

KOGANEI

ACTUATORS GENERAL CATALOG



SLIT TYPE RODLESS CYLINDERS

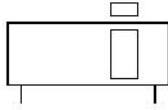
ORCJ SERIES

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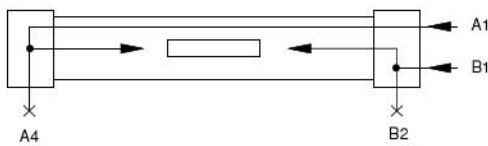
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Symbol

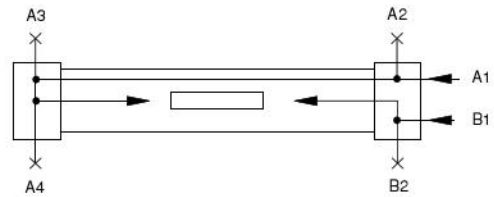


Piping Location and Operating Direction

ORCJ25



ORCJ32 · 40



Note: The port of the X sign is temporarily plugged.

Specifications

Item	Bore size mm	25	32	40
Media			Air	
Operating type			Double acting type	
Operating pressure range	MPa {kgf/cm ² }		0.1 ~ 0.8 {1 ~ 8.2}	
Proof pressure	MPa {kgf/cm ² }		1.2 {12.2}	
Operating temperature range	°C		0 ~ 60 (0 ~ 110) ^{Note3}	
Operating speed range	mm/s		100 ~ 1000 ^{Note1}	
Cushioning stroke	mm	Variable cushion		
		21	26	40
Lubrication		Not required ^{Note2}		
Stroke tolerance	mm	1000 or less	+1.5 0	
Port size		Rc1/8	Rc1/4	

Notes 1: Select the operating piston speed to be used from the cushion capacity on page 850.

2: This equipment can be used without lubricating oil. If lubricating oil is used, use turbine oil Class 1 (ISO VG32) or equivalent.

3: Value of the heat resistant specification.

Bore Size and Stroke

Bore size	Standard strokes	Potential manufacturing stroke
25	200, 300, 400, 500, 600, 700, 800, 1000	0 ~ 1000
32	300, 400, 500, 600, 700, 800, 1000	
40	300, 400, 500, 600, 700, 800, 900, 1000	

Remark : Non-standard strokes can be made at every 1mm intervals.

Cylinder Thrust

Bore size mm	Pressure area cm ²	Air pressure MPa							
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
25	4.90	39.2	88.3	137.3	186.3	235.4	284.4	333.4	382.5
32	8.04	78.5	156.9	235.4	313.8	392.3	470.7	549.2	627.6
40	12.56	117.7	245.2	362.8	490.3	608	735.5	853.2	980.7

Mass

Bore size mm	Zero stroke mass (With standard mount)	Additional mass for each 1mm stroke	Additional mass for stroke				Additional mass of piston mount and mounting bracket			Additional mass of one sensor switch (With sensor holder)
			0 ~ 250	251 ~ 500	501 ~ 750	751 ~ 1000	M mount	T mount	L-type mounting bracket	
25	1.25	0.0022	0.82	1.42	1.81	2.41	0.13	—	0.15	A : 0.025 B : 0.055
32	2.37	0.0038	1.12	2.00	2.88	3.77	0.45	—	0.35	
40	3.52	0.0052	1.32	2.48	3.64	4.82	0.93	0.20	0.45	

Order Code

● Additional parts are included at time of delivery.

ORCJ **F** **40 × 1000** — [] — [] — [] — [] — [] — []

Slit type rodless cylinder with bellows

Heat resistant specification
Blank : Standard specification
F : Heat resistant specification
 (Sensor switch cannot be used.)
 ※ When you select heat resistant specification, fill in the material of the bellows as neoprene (-CR).

Bore size × Stroke
 ● See bore size and stroke of the table on the previous page.

Mounting bracket
Blank : Without mounting bracket
L : L-type bracket
 (1 set with two mounting brackets)

Piston mount
Blank : Standard mount
M : With M mount
T : T mount (Only φ 40)

Lead wire length
 (With sensor switches)
A : 1000mm
B : 3000mm

Sensor switch
ZC301 : Reed switch type without indicator lamp DC5~28V
 AC85~115V
ZC305 : Reed switch type with indicator lamp DC10~28V
 ● For details of the sensor switch, see page 1096.

Material of the bellows
Blank : Nylon tarpaulin (Highest temperature around the cylinder is 60°C.)
CR : Neoprene (Highest temperature around the cylinder is 110°C.)

