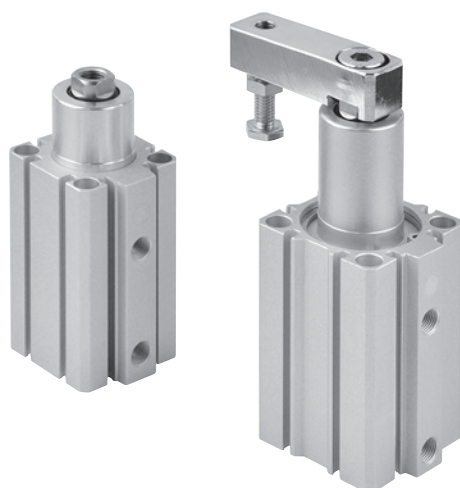
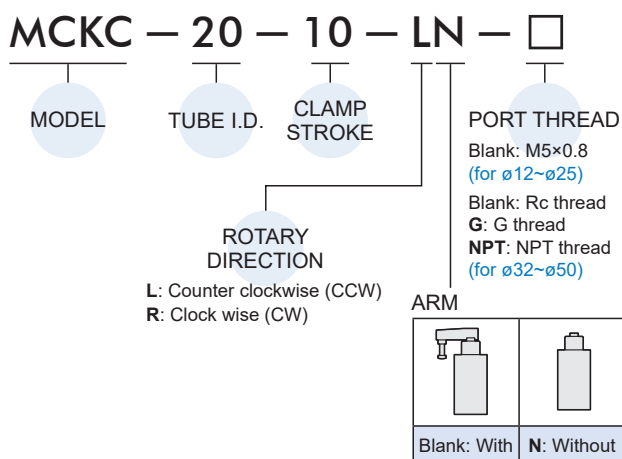




Order example



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

Model	MCKC						
Acting type	Double acting						
Tube I.D. (mm)	12	16	20	25	32	40	50
Port size	M5×0.8				Rc1/8		Rc1/4
Rotary angle (Extension end)	90°±10°						
Rotary direction	CCW (L), CW (R)						
Rotary stroke (mm)	7.5		9.5		15		19
Clamp stroke (mm)	10, 20		10, 20, 30, 50 (50 only for ø50)				
Medium	Air						
Operating pressure range	0.1~1 MPa						
Ambient temperature	-5°C~+60°C (No freezing)						
Available speed range (*1)	50~200 mm/sec						
Non-rotating accuracy (*2)	±2°	±1.3°	±1.2°				
Lubrication	Not required						
Sensor switch (*3)	RDE	●	●	—	—	—	—
	RCE,RCE1	—	—	●	●	●	●
	RDEP	—	—	—	●	—	●

*1. Keep the operating speed between 50~200mm/s with a speed controller.

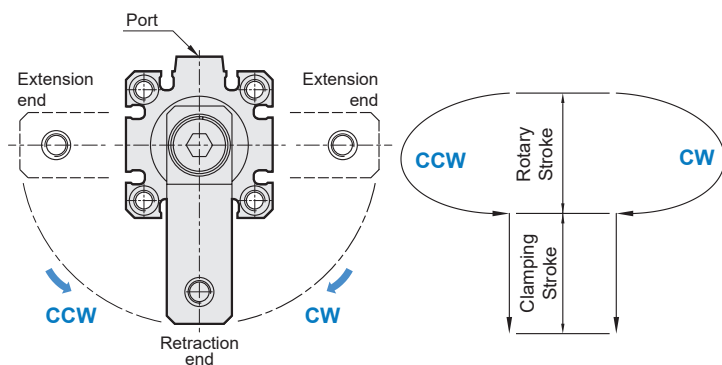
Please refer to moment of inertia.

Adjust the speed gradually from state to prevent inner parts being damaged.

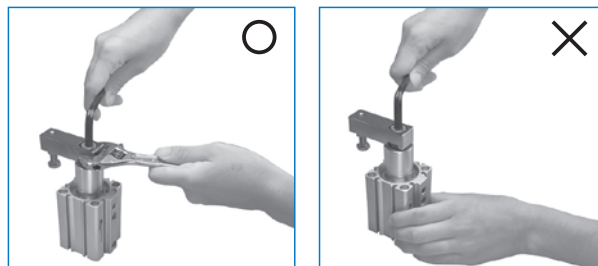
*2. Arm during clamping (Clamp part).

