



General

The vane type rotary actuators, 6420 series is designed to operate at 90-180 or 270 deg. In a contained space. Dimensionally are more compact than other types of rotary actuators.

The range includes bore sizes from 10 to 100 in 4 configurations:

- Basic.
- With rotary angle adjustment mechanism.
- With sensing support.
- With rotary angle adjustment mechanism and sensing support.

The bodies are in aluminium , the shafts in chrome plated steel and the seals in NBR.

The sensing support kit enables for the sensors to be positioned in any position.

The rotary angle adjustment mechanism enables the adjustment of the complete rotation on bore sizes 10 to 40 while on the others sizes carries as standard hydraulic dampers which enable the adjustment only of the last part of the rotation.

The units can be fixed using the thread on the body or the through holes on the body.

On bore sizes 50 to 100 the shaft runs into ball bearings which ensure high resistance. o rotante è guidato su cuscinetti a sfere che assorbono i carichi radiali e assiali, garantendo durata e affidabilità.

Ordering code

6420.Ø. . .

Size

- Ø10
- Ø15
- Ø20
- Ø30
- Ø40
- Ø50
- Ø63
- Ø80
- Ø100

Rotation angle

- 90** = 90°
- 180** = 180°
- 270** = 270°

Version

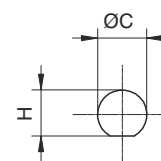
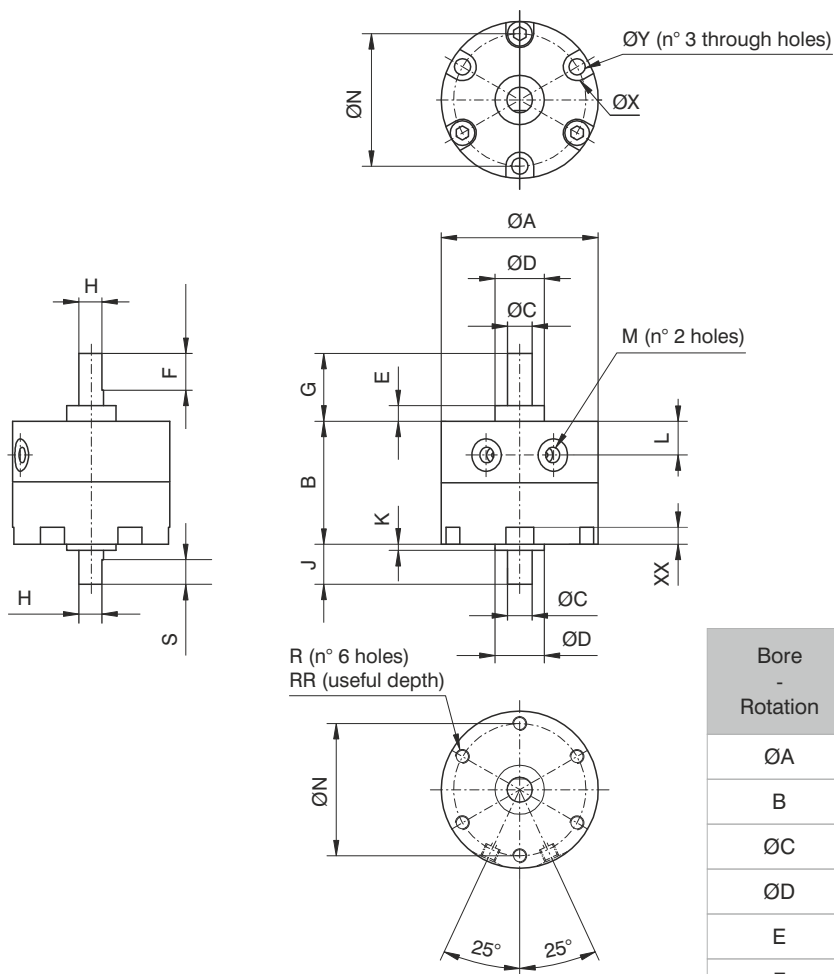
- / = Without adjustable rotation angle, and without sensor support
- R** = With adjustable rotation angle
- S** = With sensor supports
- T** = With adjustable rotation angle and sensor supports

Construction characteristics

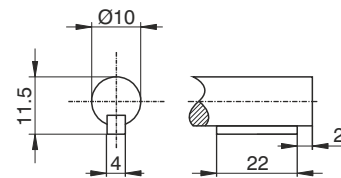
Body	anodised aluminium
Rod	steel
Seals	NBR
Vane	vulcanized NBR rubber on steel core
Cushoning	elastic bumper; hydraulic dampers from size Ø50 - Ø100 versions R or T

Technical characteristics

Fluid	Filtered air and preferably lubricated
Working pressure	1,5 - 7 bar
Temperature	0°C - 50°C
Rotation range	90° - 180° - 270°
Max. allowed leak	Ø10 - Ø40 = 0,3 NI/min / Ø50 - Ø100 = 0,5 NI/min

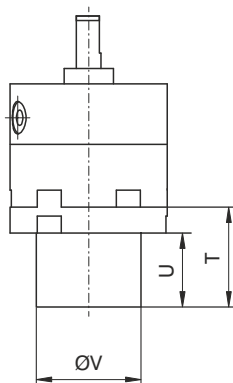


- Ø10 - Ø30 long shaft
- Ø10 - Ø40 short shaft

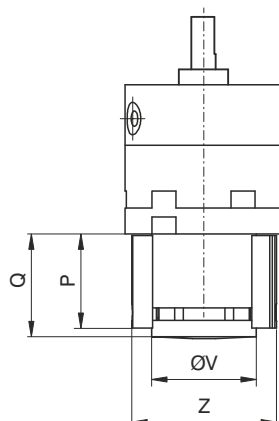


- Ø40 long shaft

Adjustable rotation angle version

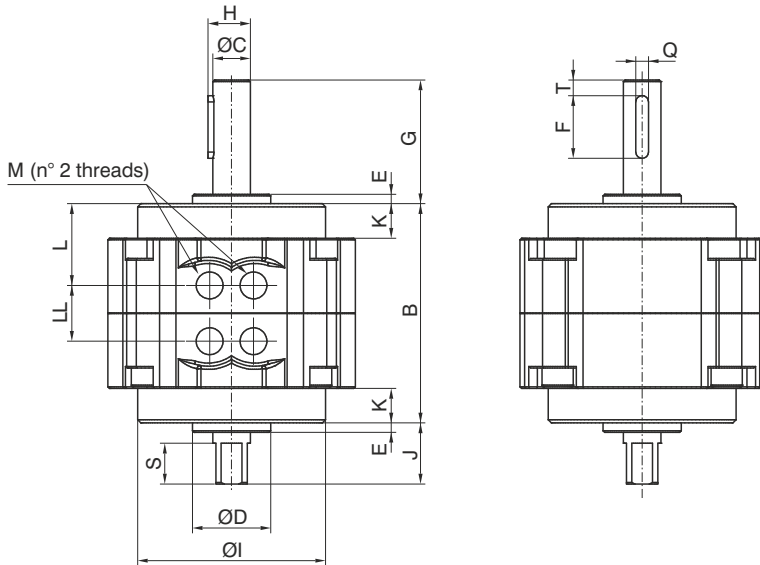
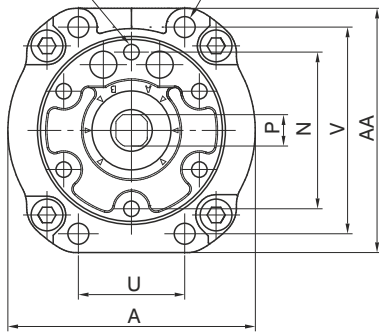


With sensor support version

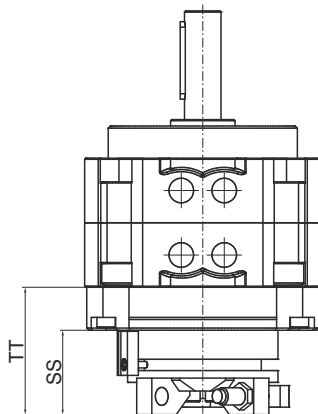


Bore - Rotation	10 - 90°	15 - 90°	20 - 90°	30 - 90°	40 - 90°	
	10 - 180°	15 - 180°	20 - 180°	30 - 180°	40 - 180°	
	10 - 270°	15 - 270°	20 - 270°	30 - 270°	40 - 270°	
ØA	30	35	44	51	64	
B	17	20,1	29,1	40	45	
ØC	4	5	6	8	10	
ØD	9	12	14	16	25	
E	3	4	4,5	5	6,5	
F	9	10	10	12	22	
G	14	18	20,3	22	30	
H	3,5	4,5	5,5	7,5	9	
J	8	9	9,6	13	15	
K	1	1,5	1,6	2	4,5	
L	4,2	5	8,5	11	9,5	
M	M5x0,8	M5x0,8	M5x0,8	M5x0,8	M5x0,8	
ØN	24	29	36	43	56	
P	23,3	28	28	30,8	33	
Q	24	29,5	30,5	34	36	
R	M3x0,5	M3x0,5	M4x0,7	M5x0,8	M5x0,8	
RR	3	3	4,5	9	9	
S	5	6	7	8	9	
T	24	28	28,5	32,5	34,5	
U	18	22	21	24	26	
ØV	18	24	30	34	34	
ØX	6	6	7,5	9	9	
XX	3,5	3,5	4,5	5,5	5,5	
ØY	2,3	2,3	3,2	4,2	4,2	
Z	29	34	42	47	47	
Weight (gr.)	Base	28	48	112	200	342
	With regulation rotation system	78	116	240	390	805

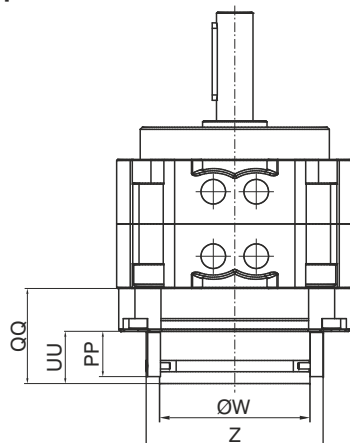
R (n° 6 threads on both sides)
RR (useful depth) ØVA (n° 4 holes)



Adjustable rotation angle version

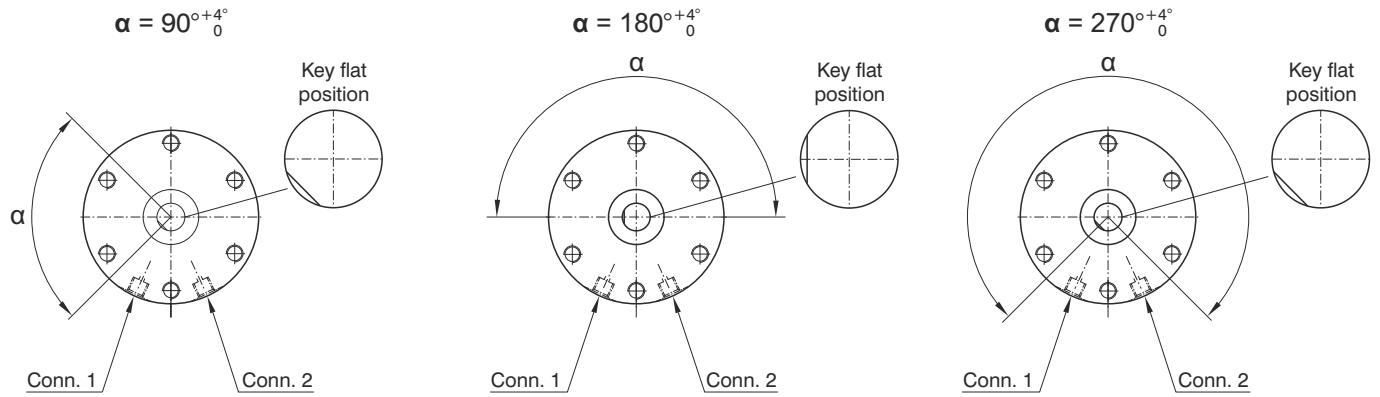


With sensor support version



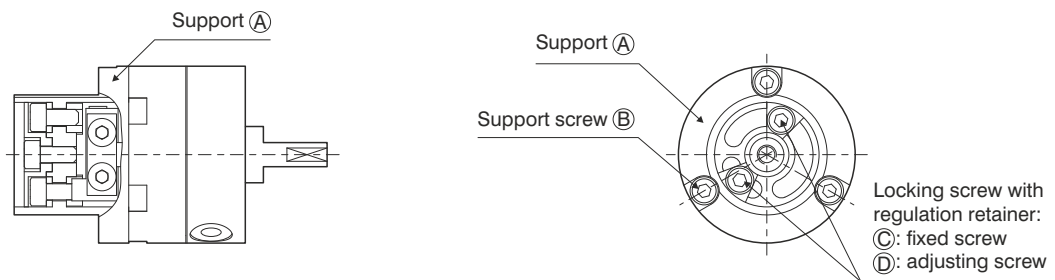
Bore - Rotation	50 - 90°	63 - 90°	80 - 90°	100 - 90°	
	50 - 180°	63 - 180°	80 - 180°	100 - 180°	
	50 - 270°	63 - 270°	80 - 270°	100 - 270°	
A	79	98	110	140	
AA	78	98	110	140	
B	70	80	90	103	
ØC	12	15	17	25	
ØD	25	28	30	45	
E	3	3	3	4	
F	20	25	36	40	
G	39,5	45	53,5	65	
H	13,5	17	19	29	
ØI	60	75	88	108	
J	19,5	21	23,5	30	
K	11	14	15	11,5	
L	26	28,9	30	35,4	
LL	18	22,2	30	32,2	
M	G1/8"	G1/8"	G1/4"	G1/4"	
N	50	60	70	80	
P	10	12	13	19	
PP	21	21	21	21	
Q	4	5	5	7	
QQ	39,4	43	44	48,5	
R	M6x1	M8x1,25	M8x1,25	M10x1,5	
RR	8	10	14	14	
S	13	14	16	16	
SS	38	38	39	39,5	
T	5	7,5	5	5	
TT	53	56,5	59	63	
U	34	39	48	60	
UU	24,5	24,5	24,5	24,5	
V	66	83	94	120	
ØVA	6,5	9	9	11	
ØW	60	60	70	70	
Z	73	73	83	83	
Weight (gr.)	Base	760	1290	1920	4100
	With regulation rotation system	1100	1690	2370	4840

ROTATING SHAFT KEY FLAT POSITION



ROTATION ANGLE SETUP

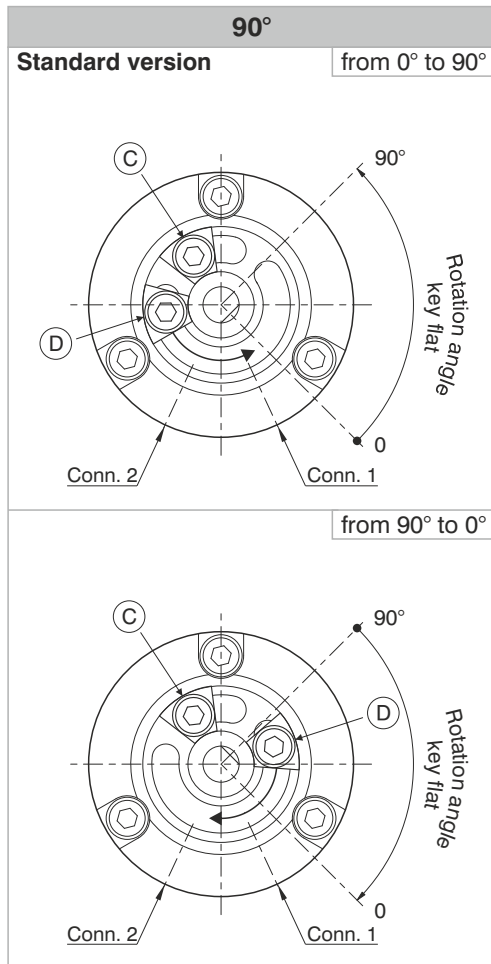
To regulate the rotation angle (codes 6420..R or T), follow the instructions below



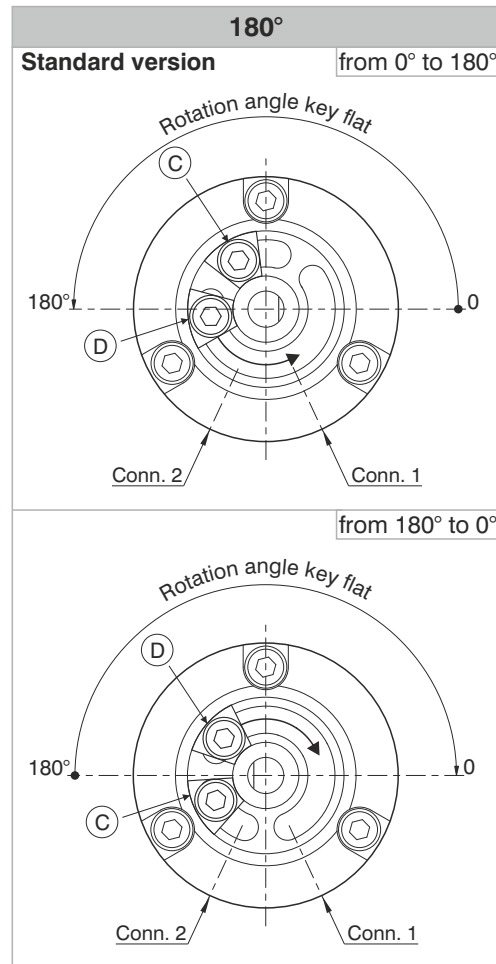
Phase 1 : Choose the regulation configuration based on the following options
(consider the actuator base position):

rotation 90°, regulation 0 - 90°, rotation 180°, regulation 0 - 180°, rotation 270°, regulation 0 - 175°

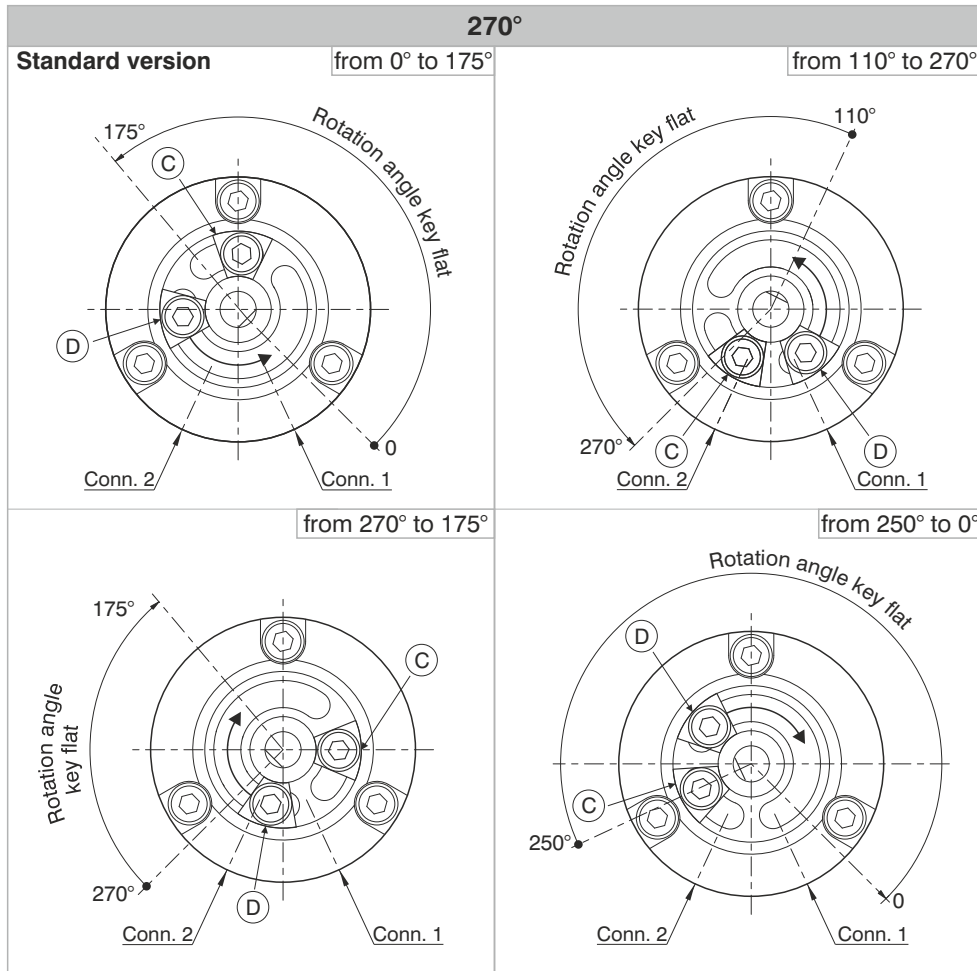
ROTATION CONFIGURATION



ROTATION CONFIGURATION



ROTATION CONFIGURATION



Ⓒ = Fixed screw Ⓓ = Adjusting screw

Phase 2 : If the desired settings do not correspond to the basic version settings:

- remove screw (E) and disk (F) or (G) (depending on the version) (see figure 1)
- remove screws (B), the actuator support (A) (see figure 1) and unlock blocking screws (C) and (D) (see rotation configuration)
- position screws (C) and (D) and the key flat of rotating shaft as indicated in the chosen rotation configuration in order to align the key flat of rotating shaft (see figure 2)
- re-assemble actuator support (A), tighten screws (B)
- position screws (C) and (D) according to the desired adjustment and tighten the screws
- re-assemble disk (F) or (G) and screw (E)

