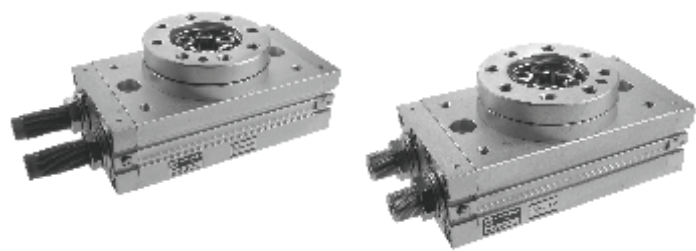


General

These rotary actuators convert linear motion of a piston into a rotary motion via a rack and pinion device, using a single pinion-rack system for the 6410 version and a double system on 6400 versions. The 6410 series actuators have fixed stops at 90 and 180 degrees; while on the 6400 series, rotation can be adjusted between 0 and 190 degrees using variable stops that can also be substituted with hydraulic stoppers (shock absorbers). These devices are equipped with a rotating table upon which the load is fixed.



Ordering code

6400. .

- A = Standard
- R = Cushioning
(Shock absorber)

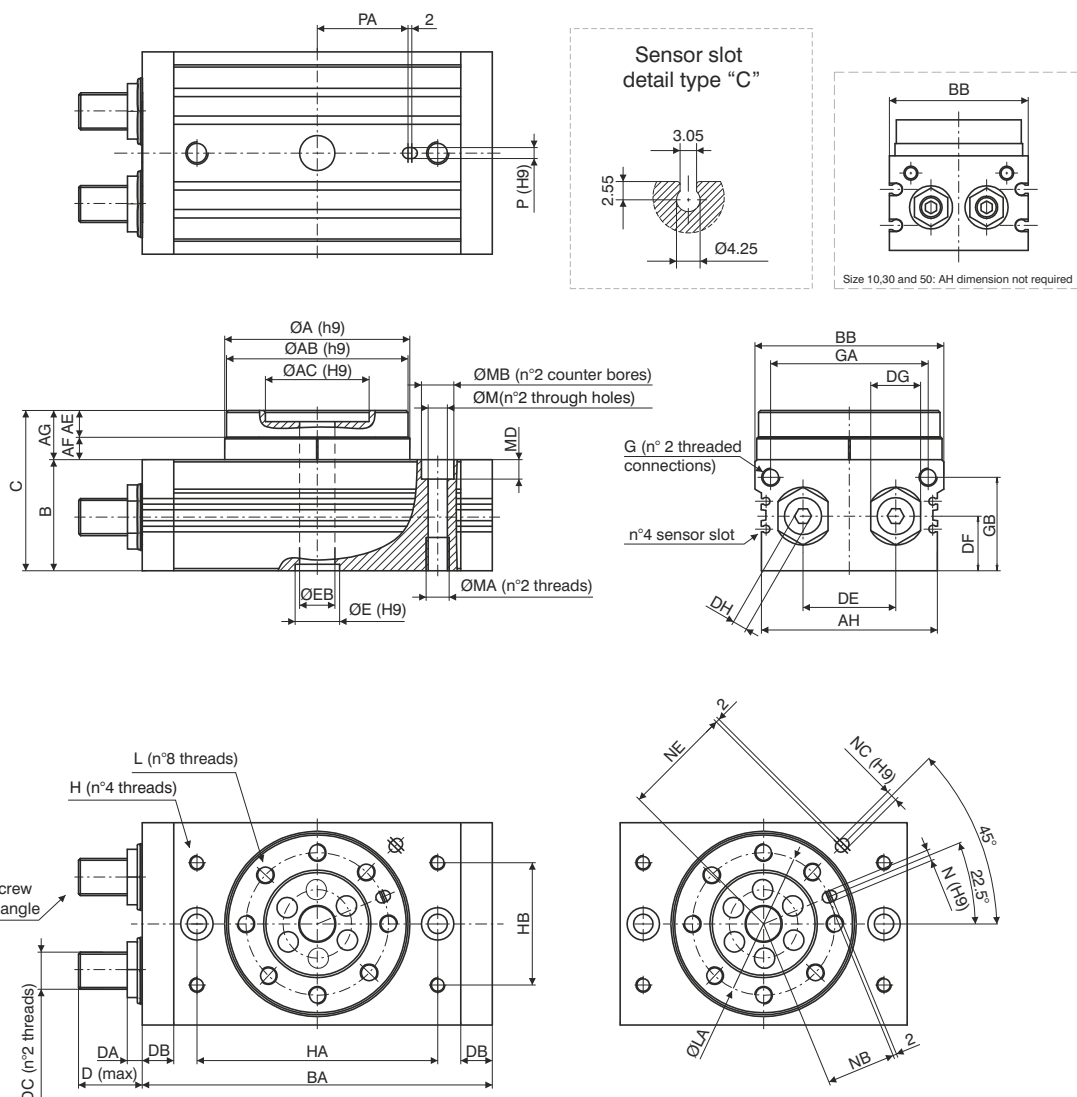
10 (piston ø15)
30 (piston ø20)
50 (piston ø25)
100 (piston ø32)
200 (piston ø40)

Construction characteristics

Body	anodised aluminium
Cover plate/End plate	anodised aluminium
Piston seal	NBR rubber
Pinion	steel
Rack	steel
Turn table	anodised aluminium
Cushioning	elastic bumper (hydraulic damper available on request)

Technical characteristics

Fluid	filtered and preferably lubricated air or not (If lubricated the lubrication must be continuous)
Max. pressure	10 bar (for type 100 and 200, 6 bar)
Working temperature	-5°C - +70°C
Rotation angle range	0 - 190°
Max. rotation	190°
Rotation speed	s/90° (see rotation time table)

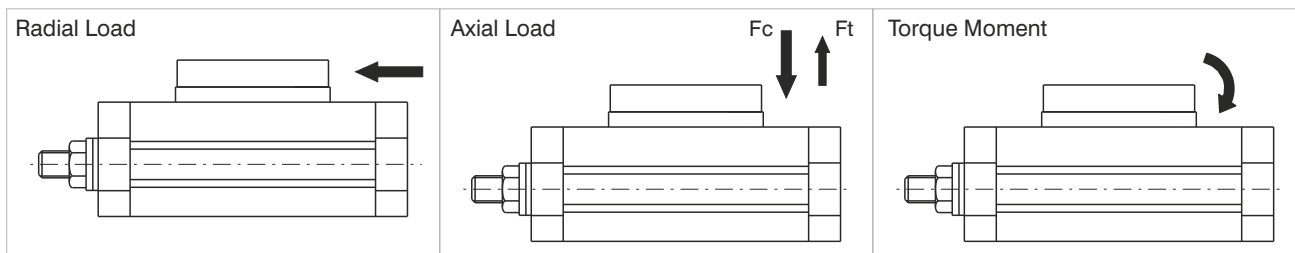


Size	10	30	50	100	200
Ø piston	Ø15	Ø21	Ø25	Ø32	Ø40
ØA ^{h9}	46	67	77	100	118
ØAB ^{h9}	45	65	75	98	116
ØAC ^{H9}	20	32	35	56	64
Useful depth	4	4,5	5	6	9
AE	8	10	12	14,5	16,5
AF	5	7	8	12,5	15,5
AG	13	17	20	27	32
AH	/	/	/	95	114
B ^{+0,5/0}	34	40	46	59	74
BA	92	127	152	189	240
BB ^{+0,5/0}	50	70	80	102	120
C ^{+0,5/0}	47	57	66	86	106
D	17,7	25	31,4	34,3	40,2
DA	8,6	10,6	14	8	20
DB	9,5	12	15,5	17	24
DC	M8x1	M10x1	M14x1,5	M20x1,5	M27x1,5
DE	20	29	38	50	60
DF	15,5	18,5	22	29,5	36,5
DG	12	14	19	27	36
DH	4	5	6	8	10
ØE ^{H9}	15	22	26	24	32
Useful depth	3	3	3	3,5	5,5
ØEB	5	9	10	19	24
G	M5x0,8	G1/8	G1/8	G1/8	G1/8