*3. RCE, RCE1, RDE, RDEP specifications please refer to page 5-6, 7, 10.

Rotary direction



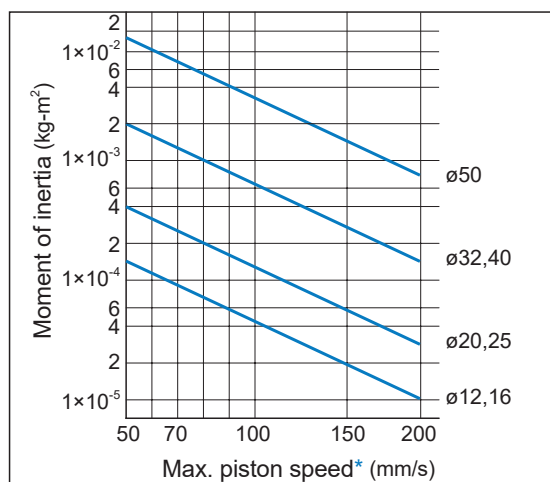
Clamping arm mounting methods



Clamping arm tightening torque

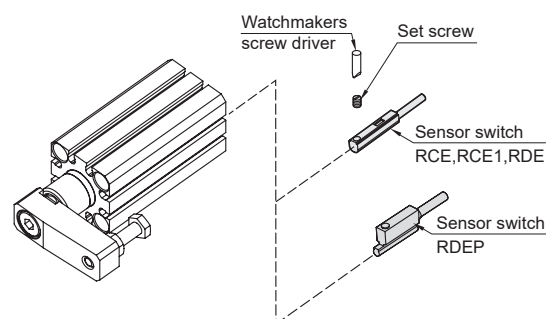
Tube I.D. (mm)	Tightening torque (kgf·cm)
12	5.1 ~ 7.1
16	28.5 ~ 35.7
20, 25	117.2 ~ 142.7
32, 40	244.6 ~ 305.8
50	764.5 ~ 917.4

Moment of inertia

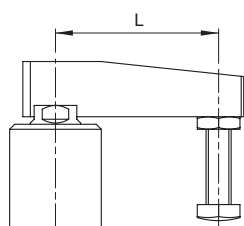
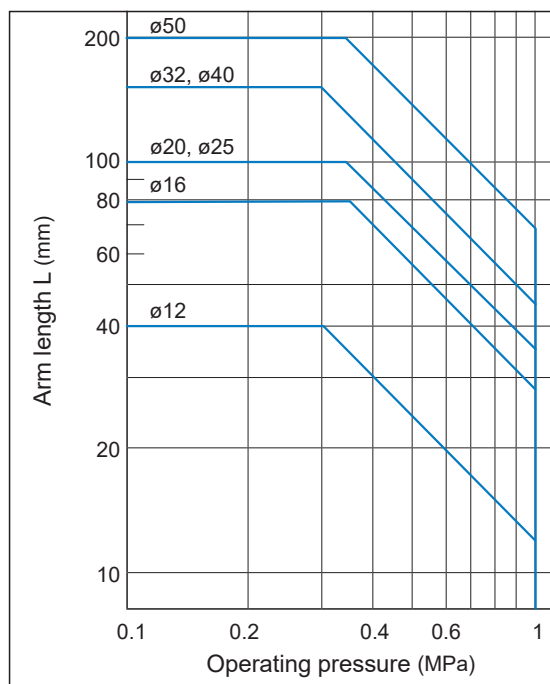


* Max. piston speed is equivalent to approximately 1.6x the average piston speed. (Rough indication)

Installation of sensor switch



Allowable bending moment



⚠ 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 clamping 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.