Figure 1

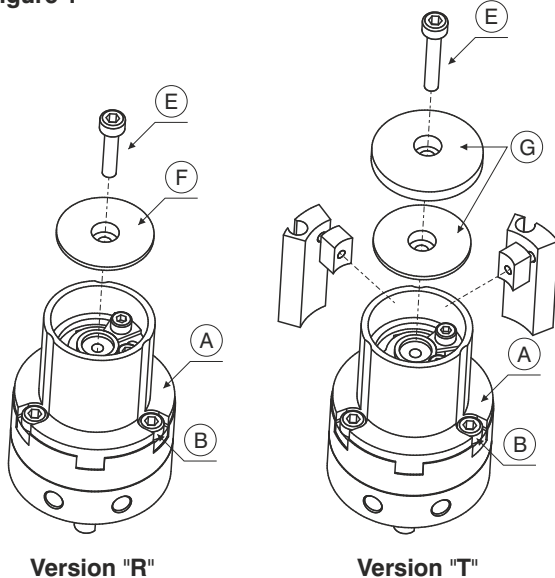
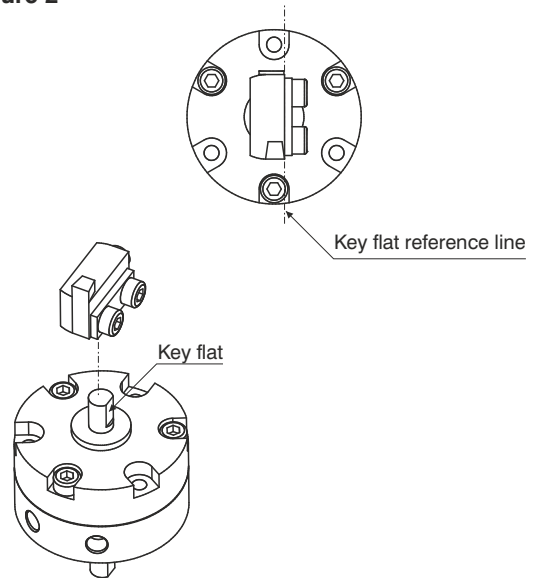
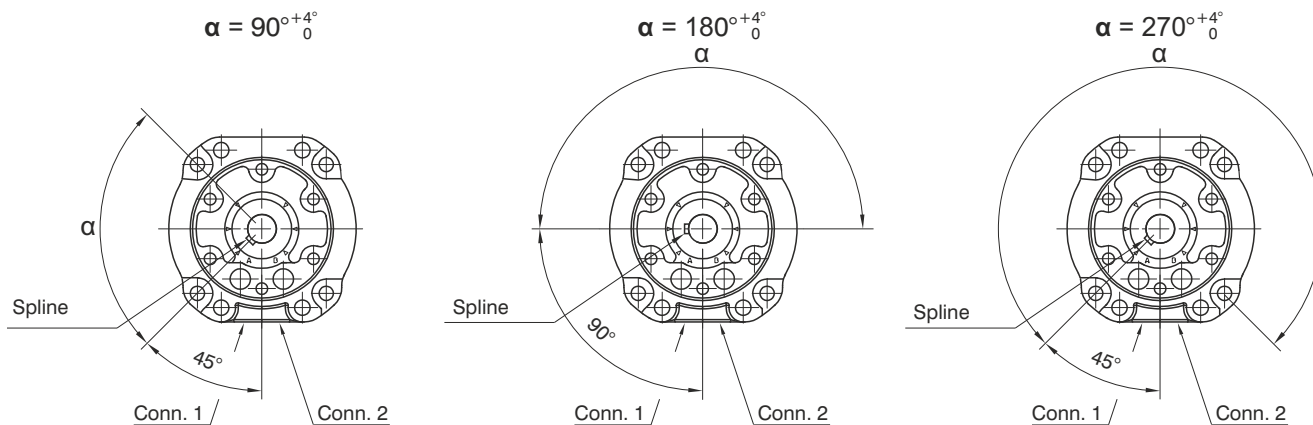


Figure 2

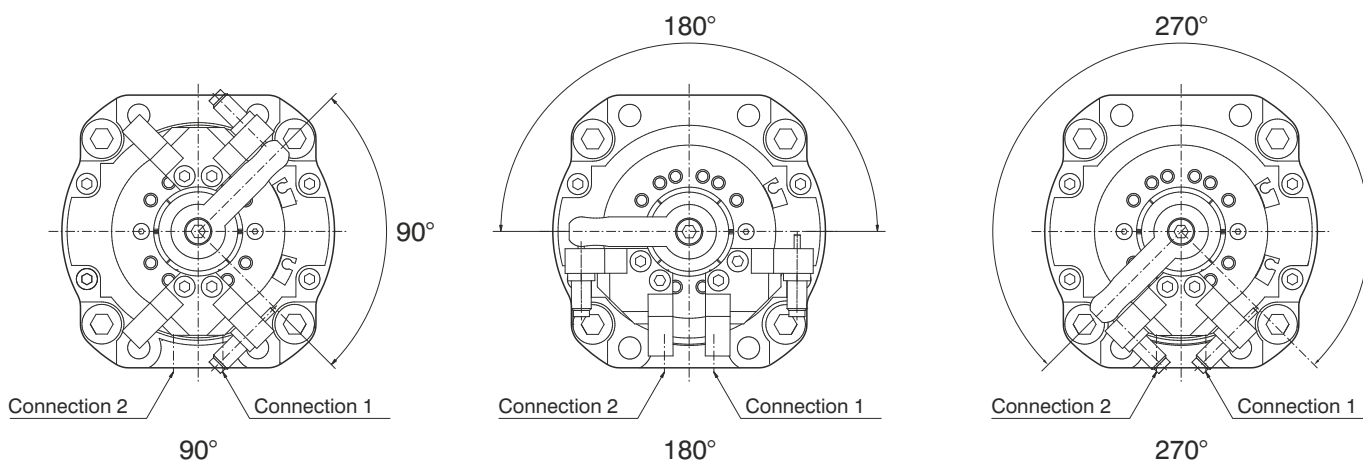


ROTATING SHAFT SPLINE POSITION

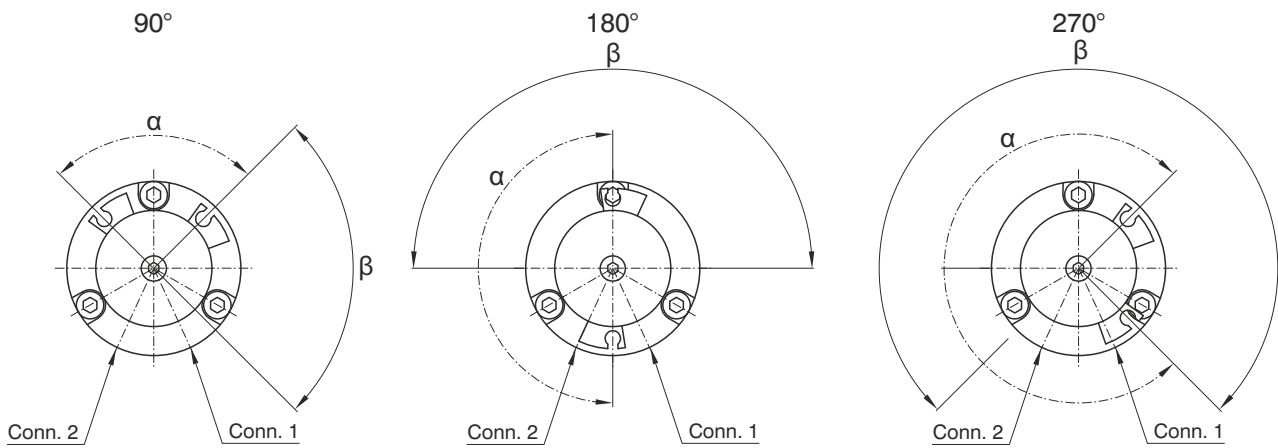
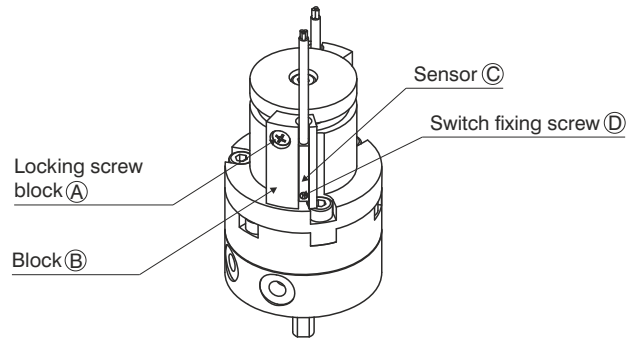


ROTATION ANGLE SETUP

The version with adjustable rotation angle (cod. 6420..R or T) is available with hydraulic dampers which enable to regulate the rotation angle by 10° and to decelerate moving mass.



- Phase 1** - Unfasten screw (A)
- Phase 2** - Assemble the switch (C) into the dedicated housing (B) and lock with screw (D)
- Phase 3** - Rotate block (B) in the desired position (see following image)



α - magnet rotating angle

β - shaft key flat rotating angle

For correct functionality position the switch within angle α

Phase 4 - tighten screw (A)

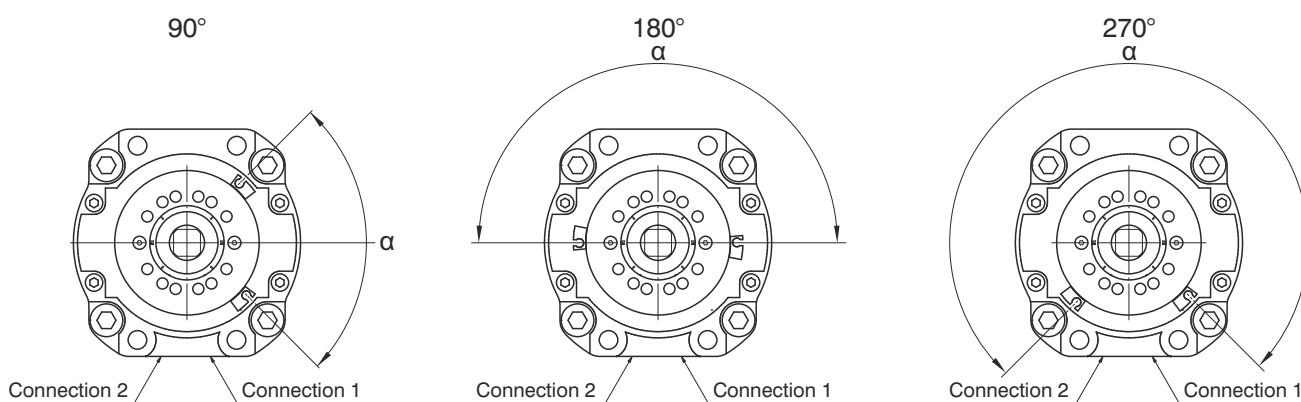
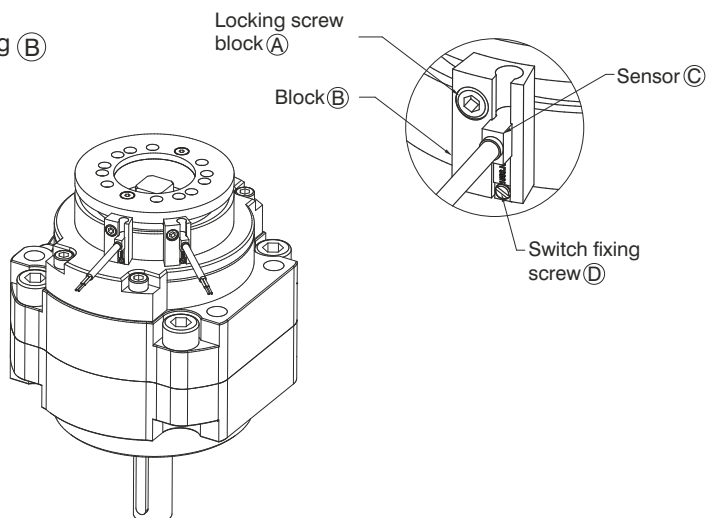
Phase 5 - repeat the following phases for the second switch

AVAILABLE SENSORS

	Code
	1581.U
	TRS.U
	1581.HAP
	THS.P

	Code
	1583.DC
	1583.HAP
	THR.P

- Phase 1** - Unfasten screw (A)
- Phase 2** - Assemble the switch (C) into the dedicated housing (B) and lock with screw (D)
- Phase 3** - Rotate block (B) in the desired position (see following image)



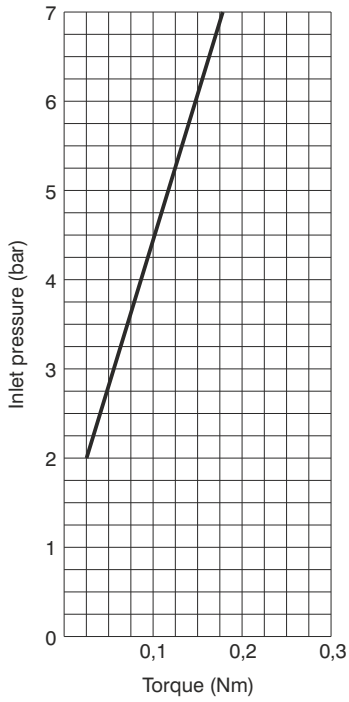
α - magnet rotating angle (that corresponds to the shaft key flat rotating angle)
For correct functionality position the switch within angle α

- Phase 4** - tighten screw (A)
- Phase 5** - repeat the following phases for the second switch

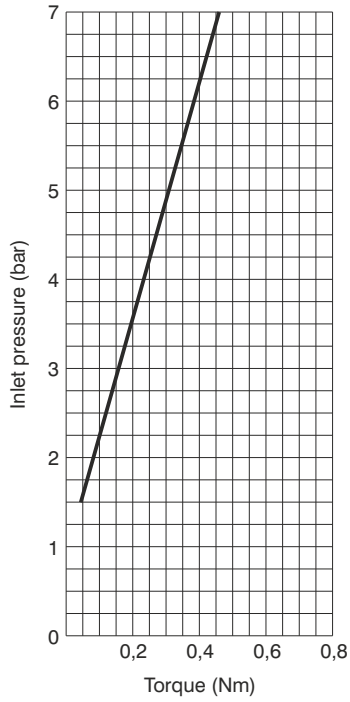
AVAILABLE SENSORS

	Code
	1583.DC
	1583.HAP
	THR.P

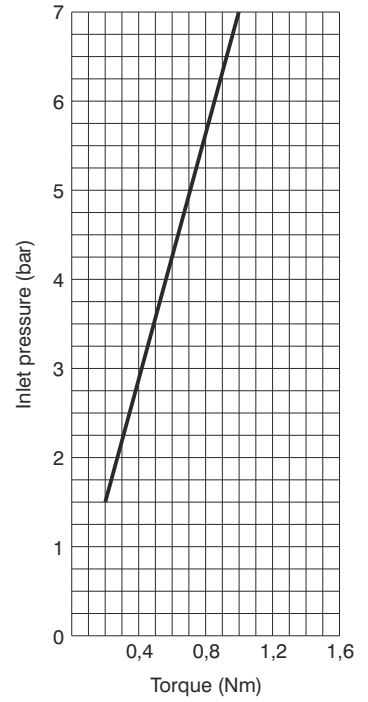
Ø10



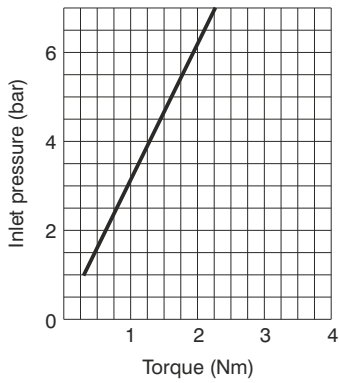
Ø15



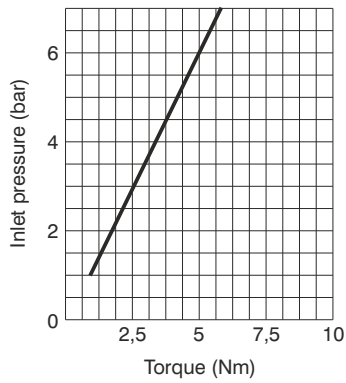
Ø20



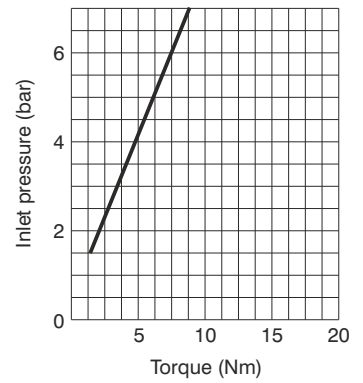
Ø30



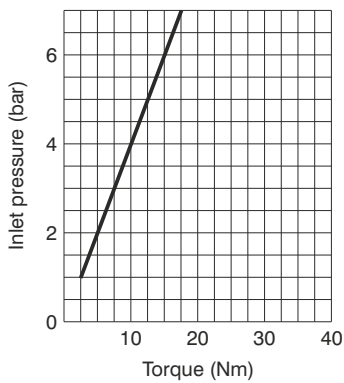
Ø40



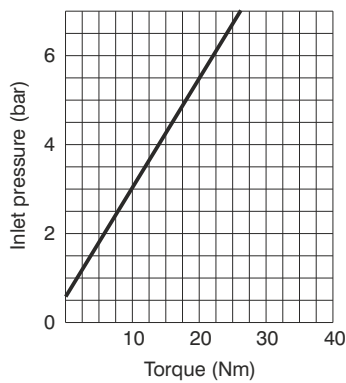
Ø50



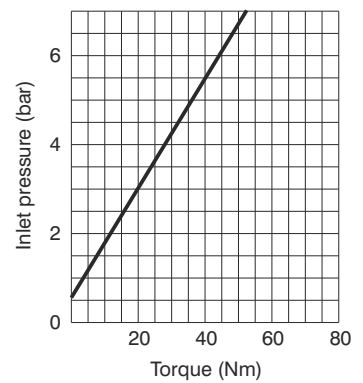
Ø63



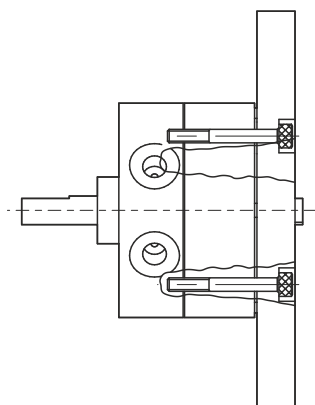
Ø80



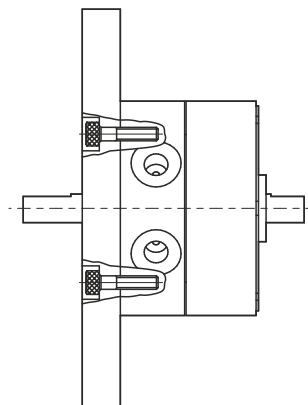
Ø100



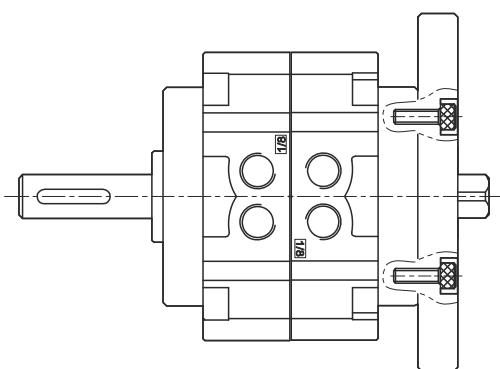
Mounting types



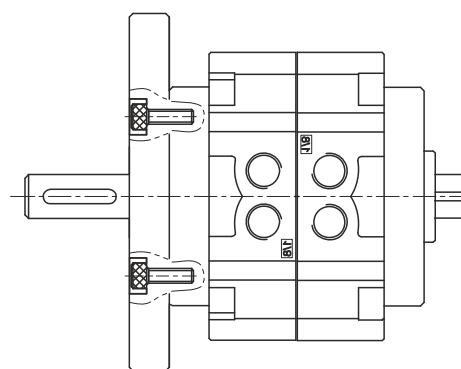
Rear mounting



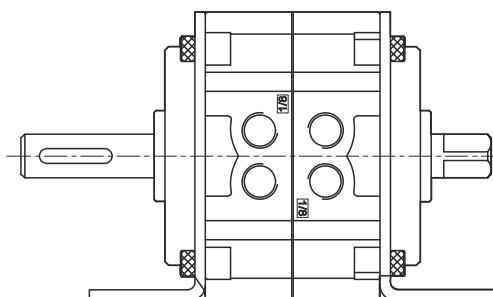
Frontal mounting



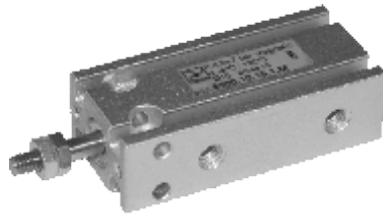
Rear mounting



Frontal mounting



Mounting with flange



Ordering code

6500.Ø.stroke. 1 .

