

Pneumatic swivelling units series RT

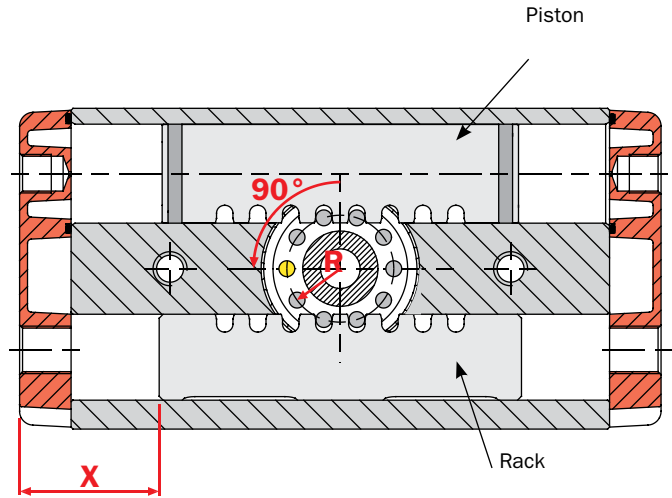
- Rack and pinion movement.
- Continuously adjustable stroke.
- Large ball bearings on the shaft.
- Through hole in the pinion.
- Optional rubber bumpers (FGD) or hydraulic shock-absorber.
- Optional intermediate stopper (RTD).
- Optional proximity magnetic sensors.



	RT-10	RT-12	RT-20	RT-25	RT-35	RT-45	RT-63
Price	\$375.00	\$387.00	\$440.00	\$486.00	\$603.00	\$784.00	\$1,001.00
Medium	Filtered compressed air, lubricated or non-lubricated						
Pressure range	22-116 psi						
Temperature range	41-140 °F						
Maximum swiveling angle	190°						
Theoretical torque at 87 psi	2.5 in-lbf	5 in-lbf	17.5 in-lbf	35 in-lbf	69 in-lbf	148 in-lbf	349 in-lbf
Maximum operating frequency	3 Hz	3 Hz	2 Hz	2 Hz	2 Hz	2 Hz	1 Hz
Swiveling time without load	0.05 s	0.06 s	0.11 s	0.19 s	0.08 s	0.16 s	0.23 s
Air consumption per cycle	0.20 in ³	0.38 in ³	1.40 in ³	2.74 in ³	5.61 in ³	14.03 in ³	31.73 in ³
Max repeatability tolerance with shock-absorbers	0.02°	0.02°	0.02°	0.02°	0.02°	0.02°	0.02°
Weight	235g	560g	965g	1680g	2475g	5250g	8185g

End stroke accessories

For the stroke adjustment you can use hydraulic shock-absorbers, rubber bumpers (FGD), or only grub screws, according to the kinetic energy the unit has to bear. NEVER USE THE SWIVELLING UNIT WITHOUT STROKE ADJUSTERS.



The table shows the codes of the suitable shock-absorbers. The bumpers (FGD) are Gimatic products.

		RT-10	RT-12	RT-20	RT-25	RT-35	RT-45	RT-63
		M8x1	M10x1	M12x1	M12x1	M14x1.5	M20x1.5	M25x1.5
Shock-absorbers for heavy loads	ACE ENIDINE	MC10MH -	- TK10M-1-SP18482	MC75M3-NB-111 PM15MF-3-SP33881	MC75M3-NB-111 PM15MF-3-SP33881	MC150MH2 PM25MC-3-SP34780	MC225MH2 PM50MC-2	MC600MH2 PM100MF-3-SP37330
Shock-absorbers for light loads	ACE ENIDINE	MC10ML PMX8MC-3	MC25M-NB TK10M-4	MC75M2-NB ECO15MF-2	MC75M3-NB ECO15MF-2	-	-	-
Rubber bumpers		FGD0830 (L=30 mm)	FGD1030 (L=30 mm)	FGD1235 (L=35 mm)	-	-	-	-
R (mm)		6	8.25	10.5	13.5	13.5	17.5	21
X _{90°} (mm)		18.5	24	27.5	35.5	37	53.5	60
ΔX∇1° (mm)		0.1047	0.1417	0.1802	0.2317	0.2296	0.2976	0.3571

where:

R is the pinion radius;

X_{90°} is the minimum length of the end-stroke device to reduce the unit stroke to 90°;

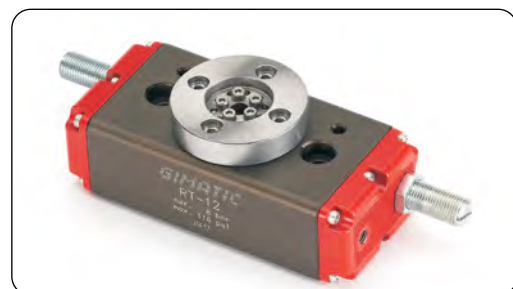
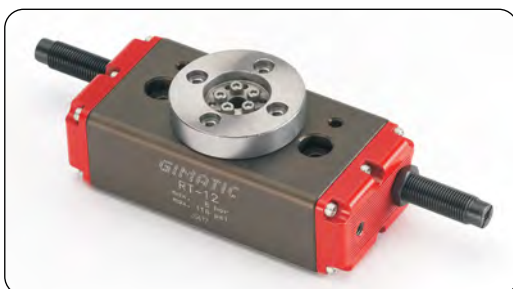
ΔX∇1° is the rack stroke each one degree pinion rotation.

