



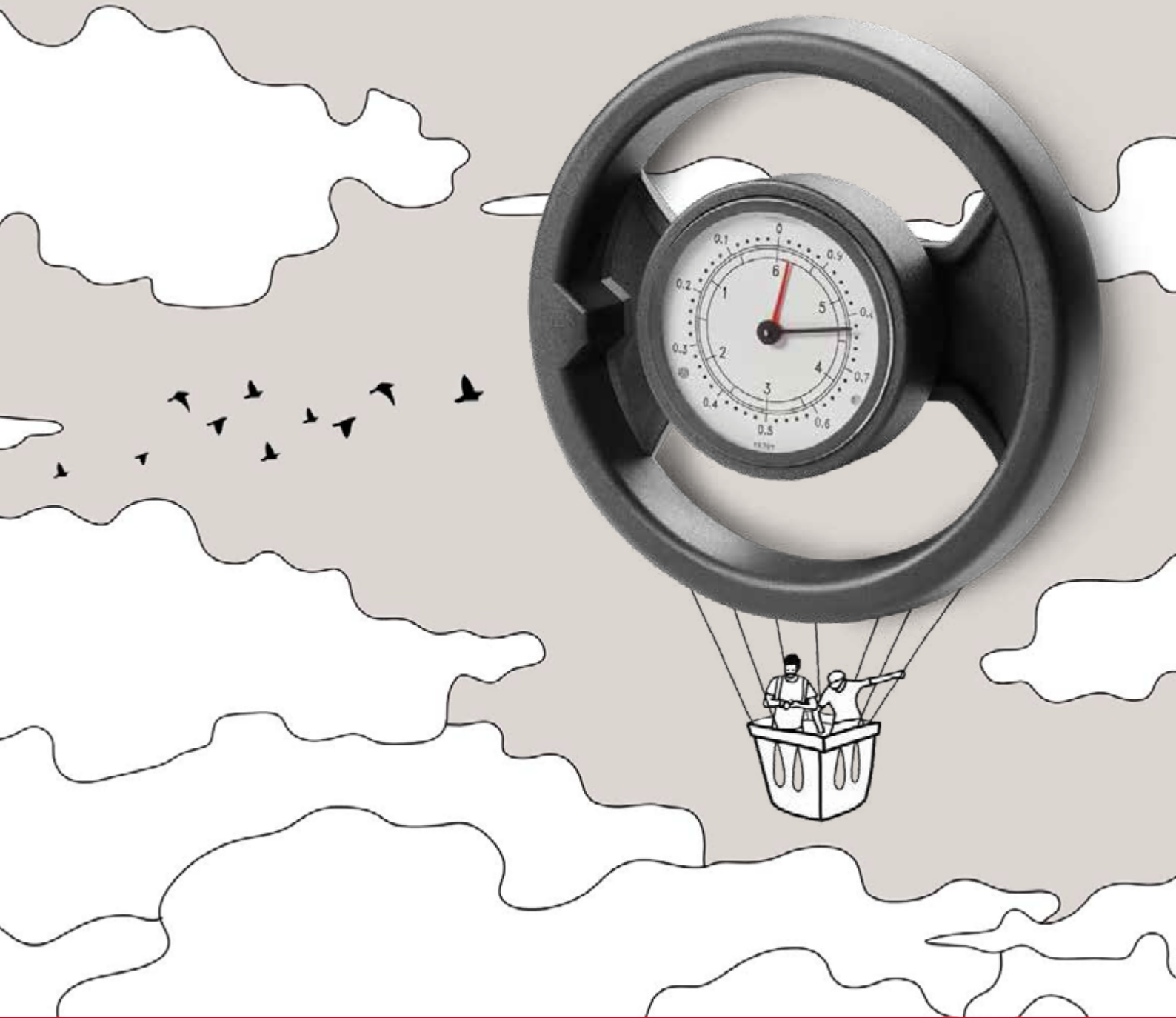
BOTECO®

YOUR MECHANICAL COMPONENT

GROUP - K

CONTROL HANDWHEELS WITH INDICATOR





Sometimes it's not enough to get "the business going", it needs to **TAKE FLIGHT!**



BOTECA®

K170

LOBED HANDWHEEL FOR INDICATOR



Materials:

Reinforced polyamide. Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Mountable indicator:

Gravity position indicator model K650080. The indicator can be only used in a vertical position (horizontal machine axis). The indicator must be purchased separately. For further information see article K650 [page 362 363].

Insert:

Galvanised steel insert with smooth through bore (tolerance H10) with key according to the dimension of the bore.

Indicator fixing method:

Fix the indicator with a threaded grub screw M05 (not supplied) to be inserted in the special bore M05.

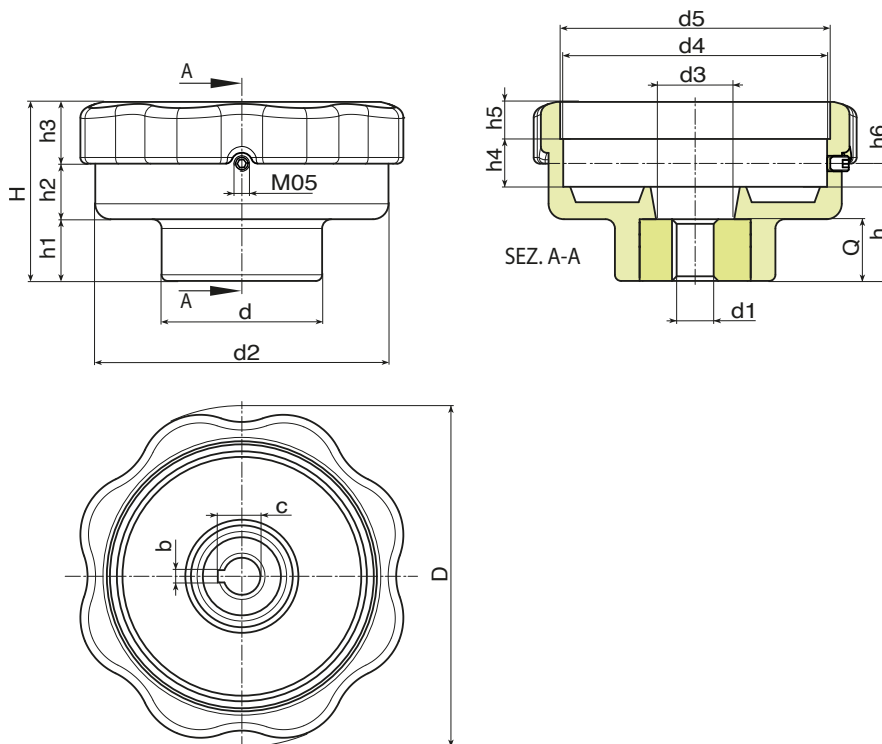
Special Requests:

- Upon request and for a minimum of 50 pieces inserts can be supplied with hole d1 with tolerance H7 and black oxide treated finish. Add letters ZB to the standard code. Example: K170110.T80D1201ZB.
- Upon request and for special quantities inserts can be supplied with custom hole diameter d1.
- Upon request and for special quantities inserts can be supplied in different materials.

Combinations Diameters/Indicators:

d5=52.4 --> K650050

d5=87.4 --> K650080 or K660080



art.	D	H	h	h1	h2	h3	h4	h5	h6	d	d2	d3	d4	d5	d1H10	Q	g
K170110.T80D1201H	110	58	30.5	20	18	20	15.5	12	7.5	52	95	25	85.5	87.4	12	20	230

K150

KNURLED KNOB FOR INDICATOR



Materials:

Reinforced polyamide. Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Mountable indicator:

Gravity position indicator type K650050. The indicator can be only used in a vertical position (horizontal machine axis). The indicator must be purchased separately. For further information see article K650 [page 362 363].

ATTENTION:

In your order specify the following information and select the corresponding letter to insert in the code:

Rotation direction

O = increase of values with clockwise rotation. A = increase of values with counter clockwise rotation.

Gear ratio and corresponding scale:

Select the appropriate gear ratio by deciding which number the big black pointer must indicate after the knob has completed one turn. The graduated scale will be proportional to the selected ratio. A ratio of 12 will have a scale that ranges from 0 to 12.

Insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Fixing method:

The knob is fixed to the shaft by means of the threaded radial hole (d2) (grub screw not supplied).

Special Requests:

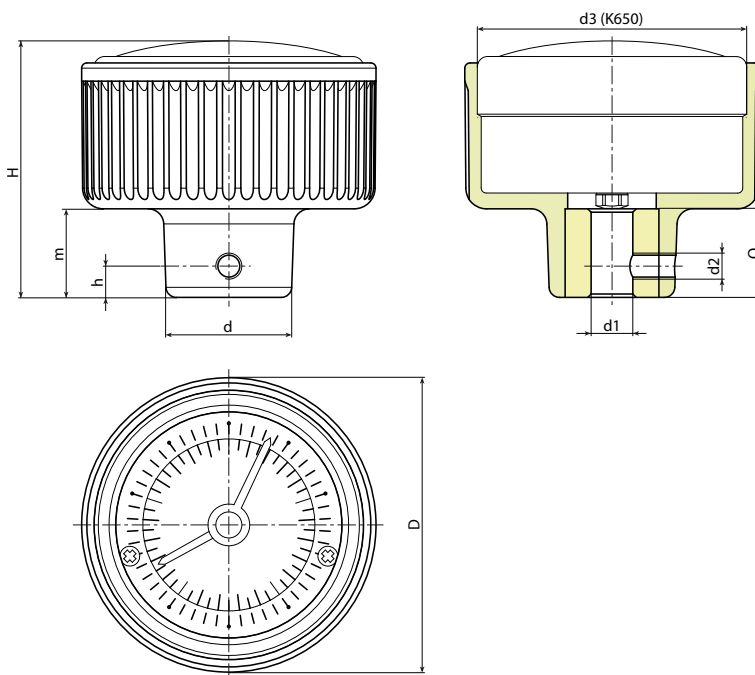
- Upon request and for a minimum of 50 pieces inserts can be supplied with hole d1 with tolerance H7 and black oxide treated finish. Add letters ZB to the standard code. Example: K150057.TD1001O12ZB.
- Upon request and for special quantities inserts can be supplied with custom hole diameter d1.
- Upon request and for special quantities inserts can be supplied in different materials.

Combinations Diameters/Indicators:

d3=52.4 --> K650050

d3=66.8 --> K650070

d3=87.4 --> K650080 or K660080



🛒	art.	D	d	H	h	m	d3	d2	d1H10	dm	Q	📦
●	K150057.TD0801...	57	24	50	6	17	52,4	M5	8	12	16	105
●	K150057.TD1001...	57	24	50	6	17	52,4	M5	10	12	16	104
●	K150057.TD1201...	57	24	50	6	17	52,4	M5	12	12	16	103
●	K150072.TD0801...	72	28	56	6	21	66,8	M5	8	12	20	165
●	K150072.TD1001...	72	28	56	6	21	66,8	M5	10	12	20	163
●	K150072.TD1201...	72	28	56	6	21	66,8	M5	12	12	20	161
●	K150094.TD1001...	94	36	60	6	24	87,4	M5	10	15	24	376
●	K150094.TD1201...	94	36	60	6	24	87,4	M5	12	15	24	373
●	K150094.TD1401...	94	36	60	6	24	87,4	M5	14	15	24	370

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated). Dm = Maximum obtainable diameter for subsequent machining (widening).

Available gear ratios: 1-2-3-6-10-12-15-18-20-24-30-36-48-50-60-72-84-96-100. In your order enter rotating direction and gear ratio in place of the three dots. Example: clockwise indicator with a ratio of 12 on knob d. 57 with hole H10: code: K150057.TD1001O12.



K960

KNURLED CONTROL KNOB FOR INDICATOR K650-50



Materials:

Reinforced polyamide. Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Mountable indicator:

Gravity position indicator type K650050. The indicator can be only used in a vertical position (horizontal machine axis). The indicator must be purchased separately. For further information see article K650 [page 362 363].

Insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Fixing method:

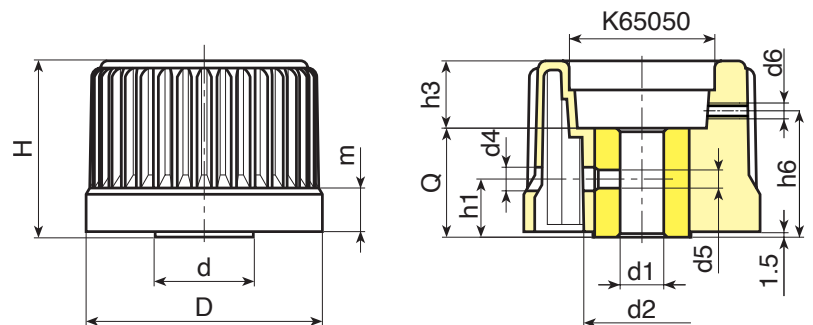
The knob is fixed to the shaft by means of the threaded radial hole (d4) (grub screw not supplied).

Indicator fixing method:

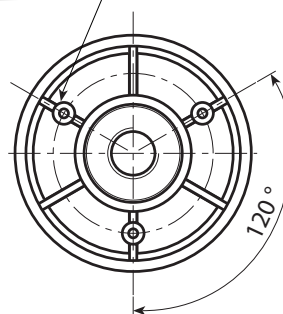
Fix the indicator with a threaded grub screw M4 (not supplied) to be inserted in the hole d6.

Special Requests:

- Upon request and for a minimum of 50 pieces inserts can be supplied with hole d1 with tolerance H7 and black oxide treated finish. Add letters ZB to the standard code. Example: K961078.TD0801ZB.
- Upon request and for special quantities inserts can be supplied with custom hole diameter d1.
- Upon request and for special quantities inserts can be supplied in different materials.
- Upon request the control knob can be supplied with a grey ring. The code for this product is: K96178.TD080116.



Hole for flange fixing



art.	D	H	m	d	d2	d4	d5	d6	h1	h3	h6	Dm	d1H10	Q
K96078.TD0801	78	56	15	31	36	6.5	M6	M4	18	24	38.5	18	8	32

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated).
Dm = Maximum obtainable diameter for subsequent machining (widening).

K870

INDICATOR ADAPTER FOR SPOKE HANDWHEEL



Materials:

Reinforced polyamide. Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Fixing holes:

The same adapter can be used with several spoke handwheels. To fix it firstly select the pair of holes suitable for the diameter of the handwheel in use (for user convenience the diameters are engraved next to one of the two holes); drill through with a normal 4.5 mm drill bit. Then countersink the hole to accommodate the countersunk screw. The two self-tapping screws (TPS 4X16) are supplied with the adapter. The drawing on the side shows, as an example, the countersunk holes obtained on a K870.T8001 for a Boteco spoke handwheel having a 200 mm diameter.



