0.02	d2 H7	d3	d4 -0.02/-0.05	d5	⚖
GN 164-30-B12-MCR	30	12	31.7	12	10.5	98
GN 164-30-B14-MCR	30	14	31.7	14	10.5	90
GN 164-40-B14-MCR	40	14	41.3	14	12.5	180
GN 164-40-B16-MCR	40	16	41.3	16	12.5	172
GN 164-50-B16-MCR	50	16	51.8	16	14.5	292
GN 164-50-B18-MCR	50	18	51.8	18	14.5	281
GN 164-60-B18-MCR	60	18	61.4	18	16.5	422
GN 164-60-B20-MCR	60	20	61.4	20	16.5	413
GN 164-30-B12-MCRS	30	12	31.7	12	10.5	98
GN 164-30-B14-MCRS	30	14	31.7	14	10.5	90
GN 164-40-B14-MCRS	40	14	41.3	14	12.5	180
GN 164-40-B16-MCRS	40	16	41.3	16	12.5	172
GN 164-50-B16-MCRS	50	16	51.8	16	14.5	292
GN 164-50-B18-MCRS	50	18	51.8	18	14.5	281
GN 164-60-B18-MCRS	60	18	61.4	18	16.5	422
GN 164-60-B20-MCRS	60	20	61.4	20	16.5	413
GN 164-30-R12-MCR	30	12	31.7	12	10.5	100
GN 164-30-R14-MCR	30	14	31.7	14	10.5	92
GN 164-40-R14-MCR	40	14	41.3	14	12.5	184
GN 164-40-R16-MCR	40	16	41.3	16	12.5	174
GN 164-50-R16-MCR	50	16	51.8	16	14.5	293
GN 164-50-R18-MCR	50	18	51.8	18	14.5	285
GN 164-60-R18-MCR	60	18	61.4	18	16.5	424
GN 164-60-R20-MCR	60	20	61.4	20	16.5	413
GN 164-30-R12-MCRS	30	12	31.7	12	10.5	100
GN 164-30-R14-MCRS	30	14	31.7	14	10.5	92
GN 164-40-R14-MCRS	40	14	41.3	14	12.5	162
GN 164-40-R16-MCRS	40	16	41.3	16	12.5	174
GN 164-50-R16-MCRS	50	16	51.8	16	14.5	293
GN 164-50-R18-MCRS	50	18	51.8	18	14.5	283
GN 164-60-R18-MCRS	60	18	61.4	18	16.5	424
GN 164-60-R20-MCRS	60	20	61.4	20	16.5	413

Graduations

"How to order"

Graduations can be laser-engraved on the plain surface of the control knobs and on plain flanges with high-precision and perfect readability. The graduations, consisting of marks and numbers, are available as indicated in the diagram here below.

All the graduations are available for minimum quantities that depend on the size of the knob and on the type of graduation chosen. These quantities are determined during the quotation analysis.

Graduations can be engraved on the following elements:

- GN 164 (see page 592)
- GN 726.1 (see page 600)
- GN 726.2 (see page 601)
- IZP (see page 608)
- IZN.380 (see page 606)
- F.N - F.K. -F.GS (see page 609)
- GN 264 (see page 597)
- GN 436.1 (see page 603)
- GN 723.4 (see page 604)
- GN 736.1 (see page 617)
- GN 727 (see page 620)
- GN 200 (see page 622)
- GN 700 (see page 624)

To create graduations on other elements, special graduations, symbols or personalisations, please contact the ELESA+GANter sales departments.

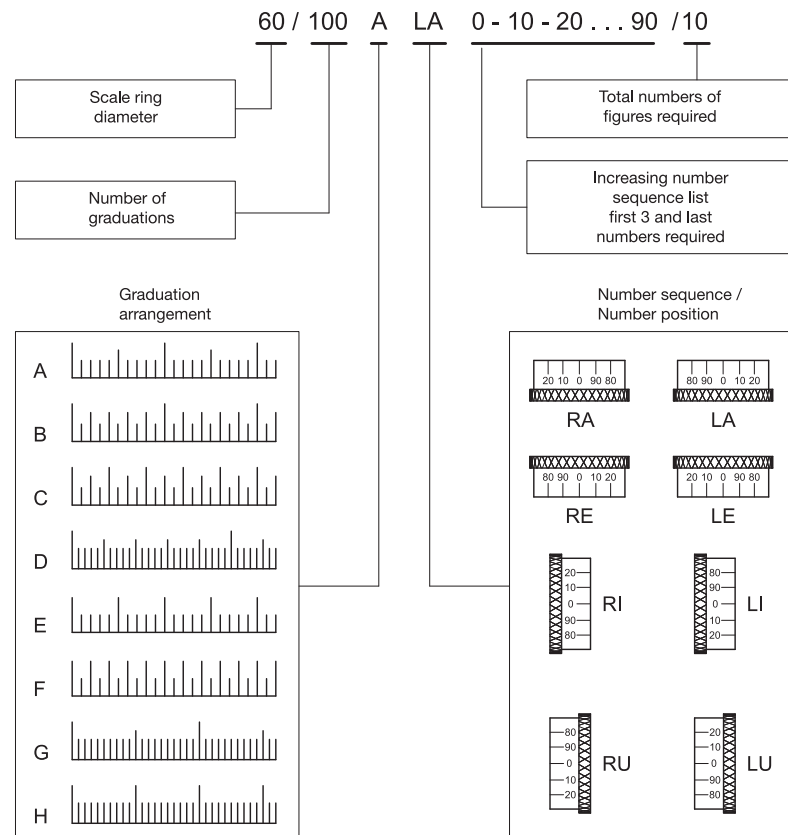
Order example

How to order a graduation on a scale ring GN 164 knob with:

- diameter 60 mm
- 100 marks
- graduation type A
- sequence/graduation position type LA
- figures engraved from 0 to 90 for a total of 10 numbers.

Information

The size of numbers and length of graduations depend on the number of graduations, quantity of numbers and the scale ring diameter.

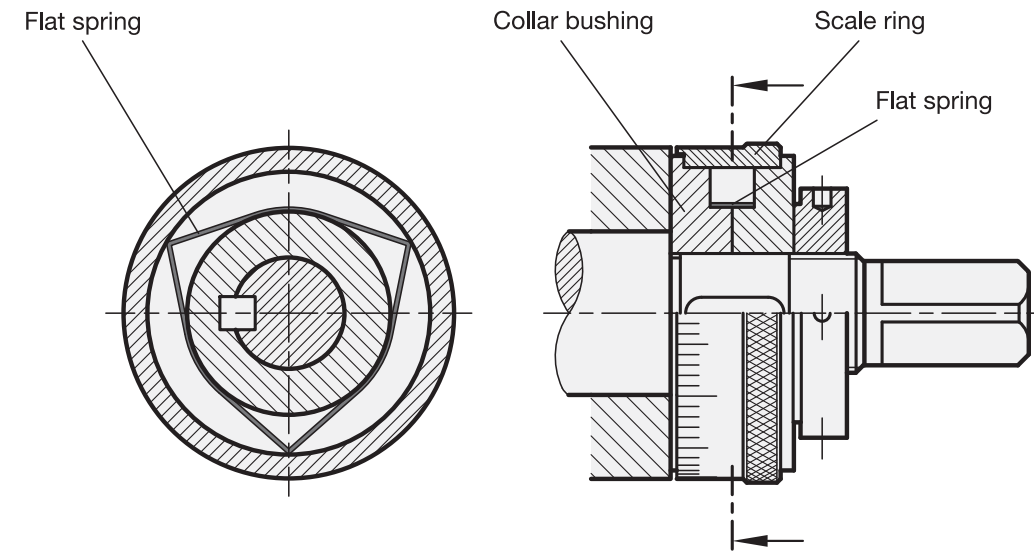


Graduation examples



Scaling sets

Assembly and installation example



A complete scale set is composed of:

1 Scale ring	2 Collar bushings	3 Flat springs
GN 264-30	GN 268-24-K12	GN 374-0,3-10
GN 264-40	GN 268-32-K12	GN 374-0,4-10
GN 264-40	GN 268-32-K14	GN 374-0,4-10
GN 264-40	GN 268-32-K16	GN 374-0,4-10
GN 264-60	GN 268-50-K12	GN 374-0,6-10
GN 264-60	GN 268-50-K16	GN 374-0,6-10
GN 264-60	GN 268-50-K20	GN 374-0,6-10
GN 264-60	GN 268-50-K28	GN 374-0,6-10
GN 264-80	GN 268-68-K12	GN 374-0,8-10
GN 264-80	GN 268-68-K14	GN 374-0,8-10
GN 264-80	GN 268-68-K16	GN 374-0,8-10
GN 264-80	GN 268-68-K22	GN 374-0,8-10

Information

The scale set is used for the precision setting of all machine components which are adjustable via spindles.

All individual parts are made of steel. The flat springs are a perfect and virtually non-wearing connecting link between scale ring and spindle or collar bushings. When adjusting the spindle, they ensure that the scale ring is safely driven without impairing the setting options of the ring when the shaft is at rest.

The individual parts belonging to a scale set must be ordered separately.



Flat springs

Accessories for scaling sets

SPECIFICATION

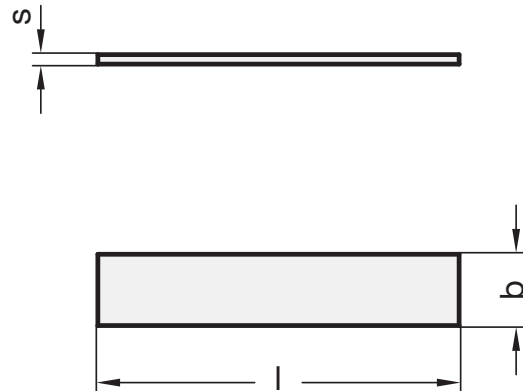
Steel
blank

INFORMATION

Flat springs GN 374 present an ideal and practical connection piece between scale ring and shaft resp. collar bushes. When adjusting the shaft, the flat springs guarantee the move of the scale ring without affecting the possibility of adjustment of the scale ring when the shaft does not turn.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 374

Description	s	b	l	⚖
GN 374-0,3-10	0.3	10	21	1
GN 374-0,4-10	0.4	10	29	1
GN 374-0,6-10	0.6	10	45	3
GN 374-0,8-10	0.8	10	60	4



Graduated rings

Steel, matt chrome plated / blank

SPECIFICATION

Types

Type **MCR**: matt chrome plated
Type **MCRS**: matt chrome plated, standard scale 0...90, 100 graduations, acc. scale scheme $d_i/100$ A RA 0-10-20...90/10
Steel

- Scale lug d_1 fine turned
- blank (standard version)
- matt chrome plated **MCR**
- matt chrome plated with standard scale **MCRS**

Scale
engraved with laser precision, black

INFORMATION

Besides the standard scale (Type MCRS) the scale rings can be supplied with any type of graduation. It is suggested to use the matt chrome plated version (MCR) so that a nice discrepancy in colour is given.

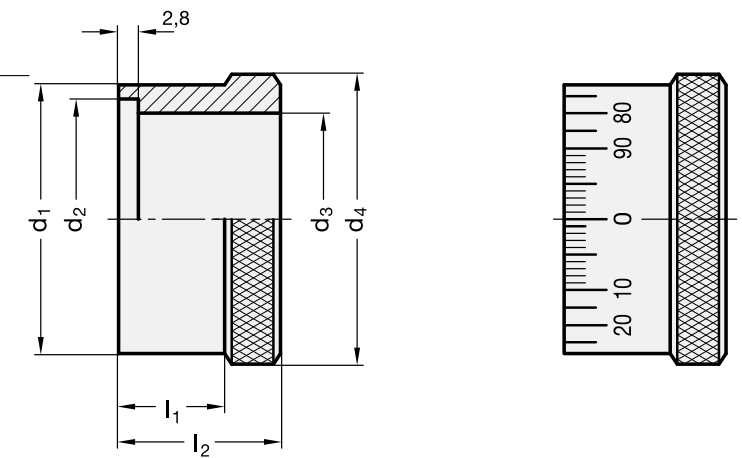
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order Graduations" (see page 594).

ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 264

Description	d1	d2	d3 H7	d4	l1	l2	Scaling set consists of: 1 Scale ring 2 Collar bushes	Scaling set consists of: 1 Scale ring 3 Flat springs	⚖
GN 264-30	30	27	24	33	16	23.7	GN 268-24-K...	GN 374-0.3-10	49
GN 264-40	40	36	32	43	16	23.7	GN 268-32-K...	GN 374-0.4-10	86
GN 264-60	60	55	50	63	16	25.7	GN 268-50-K...	GN 374-0.6-10	177
GN 264-80	80	75	68	83	16	25.7	GN 268-68-K...	GN 374-0.8-10	282

GN 264-MCR/MCRS

Description	d1	d2	d3 H7	d4	l1	l2	Scaling set consists of: 1 Scale ring 2 Collar bushes	Scaling set consists of: 1 Scale ring 3 Flat springs	⚖
GN 264-30-MCR	30	27	24	33	16	23.7	GN 268-24-K...	GN 374-0.3-10	58
GN 264-30-MCRS	30	27	24	33	16	23.7	GN 268-24-K...	GN 374-0.3-10	58
GN 264-40-MCR	40	36	32	43	16	23.7	GN 268-32-K...	GN 374-0.4-10	86
GN 264-40-MCRS	40	36	32	43	16	23.7	GN 268-32-K...	GN 374-0.4-10	86
GN 264-60-MCR	60	55	50	63	16	25.7	GN 268-50-K...	GN 374-0.6-10	177
GN 264-60-MCRS	60	55	50	63	16	25.7	GN 268-50-K...	GN 374-0.6-10	177
GN 264-80-MCR	80	75	68	83	16	25.7	GN 268-68-K...	GN 374-0.8-10	282
GN 264-80-MCRS	80	75	68	83	16	25.7	GN 268-68-K...	GN 374-0.8-10	282

Control elements 6

Control elements 6

Collar bushes

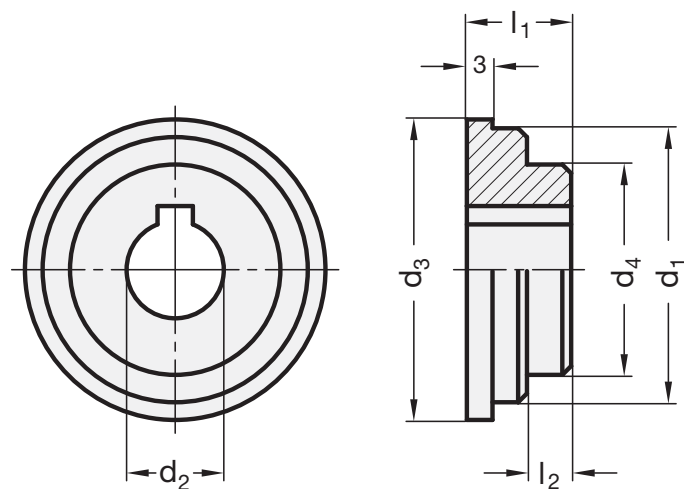
Accessories for scaling sets

SPECIFICATION

Steel
blank

TECHNICAL INFORMATION

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



GN 268

Description	d1 f7	d2 H7	d3	d4	l1	l2	Scaling set consists of:		⚖
							2 Collar bushes 1 Scale ring	2 Collar bushes 3 Flat springs	
GN 268-24-K12	24	K12	26.7	18	13.5	5.5	GN 264-30	GN 374-0.3-10	28
GN 268-32-K12	32	K12	35.7	25	13.5	5.5	GN 264-40	GN 374-0.4-10	61
GN 268-32-K14	32	K14	35.7	25	13.5	5.5	GN 264-40	GN 374-0.4-10	57
GN 268-32-K16	32	K16	35.7	25	13.5	5.5	GN 264-40	GN 374-0.4-10	51
GN 268-50-K12	50	K12	54.7	38	14.5	5.5	GN 264-60	GN 374-0.6-10	180
GN 268-50-K16	50	K16	54.7	38	14.5	5.5	GN 264-60	GN 374-0.6-10	169
GN 268-50-K20	50	K20	54.7	38	14.5	5.5	GN 264-60	GN 374-0.6-10	153
GN 268-50-K28	50	K28	54.7	38	14.5	5.5	GN 264-60	GN 374-0.6-10	119
GN 268-68-K12	68	K12	74.7	50	14.5	5.5	GN 264-80	GN 374-0.8-10	334
GN 268-68-K14	68	K14	74.7	50	14.5	5.5	GN 264-80	GN 374-0.8-10	332
GN 268-68-K16	68	K16	74.7	50	14.5	5.5	GN 264-80	GN 374-0.8-10	325
GN 268-68-K22	68	K22	74.7	50	14.5	5.5	GN 264-80	GN 374-0.8-10	304

Knurled Control knobs

Aluminium

SPECIFICATION

Types

- Type **N**: Cover neutral
- Type **M**: Cover with indicator point

Identification no.

- No. **1**: with grub screw
- No. **2**: with collet

Aluminium
anodized, black

Cover
Plastic, light grey

Collet / hexagon nut

Brass

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point



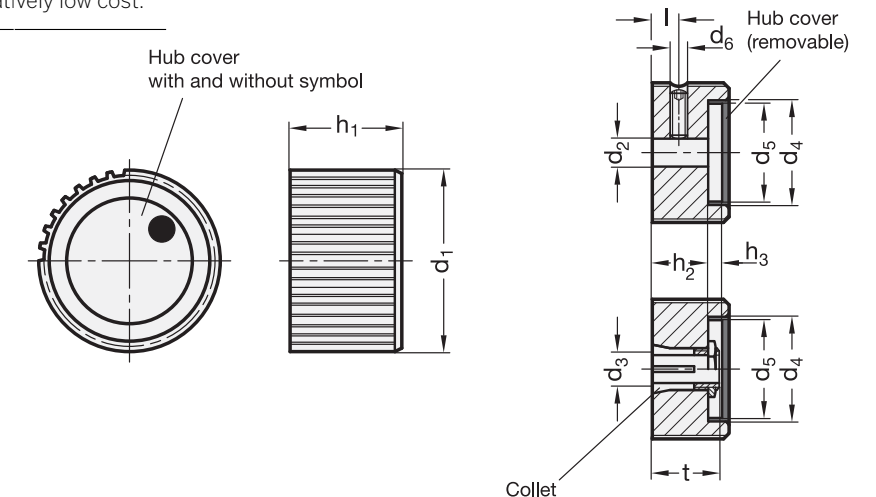
INFORMATION

The light grey cover of the control knobs GN 726 shrouds the fixing components as well as the shaft end. The cover also lends itself for a logo or other symbols.