Number of sensor switch
1 : With one sensor switch ^{Note}
2 : With two sensor switches
 (Only one sensor switch for each side)

Note: Specify end cover L side and R side when you select to use with one sensor switch.

- End cover L side: The side where concentrated piping can be done.
- End cover R side: The side where concentrated piping cannot be done.

Additional Parts

● Order code example for L-type bracket only

L — **ORCJ** **25**

Bore size
25 : For φ 25
32 : For φ 32
40 : For φ 40

Basic cylinder type

L : L-type bracket

● Order code example for bellows only (1 set)

CR — **ORCJ** **25** × **Stroke**

Bore size
25 : For φ 25
32 : For φ 32
40 : For φ 40

Basic cylinder type

PV : Nylon tarpaulin
CR : Neoprene

● Order code example for piston mount only

M — **ORCJ** **25**

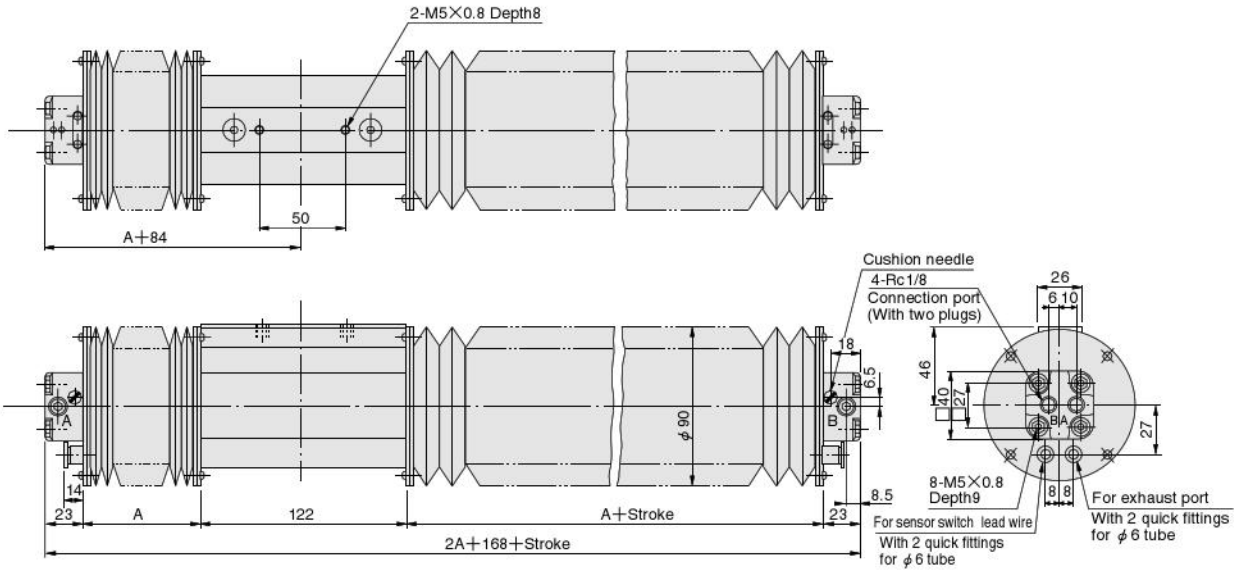
Bore size
25 : For φ 25
32 : For φ 32
40 : For φ 40

Basic cylinder type

M : M mount
T : T mount ... (For φ 40 only)

Dimensions of ORCJ25 (Unit mm)