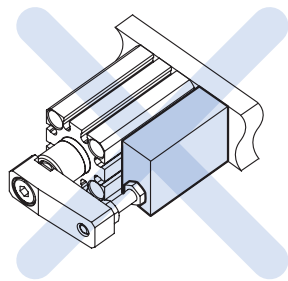


Fig.1

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

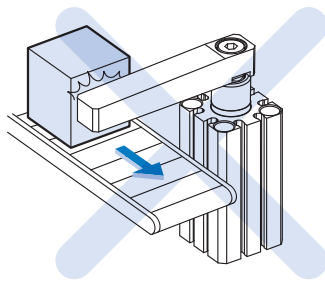


Fig.2

- 3 Do not clamp on a slope.

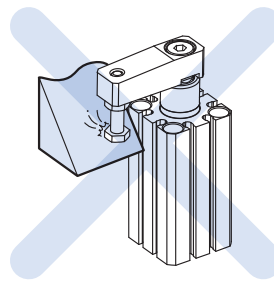


Fig.3

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

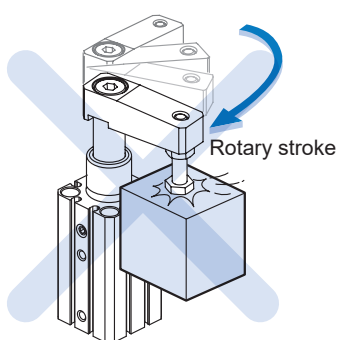
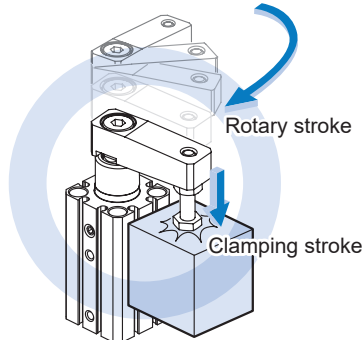


Fig.4



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

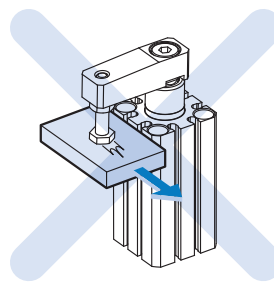
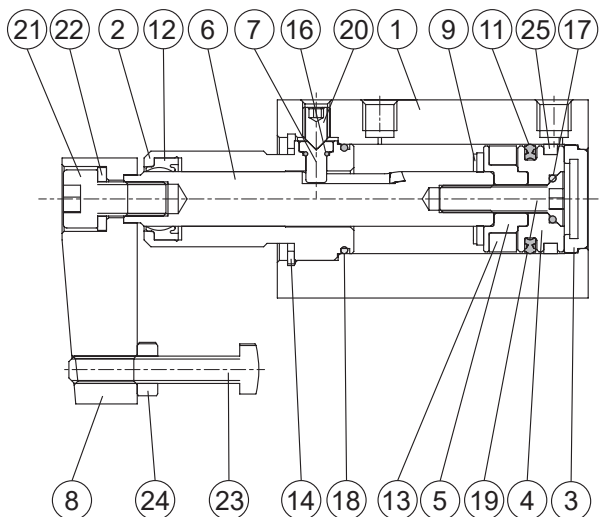
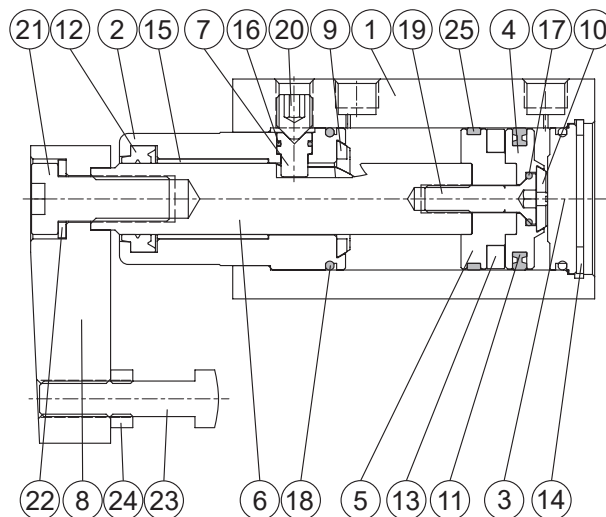