10	= non magnetic
16	
20	
25	

M = magnetic

Construction characteristics

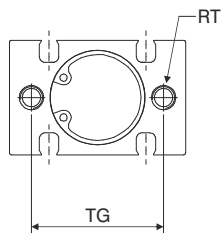
Body	anodised aluminium
Piston rod	stainless steel
Piston	brass
Rods bushing	sinterize bronze
End plate	anodised aluminium
Cushioning washer	PUR
Seal	oil resistant NBR rubber

Technical characteristics

Fluid	filtered and preferably lubricated air or not (If lubricated the lubrication must be continuous)
Minimum working pressure	0.6 bar (for bore Ø10 - Ø16) 0.5 bar (for bore Ø20 - Ø32)
Max pressure	7 bar
Operating temperature	-5°C - +70°C
Cushioning	with elastic bumper
Stroke tolerance	+1 / 0 mm
Piston speed	50 - 500 mm/sec (without load)

Corse standard

Bore	Stroke							
	5	10	15	20	25	30	40	50
Ø10	●	●	●	●	●	●		
Ø16	●	●	●	●	●	●		
Ø20	●	●	●	●	●	●	●	●
Ø25	●	●	●	●	●	●	●	●



* $\text{\O}10$: n° 2 piston rod nuts
 $\text{\O}16$: n° 1 piston rod nut

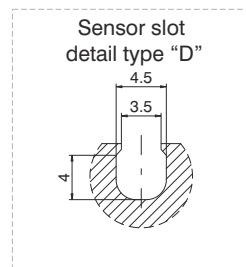
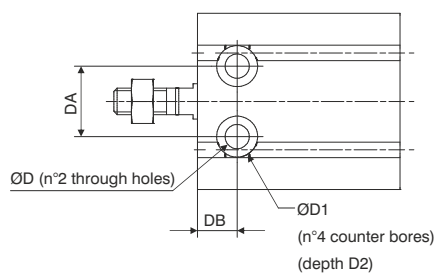
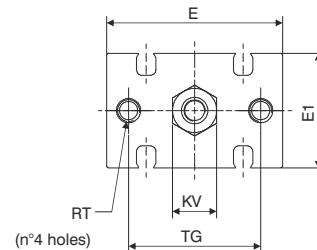
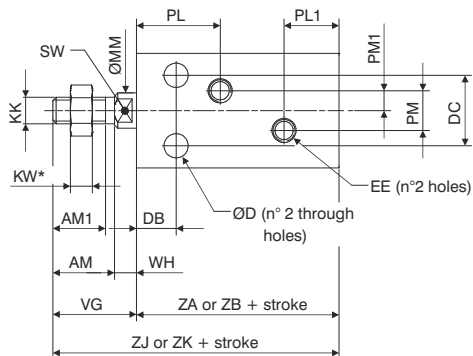
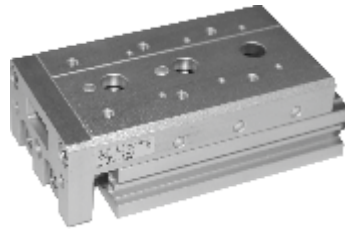


Table of dimensions

	Bore				
	$\text{\O}10$	$\text{\O}16$	$\text{\O}20$	$\text{\O}25$	
AM	/	12,5	14	18	
AM1	10	11	12	15,5	
$\text{\O}D$	$\text{\O}3,2$	$\text{\O}4,5$	$\text{\O}5,5$	$\text{\O}5,5$	
$\text{\O}D1$	$\text{\O}6$	$\text{\O}7,6$	$\text{\O}9,3$	$\text{\O}9,3$	
D2	5	6,5	8	9	
DA	11	14	16	20	
DB	7	7	9	10	
DC	9	12	16	20	
E	24	32	40	50	
E1	15	20	26	32	
EE	M5	M5	M5	M5	
KK	M4	M5	M6	M8	
KV	7	8	10	13	
KW	3	4	5	5	
$\text{\O}MM$	$\text{\O}4$	$\text{\O}6$	$\text{\O}8$	$\text{\O}10$	
PL	16,5	16,5	19	21,5	
PL1	10	11,5	12,5	13	
PM	/	4	9	9	
PM1	/	2	4,5	4,5	
RT	M3 (useful depth 5)	M4 (useful depth 6)	M5 (useful depth 8)	M5 (useful depth 8)	
SW	/	5	6	8	
TG	18	25	30	38	
VG	16	16	19	23	
WH	/	3,5	5	5	
ZA	magnetic	36	40	46	50
ZB	non magnetic	36	30	36	40
ZJ	magnetic	52	56	65	73
ZK	non magnetic	52	46	55	63
Weight (gr.)					
Stroke 0	32	44	84	159	
every 5 mm	4	6	11	17	



Ordering code

6600.Ø.stroke. _ . _

- 8 = Without accessories
- 12 = **A** = Double regulation end stroke
- 16 = **AU** = Regulation front end stroke
- 20 = **AR** = Regulation rear end stroke
- 25 = **D** = Double shock absorber
- = **DU** = Front shock absorber
- = **DR** = Rear shock absorber

Construction characteristics

Body	anodised aluminium
Piston rod	stainless steel
Piston	stainless steel
Piston rod bushing	sintered bronze
End plate	anodised aluminium
Cushioning washer	PUR
Seal	oil resistant NBR rubber
Flange	anodised aluminium
Upper plate	anodised aluminium

Technical characteristics

Fluid	filtered and preferably lubricated air or not (If lubricated the lubrication must be continuous)
Working pressure	1.5 - 7 bar
Working temperature	-5°C - +70°C
Cushioning	with elastic bumper

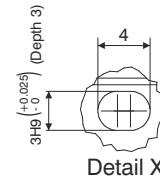
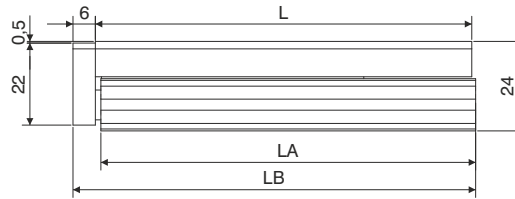
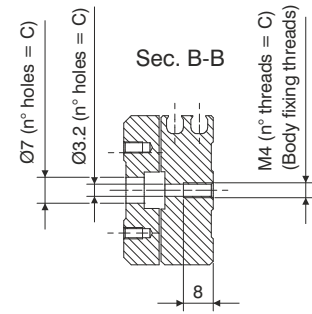
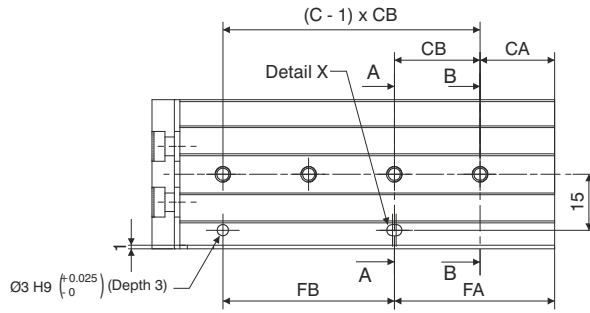
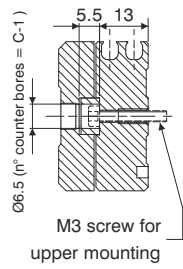
Theoretical force

Bore	Effective area (mm ²)	Force (N)						
		10	20	30	40	50	60	70
Ø8	Out	101	20	30	40	51	61	71
	In	75	15	23	30	38	45	53
Ø12	Out	226	45	68	90	113	136	158
	In	170	34	51	68	85	102	119
Ø16	Out	402	80	121	161	201	241	281
	In	302	60	91	121	151	181	211
Ø20	Out	628	126	188	251	314	377	440
	In	471	94	141	188	236	283	330
Ø25	Out	982	196	295	393	491	589	687
	In	756	151	227	302	378	454	529
		2	3	4	5	6	7	
		Working pressure(bar)						

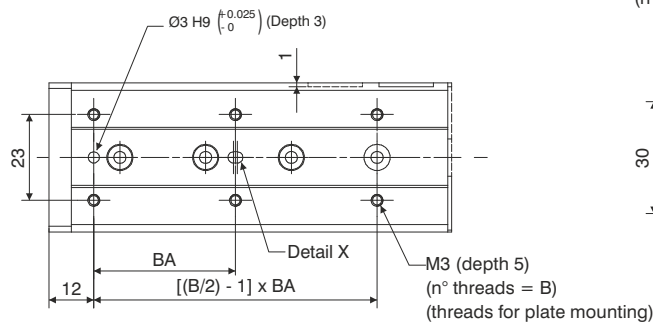
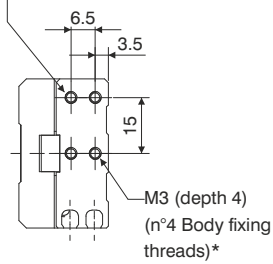
Standard strokes

Bore	Stroke								
	10	20	30	40	50	75	100	125	150
Ø8	●	●	●	●	●	●			
Ø12	●	●	●	●	●	●	●		
Ø16	●	●	●	●	●	●	●	●	
Ø20	●	●	●	●	●	●	●	●	●
Ø25	●	●	●	●	●	●	●	●	●

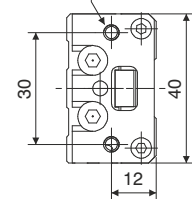
Sec. A-A



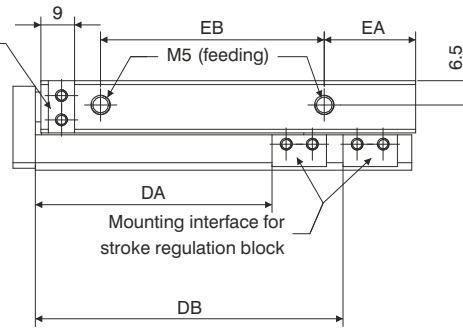
Mounting surface for stroke regulation block



M4 (depth 6) (n°2 Flange fixing threads)



Mounting surface for stroke regulation block



Sensor slot detail type "D"

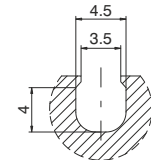


Table of dimensions

	Standard stroke					
	10	20	30	40	50	75
B	4	4	4	4	6	6
BA	25	25	40	50	38	50
C	2	2	3	3	4	5
CA	9	12	13	15	20	27
CB	28	30	20	28	23	28
DA	23,5	33,5	43,5	53,5	63,5	88,5
DB	/	/	/	/	82,5	132,5
FA	17	12	33	43	43	83
FB	20	30	20	28	46	56
EA	13	8,5	9,5	10,5	24,5	38,5
EB	19,5	29	39	56	60	96
L	49	54	65	83	101	151
LA	48,5	53,5	64,5	82,5	100,5	150,5
LB	56	61	72	90	108	158
Weight (gr.)	150	160	190	235	285	410

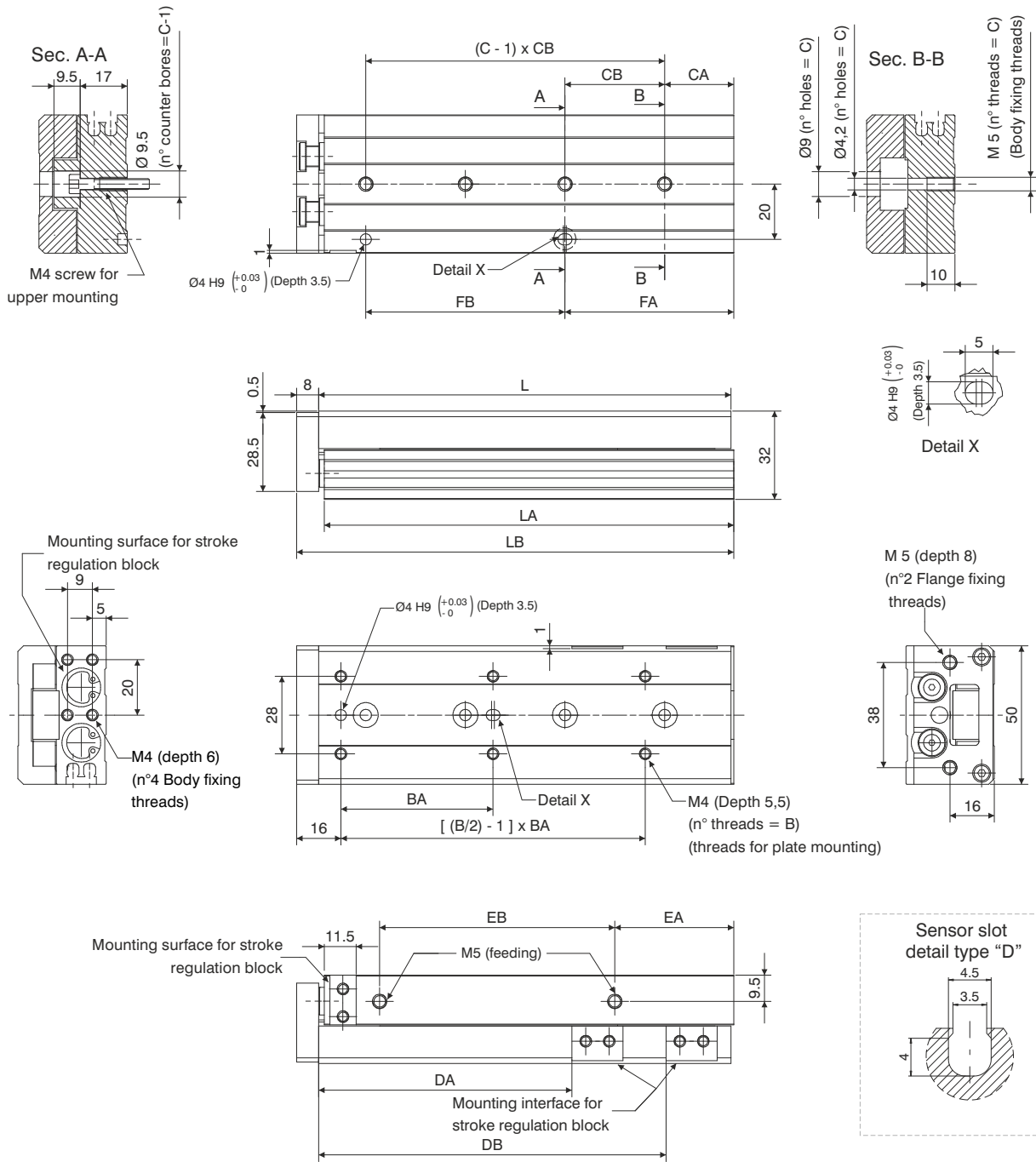


Table of dimensions

	Standard stroke						
	10	20	30	40	50	75	100
B	4			6			
BA		35		50	35	55	65
C		2		3	3	4	5
CA		15		17	15	25	35
CB		40		25	36	36	38
DA	26,5	36,5	46,5	56,5	66,5	91,5	116,5
DB	/	/	/	/	/	125,5	179,5
FA		15		42	51	61	111
FB		40		25	36	72	76
EA		10			22	43	52
EB		40		52	60	85	130
L		71		83	103	149	203
LA		70		82	102	148	202
LB		80		92	112	158	212
Weight (gr.)		325		385	480	660	890

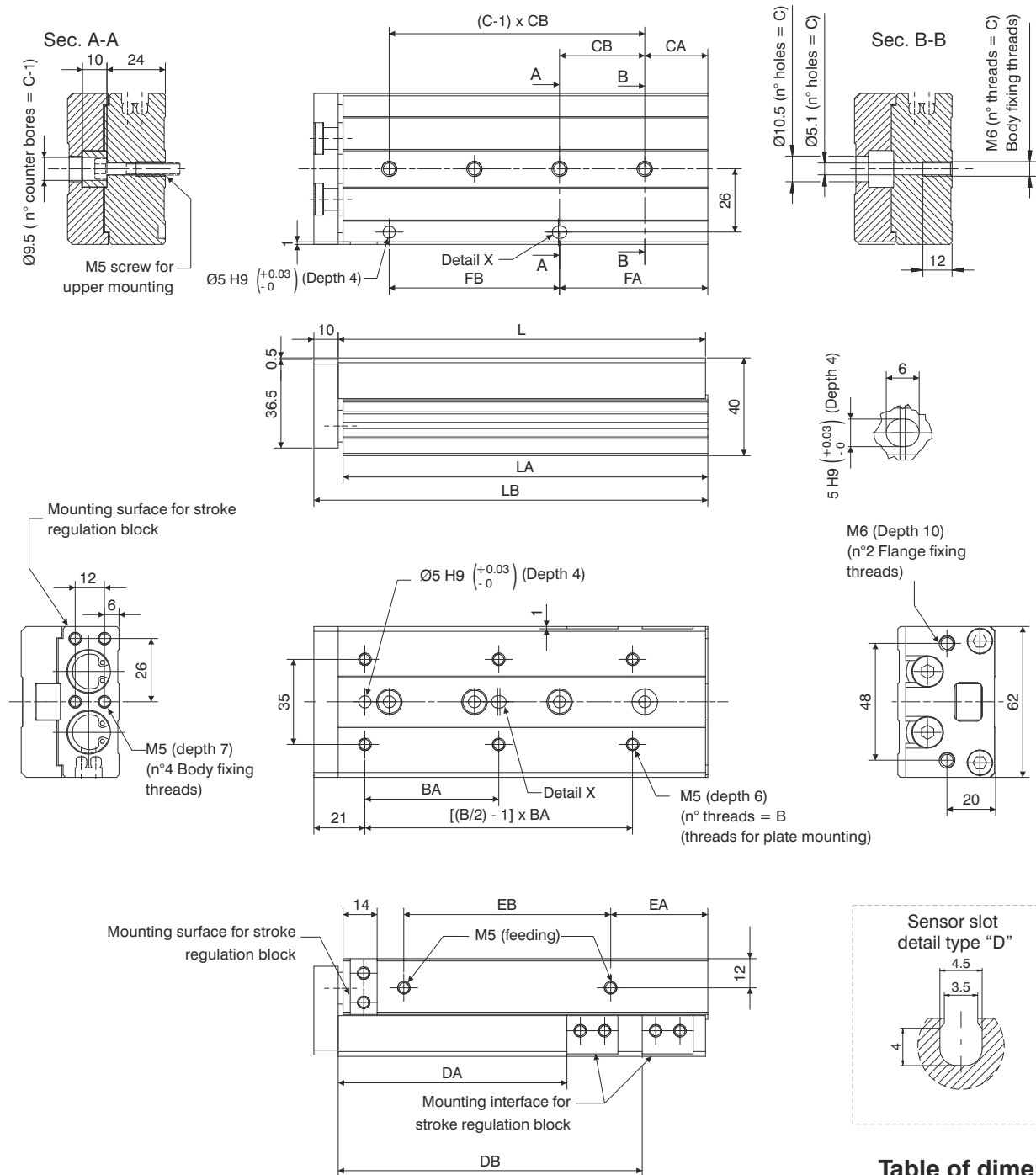


Table of dimensions

	Standard stroke							
	10	20	30	40	50	75	100	125
B	4	4	4	4	6	6	6	8
BA	35	35	35	40	30	55	65	70
C	2	2	2	2	3	4	5	7
CA	16	16	16	16	21	26	39	19
CB	40	40	40	50	30	35	35	35
DA	29	39	49	59	69	94	119	144
DB	/	/	/	/	/	125	173	223
FA	16	16	16	16	51	61	109	159
FB	40	40	40	50	30	70	70	70
EA	10	10	10	10	15	40	55	68
EB	40	40	40	50	60	85	118	155
L	76	76	76	86	101	151	199	249
LA	75	75	75	85	100	150	198	248
LB	87	87	87	97	112	162	210	260
Weight (gr.)	570	570	580	640	760	1090	1370	1700

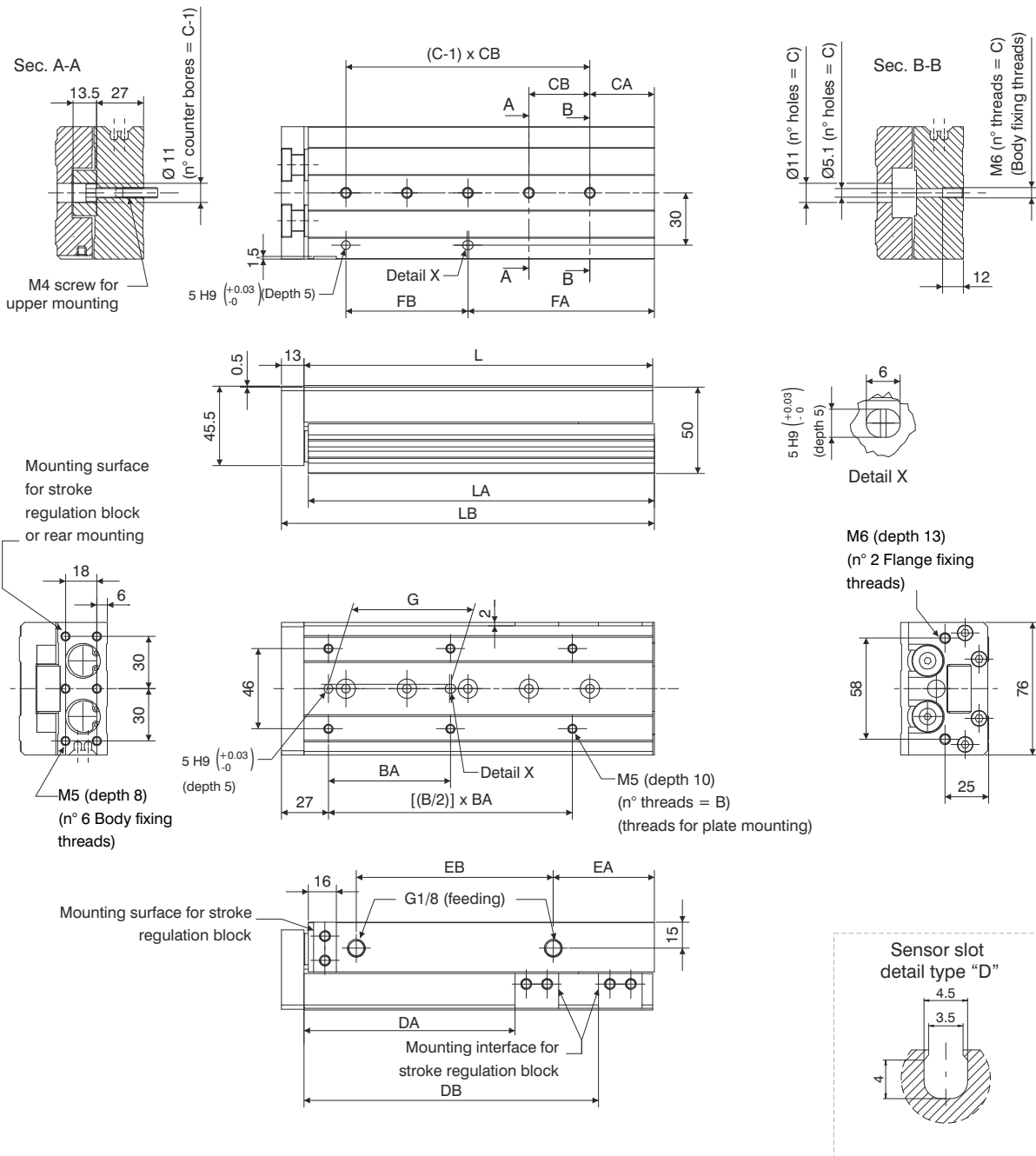


Table of dimensions

	Standard stroke								
	10	20	30	40	50	75	100	125	150
B	4	4	4	4	6	6	6	8	8
BA	50	50	50	60	35	60	70	70	80
C	2	2	2	2	3	4	5	6	7
CA	15	15	15	15	15	19	37	41	19
CB	45	45	45	55	35	35	35	38	44
DA	31	41	51	61	71	96	121	146	171
DB	/	/	/	/	/	/	169	223	275
EA	10	10	10	10	10	10	58	70	87
EB	44	44	44	54	69	108	113	155	190
FA	25	25	25	35	50	54	107	155	195
FB	35	35	35	35	35	70	70	76	88
G	40	40	40	50	35	60	70	70	80
L	83	83	83	93	108	147	200	254	306
LA	81,5	81,5	81,5	91,5	106,5	145,5	198,5	252,5	304,5
LB	97	97	97	107	122	161	214	268	320
Weight (gr.)	960	980	1010	1100	1250	1630	2150	2670	3190