Made from an aluminum extrusion allows the manufacture of **customized solutions** in existing diameters at relatively low cost.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 726

Description	d1	d2 H8	d3	d4	d5	d6	h1	h2	h3	l	t	⚖
GN 726-22-B5-N-1	22	B 5	-	16	14	M 4	15	9	4.3	5	-	11
GN 726-27-B6-N-1	27	B 6	-	20	18	M 4	17	11	4.3	5.5	-	21
GN 726-34-B6-N-1	34	B 6	-	25	23	M 5	20	14	4.2	7	-	39
GN 726-34-B8-N-1	34	B 8	-	25	23	M 5	20	14	4.2	7	-	38
GN 726-42-B8-N-1	42	B 8	-	32	30	M 5	23	17	4	8.5	-	69
GN 726-42-B10-N-1	42	B 10	-	32	30	M 5	23	17	4	8.5	-	67
GN 726-22-B5-M-1	22	B 5	-	16	14	M 4	15	9	4.3	5	-	11
GN 726-27-B6-M-1	27	B 6	-	20	18	M 4	17	11	4.3	5.5	-	21
GN 726-34-B6-M-1	34	B 6	-	25	23	M 5	20	14	4.2	7	-	39
GN 726-34-B8-M-1	34	B 8	-	25	23	M 5	20	14	4.2	7	-	38
GN 726-42-B8-M-1	42	B 8	-	32	30	M 5	23	17	4	8.5	-	69
GN 726-42-B10-M-1	42	B 10	-	32	30	M 5	23	17	4	8.5	-	67
GN 726-27-Z6-N-2	27	-	Z 6	20	18	-	17	11	4.3	-	14	23
GN 726-34-Z8-N-2	34	-	Z 8	25	23	-	20	14	4.2	-	17	42
GN 726-42-Z10-N-2	42	-	Z 10	32	30	-	23	17	4	-	20	73
GN 726-27-Z6-M-2	27	-	Z 6	20	18	-	17	11	4.3	-	14	23
GN 726-34-Z8-M-2	34	-	Z 8	25	23	-	20	14	4.2	-	17	42
GN 726-42-Z10-M-2	42	-	Z 10	32	30	-	23	17	4	-	20	73



Knurled Control knobs

Aluminium

SPECIFICATION

Types

- Type **A**: with arrow
- Type **B**: neutral, without indicator point or scale
- Type **S**: with scale 0...9, 20 graduations

Identification no.

- No. **1**: with grub screw
- No. **2**: with collet

Aluminium
anodized, black

Scale (Type S) and arrow (Type A)
white, engraved with laser precision

Cover
Plastic, light grey

Collet / hexagon nut
Brass

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point



INFORMATION

The light grey cover of the control knobs GN 726.1 shrouds the fixing components as well as the shaft end. The cover also lends itself for a logo or other symbols.

The collet version permits a simple adjustment of the types with scale or arrow.

Scale and arrow on the control knobs are indelibly marked and easily legible.

Besides the standard scale (Type S) the control knobs can be supplied with any type of graduation.

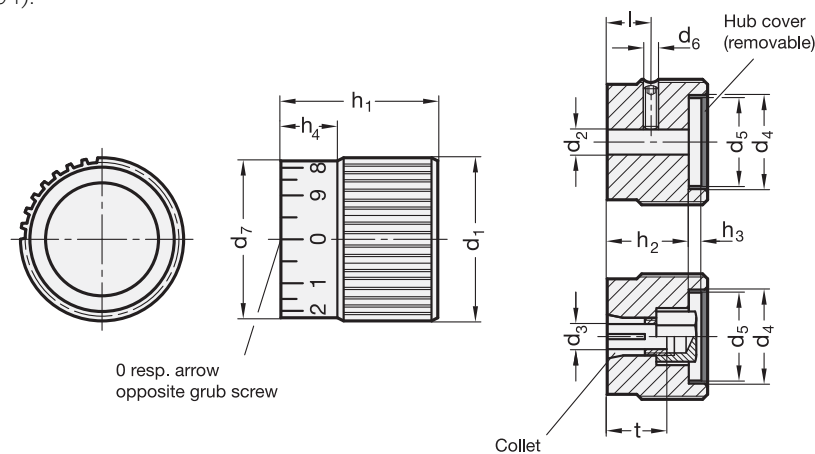
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



* Complete with types of the Knurled Control knobs (A, B or S)

A with arrow
B neutral
S with scale

0 resp. arrow
opposite grub screw

Collet

GN 726.1

Description	d1	d2 H8	d3	d4	d5	d6	d7	h1	h2	h3	h4	l	t	△
GN 726.1-22-B5-*-1	22	B 5	-	16	14	M 4	20	22	16	4.3	8	12.5	-	17
GN 726.1-27-B6-*-1	27	B 6	-	20	18	M 4	25	26	20	4.3	9	14	-	32
GN 726.1-34-B6-*-1	34	B 6	-	25	23	M 5	32	30	24	4.2	10	15	-	59
GN 726.1-34-B8-*-1	34	B 8	-	25	23	M 5	32	30	24	4.2	10	15	-	58
GN 726.1-42-B8-*-1	42	B 8	-	32	30	M 5	40	34	28	4	11	16	-	102
GN 726.1-42-B10-*-1	42	B 10	-	32	30	M 5	40	34	28	4	11	16	-	101
GN 726.1-27-Z6-*-2	27	-	Z 6	20	18	-	25	26	20	4.3	9	14	14	37
GN 726.1-34-Z8-*-2	34	-	Z 8	25	23	-	32	30	24	4.2	10	15	17	65
GN 726.1-42-Z10-*-2	42	-	Z 10	32	30	-	40	34	28	4	11	16	20	112



Knurled Control knobs

Aluminium

SPECIFICATION

Types

- Type **A**: with arrow
- Type **B**: neutral, without indicator point or scale
- Type **S**: with scale 0...9, 20 graduations

Identification no.

- No. **1**: with grub screw
- No. **2**: with collet

Aluminium
anodized, black

Scale ring
Plastic, black
pressed on

Arrow (Type A)
and scale (Type S)
white, engraved with laser precision

Cover
Plastic, light grey

Collet / hexagon nut
Brass

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point



INFORMATION

The light grey cover of the control knobs GN 726.2 shrouds the fixing components as well as the shaft end. The cover also lends itself for a logo or other symbols.

The collet version permits a simple adjustment of the types with scale or arrow.

Besides the standard scale (Type S) the control knobs can be supplied with any type of graduation.

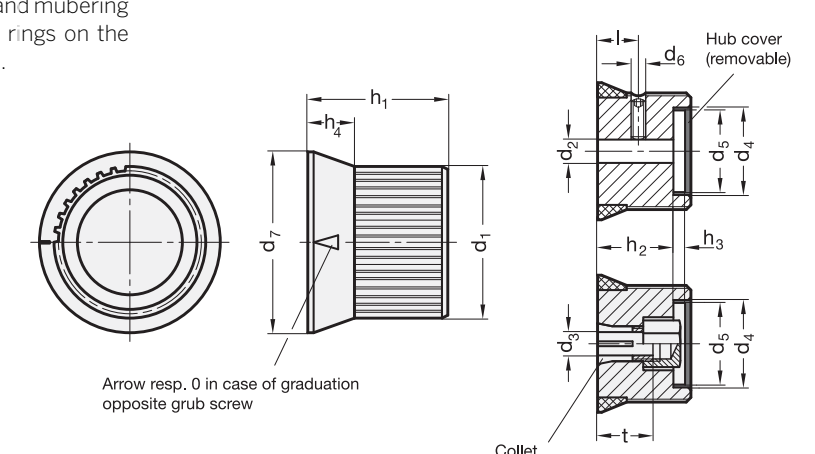
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



* Complete with types of the Knurled Control knobs (A, B or S)

A with arrow
B neutral
S with scale

Arrow resp. 0 in case of graduation
opposite grub screw

Collet

GN 726.2

Description	d1	d2 H8	d3	d4	d5	d6	d7	h1	h2	h3	h4	l	t	△
GN 726.2-22-B5-*-1	22	B 5	-	16	14	M 4	27.5	22	16	4.3	8	12.5	-	20
GN 726.2-27-B6-*-1	27	B 6	-	20	18	M 4	33.5	26	20	4.3	9	14	-	36
GN 726.2-34-B6-*-1	34	B 6	-	25	23	M 5	41	30	24	4.2	10	15	-	64
GN 726.2-34-B8-*-1	34	B 8	-	25	23	M 5	41	30	24	4.2	10	15	-	63
GN 726.2-42-B8-*-1	42	B 8	-	32	30	M 5	50	34	28	4	11	16	-	109
GN 726.2-42-B10-*-1	42	B 10	-	32	30	M 5	50	34	28	4	11	16	-	108
GN 726.2-27-Z6-*-2	27	-	Z 6	20	18	-	33.5	26	20	4.3	9	-	14	41
GN 726.2-34-Z8-*-2	34	-	Z 8	25	23	-	41	30	24	4.2	10	-	17	70
GN 726.2-42-Z10-*-2	42	-	Z 10	32	30	-	50	34	28	4	11	-	20	119

Stainless Steel-Control knobs

SPECIFICATION

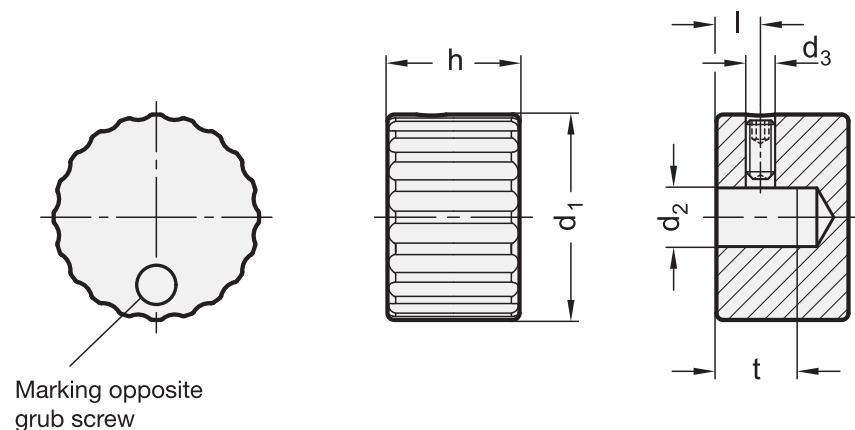
Types

- Type **N**: without indicator point
- Type **M**: with indicator point

Stainless Steel AISI 304
matt shot-blasted **MT**

Indicator point (Type M)
engraved with laser precision

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point



GN 436

STAINLESS STEEL

Description	d1	d2 H8	d3	h	l	t min.	⚖
GN 436-24-B5-N-MT	24	B 5	M 4	16	4	10	53
GN 436-24-B6-N-MT	24	B 6	M 4	16	4	10	52
GN 436-28-B6-N-MT	28	B 6	M 4	18	4	11	80
GN 436-28-B8-N-MT	28	B 8	M 4	18	4	11	78
GN 436-24-B5-M-MT	24	B 5	M 4	16	4	10	53
GN 436-24-B6-M-MT	24	B 6	M 4	16	4	10	52
GN 436-28-B6-M-MT	28	B 6	M 4	18	4	11	80
GN 436-28-B8-M-MT	28	B 8	M 4	18	4	11	78

Stainless Steel-Knurled Control knobs

SPECIFICATION

Types

- Type **A**: with arrow
- Type **B**: neutral, without arrow or scale
- Type **S**: with standard scale 0...9, 20 graduations

Stainless Steel AISI 304
matt shot-blasted **MT**

Scale (Type S) and arrow (Type A)
engraved with laser precision

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point



INFORMATION

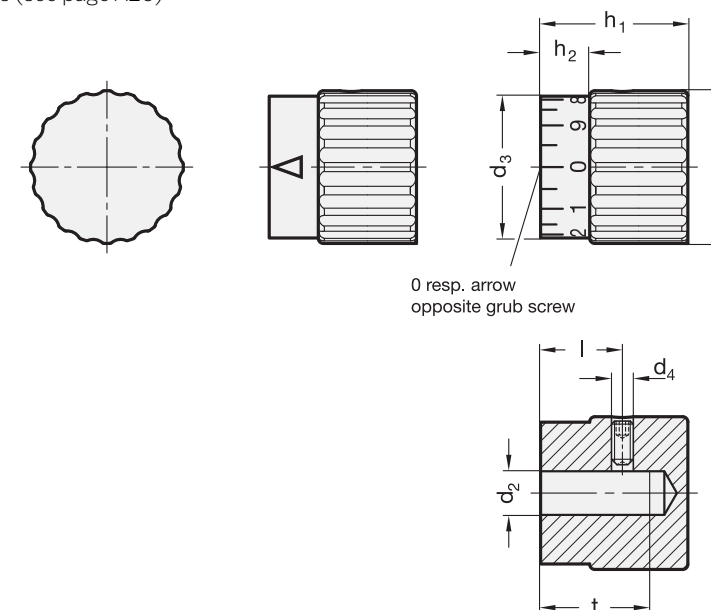
Scale and arrow on the Stainless Steel-control knobs GN 436.1 are indelibly marked and easily legible.

Besides the standard scale (Type S) the control knobs can be supplied with any type of graduation.

Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale knobs on the order sheet "How to order graduations" (see page 594).

TECHNICAL INFORMATION

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



GN 436.1

STAINLESS STEEL

Description	d1	d2 H8	d3	d4	h1	h2	l	t min.	⚖
GN 436.1-24-B5-A-MT	24	B 5	22	M 4	24	8	12	18	80
GN 436.1-24-B6-A-MT	24	B 6	22	M 4	24	8	12	18	80
GN 436.1-28-B6-A-MT	28	B 6	26	M 4	27	9	13	20	116
GN 436.1-28-B8-A-MT	28	B 8	26	M 4	27	9	13	20	115
GN 436.1-24-B5-B-MT	24	B 5	22	M 4	24	8	12	18	80
GN 436.1-24-B6-B-MT	24	B 6	22	M 4	24	8	12	18	79
GN 436.1-28-B6-B-MT	28	B 6	26	M 4	27	9	13	20	116
GN 436.1-28-B8-B-MT	28	B 8	26	M 4	27	9	13	20	114
GN 436.1-24-B5-S-MT	24	B 5	22	M 4	24	8	12	18	84
GN 436.1-24-B6-S-MT	24	B 6	22	M 4	24	8	12	18	83
GN 436.1-28-B6-S-MT	28	B 6	26	M 4	27	9	13	20	120
GN 436.1-28-B8-S-MT	28	B 8	26	M 4	27	9	13	20	119

Control elements 6

Control elements 6



Knurled Control knobs

Aluminium

SPECIFICATION

Types

- Type **N**: neutral
- Type **M**: with arrow
- Type **S**: with scale 0...9, 20 graduations

Aluminium
anodized, natural colour

Scale (Type S) and arrow (Type M)
engraved with laser precision

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

INFORMATION

Control knobs GN 723.4 can be combined with reference flanges GN 723.3 which offer the following advantages:

- they are provided with a reference mark relating to the scale on the control knobs
- they give additional support to the control shaft.
- the version with a friction ring prevents unexpected movement through vibration.

Scale and arrow on the control knobs are indelibly marked and easily legible. Besides the standard scale (Type S) they can be supplied with any type of graduation.

Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale knobs on the order sheet "How to order graduations" (see page 594).

ACCESSORY

- Reference flanges GN 723.3 (see page 605) are to be ordered separately)

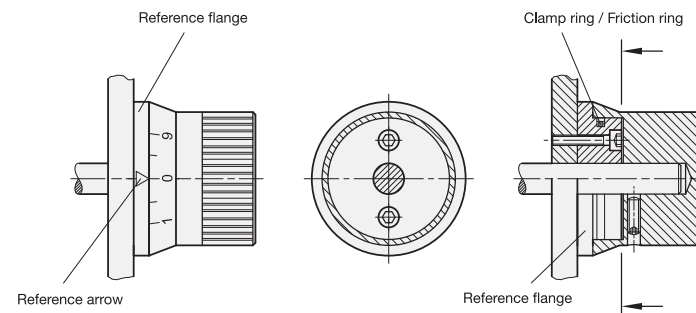
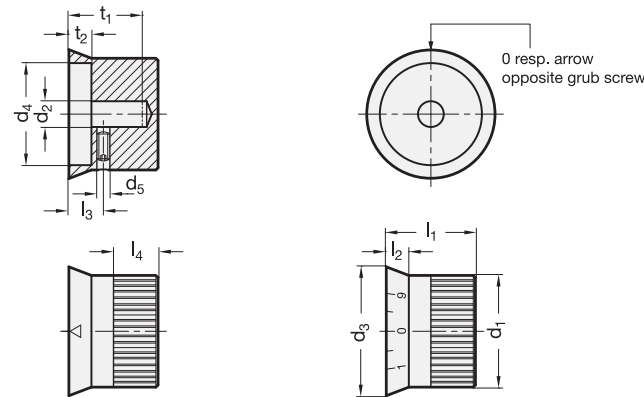
ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

CONTROL KNOB GN 723.4 COMBINED WITH A REFERENCE FLANGE GN 723.3



* Complete with types of the Knurled Control knobs (N, M or S)

N	M	S
neutral	with arrow	with scale

GN 723.4

Description	d1	d2 H8	d3 -0.2	d4	d5	l1	l2	l3	l4	t1	t2	⚖
GN 723.4-27-B6-*	27	B 6	33.5	23.5	M 4	25.5	7.5	10.5	12.5	23.5	7.5	38
GN 723.4-34-B6-*	34	B 6	41	29.5	M 5	29.5	9.5	13.5	13	26.5	9.5	60
GN 723.4-34-B8-*	34	B 8	41	29.5	M 5	29.5	9.5	13.5	13	26.5	9.5	53
GN 723.4-42-B8-*	42	B 8	50	37.5	M 5	33.5	10.5	15.5	15	30.5	11.5	100
GN 723.4-42-B10-*	42	B 10	50	37.5	M 5	33.5	10.5	15.5	15	30.5	11.5	99