By the accessories in the previous table, it is possible to reduce the unit stroke to 90°.

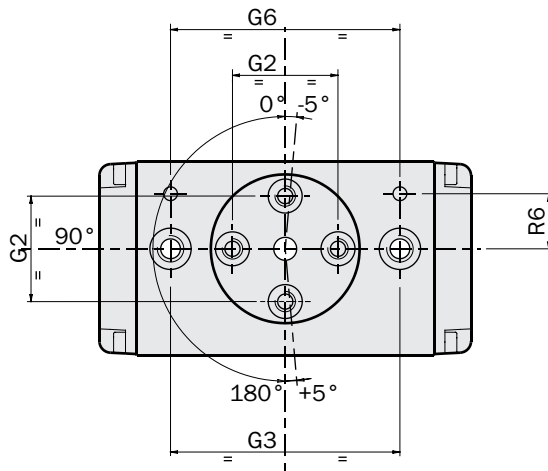
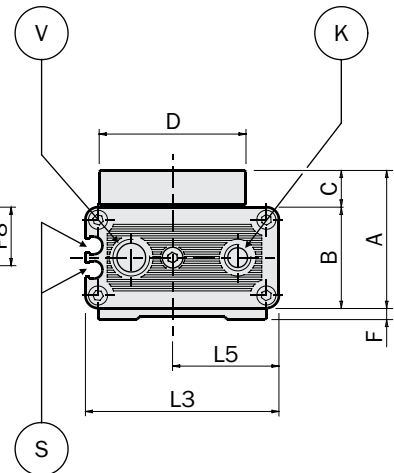
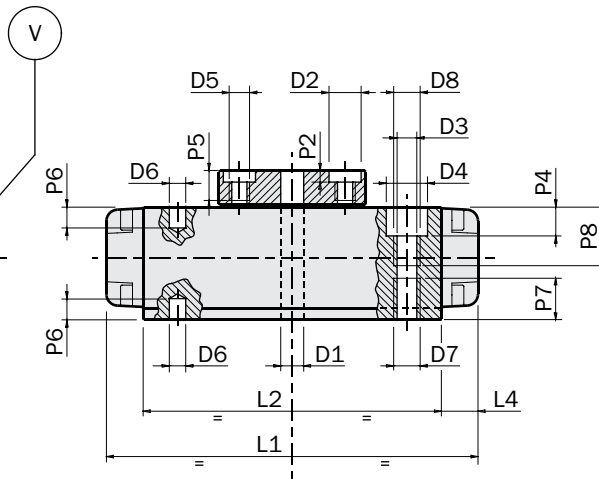
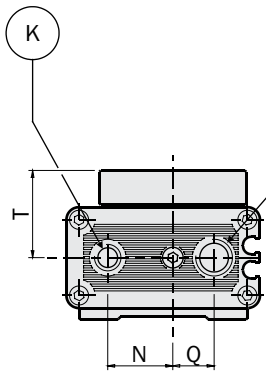
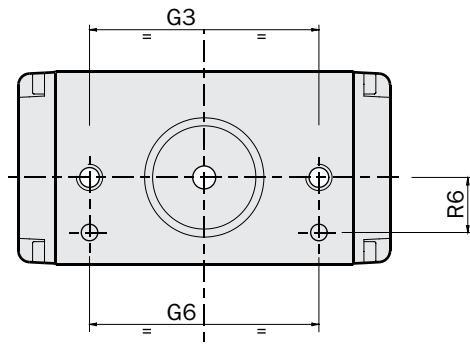
If a larger stroke reduction is requested, it is necessary to check if a longer end-stroke device must be used.

Example:

If a 70° rotation angle is requested by RT-63, the dimension X will have to be: 60+(20x0.3571)=67.1mm .