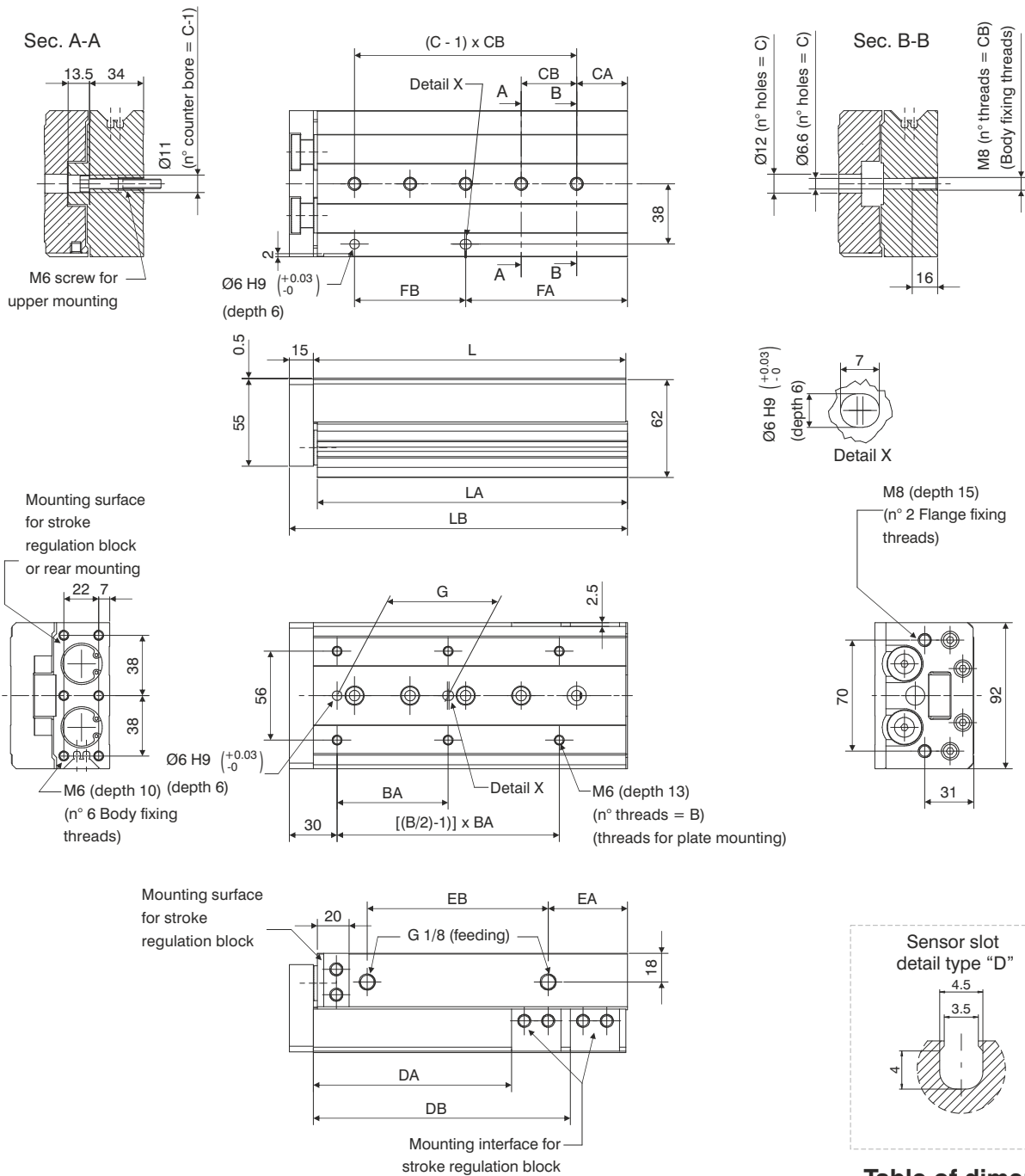
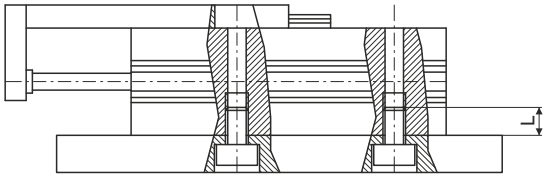


Table of dimensions

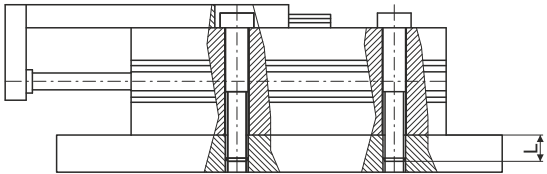
	Standard stroke									
	10	20	30	40	50	75	100	125	150	
B	4	4	4	4	6	6	6	8	8	
BA	50	50	50	60	35	60	70	75	80	
C	2	2	2	2	3	4	5	6	7	
CA	22	22	22	22	20	26	32	40	30	
CB	45	45	45	55	35	35	35	38	40	
DA	35	45	55	65	75	100	125	150	175	
DB	/	/	/	/	/	/	162	218	258	
EA	12	12	12	12	12	33	50	67	82	
EB	47	47	47	57	70	90	114	155	180	
FA	22	22	22	22	55	61	102	154	190	
FB	45	45	45	55	35	70	70	76	80	
G	40	40	40	50	35	60	70	75	80	
L	92	92	92	102	115	156	197	255	295	
LA	90,5	90,5	90,5	100,5	113,5	154,5	195,5	253,5	293,5	
LB	108	108	108	118	131	172	213	271	311	
Weight (gr.)	1660	1680	1690	1840	2090	2650	3270	4140	4710	

SIDE THREADED HOLES



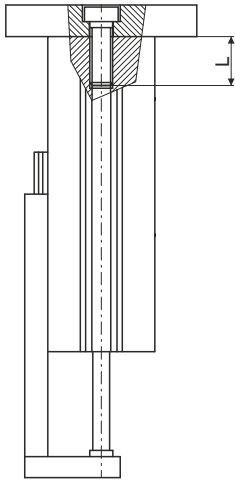
Bore	Screw	Torque (Nm)	Max. Length L (mm)
Ø8	M3	2,1	8
Ø12	M4	4,4	10
Ø16	M5	7,4	12
Ø20	M5	7,4	12
Ø25	M6	18	16

SIDE THROUGH HOLES



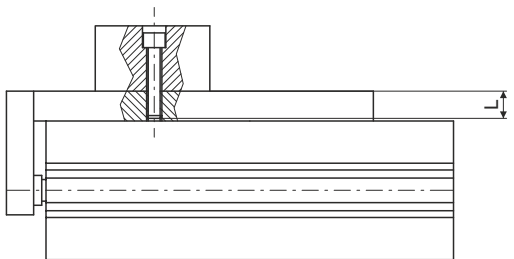
Bore	Screw	Torque (Nm)	Max. Length L (mm)
Ø8	M3	1,2	13
Ø12	M4	2,8	18,5
Ø16	M5	5,7	24
Ø20	M5	5,7	29
Ø25	M6	18	34

AXIAL THREADED HOLES

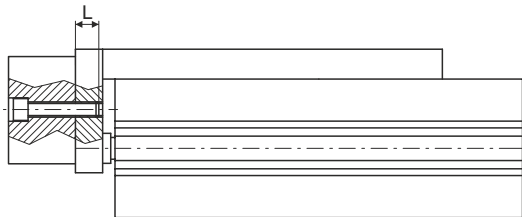


Bore	Screw	Torque (Nm)	Max. Length L (mm)
Ø8	M3	0,9	4
Ø12	M4	2,1	6
Ø16	M5	4,4	7
Ø20	M5	4,4	8
Ø25	M6	7,4	10

Mounting load



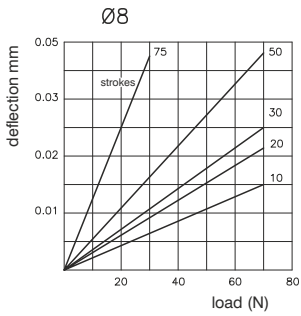
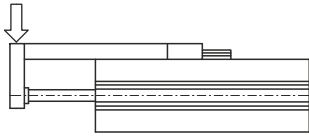
Bore	Screw	Torque (Nm)	Max. Length L (mm)
Ø8	M3	2,1	6
Ø12	M4	4,4	8
Ø16	M5	7,4	10
Ø20	M5	7,4	13
Ø25	M6	18	15



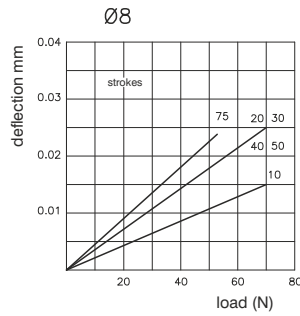
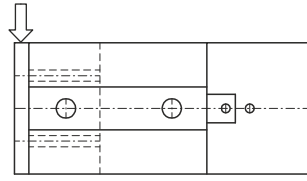
Bore	Screw	Torque (Nm)	Max. Length L (mm)
Ø8	M3	0,9	5
Ø12	M4	2,1	5,5
Ø16	M5	4,4	6
Ø20	M5	4,4	10
Ø25	M6	7,4	13

Kinetic energy (J)	Bore	With elastic bumper	With shock absorber
	Ø8	0,027	See Dampers 6900
	Ø12	0,055	
	Ø16	0,11	
	Ø20	0,16	
	Ø25	0,24	

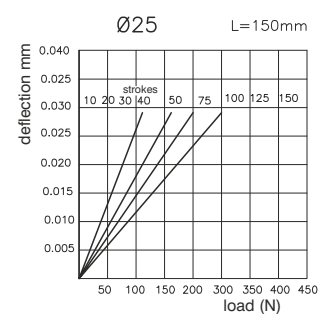
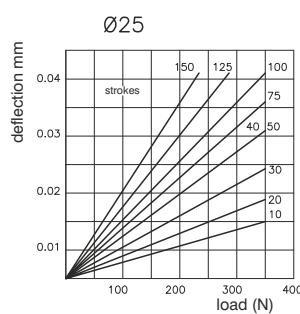
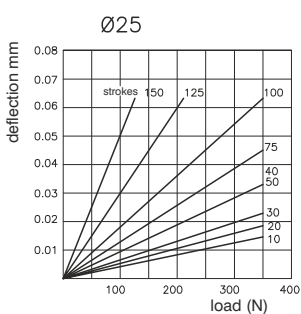
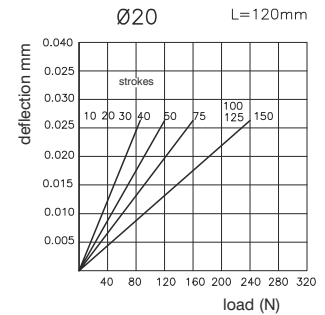
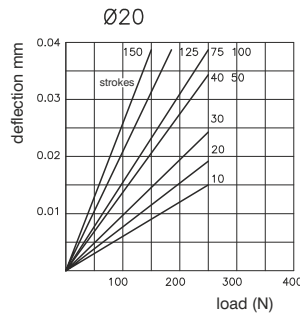
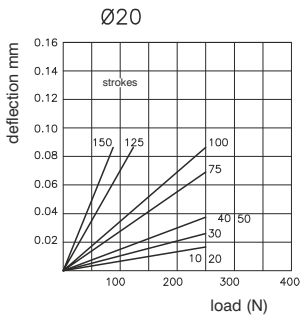
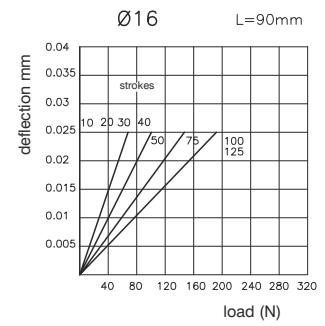
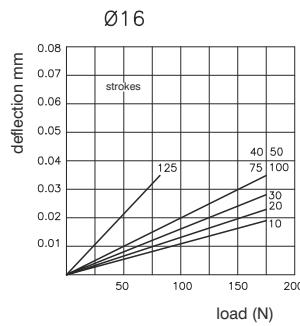
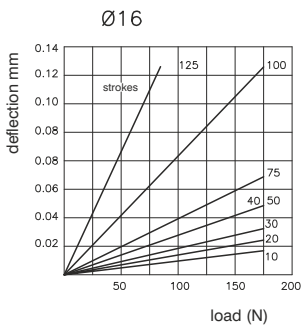
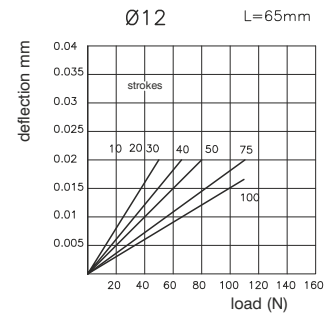
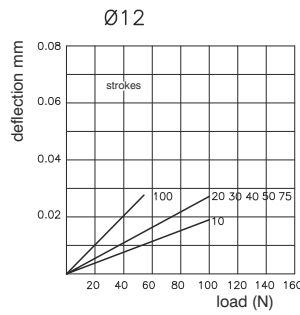
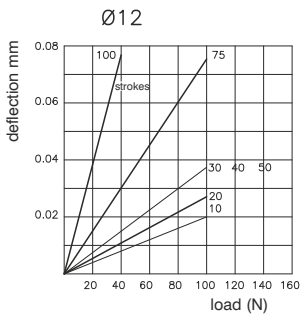
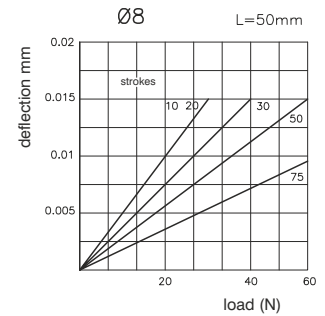
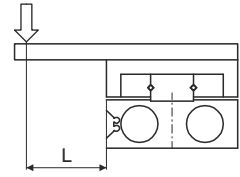
With front moment under static conditions completely extended and with load applied as indicated by the arrows.



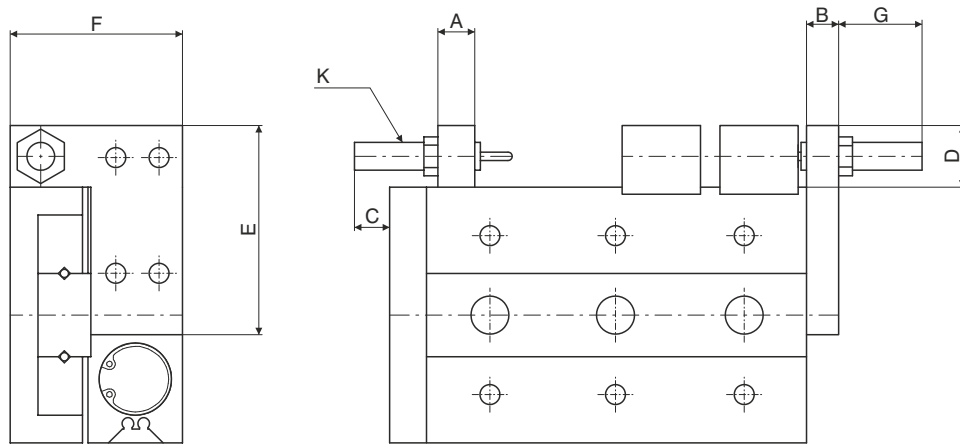
With side moment under static conditions completely extended and with load applied as indicated by the arrow



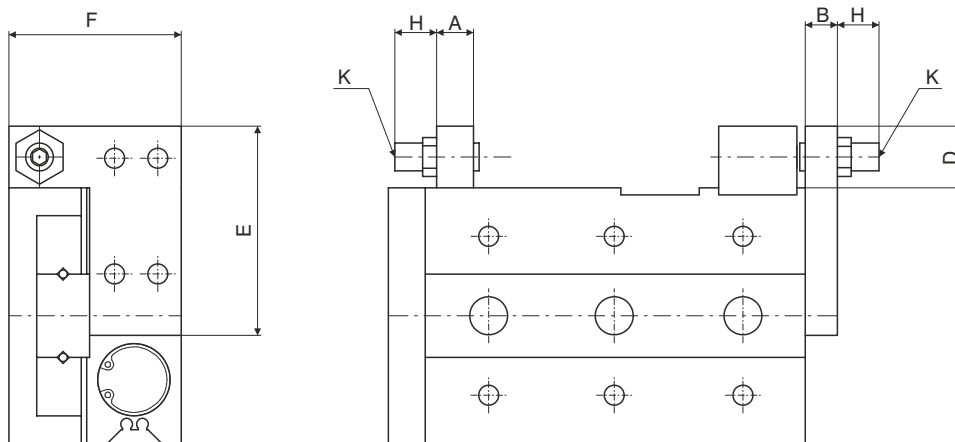
With misaligned side moment with load applied as indicated by the arrow at a distance "L" and with plate completely retracted.



Dimensions with dampers

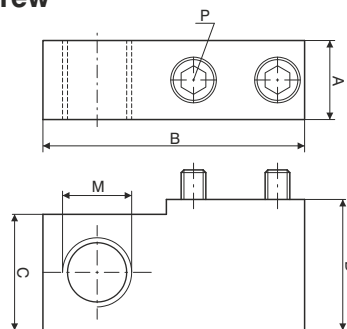


Dimensions with adjusting screw



Bore	A	B	C	D	E	F	G max.	H max.	K
Ø8	7	8	26	14,5	38,5	23	25,5	28,5	M8x1
Ø12	9,5	8	21	15	45	31,5	24,5	32	M8x1
Ø16	11	10	19	18	55	37,5	29	34,5	M10x1
Ø20	13	12	28	24,5	70	47,5	42,5	35,5	M14x1,5
Ø25	16	15	34	24,5	80	54,5	39,5	37,5	M14x1,5

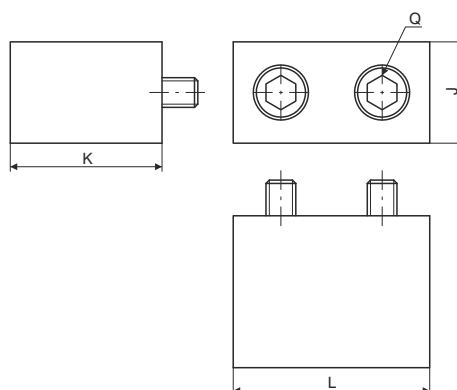
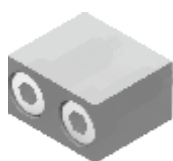
Shock absorber mounting block / front stroke adjusting screw



Bore	A	B	C	D	M	P
Ø8	7	23	14	15.5	M8x1	M3x16
Ø12	9.5	31	14.5	16		M4x16
Ø16	11	37	17.5	19	M10x1	M5x18
Ø20	13	45.5	23.5	26	M14x1.5	M6x25
Ø25	16	53.5		26.5		M8x25

Ordering code
6600.Ø.SU

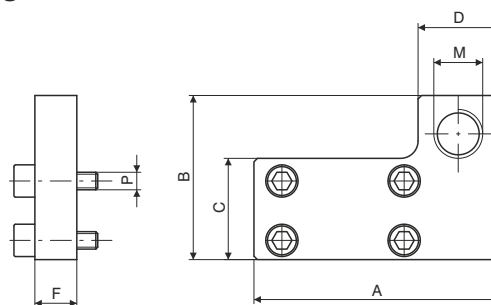
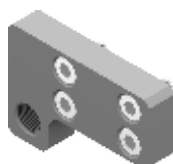
Reference block



Bore	J	K	L	Q
Ø8	7	15.5	14.6	M3x16
Ø12	10	15	18.5	M4x14
Ø16	12	18.5	21	M5x18
Ø20	13	25.5	25	M6x25
Ø25	17		31	M8x25

Ordering code
6600.Ø.SI

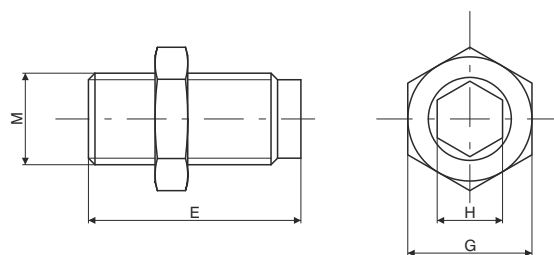
Shock absorber mounting block / rear stroke adjusting screw



Bore	A	B	C	D	F	M	P
Ø8	38	23	12.5	14	8	M8x1	M3x12
Ø12	45	31	18				M4x12
Ø16	55	37	23.5	16	10	M10x1	M5x14
Ø20	70	47	29	23	12	M14x1.5	M5x16
Ø25	80	54	35		15		M6x20

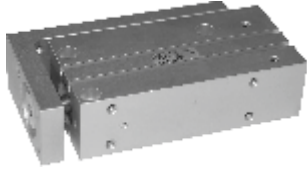
Ordering code
6600.Ø.SR

Adjusting screw



Bore	E	G	H	M
Ø8	36.5	12	4	M8x1
Ø12	40			
Ø16	44.5	14	5	M10x1
Ø20	47.5	19	6	M14x1.5
Ø25	52.5			

Ordering code
6600.Ø.VR



Ordering code

6700.Ø.stroke

- 10
- 16
- 20

Construction characteristics

Body	anodised aluminium
Piston rod	stainless steel
Piston	aluminium
Piston rod bushing	aluminium
End plate	anodised aluminium
Seals	oil resistant NBR rubber
Table	anodised aluminium

Standard strokes

Bore	Stroke								
	5	10	15	20	25	30	40	50	60
Ø10	●	●	●	●	●	●	●	●	●
Ø16	●	●	●	●	●	●	●	●	●
Ø20	●	●	●	●	●	●	●	●	●

Technical characteristics

Fluid	filtered and preferably lubricated air or not (If lubricated the lubrication must be continuous)
Working pressure	1.2 - 7 bar
Working temperature	-5°C - +70°C
Cushioning	with elastic bumper

Theoretical force

Bore	Effective Area (mm ²)	Force (N)						
		2	3	4	5	6	7	
Ø10	Out	28.3	5.7	8.5	11.3	14.2	17	19.8
	In	21.2	4.2	6.4	8.5	10.6	12.7	14.8
Ø16	Out	78.5	15.7	23.6	31.4	39.3	47.1	55
	In	66	13.2	19.8	26.4	33	39.6	46.2
Ø20	Out	314	62.8	94.2	125.6	157	188.4	219.8
	In	264	52.8	79.2	105.6	132	158.4	184.8
		Working pressure(bar)						

Overall dimensions - Ø10

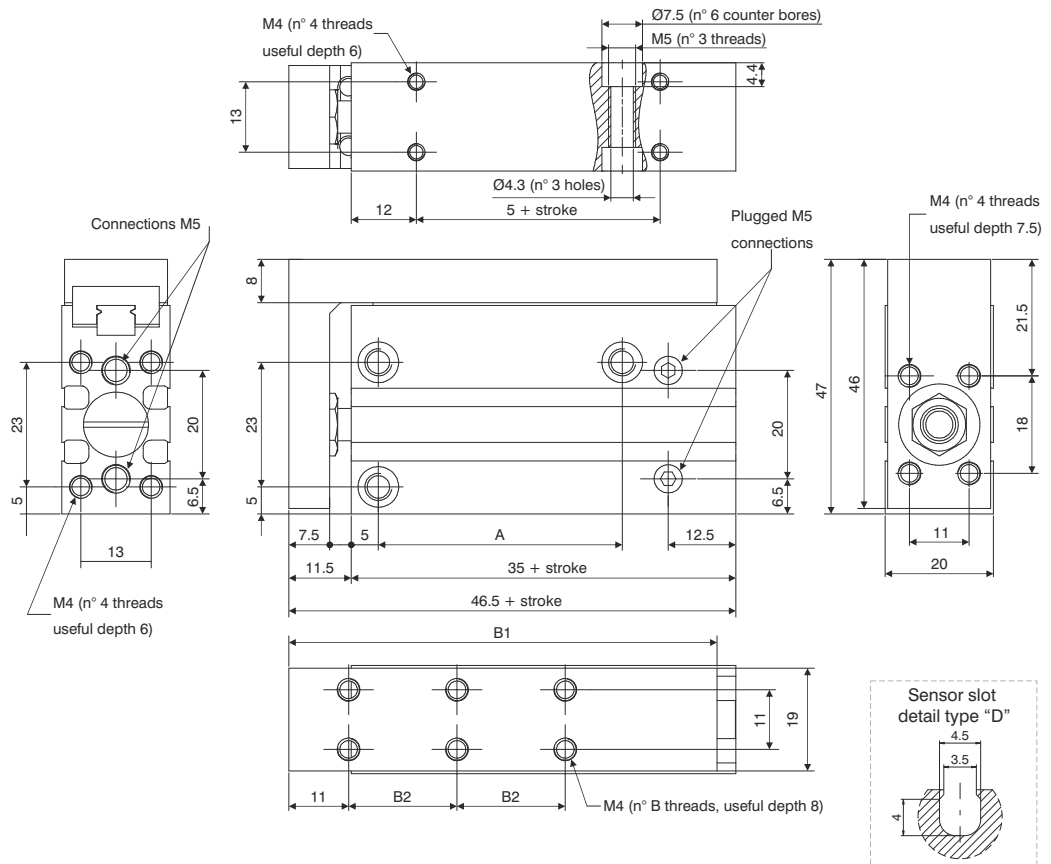


Table of dimensions

	Standard strokes								
	5	10	15	20	25	30	40	50	60
A	14	24	30	45	45	60			
B1	49	59	69	79	79	99			
B2	10	20	30	20	20	30			
B	4					6			
Weight (gr.)	117	125	140	148	162	170	192	215	238

