



Features

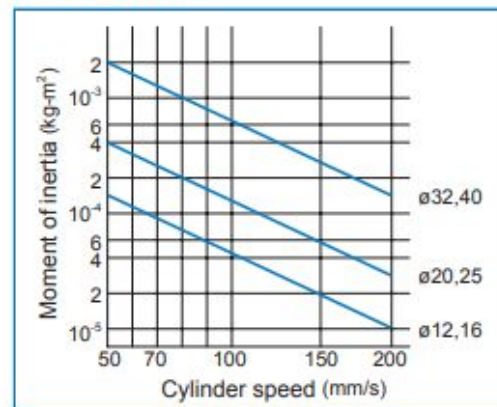
- Ultra compact, light weight and space saving cylinder.
- Ideal for use in machinery where space is limited and incorporating sensor groove which enables flush fitting of sensors.
- The sensor can freely mounted the four sides.
- Magnetic as standard.

Specification

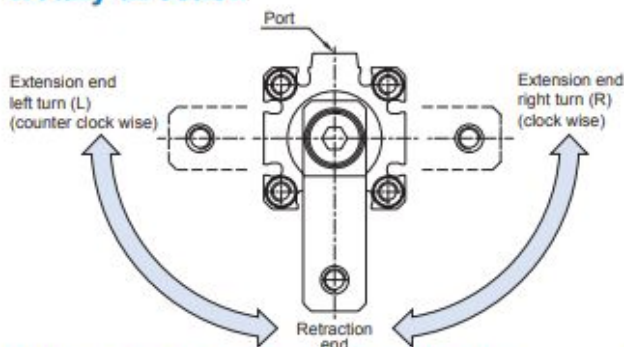
Acting type	Double acting					
Tube I.D. (mm)	12	16	20	25	32	40
Port size	M5×0.8			Rc1/8		
Rotary angle	90°±10°					
Rotary direction	Left (L), Right (R)					
Rotary stroke (mm)	7.5		9.5		15	
Clamp stroke (mm)	10, 20		10, 20, 30			
Medium	Air					
Operating pressure range	0.1~0.9 MPa					
Ambient temperature	-5°C~+60°C (No freezing)					
Available speed range	50~200 mm/sec					
Non-rotating accuracy (**1)	±2°	±1.3°	±1.2°	±1°		
Lubrication	Not required					

*1. Arm during clamping (Clamp part).

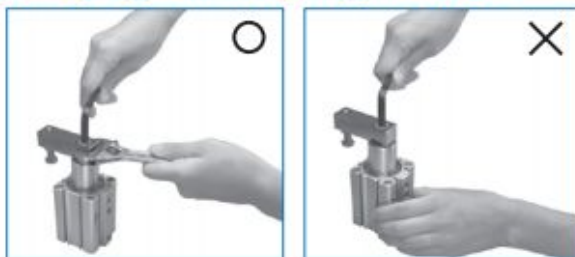
Moment of inertia



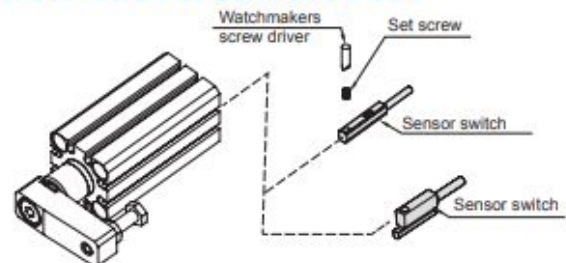
Rotary direction



Clamping arm mounting methods



Installation of sensor switch



⚠ CAUTION

Do not use the cylinder under the following environments

- Areas that contain splashing cutting oil.
- Areas that contain foreign objects such as cutting chips or heavy-dust.
- Areas that environment temperature exceeds the operating range.
- Areas that expose to direct sunlight.
- Areas that contain corrosion risk.

A cylinder could malfunction or the non-rotating accuracy could be reduced if a rotational force is applied to the piston rod. Therefore, check the particular examples below before operating the cylinder.