Dimensions (mm)



D1 Through hole

K Threaded hole for air connection

V Threaded hole for stroke adjuster

S SS and SN series sensor groove

D2 Hole for centering sleeve

D3 Through hole for the unit fastening

D5 Threaded hole for fastening

D6 Dowel pin hole

D7 Threaded hole for the unit fastening

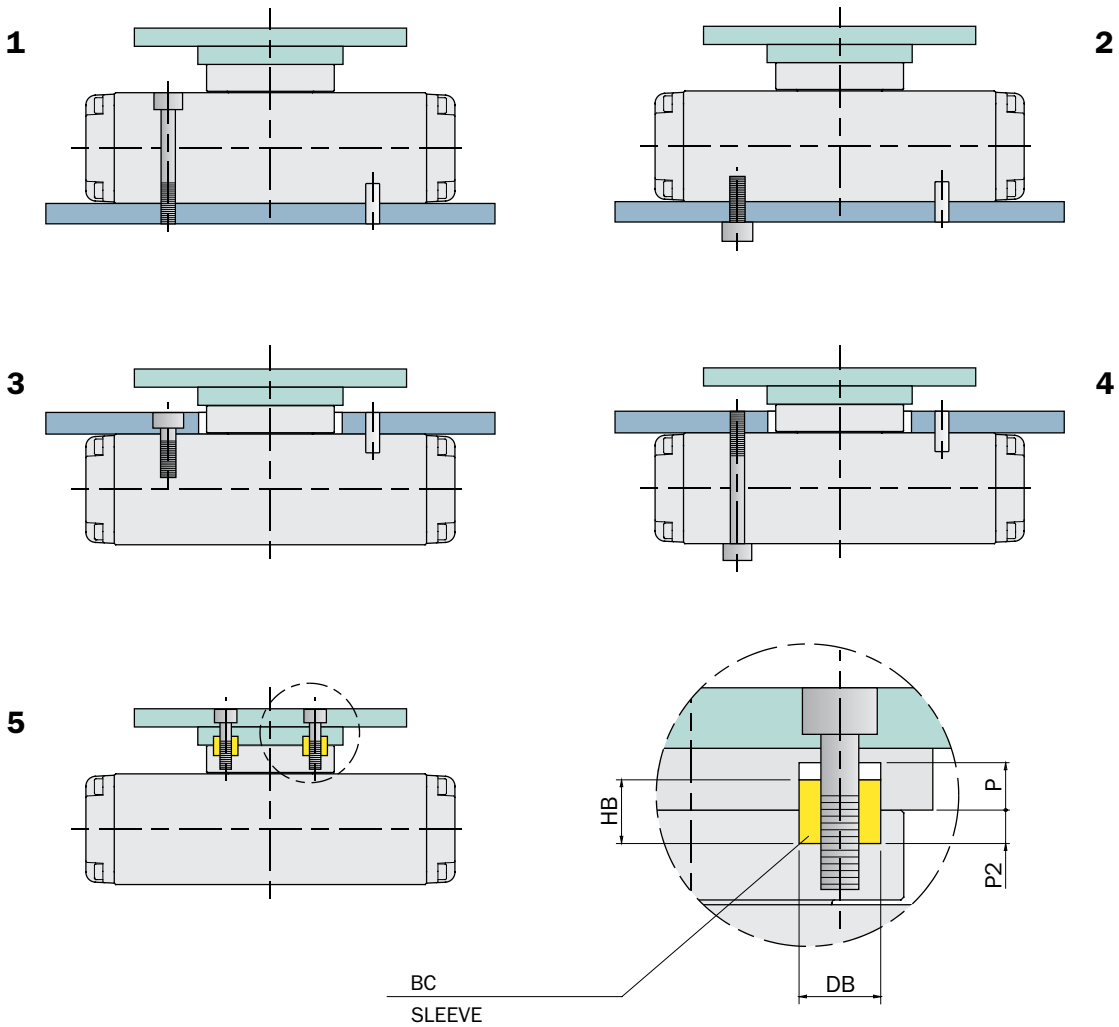
Dimensions (mm)