Overall dimensions - Ø16

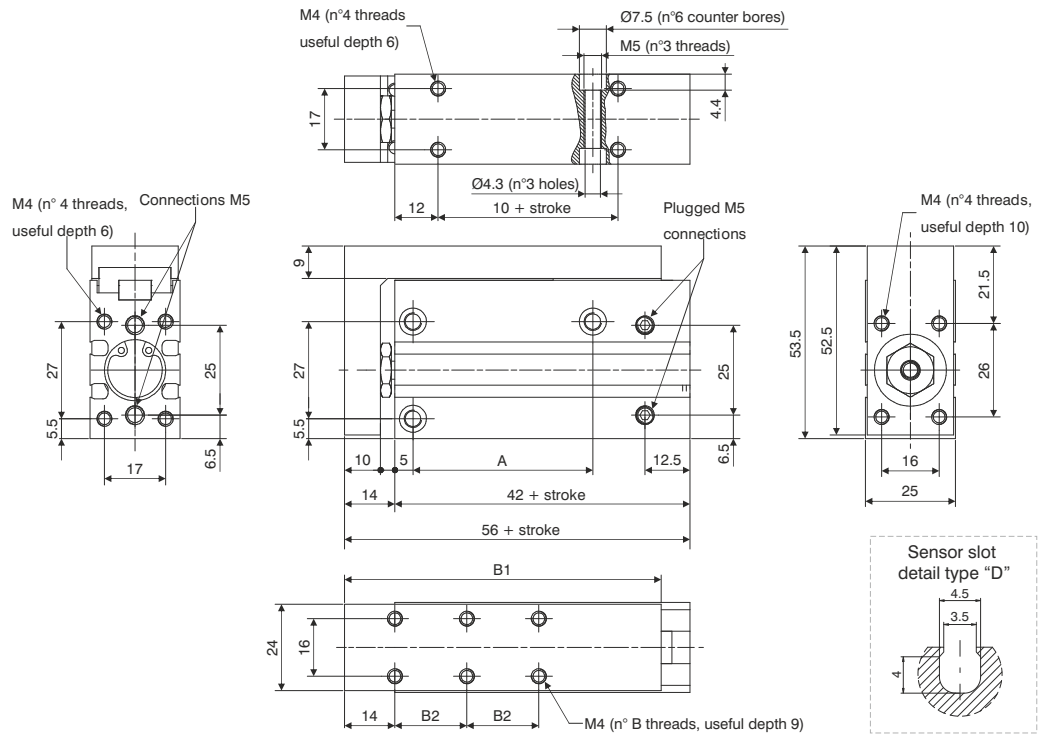


Table of dimensions

	Standard strokes								
	5	10	15	20	25	30	40	50	60
A	20	30	40	50	60				
B1	58	68	78	88	98	108			
B2	10	20	30	20	25	30			
B	4				6				
Weight (gr.)	215	230	250	260	280	290	325	350	390

Overall dimensions - Ø20

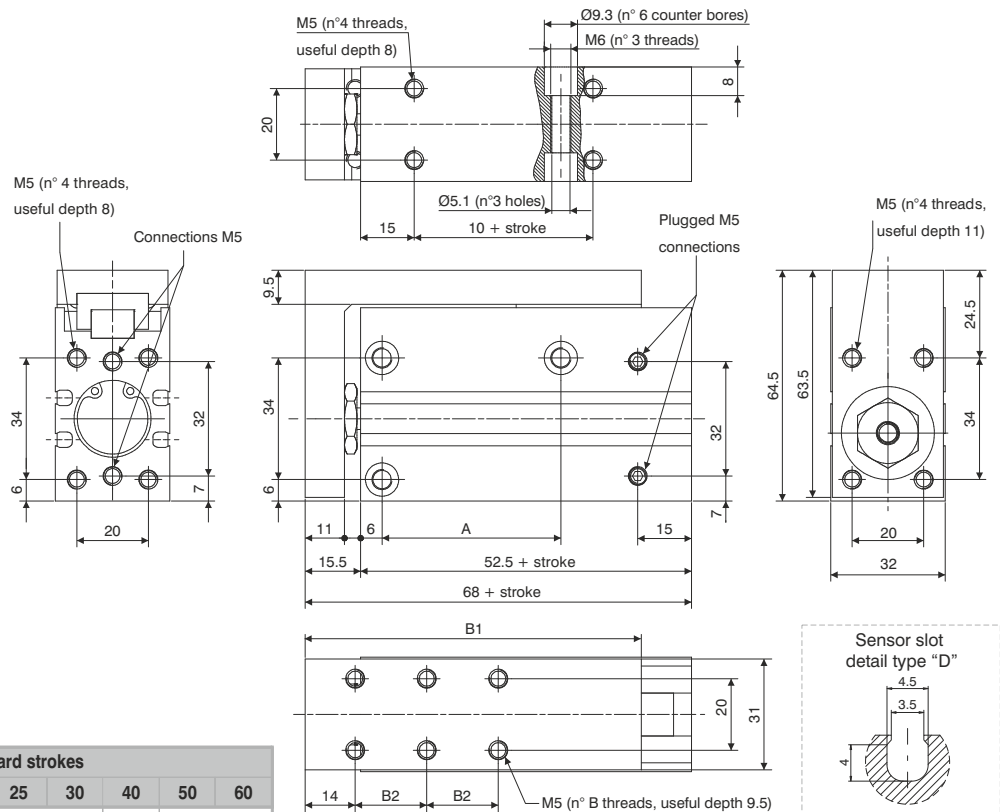
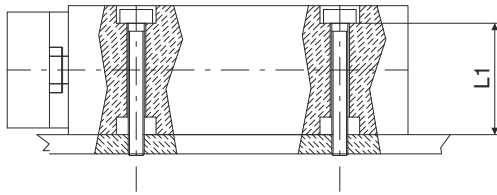


Table of dimensions

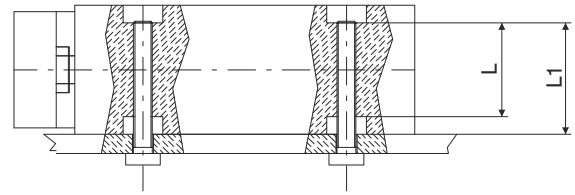
	Standard strokes								
	5	10	15	20	25	30	40	50	60
A	20	25	40	50	70				
B1	64	74	84	94	104	114			
B2	10	20	30	20	25	30			
B	4				6				
Weight (gr.)	440	455	490	505	540	560	600	660	700

LATERAL (THROUGH SCREW)



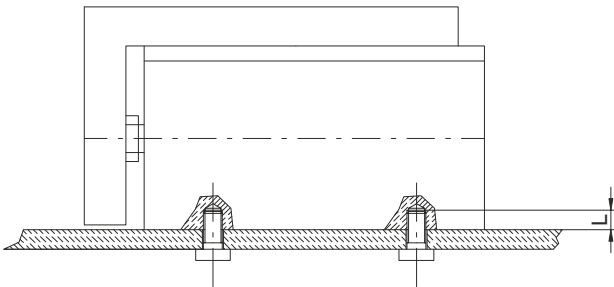
	SCREW	Maximum torque (Nm)	L1
Ø10	M4	2.5	15.6
Ø16	M4	2.5	20.6
Ø20	M5	5.1	24

LATERAL (THREADED HOLE)



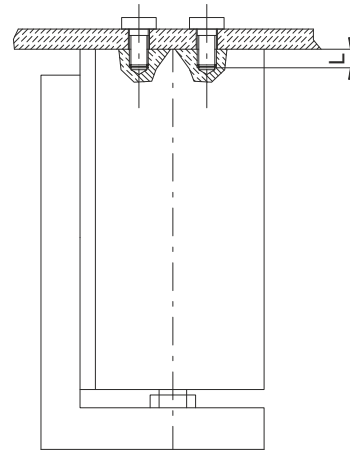
	SCREW	Maximum torque (Nm)	L1	L
Ø10	M5	5.1	15.6	11.2
Ø16	M5	5.1	20.6	16.2
Ø20	M6	8.1	24	16

VERTICAL (THREADED HOLE)



	SCREW	Maximum torque (Nm)	L
Ø10	M4	2.5	6
Ø16	M4	2.5	6
Ø20	M5	5.1	8

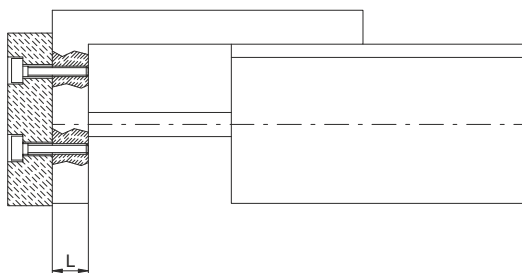
AXIAL (THREADED HOLE)



	SCREW	Maximum torque (Nm)	L
Ø10	M4	2.5	6
Ø16	M4	2.5	6
Ø20	M5	5.1	8

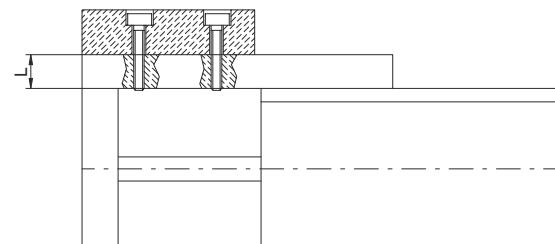
LOAD

FRONTAL MOUNTING

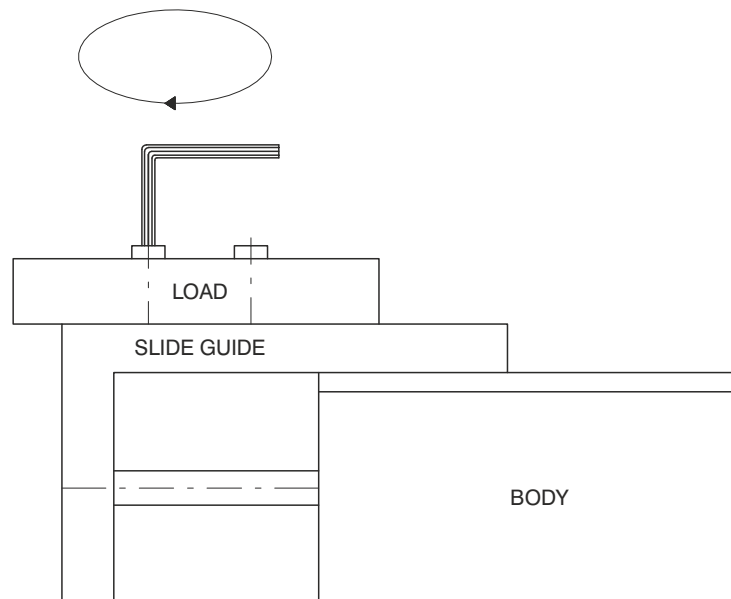


	SCREW	Maximum torque (Nm)	L
Ø10	M4	2.5	7.5
Ø16	M4	2.5	10
Ø20	M5	5.1	11

BACK MOUNTING

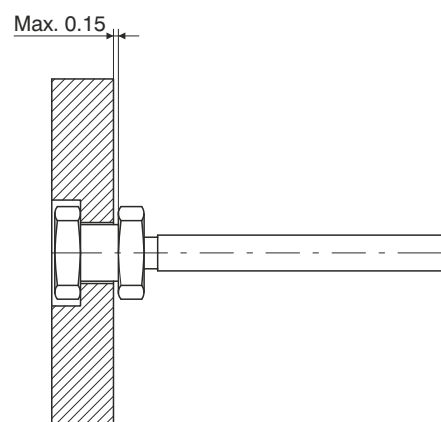


	SCREW	Maximum torque (Nm)	L
Ø10	M4	2.5	8
Ø16	M4	2.5	9
Ø20	M5	5.1	9.5



ATTENTION : Slide must be blocked before fixing the load
this operation should not be done by blocking the body as the
guide could get damaged.

CONNECTION BETWEEN PLATE AND ROD



The fluctuating connection, maximum clearance 0.15mm as indicated by the arrow

Plate deviation (arrow) when the load is applied on the spot indicated with the arrow and the unit completely extended

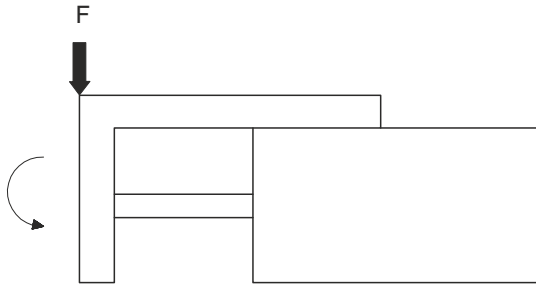
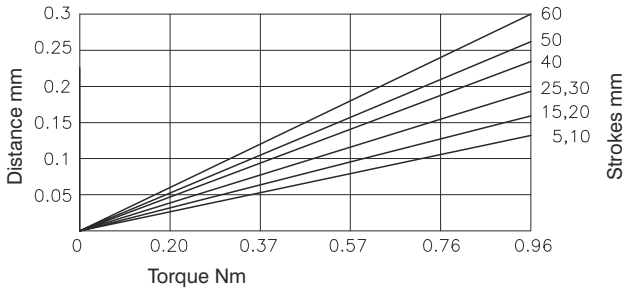


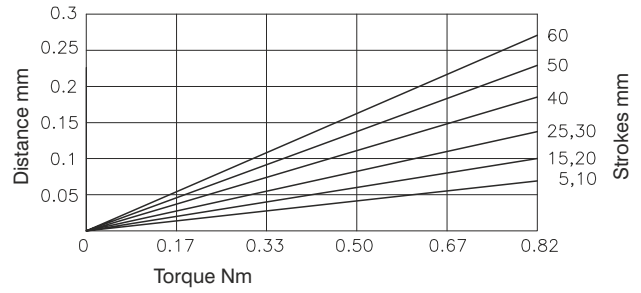
Plate deviation (arrow) when the load is applied on the spot indicated with the arrow and the unit completely extended



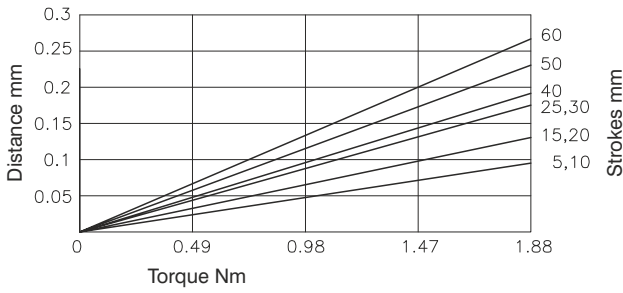
Ø10



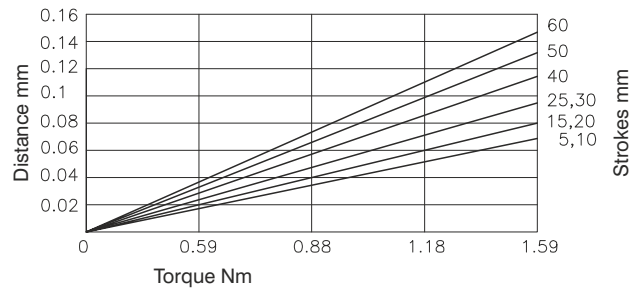
Ø10



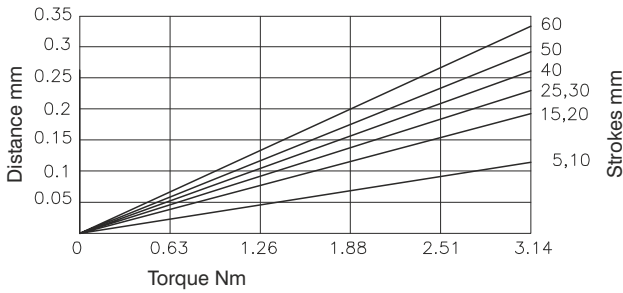
Ø16



Ø16



Ø20



Ø20

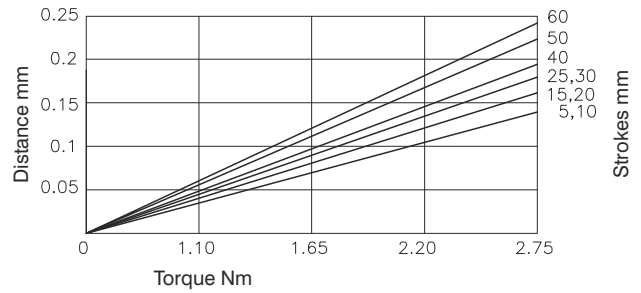
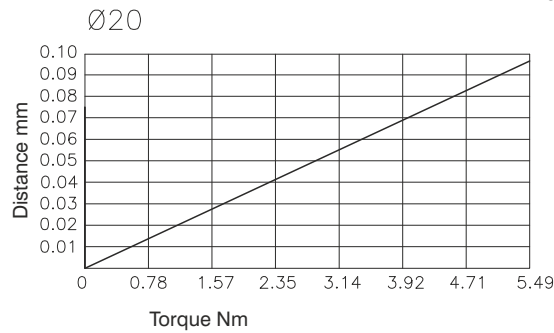
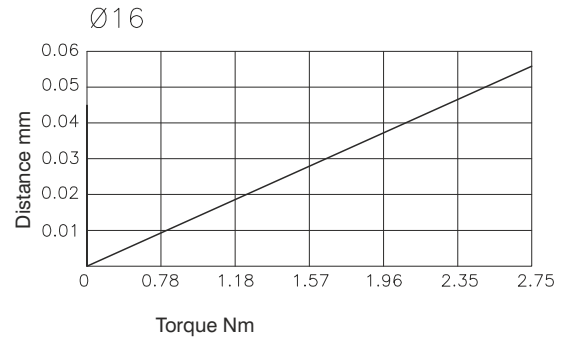
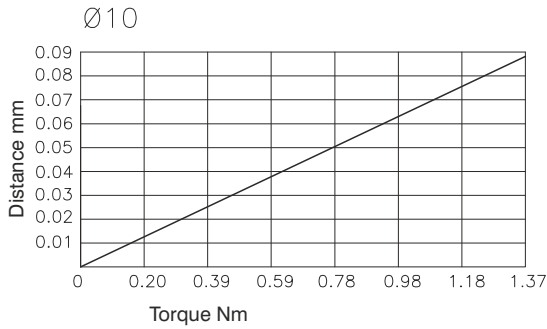
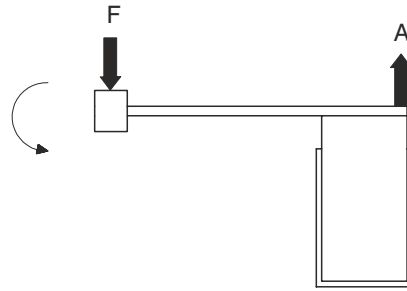


Plate deviation (compared to A) when the load is applied on the spot indicated with the arrow and the unit completely extended

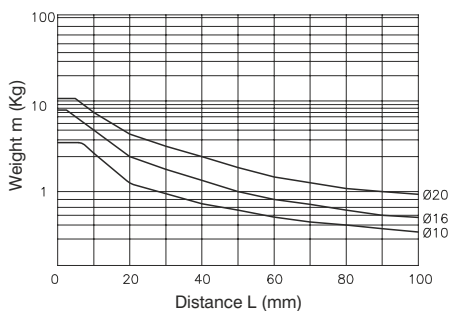


MOUNTING POSITION	VERTICAL			HORIZONTAL								
MAX. SPEED (mm/sec.)	100	200	300	100			200			300		
Load eccentricity				50	100	200	50	100	200	50	100	200
Selection graphs	1	2	3	4	5	6	7	8	9	10	11	12

Selection graphs 1 - 3 (vertical mounting)

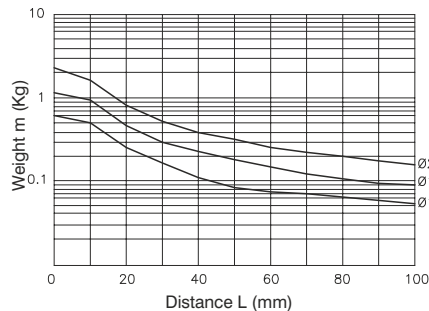
Drawing 1

Maximum speed 100 mm/s or lower



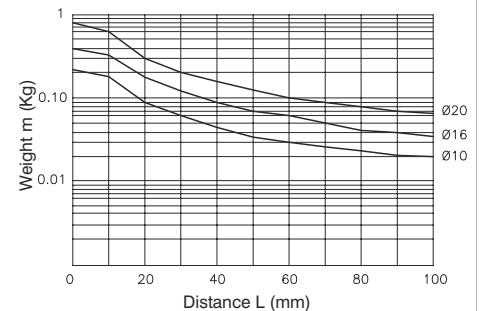
Drawing 2

Maximum speed 300 mm/s or lower



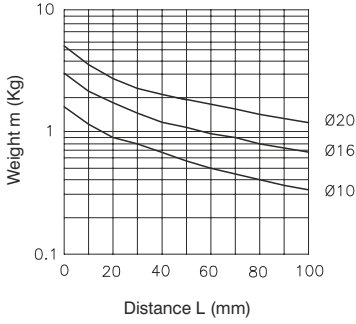
Drawing 3

Maximum speed 500 mm/s or lower

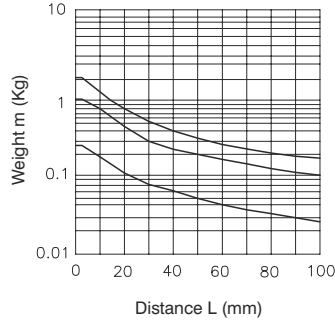


Selection graphs 4 - 12 (horizontal mounting)