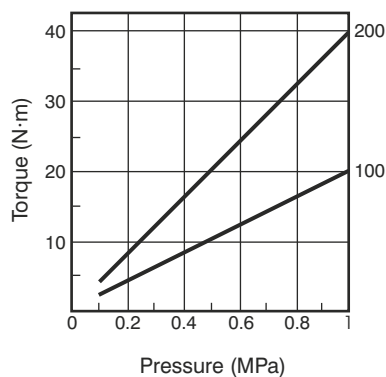
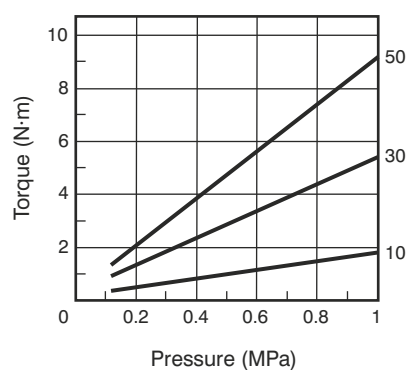
Size	10	30	50	100	200
Ø piston	Ø15	Ø21	Ø25	Ø32	Ø40
GA	34,5	50	63	85	103
GB	27,8	32	37,5	50,5	65,5
H	M5x0,8	M6x1	M8x1,25	M8x1,25	M12x1,75
Useful depth	8	8	8	10	13
HA	60	84	100	130	150
HB	27	37	50	66	80
L	M5x0,8	M6x1	M8x1,25	M10x1,5	M12x1,75
Useful depth	8	10	12	14,5	16,5
LA	32	48	55	77	90
M	6,8	8,6	10,5	10,4	14,2
MA	M8x1,25	M10x1,5	M12x1,75	M12x1,75	M16x2
Useful depth	12	15	18	18	25
MB	11	14	18	17,5	20
MD	6,5	8,5	10,5	10,5	12,5
N ^{H9}	3	4	5	6	8
Useful depth	3,5	4,5	5,5	6,5	8,5
NB	15	23	26,5	37,5	44
NC ^{H9}	/	/	/	6	8
Useful depth	/	/	/	4,5	4,5
NE	/	/	/	59	69
P ^{H9}	/	/	/	6	8
Useful depth	/	/	/	4,5	6,5
PA	/	/	/	49	54
Weight (gr.)	530	1230	2080	4100	7650

Permissible Loads

		Size				
		10	30	50	100	200
Radial Load (N)		80	200	320	400	550
Axial Load (N)	F _c	80	370	450	710	1000
	F _t	75	200	300	500	750
Torque Moment (Nm)		2,5	5,5	9,5	18	25



Torque Diagrams



Rotation time (sec./90°)

Dimension	With adjusting screw	With hydraulic decelerator
10 - 30 - 50	0.2 - 1	0.2 - 0,7
100	0.2 - 2	0.2 - 1
200	0.2 - 2.5	0.2 - 1

Kinetic energy

Dimension	With adjusting screw	With hydraulic decelerator
10	0.006	Please apply to our tech-dpt for info (as general rule expressed valves can be multiplied by 3)
30	0.045	
50	0.08	
100	0.30	
200	0.52	



Ordering code

6411.Ø. —

50	90 = rotation 90° 180 = rotation 180°
63	
80	
100	

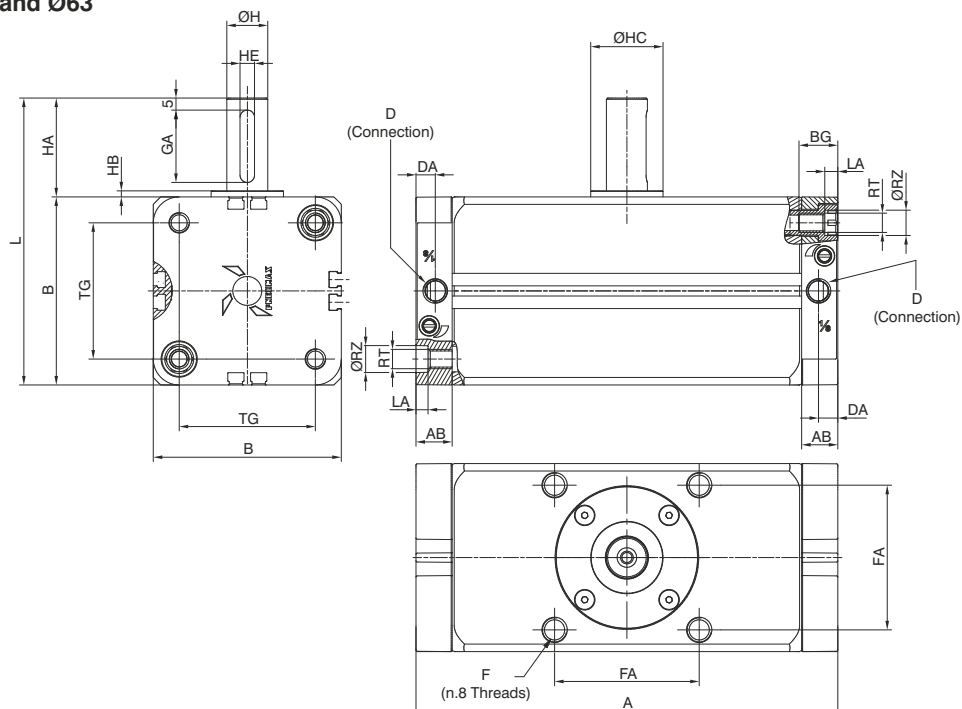
Construction characteristics

Body	anodised aluminium
Piston	aluminium
End plate	anodised aluminium
Piston seal	NBR rubber
Pinion	steel
Rack	steel

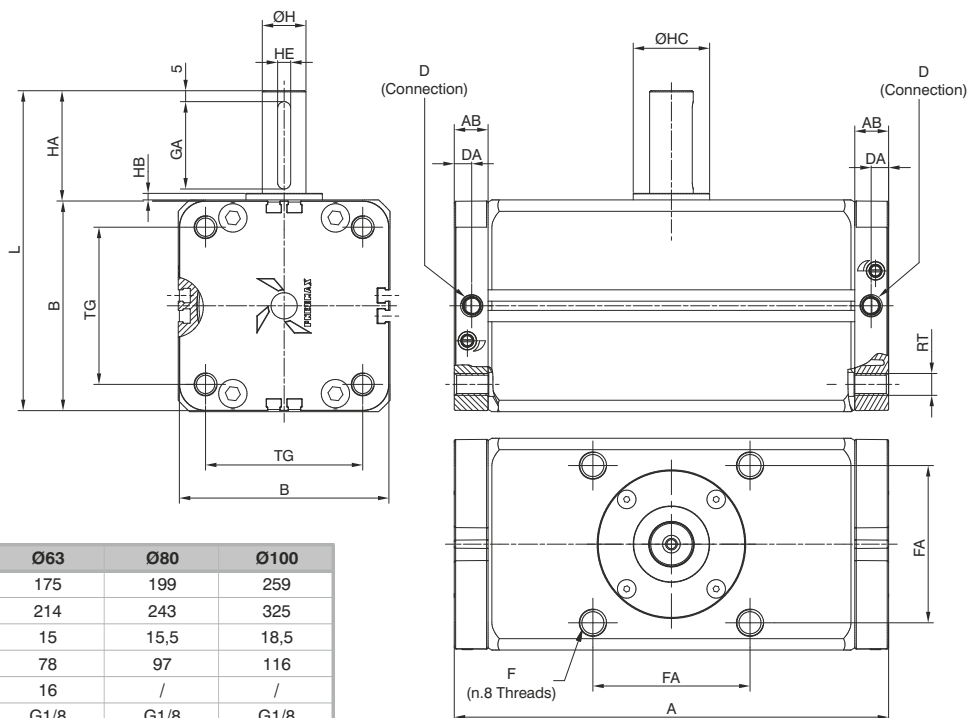
Technical characteristics

Fluid	filtered and preferably lubricated air or not (If lubricated the lubrication must be continuous)
Max. pressure	10 bar
Working temperature	-5°C - +70°C