	RT-10	RT-12	RT-20	RT-25	RT-35	RT-45	RT-63
A	29.75	42	49	59	71	90.5	108.5
B	21.75	32	39	45	57	72	90
C	8	10	10	14	14	18.5	18.5
D	Ø32	Ø45	Ø45	Ø65	Ø65	Ø100	Ø100
D1	Ø5	Ø6	Ø8	Ø10	Ø12	Ø18	Ø20
D2	Ø7 H8	Ø7 H8	Ø7 H8	Ø9 H8	Ø9 H8	Ø15 H8	Ø15 H8
D3	Ø4.3	Ø5.2	Ø5.2	Ø6.8	Ø6.8	Ø10.5	Ø10.5
D4	Ø9	Ø11	Ø11	Ø15	Ø15	Ø19	Ø19
D5	M4	M4	M4	M5	M5	M8	M8
D6	Ø3 H8	Ø4 H8	Ø4 H8	Ø6 H8	Ø6 H8	Ø8 H8	Ø8 H8
D7	M5	M6	M6	M8	M8	M12	M12
D8	M5	M6	M6	M8	M8	M12	M12
F	2.75	-	-	-	-	-	-
G2	23 ±0.02	31.5 ±0.02	31.5 ±0.02	50 ±0.02	50 ±0.02	76 ±0.02	76 ±0.02
G3	50	59	72	86	86	140	140
G6	50 ±0.02	59 ±0.02	72 ±0.02	86 ±0.02	86 ±0.02	140 ±0.02	140 ±0.02
K	M5	M5	M5	1/8	1/8	1/4	1/4
L1	81	108	130	162	170	230	265
L2	65	88	110	136	140	180	215
L3	38	50	65	81	100	120	150
L4	8	10	10	13	15	25	25
L5	19	25	32.5	40.5	53	64	87
N	10	13	16	24	28.5	37	48.5
P2	2.5	2.5	2.5	3	3	3.5	3.5
P4	6	6	6	10	10	13	13
P5	6.5	8	8	12	12	16	16
P6	3	4	4	6	6	8	8
P7	24.5	12	12	14	18	24	24
P8	24.5	12	12	14	18	24	24
Q	9	13	16	20.5	22	26	27
R6	12 ±0.02	13 ±0.02	13 ±0.02	25 ±0.02	25 ±0.02	30 ±0.02	30 ±0.02
V	M8x1	M10x1	M12x1	M12x1	M14x1.5	M20x1.5	M25x1.5
T	19	26	29.5	36.5	42.5	54.5	63.5

Fastening

The swivelling unit can be fastened to a static or a moving part. When on a moving part, you must pay attention to the forces created by inertia over the unit and its load.

Use the four sleeves provided in the packaging, to center the rotating load on the pinion.

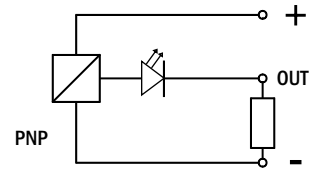


	RT-10	RT-12	RT-20	RT-25	RT-35	RT-45	RT-63
BC	RT-20-15		RT-35-15		RT-63-15		
DB	Ø7 h8	Ø7 h8	Ø7 h8	Ø9 h8	Ø9 h8	Ø15 h8	Ø15 h8
HB	5	5	5	6	6	7	7
P	3	3	3	3.5	3.5	4	4
P2	2.5	2.5	2.5	3	3	3.5	3.5

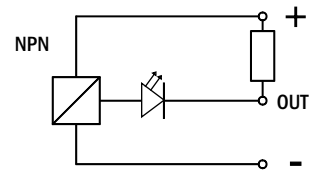
Sensors

The operating position is detected by magnetic proximity sensors (optional) through a magnet placed on the rack. The use of magnetic proximity sensors is to be avoided in the vicinity of large masses of ferromagnetic material or intense magnetic fields as this may cause detection problems.

The sensors that can be used are:



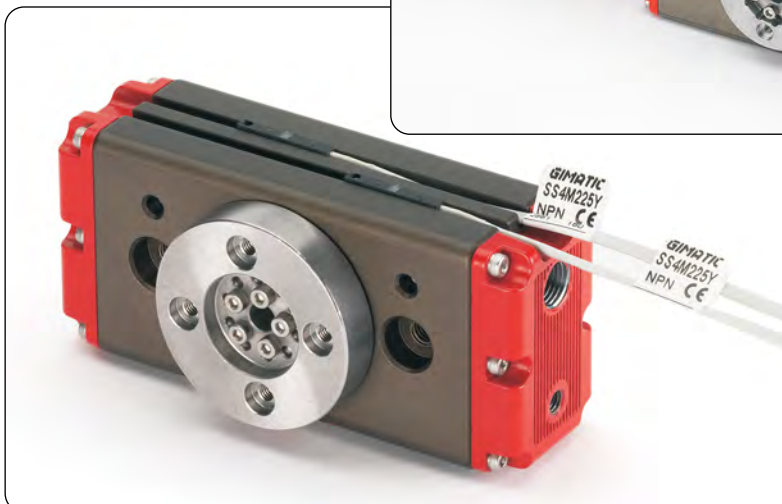
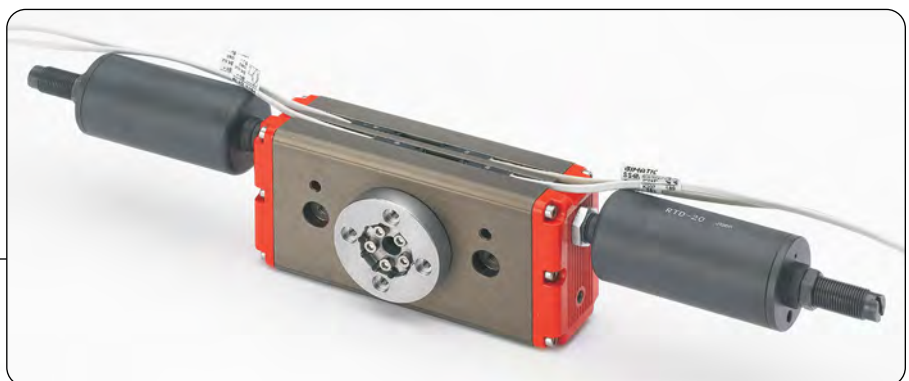
Magneto-resistive