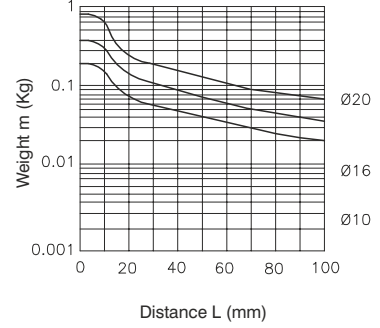
Drawing 4 load eccentricity 50mm
Maximum speed 100 mm/s or lower



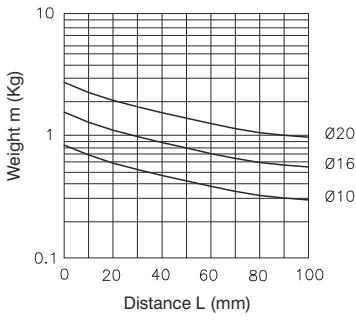
Drawing 7 load eccentricity 50mm
Maximum speed 300 mm/s or lower



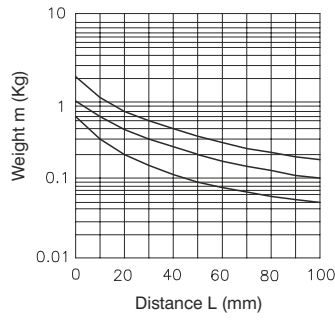
Drawing 10 load eccentricity 50mm
Maximum speed 500 mm/s or lower



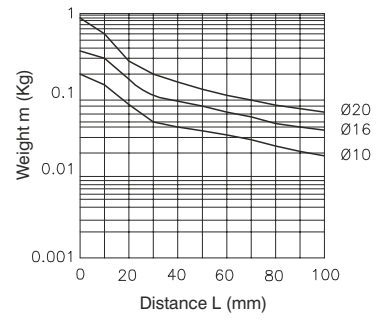
Drawing 5 load eccentricity 100mm
Maximum speed 100 mm/s or lower



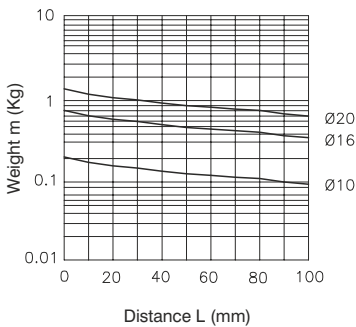
Drawing 8 load eccentricity 100mm
Maximum speed 300 mm/s or lower



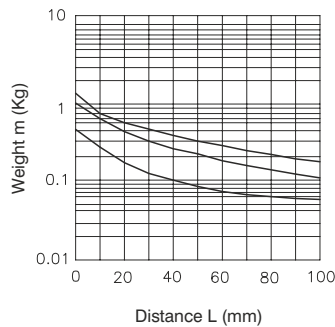
Drawing 11 load eccentricity 100mm
Maximum speed 500 mm/s or lower



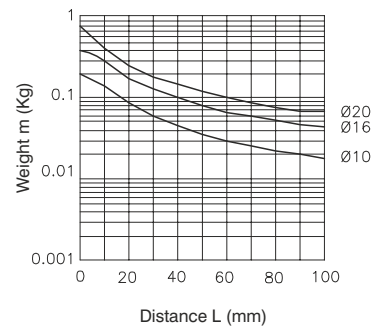
Drawing 6 load eccentricity 200mm
Maximum speed 100 mm/s or lower



Drawing 9 load eccentricity 200mm
Maximum speed 300 mm/s or lower



Drawing 12 load eccentricity 200mm
Maximum speed 500 mm/s or lower





Ordering code

- 6900.
- A = Thread M8x1
 - B = Thread M10x1
 - C = Thread M14x1.5
 - D = Thread M20x1.5
 - E = Thread M27x1.5

Technical characteristics

Code	Max. power (Nm)		Return force	Operating temperature	Weight
	For cycle	For hour			
6900.A	4	14400	2,5 ÷ 6 N	-20°C ÷ 80°C	10 gr.
6900.B	15	24000	3,6 ÷ 8 N		20 gr.
6900.C	30	50000	13 ÷ 23 N		50 gr.
6900.D	100	76500	12 ÷ 23 N		140 gr.
6900.E	390	175500	14 ÷ 31 N		340 gr.

Overall dimensions

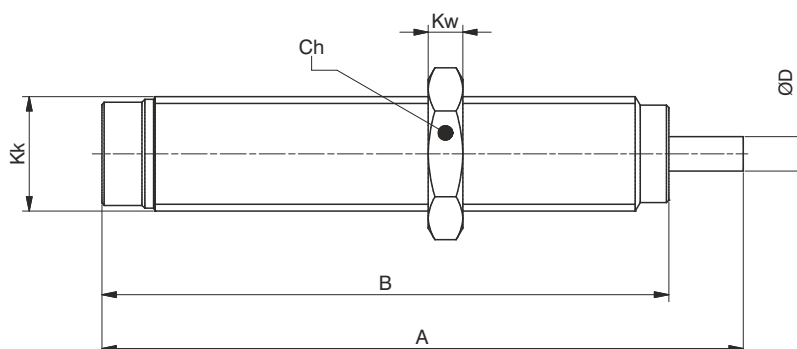
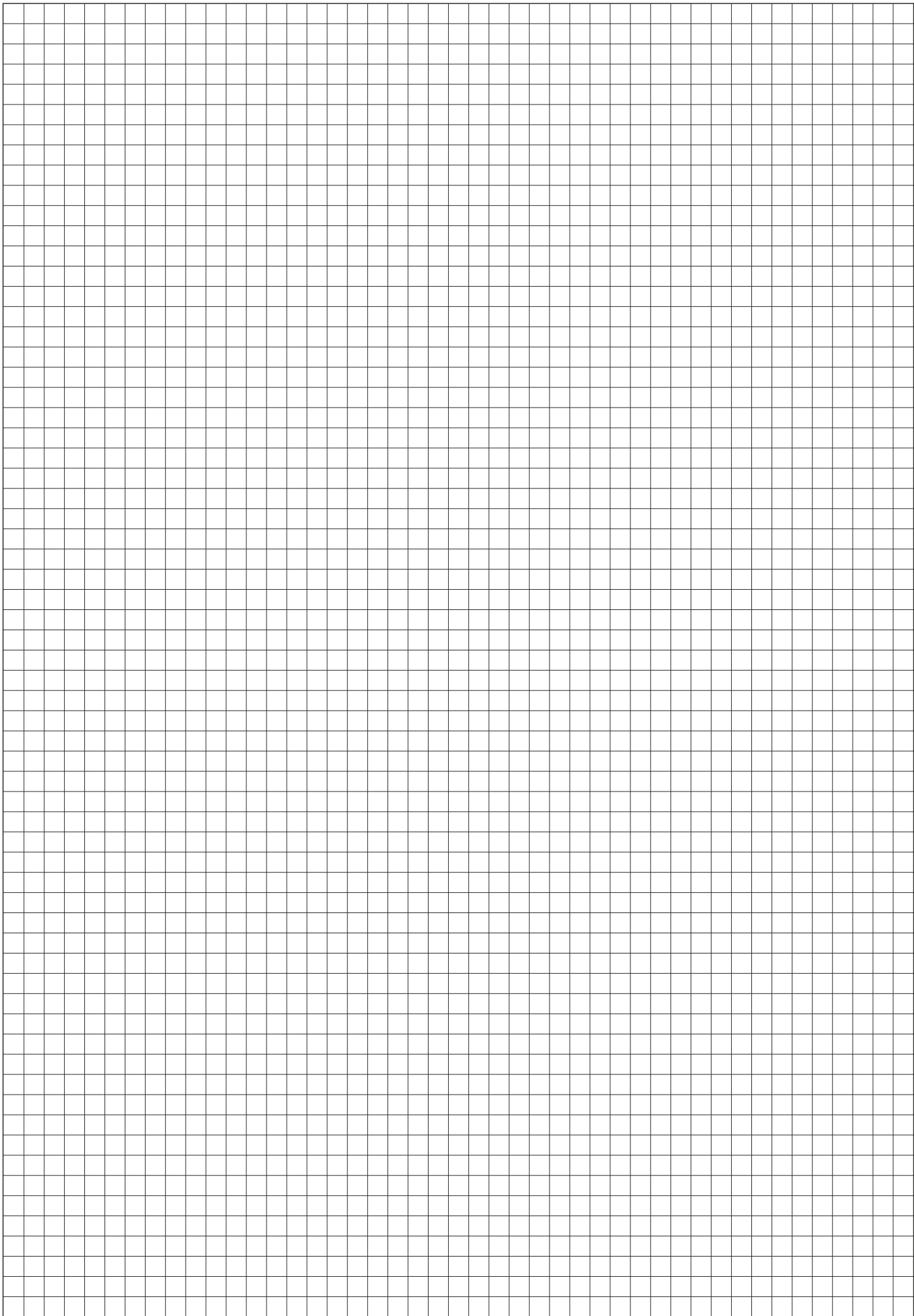


Table of dimensions

Code	A	B	Ch	D	Kk	Kw
6900.A	51	44	11	2,5	M8x1	3
6900.B	56	49,5	13	3	M10x1	3
6900.C	79	69	17	4	M14x1,5	5
6900.D	107	88	24	6	M20x1,5	6
6900.E	126,5	108,5	30	8	M27x1,5	8





MAGNETIC SENSORS FOR CYLINDERS

Magnetic sensors REED type with cable

Magnetic sensors REED type for connector

Magnetic sensors HALL effect with cable

Magnetic sensors HALL effect for connector

Miniaturized magnetic sensors

- rectangular profile
- oval profile
- round profile
- round section 90° cable

General

The limit switches, or magnetic sensors, have to be mounted on cylinders with magnetic piston. These, when hit by the magnetic field generated by the piston as it approaches, close the circuit sending an electrical signal by relè solenoid valve control, etc. or converse with the controlling electronic system situated on the machine. There are available magnetic sensor with ampulla Reed type and with Hall effect. The sensors are attached to the cylinder by a proper clamp, slot or adaptator and have an activation LED indicator.

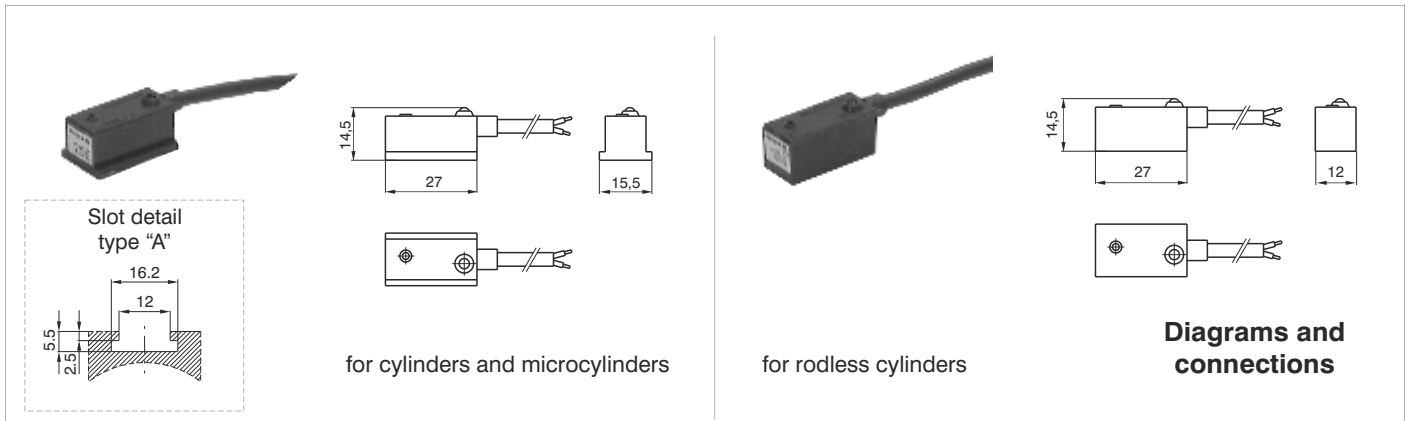
Note: The magnetic sensors are according to the Directive **EMC 89/336/CEE** and following amendments.

Instruction on how to use the sensors properly

Particular attention should be paid in order not to exceed the wide operating limits shown into the next pages. Besides, the 2 wires sensors have never to be connected to the mains if a load has not been yet connected in series. These are the only cares that, if not followed, may cause damages to the sensor. Furthermore it has to be considered that, while loading, the current absorbed by the sensors might be 50% higher that the rated one. The switch semiconductor construction design makes this sensors extremely compatible, there are no limitation to the type of load applied : inductive, capacitive resistive.

In case of direct current (DC) feeding, the polarity of the connection has to be observed: the brown cable must be connected to the plus (+) and the blue one to the minus (-). The cable length must not exceed 10mtrs. If the cable needs to be longer then 10 mt, we recommend to insert in series an inductance or a resistance to counteract the capacity generated by the cable itself .

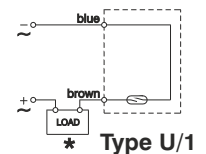
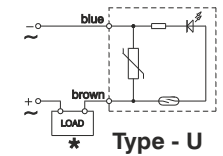
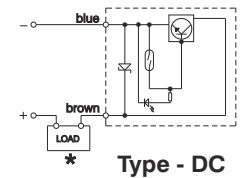
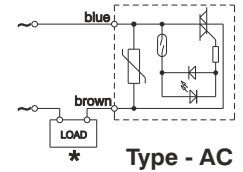
When using a two wire REED type sensor always ensure that the correct load is applied in series on any of the two wires. When using a sensor fitted with the SNAP connector pay attention to the orientation of the connector (see fig. page 6.3) because by inverting the connection the circuit will not be damaged, but the LED will not turn on. In case of two or more sensors connected in series pay attention to tension drop generated (around 3V for each sensor), and eventually use the version designed for in series connection. The Hall effect sensors, which do not include any moving mechanical parts are longer lasting if compared to the Reed version besides, there are some other external factors to be taken into consideration, such as proximity of powered cables, magnetic fields produced by electric motors, mass of iron too close to the sensor, and so on: these factors have to be therefore carefully avoided, being able to influence the sensors and accordingly to cause irregularity of operation.



Ordering code

SENSORS WITH 2 WIRES CABLE (PUR Ø4.2 mm 2 x 0.34mm²)

Cylinders and microcylinders	1500.AC	sensor for alternating current with led
	1500.DC	sensor for continuous current with led
	1500. U	universal sensor with led
	1500.U/1	universal sensor without led (REED ampulla only)
Rodless cylinders	1600.AC	sensor for alternating current with led
	1600.DC	sensor for continuous current with led
	1600.U	universal sensor with led
	1600.U/1	universal sensor without led (REED ampulla only)

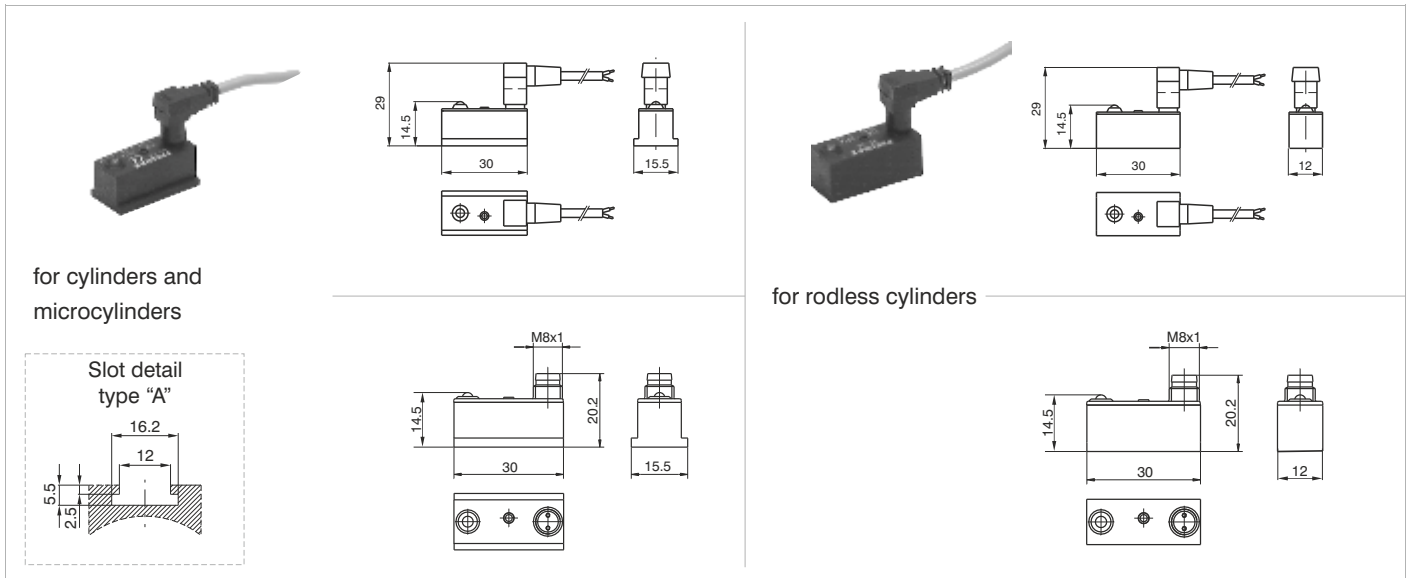


Technical characteristics	A.C.	D.C.	U		U/1	
			a.c.	d.c.	a.c.	d.c.
Maximum permanent current	1,5A	1,2A	0,5A		0,3A	
Maximum current (pulses of 0,5 sec.)	6A	1,5A	1A		0,8A	
Voltage range	12 - 230V	12 - 30V	3 - 230V	12 - 48V	0 - 230V	0 - 48V
Maximum permanent power	375VA	32W	20VA	15W	10VA	8W
Working temperature	-20° C - 70°C					
Maximum voltage drop	3V max	2V max	3V max		0V	
Cable section	2x0,34 mm ² Ø4,2 mm PUR					
Degree of protection	IP 65					
Connecting time	2 ms					
Disconnecting time	1 ms					
Average working period	10 ⁷ cycles					
Repetition of intervention point	± 0,1 mm					
Type of contact	N.O.					

*The load (LOAD) can be connected either to negative or positive pole.

These sensors can be used on cylinders series:

SERIES	DESCRIPTION	MOUNTED
1200	for microcylinders with threaded end covers and "TECNO-MIR" microcylinders for microcylinders "MIR" with rolled end covers, cylinders from Ø16 to Ø32 for microcylinders "MIR-INOX" with rolled end covers	with clamps code 1260.Ø.F with clamps code 1280.Ø.F with brackets code 1280.Ø.FX
1306 - 1307 - 1308	for cylinders from Ø32 to Ø63 for cylinders from Ø80 to Ø125 for cylinders from Ø160 to Ø200	with brackets code 1306.A with brackets code 1306.B with brackets code 1306.C
1315	for cylinders Ø250 and Ø320 (ISO)	with brackets code 1306.D
1319 - 1320	for cylinders Ø32 and Ø40	with brackets code 1320.A
	for cylinders Ø50 and Ø63	with brackets code 1320.B
	for cylinders Ø80 and Ø100	with brackets code 1320.C
	for cylinders Ø125	with brackets code 1320.D
	for cylinders Ø160 for cylinders Ø200	with brackets code 1320.E with brackets code 1320.F
1390 - 1391	for cylinders ECOLIGHT Ø32 and Ø40	with brackets code 1390.A
	for cylinders ECOLIGHT Ø50 and Ø63	with brackets code 1390.B
	for cylinders ECOLIGHT Ø80 and Ø100	with brackets code 1390.C
	for cylinders ECOLIGHT Ø125 - Ø200	with brackets code 1390.D
1500	Compact cylinders "Europe" (from Ø32)	directly on groove
1605	Rodless cylinders	with brackets code 1600.A



Ordering code

2 PIN SENSOR FOR SNAP CONNECTOR

Cylinders and microcylinders	RS.DC	sensor for continuous current with led normally open N.O.
	RS.UA	universal sensor with led normally open N.O.
	RS.UC	universal sensor with led normally closed N.C.
	RS.UA/1	universal sensor without led N.O. (REED ampulla only)
Rodless cylinders	SRS.DC	sensor for continuous current with led normally open N.O.
	SRS.UA	universal sensor with led N.O.
	SRS.UC	universal sensor with led normally closed N.C.
	SRS.UA/1	universal sensor without led N.O.
Cable	C1	connector with 2.5 m. cable 2 wires (PVC Ø3,5 mm 2x 0,25mm ²)
	C2	connector with 5 m. cable 2 wires (PVC Ø3,5 mm 2x 0,25mm ²)
	C3	connector with 10 m. cable 2 wires (PVC Ø3,5 mm 2x 0,25mm ²)

2 PIN SENSOR FOR SNAP CONNECTOR + C1 CABLE TWO WIRES (PVC Ø3.5 mm 2x0.25 mm²)

Cylinders and microcylinders	RS.DCC1	sensor for DC current N.O. with LED and 2.5 m. cable
	RS.UAC1	universal sensor with led N.O. with connector and 2.5 m. cable
	RS.UCC1	universal sensor with led N.C. with connector and 2.5 m. cable
	RS.UAC1/1	universal sensor without led N.O. with connector and 2.5 m. cable (REED ampulla only)
Rodless cylinders	SRS.DCC1	sensor for continuous current with led normally closed N.O. with connector and 2.5 m. cable
	SRS.UAC1	universal sensor with led N.O. with connector and 2.5 m. cable
	SRS.UCC1	universal sensor with led N.C. with connector and 2.5 m. cable
	SRS.UAC1/1	universal sensor without led N.O. with connector and 2.5 m. cable (REED ampulla only)

2 PIN SENSOR WITH M8 CONNECTOR

Cylinders and microcylinders	RS8.DC	sensor for DC current N.O. with LED and M8 plug
	RS8.UA	universal sensor N.O. with LED and M8 plug
	RS8.UC	universal sensor N.C. with LED and M8 plug
Rodless cylinders	SRS8.DC	sensor for DC current N.O. with LED and M8 plug
	SRS8.UA	universal sensor N.O. with LED and M8 plug
	SRS8.UC	universal sensor N.C. with LED and M8 plug
Cable	MCH1	cable 3 wires l=2.5m with M8 connector three wires (PUR Ø2.6 mm 3x 0.15 mm ²)
	MCH2	cable 3 wires l=5m with M8 connector three wires (PUR Ø2.6 mm 3x 0.15 mm ²)
	MCH3	cable 3 wires l=10m with M8 connector three wires (PUR Ø2.6 mm 3x 0.15 mm ²)