Indicator fixing method:

Fasten the indicator with a threaded grub screw M05 inserted in the bore d4, (screw supplied with adapter).

Adapter compatibility:

Adapter K870.T5001 with indicator K65050 for handwheels D. 130-160

Adapter K870.T8001 with indicator K65080 for handwheels D. 160-200-250-350

The adapter can be mounted on the following articles:

D205-D206-D208.

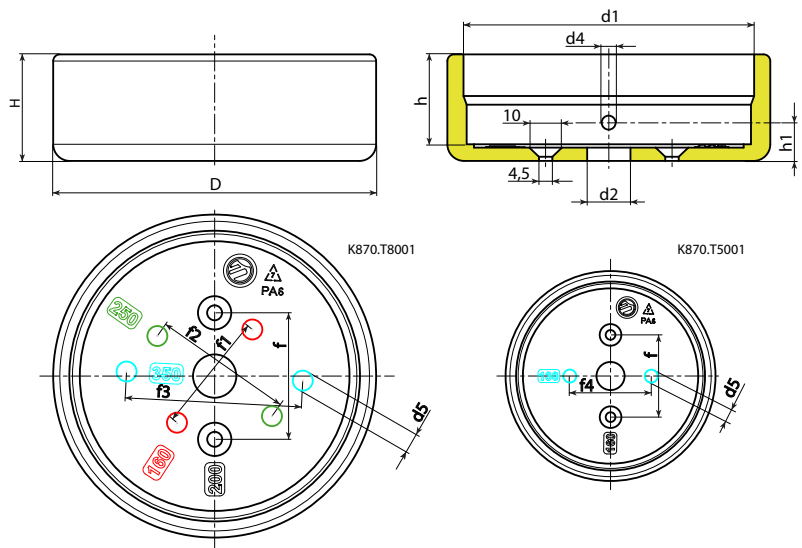
Special Requests:

- None.

Combinations Diameters/Indicators:

d1=52.4 --> K650050

d1=87.4 --> K650080 or K660080



art.	D	H	h	h1	d1	d2	d3	d4	d5	f	f1	f2	f3	f4	g
K870.TS5001BASE1	62	29.5	24	12	52,4	13	4.5	M5	6	36	-	-	-	25	74
K870.TS8001BASE1	97	32	27	11.5	87,4	13	4.5	M5	6	36	38	42	53	-	95

K405

SPOKE HANDWHEEL WITH INDICATOR SEAT



Materials:

Reinforced and stabilized polyamide. Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Hub:

Solid Hub.

(*) Lightweight hub.

Mountable indicator:

Gravity position indicator with 50/80mm diameter (models K650-K660). The indicator can be only used in a vertical position (horizontal machine axis). The indicator must be purchased separately. For further information see article K650 [page 362 363].

Indicator fixing method:

Fasten the indicator with a threaded grub screw M05 inserted in the bore d4, (screw supplied with adapter).

Handwheel fixing method:

The handwheel is fixed to the shaft using a thrust pin (not supplied) to be inserted on the threaded hole d2.

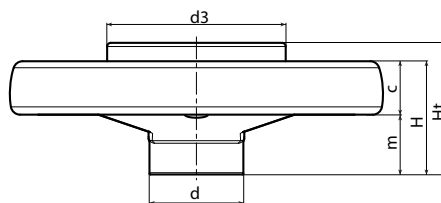
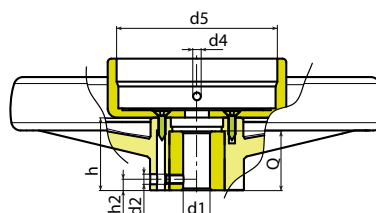
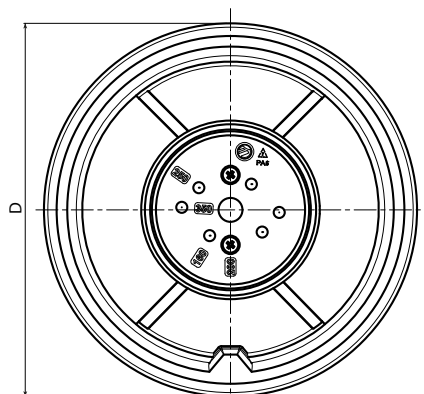
Special Requests:

- Upon request and for a minimum of 50 pieces inserts can be supplied with hole d1 with tolerance H7 and black oxide treated finish. Add letters ZB to the standard code. Example: K405130.T050D0801ZB.
- Upon request and for special quantities inserts can be supplied with custom hole diameter d1.
- Upon request and for special quantities inserts can be supplied in different materials.
- Upon request the handwheels can be supplied with indicator (not assembled for transport).

Combinations Diameters/Indicators:

d5=52.4 --> K650050

d5=87.4 --> K650080 or K660080



🛒	art.	D	d	m	c	H	Ht	h	h2	d2	d3	d4	d5	Dm	d1H10	Q	📦
●	K405130.T050D0801	129	32	32	18	50	65.5	36	8	M5	62	M5	52,4	18	8	24	314
●	K405160.T050D0801	159	40	34	23	57	69	40.5	8	M5	62	M5	52,4	22	8	32	464
●	K405160.T080D0801	159	40	34	23	57	72	40.5	8	M5	97	M5	87,4	22	8	32	485
●	K405200.T080D0801	198	51	33	28.5	61.5	71	39.5	8	M5	97	M5	87,4	22	8(*)	32	725
●	K405250.T080D0801	252	55.5	38.5	31.5	70	79	47	8	M5	97	M5	87,4	28	8(*)	36	1015
●	K405350.T080D0801	346	67.5	43.5	36.5	80	81.5	49.5	8	M5	97	M5	87,4	30	8(*)	32	1625

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated). Dm = Maximum obtainable diameter for subsequent machining (widening).



K406

SPOKE HANDWHEEL WITH HANDLE AND INDICATOR SEAT



Materials:

Reinforced and stabilized polyamide. Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Main insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Lateral insert:

Brass insert with threaded through hole.
(+) Hexagonal black-oxide treated steel insert with threaded through hole. Fixed with black-oxide treated button head screw ISO 7838.

Hub:

Solid Hub.

(*) Lightweight hub.

Mountable indicator:

Gravity position indicator with 50/80mm diameter (models K650-K660). The indicator can be only used in vertical position (horizontal machine axis). The indicator must be purchased separately. For further information see article K650 [page 362 363].

Indicator fixing method:

Fasten the indicator with a threaded grub screw M05 inserted in the bore d4, (screw supplied with adapter).

Handwheel fixing method:

The handwheel is fixed to the shaft using a thrust pin (not supplied) to be inserted on the threaded hole d2.

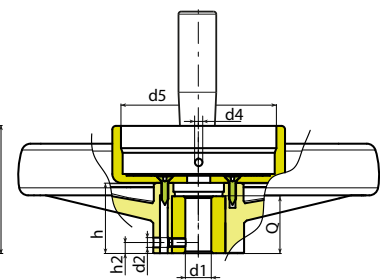
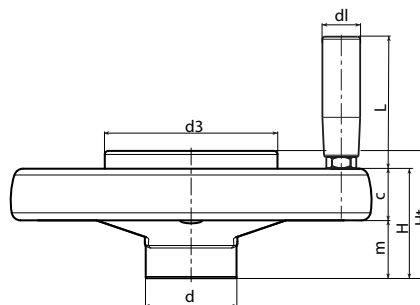
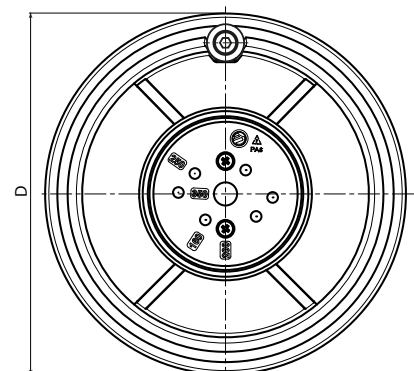
Special Requests:

- Upon request and for a minimum of 50 pieces inserts can be supplied with hole d1 with tolerance H7 and black oxide treated finish. Add letters ZB to the standard code. Example: K406130.T050D0801ZB.
- Upon request and for special quantities inserts can be supplied with custom hole diameter d1.
- Upon request and for special quantities inserts can be supplied in different materials.
- Upon request the handwheels can be supplied with indicator (not assembled for transport).

Combinations Diameters/Indicators:

d5=52.4 --> K650050

d5=87.4 --> K650080 or K660080



art.	D	d	m	c	H	Ht	h	h2	d2	d3	d4	d5	Dm	d1H10	dl	L	Q	g
K406130.T050D0801	129	32	32	18	50	65.5	36	8	M5	62	M5	52,4	18	8	21	65	24	370
K406160.T050D0801	159	40	34	23	57	69	40.5	8	M5	62	M5	52,4	22	8	23	76	32	532
K406160.T080D0801	159	40	34	23	57	72	40.5	8	M5	97	M5	87,4	22	8	23	76	32	553
K406200.T080D0801	198	51	33	28.5	61.5	71	39.5	8	M5	97	M5	87,4	22	8(*)	23	76	32	795
K406250.T080D0801	252	55.5	38.5	31.5	70	79	47	8	M5	97	M5	87,4	28	8(*)	25	86	36	1125
K406350.T080D0801	346	67.5	43.5	36.5	80	81.5	49.5	8	M5	97	M5	87,4	30	8(*)	25	86	32	1725

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated).
Dm = Maximum obtainable diameter for subsequent machining (widening).

K900

SOLID CONTROL HANDWHEEL WITH INDICATOR SEAT



Materials:

Reinforced and stabilized polyamide.
Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Mountable indicator:

Use gravity position indicators models K650 or K660. The indicator can be only used in a vertical position (horizontal machine axis). The indicator and the corresponding grub screw d7 must be purchased separately. For further information on the indicators see the pages of articles K650 and K660 [page 362 363 and page 364 365].
Resistant to oils and greases.

(*) With adapter KS08050.T01 you can mount the indicator K650050.

Fixing method:

For fixing systems, or execution of keyways or square holes, please refer to the technical notes attached to the catalogue [page 814].

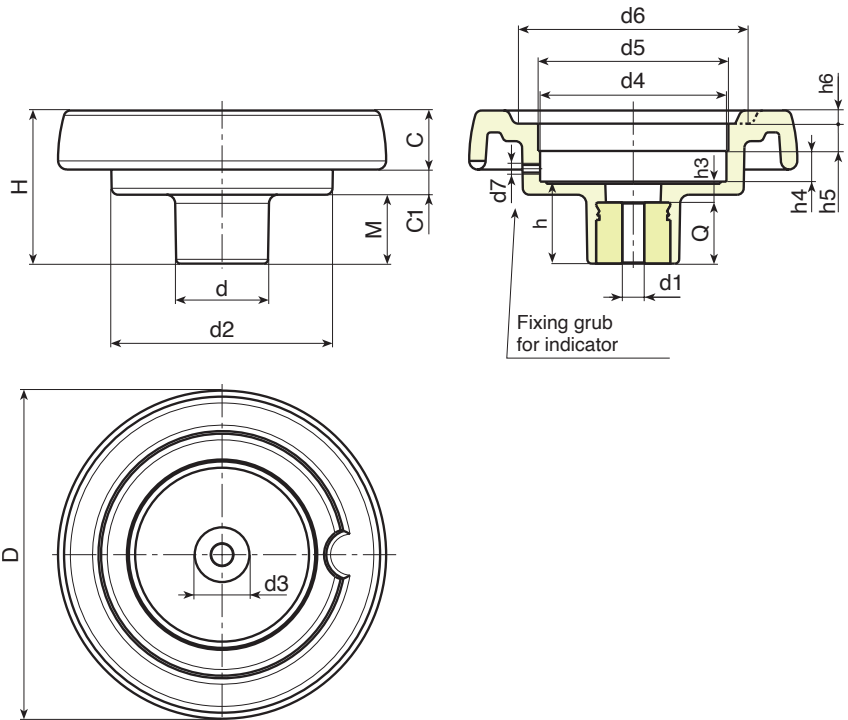
Special Requests:

- Upon request and for a minimum of 50 pieces inserts can be supplied with hole d1 with tolerance H7 and black oxide treated finish. Add letters ZB to the standard code. Example: K900100.T050D1001PZB.
- Upon request and for special quantities inserts can be supplied with custom hole diameter d1.
- Upon request and for special quantities inserts can be supplied in different materials/with different coatings.
- **The indicator must be ordered separately.**
- Upon request and for special quantities it is possible to change the indicator seat.

Combinations Diameters/Indicators:

d5=52.4 --> K650050

d5=87.4 --> K650080 or K660080



art.	D	H	d	d2	M	C	C1	d3	d4	d5	d6	d7	h	h3	h4	h5	h6	Dm	d1H10	Q	g	
K900087.T050P5,801P	86	53	32	62	21	17	15	20	50.8	52.4	63	M6	26.5	6.5	11.5	12	3	12	5.8	20	155	
K900100.T050P6,801P	99	55.5	32	63	23.5	20.5	11.5	20	50.8	52.4	68	M6	29	9	11.5	12	3.5	12	6.8	20	170	
K900130.T080P6,801P	129	64.5	42	100	27.5	23	14	29	85.7	87.4*	90	M6	34	10	13.5	12.5	5	20	6.8	24	350	
K900150.T080P6,801P	149	69	42	101	31	25.5	12.5	29	85.7	87.4*	106	M6	37	9	13.5	12.5	6.5	20	6.8	28	430	
K900175.T080P6,801P	175	72	40	115	28.5	32	11.5	25	85.7	87.4*	126.5	M6	38	10	12.5	14	8	20	6.8	28	650	
K900200.T080P6,801P	199	71	46	137	24	32	15	29	123	87.4*	144	M6	34	11	13.5	12.5	10	22	6.8	23	810	

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated).
Dm = Maximum obtainable diameter for subsequent machining (widening).

K901



SOLID CONTROL HANDWHEEL WITH INDICATOR SEAT AND LOCKING KNOB

Materials:

Reinforced and stabilized polyamide.
Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Mountable indicator:

Use gravity position indicators models K650 or K660. The indicator can be only used in a vertical position (horizontal machine axis). The indicator and the corresponding grub screw must be purchased separately. For further information on the indicators see the pages of articles K650 and K660 [page 362 363 and page 364 365].

(*) With adapter KS08050.T01 you can mount the indicator K650050.



Locking handwheel:

Cylindrical handwheel G793-36 with threaded stud [page]. Black (RAL 9011). ATTENTION: dimension Q2 of the locking handwheel must be chosen by the customer based on the dimensions of the machinery on which the handwheel is applied. For model K901-130 the locking handwheel is replaced by the wing nut L751-32 [page 383].