				RT-10	RT-12	RT-20	RT-25	RT-35	RT-45	RT-63
SN4N225G	PNP	2.5m cable	\$26.14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SN4M225G	NPN	2.5m cable	\$26.14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SN3N203G	PNP	M8 connector	\$29.96	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SN3M203G	NPN	M8 connector	\$29.96	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SS4N225G	PNP	2.5m cable	\$26.14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SS4M225G	NPN	2.5m cable	\$26.14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SS3N203G	PNP	M8 connector	\$29.96	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SS3M203G	NPN	M8 connector	\$29.96	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

They are all provided with a flat three-wire cable and lamp.

One additional sensor each RTD can be placed in the sensor slots to detect themid positions.



Compressed air feeding

The swivelling unit is fed with compressed air through the side air ports (K) with appropriate fittings and tubes (not supplied).

Compressed air must be supplied filtered (5÷40 µm), not necessarily lubricated.

The initial choice on air lubrication (lubricated or not) must be kept for the complete service life of the unit.

The pneumatic circuit must be pressurized progressively, to avoid uncontrolled movements.



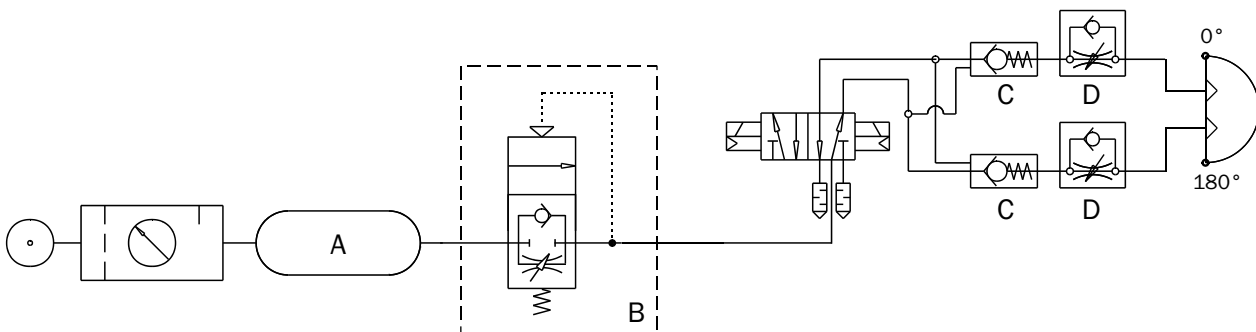
Pneumatic circuit

Possible problems on a compressed air circuit:

- 1- Pressure variation.
- 2- Pressurizing with empty cylinder.
- 3- Sudden pressure black-out.
- 4- Excessive speed.

Possible solutions:

- 1- Compressed air storage (A).
- 2- Start-up valve (B).
- 3- Safety valve (C).
- 4- Flow controller (D).