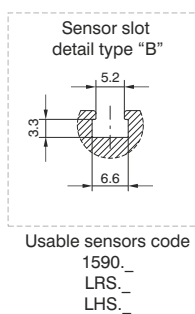
Overall dimensions Ø50 and Ø63



Overall dimensions Ø80 and Ø100



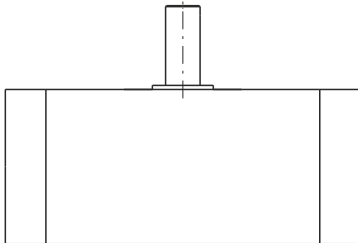
Bore		Ø50	Ø63	Ø80	Ø100
A	90°	156	175	199	259
	180°	189	214	243	325
AB		15	15	15,5	18,5
B		66	78	97	116
BG		16	16	/	/
D		G1/8	G1/8	G1/8	G1/8
DA		8	8	8	8
F		M8x1,25	M10x1,5	M12x1,75	M12x1,75
	Useful depth	12	15	15	18
FA		48	60	72	85
GA		25	30	40	45
H		15	17	20	25
HA		36	41	50	60
HB		2,5	2,5	3	4
HC		25	30	35	39,5
HE ^{H9}		5	6	6	8
L		102	119	147	176
LA		5	5	/	/
RT		M8	M8	M10	M10
RZ		10,5	10,5	/	/
TG		46,5	56,5	72	89
Weight (gr.)	90°	1575	2451	4162	6989
	180°	1815	2823	4774	8329



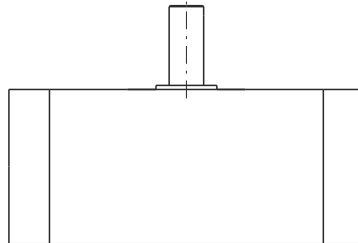
Allowable Loads

	Bore			
	Ø50	Ø63	Ø80	Ø100
Radial load (N)	200	300	400	600
Axial Load in compression (N)	500	600	900	1000
Tensile Axial Load (N)	200			

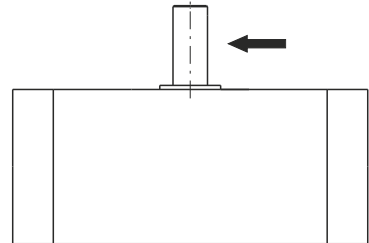
Compression
Axial Load



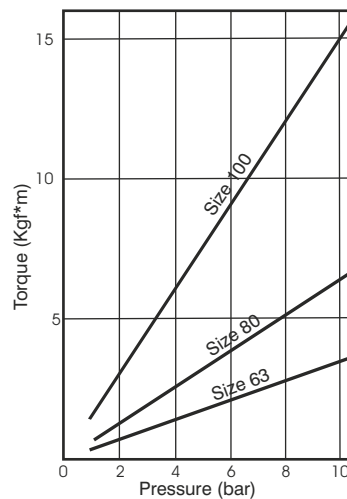
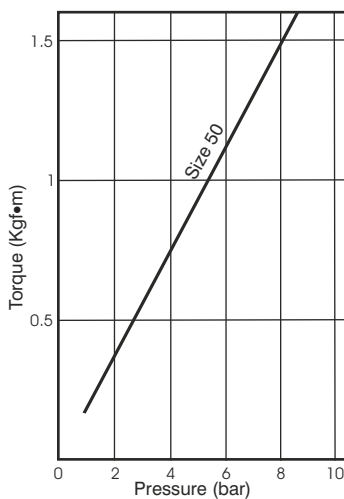
Tensile
Axial Load



Radial Load



Torque Diagrams

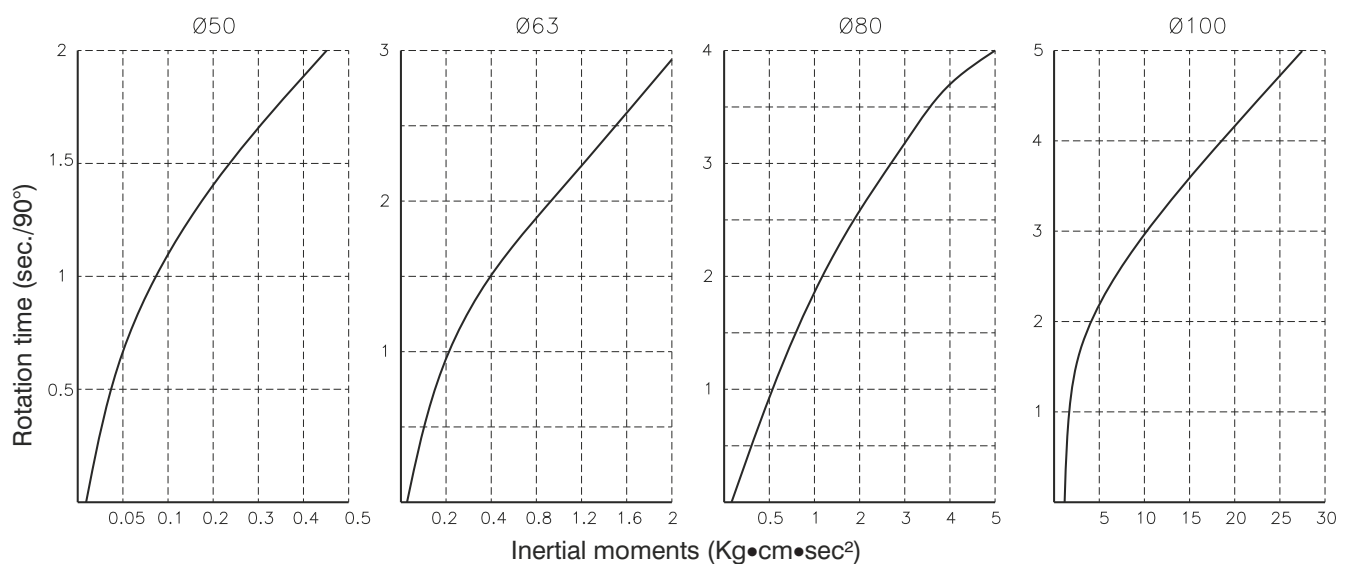


Max Kinetic energy (Kg·cm)

Kinetic energy (cushioning angle 35°)

Bore			
Ø50	Ø63	Ø80	Ø100
10	15	20	30

Rotation time according to inertial moments

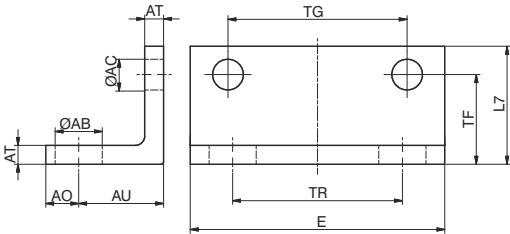
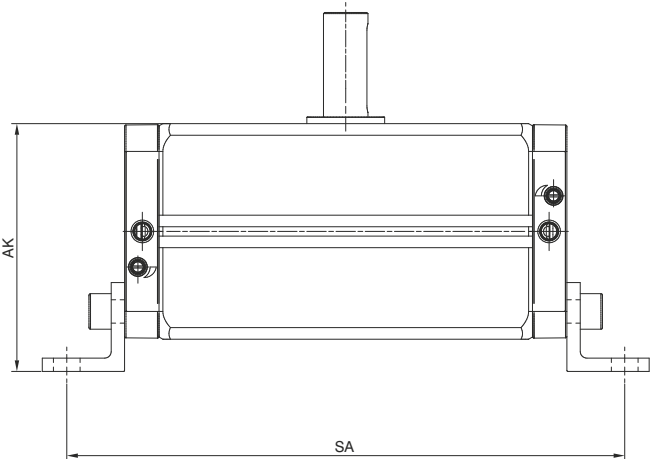