Fixing method:

For fixing systems, or execution of keyways or square holes, please refer to the technical notes attached to the catalogue [page 814].

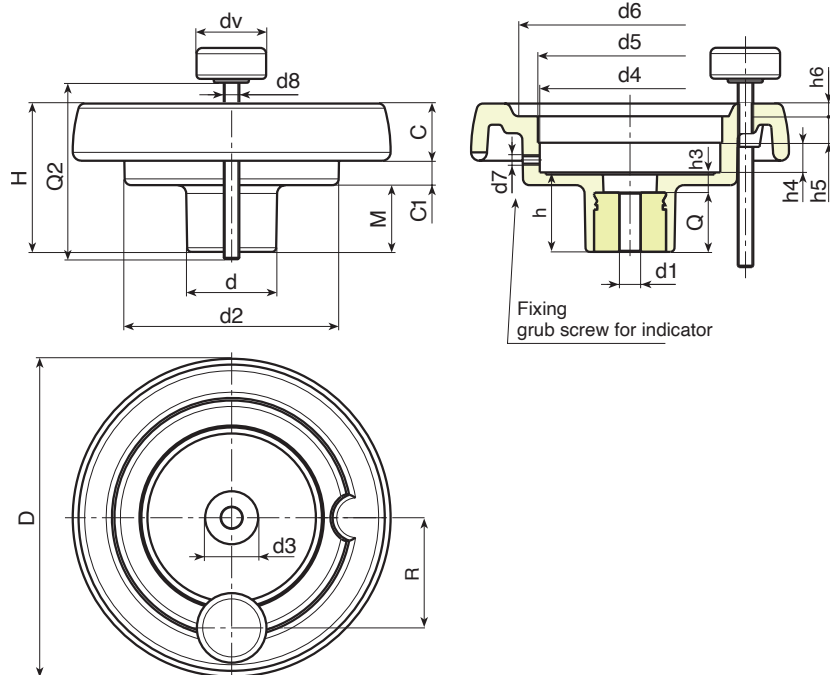
Special Requests:

- Upon request and for a minimum of 50 pieces inserts can be supplied with hole d1 with tolerance H7 and black oxide treated finish. Add letters ZB to the standard code. Example: K901100.T050D1001PZB.
- Upon request and for special quantities inserts can be supplied with custom hole diameter d1.
- Upon request and for special quantities inserts can be supplied in different materials/with different coatings.
- **The indicator must be ordered separately.**
- Upon request and for special quantities it is possible to change the indicator seat.

Combinations Diameters/Indicators:

d5=52.4 --> K650050

d5=87.4 --> K650080 or K660080



art.	D	H	d	d2	M	C	C1	d3	d4	d5	d6	d7	h	h3	h4	h5	h6	R	d8	Dm	d1H10	Q		
K901130.T080P6,801P	129	64.5	42	100	27.5	23	14	29	85.7	87,4*	90	M6	34	10	13.5	12.5	5	54	M8	20	6.8	24	370	
K901150.T080P6,801P	149	69	42	101	31	25.5	12.5	29	85.7	87,4*	106	M6	37	9	13.5	12.5	6.5	57	M8	20	6.8	28	470	
K901175.T080P6,801P	175	72	40	115	28.5	32	11.5	25	85.7	87,4*	126.5	M6	38	10	12.5	14	8	60	M8	20	6.8	28	690	
K901200.T080P6,801P	199	71	46	137	24	32	15	29	123	87,4	144	M6	34	11	13.5	12.5	10	74	M8	22	6.8	23	850	

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated).

Dm = Maximum obtainable diameter for subsequent machining (widening).

Q2 = Upon request.

dv = 36 mm. (K901130 dv=32 mm)

K903



SOLID CONTROL HANDWHEEL WITH INDICATOR SEAT, REVOLVING HANDLE AND LOCKING KNOB

Materials:

Reinforced and stabilized polyamide.
Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Mountable indicator:

Use gravity position indicators models K650 or K660. The indicator can be only used in a vertical position (horizontal machine axis). The indicator and the corresponding grub screw d7 must be purchased separately. For further information on the indicators see the pages of articles K650 and K660 [page 362 363 and page 364 365].

(*) With adapter KS08050.T01 you can mount the indicator K650050.

Lateral insert:

Brass insert with threaded through hole.

Lateral handle:

Revolving handle art. M144 [page 400].

Locking handwheel:

Cylindrical handwheel G793-36 with threaded stud [page 249]. Black (RAL 9011). ATTENTION: dimension Q2 of the locking handwheel must be chosen by the customer based on the dimensions of the machinery on which the handwheel is applied. For model K903-130 the locking handwheel is replaced by the wing nut L751-32 [page 383].

Fixing method:

For fixing systems, or execution of keyways or square holes, please refer to the technical notes attached to the catalogue [page 814].

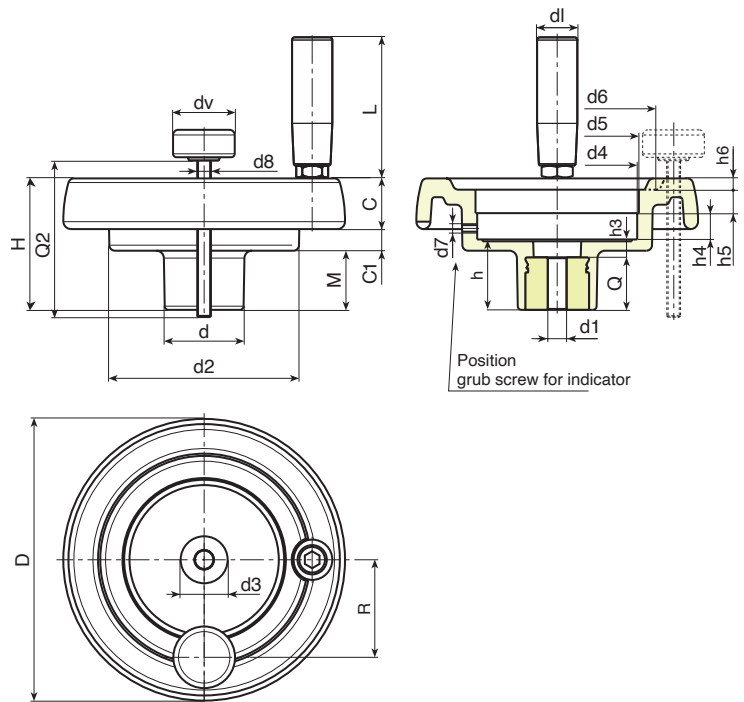
Special Requests:

- Upon request and for a minimum of 50 pieces inserts can be supplied with hole d1 with tolerance H7 and black oxide treated finish. Add letters ZB to the standard code. Example: K903100.T050D1001PZB.
- Upon request and for special quantities inserts can be supplied with custom hole diameter d1.
- Upon request and for special quantities inserts can be supplied in different materials/with different coatings.
- **The indicator must be ordered separately.**
- Upon request and for special quantities it is possible to change the indicator seat.

Combinations Diameters/Indicators:

d5=52.4 --> K650050

d5=87.4 --> K650080 or K660080



art.	D	H	d	d2	M	C	C1	d3	d4	d5	d6	d7	h	h3	h4	h5	h6	R	d8	d1	L	Dm	d1H10	Q	g	
K903130.T080P6,801P	129	64.5	42	100	27.5	23	14	29	85.7	87.4*	90	M6	34	10	13.5	12.5	5	54	M8	21	65	20	6.8	24	426	
K903150.T080P6,801P	149	69	42	101	31	25.5	12.5	29	85.7	87.4*	106	M6	37	9	13.5	12.5	6.5	57	M8	23	76	20	6.8	28	555	
K903175.T080P6,801P	175	72	40	115	28.5	32	11.5	25	85.7	87.4*	126.5	M6	38	10	12.5	14	8	60	M8	25	86	20	6.8	28	782	
K903200.T080P6,801P	199	71	46	137	24	32	15	29	123	87.4	144	M6	34	11	13.5	12.5	10	74	M8	25	86	22	6.8	23	950	

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated).

Dm = Maximum obtainable diameter for subsequent machining (widening).

Q2 = Upon request.

dv = 36 mm. (K903130 dv=32 mm)

K902



SOLID CONTROL HANDWHEEL WITH INDICATOR SEAT AND REVOLVING HANDLE

Materials:

Reinforced and stabilized polyamide. Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Main insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Lateral insert:

Brass insert with threaded through hole.

Lateral handle:

K902: Revolving handle art. M144 page (400).

K906: Revolving handle art. M129 page (401).

K907: Revolving handle art. M145 page (404).

K908: Revolving handle art. M202 page (408).

Mountable indicator:

Use gravity position indicators models K650 or K660. The indicator can be only used in a vertical position (horizontal machine axis). The indicator and the corresponding grub screw d7 must be purchased separately. For further information on the indicators see the pages of articles K650 and K660 [page 362 363 and page 364 365].

(*) With adapter KS08050.T01 you can mount the indicator K650050.

Fixing method:

For fixing systems, or execution of keyways or square holes, please refer to the technical notes attached to the catalogue [page 814].

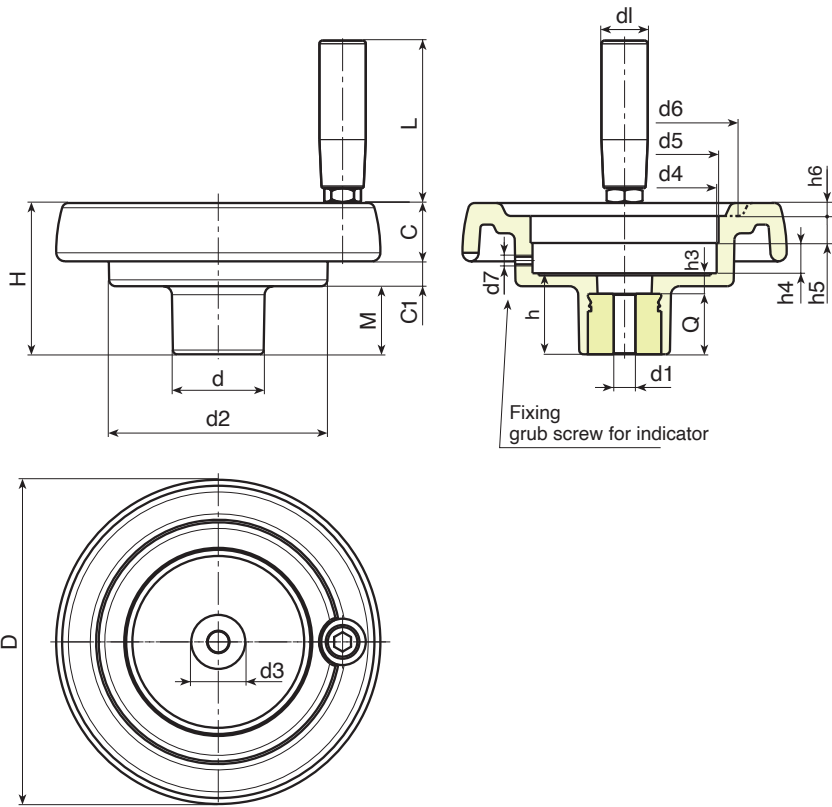
Special requests:

- Upon request and for a minimum of 50 pieces inserts can be supplied with hole d1 with tolerance H7 and black oxide treated finish. Add letters ZB to the standard code. Example: K902100.T050D1001PZB.
- Upon request and for special quantities inserts can be supplied with custom hole diameter d1.
- Upon request and for special quantities inserts can be supplied in different materials/with different coatings.
- The indicator must be ordered separately.
- Upon request and for special quantities it is possible to change the indicator seat.

Combinations Diameters/Indicators:

d5=52.4 --> K650050

d5=87.4 --> K650080 or K660080



art.	D	H	d	d2	M	C	C1	d3	d4	d5	d6	d7	h	h3	h4	h5	h6	d1	L	Dm	d1H10	Q	g	
K902087.T050P5,801P	86	53	32	62	21	17	15	20	50.8	52.4	63	M6	26.5	6.5	11.5	12	3	20	56	12	5.8	20	185	
K902100.T050P6,801P	99	55.5	32	63	23.5	20.5	11.5	20	50.8	52.4	68	M6	29	9	11.5	12	3.5	20	56	12	6.8	20	200	
K902130.T080P6,801P	129	64.5	42	100	27.5	23	14	29	85.7	87.4*	90	M6	34	10	13.5	12.5	5	21	65	20	6.8	24	406	
K902150.T080P6,801P	149	69	42	101	31	25.5	12.5	29	85.7	87.4*	106	M6	37	9	13.5	12.5	6.5	23	76	20	6.8	28	530	
K902175.T080P6,801P	175	72	40	115	28.5	32	11.5	25	85.7	87.4*	126.5	M6	38	10	12.5	14	8	25	86	20	6.8	28	760	
K902200.T080P6,801P	199	71	46	137	24	32	15	29	123	87.4	144	M6	34	11	13.5	12.5	10	25	86	22	6.8	23	920	

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated). Dm = Maximum obtainable diameter for subsequent machining (widening).



K906



SOLID CONTROL HANDWHEEL WITH INDICATOR SEAT AND REVOLVING HANDLE M129

art.	D	d5	d7	d1	L	Dm	d1H10	Q	
K906087.T050P6,801P	86	52.4	M6	20	52	12	5.8	20	197
K906100.T050P6,801P	99	52.4	M6	20	52	12	6.8	20	212
K906130.T080P6,801P	129	87,4*	M6	23	62	20	6.8	24	410
K906150.T080P6,801P	149	87,4*	M6	25	72	20	6.8	28	522
K906175.T080P6,801P	175	87,4*	M6	25	81	20	6.8	28	750
K906200.T080P6,801P	199	87,4	M6	25	81	22	6.8	23	910

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated).
Dm = Maximum obtainable diameter for subsequent machining (widening).

Insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Lateral handle:

Revolving handle art. M129 [page 401].

K907



SOLID CONTROL HANDWHEEL WITH INDICATOR SEAT AND REVOLVING HANDLE M145

art.	D	d5	d7	d1	L	Dm	d1H10	Q	
K907087.T050P5,801P	86	52.4	M6	20	55	12	5.8	20	187
K907100.T050P6,801P	99	52.4	M6	20	55	12	6.8	20	205
K907130.T080P6,801P	129	87,4*	M6	23	66	20	6.8	24	424
K907150.T080P6,801P	149	87,4*	M6	25	76	20	6.8	28	516
K907175.T080P6,801P	175	87,4*	M6	25	87	20	6.8	28	745
K907200.T080P6,801P	199	87,4	M6	27	87	22	6.8	23	900

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated).
Dm = Maximum obtainable diameter for subsequent machining (widening).

Insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Lateral handle:

Revolving handle art. M145 [page 404].