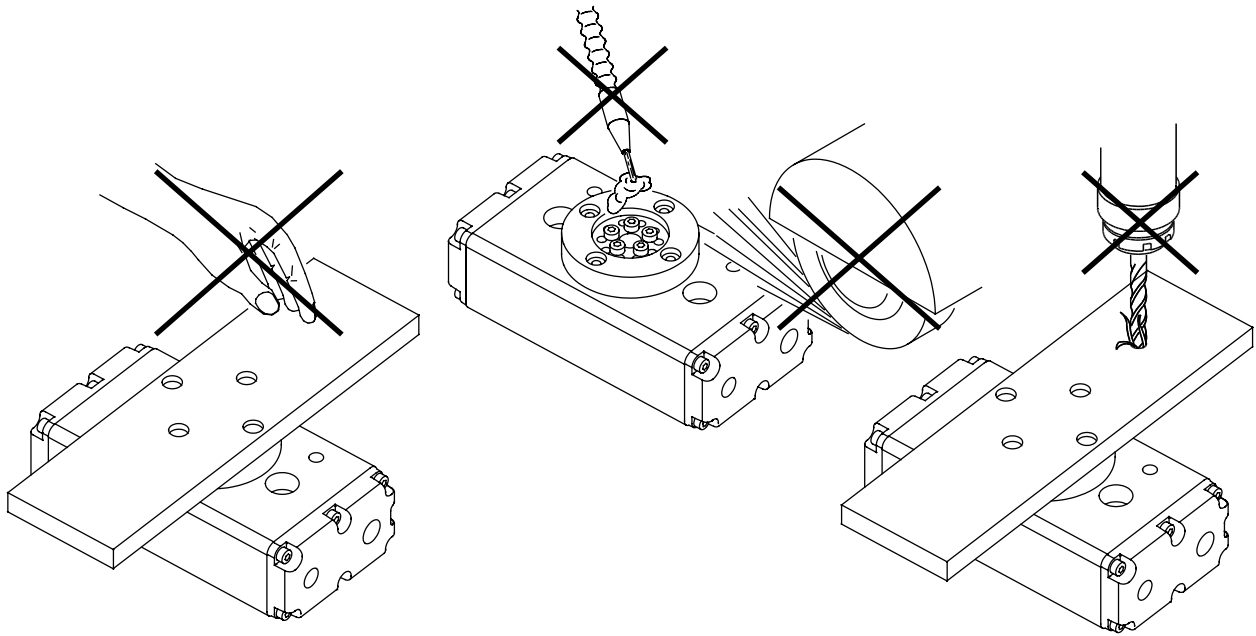


Caution

Never let the unit come into contact with corrosive substances, soldering splashes or abrasive powders as they may damage the actuator.

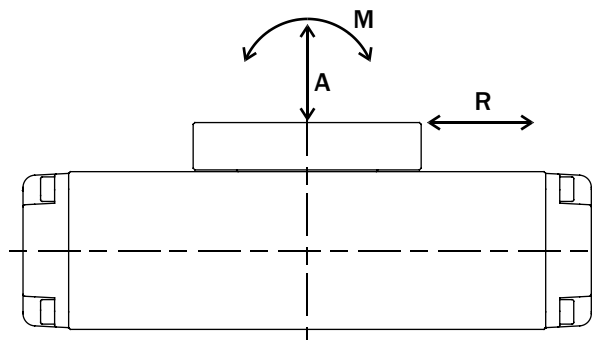
Never let non-authorized persons or objects stand within the operating range of the unit.

Never operate the swivelling unit if the machine on which it is fitted does not comply with safety laws and standards of your country.