Reference flanges

for control knobs GN 723.4

SPECIFICATION

Types

- Type **A**: with friction ring
- Type **B**: without friction ring

Aluminium
anodized, black

Reference arrow
white, engraved with laser precision

Clamping ring
Rubber

Friction ring
Polyamide

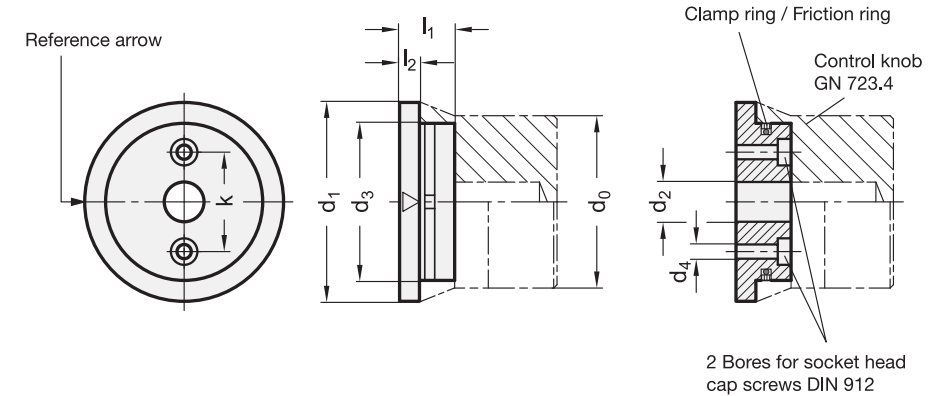
INFORMATION

Reference flanges GN 723.3 are used together with control knobs GN 723.4 which offer the following advantages:

- they have a reference mark to line up with the control knob scale,
- they offer additional support for the control shaft.
- the version with friction ring prevents an unexpected movement of the control knob by vibration.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 723.3

Description	d0	d1	d2 H8	d3 -0.1	d4	k	l1	l2	⚖
GN 723.3-33,5-B6-A	27	33.5	B 6	23.3	3.4	13	11.2	4	16
GN 723.3-41-B6-A	34	41	B 6	29.3	3.4	18	14.2	5	33
GN 723.3-41-B8-A	34	41	B 8	29.3	3.4	18	14.2	5	32
GN 723.3-50-B8-A	42	50	B 8	37.3	4.5	24	16.2	5	63
GN 723.3-50-B10-A	42	50	B 10	37.3	4.5	24	16.2	5	55
GN 723.3-33,5-B6-B	27	33.5	B 6	23.3	3.4	13	11.2	4	15
GN 723.3-41-B6-B	34	41	B 6	29.3	3.4	18	14.2	5	31
GN 723.3-41-B8-B	34	41	B 8	29.3	3.4	18	14.2	5	30
GN 723.3-50-B8-B	42	50	B 8	37.3	4.5	24	16.2	5	55
GN 723.3-50-B10-B	42	50	B 10	37.3	4.5	24	16.2	5	51

Control elements 6

Control elements 6

Knurled control knobs

Technopolymer

MATERIAL

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

BOSS CAP

Acetal resin based (POM) technopolymer, light-grey colour, push-fit assembly, removable by pressing on the outer edge (ELESA original design).

STANDARD EXECUTIONS

Black-oxide steel boss, H7 reamed hole.

Assembly by means of a keyway or a transversal pin in the semi-machined hole f or a set screw (redrill and tap hole f).

- **IZN.380:** plain knob.
- **IZN.380+K:** knob with matte anodised aluminium flange, triangular black index.
- **IZN.380+FGS:** knob with matte anodised aluminium flange, black graduation (marks and numbers).
- FGS 10/40 = 40 marks, numbering from 0 to 9 increases as the knob is turned clockwise.
- FGS 10/100 = 100 marks, numbering from 0 to 9 increases as the knob is turned clockwise.

For other numbering (see Graduations on page 594).

ACCESSORIES ON REQUEST

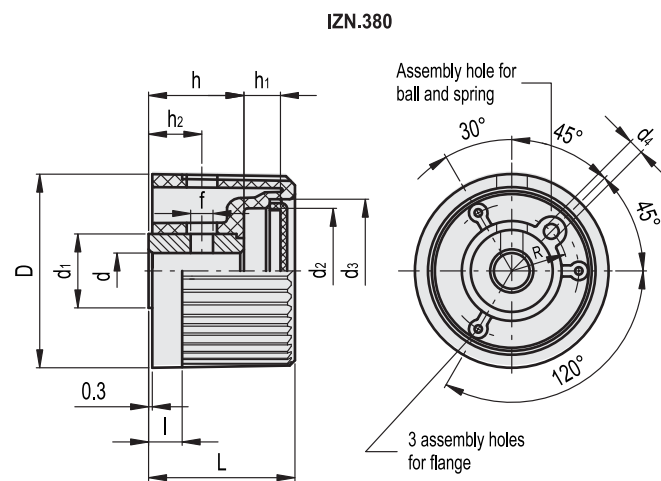
Ball and spring for clicking operation to be fitted in the assembly hole for knobs with diameter $D \geq 48$ mm, available only for IZN.380, (see ball and spring MS. on page 610).

SPECIAL EXECUTIONS ON REQUEST

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



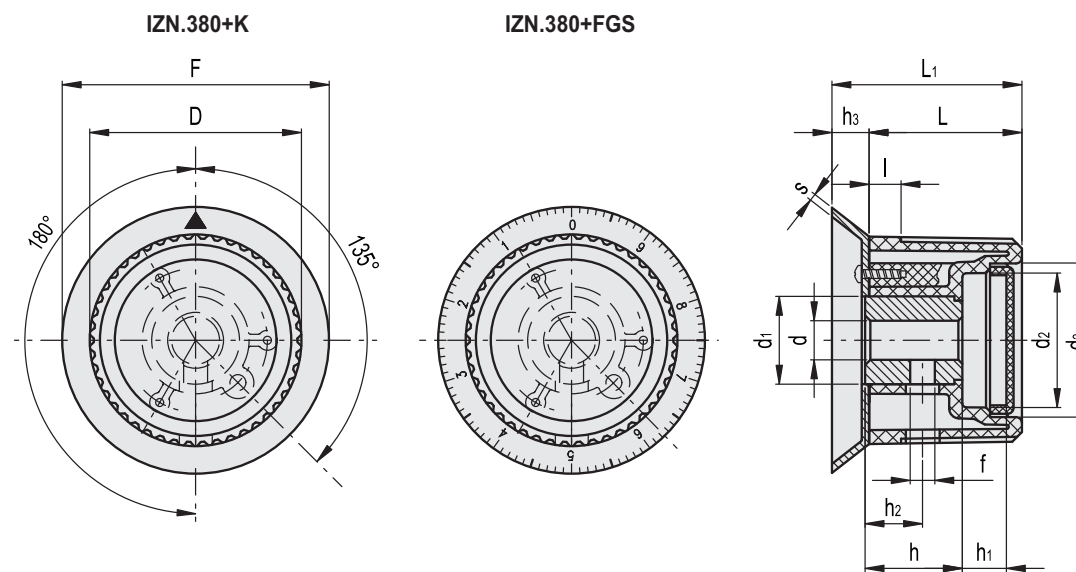
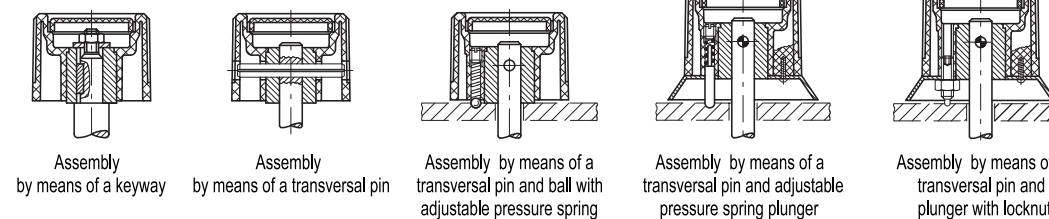
ELESA Original design



IZN.380

Code	Description	D	d#7	L	l	d1	d2	d3	d4	h	h1	h2	f	R	Δ
29001	IZN.380/32 A-6	32	6	26	5	15	19	21	-	16	8	9	3	-	28
30001	IZN.380/36 A-6	37	6	29	6	15	25	27	-	16	10	10	3	-	34
30101	IZN.380/40 A-8	42	8	32	7	18	29	31	-	17	11	11	4	-	48
30201	IZN.380/45 A-8	48	8	35	8	22	32	34	3.2	22	10	14	4	14	86
30301	IZN.380/50 A-10	52	10	39	9	22	37	39	4.2	22	13	14	4	15	90
30331	IZN.380/50 A-12	52	12	39	9	22	37	39	4.2	22	13	14	4	15	85
30401	IZN.380/56 A-12	58	12	41	10	26	42	44	5.2	27	11	16	5	17	130
30451	IZN.380/63 A-10	63	10	44	11	26	48	50	6.2	30	10	16	5	19	155
30466	IZN.380/63 A-12	63	12	44	11	26	48	50	6.2	30	10	16	5	19	150
30501	IZN.380/63 A-14	63	14	44	11	26	48	50	6.2	30	10	16	5	19	145
30601	IZN.380/80 A-16	80	16	48	12	26	59	62	6.2	30	13	17	5	24	175

Assembly examples



IZN.380+K

Code	Description	D	d#7	L	L1	F	l	d1	d2	d3	h	h1	h2	h3	f	s	Δ
29021	IZN.380/32 A-6+K	32	6	26	32	38	5	15	19	21	16	8	9	6	3	0.8	32
30021	IZN.380/36 A-6+K	37	6	29	36	45	6	15	25	27	16	10	10	7	3	1	40
30121	IZN.380/40 A-8+K	42	8	32	39	50	7	18	29	31	17	11	11	7	4	1	54
30221	IZN.380/45 A-8+K	48	8	35	43	55	8	22	32	34	22	10	14	8	4	1	93
30321	IZN.380/50 A-10+K	52	10	39	48	63	9	22	37	39	22	13	14	9	4	1	100
30421	IZN.380/56 A-12+K	58	12	41	52	70	10	26	42	44	27	11	16	9	5	1	140
30461	IZN.380/63 A-10+K	63	10	44	57	78	11	26	48	50	30	10	16	13	5	1	172
30476	IZN.380/63 A-12+K	63	12	44	57	78	11	26	48	50	30	10	16	13	5	1	167
30521	IZN.380/63 A-14+K	63	14	44	57	78	11	26	48	50	30	10	16	13	5	1	162

IZN.380+FGS

Code	Description	D	d#7	L	L1	F	l	d1	d2	d3	h	h1	h2	h3	f	s	Δ
29016	IZN.380/32 A-6+FGS-10/40	32	6	26	32	38	5	15	19	21	16	8	9	6	3	0.8	32
30016	IZN.380/36 A-6+FGS-10/40	37	6	29	36	45	6	15	25	27	16	10	10	7	3	1	40
30116	IZN.380/40 A-8+FGS-10/40	42	8	32	39	50	7	18	29	31	17	11	11	7	4	1	54
30216	IZN.380/45 A-8+FGS-10/100	48	8	35	43	55	8	22	32	34	22	10	14	8	4	1	93
30316	IZN.380/50 A-10+FGS-10/100	52	10	39	48	63	9	22	37	39	22	13	14	9	4	1	100
30416	IZN.380/56 A-12+FGS-10/100	58	12	41	52	70	10	26	42	44	27	11	16	11	5	1	140
30458	IZN.380/63 A-10+FGS-10/100	63	10	44	57	78	11	26	48	50	30	10	16	13	5	1	172
30473	IZN.380/63 A-12+FGS-10/100	63	12	44	57	78	11	26	48	50	30	10	16	13	5	1	167
30516	IZN.380/63 A-14+FGS-10/100	63	14	44	57	78	11	26	48	50	30	10	16	13	5	1	162

Knurled control knobs

Technopolymer

MATERIAL

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

SELF-ADHESIVE FRONT PLATE

Anodised aluminium

STANDARD EXECUTIONS

Plain blind hole. Assembly by means of a supplied stainless steel transversal grub screw UNI 5929 (grub screw with hexagon socket and cup end).

- **IZP.**: plain knob.
- **IZP+K.**: knob with triangular index.
- **IZP+GS.**: knob with standard graduation, 20 marks, numbering from 0 to 9 increases as the knob is turned clockwise. Laser-engraved precision graduations.

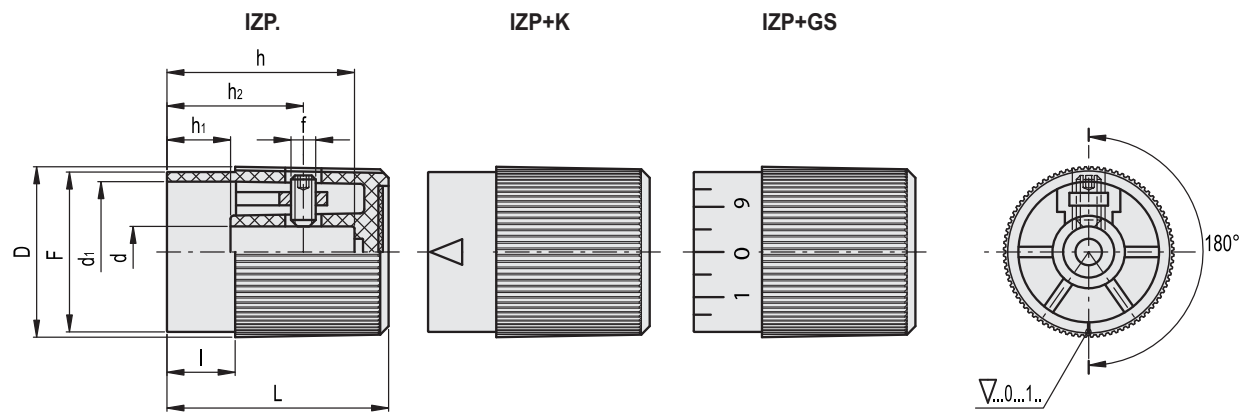
SPECIAL EXECUTIONS ON REQUEST

The front plate can be customized with words, marks, graphic symbols, etc.

On the plain surface of the knob high precision graduations (see Graduations on page 594) can be laser-engraved.



ELESA Original design



IZP.

Code	Description	D	dH10	L	F	l	d1	h	h1	h2	f	Δ
31011	IZP.25 N-6	27	6	30	25	12	22	24	12	18	M4	10
31111	IZP.30 N-8	32	8	38	30	13	25	30	13	23	M4	20
31211	IZP.35 N-10	35	10	45	33	15	28	37	15	27	M5	25
31311	IZP.40 N-12	40	12	52	38	16	33	44	16	32	M5	33

IZP+K

Code	Description	D	dH10	L	F	l	d1	h	h1	h2	f	Δ
31031	IZP.25 N-6+K	27	6	30	25	12	22	24	12	18	M4	10
31131	IZP.30 N-8+K	32	8	38	30	13	25	30	13	23	M4	20
31231	IZP.35 N-10+K	35	10	45	33	15	28	37	15	27	M5	25
31331	IZP.40 N-12+K	40	12	52	38	16	33	44	16	32	M5	33

IZP+GS

Code	Description	D	dH10	L	F	l	d1	h	h1	h2	f	Δ
31021	IZP.25 N-6+GS-10/20	27	6	30	25	12	22	24	12	18	M4	10
31121	IZP.30 N-8+GS-10/20	32	8	38	30	13	25	30	13	23	M4	20
31221	IZP.35 N-10+GS-10/20	35	10	45	33	15	28	37	15	27	M5	25
31321	IZP.40 N-12+GS-10/20	40	12	52	38	16	33	44	16	32	M5	33

Flanges for graduations

for IZN. 380 control knobs

MATERIAL

Matte anodised aluminium.

MOUNTING

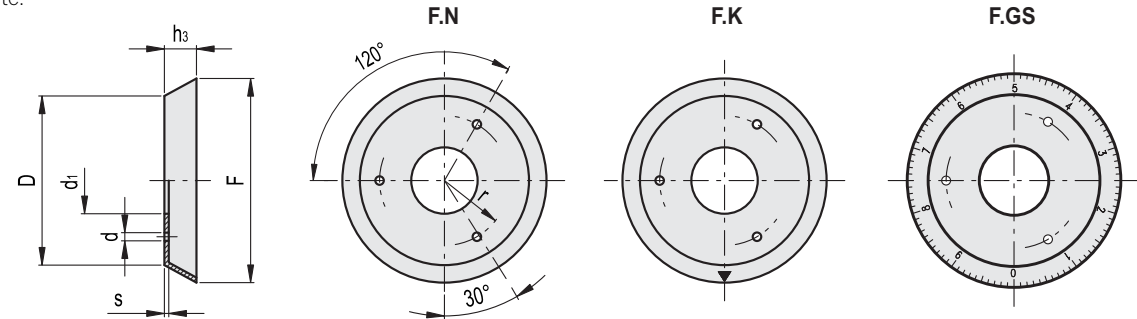
By means of three supplied self-tapping rivets for fitting to control knobs IZN.380 (see page 606).

STANDARD EXECUTIONS

- **F.N.**: plain flange.
- **F.K.**: flange with triangular black index.
- **F.GS.**: flange with black graduation (marks and numbers).
- **F.36 GS e F.40 GS.**: 40 marks, numbering 0, 1, 2 9 increases as the knob is turned clockwise.
- **F.45, 50, 56, 63 GS.**: 100 marks, numbering 0, 1, 2 9 increases as the knob is turned clockwise.

SPECIAL EXECUTIONS ON REQUEST

On the surface of the flanges other kinds of precision graduations can be laser-engraved (see Graduations on page 594), numbers, graphic symbols, etc.