K908



SOLID CONTROL HANDWHEEL WITH INDICATOR SEAT AND REVOLVING HANDLE M202

art.	D	d5	d7	d1	L	Dm	d1H10	Q	
K908150.T080P6,801P	149	87,4*	M6	40	64	20	6.8	28	525
K908175.T080P6,801P	175	87,4*	M6	40	64	20	6.8	28	745
K908200.T080P6,801P	199	87,4	M6	40	64	22	6.8	23	905

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated).
Dm = Maximum obtainable diameter for subsequent machining (widening).

Insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Lateral handle:

Revolving handle art. M202 [page 408].

KBASE



BASE FOR SOLID CONTROL HANDWHEEL WITH INDICATOR SEAT AND PROVISION FOR HANDLE

Materials:

Reinforced and stabilized polyamide.
Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Lateral insert:

Brass insert with threaded through hole.

Mountable indicator:

Use gravity position indicators models K650 or K660. The indicator can be only used in a vertical position (horizontal machine axis). The indicator and the corresponding grub screw d7 must be purchased separately. For further information on the indicators see the pages of articles K650 and K660 [page 362 363 and page 364 365].

(*) With adapter KS08050.T01 you can mount the indicator K650050.

Fixing method:

For fixing systems, or execution of keyways or square holes, please refer to the technical notes attached to the catalogue [page 814].

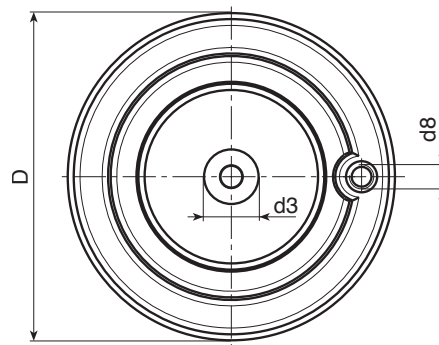
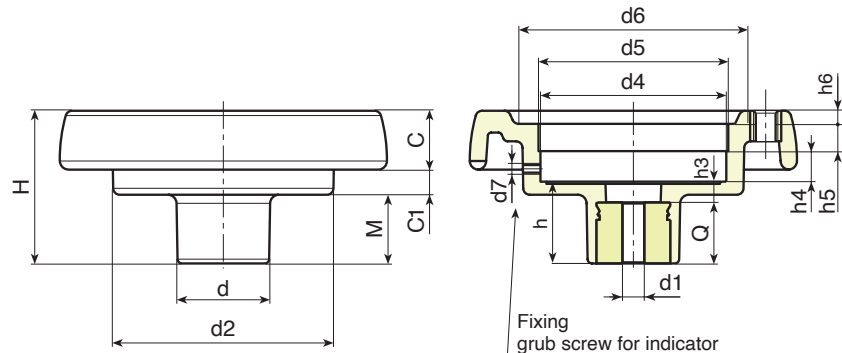
Special Requests:

- Upon request and for a minimum of 50 pieces inserts can be supplied with hole d1 with tolerance H7 and black oxide treated finish. Add letters ZB to the standard code. Example: K100.T050D1001PZB.
- Upon request and for special quantities inserts can be supplied with custom hole diameter d1.
- Upon request and for special quantities inserts can be supplied in different materials/with different coatings.
- **The indicator must be ordered separately.**
- Upon request and for special quantities it is possible to change the indicator seat.

Combinations Diameters/Indicators:

d5=52.4 --> K650050

d5=87.4 --> K650080 or K660080



art.	D	H	d	d2	M	C	C1	d3	d4	d5	d6	d7	d8	h	h3	h4	h5	h6	Dm	d1H10	Q	g	
K087.T050D5,801P	86	53	32	62	21	17	15	20	50.8	52.4	63	M6	M6	26.5	6.5	11.5	12	3	12	5.8	20	155	
K100.T050D6,801P	99	55.5	32	63	23.5	20.5	11.5	20	50.8	52.4	68	M6	M6	29	9	11.5	12	3.5	12	6.8	20	170	
K130.T080D6,801P	129	64.5	42	100	27.5	23	14	29	85.7	87.4*	90	M6	M8	34	10	13.5	12.5	5	20	6.8	24	350	
K150.T080D6,801P	149	69	42	101	31	25.5	12.5	29	85.7	87.4*	106	M6	M10	37	9	13.5	12.5	6.5	20	6.8	28	430	
K175.T080D6,801P	175	72	40	115	28.5	32	11.5	25	85.7	87.4*	126.5	M6	M10	38	10	12.5	14	8	20	6.8	28	650	
K200.T080D6,801P	199	71	46	137	24	32	15	29	123	87.4	144	M6	M10	34	11	13.5	12.5	10	22	6.8	23	810	

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated).
Dm = Maximum obtainable diameter for subsequent machining (widening).



K904



SOLID CONTROL HANDWHEEL WITH INDICATOR SEAT AND REVOLVING, FOLDING HANDLE

Materials:

Reinforced and stabilized polyamide.
Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Lateral insert:

Brass insert with threaded through hole.

Lateral handle:

Revolving handle art. M136 [page 405].

Mountable indicator:

Use gravity position indicators models K650 or K660. The indicator can be only used in a vertical position (horizontal machine axis). The indicator and the corresponding grub screw d7 must be purchased separately. For further information on the indicators see the pages of articles K650 and K660 [page 362 363 and page 364 365].

(*) With adapter KS08050.T01 you can mount the indicator K650050.

Fixing method:

For fixing systems, or execution of keyways or square holes, please refer to the technical notes attached to the catalogue [page 814].

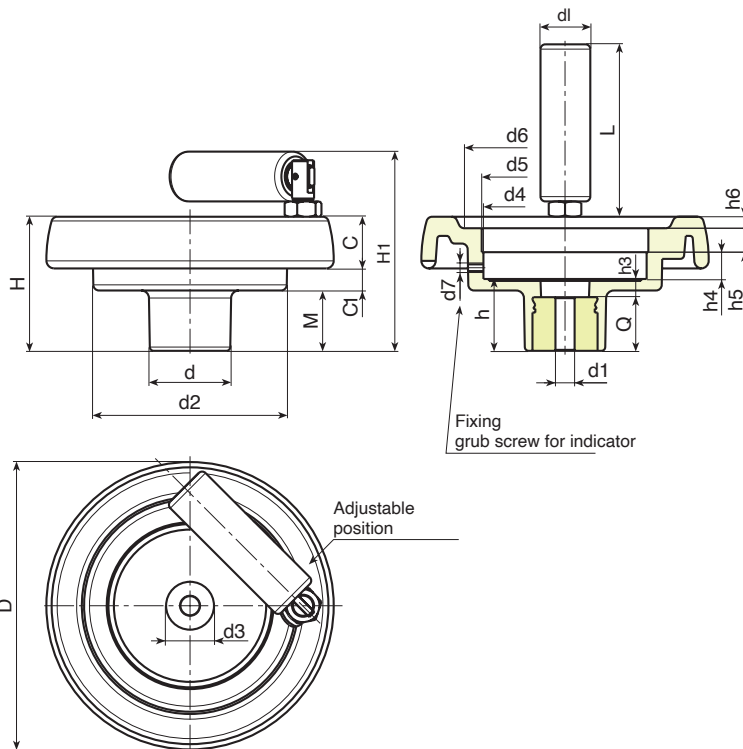
Special Requests:

- Upon request and for a minimum of 50 pieces inserts can be supplied with hole d1 with tolerance H7 and black oxide treated finish. Add letters ZB to the standard code. Example: K904100.T050D1001PZB.
- Upon request and for special quantities inserts can be supplied with custom hole diameter d1.
- Upon request and for special quantities inserts can be supplied in different materials/with different coatings.
- **The indicator must be ordered separately.**
- Upon request and for special quantities it is possible to change the indicator seat.

Combinations Diameters/Indicators:

d5=52.4 --> K650050

d5=87.4 --> K650080 or K660080



art.	D	H	H1	d	d2	M	C	C1	d3	d4	d5	d6	d7	h	h3	h4	h5	h6	d1	L	Dm	d1H10	Q	9	
K904087.T050P5,801P	86	53	77	32	62	21	17	15	20	50.8	52.4	63	M6	26.5	6.5	11.5	12	3	20	56	12	5.8	20	195	
K904100.T050P6,801P	99	55.5	80	32	63	23.5	20.5	11.5	20	50.8	52.4	68	M6	29	9	11.5	12	3.5	20	56	12	6.8	20	210	
K904130.T080P6,801P	129	64.5	94	42	100	27.5	23	14	29	85.7	87.4*	90	M6	34	10	13.5	12.5	5	25	76	20	6.8	24	420	
K904150.T080P6,801P	149	69	104	42	101	31	25.5	12.5	29	85.7	87.4*	106	M6	37	9	13.5	12.5	6.5	26	89	20	6.8	28	580	
K904175.T080P6,801P	175	72	107	40	115	28.5	32	11.5	25	85.7	87.4*	126.5	M6	38	10	12.5	14	8	26	89	20	6.8	28	800	
K904200.T080P6,801P	199	71	106	46	137	24	32	15	29	123	87.4	144	M6	34	11	13.5	12.5	10	26	97	22	6.8	23	970	

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated).
Dm = Maximum obtainable diameter for subsequent machining (widening).

K905



SOLID CONTROL HANDWHEEL WITH INDICATOR SEAT, REVOLVING HANDLE AND LOCKING KNOB

Materials:

Reinforced and stabilized polyamide.
Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Insert:

Galvanised steel insert with smooth through bore (tolerance H10).

Mountable indicator:

Use gravity position indicators models K650 or K660. The indicator can be only used in a vertical position (horizontal machine axis). The indicator and the corresponding grub screw must be purchased separately. For further information on the indicators see the pages of articles K650 and K660 [page 362 363 and page 364 365].

(*) With adapter KS08050.T01 you can mount the indicator K650050.

Lateral insert:

Brass insert with threaded through hole.

Lateral handle:

Revolving handle art. M136 [page 405].

Locking handwheel:

Cylindrical handwheel G793-36 with threaded stud [page 249]. Black (RAL 9011). ATTENTION: dimension Q2 of the locking handwheel must be chosen by the customer based on the dimensions of the machinery on which the handwheel is applied. For model K905-130 the locking handwheel is replaced by the wing nut L751-32 [page 383].

Fixing method:

For fixing systems, or execution of keyways or square holes, please refer to the technical notes attached to the catalogue [page 814].

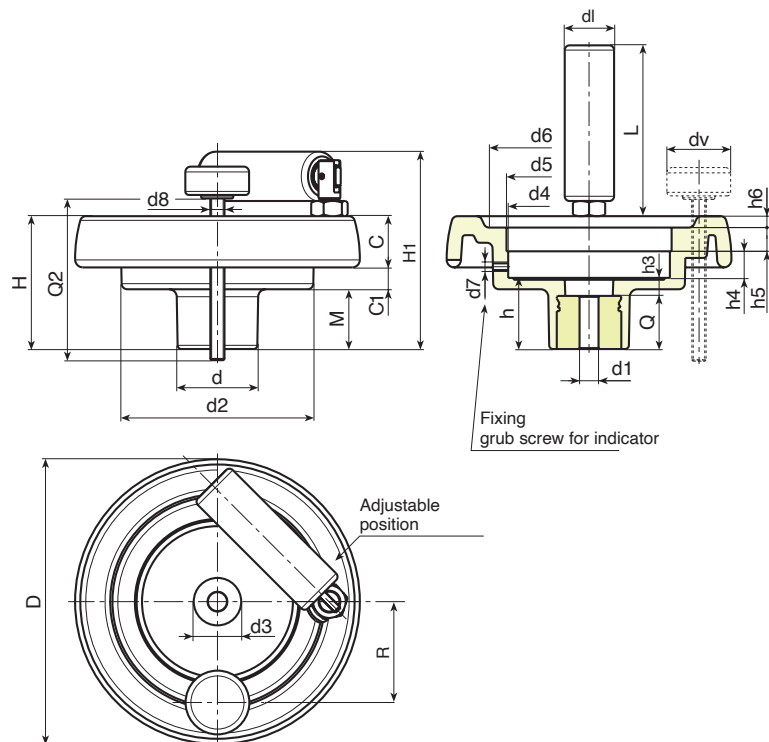
Special Requests:

- Upon request and for a minimum of 50 pieces inserts can be supplied with hole d1 with tolerance H7 and black oxide treated finish. Add letters ZB to the standard code. Example: K905130.T080D1001PZB.
- Upon request and for special quantities inserts can be supplied with custom hole diameter d1.
- Upon request and for special quantities inserts can be supplied in different materials/with different coatings.
- **The indicator must be ordered separately.**
- Upon request and for special quantities it is possible to change the indicator seat.

Combinations Diameters/Indicators:

d5=52.4 --> K650050

d5=87.4 --> K650080 or K660080



art.	D	H	H1	d	d2	M	C	C1	d3	d4	d5	d6	d7	h	h3	h4	h5	h6	R	d8	d1	L	Dm	d1H10	Q	g	
K905130.T080P6,801P	129	64.5	94	42	100	27.5	23	14	29	85.7	87.4*	90	M6	34	10	13.5	12.5	5	54	M8	25	76	20	6.8	24	430	
K905150.T080P6,801P	149	69	104	42	101	31	25.5	12.5	29	85.7	87.4*	106	M6	37	9	13.5	12.5	6.5	57	M8	26	89	20	6.8	28	615	
K905175.T080P6,801P	175	72	107	40	115	28.5	32	11.5	25	85.7	87.4*	126.5	M6	38	10	12.5	14	8	60	M8	26	89	20	6.8	28	835	
K905200.T080P6,801P	199	71	106	46	137	24	32	15	29	123	87.4	144	M6	34	11	13.5	12.5	10	74	M8	26	97	22	6.8	23	999	

Attention: For a minimum of 50 pieces the diameter d1 can be customised (hole tolerance H10 galvanised and H7 black-oxide treated).

Dm = Maximum obtainable diameter for subsequent machining (widening).

Q2 = Upon request.

dv = 36 mm. (K905130 dv=32 mm)

KS

ADAPTER FOR INDICATOR



Materials:

Reinforced and stabilized polyamide.
Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Black (RAL 9011).

Alternative adapter colours:

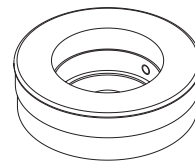
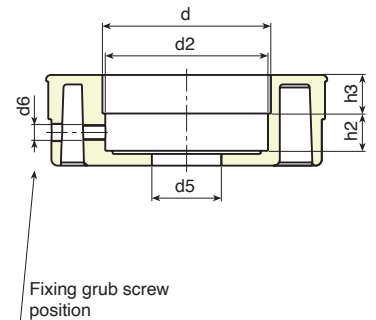
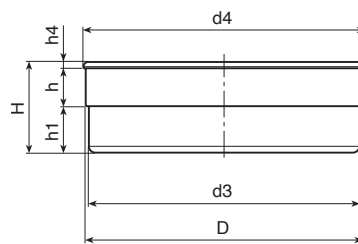
- Orange (RAL 2004 cod. 02).
- Blue (RAL 5015 cod. 07).
- Yellow (RAL 1021 cod. 10).
- Red (RAL 3000 cod. 16).
- Green (RAL 6024 cod. 17).
- Grey (RAL 7035 cod. 13).