3 PIN SENSOR FOR SNAP CONNECTOR WITH TWO WIRES ACCORDING TO IEC 947 NORMS

Cylinders and microcylinders	RS.DCNO	sensor for continuous current with led normally open N.O., according to standard IEC 947
	RS.UANO	universal sensor with led normally open N.O., according to standard IEC 947
Cable	C1NO	connector with 2.5 m. cable, according to standard IEC 947 (PVC Ø3.5 mm 2x0.25 mm ²)
	C2NO	connector with 5 m. cable, according to standard IEC 947 (PVC Ø3.5 mm 2x0.25 mm ²)
	C3NO	connector with 10 m. cable, according to standard IEC 947 (PVC Ø3.5 mm 2x0.25 mm ²)

3 PIN SENSORS FOR IN SERIES ASSEMBLING WITH SNAP CONNECTOR

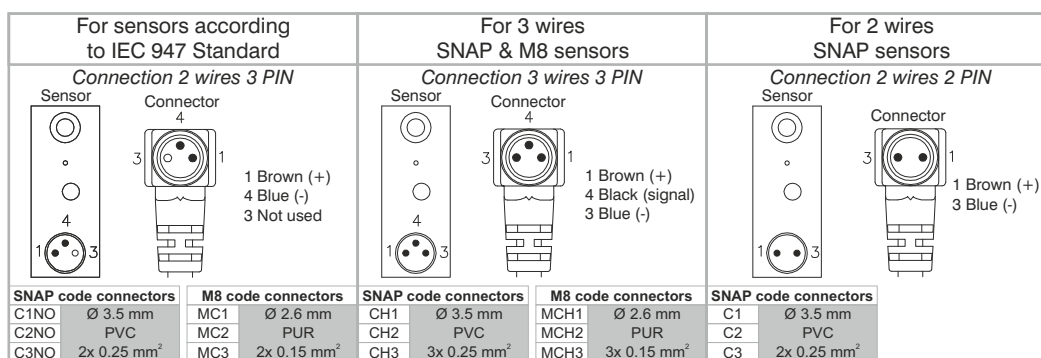
Cylinders and microcylinders	RS.UA/1L	universal sensor with led normally open N.O., for series assembly (3 wires)
Rodless cylinders	SRS.UA/1L	universal sensor with led N.O., for series assembly (3 wires)
Cable	CH1	connector with 2.5 m. cable 3 wires (PVC Ø3.5 mm 3x0.25 mm ²)
	CH2	connector with 5 m. cable 3 wires (PVC Ø3.5 mm 3x0.25 mm ²)
	CH3	connector with 10 m. cable 3 wires (PVC Ø3.5 mm 3x0.25 mm ²)

3 PIN SENSORS FOR IN SERIES ASSEMBLING WITH SNAP CONN. + CH1 CABLE 3 WIRES (PVC Ø3.5mm 3x0.25 mm²)

Cylinders and microcylinders	RS.UACH1/1L	universal sensor with led N.O. with connector and 2.5 m. cable, for series mounting (3 wires)
Rodless cylinders	SRS.UACH1/1L	universal sensor with led N.O. with connector and 2.5 m. cable, for series assembly (3 wires)

3 PIN SENSORS FOR IN SERIES ASSEMBLING WITH M8 CONNECTOR

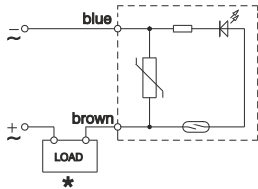
Cylinders and microcylinders	RS8.UA/1L	universal sensor N.O. with LED for in series assembling (3wires) and M8 plug
Rodless cylinders	SRS8.UA/1L	universal sensor N.O. with LED for in series assembling (3wires) and M8 plug
Cable	MCH1	M8 connector with 2.5 m. cable 3 wires (PUR Ø2.6 mm 3x 0.15 mm ²)
	MCH2	M8 connector with 5 m. cable 3 wires (PUR Ø2.6 mm 3x 0.15 mm ²)
	MCH3	M8 connector with 10 m. cable 3 wires (PUR Ø2.6 mm 3x 0.15 mm ²)



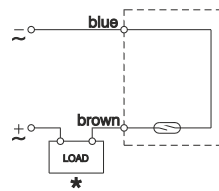
Technical characteristics	DC	UA				UA/1L		UA/1	
		a.c.		d.c.		a.c.	d.c.	a.c.	d.c.
Type of contact	N.O.	N.O.	N.C.	N.O.	N.C.	N.O.		N.O.	
Maximum permanent current	1.2A	0.5A	0.3A	0.5A	0.3A	0.5A		0.5A	
Maximum current (pulses of 0.5 sec.)	1.5A	1A	0.8A	1A	0.8A	1A		1A	
Voltage range	12 - 30V	3 - 250V	3 - 110V	12 - 48V		24V		0 - 250V	0 - 48V
Maximum permanent power	32W	20VA	10VA	15W	8W	20VA	15W	10VA	8W
Working temperature	-20°C - 70°C								
Maximum voltage drop	2V	<3V				0V			
Cables number		2				3		2	
Degree of protection						IP65			
Connecting time						2 ms			
Disconnecting time						1 ms			
Average working period						10 ⁷ cycles			
Repetition of intervention point						±0.1 mm			

Diagrams and connections

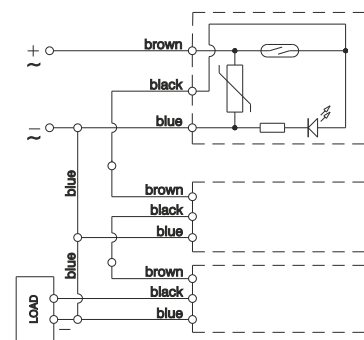
Type - UA



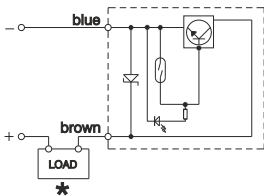
Type UA/1



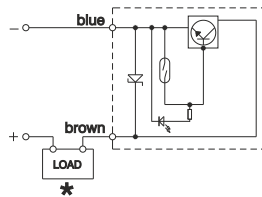
Type - UA/1L



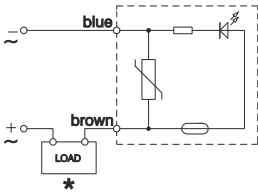
Type - DC



Type - DCNO



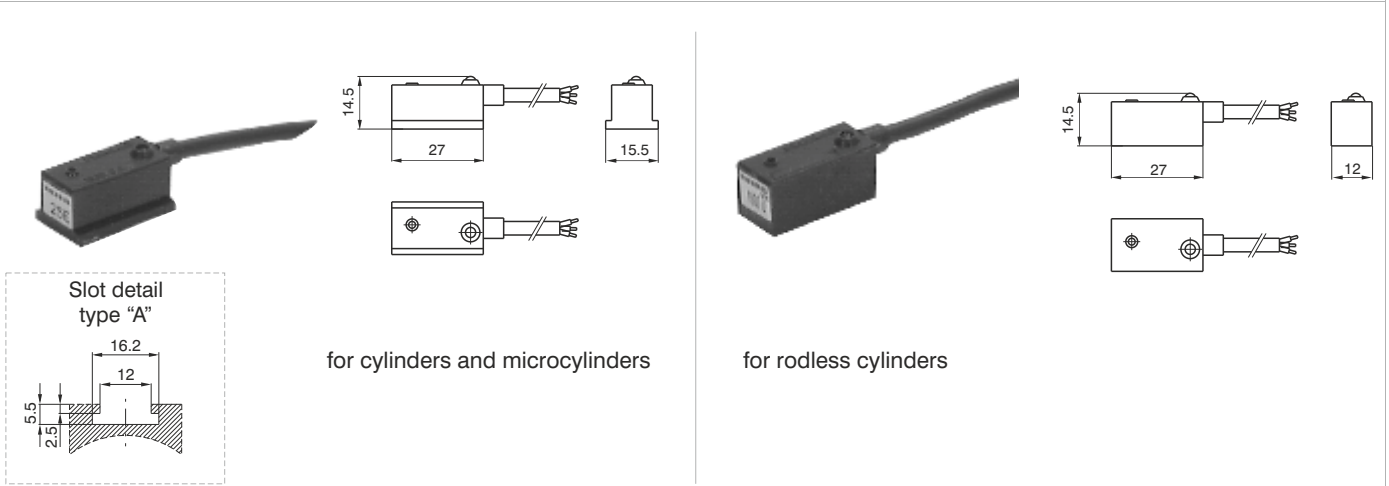
Type - UC



*The load (LOAD) can be connected either to negative or positive pole.

These sensors can be used on cylinders series:

SERIES	DESCRIPTION	MOUNTED
1200	for microcylinders with threaded end covers and "TECNO-MIR" microcylinders	with clamps code 1260.Ø.F
	for microcylinders "MIR" with rolled end covers, cylinders from Ø16 to Ø32	with clamps code 1280.Ø.F
	for microcylinders "MIR-INOX" with rolled end covers	with clamps code 1280.Ø.FX
1306 - 1307 - 1308	for cylinders from Ø32 to Ø63	with brackets code 1306.A
	for cylinders from Ø80 to Ø125	with brackets code 1306.B
	for cylinders from Ø160 to Ø200	with brackets code 1306.C
1315	for cylinders Ø250 and Ø320 (ISO)	with brackets code 1306.D
1319 - 1320	for cylinders Ø32 and Ø40	with brackets code 1320.A
	for cylinders Ø50 and Ø63	with brackets code 1320.B
	for cylinders Ø80 and Ø100	with brackets code 1320.C
	for cylinders Ø125	with brackets code 1320.D
	for cylinders Ø160	with brackets code 1320.E
	for cylinders Ø200	with brackets code 1320.F
1390 - 1391	for cylinders ECOLIGHT Ø32 and Ø40	with brackets code 1390.A
	for cylinders ECOLIGHT Ø50 and Ø63	with brackets code 1390.B
	for cylinders ECOLIGHT Ø80 and Ø100	with brackets code 1390.C
	for cylinders ECOLIGHT Ø125 - Ø200	with brackets code 1390.D
1500	Compact cylinders "Europe" (from Ø32)	directly on groove
1605	Rodless cylinders	with brackets code 1600.A



Ordering code

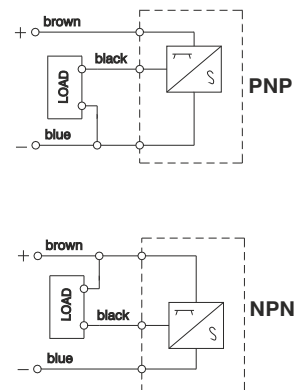
SENSORS WITH 3 WIRES CABLE (PUR Ø 4.2 mm 3x0.34mm²)

Cylinders and microcylinders	1500.HAP	PNP sensor Hall effect with led, normally open N.O.
	1500.HAN	NPN sensor Hall effect with led, normally open N.O.
Rodless cylinders	1600.HAP	PNP sensor Hall effect with led, normally open N.O.
	1600.HAN	NPN sensor Hall effect with led, normally open N.O.

Technical characteristics

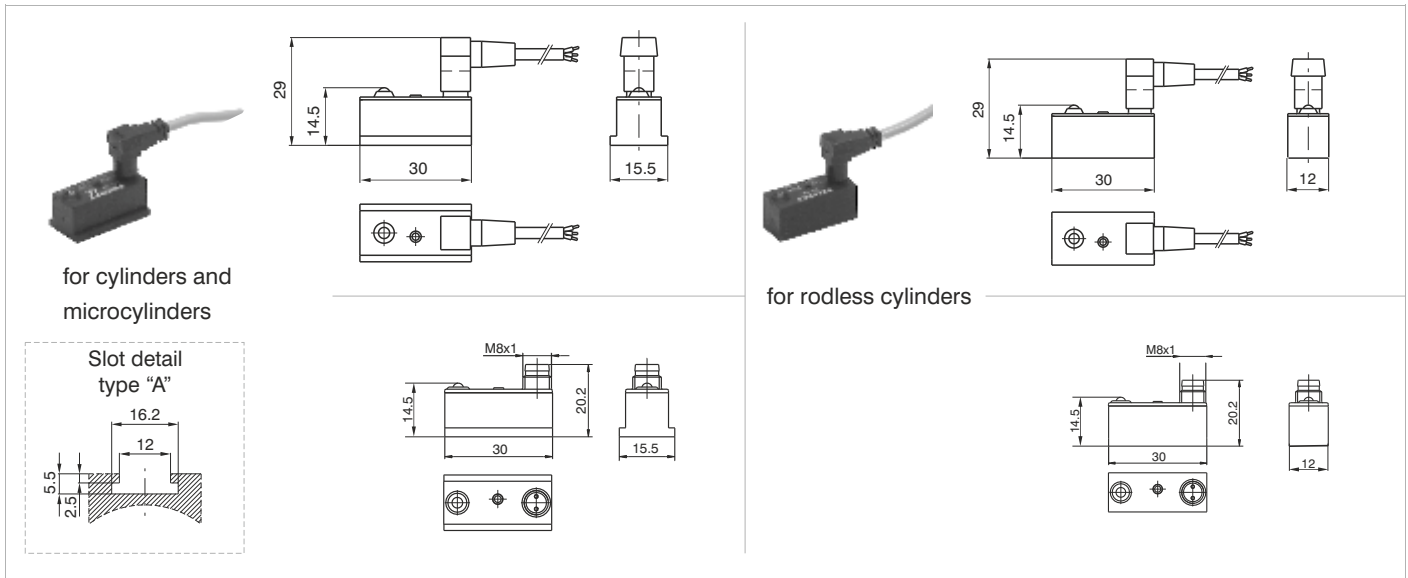
Maximum permanent current	0.5A
Voltage range	10 - 30V DC
Power (inductive load)	10W
Maximum voltage drop	2V
Working temperature	-20°C - 70°C
Cable section	PUR 4.2mm 3x0.34 mm ²
Degree of protection	IP 65
Connecting time	0.8 μs
Disconnecting time	0.3 μs
Average working period	10 ⁹ cycles
Repetition of intervention point	± 0.1 mm
Type of contact	N.O.

Diagrams and connections



These sensors can be used on cylinders series:

SERIES	DESCRIPTION	MOUNTED
1200	for microcylinders with threaded end covers and "TECNO-MIR" microcylinders	with clamps code 1260.Ø.F
	for microcylinders "MIR" with rolled end covers, cylinders from Ø16 to Ø32	with clamps code 1280.Ø.F
	for microcylinders "MIR-INOX" with rolled end covers	with clamps code 1280.Ø.FX
1306 - 1307 - 1308	for cylinders from Ø32 to Ø63	with brackets code 1306.A
	for cylinders from Ø80 to Ø125	with brackets code 1306.B
	for cylinders from Ø160 to Ø200	with brackets code 1306.C
1315	for cylinders Ø250 and Ø320 (ISO)	with brackets code 1306.D
1319 - 1320	for cylinders Ø32 and Ø40	with brackets code 1320.A
	for cylinders Ø50 and Ø63	with brackets code 1320.B
	for cylinders Ø80 and Ø100	with brackets code 1320.C
	for cylinders Ø125	with brackets code 1320.D
	for cylinders Ø160	with brackets code 1320.E
	for cylinders Ø200	with brackets code 1320.F
1390 - 1391	for cylinders ECOLIGHT Ø32 and Ø40	with brackets code 1390.A
	for cylinders ECOLIGHT Ø50 and Ø63	with brackets code 1390.B
	for cylinders ECOLIGHT Ø80 and Ø100	with brackets code 1390.C
	for cylinders ECOLIGHT Ø125 - Ø200	with brackets code 1390.D
1500	Compact cylinders "Europe" (from Ø32)	directly on groove
1605	Rodless cylinders	with brackets code 1600.A



Ordering code

3 PIN SENSOR FOR SNAP CONNECTOR

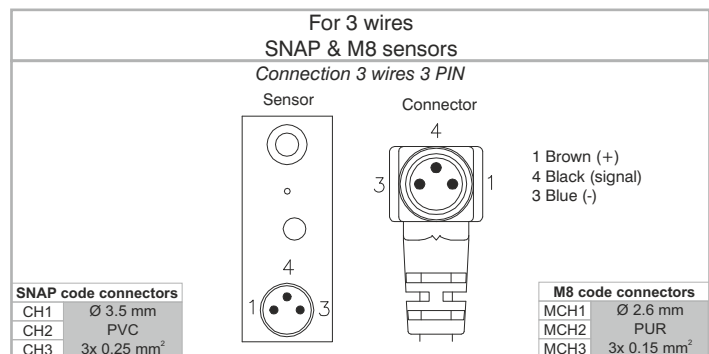
Cylinders and microcylinders	HS.PA	PNP sensor Hall effect with led, normally open N.O.
Rodless cylinders	SHS.PA	PNP sensor Hall effect with led, normally open N.O.
Cable	CH1	connector with 2.5 m. cable 3 wires (PVC Ø3.5 mm 3x0.25 mm ²)
	CH2	connector with 5 m. cable 3 wires (PVC Ø3.5 mm 3x0.25 mm ²)
	CH3	connector with 10 m. cable 3 wires (PVC Ø3.5 mm 3x0.25 mm ²)

3 PIN SENSOR FOR SNAP CONNECTOR + CH1 CABLE 3 WIRES (PVC Ø3.5 mm 3x0.25 mm²)

Cylinders and microcylinders	HS.PAC1	PNP sensor Hall effect N.O. with led, with connector and 2.5 m. cable
Rodless cylinders	SHS.PAC1	PNP sensor Hall effect N.O. with led, with connector and 2.5 m. cable

3 PIN SENSOR FOR M8 CONNECTOR

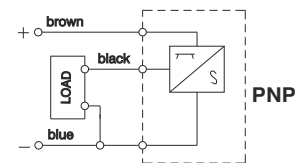
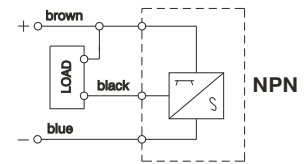
Cylinders and microcylinders	HS8.NA	NPN Hall effect sensor N.O. with LED and M8 plug
	HS8.PA	PNP Hall effect sensor N.O. with LED and M8 plug
Rodless cylinders	SHS8.NA	NPN Hall effect sensor N.O. with LED and M8 plug
	SHS8.PA	PNP Hall effect sensor N.O. with LED and M8 plug
Cable	MCH1	M8 connector with cable 2.5 m. 3 wires (PUR Ø2.6 mm 3x0.15mm ²)
	MCH2	M8 connector with cable 5 m. 3 wires (PUR Ø2.6 mm 3x0.15mm ²)
	MCH3	M8 connector with cable 10 m. 3 wires (PUR Ø2.6 mm 3x0.15mm ²)



Technical characteristic

Maximum permanent current	0,25A
Voltage range	6 - 30V DC
Power (inductive load)	6W
Maximum Voltage drop	2V
Working temperature	-20°C - 70°C
Cables number	3
Degree of protection	IP 65
Connecting time	0,8 ms
Disconnecting time	0,3 ms
Average working period	10 ⁹ cycles
Repetition of intervention point	± 0,1 mm
Contact normally open	N.O.

Diagrams and connections



These sensors can be used on cylinders series:

SERIES	DESCRIPTION	MOUNTED
1200	for microcylinders with threaded end covers and "TECNO-MIR" microcylinders	with clamps code 1260.Ø.F
	for microcylinders "MIR" with rolled end covers, cylinders from Ø16 to Ø32	with clamps code 1280.Ø.F
	for microcylinders "MIR-INOX" with rolled end covers	with clamps code 1280.Ø.FX
1306 - 1307 - 1308	for cylinders from Ø32 to Ø63	with brackets code 1306.A
	for cylinders from Ø80 to Ø125	with brackets code 1306.B
	for cylinders from Ø160 to Ø200	with brackets code 1306.C
1315	for cylinders Ø250 and Ø320 (ISO)	with brackets code 1306.D
1319 - 1320	for cylinders Ø32 and Ø40	with brackets code 1320.A
	for cylinders Ø50 and Ø63	with brackets code 1320.B
	for cylinders Ø80 and Ø100	with brackets code 1320.C
	for cylinders Ø125	with brackets code 1320.D
	for cylinders Ø160	with brackets code 1320.E
	for cylinders Ø200	with brackets code 1320.F
1390 - 1391	for cylinders ECOLIGHT Ø32 and Ø40	with brackets code 1390.A
	for cylinders ECOLIGHT Ø50 and Ø63	with brackets code 1390.B
	for cylinders ECOLIGHT Ø80 and Ø100	with brackets code 1390.C
	for cylinders ECOLIGHT Ø125 - Ø200	with brackets code 1390.D
1500	Compact cylinders "Europe" (from Ø32)	directly on groove
1605	Rodless cylinders	with brackets code 1600.A

General

The limit switches, or magnetic sensors, have to be mounted on cylinders with magnetic piston. These, when hit by the magnetic field generated by the piston as it approaches, close the circuit sending an electrical signal by relè solenoid valve control, etc. or converse with the controlling electronic system situated on the machine. There are available magnetic sensor with ampulla Reed type and with Hall effect. The sensors are attached to the cylinder by a proper clamp, slot or adaptator and have an activation LED indicator.

Note: The magnetic sensors are according to the Directive **EMC 89/336/CEE** and following amendments.

Instruction on how to use the sensors properly

Particular attention should be paid in order not to exceed the wide operating limits shown into the next pages. Besides, the 2 wires sensors have never to be connected to the mains if a load has not been yet connected in series. These are the only cares that, if not followed, may cause damages to the sensor. Furthermore it has to be considered that, while loading, the current absorbed by the sensors might be 50% higher than the rated one. The switch semiconductor construction design makes these sensors extremely compatible, there are no limitations to the type of load applied: inductive, capacitive resistive. In case of direct current (DC) feeding, the polarity of the connection has to be observed: the brown cable must be connected to the plus (+) and the blue one to the minus (-). The cable length must not exceed 10mtrs. If the cable needs to be longer than 10m, we recommend to insert in series an inductance or a resistance to counteract the capacity generated by the cable itself. When using a two wire REED type sensor always ensure that the correct load is applied in series on any of the two wires. In case of two or more sensors connected in series pay attention to tension drop generated (around 3V for each sensor), and eventually use the 3 wire REED version designed for in series connection. The Hall effect sensors, which do not include any moving mechanical parts are longer lasting if compared to the Reed version besides, there are some other external factors to be taken into consideration, such as proximity of powered cables, magnetic fields produced by electric motors, mass of iron too close to the sensor, and so on: these factors have to be therefore carefully avoided, being able to influence the sensors and accordingly to cause irregularity of operation.