Foot (MS1)

Ordering code

1540.Ø.05/1F

The kit comprises:
n°1 foot (plated zinc steel)
n°2 screws (plated zinc steel)



Bore	Ø50	Ø63	Ø80	Ø100
AK	78	89	111,5	132
SA	90°	198	217	251
	180°	231	256	295



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

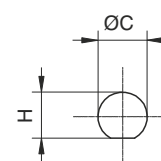
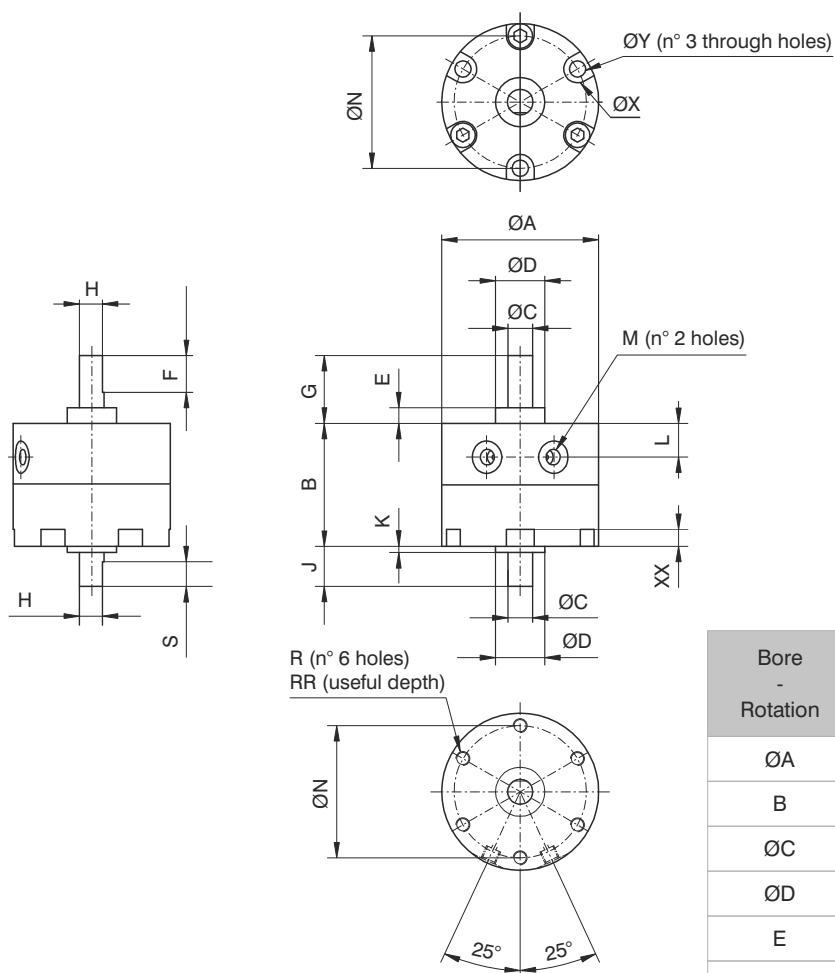
***Attention:**
from sizes Ø10 to Ø40, rotation angle 270°, refer to
ROTATION CONFIGURATION into following pages

Construction characteristics

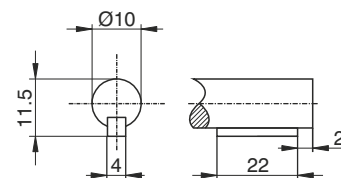
Body	anodised aluminium
Rod	steel
Seals	NBR
Vane	vulcanized NBR rubber on steel core
Cushoning	elastic bumper; hydraulic dampers from size Ø50 - Ø100 versions R or T

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

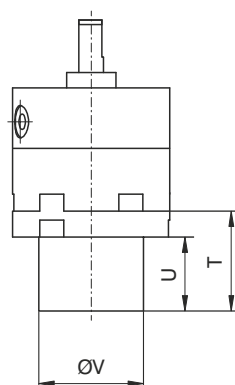


- Ø10 - Ø30 long shaft
- Ø10 - Ø40 short shaft

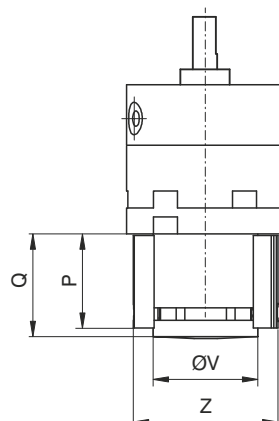


- Ø40 long shaft

Adjustable rotation angle version

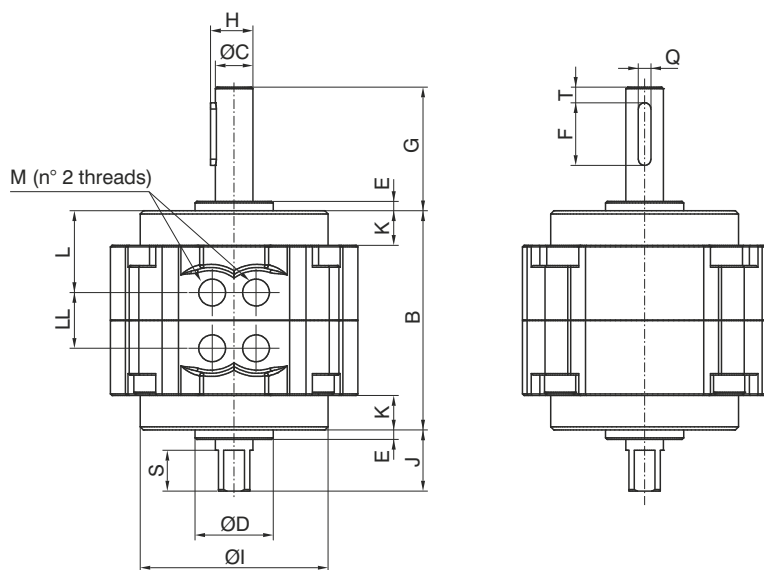
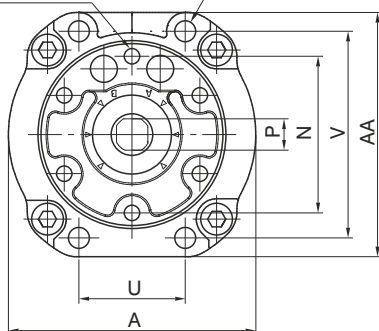


With sensor support version

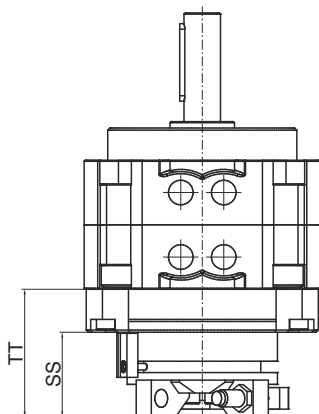


Bore - Rotation	10 - 90°	15 - 90°	20 - 90°	30 - 90°	40 - 90°
	10 - 180°	15 - 180°	20 - 180°	30 - 180°	40 - 180°
	10 - 270°	15 - 270°	20 - 270°	30 - 270°	40 - 270°
$\varnothing A$	30	35	44	51	64
B	17	20,1	29,1	40	45
$\varnothing C$	4	5	6	8	10
$\varnothing D$	9	12	14	16	25
E	3	4	4,5	5	6,5
F	9	10	10	12	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
$\varnothing N$	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
$\varnothing V$	18	24	30	34	34
$\varnothing X$	6	6	7,5	9	9
XX	3,5	3,5	4,5	5,5	5,5
$\varnothing Y$	2,3	2,3	3,2	4,2	4,2
Z	29	34	42	47	47
Weight (gr.)	Base	28	48	112	200
	With regulation rotation system	78	116	240	390