Fig.5

ø12, ø16, ø40, ø50



ø20, ø25, ø32



Material

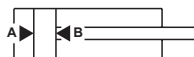
No.	Part name	Material	Note
1	Body	Aluminum alloy	
2	Rod cover	Aluminum alloy	
3	End cover	Aluminum alloy	
4	Piston	Aluminum alloy	
5	Piston for magnet ring	Aluminum alloy	
6	Piston rod	SCM	
7	Guide pin	SCM	
8	Arm	Carbon steel	
9	Rod cushion	NBR	
10	End cushion	NBR	For ø20~ø50
11	Piston packing	NBR	
12	Rod packing	NBR	
13	Magnet ring	Magnet material	

No.	Part name	Material	Note
14	Snap ring	Carbon steel	*1
15	Bush	Copper	For ø32~ø50
16	O-ring	NBR	
17	O-ring	NBR	
18	O-ring	NBR	
19	Bolt	Stainless steel	*2
20	Set screw	SCM	
21	Bolt	SCM	
22	Spring washer	Spring steel	
23	Bolt	SCM	
24	Nut	Carbon steel	
25	Wear ring	Resin	

*1. ø32~ø40: Stainless steel

*2. ø32~ø50: Carbon steel

Theoretical force



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
50	20	A	1964	196.3	392.5	588.9	785.2	981.6	1177.9	1374.2	1570.6	1766.9
		B	1649	164.9	329.7	494.7	659.6	824.5	989.5	1154.4	1319.3	1484.2

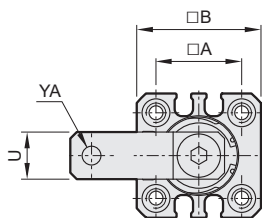
Unit: N

Cylinder weight

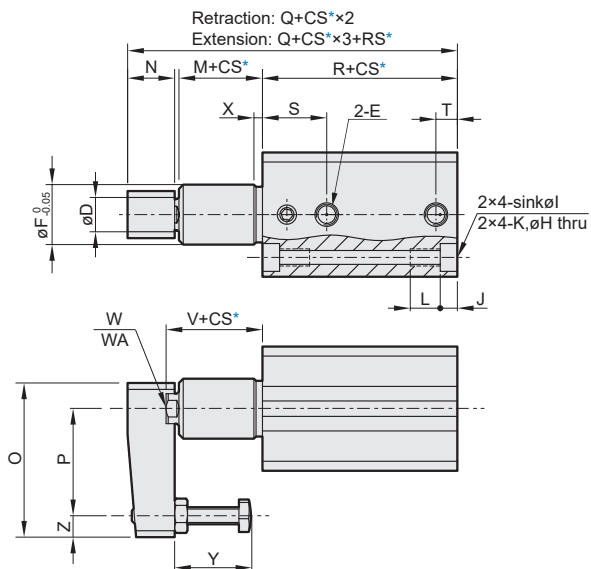
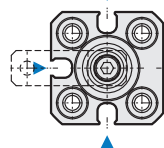
Unit: g

Model	Basic weight MCKC	Basic weight MCKC-N	Stroke 10 mm MCKC
Tube I.D.			
ø12	66	52	16
ø16	100	66	23
ø20	266	176	38
ø25	319	229	46
ø32	573	382	69
ø40	652	461	74
ø50	1170	820	109