Attention:

Indicator grub screw not supplied.

Special Requests:

- None.



art.	D	d	d2	d3	d4	d5	d6	H	h	h1	h2	h3	h4
KS080.05001	87,4	52,4	51.5	85.5	89	22	M6	28.5	14	14.5	11.8	12.2	2

K500

ADAPTER FOR INDICATOR



Materials:

Reinforced and stabilized polyamide.
Resistant to oils and greases.

Surface finish:

Satin.

Colour:

Primary cap colour:

Black (RAL 9011).

Secondary cap colour:

Grey (RAL 7035).

Alternative cap colours:

Orange (RAL 2004 cod. 02).

Blue (RAL 5015 cod. 07).

Yellow (RAL 1021 cod. 10).

Red (RAL 3000 cod. 16).

Green (RAL 6024 cod. 17).

Grey (RAL 7035 cod. 13).

Cap fixing method:

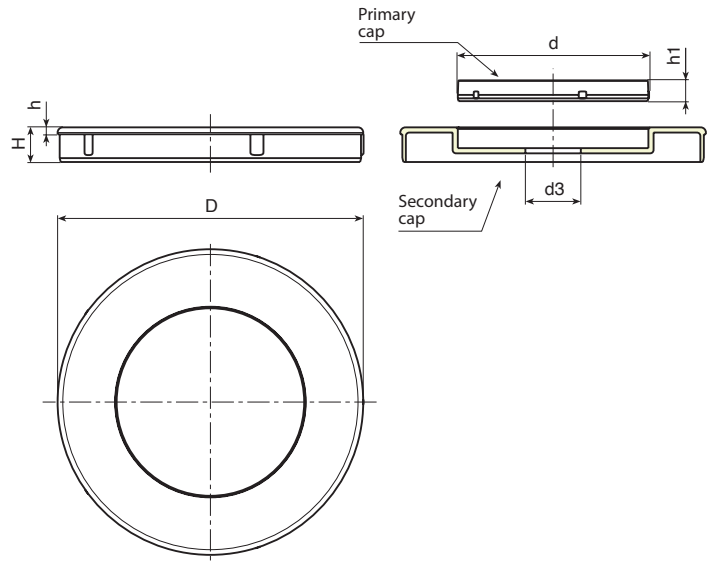
Push-fit. Removable.

Special Requests:

- None.

Pad printing service:

Upon request and for special quantities caps can be supplied with custom pad printing.



	art.	D	d	d3	H	h	h1	g
-	K500.0500113	52,4	34	10	8	2	5	10
-	K500.0800113	87,4	55	16	10	2	6	25



HANDWHEEL
FOR CLOSE
SEAS.



BOTECA®

K600

3-DIGIT NUMERATOR BLOCK



PA6

PPMA

UL94
HB



Materials:

(1-2) Numerator case:

Glass fiber reinforced polyamide.
Resistant to oils and greases.

(3) Grub screw:

K600: Steel C45
K600CIN: Stainless steel (Aisi 304).

(4) Shaft connector:

K600: Free-cutting steel.
K600CIN: Stainless steel (Aisi 303).

(4) Window:

Polymethylmethacrylate (PMMA).

(4) Number wheels:

Polyamide.

Surface finish:

(1-2-6) Smooth.
(4) Fine turned finish.
(5) Glossy, enhanced reading effect.

Colour:

(1) Case cover:

Black (RAL 9011 code 01)

(2) Case:

K600: Black (RAL 9011 cod. 01).

K602: Orange (RAL 2004 cod. 02).

K603: Grey (RAL 7035 cod. 13).

(3) Grub screw:

K600: Black-oxide treated.

K600CIN: Natural.

(4) Connector

K600: Black-oxide treated.

K600CIN: Natural.

(5) Window:

Transparent.

(6) Number wheels:

Black wheel with white numbers.



Mounting or reading position (PL)

Rotation direction (SR)

Number wheel characters:

White pad printed. Character height 4 mm approx.

Gear ratio (GR):

The gear ratio establishes which number must appear on the counter after making a full turn (360°). For example, by choosing a gear ratio of 15, after one revolution on the window you will see digits 015. The position of the decimal point will help reduce the measure, because, choosing one decimal place, the 015 becomes 01.5.

Mounting / reading position (PL):

The numerator block can be applied in four different positions. Please choose the most suitable for your application:

P1 = Vertical, with numbers on upper side

P2 = Vertical, with numbers on vertical side

P3 = Horizontal, with numbers on inclined side

P4 = Horizontal, with numbers on vertical side.

Rotation direction (SR):

O = increase of values with clockwise rotation

A = increase of values with counter clockwise rotation

Decimal point (PD):

The numerator block can also be chosen with decimal point. In this case, with three digits, the decimal position is available in these formats:

PD = 0 - no decimal point indicated (000)

PD = 1 - one digit after decimal point (00.0)

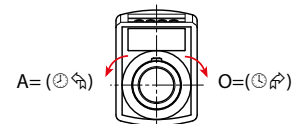
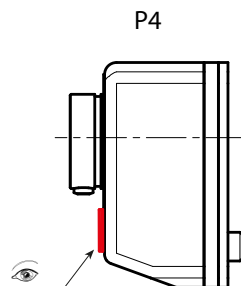
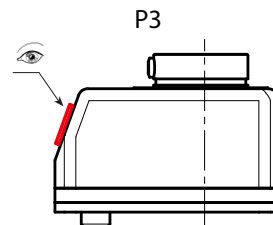
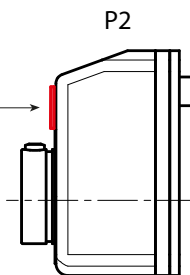
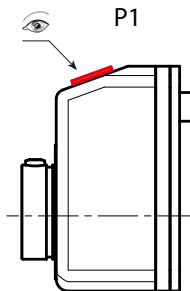
PD = 2 - two digits after decimal point (0.00)

Base case seal:

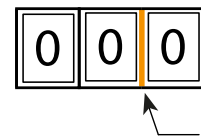
Each numerator comes with a base case seal in black polyurethane foam. For additional orders use code K607033.

Special requests:

- Upon request a shaft reducing sleeve K605 can be supplied in black oxide treated steel, diameters available: 06 - 07 - 08.
- Upon request it can be supplied with the anti-rotation pin with backlash compensation.



3-digit numerator block, 1 decimal place



Base case seal included K60733



Reducing sleeve K605



K600

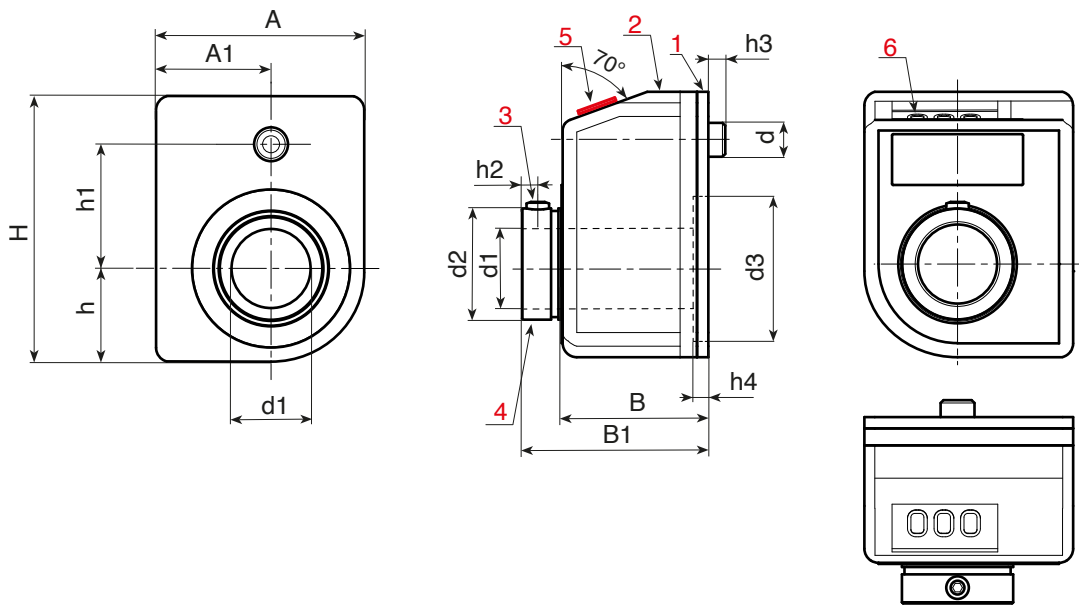
3-DIGIT NUMERATOR BLOCK



PA6

PPMA

UL94
HB



Options to specify in the order (GR-SR-PL-PD)

art.	H	A	h	h1	h2	h3	h4	A1	B	B1	d	d2	d3	d1H7	GR	SR	PL	DP	g
K600033.TD10.....	33	22	9,3	18	2,5	5	3,4	12,7	21	26	6	13,8	16	10	7/5 - 10 - 12/5 - 15 - 17/5 - 20 - 25 - 30 - 35 - 40 - 50 - 60 - 80 - 100	O-A	P1-P2-P3-P4	0-1-2	20
K602033.TD10.....	33	22	9,3	18	2,5	5	3,4	12,7	21	26	6	13,8	16	10	7/5 - 10 - 12/5 - 15 - 17/5 - 20 - 25 - 30 - 35 - 40 - 50 - 60 - 80 - 100	O-A	P1-P2-P3-P4	0-1-2	20
K603033.TD10.....	33	22	9,3	18	2,5	5	3,4	12,7	21	26	6	13,8	16	10	7/5 - 10 - 12/5 - 15 - 17/5 - 20 - 25 - 30 - 35 - 40 - 50 - 60 - 80 - 100	O-A	P1-P2-P3-P4	0-1-2	20
K600033.TD10.....CIN	33	22	9,3	18	2,5	5	3,4	12,7	21	26	6	13,8	16	10	7/5 - 10 - 12/5 - 15 - 17/5 - 20 - 25 - 30 - 35 - 40 - 50 - 60 - 80 - 100	O-A	P1-P2-P3-P4	0-1-2	20
K602033.TD10.....CIN	33	22	9,3	18	2,5	5	3,4	12,7	21	26	6	13,8	16	10	7/5 - 10 - 12/5 - 15 - 17/5 - 20 - 25 - 30 - 35 - 40 - 50 - 60 - 80 - 100	O-A	P1-P2-P3-P4	0-1-2	20
K603033.TD10.....CIN	33	22	9,3	18	2,5	5	3,4	12,7	21	26	6	13,8	16	10	7/5 - 10 - 12/5 - 15 - 17/5 - 20 - 25 - 30 - 35 - 40 - 50 - 60 - 80 - 100	O-A	P1-P2-P3-P4	0-1-2	20

Notes: Note: For ratios "/5" the arithmetic values are not displayed.
When ordering, please insert the chosen options in the code points.

Example 1:

Example 1: for a numerator block with 3 digits (K600033) with shaft of 10mm (d1), - orange colour (K602), - with gear ratio (GR) 15; - with clockwise rotation (SR) O, - with reading position (PL) P2, - with one decimal place (PD) 1, the complete code is thus formed: K602033.TD10015OP21.

or

Example 2: for a numerator block with 3 digits (K600033) with stainless steel shaft of 10mm (d1), - black colour (K600), - with gear ratio (GR) 15; - with counterclockwise rotation (SR) A, - with reading position (PL) P3, - with two decimal places (PD) 2, the complete code is thus formed: K602033.TD10015OP21.

K610

4-DIGIT NUMERATOR BLOCK



Materials:

(1-2) Numerator case:

Glass fiber reinforced polyamide.
Resistant to oils and greases.

(3) Grub screw:

K610: Steel C45
K610CIN: Stainless steel (Aisi 304).

(4) Shaft connector:

K610: Free-cutting steel.
K610CIN: Stainless steel (Aisi 303).

(4) Window:

Polymethylmethacrylate (PMMA).

(4) Number wheels:

Polyamide.

Colour:

(1) Case cover:

Black (RAL 9011 code 01)

(2) Case:

K610: Black (RAL 9011 cod. 01).

K612: Orange (RAL 2004 cod. 02).

K613: Grey (RAL 7035 cod. 13).

(3) Grub screw:

K610: Black-oxide treated.
K610CIN: Natural.

(4) Connector

K610: Black-oxide treated.
K610CIN: Natural.

(5) Window:

Transparent.

(6) Number wheels:

Black wheel with white numbers.

Surface finish:

(1-2-6) Smooth.

(4) Fine turned finish.

(5) Glossy, enhanced reading effect.



Mounting or reading position (PL)

Rotation direction (SR)

Number wheel characters:

White pad printed. Character height 4 mm approx.

Gear ratio (GR):

The gear ratio establishes which number must appear on the counter after making a full turn (360°). For example, by choosing a gear ratio of 15, after one revolution on the window you will see digits 015. The position of the decimal point will help reduce the measure, because, choosing one decimal place, the 015 becomes 01.5.

Mounting / reading position (PL):

The numerator block can be applied in four different positions. Please choose the most suitable for your application:

P1 = Vertical, with numbers on upper side

P2 = Vertical, with numbers on vertical side

P3 = Horizontal, with numbers on inclined side

P4 = Horizontal, with numbers on vertical side.

Rotation direction (SR):

O = increase of values with clockwise rotation

A = increase of values with counter clockwise rotation

Decimal point (PD):

The numerator block can also be chosen with decimal point. In this case, with three digits, the decimal position is available in these formats:

PD = 0 - no decimal point indicated (0000)

PD = 1 - one digit after decimal point (000.0)

PD = 2 - two digits after decimal point (00.00)

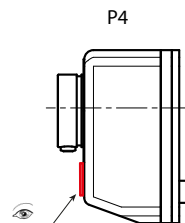
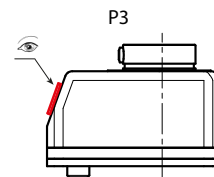
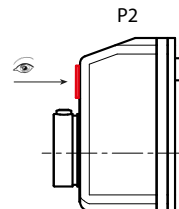
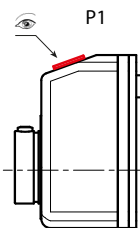
PD = 3 - three digits after decimal point (0.000)

Base case seal:

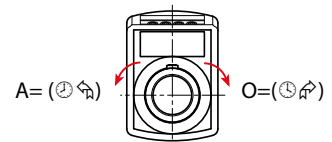
Each numerator comes with a base case seal in black polyurethane foam. For additional orders use code K607047.