F.N

Code	Description	D	F	d	d1	h3	s	r	Δ
29002	F.32 N	32	38	2.1	15	6	0.8	9.5	3
30002	F.36 N	37	45	2.1	15	7	1	12	5
30102	F.40 N	42	50	3	18	7	1	14	7
30202	F.45 N	48	55	2.7	22	7	1	15.8	8
30302	F.50 N	52	63	2.7	22	9	1	18.1	10
30402	F.56 N	58	70	2.7	26	11	1	20.6	12
30452	F.63 N	63	78	2.7	26	13	1	22.7	16
30002	F.36 N	37	45	2.1	15	7	1	12	5
30102	F.40 N	42	50	3	18	7	1	14	7
30202	F.45 N	48	55	2.7	22	7	1	15.8	8
30302	F.50 N	52	63	2.7	22	9	1	18.1	10
30402	F.56 N	58	70	2.7	26	11	1	20.6	12
30452	F.63 N	63	78	2.7	26	13	1	22.7	16

F.K

Code	Description	D	F	d	d1	h3	s	r	Δ
30004	F.36 K	37	45	2.1	15	7	1	12	5
30104	F.40 K	42	50	3	18	7	1	14	7
30204	F.45 K	48	55	2.7	22	7	1	15.8	8
30304	F.50 K	52	63	2.7	22	9	1	18.1	10
30404	F.56 K	58	70	2.7	26	11	1	20.6	12
30454	F.63 K	63	78	2.7	26	13	1	22.7	16

F.GS

Code	Description	D	F	d	d1	h3	s	r	Δ
30003	F.36 GS-10/40	37	45	2.1	15	7	1	12	5
30103	F.40 GS-10/40	42	50	3	18	7	1	14	7
30203	F.45 GS-10/100	48	55	2.7	22	7	1	15.8	8
30303	F.50 GS-10/100	52	63	2.7	22	9	1	18.1	10
30403	F.56 GS-10/100	58	70	2.7	26	11	1	20.6	12
30453	F.63 GS-10/100	63	78	2.7	26	13	1	22.7	16

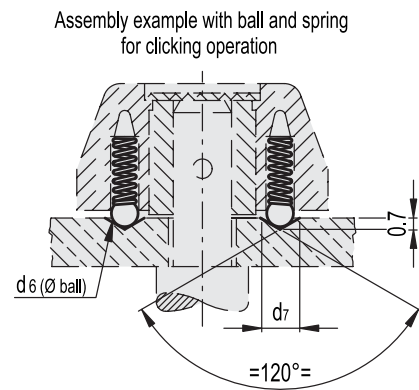
Ball and spring for control elements, stainless steel

SPRING
AISI 302 stainless steel.

BALL
AISI 420 stainless steel.

FEATURES AND APPLICATIONS
MS. group is indicated for fitting on the following operating and control knobs where clicking operation is required:

- IZN.380 (see page 606)
- EGK.SOFT (see page 615)
- LBR (see page 628)
- LBR-N (see page 628)
- ELC (see page 630)
- ELCR. (see page 632)



STAINLESS STEEL

Code	Description	d6	d7 -0.3
35001	MS.D3	3	2
35051	MS.D4	4	3.0
35101	MS.D5	5	4.0
35201	MS.D6	6	5.5
35301	MS.D8	8	7.0
35401	MS.D10	10	8.5

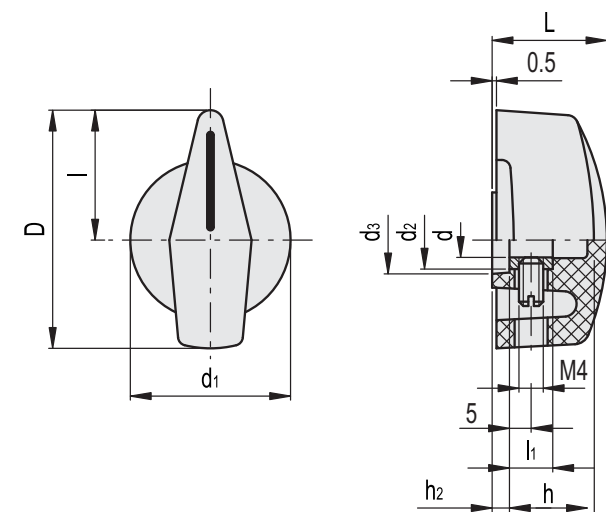
Indicator knobs Duroplast

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

INDEX
White line.

STANDARD EXECUTION
Brass boss, plain blind hole. Assembly by means of a supplied transversal screw.

- D=45: ISO 7436 (grub screw with screwdriver slotted head and cup end).
- D=55: ISO 4762 (cylindrical-head screw with hexagon socket and cup end).



Code	Description	D	db9	L	l	l1	d1	d2	d3	h	h2	⚖
40201	MI.204/45 B-6	45	6	25	24	10	35	10	15	15	7	19
40202	MI.204/45 B-8	45	8	25	24	10	35	12	12	18	3	19
40301	MI.204/55 B-6	55	6	26	30	10	37	12	12	18	3	28
40302	MI.204/55 B-8	55	8	26	30	10	37	15	15	18	3	30

Control elements 6

Control elements 6

Lobe knobs

with flange and pointer, Duroplast

MATERIAL

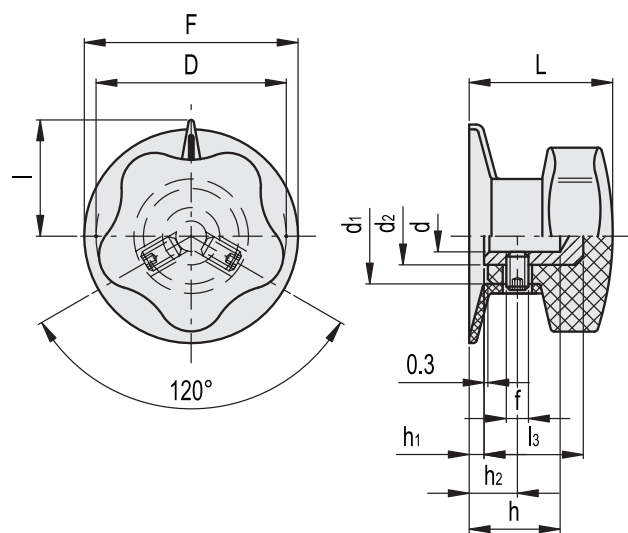
Phenolic based (PF) Duroplast, black colour, glossy finish.

FLANGE WITH POINTER

Polyamide based (PA) technopolymer, with white indicator line.

STANDARD EXECUTIONS

- **VC.192-B+F**: brass boss, plain blind hole.
 - **VC.192-A+F**: black-oxide steel boss, plain blind hole.
- Assembly by means of supplied transversal grub screws UNI 5929-85 (grub screws with hexagon socket and cup end).



Code	Description	D	dH9	L	F	I	l3	d1	d2	h	h1	h2	f	⚖
66211	VC.192/30 B-6+F	32	6	27	36	19	19	19	14	22	3	9	M4	30
66311	VC.192/40 B-6+F	40	6	30	45	24	19	21	14	22	3	9	M4	46
66421	VC.192/50 A-8+F	50	8	36	56	30	25	25	15	23	3	10	M5	70
66521	VC.192/60 A-8+F	60	8	42	70	37	25	27	15	25	5	12	M5	105
66621	VC.192/70 A-10+F	70	10	48	80	42	31	30	18	30	5	16	M6	152

Lobe knobs

with pointer, Duroplast

MATERIAL

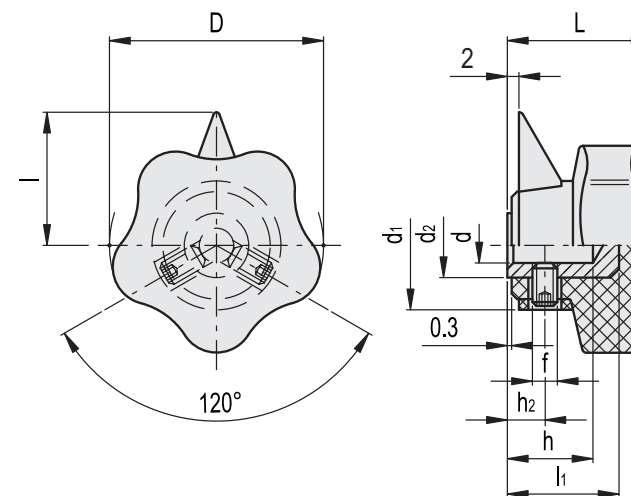
Phenolic based (PF) Duroplast, black colour, glossy finish.

INDEX

Polyamide based (PA) technopolymer.

STANDARD EXECUTIONS

- **VC.192-B+IN**: brass boss, plain blind hole.
 - **VC.192-A+IN**: black-oxide steel boss, plain blind hole.
- Assembly by means of supplied transversal grub screws UNI 5929-85 (grub screws with hexagon socket and cup end).



Code	Description	D	dH9	L	I	l1	d1	d2	h	h2	f	⚖
66321	VC.192/40 B-6+IN	40	6	27	25	17	25	14	14	6	M4	37
66431	VC.192/50 A-8+IN	50	8	33	31	25	30	15	20	7	M5	70
66531	VC.192/60 A-8+IN	60	8	37	38	25	32	15	20	7	M5	105
66631	VC.192/70 A-10+IN	70	10	44	45	31	35	18	25	11	M6	150
66711	VC.192/85 A-10+IN	85	10	55	50	38	41	22	25	14	M6	250

Control elements 6

Control elements 6

Control knobs

Aluminium

SPECIFICATION

Aluminium
anodized, black

Indexing line
white, engraved with laser precision

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

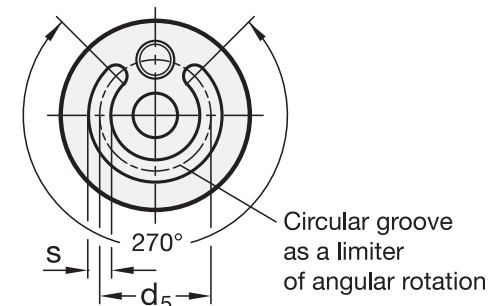
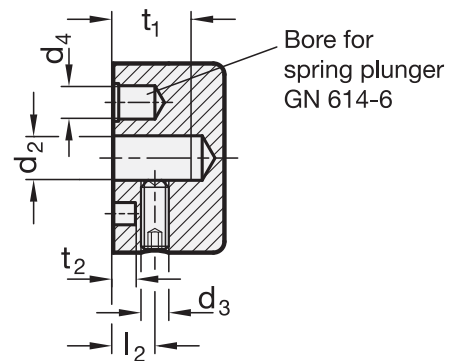
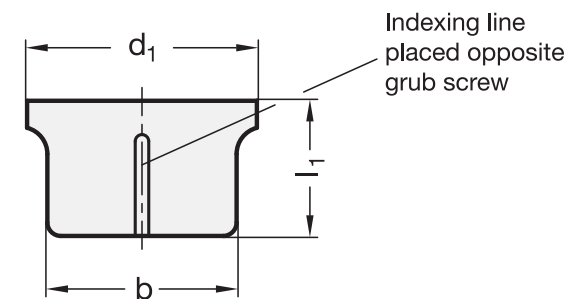
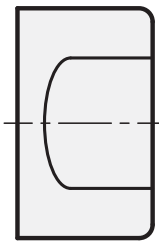
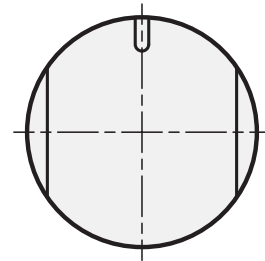
INFORMATION

Control knobs GN 729 are usually selected for applications which require a limited movement within 180°.

With the aid of limiting pins which protrude into the circular groove the angle of rotation can be restricted. The bore d_4 is for a spring plunger GN 614 (see page 847) to act as a simple detent. The indexing line is indelible and visible from two sides.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 729

Description	d1	d2 H8	b	d3	d4	d5	l1	l2	t1 min.	t2 +0.2	$s^{+0.3/+0.1}$	Δ
GN 729-34-B6	34	B 6	28	M 5	6	20	20	7.5	14	4	4	43
GN 729-34-B8	34	B 8	28	M 5	6	20	20	7.5	14	4	4	41
GN 729-42-B8	42	B 8	35	M 5	6	30	22	7.5	16	4	4	72
GN 729-42-B10	42	B 10	35	M 5	6	30	22	7.5	16	4	4	69

Grip knobs

arranged for clicking operation

MATERIAL

High-resilience technopolymer coated with "soft-touch" thermoplastic elastomer (TPE), grey-black colour, matte finish.

CENTRE CAP

Glass-fibre reinforced polyamide based (PA) technopolymer in Ergostyle colours, matte finish. Provided with the supply, push-fit assembly, removable by a screwdriver.

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

Code	Description	Closing cap for
29672-*	ECB.G2-*	EGK.50
29673-*	ECB.G3-*	EGK.63

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

STANDARD EXECUTIONS

Assembly by means of a keyway or a transversal pin in the semi-machined hole f or a set screw (redrill and tap hole f).

- **EGK.SOFT**: black-oxide steel boss, H7 reamed hole.
- **EGK-SST-SOFT**: AISI 303 stainless steel boss, H7 reamed hole.

FEATURES AND APPLICATIONS

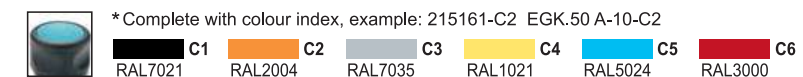
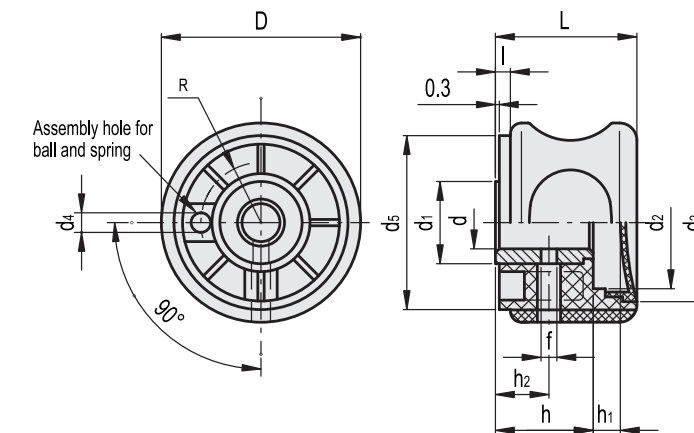
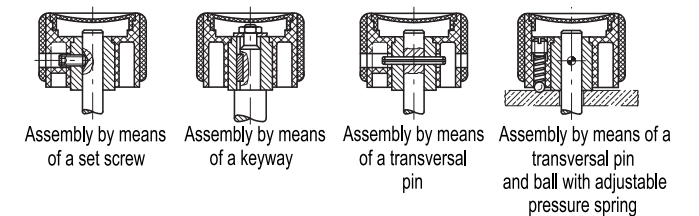
The special four-concave-mark shape of the knob and the "soft-touch" elastomer coating allow the best grip during clicking operation even in the presence of oils, grease and sweat from the hand. Particularly suitable for fitness machines, disability aids, tools and machines for gardening and high-precision instruments.

ACCESSORIES ON REQUEST

Ball and spring for clicking operation to be fitted in the assembly hole (see ball and spring MS. on page 610).



Assembly examples



EGK.SOFT

Code	Description	D	dH7	L	l	d1	d2	d3	d4	d5	h	h1	h2	f	R	Δ
215161-*	EGK.50 A-10-SOFT-*	50	10	38	3.5	22	28	40	4.2	43	22	12	14	4	15	95
215181-*	EGK.63 A-12-SOFT-*	63	12	44	3.5	26	42	49.5	6.2	55	30	9	16	5	19	185

EGK-SST-SOFT

STAINLESS STEEL

Code	Description	D	dH7	L	l	d1	d2	d3	d4	d5	h	h1	h2	f	R	Δ
215189-*	EGK.50-SST-6-SOFT-*	50	6	38	3.5	22	28	40	4.2	43	22	12	14	4	15	100
215191-*	EGK.50-SST-8-SOFT-*	50	8	38	3.5	22	28	40	4.2	43	22	12	14	4	15	97
215196-*	EGK.63-SST-10-SOFT-*	63	10	44	3.5	26	42	49.5	6.2	55	30	9	16	5	19	180

Control handwheels

Aluminium black, anodized

SPECIFICATION

Types

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

Bore codes

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

Aluminium
anodized, black

Hub cover
Plastic, light grey

Collet / Hexagon nut
Brass

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

Revolving cylindrical handles
Plastic, Technopolymer
black, matt

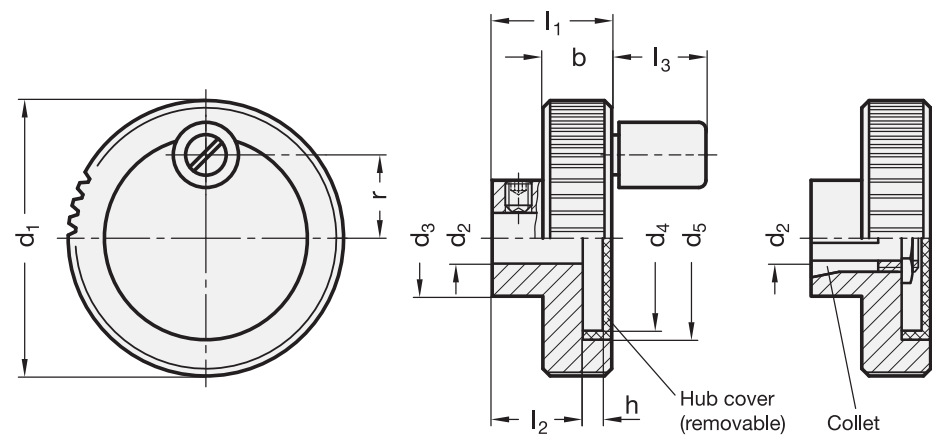
INFORMATION

Control handwheels GN 736 are used for setting operations with low torque.

Coarse setting is made by means of the cylindrical handle (fingertip grip) followed by fine setting using the knurled rim of the handwheel.