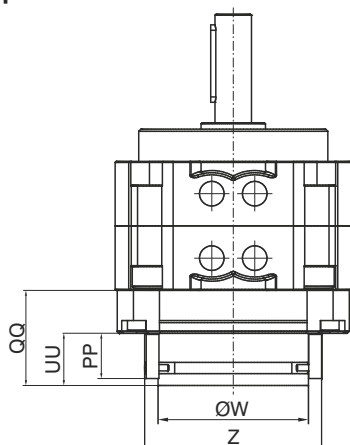
R (n° 6 threads on both sides)
RR (useful depth) ØVA (n° 4 holes)



Adjustable rotation angle version

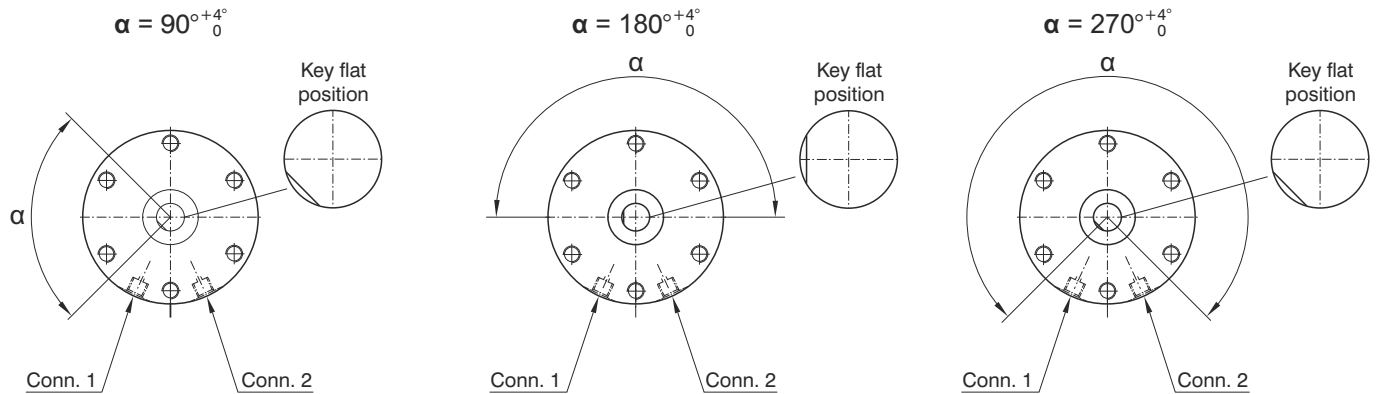


With sensor support version



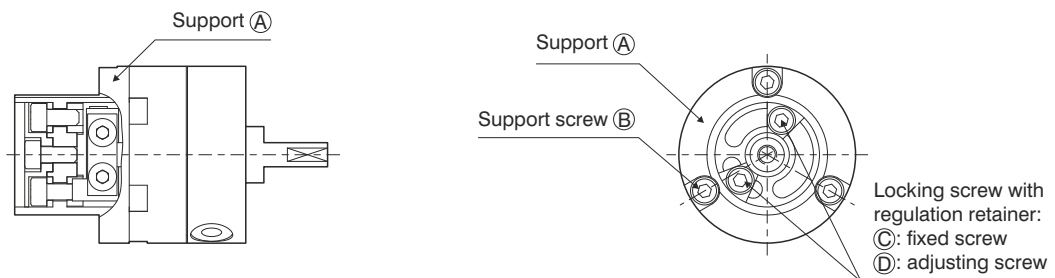
Bore - Rotation	50 - 90°	63 - 90°	80 - 90°	100 - 90°
	50 - 180°	63 - 180°	80 - 180°	100 - 180°
	50 - 270°	63 - 270°	80 - 270°	100 - 270°
A	79	98	110	140
AA	78	98	110	140
B	70	80	90	103
ØC	12	15	17	25
ØD	25	28	30	45
E	3	3	3	4
F	20	25	36	40
G	39,5	45	53,5	65
H	13,5	17	19	29
ØI	60	75	88	108
J	19,5	21	23,5	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
	With regulation rotation system	1100	1690	2370

ROTATING SHAFT KEY FLAT POSITION



ROTATION ANGLE SETUP

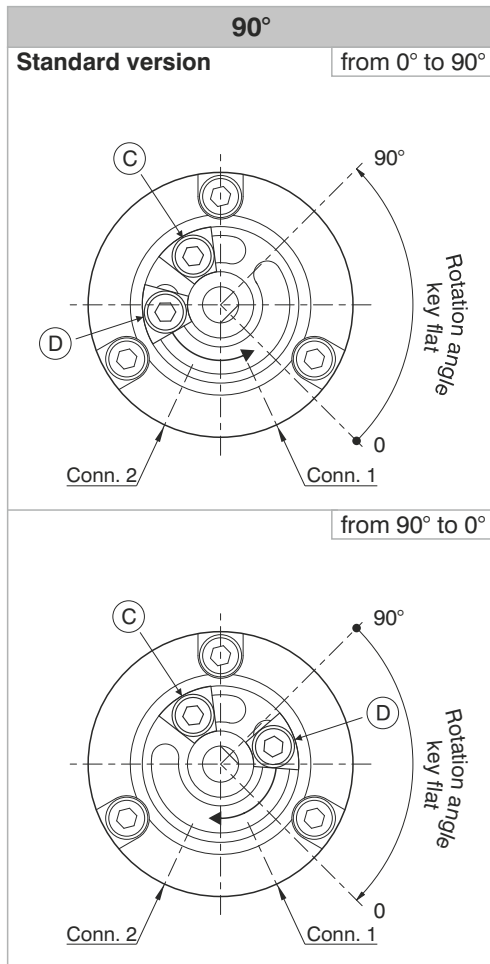
To regulate the rotation angle (codes 6420..R or T), follow the instructions below



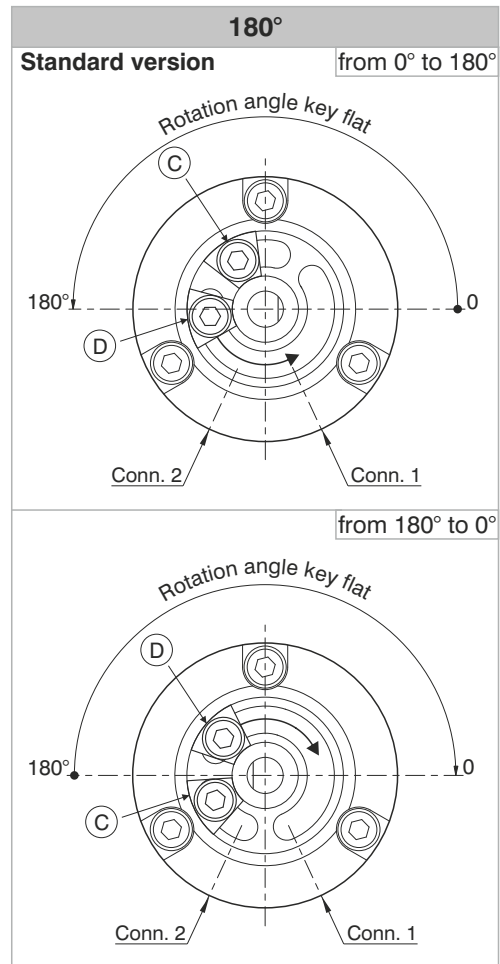
Phase 1 : Choose the regulation configuration based on the following options
(consider the actuator base position):