Special requests:

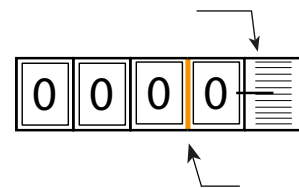
- Upon request a shaft reducing sleeve K605 can be supplied in black oxide treated steel, diameters available: 04 - 06 - 08 - 10 - 12.
- Upon request it can be supplied with the anti-rotation pin with backlash compensation.
- Upon request an intermediate extension for base case can be supplied separately (K60647).



Reducing sleeve K605



4-digit numerator block, 1 decimal place



Base case seal included K60747

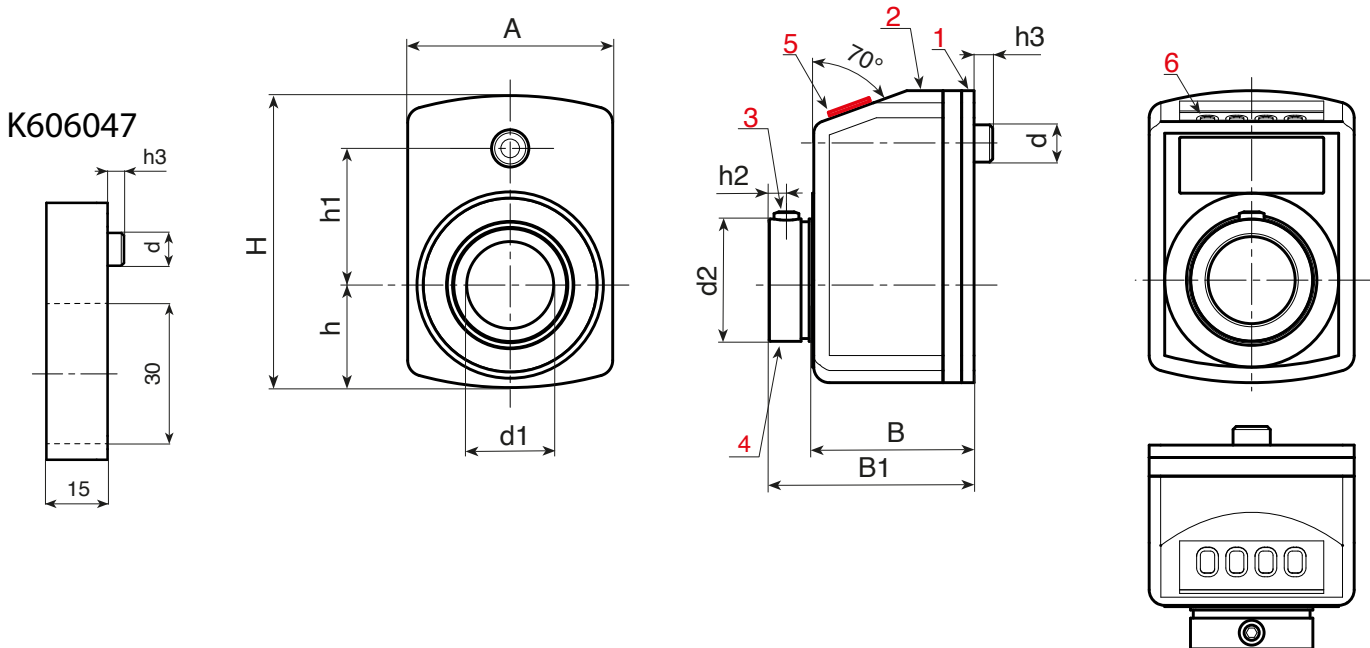


Intermediate extension for base K60647



K610

4-DIGIT NUMERATOR BLOCK



Options to specify in the order (GR-SR-PL-PD)

art.	H	A	h	h1	h2	h3	B	B1	d	d2	d1H7	GR	SR	PL	PD	
K610047.TD14.....	47	33	16,5	22	2,5	5	24	31	6	19,7	14	10-12/5-15-17/5-20-25-30-35-40-50-60-80-100	O-A	P1-P2-P3-P4	0-1-2-3	50
K612047.TD14.....	47	33	16,5	22	2,5	5	24	31	6	19,7	14	10-12/5-15-17/5-20-25-30-35-40-50-60-80-100	O-A	P1-P2-P3-P4	0-1-2-3	50
K613047.TD14.....	47	33	16,5	22	2,5	5	24	31	6	19,7	14	10-12/5-15-17/5-20-25-30-35-40-50-60-80-100	O-A	P1-P2-P3-P4	0-1-2-3	50
K610047.TD14.....CIN	47	33	16,5	22	2,5	5	24	31	6	19,7	14	10-12/5-15-17/5-20-25-30-35-40-50-60-80-100	O-A	P1-P2-P3-P4	0-1-2-3	50
K612047.TD14.....CIN	47	33	16,5	22	2,5	5	24	31	6	19,7	14	10-12/5-15-17/5-20-25-30-35-40-50-60-80-100	O-A	P1-P2-P3-P4	0-1-2-3	50
K613047.TD14.....CIN	47	33	16,5	22	2,5	5	24	31	6	19,7	14	10-12/5-15-17/5-20-25-30-35-40-50-60-80-100	O-A	P1-P2-P3-P4	0-1-2-3	50

Notes: Note: For ratios "/5" the arithmetic values are not displayed. When ordering, please insert the chosen options in the code points.

Example 1:

Example 1: for a numerator block with 4 digits (K610047) with shaft of 14mm (d1), - orange colour (K612), - with gear ratio (GR) 60; - with clockwise rotation (SR) O, - with reading position (PL) P1, - with no decimal place (PD) 0, the complete code is thus formed: K612047.TD14060OP10.

or

Example 2: for a numerator block with 4 digits (K610047) with stainless steel shaft of 14mm (d1), - grey colour (K613), - with gear ratio (GR) 12/5, - with counterclockwise rotation (SR) A, - with reading position (PL) P2, - with three decimal places (PD) 3, the complete code is thus formed: K613047.TD14125AP23CIN.

K620

5-DIGIT NUMERATOR BLOCK



Materials:

(1-2) Numerator case:

Glass fiber reinforced polyamide.
Resistant to oils and greases.

(3) Grub screw:

K620: Steel C45
K620CIN: Stainless steel (Aisi 304).

(4) Shaft connector:

K620: Free-cutting steel.
K620CIN: Stainless steel (Aisi 303).

(4) Window:

Polymethylmethacrylate (PMMA).

(4) Number wheels:

Polyamide.

Surface finish:

(1-2-6) Smooth.
(4) Fine turned finish.
(5) Glossy, enhanced reading effect.

Colour:

(1) Case cover:

Black (RAL 9011 code 01)

(2) Case:

K620: Black (RAL 9011 cod. 01).

K622: Orange (RAL 2004 cod. 02).

K623: Grey (RAL 7035 cod. 13).

(3) Grub screw:

K620: Black-oxide treated.

K620CIN: Natural.

(4) Connector

K620: Black-oxide treated.

K620CIN: Natural.

(5) Window:

Transparent.

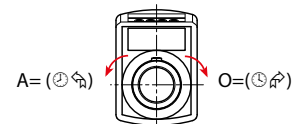
(6) Number wheels:

Black wheel with white numbers.



Mounting or reading position (PL)

Rotation direction (SR)



Number wheel characters:

White pad printed. Character height 4 mm approx.

Gear ratio (GR):

The gear ratio establishes which number must appear on the counter after making a full turn (360°). For example, by choosing a gear ratio of 15, after one revolution on the window you will see digits 015. The position of the decimal point will help reduce the measure, because, choosing one decimal place, the 015 becomes 01.5.

Mounting / reading position (PL):

The numerator block can be applied in four different positions. Please choose the most suitable for your application:

- P1 = Vertical, with numbers on upper side
- P2 = Vertical, with numbers on vertical side
- P3 = Horizontal, with numbers on inclined side
- P4 = Horizontal, with numbers on vertical side.

Rotation direction (SR):

- O = increase of values with clockwise rotation
- A = increase of values with counter clockwise rotation

Decimal point (PD):

The numerator block can also be chosen with decimal point. In this case, with three digits, the decimal position is available in these formats:

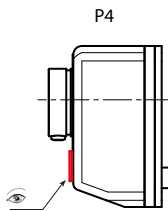
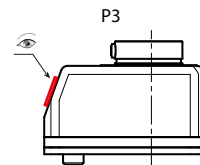
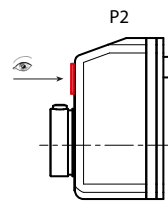
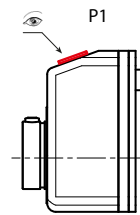
- PD = 0 - no decimal point indicated (00000)
- PD = 1 - one digit after decimal point (0000.0)
- PD = 2 - two digits after decimal point (000.00)
- PD = 3 - three digits after decimal point (00.000)
- PD = 4 - four digits after decimal point (0.0000)

Base case seal:

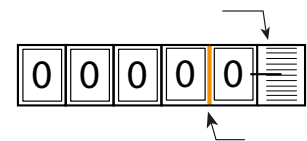
Each numerator comes with a base case seal in black polyurethane foam. For additional orders use code K607067.

Special requests:

- Upon request a shaft reducing sleeve K605 can be supplied in black oxide treated steel, diameters available: 08 - 10 - 12 - 14 - 18.
- Upon request it can be supplied with the anti-rotation pin with backlash compensation.
- Upon request an intermediate extension for base case can be supplied separately (K606067).



5-digit numerator block, 1 decimal place



Intermediate extension for base K60667



Base case seal included K60767

Reducing sleeve K605

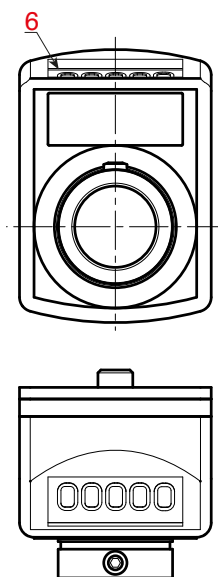
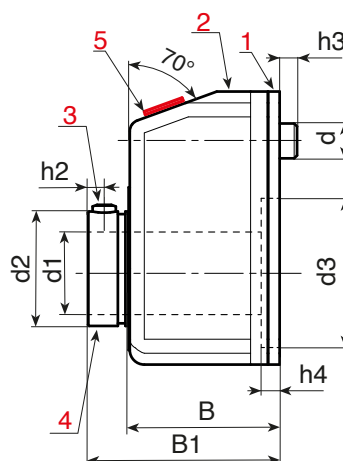
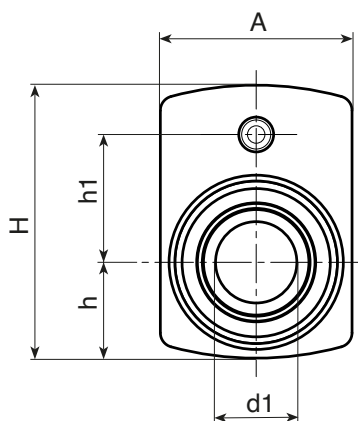
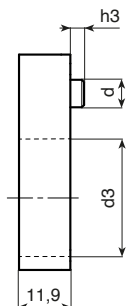


K620

5-DIGIT NUMERATOR BLOCK



K606067



Options to specify in the order (GR-SR-PL-PD)

art.	H	A	h	h1	h2	h3	h4	B	B1	d	d2	d3	d1h7	GR	SR	PL	PD		
K620067.TD20.....	67,5	48	25,5	30	3,5	6	2	30	38,5	6	27	40	20	10 - 12/5 - 15 - 17/5 - 20 - 25 - 30 - 39/375 - 40 - 50 - 60 - 78/75 - 80 - 100	O-A	P1-P2- P3-P4	0-1-2-2-4	100	
K622067.TD20.....	67,5	48	25,5	30	3,5	6	2	30	38,5	6	27	40	20	10 - 12/5 - 15 - 17/5 - 20 - 25 - 30 - 39/375 - 40 - 50 - 60 - 78/75 - 80 - 100	O-A	P1-P2- P3-P4	0-1-2-2-4	100	
K623067.TD20.....	67,5	48	25,5	30	3,5	6	2	30	38,5	6	27	40	20	10 - 12/5 - 15 - 17/5 - 20 - 25 - 30 - 39/375 - 40 - 50 - 60 - 78/75 - 80 - 100	O-A	P1-P2- P3-P4	0-1-2-2-4	100	
K620067.TD20.....CIN	67,5	48	25,5	30	3,5	6	2	30	38,5	6	27	40	20	10 - 12/5 - 15 - 17/5 - 20 - 25 - 30 - 39/375 - 40 - 50 - 60 - 78/75 - 80 - 100	O-A	P1-P2- P3-P4	0-1-2-2-4	100	
K622067.TD20.....CIN	67,5	48	25,5	30	3,5	6	2	30	38,5	6	27	40	20	10 - 12/5 - 15 - 17/5 - 20 - 25 - 30 - 39/375 - 40 - 50 - 60 - 78/75 - 80 - 100	O-A	P1-P2- P3-P4	0-1-2-2-4	100	
K623067.TD20.....CIN	67,5	48	25,5	30	3,5	6	2	30	38,5	6	27	40	20	10 - 12/5 - 15 - 17/5 - 20 - 25 - 30 - 39/375 - 40 - 50 - 60 - 78/75 - 80 - 100	O-A	P1-P2- P3-P4	0-1-2-2-4	100	

Notes: Note: For ratios "/5" the arithmetic values are not displayed.
When ordering, please insert the chosen options in the code points.

Example 1:

Example 1: for a numerator block with 5 digits (K620067) with shaft of 20mm (d1), - orange colour (K622), - with gear ratio (GR) 50, - with clockwise rotation (SR) O, - with reading position (PL) P2, - with four decimal places (PD) 4, the complete code is thus formed: K622067.TD2050OP24.

or

Example 2: for a numerator block with 5 digits (K620067) with stainless steel shaft of 20mm (d1), - grey colour (K620), - with gear ratio (GR) 15/75, - with counterclockwise rotation (SR) A, - with reading position (PL) P3, - with four decimal places (PD) 4, the complete code is thus formed: K622067.TD201575AP34CIN.

Stock availability as %
90% - 40% - 5%

K630

NEW



PA6

PPMA

UL94
HB



5-DIGIT NUMERATOR BLOCK - WITH INCREASED BORE FOR SHAFT

Materials:

(1-2) Numerator case:

Glass fiber reinforced polyamide.
Resistant to oils and greases.

(3) Grub screw:

K630: Steel C45
K630CIN: Stainless steel (Aisi 304).