TECHNICAL INFORMATION

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



GN 736

Description	d1	d2 H8	d3	d4	d5	b -0.5	h	l1	l2	l3 ≈	r	Ø Handle	⚖
GN 736-52-B10-A	52	10	22	37	39.5	13	3.8	23	17	-	15.5	-	56
GN 736-52-K10-A	52	10	22	37	39.5	13	3.8	23	17	-	15.5	-	59
GN 736-52-Z10-A	52	10	22	37	39.5	13	3.8	23	17	-	15.5	-	65
GN 736-62-B10-A	62	10	25	47	49.5	13	3.8	23	17	-	20.5	-	76
GN 736-62-K10-A	62	10	25	47	49.5	13	3.8	23	17	-	20.5	-	82
GN 736-62-Z10-A	62	10	25	47	49.5	13	3.8	23	17	-	20.5	-	100
GN 736-52-B10-D	52	10	22	37	39.5	13	3.8	23	17	19	15.5	13	69
GN 736-52-K10-D	52	10	22	37	39.5	13	3.8	23	17	19	15.5	13	71
GN 736-52-Z10-D	52	10	22	37	39.5	13	3.8	23	17	19	15.5	13	77
GN 736-62-B10-D	62	10	25	47	49.5	13	3.8	23	17	21	20.5	14	90
GN 736-62-K10-D	62	10	25	47	49.5	13	3.8	23	17	21	20.5	14	94
GN 736-62-Z10-D	62	10	25	47	49.5	13	3.8	23	17	21	20.5	14	112

Control handwheels with scale lug

Aluminium black, anodized

SPECIFICATION

Types

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

Bore codes

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

Coding

- Coding **S**: with standard scale 0...90, 100 graduations acc. scale scheme di/100 A RA 0-10 20...90/10 (only for bore code Z)

Aluminium
anodized, black

Hub cover
Plastic, light grey

Collet / Hexagon nut
Brass

Revolving cylindrical handles
Plastic, Technopolymer
black, matt

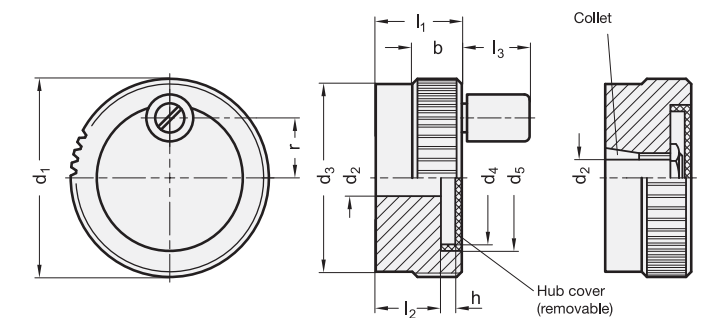


INFORMATION

Control handwheels GN 736.1 are used for setting operations with low torque. Coarse setting is made by means of the cylindrical handle (fingertip grip) followed by fine setting using the knurled rim of the knob.

The model fitted with collet offers an absolutely reliable mounting on the shaft and at the same time allows an easy setting of the adjustable scale ring wheel. The scale is wear resistant and easily legible since the engraved alu coloured numbers contrast with the black anodized surface. Besides the standard scale (Coding S) the control handwheels can be supplied with any type of graduation.

Full details of the available graduations, numbering sequence, number position and type of scale see under "How to order graduations" (see page 594).



*Complete with type of the Control handwheel (A or D)

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

GN 736.1

Description	d1	d2 H8	d3	d4	d5	b -0.5	h	l1	l2	l3 ≈	r	Ø Handle	⚖
GN 736.1-52-B10-*	52	10	50	37	39.5	13	3.8	23	17	19	15.5	13	100
GN 736.1-52-K10-*	52	10	50	37	39.5	13	3.8	23	17	19	15.5	13	99
GN 736.1-52-Z10-*	52	10	50	37	39.5	13	3.8	23	17	19	15.5	13	111
GN 736.1-62-B10-*	62	10	60	47	49.5	13	3.8	23	17	21	20.5	14	142
GN 736.1-62-K10-*	62	10	60	47	49.5	13	3.8	23	17	21	20.5	14	141
GN 736.1-62-Z10-*	62	10	60	47	49.5	13	3.8	23	17	21	20.5	14	154

GN 736.1-S

Description	d1	d2 H8	d3	d4	d5	b -0.5	h	l1	l2	l3 ≈	r	Ø Handle	⚖
GN 736.1-52-Z10-*-S	52	10	37	50	39.5	13	3.8	23	17	19	15.5	13	110
GN 736.1-62-Z10-*-S	62	10	47	60	49.5	13	3.8	23	17	21	20.5	14	154

Weight type A

Diamond cut knurled control knobs

with revolving handle, technopolymer

MATERIAL

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

COLOURED CENTRE CAP

Technopolymer, matte finish.

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

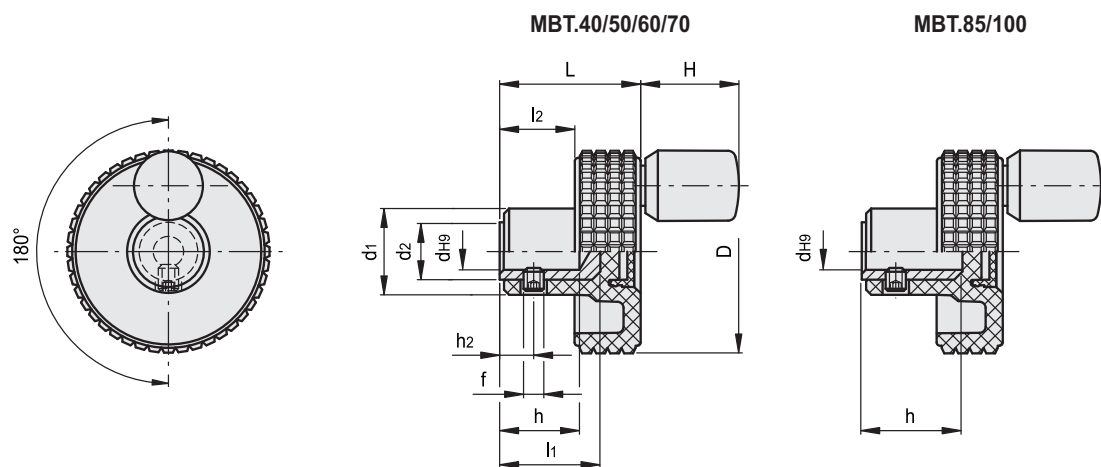
On request and for sufficient quantities, it can be supplied in other colours or with customised graphic symbols, marks or writings.

REVOLVING HANDLE

I.701+x (see page 580) in technopolymer.

STANDARD EXECUTION

Brass boss, plain hole. Assembly by means of a supplied transversal grub screw UNI 5929-85 (grub screw with hexagon socket and cup end).



* Complete with colour index, example: 34398-C2 MBT.40+I B-6-C2

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

Code	Description	D	dH9	L	l1	l2	d1	d2	h	h2	f	H	⚖
34398-*	MBT.40+I B-6-*	39.5	6	26.5	17	12.5	17	12	14	4	M4	20	34
34498-*	MBT.50+I B-6-*	50	6	33	23	16	20	15	18	5	M5	20	54
34598-*	MBT.60+I B-8-*	61	8	39	25	18.5	23	15	20	6	M5	23	65
34698-*	MBT.70+I B-10-*	70	10	42	30	20.5	24	16	25	6	M5	23	73
34798-*	MBT.85+I B-10-*	85	10	30.5	-	10.5	29	16	22	6	M5	23	84
34898-*	MBT.100+I B-10-*	100	10	31	-	11	35	16	22	6	M5	23	102

Control handwheels

with revolving handle, Duroplast

MATERIAL

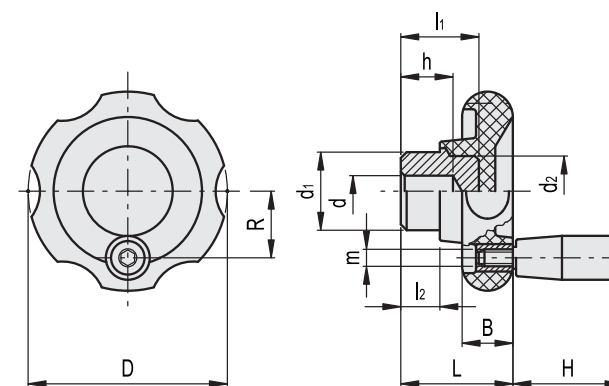
Phenolic based (PF) Duroplast, black colour, glossy finish.

REVOLVING HANDLE

I.281+x (see page 569) in Duroplast.

STANDARD EXECUTION

Black-oxide steel hub, with pre-drilled blind hole.



Code	Description	D	dH9	d-0.1	L	B	l1	l2	d1	d2	h	H	m	R	⚖
74431	VL.140/80+I	82	-	6	40	19	23	12	24	20	15	40	M6	26	180
74521	VL.140/100+I	99	8	-	44	20	31	14	36	30	22	50	M8	32	385
74621	VL.140/130+I	129	8	-	47	22	30	13	40	40	20	65	M8	43	585

Control knobs with adjustable spindle

SPECIFICATION

Types

- Type **A**: Fixing hole parallel to the spindle axle
- Type **B**: Fixing hole vertical to the spindle axle
- Type **S1**: Mounting with hexagon head screw

Coding

- Version **SR**: with scale 0,1...0,9, 50 graduations ascending, clockwise
- Version **SL**: with scale 0,1...0,9, 50 graduations ascending, anti-clockwise

Body

Steel
matt chrome plated

Spindle

Steel
blank

Control knob

Aluminium
anodized, black

Hexagon head screw

Steel, zinc plated, blue passivated

Scales engraved with laser precision

Cover

Plastic, light grey

INFORMATION

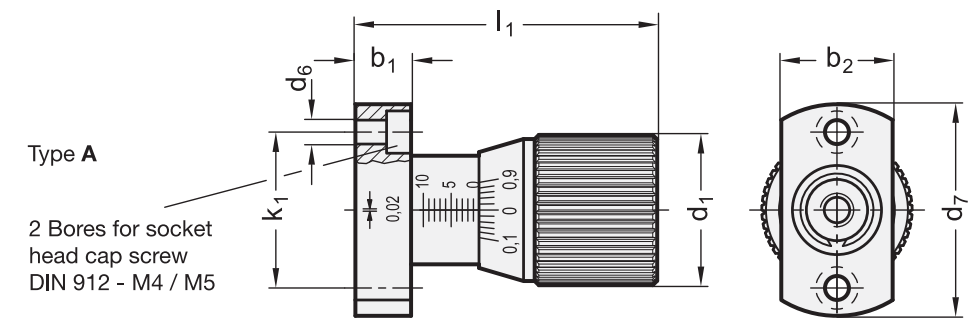
Control knobs with adjustable spindle GN 727 allow precise adjustment or aligning i. e. of a positive stop. The spindle thread is without backlash.

The graduations on the control knob are non-abrasive and well legible.

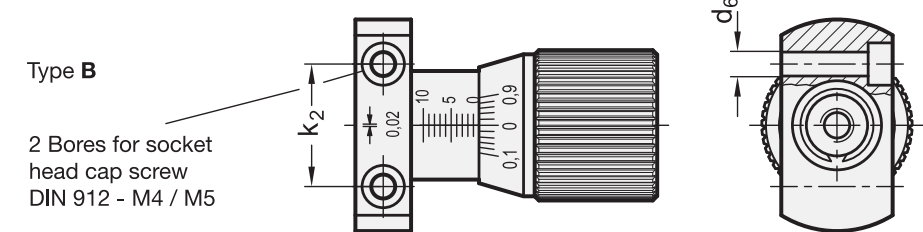
The light grey cover shrouds the fixing components as well as the shaft end.

Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

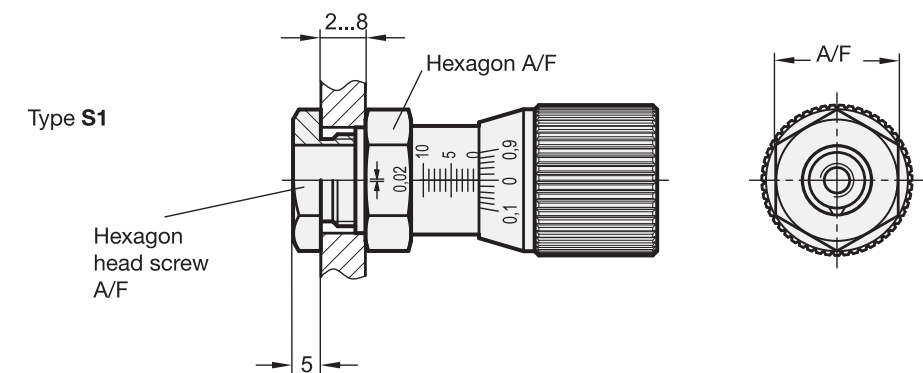
COMPLEMENTARY DIMENSIONS WITH TECHNICAL DETAILS



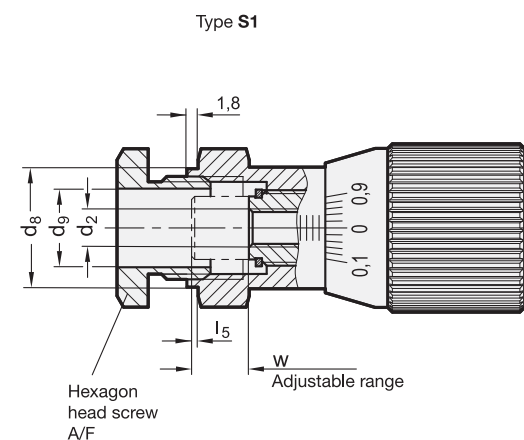
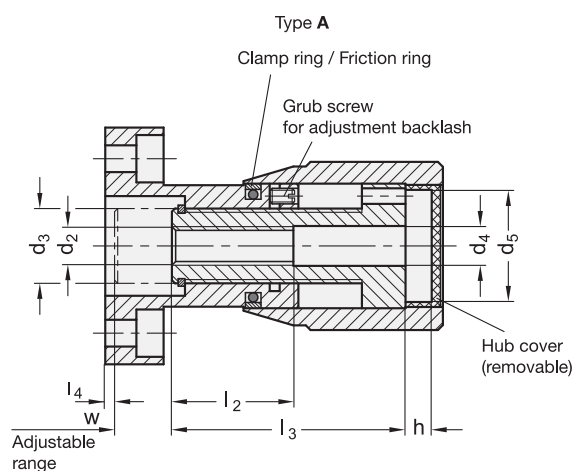
Type A
2 Bores for socket head cap screw DIN 912 - M4 / M5



Type B
2 Bores for socket head cap screw DIN 912 - M4 / M5



Type S1
Hexagon head screw A/F



GN 727

Description	d1	d2	d3	d4	d5	d6	d7	d8 -0.05	d9	b1	b2	h	k1	k2	l1 +0.2	l2	l3	l4	l5	A/F	w	⚖
GN 727-27-A-SR	27	M 6	M 12 x 1	6.4	18	-	38	-	-	10	20	4.3	28	-	54	19.5	37.5	0.5	-	-	10	103
GN 727-27-A-SL	27	M 6	M 12 x 1	6.4	18	-	38	-	-	10	20	4.3	28	-	54	19.5	37.5	0.5	-	-	10	103
GN 727-34-A-SR	34	M 8	M 16 x 1	8.5	23	-	50	-	-	11	25	4.2	36	-	67	23.5	45.5	0.5	-	-	15	210
GN 727-34-A-SL	34	M 8	M 16 x 1	8.5	23	-	50	-	-	11	25	4.2	36	-	67	23.5	45.5	0.5	-	-	15	210
GN 727-27-B-SR	27	M 6	M 12 x 1	6.4	18	4.3	-	-	-	10	20	4.3	-	22	54	19.5	37.5	0.5	-	-	10	103
GN 727-27-B-SL	27	M 6	M 12 x 1	6.4	18	4.3	-	-	-	10	20	4.3	-	22	54	19.5	37.5	0.5	-	-	10	103
GN 727-34-B-SR	34	M 8	M 16 x 1	8.5	23	5.3	-	-	-	11	25	4.2	-	30	67	23.5	45.5	0.5	-	-	15	206
GN 727-34-B-SL	34	M 8	M 16 x 1	8.5	23	5.3	-	-	-	11	25	4.2	-	30	67	23.5	45.5	0.5	-	-	15	205
GN 727-27-S1-SR	27	M 6	M 12 x 1	6.4	18	-	-	20	14	10	-	4.3	-	-	54	19.5	37.5	0.5	1	22	10	113
GN 727-27-S1-SL	27	M 6	M 12 x 1	6.4	18	-	-	20	14	10	-	4.3	-	-	54	19.5	37.5	0.5	1	22	10	113
GN 727-34-S1-SR	34	M 8	M 16 x 1	8.5	23	-	-	24	18	11	-	4.2	-	-	67	23.5	45.5	0.5	1	27	15	182
GN 727-34-S1-SL	34	M 8	M 16 x 1	8.5	23	-	-	24	18	11	-	4.2	-	-	67	23.5	45.5	0.5	1	27	15	182

Indexing mechanisms

Steel / Stainless Steel

SPECIFICATION

Version in Steel

Types

- Type **A**: Control knob, blackened, without scale
- Type **AS**: Control knob, matt chrome plated, with scale 0...50, 60 graduations
- Type **B**: with 1 tension lever
- Type **C**: with 2 tension levers

Steel

blackened

Type AS:

Control knob matt chrome plated

- Scale engraved with laser precision, black
- Reference line on location ring

Fixed cylindrical handles 1.280 (see page 568)

Plastic, Technopolymer
black, shiny finish

Version in Stainless Steel

Types

- Type **A**: without scale
- Type **AS**: with scale 0...50, 60 graduations

Stainless Steel AISI 303 NI

Type AS:

- Scale engraved with laser precision
- Reference line on locating ring

Keyway P9 DIN 6885 for bore > K 10 (Steel and Stainless Steel)

INFORMATION

Indexing mechanisms GN 200 replace and simplify complicated indexing and safety mechanisms.

Besides the standard scale (Type AS) the control knob version may be supplied with any scale. In such cases, it is recommended to use the matt chrome plated version since the colour contrast is better).

Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- Special graduations see "How to order graduations" (see page 594)



TECHNICAL INFORMATION

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

Applications

With these indexing mechanisms, shaft and lead screws can be turned and positioned in steps of 6° or multiples of it.