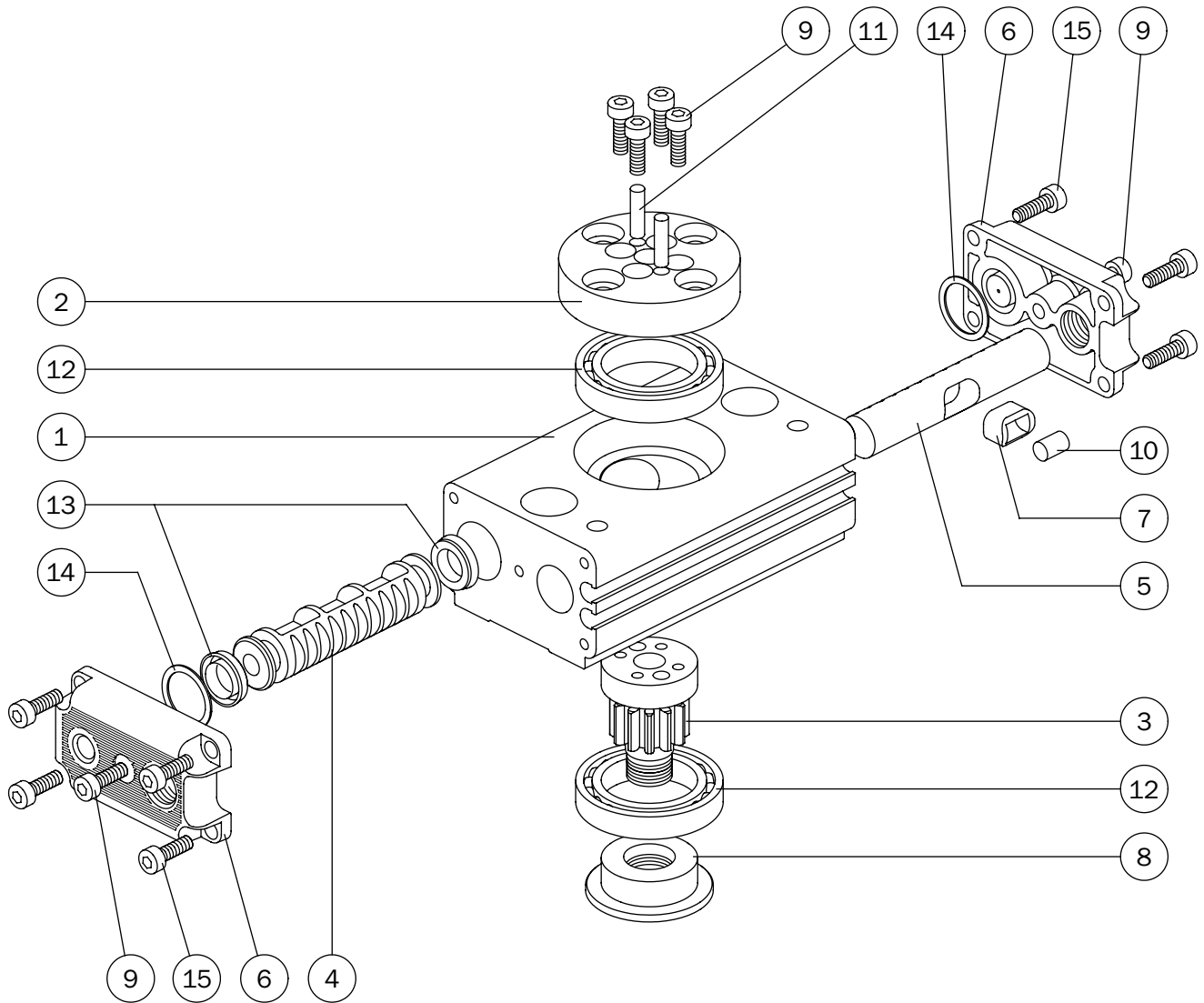
Safety loads

Check the table for maximum permitted loads. Excessive loads or kinetic energy can damage the unit, cause functioning troubles and endanger the safety of the operator. Use flow controllers (not supplied) to get the right speed. Periodically check the efficiency of the shock-absorbers and replace them immediately if their damping performances decrease.



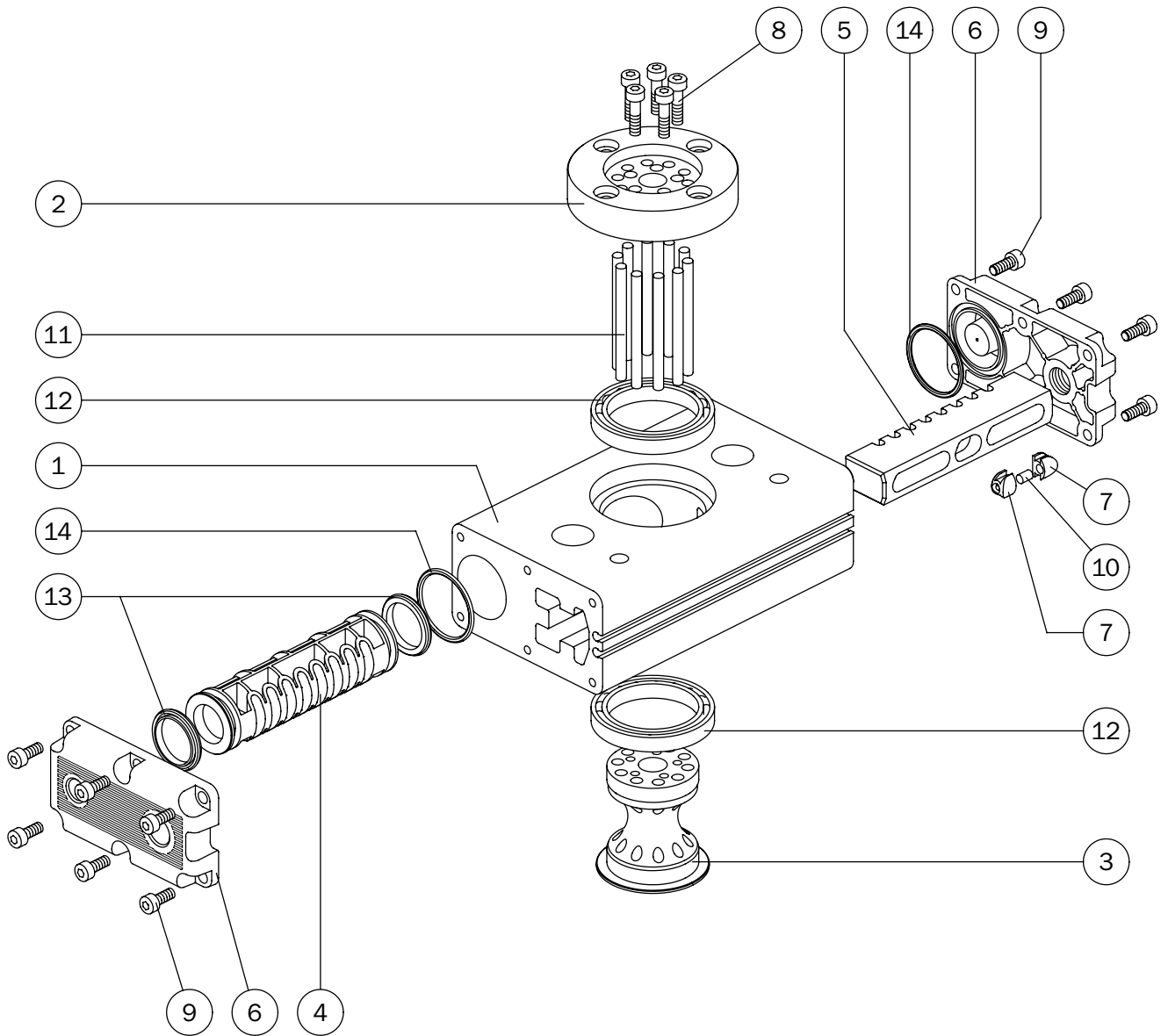
	RT-10	RT-12	RT-20	RT-25	RT-35	RT-45	RT-63
A	232 N	375 N	650 N	800 N	800 N	1075 N	1550 N
R	279 N	450 N	780 N	960 N	960 N	1290 N	1860 N
M	4.7 Nm	9.7 Nm	22 Nm	34 Nm	42 Nm	84 Nm	143 Nm