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

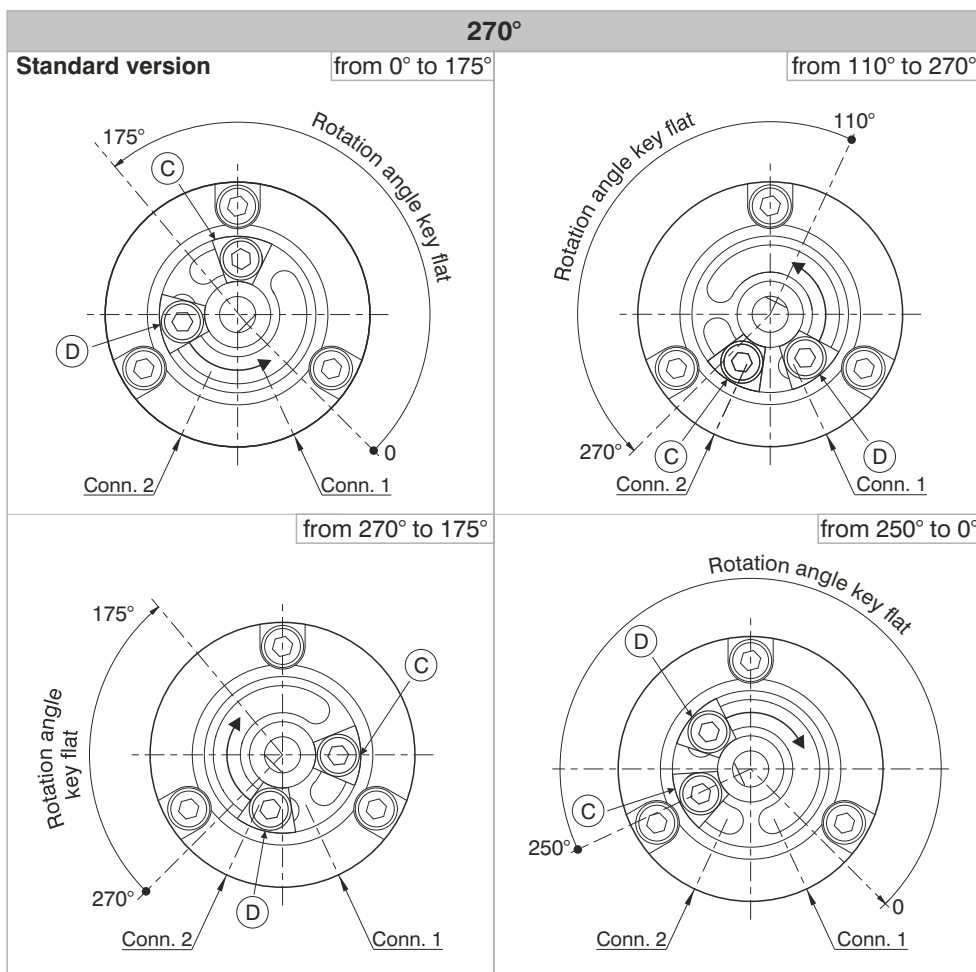
ROTATION CONFIGURATION



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

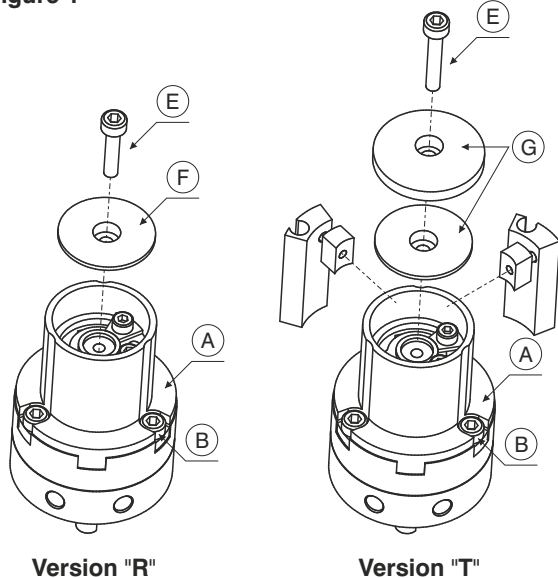
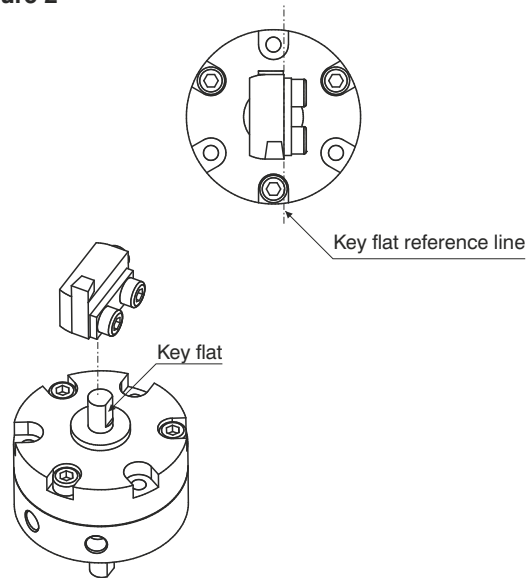
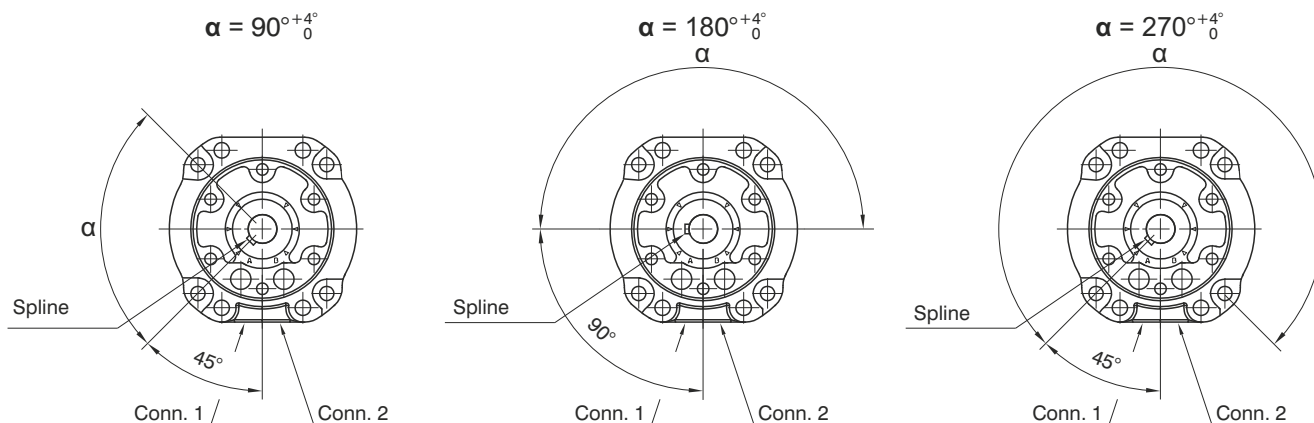