(4) Shaft connector:

K630: Free-cutting steel.
K630CIN: Stainless steel (Aisi 303).

(4) Window:

Polymethylmethacrylate (PMMA).

(4) Number wheels:

Polyamide.

Surface finish:

(1-2-6) Smooth.
(4) Fine turned finish.
(5) Glossy, enhanced reading effect.

Number wheel characters:

White pad printed. Character height 7 mm approx.

Gear ratio (GR):

The gear ratio establishes which number must appear on the counter after making a full turn (360°). For example, by choosing a gear ratio of 15, after one revolution on the window you will see digits 015. The position of the decimal point will help reduce the measure, because, choosing one decimal place, the 015 becomes 01.5.

Mounting / reading position (PL):

The numerator block can be applied in four different positions. Please choose the most suitable for your application:

P1 = Vertical, with numbers on upper side
P2 = Vertical, with numbers on vertical side
P3 = Horizontal, with numbers on inclined side
P4 = Horizontal, with numbers on vertical side.

Rotation direction (SR):

O = increase of values with clockwise rotation
A = increase of values with counter clockwise rotation

Decimal point (PD):

The numerator block can also be chosen with decimal point. In this case, with three digits, the decimal position is available in these formats:

PD = 0 - no decimal point indicated (00000)
PD = 1 - one digit after decimal point (0000.0)
PD = 2 - two digits after decimal point (000.00)
PD = 3 - three digits after decimal point (00.000)
PD = 4 - four digits after decimal point (0.0000)

Base case seal:

Each numerator comes with a base case seal in black polyurethane foam. For additional orders use code K607075.

Special requests:

- Upon request a shaft reducing sleeve K605 can be supplied in black oxide treated steel, diameters available: 25.
- Upon request it can be supplied with the anti-rotation pin with backlash compensation.

Colour:

(1) Case cover:

Black (RAL 9011 code 01)

(2) Case:

K630: Black (RAL 9011 cod. 01).
K632: Orange (RAL 2004 cod. 02).

(3) Grub screw:

K630: Black-oxide treated.
K630CIN: Natural.

(4) Connector

K630: Black-oxide treated.
K630CIN: Natural.

(5) Window:

Transparent.

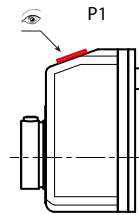
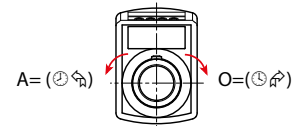
(6) Number wheels:

Black wheel with white numbers.

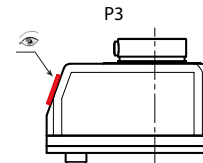
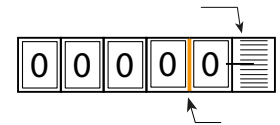
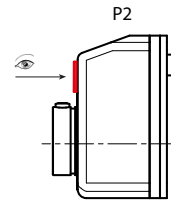


Mounting or reading position (PL)

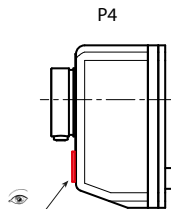
Rotation direction (SR)



5-digit numerator block, 1 decimal place



Base case seal included K60775



Reducing sleeve K605



K630

NEW

+80°
-0°

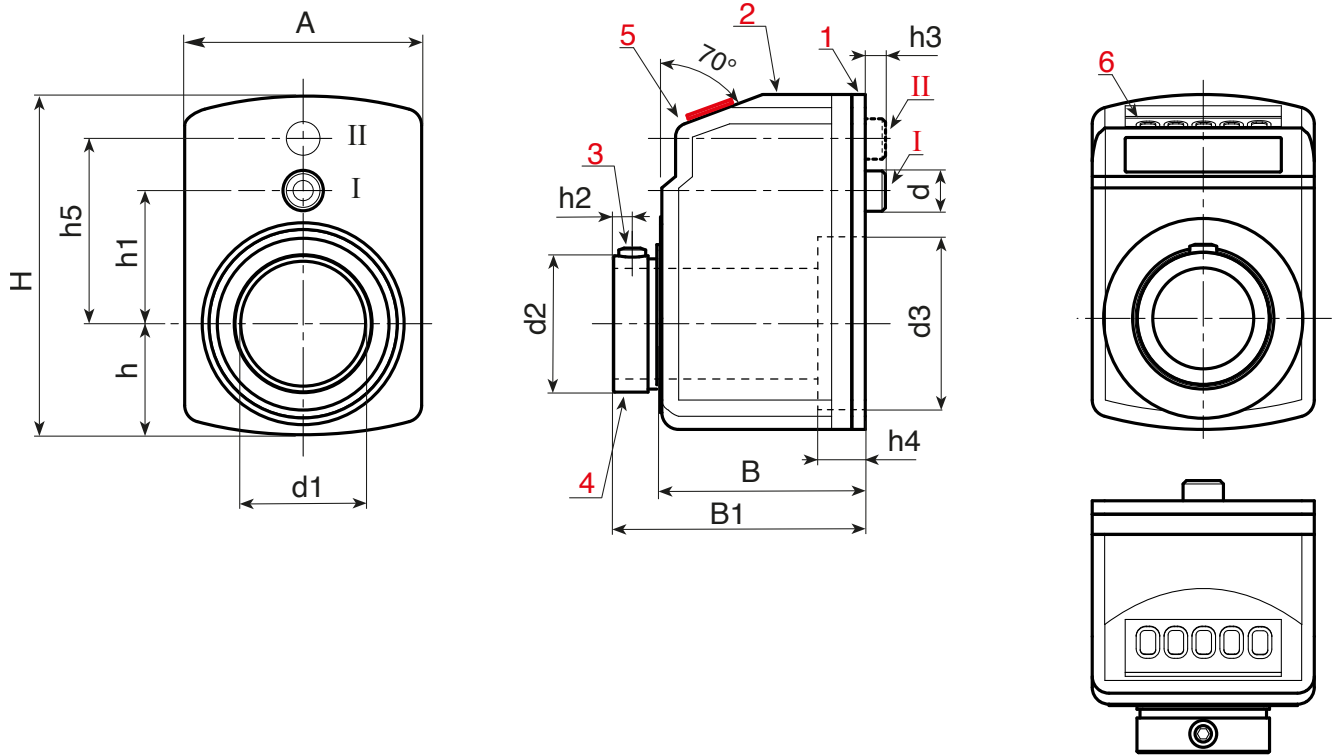
PA6

PPMA

UL94
HB

RoHS
COMPLIANT

5-DIGIT NUMERATOR BLOCK - WITH INCREASED BORE FOR SHAFT



Options to specify in the order (GR-SR-PL-PD)

art.	H	A	h	h1	h2	h3	h4	h5	B	B1	d	d2	d3	d1 H7	GR	SR	PL	PD	g
K630075.TD30.....	75	56	27	30	4	5	10	40	44	52	6	37	47	30	6/5 - 10 - 15 - 17/5 - 20 - 25 - 30 - 39/4 - 40 - 50 - 60 - 80 - 100	O-A	P1-P2- P3-P4	0-1-2-2-4	100
K632075.TD30.....	75	56	27	30	4	5	10	40	44	52	6	37	47	30	6/5 - 10 - 15 - 17/5 - 20 - 25 - 30 - 39/4 - 40 - 50 - 60 - 80 - 100	O-A	P1-P2- P3-P4	0-1-2-2-4	100
K630075.TD30.....CIN	75	56	27	30	4	5	10	40	44	52	6	37	47	30	6/5 - 10 - 15 - 17/5 - 20 - 25 - 30 - 39/4 - 40 - 50 - 60 - 80 - 100	O-A	P1-P2- P3-P4	0-1-2-2-4	100
K632075.TD30.....CIN	75	56	27	30	4	5	10	40	44	52	6	37	47	30	6/5 - 10 - 15 - 17/5 - 20 - 25 - 30 - 39/4 - 40 - 50 - 60 - 80 - 100	O-A	P1-P2- P3-P4	0-1-2-2-4	100

Notes: Note: For ratios "/5" the arithmetic values are not displayed.

When ordering, please insert the chosen options in the code points.

Example 1: for a numerator block with 5 digits (K630075) with shaft of 30mm (d1), - orange colour (K632), - with gear ratio (GR) 50, - with clockwise rotation (SR) O, - with reading position (PL) P2, - with four decimal places (PD) 4, the complete code is thus formed: K632075.TD30050OP24.

or

Example 2: for a numerator block with 5 digits (K630075) with stainless steel shaft of 30mm (d1), - black colour (K630), - with gear ratio (GR) 15/75, - with counterclockwise rotation (SR) A, - with reading position (PL) P3, - with four decimal places (PD) 4, the complete code is thus formed: K632075.TD301575AP34CIN.

K590

FIXING PLATE FOR NUMERATOR BLOCK



PA6

Zamak

UL94
HB

RoHS
COMPLIANT

Material:

Plate:

Die-cast zinc alloy (zamak).

Lever:

Glass fiber reinforced polyamide. See specific data on art. A580.

Surface finish:

Plate:

Smooth, epoxy powder coated.

Lever:

Satin.

Colour:

Black (RAL 9011).

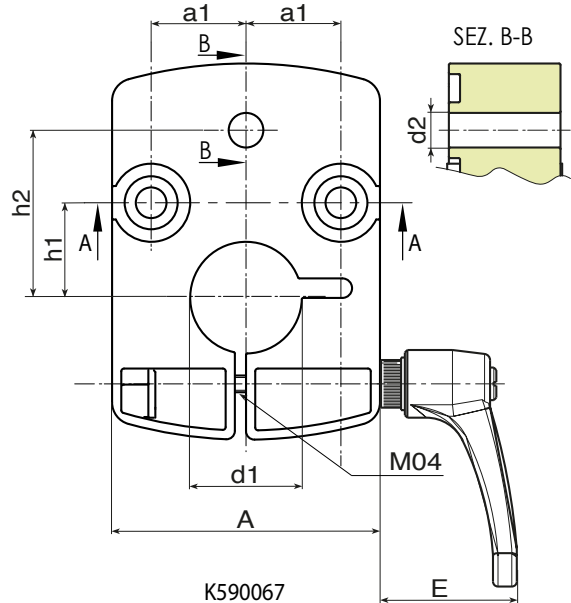
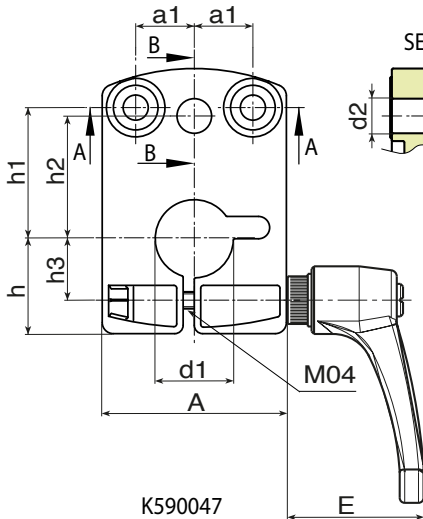
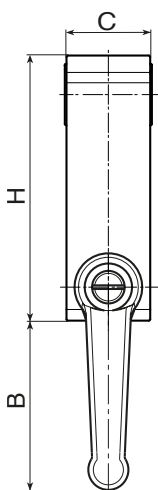
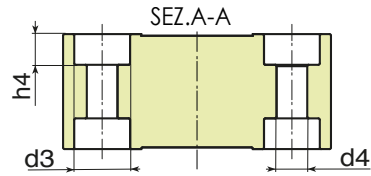
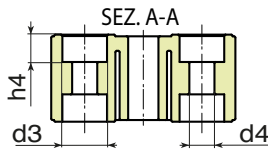
Fixing systems:

Hexagonal socket head cap screw (TCCE) M4 in galvanised steel.

Compatibility:

K590047: For block K610047.

K590067: For block K620067.



art.	H	A	C	B	E	a1	h	h1	h2	h3	h4	d2	d3	d4	d1	g
K590047.TD14P1	47,5	33	15	38	33	10.5	17	23.5	22	11	4.9	6.2	8	4.5	14	105
K590067.TD20P1	67.4	48	20	34	33	17	-	17	30	-	5.5	6.2	10	5.5	20	165

K617



4-DIGIT NUMERATOR BLOCK WITH CONTROL KNOB

Materials:

(1) Knob:

Glass fiber reinforced polyamide. Resistant to oils and greases.

(5) Block

Polyamide and PMMA.

Shaft connector:

Free-cutting steel.

(2-3) Grub screw:

Steel C40.

Surface finish:

(1-4) Satin.

(5) Smooth.

Colour:

(1) Knob:

Black (RAL 9011 cod. 01).

(5) Block

Black (RAL 9011 cod. 01).

Orange (RAL 2004 cod. 02).

Grey (RAL 7035 cod. 13).

(2-3) Grub screw:

Black-oxide treated.

Shaft connector:

Black-oxide treated.

(4) Cap:

Black (RAL 9011 cod. 01).

Orange (RAL 2004 cod. 02).

Grey (RAL 7035 cod. 13).

Fixing system:

(2) Grub screw DIN 914 for fastening the bush of the numerator block to the shaft.

(2) Grub screw DIN 914 for fastening the knob to the shaft.

ATTENTION:

The block and the control knob are not attached to each other. First of all, the numerator block is secured to the shaft through the grub screw (2), then the control knob is mounted on the shaft by means of grub screw (3).

Inserts:

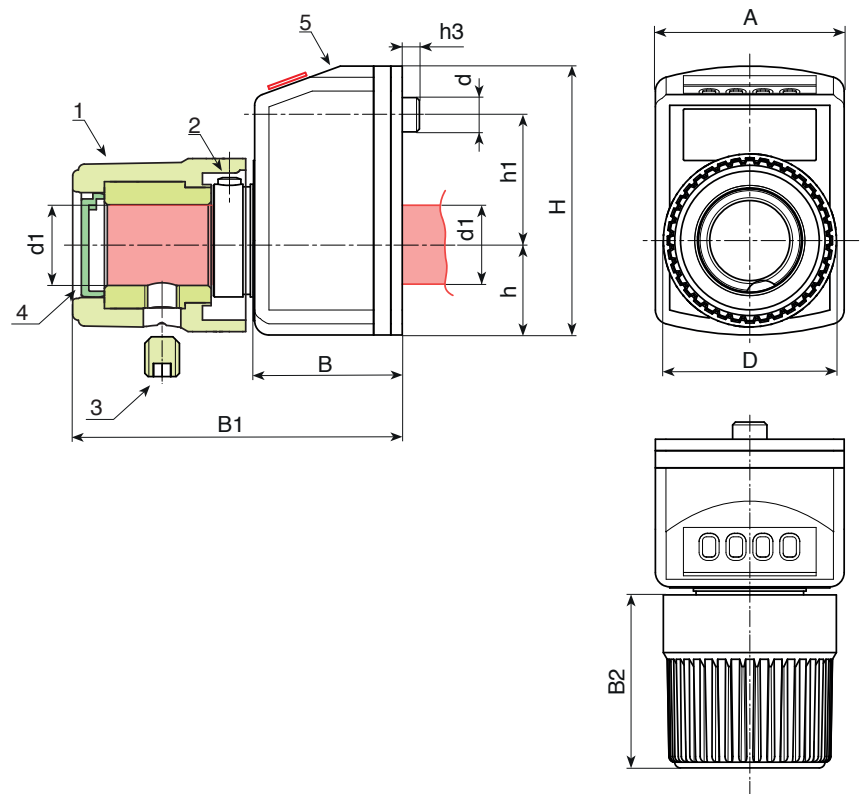
Bush with through hole in galvanized steel (hole tolerance H10), with the same diameter as the numerator block bush.