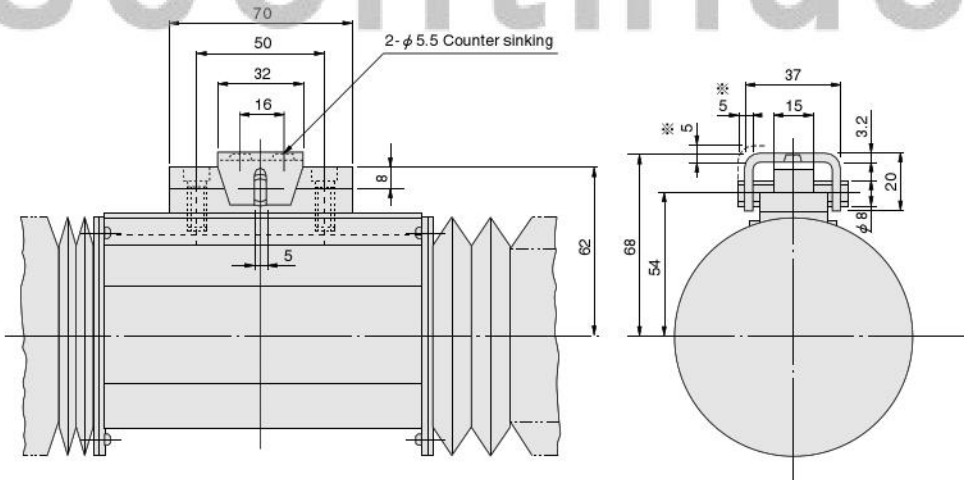
ORCJ25X Stroke



Code	Stroke	0~250	251~500	501~750	751~1000
A		69	119	169	219

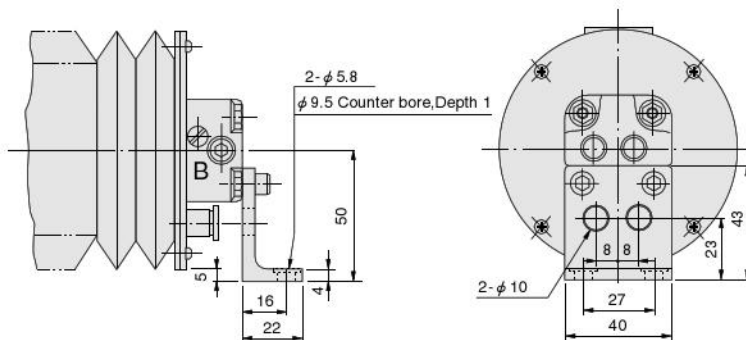
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● Option
M mount : -M



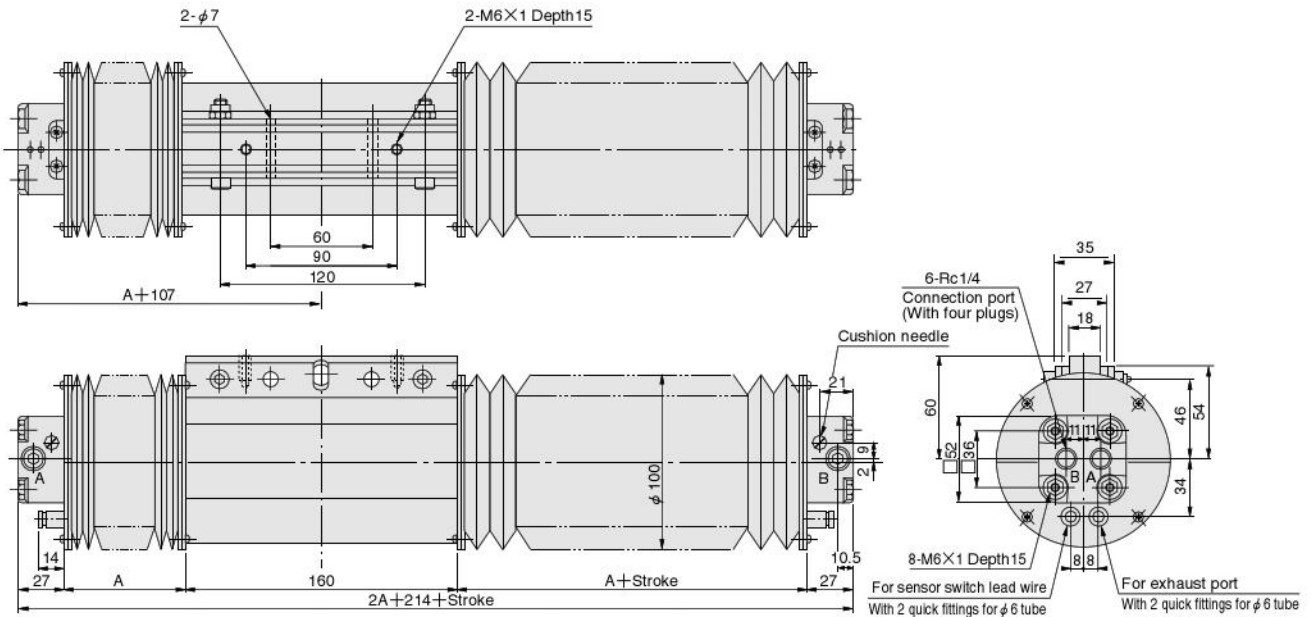
※ Distance possible to be moved up or down, or left or right

L-type bracket : -L



Dimensions of ORCJ32 (Unit mm)