Sensor with 2.5 m. cable

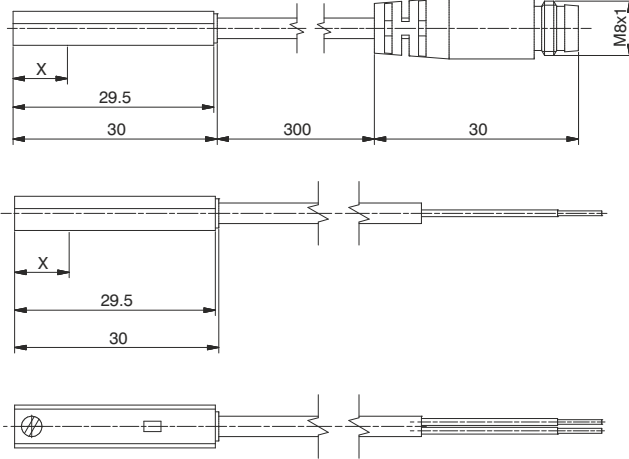


Weight gr. 27

Sensor with cable and M8 connector



Weight gr. 15

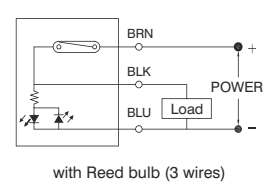
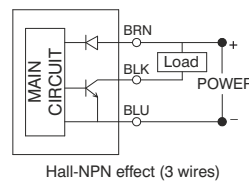
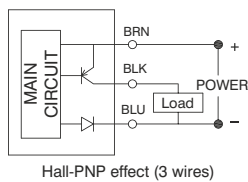
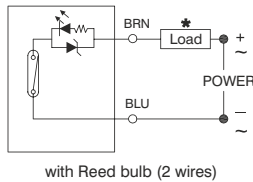


X= point of commutation

Sensor ordering codes

Ampulla Reed sensors, with led, Universal, N.O. (Normally open)		X=point of commutation
1580.U	(2 wires) cable 2.5 mt.	15 mm
MRS.U	(2 wires) cable 300 mm, M8 connector (use MC1 or MC2 connectors)	15 mm
1580.UAP	PNP (3 wires) cable 2.5 mt.	15 mm
MRS.UAP	PNP (3 wires) cable 300 mm, M8 connector (use MCH1 or MCH2 connectors)	15 mm
Hall effect sensors, with led, DC, N.O. (Normally open)		X=point of commutation
1580.HAP	PNP (3 wires) cable 2.5 mt.	8 mm
1580.HAN	NPN (3 wires) cable 2.5 mt.	8 mm
MHS.P	PNP (3 wires) cable 300 mm, M8 connector (use MCH1 or MCH2 connectors)	8 mm

Diagrams and connections



* The load (LOAD) can be connected either to negative or positive pole

Technical characteristics	1580.U	MRS.U	1580.UAP	MRS.UAP	1580.HAP	1580.HAN	MHS.P
Type of contact	N.O.						
Output type	PNP			NPN		PNP	
Maximum current	100mA						
Maximum permanent power	14 VA - 10 W		4 VA - 3 W		3 W		
Voltage range	5 - 230V DC/AC	5 - 30V DC/AC	10 - 30 V DC/AC		10 - 30 V DC		
Working temperature	-10°C - +70°C						
Maximum voltage drop	3.5 V		0V **		2 V		
Cable section (mm ²)	2 x 0.14 Ø3.3mm PUR	2 x 0.14 Ø3.3mm PUR	3 x 0.14 Ø3.3 mm PUR		3 x 0.14 Ø3.3 mm PUR		
Degree of protection	IP 67						

** Even if one sensor generates a voltage drop very close to 0 Volts, we suggest to connect no more than 30 sensors in series.

Cable ordering code

Connection 2 wires

- MC1** cable 2 wires l=2.5m with M8 connector
- MC2** cable 2 wires l=5m with M8 connector
- MC3** cable 2 wires l=10m with M8 connector

Connector



Sensor



- 1 Brown (+)
- 4 Blue (-)
- 3 Not use

Connection 3 wires

- MCH1** cable 3 wires l=2.5m with M8 connector
- MCH2** cable 3 wires l=5m with M8 connector
- MCH3** cable 3 wires l=10m with M8 connector

Connector



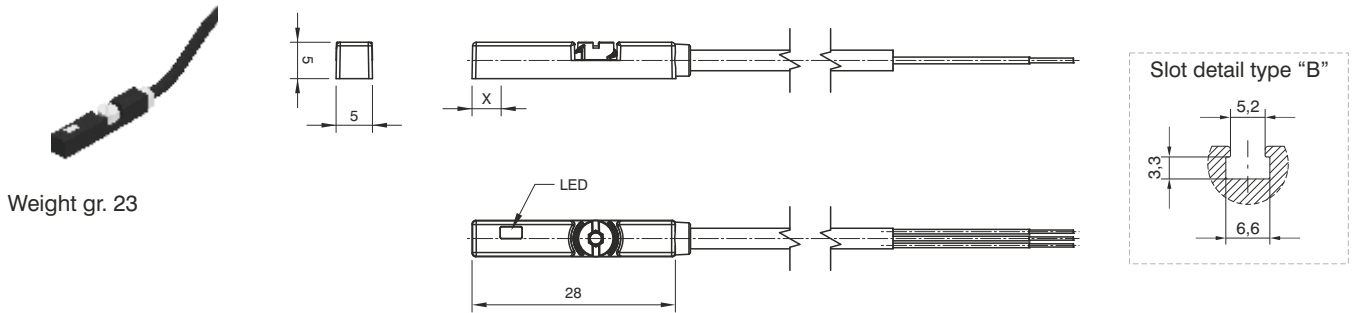
Sensor



- 1 Brown (+)
- 4 Black (signal)
- 3 Blue (-)

Sensor with 2.5 m. cable

X= point of commutation



Weight gr. 23

Sensor ordering codes

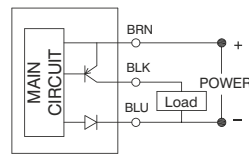
Hall effect sensors, with led, DC, N.O. (Normally open)

X= point of commutation

1595.HAP PNP (3 wires) cable 2.5 mt.

2.3 mm

Diagrams and connections



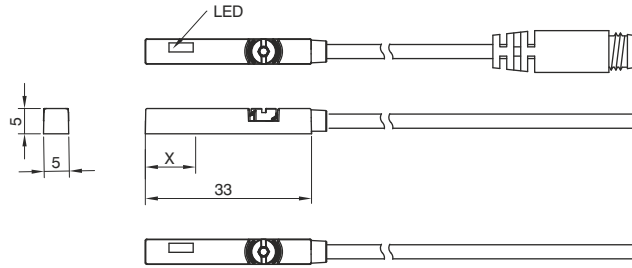
Hall-PNP effect (3 wires)

Technical characteristics	1595.HAP
Type of contact	N.O.
Output type	PNP
Maximum current	100 mA
Maximum permanent power	3W
Voltage range	10 - 28 VDC
Working temperature	-10 - +70°C
Maximum voltage drop	1,5V
Cable section (mm ²)	3 x 0,14 Ø2.8 mm PUR
Degree of protection	IP67

Sensor with 2.5 m. cable



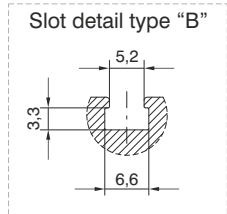
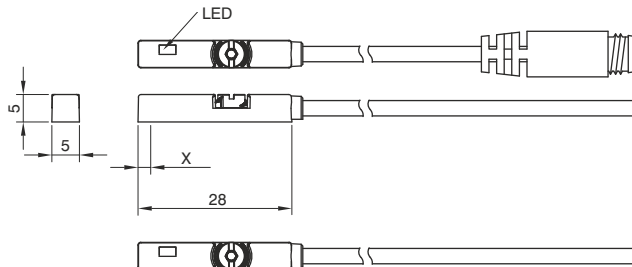
Weight gr. 27



Sensor with cable and M8 connector



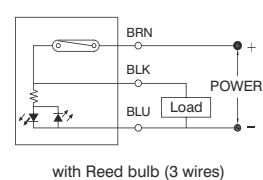
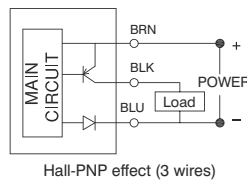
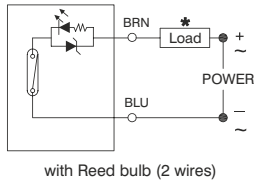
Weight gr. 15



Sensor ordering codes

Ampulla Reed sensors, with led, Universal, N.O. (Normally open)		X=point of commutation
1590.U	(2 wires) cable 2.5 mt.	10 mm
LRS.U	(2 wires) cable 300 mm, M8 connector (use MC1 or MC2 connectors)	10 mm
1590.UAP	PNP (3 wires) cable 2.5 mt.	10 mm
LRS.UAP	PNP (3 wires) cable 300 mm, M8 connector (use MCH1 or MCH2 connectors)	10 mm
Hall effect sensors, with led, DC, N.O. (Normally open)		X=point of commutation
1590.HAP	PNP (3 wires) cable 2.5 mt.	2,3 mm
LHS.P	PNP (3 wires) cable 300 mm, M8 connector (use MCH1 or MCH2 connectors)	2,3 mm

Diagrams and connections



* The load (LOAD) can be connected either to negative or positive pole

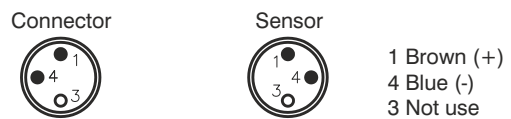
Technical characteristics	1590.U	LRS.U	1590.UAP	LRS.UAP	1590.HAP	LHS.P
Type of contact	N.O.					
Maximum current	100mA		500mA		200mA	
Maximum permanent power	14 VA - 10 W		14 VA - 10 W		6 W	
Voltage range	5 - 240V DC/AC		10 - 30 V DC/AC		10 - 28 V DC	
Working temperature	-10°C - +70°C					
Maximum voltage drop	3 V		0V **		1.5 V	
Cable section (mm ²)	2 x 0.14 Ø2,8 mm PUR		3 x 0.14 Ø2,8 mm PUR			
Degree of protection	IP 67					

** Even if one sensor generates a voltage drop very close to 0 Volts, we suggest to connect no more than 30 sensors in series.

Cable ordering code

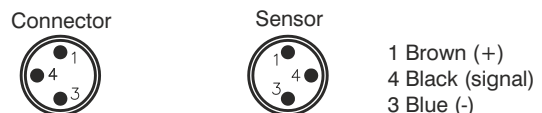
- MC1** cable 2 wires l=2.5m with M8 connector
- MC2** cable 2 wires l=5m with M8 connector
- MC3** cable 2 wires l=10m with M8 connector

Connection 2 wires



- MCH1** cable 3 wires l=2.5m with M8 connector
- MCH2** cable 3 wires l=5m with M8 connector
- MCH3** cable 3 wires l=10m with M8 connector

Connection 3 wires



Sensor with 2.5 m. cable

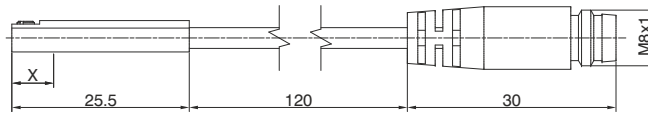


Weight gr. 22

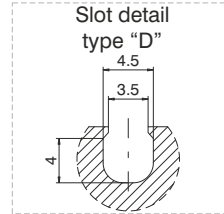
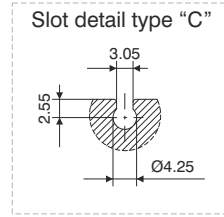
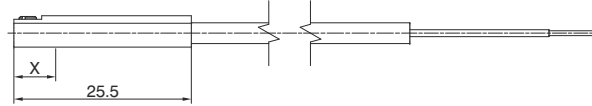
Sensor with cable and M8 connector



Weight gr. 10



X= point of commutation



Sensor ordering codes

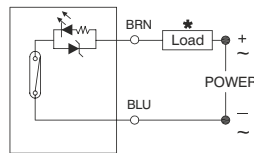
Ampulla Reed sensors, with led, Universal, N.O. (Normally open)

Code	Description	X=point of commutation
1581.U	(2 wires) cable 2.5 mt.	10 mm
TRS.U	(2 wires) cable 100 mm, M8 connector (use MC1 or MC2 connectors)	10 mm

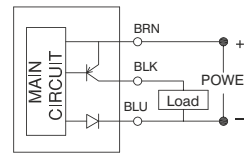
Hall effect sensors, with led, DC, N.O. (Normally open)

Code	Description	X=point of commutation
1581.HAP	PNP (3 wires) cable 2.5 mt.	7.5 mm
THS.P	PNP (3 wires) cable 100 mm, M8 connector (use MCH1 or MCH2 connectors)	7.5 mm

Diagrams and connections



with Reed bulb (2 wires)



Hall-PPN effect (3 wires)

* The load (LOAD) can be connected either to negative or positive pole

Technical characteristics	1581.U	TRS.U	1581.HAP	THS.P
Type of contact	N.O.			
Maximum current	50mA			
Maximum permanent power	8 VA - 1,5 W		1,5 W	
Voltage range	5 - 30V DC/AC		10 - 30 V DC	
Working temperature	-10°C - +70°C			
Maximum voltage drop	3,5 V		1 V	
Cable section (mm ²)	2 x 0,14 Ø2,8 mm PUR		3 x 0,14 Ø2,8 mm PUR	
Degree of protection	IP 67			

Cable ordering code

Connection 2 wires

Connector



Sensor



1 Brown (+)
4 Blue (-)
3 Not use

Connection 3 wires

Connector



Sensor



1 Brown (+)
4 Black (signal)
3 Blue (-)

- MC1** cable 2 wires l=2.5m with M8 connector
- MC2** cable 2 wires l=5m with M8 connector
- MC3** cable 2 wires l=10m with M8 connector

- MCH1** cable 3 wires l=2.5m with M8 connector
- MCH2** cable 3 wires l=5m with M8 connector
- MCH3** cable 3 wires l=10m with M8 connector

Sensor with cable

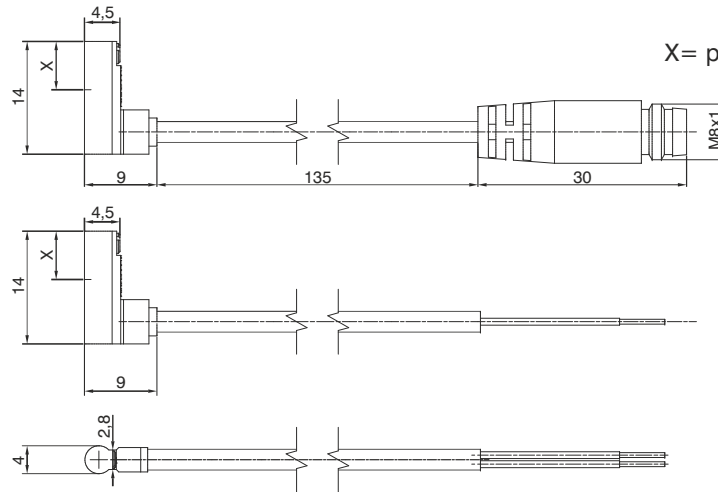


Weight gr. 22

Sensor with cable and M8 connector

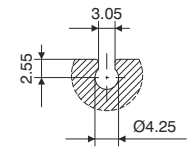


Weight gr. 10

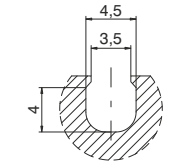


X= point of commutation

Slot detail type "C"



Slot detail type "D"



Sensor ordering codes

Ampulla Reed sensors, with led, DC, N.O. (Normally open)

X=point of commutation

1583.DC (2 wires) cable 2 mt.

6 mm

Hall effect sensors, with led, N.O. (Normally open)

X=point of commutation

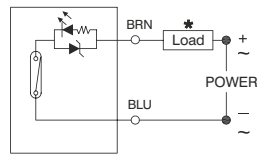
1583.HAP PNP (3 wires) cable 3 mt.

6 mm

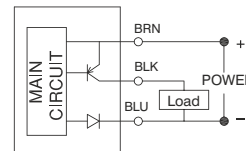
THR.P PNP (3 wires) cable 100 mm, M8 connector (use MCH1 or MCH2 connectors)

6 mm

Diagrams and connections



with Reed bulb (2 wires)



Hall-PNP effect (3 wires)

* The load (LOAD) can be connected either to negative or positive pole

TECHNICAL CHARACTERISTICS	1583.DC	1583.HAP	THR.P
Type of contact		N.O.	
Maximum current	20mA		50mA
Maximum permanent power	0,6 W		1,5 W
Voltage range	10 - 28V DC		4,5 - 28 V DC
Working temperature		-10°C - +70°C	
Maximum voltage drop	3,5 V		0,5 V
Cable	Ø2,6 mm PVC - 2 m		Ø2,6 mm PVC - 3 m
Degree of protection		IP 67	

Cable ordering code

- MCH1** cable 3 wires l=2.5m with M8 connector
- MCH2** cable 3 wires l=5m with M8 connector

Connection 3 wires

Connector



Sensor



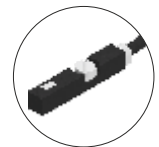
- 1 Brown (+)
- 4 Black (signal)
- 3 Blue (-)

Rectangular section version (for sensor slot type "B")

SERIES	DESCRIPTION	MOUNTED
1200	Microcylinders with threaded end covers and "TECNO-MIR" microcylinders Microcylinders "MIR" with rolled end covers Microcylinders "MIR-INOX" with rolled end covers	with clamps code 1260.Ø.FS with clamps code 1280.Ø.FS with clamps code 1280.Ø.FSX
1319 - 1320 1325 - 1345 1330 - 1332 1348 - 1349	for cylinders Ø32 - Ø40 for cylinders Ø50 - Ø63 for cylinders Ø80 - Ø100 for cylinders Ø125 for cylinders Ø160 for cylinders Ø200	with brackets code 1320.AS with brackets code 1320.BS with brackets code 1320.CS with brackets code 1320.DSC with brackets code 1320.ESC with brackets code 1320.FSC
1386-87 / 1396-97	Cylinders according to standard ISO 15552 ECOPLUS	directly on groove
1390 - 1391	Cylinders according to standard ISO 15552 ECOLIGHT Warning: To use only into the lateral slot, from Ø32 to Ø63 cylinders. (do not use into the 2 slots positioned on the side of feeding connection)	directly on groove
1370-1373	Cylinders ECOFLAT Short stroke compact cylinders	directly on groove with adapter code 1380.01F
1500	Compact cylinders "Europe" Compact cylinder according to standard ISO 21287 ECOMPACT	from Ø12 to Ø25: directly on groove from Ø32 to Ø50: directly on groove or with adapter 1380.01F from Ø63 to Ø100: with adapter cod. 1380.01F directly on groove
1605	Rodless cylinders	with adapter code 1600.B
6100	Guided compact cylinder (Ø20 - Ø63)	directly on groove
6101	Heavy duty guided shortstroke cylinder	
6200	Twin rod slides units	
6210	Push/pull twin rod slides units	
6301	Pneumatic grippers, angular standard version	
6303	180° angular gripper rack & pinion style	
6310	Parallel style pneumatic grippers standard version (Ø10)	
6311	Parallel style pneumatic grippers wide opening	
6312	3 finger parallel style pneumatic grippers (Ø32 - Ø125)	


Rectangular section version (for sensor slot type "B")

SERIES	DESCRIPTION	MOUNTED
1200	Microcylinders with threaded end covers and "TECNO-MIR" microcylinders Microcylinders "MIR" with rolled end covers Microcylinders "MIR-INOX" with rolled end covers	with clamps code 1260.Ø.FS with clamps code 1280.Ø.FS with clamps code 1280.Ø.FSX
1319 - 1320 1325 - 1345 1330 - 1332 1348 - 1349	for cylinders Ø32 - Ø40 for cylinders Ø50 - Ø63 for cylinders Ø80 - Ø100 for cylinders Ø125 for cylinders Ø160 for cylinders Ø200	with brackets code 1320.ASC with brackets code 1320.BSC with brackets code 1320.CSC with brackets code 1320.DSC with brackets code 1320.ESC with brackets code 1320.FSC
1386-87 / 1396-97	Cylinders according to standard ISO 15552 ECOPLUS	directly on groove
1390 - 1391	Cylinders according to standard ISO 15552 ECOLIGHT	directly on groove
1370-1373	Cylinders ECOFLAT Short stroke compact cylinders	directly on groove with adapter code 1380.01F
1500	Compact cylinders "Europe" Compact cylinder according to standard ISO 21287 ECOMPACT	from Ø12 to Ø25: directly on groove from Ø32 to Ø50: directly on groove or with adapter 1380.01F from Ø63 to Ø100: with adapter cod. 1380.01F directly on groove
1605	Rodless cylinders	with adapter code 1600.B
6100	Guided compact cylinder (Ø20 - Ø63)	directly on groove
6101	Heavy duty guided shortstroke cylinder	
6200	Twin rod slides units	
6210	Push/pull twin rod slides units	
6311	Parallel style pneumatic grippers wide opening	



Oval section version (for sensor slot type “B”)

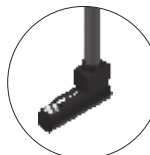
SERIES	DESCRIPTION	MOUNTED
1386-87 / 1396-97	Cylinders according to standard ISO 15552 ECOPLUS	directly on groove
1390-1391	Cylinders according to standard ISO 15552 ECOLIGHT	directly on groove
1370-1373	Cylinders ECOFLAT	directly on groove
1500	Compact cylinders "Europe"	from Ø12 to Ø25: directly on groove
	Compact cylinder according to standard ISO 21287 ECOMPACT	directly on groove
6100	Guided compact cylinder (Ø20 - Ø63)	directly on groove
6101	Heavy duty guided shortstroke cylinder	
6200	Twin rod slides units	
6210	Push/pull twin rod slides units	
6301	Pneumatic grippers, angular standard version	
6303	180° angular gripper rack & pinion style	
6310	Parallel style pneumatic grippers standard version (Ø10)	
6311	Parallel style pneumatic grippers wide opening	
6312	3 finger parallel style pneumatic grippers (Ø32 - Ø125)	
6411	Single rack rotary actuators	


Round section version (for sensor slot type “C” and “D”)

SERIES	DESCRIPTION	MOUNTED
6100	Guided compact cylinder (Ø12 - Ø16)	directly on groove
6302	Pneumatic grippers, 180° angular	
6310	Parallel style pneumatic grippers standard version (Ø10 and Ø16)	
6312	3 finger parallel style pneumatic grippers (Ø16 - Ø25)	
6400	Double rack rotary actuators with turn table	
6420	Vane type rotary actuators (from Ø10 to Ø40)	
6500	Arbitrary mount cylinders	
6600	Slide cylinders	
6700	Guide cylinders	


Round section 90° cable version (for sensor slot type “C” and “D”)

SERIES	DESCRIPTION	MOUNTED
6420	Vane type rotary actuators	directly on groove





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