- 1 Make sure to mount the cylinder vertically to the ground. (Fig.1)
- 2 Do not apply external rotary force on the piston rod. (Fig.2)
- 3 Make sure that the clamping surface of the workpiece is perpendicular to the axial line of cylinder. (Fig.3)
- 4 Clamping the workpiece in the straight stroke of cylinder only. Do not clamp the workpiece in the rotary stroke. (Fig.4)
- 5 Make sure that the workpiece is not moved by external force while clamping. (Fig.5)

- 1 Do not mount the cylinder horizontally.

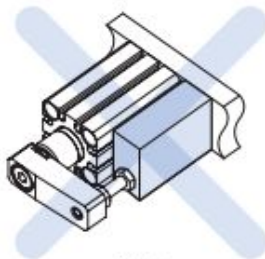


Fig.1

- 2 Do not apply external rotary force on the piston rod.

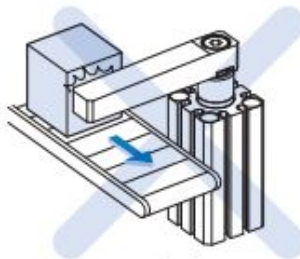


Fig.2

- 3 Do not clamp on a slope.

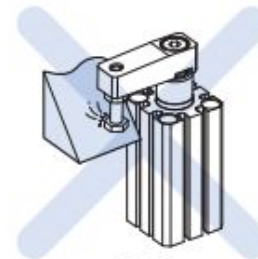


Fig.3

- 4 Do not clamp the workpiece in the rotary stroke.

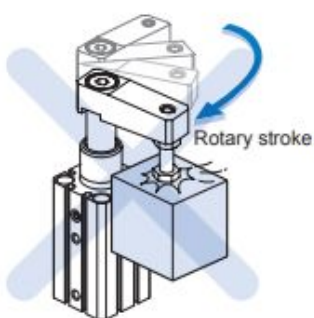
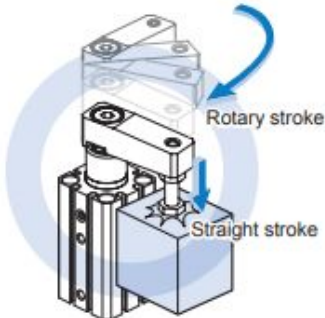


Fig.4



- 5 Make sure that the workpiece have no external force applied besides the cylinder while clamping.

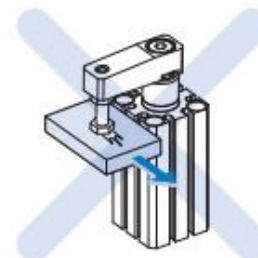
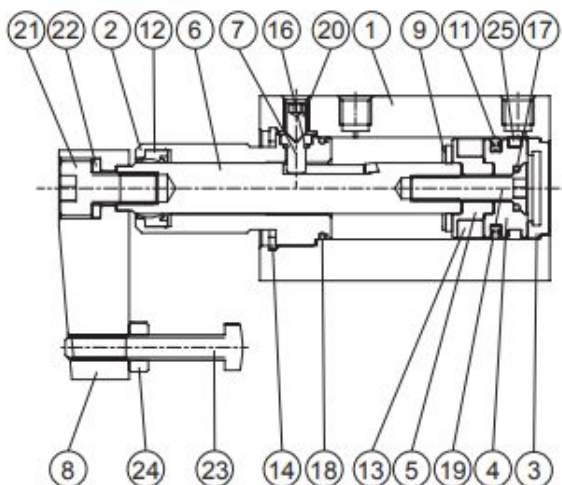
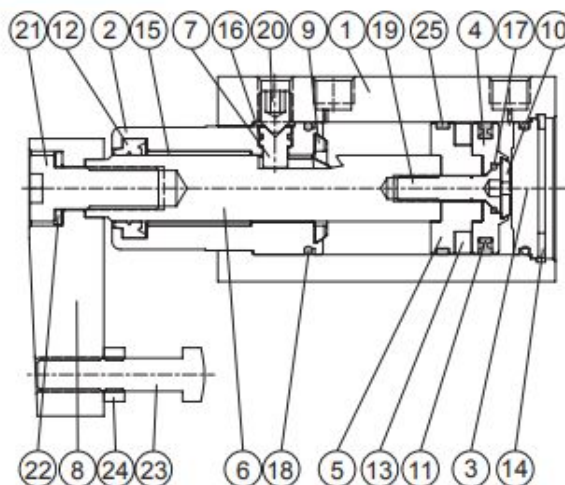