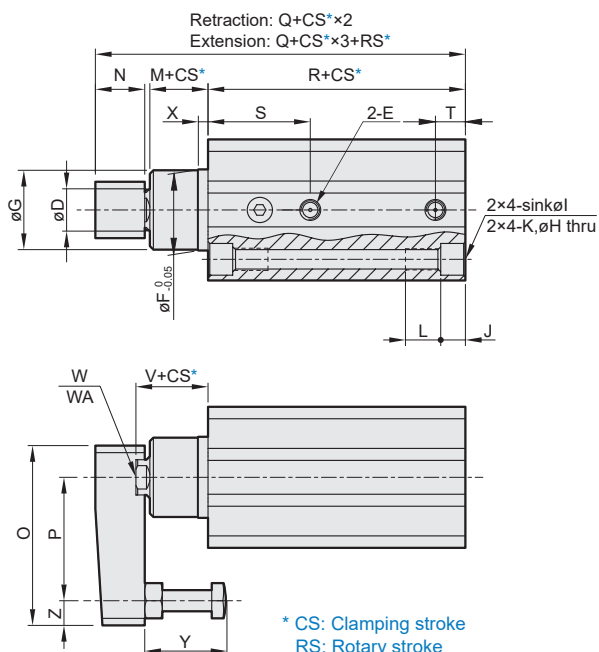
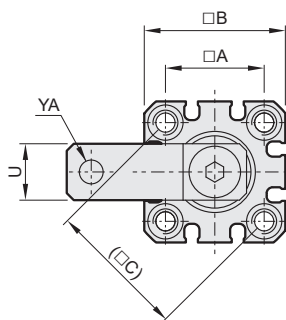
$\phi 12, \phi 16$



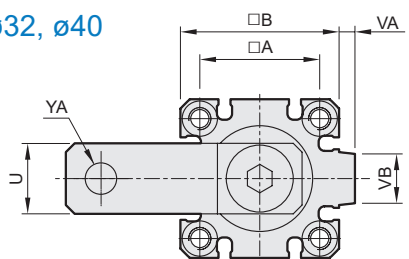
Installation of sensor switch
 $\phi 12$



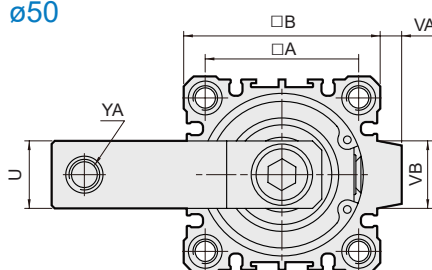
$\phi 20, \phi 25$



$\phi 32, \phi 40$



$\phi 50$



Code Tube I.D.	A	B	C	D	E	F	G	H	I	J	K	L	M
12	15.5	25	—	6	M5×0.8	11	—	3.5	6.5	4	M4×0.7	7	9.5
16	20	29	—	8	M5×0.8	14	—	3.5	6.5	4	M4×0.7	7	9.5
20	25.5	36	36	12	M5×0.8	18	17.9	5.4	9	7	M6×1.0	10	6.5
25	28	40	39.6	12	M5×0.8	23	22.5	5.4	9	7	M6×1.0	10	6.5
32	34	45	—	16	Rc1/8	30	29.5	5.5	9	7	M6×1.0	10	15.5
40	40	52	—	16	Rc1/8	30	29.5	5.5	9	7	M6×1.0	10	23
50	50	64	—	20	Rc1/4	37	36.5	6.6	11	8	M8×1.25	14	28

* CS: Clamping stroke
RS: Rotary stroke

Code Tube I.D.	N	O	P	Q	R	RS	S	T	U	V	VA	VB	W (ROD thread)	WA	X	Y	YA	Z
12	8	29	20	54	35.5	7.5	15	5	8	12.5	—	—	M3×0.5×5.5L	Across flats 5×2.5L	2	7~18	M3×0.5	4
16	11	36	25	57	35.5	7.5	15	5	11	12.5	—	—	M5×0.8×6.5L	Across flats 7×2.5L	2	7~20	M4×0.7	5
20	14	51	35	84	62	9.5	28	8.7	16	10.5	—	—	M8×1.25×14L	Across flats 10×3L	3	12~25	M6×1.0	7
25	14	51	35	85	63	9.5	29	8.5	16	10.5	—	—	M8×1.25×14L	Across flats 10×3L	3	12~25	M6×1.0	7
32	18	67	45	107	71.5	15	28	11	20	22	4.5	14	M10×1.5×19L	Across flats 14×5.5L	3	12~25	M8×1.25	10
40	18	67	45	108	65	15	27	8	20	29.5	5	14	M10×1.5×19L	Across flats 14×5.5L	3	12~25	M8×1.25	10
50	22	88	65	129.5	76.5	19	34	11.5	22	35.5	7	19	M12×1.75×20L	Across flats 17×5.5L	3.5	30~40	M10×1.5	10