Numerator block features:

For the technical characteristics of the numerator block see article K610 [page].

Special requests

- Only related to the numerator block.



art.	A	H	B	B1	B2	h	h1	h3	D	d	d1H10	g
ART_K617047. TD140102.....	33	47	24	55	32	16,5	22	5	30	6	14	130



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INDICATORS

OPERATING PRINCIPLE

BOTECO handwheels with position indicators are used in various different industrial sectors. The accurate and reliable operating principle on which they are based makes them suitable for use in printing machines, in the food industry, in standard applications of the laminates and timber industry. They are sufficiently sturdy to guarantee maximum duration even in the toughest working conditions. The solid operating principle of the position indicators combined with ergonomic practicality make BOTECO handwheels extremely reliable. The operating principle of the position indicators is based on the physical law of gravitational force. The conformation of the instrument's internal suspension, consists of an indicator support pin, mounted on two bearings, that acts as a suspension axis for free oscillation weights. The graduated scale, the gearbox with the required gear ratio and the bushing of the indicator, are oriented according to the weight alignment. If you turn the handwheel, the gear that is integral with the indicator pin transmits rotary motion to the gear reducer suspended in oscillation, with a ratio 1:x. The direct connection between the handwheel and the gearbox mounted on bearings, guarantees 100% reading accuracy. The handwheels designed to be applied to horizontal axes have a reliable structure, for which no maintenance is required. They deliver adjustment and reading precision even for infinitesimal rotation settings, regardless of the distance, travelled by the axis, to be measured.

GRADUATED SCALE AND PRECISION OF THE INDICATION

As these data are the most important, extreme care must be taken when selecting them. Every graduated scale and every division for position indication must satisfy numerous requirements. It is always the preselected gear ratio that serves as the basis for the indicated values. In fact, it establishes the distance to be covered with a given number of turns. Position indicator model K650 can be configured with two pointers, one of which is always driven by a gear ratio. With a single pointer and a hypothetical ratio of 20, the gear-driven pointer travels the 360° of the scale every 20 turns of the handwheel, that is, the total setting distance must fall within a single turn of the pointer. When a second pointer is selected, its displacement will be 1:1 with the actual movement of the handwheel. Position indicator model K660, on the other hand, is designed for large measuring distances. In this version, the gear-driven pointer of model K650 is replaced by a digital counter. It is thus possible to view more turns of the geared pointer. This combination is particularly useful in applications that require a large number of rotations and accurate positioning data. Obviously standard graduated scales cannot meet all possible needs. For this reason, BOTECO also proposes special scales produced to customer specifications; for example, for adjustment indications in both directions that start at zero and require a scale with increasing and decreasing values. In order to construct them we require the customer to provide detailed information in the form of sketches or technical drawings. We can also assist you to create special details, such as for example division marks, numbering, brand names or specific colours.

DATA TO PROVIDE WHEN ORDERING OR REQUESTING A QUOTATION

When ordering or requesting a quote, in order to choose the most suitable indicator, the following data is necessary:

- Type and diameter of the handwheel;
- Type and diameter of the indicator;
- Diameter of the hole of the insert to couple with the shaft;
- If with or without keyway on the hole of the handwheel;
- Type of case: Normal (standard), with gears in paraffin oil bath with anti-condensation and/or anti-vibration function, or in a waterproof case;
- Gear ratio (GR);
- Rotation direction (SR): clockwise (O) or counter clockwise (A);
- Number of pointers: one pointer (F1); or two pointers (F2);
- Type of transparent cover: normal plastic (standard), acetone resistant plastic (only for K650080), mineral glass (only for K650080);
- Possibility of having zero reset function (only for K650080)
- Type of graduated scale: standard in relation to the gear ratio, or customised for a minimum of 100 pieces;
- Colour of the graduated scale: one colour (standard black), or up to three customised colours for a minimum of 100 pieces;
- Addition of logos, symbols or pictograms on request for a minimum of 100 pieces.



K650

GRAVITY POSITION INDICATOR



PA6

PPMA

UL94
HB



Materials:

Indicator case:

Glass fiber reinforced polyamide. Resistant to oils and greases.

Transparent cover:

Polymethylmethacrylate (PMMA).

Surface finish:

All smooth.

Colour:

Indicator case:

Black.

Cover:

Transparent.

Type of case:

Normal:

Sealed to dust.

Gear ratio:

The gear ratio determines the distance to be covered in a given number of revolutions. For example, with a single indicator pointer and a gear ratio of 20, the gear-driven pointer will travel the 360° of the scale every 20 turns of the handwheel, that is, the total setting distance must fall within a single turn of the pointer.

Rotation direction (SR):

O = increase of values with clockwise rotation

A = increase of values with counter clockwise rotation

Pointers:

The indicator can be supplied with one or two pointers:

One pointer (F1) 1:

One pointer that spins according to the gear ratio.

Two pointers (F2) 2:

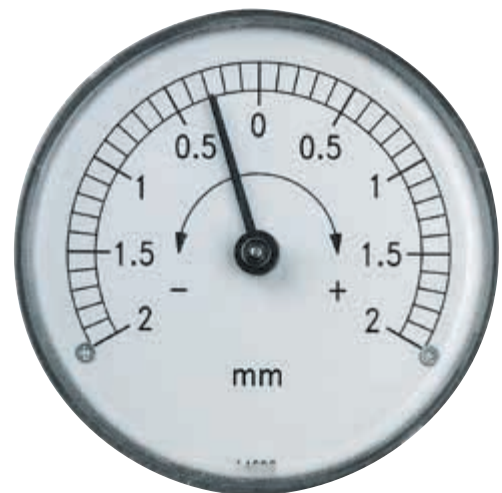
One pointer turns according to the gear ratio, whereas the second one turns with a ratio of 1:1.

Graduated scale:

Graduated scale printed in black. With standard graduation, with start and end of the scale combined with the chosen gear ratio. For example, with a gear ratio of 20 the first number of the scale will be 0 and the last number will be 20. Progression of numbers clockwise or counterclockwise depending on the chosen direction of rotation.

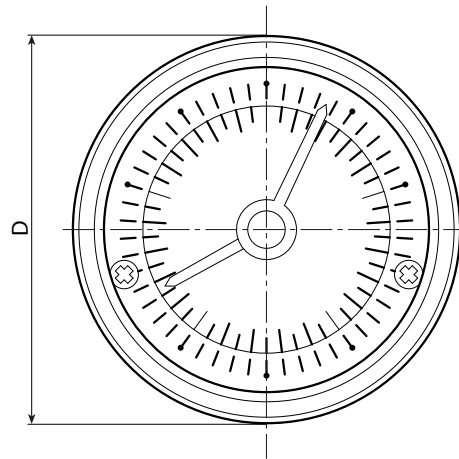
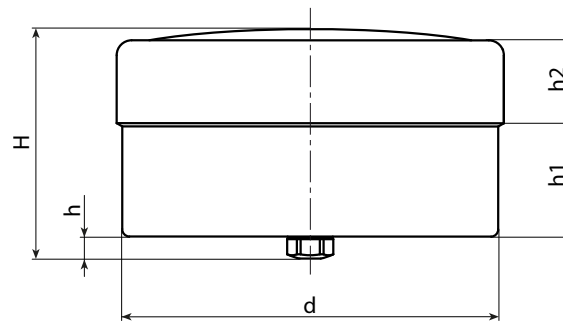
Special Requests:

- Upon request and for special quantities, only for position indicators K650-50 and K650-80, the transparent cover can be supplied in acetone resistant PA6.
- Upon request and for special quantities, only for position indicator K650-80, the transparent cover can be replaced with one in mineral glass.
- Upon request and for special quantities, the position indicators can be supplied filled with paraffin oil with anti-condensation or anti-vibration function.
- Upon request and for special quantities, only for position indicator K650-80, it can be supplied with the possibility of having a zero reset function.
- Upon request and for special quantities, the position indicators can be supplied with a waterproof case.
- Upon request and for special quantities, the graduated scale can be supplied to customer's drawing (both the scale values and the addition of logos or graphics).
- Upon request and for special quantities, the graduated scale can be printed in two or three colours.



K650

GRAVITY POSITION INDICATOR



K

Options to specify in the order (GR-SR-F1-F2)

art.	D	d	H	h	h1	h2	GR	SR	F1	F2	
K650050.....	51.7	50.2	29.2	4.2	14.7	11.5	1-2-3-6-10-12-15-18-20-24-30-36-48-50-60-72-84-96-100	O-A	1	2	100
K650070.....	66.8	65	28.5	5	16.2	11.3	1-2-3-6-10-12-15-18-20-24-30-36-48-50-60-72-84-96-100	O-A	1	2	100
K650080.....	86.8	84.8	29.8	5	15.6	12.7	1-2-3-6-10-12-15-18-20-24-30-36-48-50-60-72-84-96-100	O-A	1	2	100

When ordering, please insert the chosen options in the code points.

Example 1:

Example 1: for a position indicator with 80mm diameter. (K650080), - with gear ratio (GR) 12,- with clockwise rotation (SR) O, with two pointers (F2) 2, the complete code is thus formed: K650080.012O2.

or

Example 2: for a position indicator with 70mm diameter. (K650070), - with gear ratio (GR) 100,- with counter clockwise rotation (SR) A, with one pointer (F1) 1, the complete code is thus formed: K650070.100A1.

K660

GRAVITY POSITION INDICATOR WITH DIGITAL COUNTER



PA6

PPMA

UL94
HB

RoHS
COMPLIANT

Materials:

Indicator case:

Glass fiber reinforced polyamide. Resistant to oils and greases.

Transparent cover:

Polymethylmethacrylate (PMMA).

Number wheels:

Polyamide.

Surface finish:

All smooth.

Colour:

Indicator case:

Black.

Cover:

Transparent.

Number wheels:

Black wheel with white numbers.

Type of case:

Normal:

Sealed to dust.

Gear ratio (GR):

The gear ratio determines the distance to be covered in a given number of revolutions. For example, with a single indicator pointer and a gear ratio of 20, the gear-driven pointer will travel the 360° of the scale every 20 turns of the handwheel, that is, the total setting distance must fall within a single turn of the pointer.

Decimal point (PD):

The digital counter is also available with decimal points. In this case, with five digits the position of the decimal point is available as follows:

PD = 0 - no decimal point indicated (00000)

PD = 1 - one digit after decimal point (0000.0)

PD = 2 - two digits after decimal point (000.00)

PD = 3 - three digits after decimal point (00.000)

PD = 4 - four digits after decimal point (0.0000)

Rotation direction (SR):

O = increase of values with clockwise rotation

A = increase of values with counter clockwise rotation

Pointers:

The indicator can be supplied with one or no pointers:

No pointers (F0) 1:

No pointers, only the digital counter.

One pointer (F1) 2:

One pointer that turns with the ratio 1:1.

Graduated scale:

Graduated scale printed in black. With standard graduation, with start and end of the scale combined with the chosen gear ratio. For example, with a gear ratio of 20 the first number of the scale will be 0 and the last number will be 20. Progression of numbers clockwise or counterclockwise depending on the chosen direction of rotation.

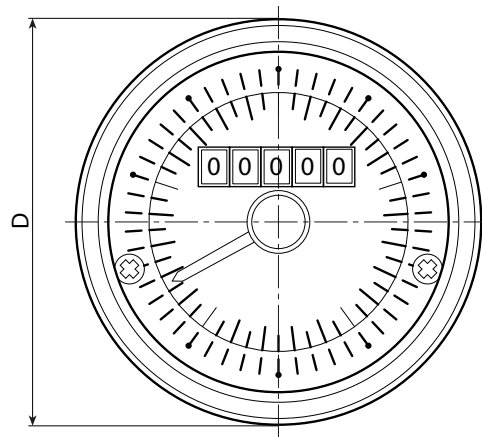
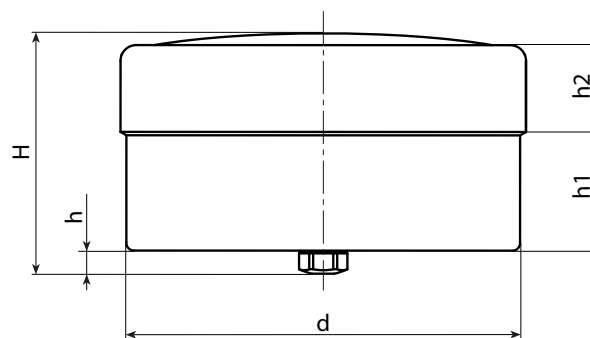
Special Requests:

- Upon request and for special quantities the transparent cover can be supplied in acetone resistant PA6.
- Upon request and for special quantities the indicators can be supplied filled with paraffin oil with anti-condensation or anti-vibration function.
- Upon request and for special quantities, the graduated scale can be supplied to customer's drawing (both the scale values and the addition of logos or graphics).
- Upon request and for special quantities, the graduated scale can be printed in two or three colours.



K660

GRAVITY POSITION INDICATOR WITH DIGITAL COUNTER



Options to specify in the order (GR-PD-SR-F0-F1)

art.	D	d	H	h	h1	h2	GR	PD	SR	F0	F1	
K660080.....	86.8	84.8	29.8	5	15.6	12.7	2-2/5-3-4-5-6-8-10-15	0-1-2-3-4	O-A	1	2	200

When ordering, please insert the chosen options in the code points.

Example 1:

Example 1: for a position indicator with 80mm diameter. (K660080), - with gear ratio (GR) 08, - with two digits after the decimal point (PD) 2, - with clockwise rotation (SR) O, with one pointer (F1) 2, the complete code is thus formed: K660080.0082O2.

or

Example 2: for a position indicator with 80mm diameter. (K660080), - with gear ratio (GR) 15, - with four digits after the decimal point (PD) 4, - with counter clockwise rotation (SR) A, with no pointers (F0) 1, the complete code is thus formed: K660080.0154A1.



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