Fig.5

ø12, ø16, ø40



ø20, ø25, ø32



Material

No.	Part name	Material	Note
1	Body	Aluminum alloy	
2	Rod cover	Aluminum alloy	
3	End cover	Aluminum alloy	
4	Piston	Aluminum alloy	
5	Piston for magnet ring	Aluminum alloy	
6	Piston rod	SCM	
7	Guide pin	SCM	
8	Arm	Carbon steel	
9	Rod cushion	NBR	
10	End cushion	NBR	For ø20~ø40
11	Piston packing	NBR	
12	Rod packing	NBR	
13	Magnet ring	Magnet material	

No.	Part name	Material	Note
14	Snap ring	Stainless steel	*1
15	Bush	Copper	For ø32,ø40
16	O-ring	NBR	
17	O-ring	NBR	
18	O-ring	NBR	
19	Bolt	Stainless steel	
20	Set screw	SCM	
21	Bolt	SCM	
22	Spring washer	Spring steel	
23	Bolt	SCM	
24	Nut	Carbon steel	
25	Wear ring	Teflon	

*1. Carbon steel (for ø12,ø16)

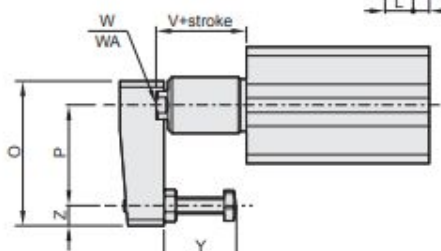
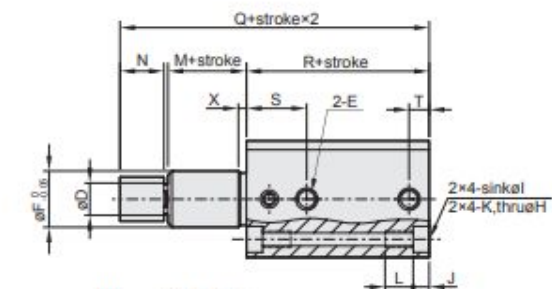
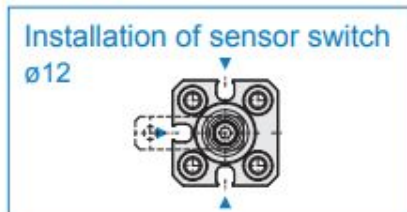
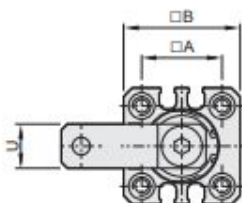
Theoretical force



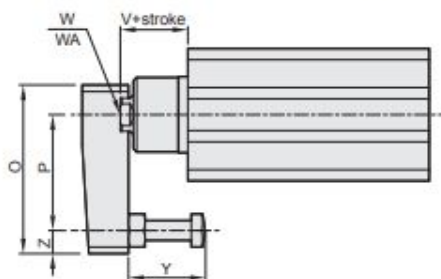
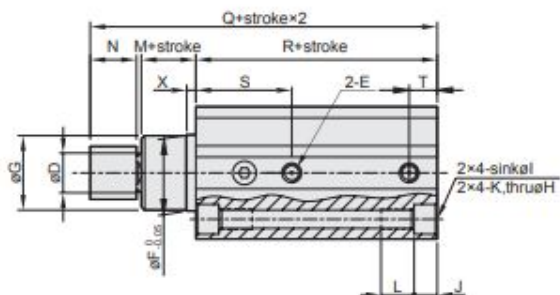
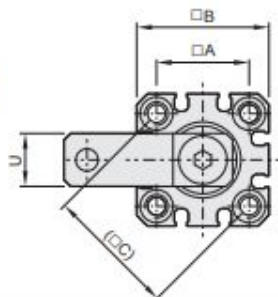
Unit: N