Description

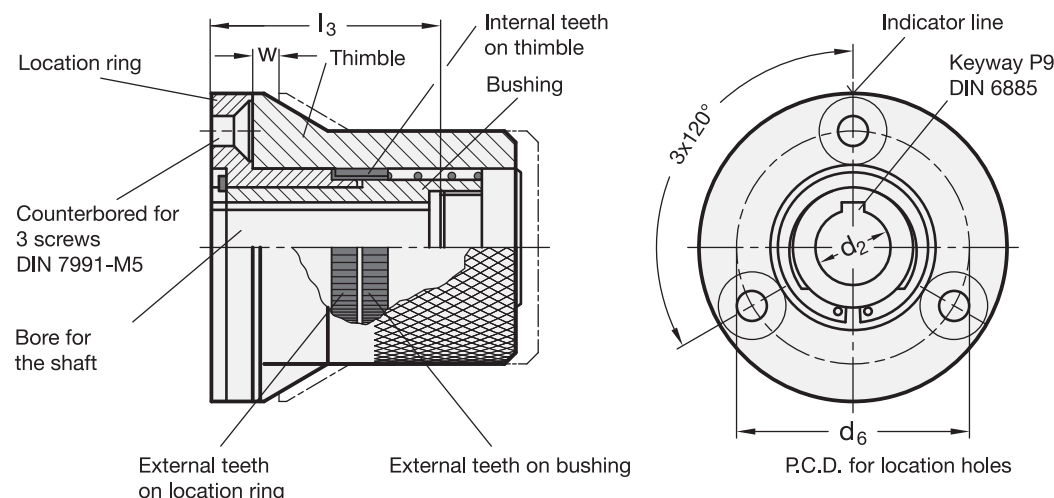
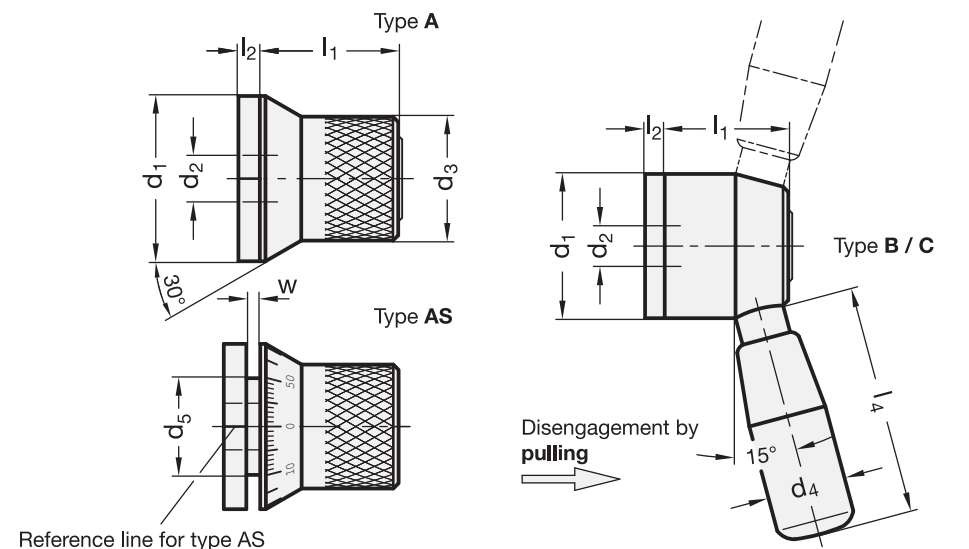
The indexing mechanism is a self-contained unit, all the adjusting and securing components are housed in the smallest possible space. The unit consists of three main parts:

- Bushing – can be connected to the shaft with a key or crossdowel.
- Location ring – is screwed and doweled to the machine or equipment. The bushing is also a bearing for the location ring.
- Knurled housing – providing engagement between the locating ring and the shaft which can be turned or positioned.

In the locked position, the knurled housing via the internal teeth (60) connects the locating ring and the bush (both via external teeth), the latter being connected to the shaft. To turn the shaft, the knurled housing is pulled out against the spring pressure, disengaging from the location ring, but still engaged with the bush.

More information

- With 60 teeth, the following divisions can be achieved: 2, 3, 4, 5, 6, 10, 20, 30. A simple method provides indexing of the shaft to limited number of positions only, i.e. every 120°. For this purpose, the location ring is manufactured with a dowel which allows engagement only when the bushing is provided with a corresponding hole (see assembly examples). This hole can be manufactured oversize as the dowel is for rough positioning only. Accurate positioning is maintained via the teeth. Knurled housing and tension levers can be supplied with scales and symbols. With teeth, a more accurate and wear-resistant indexing mechanism is obtained than with single dowel locations. When a very high torque is to be transmitted, engaging and disengaging of the teeth is made difficult due to the small clearance, i.e. the friction between them. In such cases, indexing levers GN 215 are recommended.



* Complete with type index of the indexing mechanisms (A, AS, B or C)

A Blackened, without scale **AS** Matt chrome plated, with scale **B** with 1 tension lever **C** with 2 tension levers

GN 200

Description	d1 -0.5	d2 H7	d3	d4	d5	d6	l1	l2	l3	l4	w	⚖
GN 200-44-K10-*	44	K 10	33	23	23	33	37	6	31	75	4	309
GN 200-44-K12-*	44	K 12	33	23	23	33	37	6	31	75	4	300
GN 200-52-K12-*	52	K 12	42	26	31.5	41.8	37.5	6	31.5	90	4	478
GN 200-52-K14-*	52	K 14	42	26	31.5	41.8	37.5	6	31.5	90	4	467
GN 200-52-K16-*	52	K 16	42	26	31.5	41.8	37.5	6	31.5	90	4	455

* Complete with type index of the indexing mechanisms (A or AS)

A Blackened, without scale **AS** Matt chrome plated, with scale

GN 200-NI

STAINLESS STEEL

Description	d1 -0.5	d2 H7	d3	d5	d6	l1	l2	l3	w	⚖
GN 200-44-K10-*-NI	44	K 10	33	23	33	37	6	31	4	309
GN 200-44-K12-*-NI	44	K 12	33	23	33	37	6	31	4	300
GN 200-52-K12-*-NI	52	K 12	42	31.5	41.8	37.5	6	31.5	4	478
GN 200-52-K14-*-NI	52	K 14	42	31.5	41.8	37.5	6	31.5	4	467
GN 200-52-K16-*-NI	52	K 16	42	31.5	41.8	37.5	6	31.5	4	455

Weight type A

Control elements 6

Control elements 6

Adjustable knobs

with stepless positioning

SPECIFICATION

Types

- Type **A**: with arrow
- Type **B**: neutral, without arrow or scale
- Type **S**: with standard scale 0...9, 100 graduations
- Type **KS**: with customized scale

Attachment part and bush

Steel
blackened

Blocking mechanism
Steel
hardened and ground

Scale ring and rotating knob
Aluminium
black anodized

- Scale / arrow
- engraved with laser precision
 - centered between two mounting holes



INFORMATION

With this adjustable knob GN 700 a shaft can be infinitely adjusted in both directions. The anti-backlash mechanism with a max. load of 15 Nm ensures the firm locking of the shaft in any position.

This mechanism prevents any uncontrolled movement of the shaft. The locking action is a safety feature to prevent unwanted re-adjustments caused by backlash and vibration.

Scale and arrow on the control knobs are indelibly marked and easily legible.

Besides the standard scale (Type AS) the control knob version may be supplied with any other scale (Type KS).

Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

Description

The anti-backlash mechanism which operates on the principle of a bidirectional freewheeling and antireversing basis allows the transfer of movement in both directions without backlash. The adjustable knob is not suitable for applications on machines or equipments which are exposed to vibrations.

The **bush** is connected by the key and keyway to the revolving shaft. The **location ring** remains static and centrally positioned by the bushing and the two pinch rollers, fixed to the machine frame or housing by three screws.

The **rotating knob** with the knurled barrel is carried by the bush.

The **scale ring** is firmly anchored to the bush and the driven shaft by two countersunk screws.

If the knob is repositioned, one of the follower pins – depending on the direction of rotation – pushes the pinch roller against the spring into an idling position which releases the bush and shaft to rotate freely.

The second follower pin on the opposite side reduces the movement of its pinch roller and ensures at the same time a firm grip and forward movement of the bush while the first pinch roller remains in an idling position.

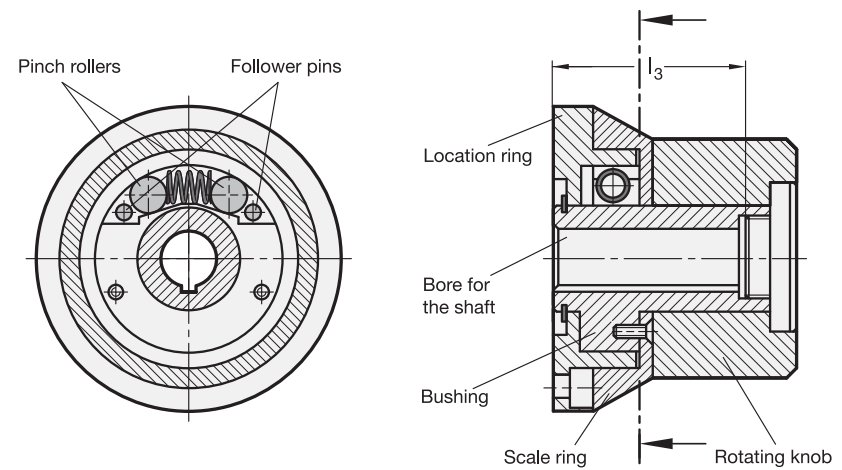
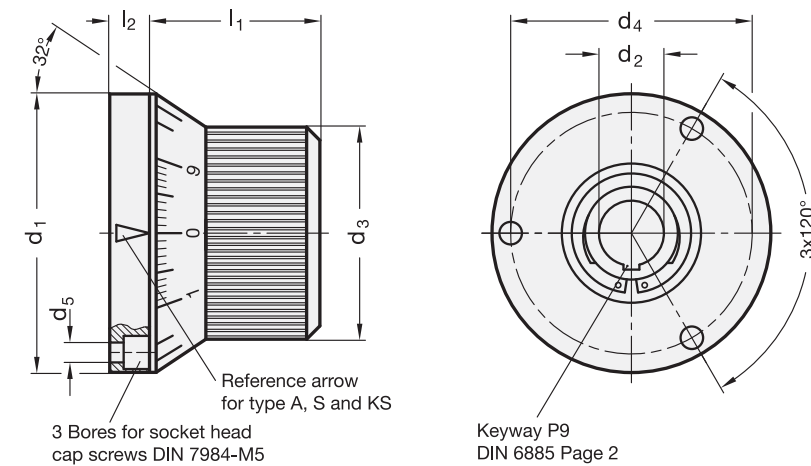
When releasing the knob, the spring will push the pinch roller back into the grip position, thus linking the bush again with the static section.

The scale ring is connected firmly with the bush and any readjustment of the shaft can be accurately controlled.

This infinitely adjustable knob cannot, however, be used in such cases where the shaft to be adjusted runs ahead of the adjustment. The anti-backlash mechanism in this knob cannot be used as a bearing for the driven shaft.

Hints for installation

A perfect functioning can only be guaranteed if the shaft of the machine is positioned at a perfect right angle to the contact surface of the static part.



GN 700

Description	d1	d2 H7	d3	d4 -0.2	d5	l1	l2	l3	⚖
GN 700-66-K12-A	66	K 12	52	55	5.5	44	9	40	600
GN 700-66-K14-A	66	K 14	52	55	5.5	44	9	40	540
GN 700-66-K12-B	66	K 12	52	55	5.5	44	9	40	580
GN 700-66-K14-B	66	K 14	52	55	5.5	44	9	40	560
GN 700-66-K12-S	66	K 12	52	55	5.5	44	9	40	580
GN 700-66-K14-S	66	K 14	52	55	5.5	44	9	40	560
GN 700-66-K12-KS	66	K 12	52	55	5.5	44	9	40	580
GN 700-66-K14-KS	66	K 14	52	55	5.5	44	9	40	560

Control levers

Steel, blackened

SPECIFICATION

Types

- Type **M**: Cover with indicator point
- Type **N**: Cover plain

Steel
blackened

Cover
Plastic, light grey

Cylindrical knobs
Plastic, Duroplast
black

INFORMATION

The cover hides fasteners (see assembly instructions) and provides a printing facility for any symbol or logo.

On assembly, the cover is pushed in by hand and can be removed with a screw driver via a suitable slot.

Control levers GN 750 can also be supplied as standard with:

- Square DIN 79 **V** + Bore diameter
- Keyway DIN 6885 **K** + Bore diameter

ON REQUEST

- Control lever versions of the assembly examples

TECHNICAL INFORMATION

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

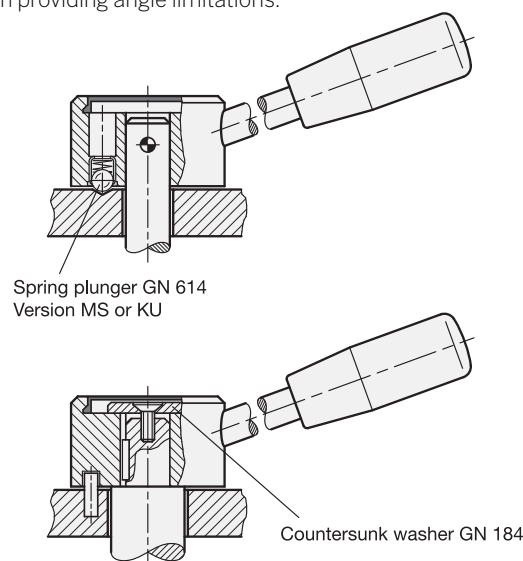
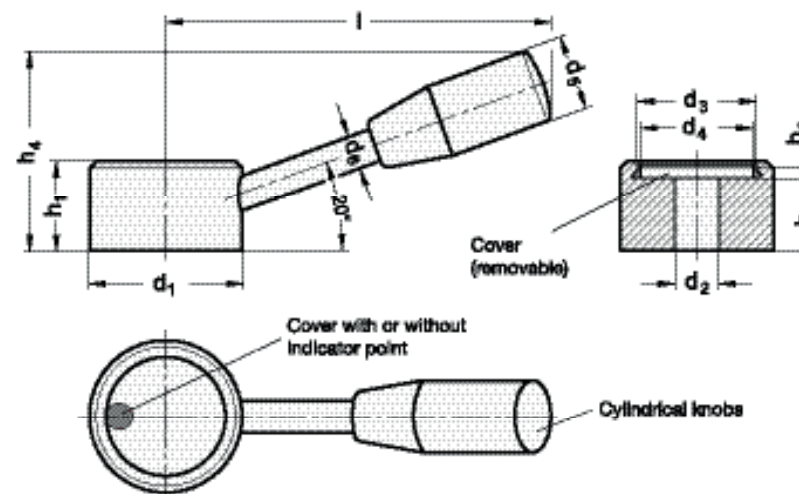
ASSEMBLY EXAMPLES

Control lever GN 750 with spring-loaded ball, GN 614 (see page 847) version brass (MS) or plastic (KU), fitted to the shaft with a dowel pin.

The spring-loaded ball provides a simple indexing assembly, the location indent can be spotted through the control lever hub.

The shaft end and the screw of the indexing ball are hidden by the plastic cover.

Control lever GN 750 with keyway and countersunk washer GN 184 (see page 971) for positive lateral location and with a radial slot and dowel pin providing angle limitations.



GN 750

Description	d1	d2 h7	d3	d4	d5	d6	h1	h2	h3	h4 ≈	l	⚖
GN 750-32-B10-M	32	B 10	25	23	18	8	21	15	4.2	43	84	123
GN 750-40-B10-M	40	B 10	32	30	21	9	25	19	4	54	106	239
GN 750-40-B12-M	40	B 12	32	30	21	9	25	19	4	54	106	232
GN 750-50-B14-M	50	B 14	40	37.5	23	11	28	22	3.8	63	130	412
GN 750-50-B16-M	50	B 16	40	37.5	23	11	28	22	3.8	63	130	406
GN 750-32-B10-N	32	B 10	25	23	18	8	21	15	4.2	43	84	123
GN 750-40-B10-N	40	B 10	32	30	21	9	25	19	4	54	106	239
GN 750-40-B12-N	40	B 12	32	30	21	9	25	19	4	54	106	232
GN 750-50-B14-N	50	B 14	40	37.5	23	11	28	22	3.8	63	130	412
GN 750-50-B16-N	50	B 16	40	37.5	23	11	28	22	3.8	63	130	406
GN 750-32-V10-M	32	V 10	25	23	18	8	21	15	4.2	43	84	116
GN 750-40-V10-M	40	V 10	32	30	21	9	25	19	4	54	106	232
GN 750-40-V12-M	40	V 12	32	30	21	9	25	19	4	54	106	225
GN 750-50-V14-M	50	V 14	40	37.5	23	11	28	22	3.8	63	130	412
GN 750-50-V16-M	50	V 16	40	37.5	23	11	28	22	3.8	63	130	406
GN 750-32-V10-N	32	V 10	25	23	18	8	21	15	4.2	43	84	116
GN 750-40-V10-N	40	V 10	32	30	21	9	25	19	4	54	106	232
GN 750-50-V14-N	50	V 14	40	37.5	23	11	28	22	3.8	63	130	412
GN 750-50-V16-N	50	V 16	40	37.5	23	11	28	22	3.8	63	130	403
GN 750-32-K10-M	32	K 10	25	23	18	8	21	15	4.2	43	84	121
GN 750-40-K10-M	40	K 10	32	30	21	9	25	19	4	54	106	236
GN 750-40-K12-M	40	K 12	32	30	21	9	25	19	4	54	106	229
GN 750-50-K14-M	50	K 14	40	37.5	23	11	28	22	3.8	63	130	408
GN 750-50-K16-M	50	K 16	40	37.5	23	11	28	22	3.8	63	130	402
GN 750-32-K10-N	32	K 10	25	23	18	8	21	15	4.2	43	84	121
GN 750-40-K10-N	40	K 10	32	30	21	9	25	19	4	54	106	236
GN 750-40-K12-N	40	K 12	32	30	21	9	25	19	4	54	106	229
GN 750-50-K14-N	50	K 14	40	37.5	23	11	28	22	3.8	63	130	408
GN 750-50-K16-N	50	K 16	40	37.5	23	11	28	22	3.8	63	130	402

Control elements 6

Control elements 6

Control levers

arranged for clicking operation, technopolymer

LEVER BODY

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

LEVER ARM

Matte chrome-plated steel with cylindrical handle l.280 (see page 568) in Duroplast.

SELF-ADHESIVE FRONT PLATE

Matte anodised aluminium to be fitted after the assembly of the lever.

STANDARD EXECUTIONS

- **LBR-A:** black-oxide steel boss, H7 reamed hole.
 - **LBR-N:** without boss, with plain hole and flat face.
- LBR.45 N and LBR.54 N: flat face opposite to the arm.
LBR.75 N: flat face in correspondance of the arm.