Figure 2

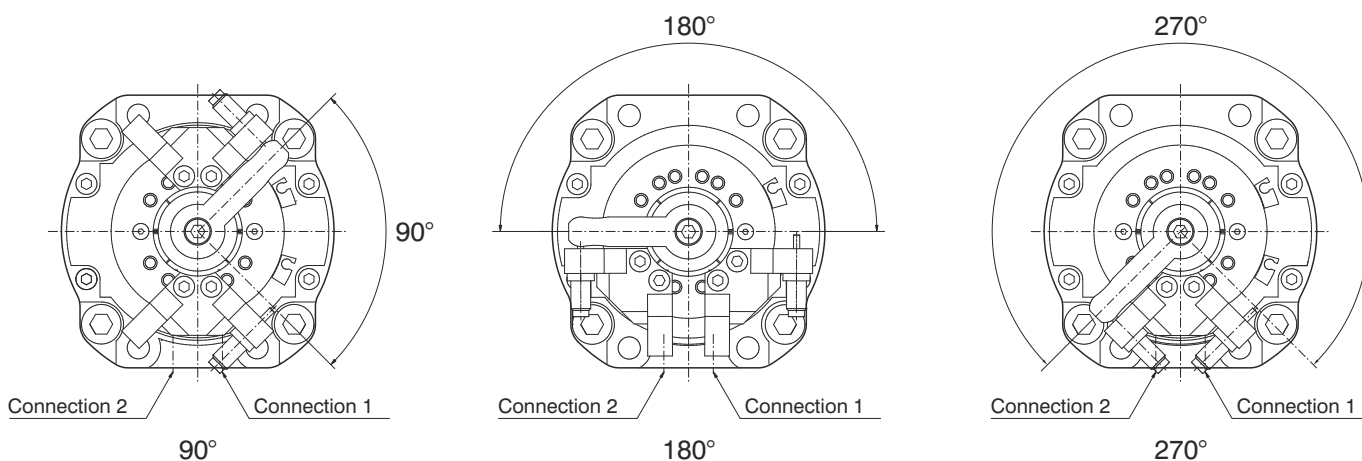


ROTATING SHAFT SPLINE POSITION



ROTATION ANGLE SETUP

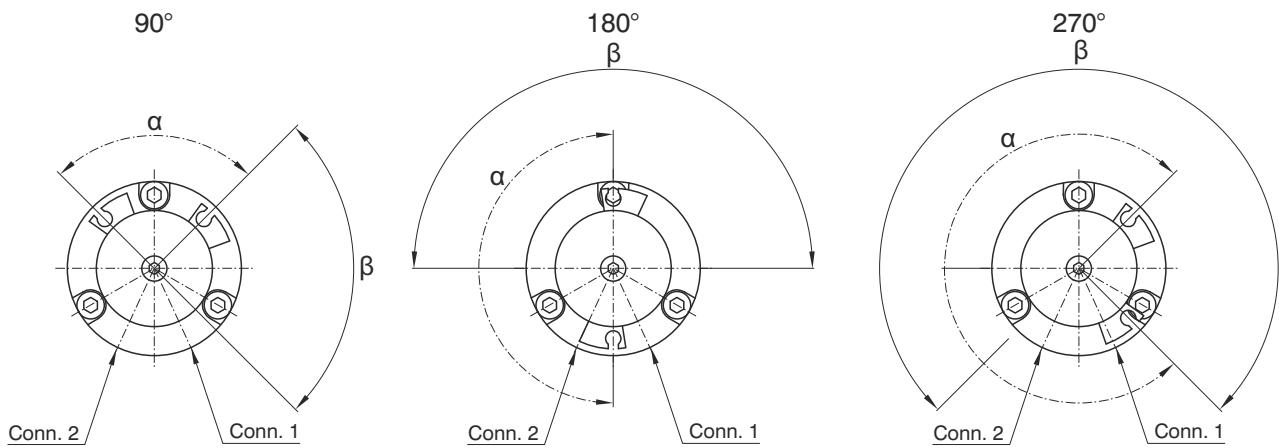
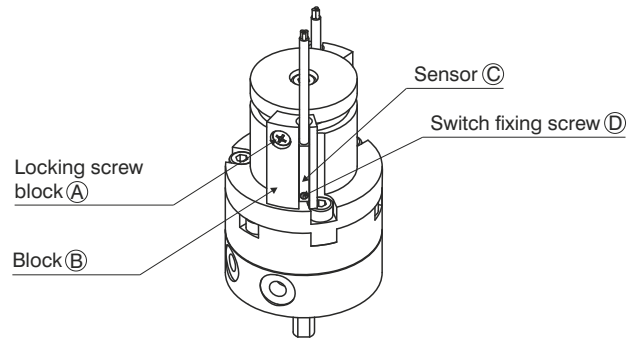
The version with adjustable rotation angle (cod. 6420..R or T) is available with hydraulic dampers which enable to regulate the rotation angle by 10° and to decelerate moving mass.



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)

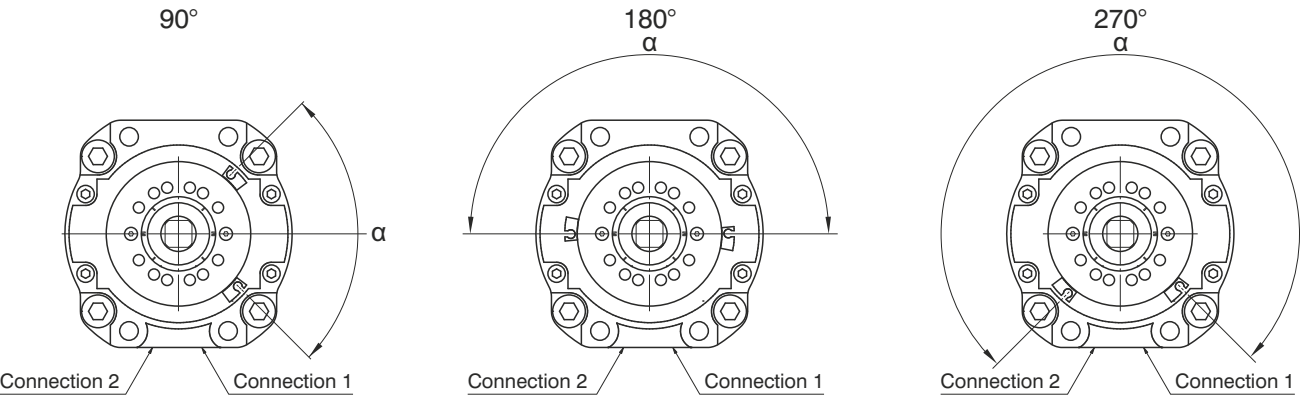
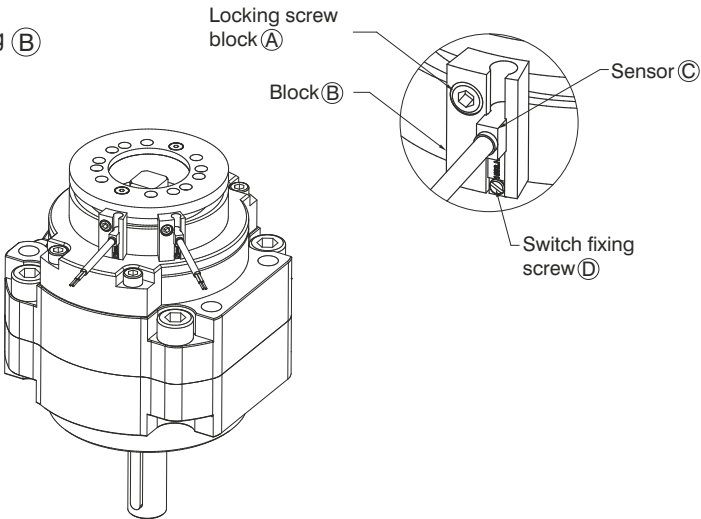
Phase 5 - repeat the following phases for the second switch

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)