Tube I.D. (mm)	Piston rod (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)										
				0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9		
12	6	A	113	11.3	22.6	33.9	45.2	56.5	67.8	79.1	90.4	101.7		
		B	85	8.5	17.0	25.5	34.0	42.5	51.0	59.5	68.0	76.5		
16	8	A	201	20.1	40.2	60.3	80.4	100.5	120.6	140.7	160.8	181.0		
		B	151	15.1	30.2	45.2	60.3	75.4	90.5	105.6	120.6	135.7		
20	12	A	314	31.4	62.8	94.2	125.7	157.1	188.5	219.9	251.3	282.7		
		B	201	20.1	40.2	60.3	80.4	100.5	120.6	140.7	160.8	181.0		
25	12	A	491	49.1	98.2	147.3	196.4	245.4	294.5	343.6	392.7	441.8		
		B	378	37.8	75.6	113.3	151.1	188.9	226.7	264.4	302.2	340.0		
32	16	A	804	80.4	160.8	241.3	321.7	402.1	482.5	563.0	643.4	723.8		
		B	603	60.3	120.6	181.0	241.3	301.6	361.9	422.2	482.5	542.9		
40	16	A	1257	125.7	251.4	377.1	502.8	628.5	754.2	879.9	1005.6	1131.3		
		B	1056	105.6	211.2	316.8	422.4	528.0	633.6	739.2	844.8	950.4		

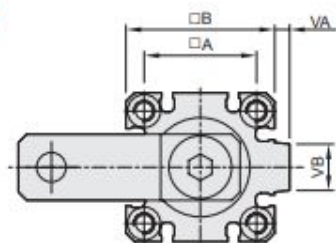
ø12, ø16



ø20, ø25



ø32, ø40



Code Tube I.D.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
12	15.5	25	-	6	M5×0.8	11	-	3.5	6.5	4	M4×0.7	7	9.5	8	29	20	54	35.5	15	5	8
16	20	29	-	8	M5×0.8	14	-	3.5	6.5	4	M4×0.7	7	9.5	11	36	25	57	35.5	15	5	11
20	25.5	36	36	12	M5×0.8	18	17.9	5.4	9	7	M6×1.0	10	6.5	14	51	35	84	62	28	8.7	16
25	28	40	39.6	12	M5×0.8	23	22.5	5.4	9	7	M6×1.0	10	6.5	14	51	35	85	63	29	8.5	16
32	34	45	-	16	Rc1/8	30	29.5	5.5	9	7	M6×1.0	10	15.5	18	67	45	107	71.5	28	11	20
40	40	52	-	16	Rc1/8	30	29.5	5.5	9	7	M6×1.0	10	23	18	67	45	108	65	27	8	20

Code Tube I.D.	V	VA	VB	W (ROD thread)	WA	X	Y	Z
12	12.5	-	-	M3×0.5×5.5L	Across flats 5×2.5L	2	7-18	4
16	12.5	-	-	M5×0.8×6.5L	Across flats 7×2.5L	2	7-20	5
20	10.5	-	-	M8×1.25×14L	Across flats 10×3L	3	12-25	7
25	10.5	-	-	M8×1.25×14L	Across flats 10×3L	3	12-25	7
32	22	4.5	14	M10×1.5×19L	Across flats 14×5.5L	3	12-25	10
40	29.5	5	14	M10×1.5×19L	Across flats 14×5.5L	3	12-25	10