MANOEUVRE ANGLE LIMITATION

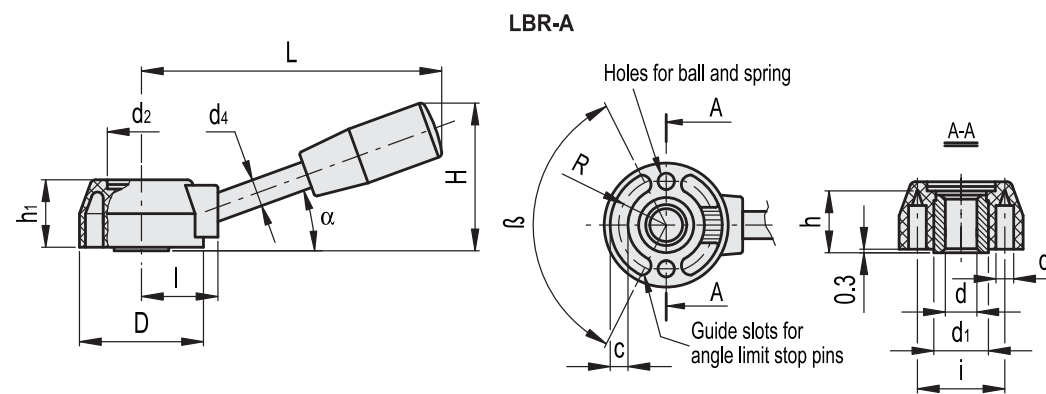
A limited manoeuvre angle is possible by fitting stop pins in the rear guide slot.

ACCESSORIES ON REQUEST

- Axial retaining washer GN 184 (see page 971).
- Ball and spring for clicking operation to be fitted into the two holes d3 drilled at 180° (see ball and spring MS. on page 610).

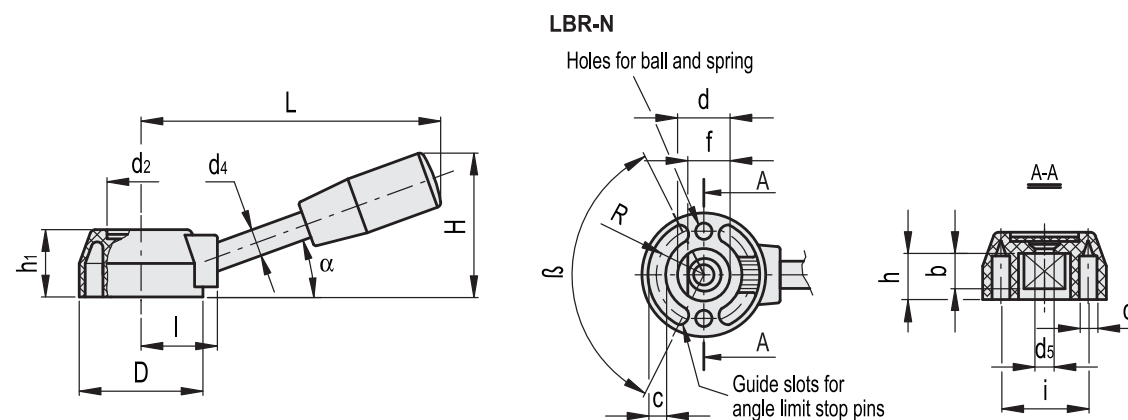
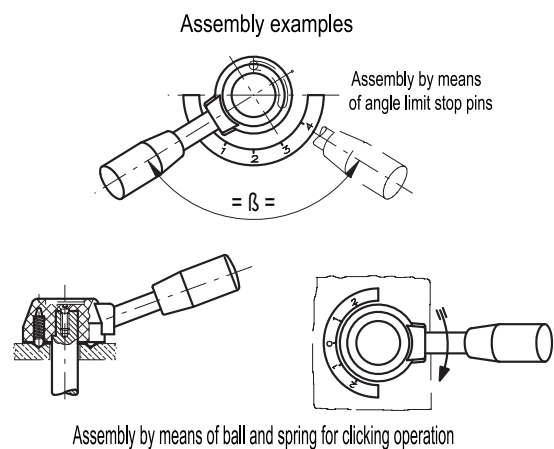
SPECIAL EXECUTIONS ON REQUEST

- Different arm lengths and handle shapes.
- Front plate with words, marks, symbols, graphics.



LBR-A

Code	Description	D	dH7	L	H	h	h1	d1	d2	d3	d4	i	l	R	c	alpha	beta	△
33101	LBR.37/85 A-8	37	8	81	46	17	20	18	21	5	10	26	22	13.8	4.3	25°	125±1°	75
33102	LBR.37/85 A-10	37	10	81	46	17	20	18	21	5	10	26	22	13.8	4.3	25°	125±1°	71
33103	LBR.37/85 A-12	37	12	81	46	17	20	18	21	5	10	26	22	13.8	4.3	25°	125±1°	66
33201	LBR.45/110 A-8	45	8	108	52	22	25	22	25	6	10	32	28	17.5	7	20°	125±1°	132
33202	LBR.45/110 A-12	45	12	108	52	22	25	22	25	6	10	32	28	17.5	7	20°	125±1°	120
33203	LBR.45/110 A-15	45	15	108	52	22	25	22	25	6	10	32	28	17.5	7	20°	125±1°	105
33301	LBR.54/130 A-10	54	10	127	61	27	30	26	31	8	12	39	34	20.2	7.3	20°	125±1°	213
33302	LBR.54/130 A-14	54	14	127	61	27	30	26	31	8	12	39	34	20.2	7.3	20°	125±1°	198
33303	LBR.54/130 A-18	54	18	127	61	27	30	26	31	8	12	39	34	20.2	7.3	20°	125±1°	175
33401	LBR.75/170 A-18	75	18	170	80	34	38	30	42	10	14	55	45	26	15	20°	105±1°	360



LBR-N

Code	Description	D	dH8	L	H	h	h1	d2	d3	d4	d5	i	l	R	c	alpha	beta	f+0.05	b	△
33211	LBR.45/110 N-16	45	16	108	52	16	25	25	6	10	6.5	32	28	17.5	7	20°	125±1°	13	12	80
33311	LBR.54/130 N-22	54	22	125	66	21	30	31	8	12	6.5	39	34	20.2	7.3	25°	125±1°	19	16	130
33411	LBR.75/170 N-25	75	25	170	80	26	38	42	10	14	8.5	55	45	26	15	20°	105±1°	22	21	255

Control elements 6

Control elements 6

Control levers

arranged for clicking operation, technopolymer

MATERIAL

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

BOSS CAP

Technopolymer, matte finish, push-fit assembly, removable by a screwdriver, included in the supply.

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

Code	Description	Boss cap for
29551-*	ECB.T1-*	ELC.67
29552-*	ECB.T2-*	ELC.85
29553-*	ECB.T3-*	ELC.110
29554-*	ECB.T4-*	ELC.140

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

STANDARD EXECUTIONS

- **ELC:** black-oxide steel boss, H7 reamed hole, cap in the Ergostyle colours.
- **ELC-FC3:** black-oxide steel boss, H7 reamed hole, cap in RAL 7035 light grey colour, with arrow indicator.
- **ELC-SST:** AISI 303 stainless steel boss, H7 reamed hole, cap in the Ergostyle colours.
- **ELC-SST-FC3:** AISI 303 stainless steel boss, H7 reamed hole, cap in RAL 7035 light grey colour, with arrow indicator.

ERGONOMY

Rotations are performed smoothly and powerfully thanks to the heavy-duty arm of the lever, while the enlarged and sunken semispherical end offers an effective grip.

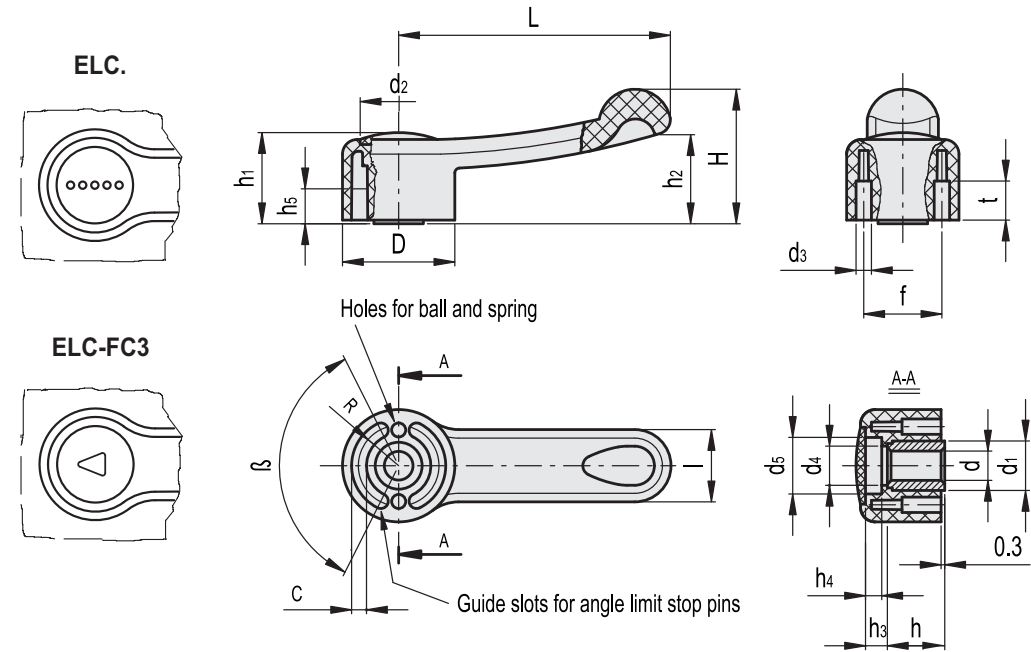
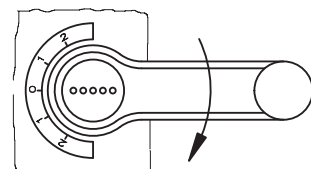
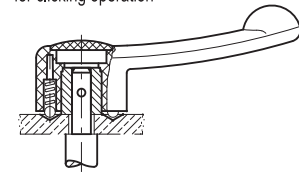
MANOEUVRE ANGLE LIMITATION

A limited manoeuvre angle is possible by fitting stop pins in the rear guide slot.

- Axial retaining washer GN 184 (see page 971).
- Ball and spring for clicking operation to be fitted into the two holes d3 drilled at 180° (see ball and spring MS. on page 610).



Assembly example
by means of ball and spring
for clicking operation



* Complete with colour index, example: 212121-C2 ELC.67 A-6-C2

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

ELC.

Code	Description	D	dH7	L	H	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	⚖
212121-*	ELC.67 A-6-*	32	6	67	35	16	24	24	5	3	10	15	22.5	4	10	16	20	12	9	4	125±1°	24	50
212131-*	ELC.85 A-8-*	37	8	85	41	17.5	27	27	7.5	5	10	18	26	5	13.5	20	23	13.8	12.5	4.3	125±1°	26	63
212141-*	ELC.110 A-12-*	46	12	110	54	22	35	36	10	8	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	129
212151-*	ELC.140 A-14-*	54	14	140	60	27	38	38	8.5	6	10	26	36	8	21	31	34	20.2	16	7	125±1°	39	145

ELC-FC3

Code	Description	D	dH7	L	H	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	⚖
212121-FC3	ELC.67 A-6-FC3	32	6	67	35	16	24	24	5	3	10	15	22.5	4	10	16	20	12	9	4	125±1°	24	50
212131-FC3	ELC.85 A-8-FC3	37	8	85	41	17.5	27	27	7.5	5	10	18	26	5	13.5	20	23	13.8	12.5	4.3	125±1°	26	63
212141-FC3	ELC.110 A-12-FC3	46	12	110	54	22	35	36	10	8	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	129
212151-FC3	ELC.140 A-14-FC3	54	14	140	60	27	38	38	8.5	6	10	26	36	8	21	31	34	20.2	16	7	125±1°	39	145

ELC-SST

STAINLESS STEEL

Code	Description	D	dH7	L	H	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	⚖
212161-*	ELC.67-SST-6-*	32	6	67	35	16	24	24	5	3	10	15	22.5	4	10	16	20	12	9	4	125±1°	24	50
212171-*	ELC.85-SST-8-*	37	8	85	41	17.5	27	27	7.5	5	10	18	26	5	13.5	20	23	13.8	12.5	4.3	125±1°	26	63
212181-*	ELC.110-SST-12-*	46	12	110	54	22	35	36	10	8	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	129
212191-*	ELC.140-SST-14-*	54	14	140	60	27	38	38	8.5	6	10	26	36	8	21	31	34	20.2	16	7	125±1°	39	145

ELC-SST-FC3

STAINLESS STEEL

Code	Description	D	dH7	L	H	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	⚖
212161-FC3	ELC.67-SST-6-FC3	32	6	67	35	16	24	24	5	3	10	15	22.5	4	10	16	20	12	9	4	125±1°	24	50
212171-FC3	ELC.85-SST-8-FC3	37	8	85	41	17.5	27	27	7.5	5	10	18	26	5	13.5	20	23	13.8	12.5	4.3	125±1°	26	63
212181-FC3	ELC.110-SST-12-FC3	46	12	110	54	22	35	36	10	8	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	129
212191-FC3	ELC.140-SST-14-FC3	54	14	140	60	27	38	38	8.5	6	10	26	36	8	21	31	34	20.2	16	7	125±1°	39	145

Control elements 6

Control elements 6

Control lever

arranged for clicking operation, technopolymer

MATERIAL

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

BOSS CAP

Technopolymer in the Ergostyle colours, matte finish. Supplied, push-fit assembly, removable by a screwdriver.

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

Code	Description	Boss cap for
29553-*	ECB.T3-*	ELCR.118

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

STANDARD EXECUTION

Black-oxide steel boss, H7 reamed hole

FEATURES AND APPLICATIONS

Control levers ELCR. have a straight lever, parallel to the clamping surface. Particularly suitable when the lever turning angle is limited owing to lack of space.

ERGONOMY

Rotations are performed smoothly and powerfully thanks to the heavy-duty arm of the lever, while the enlarged end offers an effective grip.

MANOEUVRE ANGLE LIMITATION

A limited manoeuvre angle is possible by fitting stop pins in the rear guide slot.

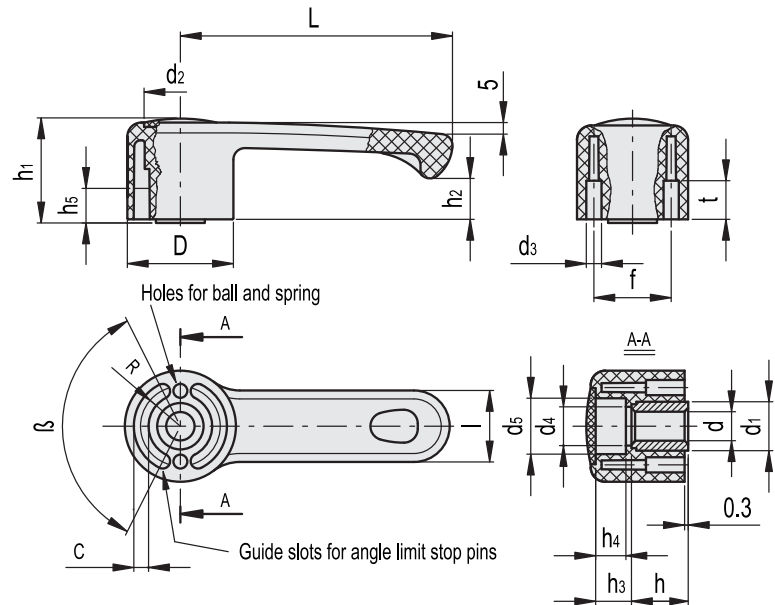
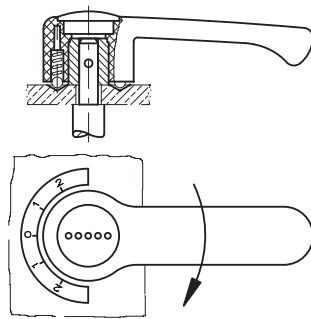
ACCESSORIES ON REQUEST

- Axial retaining washer GN 184 (see page 971).
- Ball and spring for clicking operation to be fitted into the two holes d_3 drilled at 180° (see ball and spring MS. on page 610).



ERGOSTYLE®

Assembly example
by means of ball and spring
for clicking operation



* Complete with colour index, example: 212241-C2 ELCR.118 A-12-C2

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

Code	Description	D	dH7	L	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	Δ
212241-*	ELCR.118 A-12-*	46	12	118	22	44	18.5	19	17	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	135



Indexing levers

SPECIFICATION

Types

- Type **A**: without serrations
- Type **B**: with 30 serrations

Steel
blackened

Cover Plastic
black, with inserted Alu-disc
matt anodized, natural colour

Keyway for bore
K10: 3 P9 x 1.1
K12 ... K16: DIN 6885/2

Ball knob DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish



INFORMATION

With indexing levers GN 215 shafts can be turned through a predetermined angle and positively locked. To index, lift the lever against spring pressure from serrations (one hand control).

The **bush** is connected to the shaft via keyway.

The **location flange** is bolted to the machine with two socket head cap screws (M 5).

The **lever**, via the location pin, provides the connection between shaft and location flange).

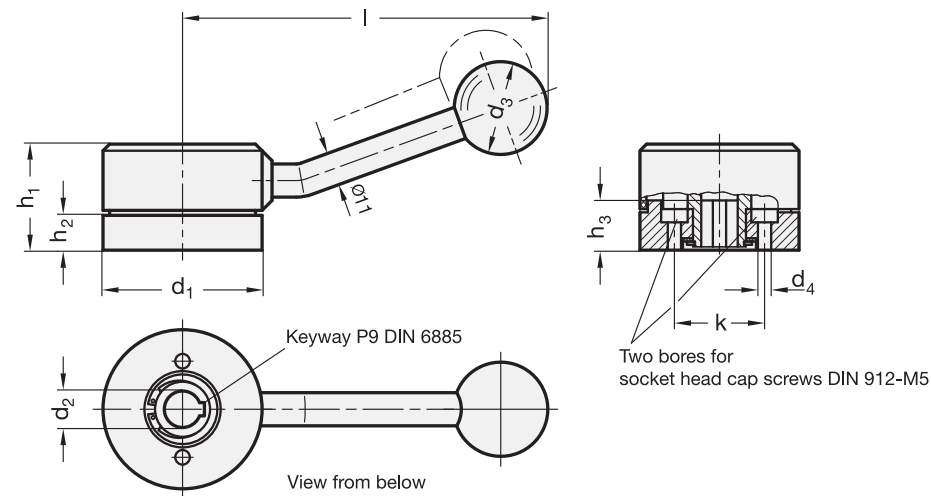
The serrations are protected from swarf and similar particles by the cover. This cover can be inserted by hand (elastic segments engage into a groove) and removed with a screw driver.