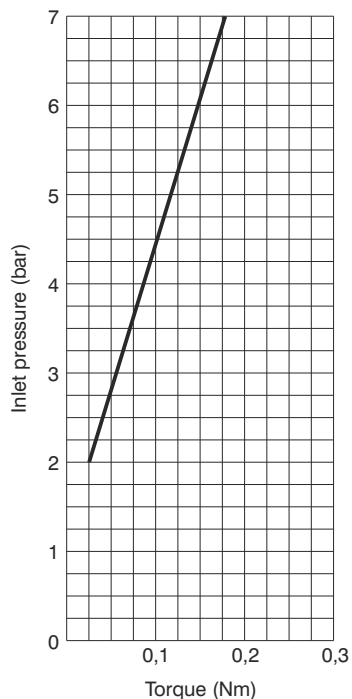
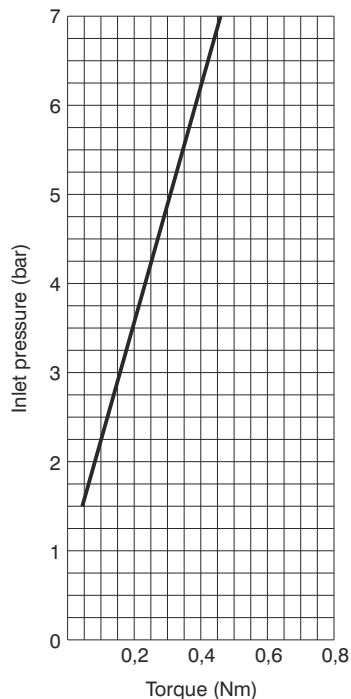
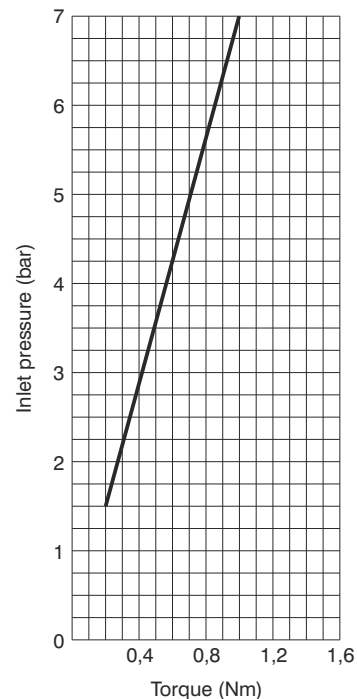
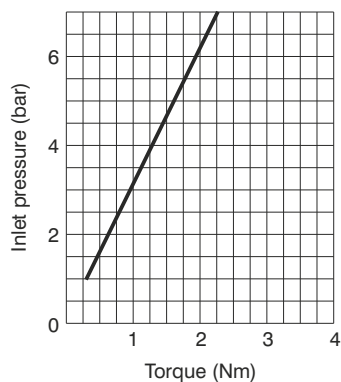
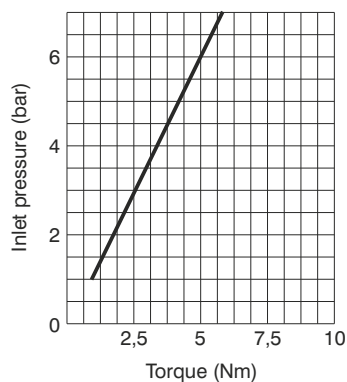
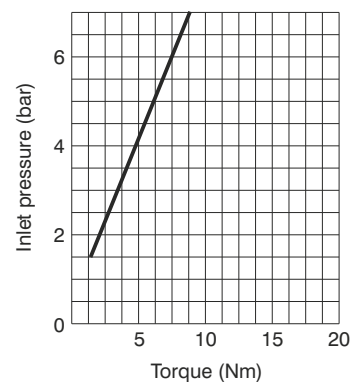
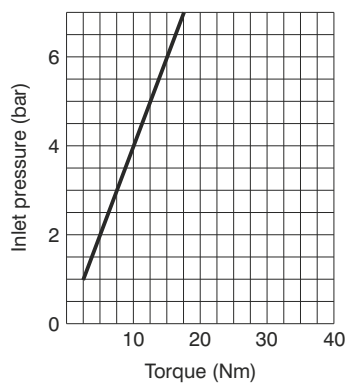
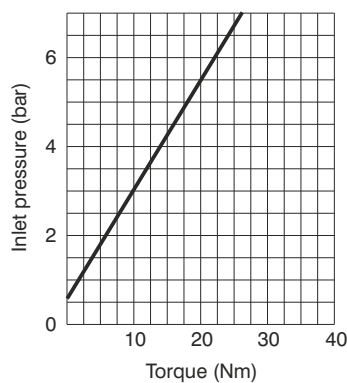
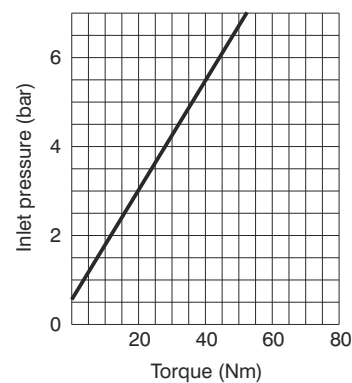


α - magnet rotating angle (that corresponds to the shaft key flat rotating angle)
For correct functionality position the switch within angle α

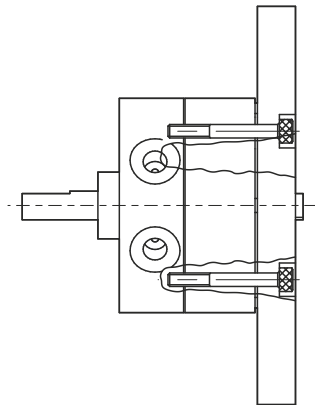
- Phase 4** - tighten screw (A)
Phase 5 - repeat the following phases for the second switch

AVAILABLE SENSORS

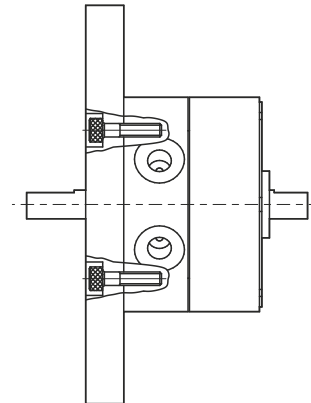
	Code
	1583.DC
	1583.HAP
	THR.P

Ø10

Ø15

Ø20

Ø30

Ø40

Ø50

Ø63

Ø80

Ø100


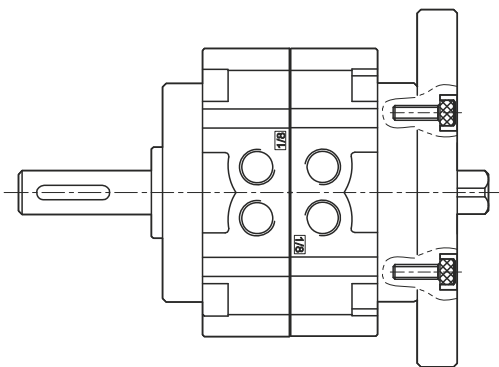
Mounting types



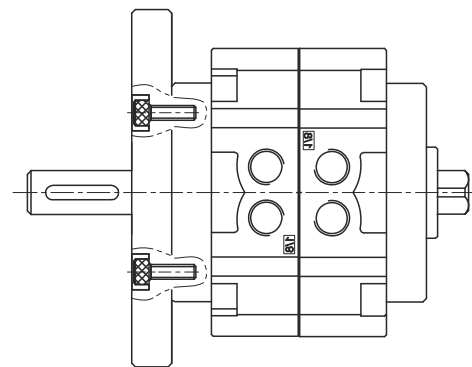
Rear mounting



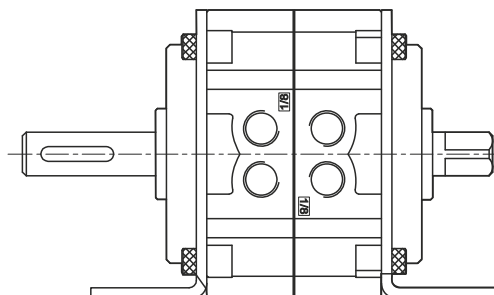
Frontal mounting



Rear mounting



Frontal mounting



Mounting with flange