Part list



		RT-10		
1	Housing		RT10-01	1
2	Disc		RT10-02	2
3	Shaft		RT10-03	3
4	Piston		RT10-04	4
5	Rack		RT10-05	5
6	End cap		RT10-06	6
7	Magnet housing		RT10-07	7
8	Slotted round nut		RT10-15	8
9	Screw		VITE-256 (M2.5x8 mm DIN 912 INOX A2)	9
10	Magnet		PAR-06-7	10
11	Dowel pin		SPINA-149 (Ø2.5x9.8 mm DIN 5402)	11
12	Ball bearing		CUSC-021 (17x26x5 ISB 61803)	12
13	Dinamic gasket		GUAR-001 (10x6x3)	13
14	O-Ring		GUAR-089 (Ø1x10)	14
15	Screw		VITE-368 (M2.5x10 mm DIN 912 INOX A2)	15

Part list



		RT-12	RT-20	RT-25	RT-35	RT-45	RT-63	
1	Housing	RT12-01	RT20-01	RT25-01	RT35-01	RT45-01	RT63-01	1
2	Disc	RT12-02	RT20-02	RT25-02	RT35-02	RT45-02	RT63-02	2
3	Shaft	RT12-03	RT20-03	RT25-03	RT35-03	RT45-03	RT63-03	3
4	Piston	RT12-04	RT20-04	RT25-04	RT35-04	RT45-04	RT63-04	4
5	Rack	RT12-05	RT20-05	RT25-05	RT35-05	RT45-05	RT63-05	5
6	End cap	RT12-06	RT20-06	RT25-06	RT35-06	RT45-06	RT63-06	6
7	Magnet housing	RT12-07	RT12-07	RT12-07	RT12-07	RT12-07	RT12-07	7
8	Screw DIN912 INOX A2	VITE-223 (M2.5x12 mm)	VITE-016 (M3x10 mm)	VITE-061 (M4x16 mm)	VITE-061 (M4x16 mm)	VITE-136 (M5x20 mm)	VITE-011 (M6x20 mm)	8
9	Screw DIN912 INOX A2	VITE-368 (M2.5x10 mm)	VITE-016 (M3x10 mm)	VITE-020 (M4x10 mm)	VITE-027 (M5x10 mm)	VITE-115 (M6x14 mm)	VITE-130 (M8x16 mm)	9
10	Magnet	PAR-06-7	PAR-06-7	PAR-06-7	PAR-06-7	PAR-06-7	PAR-06-7	10
11	Dowel pin	SPINA-081 (Ø2.5x32 mm)	SPINA-135 (Ø3x40 mm)	SPINA-139 (Ø4x50 mm)	SPINA-154 (Ø5x60 mm)	SPINA-153 (Ø6x80 mm)	SPINA-152 (Ø8x90 mm)	11
12	Ball bearing	CUSC-022 (20x32x7)	CUSC-023 (25x37x7)	CUSC-024 (35x47x7)	CUSC-024 (35x47x7)	CUSC-025 (45x58x7)	CUSC-026 (55x72x9)	12
13	Dynamic gasket	GUAR-118 (12.5x6.8x2.55)	GUAR-120 (20.7x13.7x2.55)	GUAR-064 (25x19x3.5)	GUAR-123E (35x27x3.5)	GUAR-122E (45x37x3.5)	GUAR-049E (63x53x4.5)	13
14	O-Ring	GUAR-047 (Ø1.78x12.42)	GUAR-052 (Ø1.78x20.35)	GUAR-036 (Ø1.78x26.70)	GUAR-010 (Ø1.78x37.82)	GUAR-028 (Ø1.78x44.17)	GUAR-121 (Ø2.62x64.77)	14