ON REQUEST

- Serrations, restricted angle to drawing

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 215

Description	d1	d2 H7	d3	d4	d5	h1	h2	h3 max.	k	l	w +0.5°	ΔΔ
GN 215-54-K10-A	54	K 10	32	5.2	44.5	37	13	16.5	30	122	22°	470
GN 215-54-K12-A	54	K 12	32	5.2	44.5	37	13	16.5	30	122	22°	466
GN 215-60-K14-A	60	K 14	32	5.2	50	39	15	18.5	36	125	19°	619
GN 215-60-K16-A	60	K 16	32	5.2	50	39	15	18.5	36	125	19°	597
GN 215-54-K10-B	54	K 10	32	5.2	44.5	37	13	16.5	30	122	22°	461
GN 215-54-K12-B	54	K 12	32	5.2	44.5	37	13	16.5	30	122	22°	457
GN 215-60-K14-B	60	K 14	32	5.2	50	39	15	18.5	36	125	19°	608
GN 215-60-K16-B	60	K 16	32	5.2	50	39	15	18.5	36	125	19°	580

TECHNICAL AND ASSEMBLY INSTRUCTIONS

The location pin is a wedge-type as standard, which guarantees backlash-free positioning and also achieving easy engagement and disengagement. Special serrations and dowel pins which restrict the indexing angle can be produced to customers requirement. Please ask for a quotation.

If backlash-free positioning is not required, a dowel pin (made from a grub screw) can be used. The serrations can be made square or with dowels and suitable holes. Such holes have to be made large enough to ensure that the dowel is not restricted on engagement (lever swivel radius).

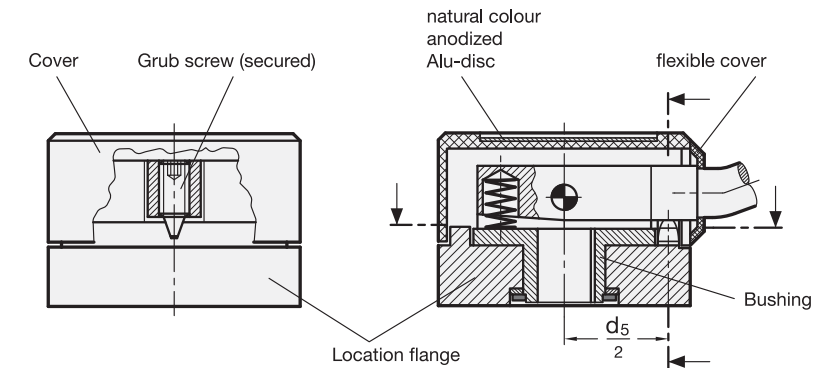
Smallest available angle for special serrations:

Size 54 - 11°

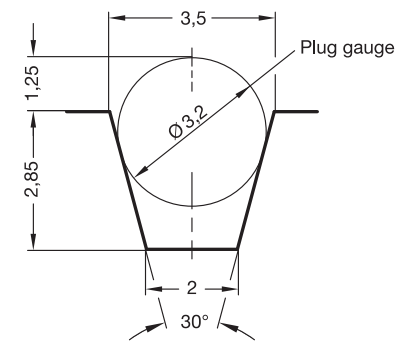
Size 60 - 9°

Smaller angles can be achieved with suitable serrations and dowels.

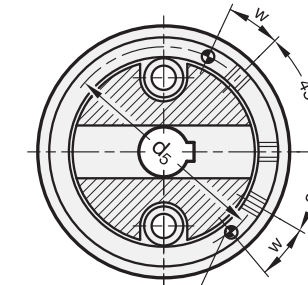
Milling cutter for standard serrations can be supplied.



Enlargement of serrations with plug gauge to aid checking



Example with three serrations and restricted indexing angle



Dowel pin ISO 8750 Ø 3,5 x 7 mm protruding (only applicable when restricted indexing angle is required)
w = angle from serration (lever position)

Rulers

self-adhesive

SPECIFICATION

Types

- Type **W**: Figures horizontally arranged (Figure sequence L, M, R)
- Type **S**: Figure vertically arranged (Figure sequence U, M, O)

Stainless Steel **NI**

- Thickness 0.6 mm
- Scale etched

Plastic **KUS**

- Thickness 0.3 mm
- highlighted in silver
- Scale printed

INFORMATION

To stick the ruler GN 711 remove the protective strip at the back. The engraved side of Stainless Steel-Rulers is also protected by a strip.



Figure sequence **L**

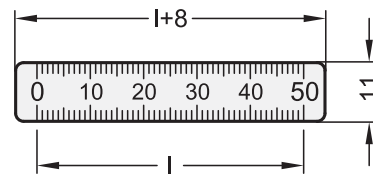


Figure sequence **M**

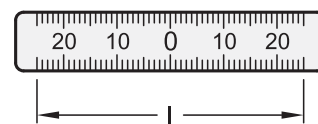


Figure sequence **R**

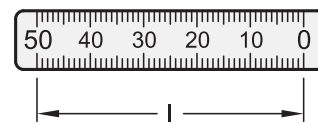


Figure sequence **U**

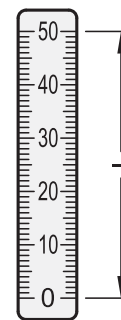


Figure sequence **M**

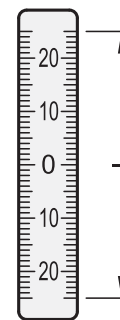
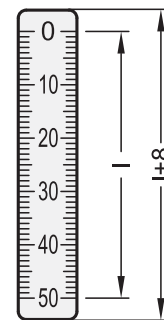


Figure sequence **O**



* Complete with material of the Rulers (NI or KUS)

NI **KUS**
Stainless Steel Plastic, silver

GN 711

STAINLESS STEEL

Description	l	△
GN 711-*-50-W-L	50	3
GN 711-*-50-W-M	50	3
GN 711-*-50-W-R	50	3
GN 711-*-50-S-M	50	3
GN 711-*-50-S-U	50	3
GN 711-*-50-S-O	50	3

* Complete with material of the Rulers (NI or KUS)

NI **KUS**
Stainless Steel Plastic, silver

GN 711

STAINLESS STEEL

Description	l	△
GN 711-*-100-W-L	100	5
GN 711-*-100-W-M	100	5
GN 711-*-100-W-R	100	5
GN 711-*-100-S-M	100	5
GN 711-*-100-S-U	100	5
GN 711-*-100-S-O	100	5
GN 711-*-150-W-L	150	7
GN 711-*-150-W-M	150	7
GN 711-*-150-W-R	150	7
GN 711-*-150-S-M	150	7
GN 711-*-150-S-U	150	7
GN 711-*-150-S-O	150	7
GN 711-*-200-W-L	200	9
GN 711-*-200-W-M	200	9
GN 711-*-200-W-R	200	9
GN 711-*-200-S-M	200	9
GN 711-*-200-S-U	200	9
GN 711-*-200-S-O	200	9
GN 711-*-300-W-L	300	13
GN 711-*-300-W-M	300	13
GN 711-*-300-W-R	300	13
GN 711-*-300-S-M	300	13
GN 711-*-300-S-U	300	13
GN 711-*-300-S-O	300	13
GN 711-*-400-W-L	400	18
GN 711-*-400-W-M	400	18
GN 711-*-400-W-R	400	18
GN 711-*-400-S-M	400	18
GN 711-*-400-S-U	400	18
GN 711-*-400-S-O	400	18
GN 711-*-500-W-L	500	22
GN 711-*-500-W-M	500	22
GN 711-*-500-W-R	500	22
GN 711-*-500-S-M	500	22
GN 711-*-500-S-U	500	22
GN 711-*-500-S-O	500	22
GN 711-*-750-W-L	750**	33
GN 711-*-750-W-M	750**	33
GN 711-*-750-W-R	750**	33
GN 711-*-750-S-M	750**	33
GN 711-*-750-S-U	750**	33
GN 711-*-750-S-O	750**	33
GN 711-*-1000-W-L	1000**	44
GN 711-*-1000-W-M	1000**	44
GN 711-*-1000-W-R	1000**	44
GN 711-*-1000-S-M	1000**	44
GN 711-*-1000-S-U	1000**	44
GN 711-*-1000-S-O	1000**	44

** The NI-version of this length consists of 2 parts.

Rulers

with mounting holes $\varnothing 3.3$

SPECIFICATION

Types

- Type **W**: Figures horizontally arranged (Figure sequence L, M, R)
- Type **S**: Figures vertically arranged (Figure sequence U, M, O)

Identification No.

No. **1**: with mounting holes $\varnothing 3.3$

Aluminium **AL**
natural colour anodized

black imprint with numbers and scale
etched (i.e., aluminium coloured)

Imprint resistant to weak acids and lye
solutions, and against solvents in the event
of brief contact

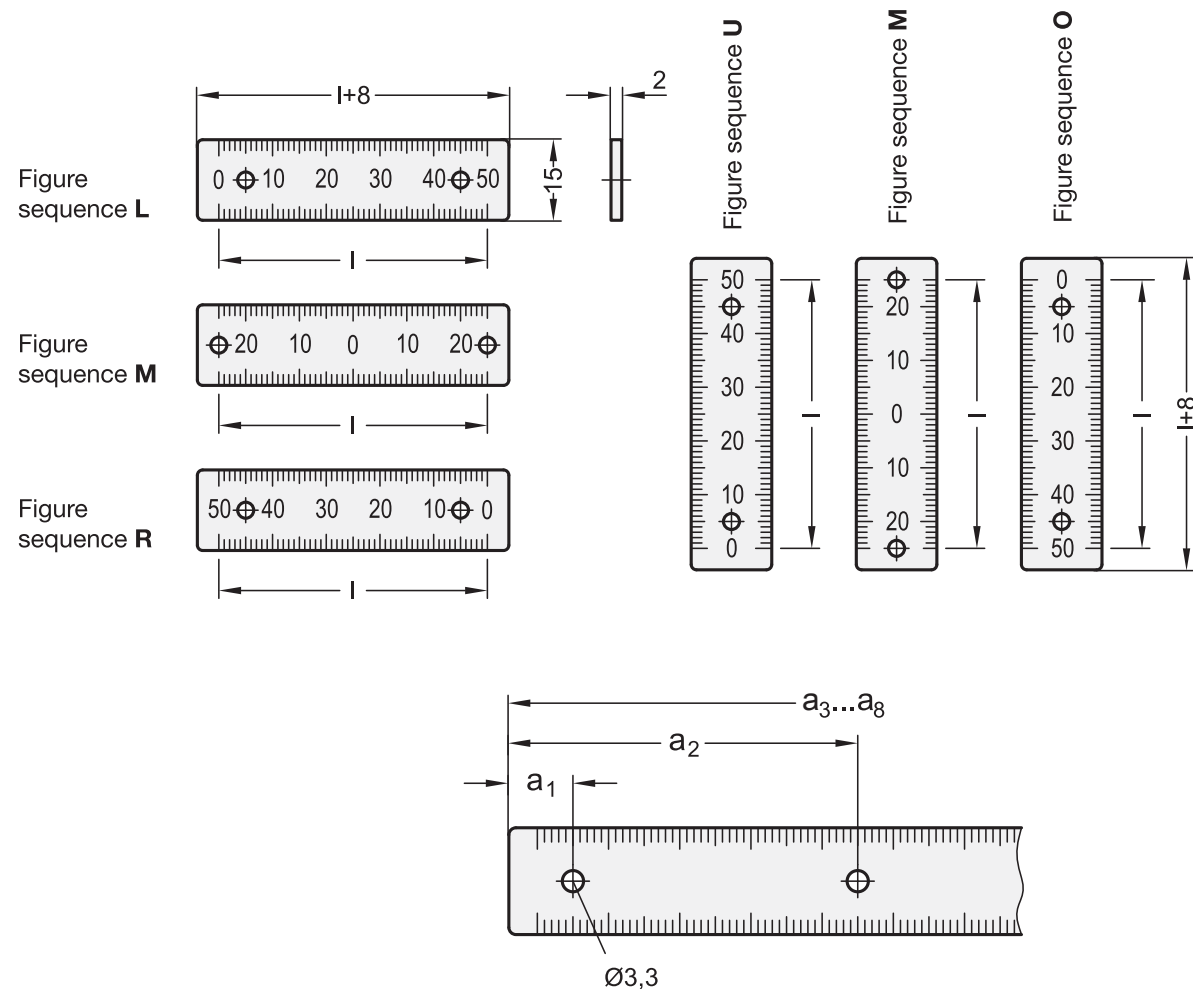


INFORMATION

- Rulers GN 711 (Stainless Steel, Plastic, self-adhesive)
(see page 636)

ON REQUEST

- self-adhesive version



GN 711.2

Description	l	Number	a1 ±0.1	a2 ±0.1	a3 ±0.1	a4 ±0.1	a5 ±0.1	a6 ±0.1	a7 ±0.1	a8 ±0.1	△
GN 711.2-AL-50-W-L-1	50	2	9	49	-	-	-	-	-	-	4
GN 711.2-AL-50-W-M-1	50	2	4	54	-	-	-	-	-	-	4
GN 711.2-AL-50-W-R-1	50	2	9	49	-	-	-	-	-	-	4
GN 711.2-AL-100-W-L-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-100-W-M-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-100-W-R-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-150-W-L-1	150	2	9	149	-	-	-	-	-	-	12
GN 711.2-AL-150-W-M-1	150	2	4	154	-	-	-	-	-	-	12
GN 711.2-AL-150-W-R-1	150	2	9	149	-	-	-	-	-	-	12
GN 711.2-AL-200-W-L-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-200-W-M-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-200-W-R-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-300-W-L-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-300-W-M-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-300-W-R-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-400-W-L-1	400	4	9	139	269	399	-	-	-	-	34
GN 711.2-AL-400-W-M-1	400	4	9	139	269	399	-	-	-	-	34
GN 711.2-AL-400-W-R-1	400	4	9	139	269	399	-	-	-	-	34
GN 711.2-AL-500-W-L-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-500-W-M-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-500-W-R-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-750-W-L-1	750*	8	9	129	249	369	389	509	629	749	60
GN 711.2-AL-750-W-M-1	750*	9	4	124	254	374	394	504	634	754	60
GN 711.2-AL-750-W-R-1	750*	8	9	129	249	369	389	509	629	749	60
GN 711.2-AL-1000-W-L-1	1000*	8	9	169	339	499	519	679	839	999	81
GN 711.2-AL-1000-W-M-1	1000*	8	9	169	499	499	514	679	839	999	81
GN 711.2-AL-1000-W-R-1	1000*	8	9	169	339	499	519	679	839	999	81
GN 711.2-AL-50-S-M-1	50	2	9	54	-	-	-	-	-	-	4
GN 711.2-AL-50-S-U-1	50	2	9	49	-	-	-	-	-	-	4
GN 711.2-AL-50-S-O-1	50	2	9	49	-	-	-	-	-	-	4
GN 711.2-AL-100-S-M-1	100	2	4	99	-	-	-	-	-	-	8
GN 711.2-AL-100-S-U-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-100-S-O-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-150-S-M-1	150	2	4	154	-	-	-	-	-	-	12
GN 711.2-AL-150-S-U-1	150	2	9	149	-	-	-	-	-	-	12
GN 711.2-AL-150-S-O-1	150	2	9	149	-	-	-	-	-	-	12
GN 711.2-AL-200-S-M-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-200-S-U-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-200-S-O-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-300-S-M-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-300-S-U-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-300-S-O-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-400-S-M-1	400	4	9	139	269	399	-	-	-	-	30
GN 711.2-AL-400-S-U-1	400	4	9	139	269	399	-	-	-	-	30
GN 711.2-AL-400-S-O-1	400	4	9	139	269	399	-	-	-	-	30
GN 711.2-AL-500-S-M-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-500-S-U-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-500-S-O-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-750-S-M-1	750*	8	4	124	254	374	394	504	634	754	60
GN 711.2-AL-750-S-U-1	750*	8	9	129	249	364	389	509	829	749	60
GN 711.2-AL-750-S-O-1	750*	8	9	129	249	364	389	509	829	749	60
GN 711.2-AL-1000-S-M-1	1000*	8	9	169	339	499	519	679	839	999	81
GN 711.2-AL-1000-S-U-1	1000*	8	9	169	329	499	519	679	839	999	81
GN 711.2-AL-1000-S-O-1	1000*	8	9	169	329	499	519	679	839	999	81

* These lengths consist of 2 parts.

GN 711.1



GN 711.3



Indicator arrows for rulers

self-adhesive

SPECIFICATION

Stainless Steel **NI**

- Thickness 0.6 mm
- Scale etched

Plastic **KUS**

- Thickness 0.3 mm
- highlighted in silver
- Scale printed

Plastic **KUT**

- Thickness 0.3 mm
- transparent
- Scale printed

Indicator arrow scale for GN 711.2

with mounting holes $\varnothing 3.3$

SPECIFICATION

Identification No.

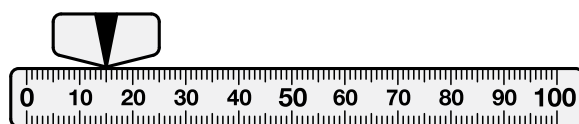
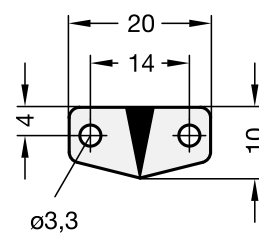
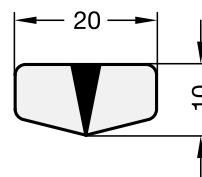
No. **1**: with mounting holes $\varnothing 3.3$

Aluminium **AL**

natural colour anodized

black imprint with arrow etched (i.e., aluminium coloured)

Imprint resistant to weak acids and lye solutions, and against solvents in the event of brief contact



GN 711.1

STAINLESS STEEL

Description	⚖
GN 711.1-NI	6
GN 711.1-KUS	1
GN 711.1-KUT	3

GN 711.3

Description	⚖
GN 711.3-AL-1	1

Control elements 6