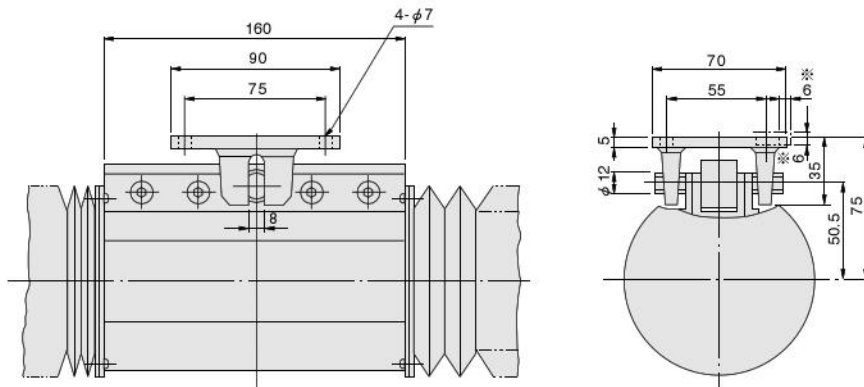
ORCJ32X Stroke



Code	Stroke	0~250	251~500	501~750	751~1000
A		69	119	169	219

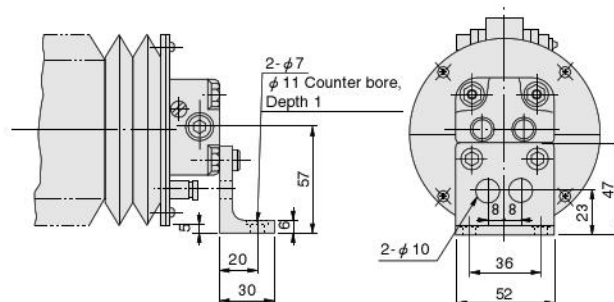
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● Option
M mount : -M



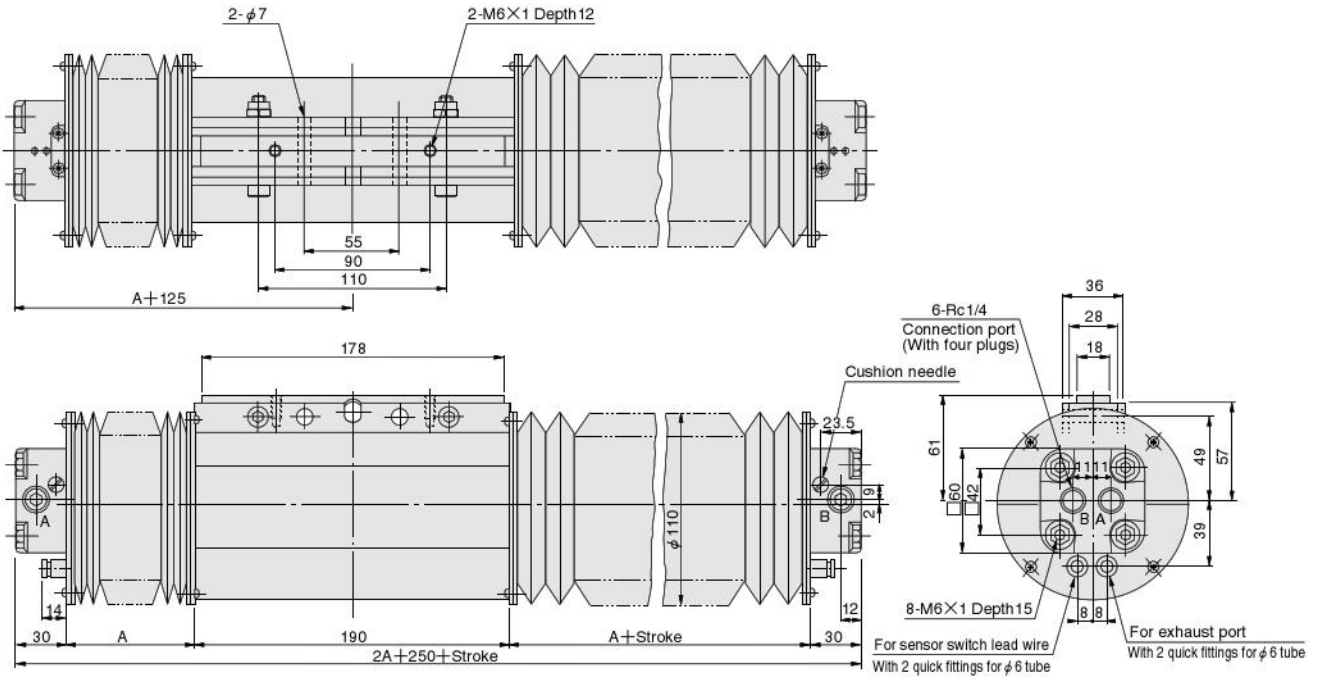
※ Distance possible to be moved up or down, or left or right

L-type bracket : -L



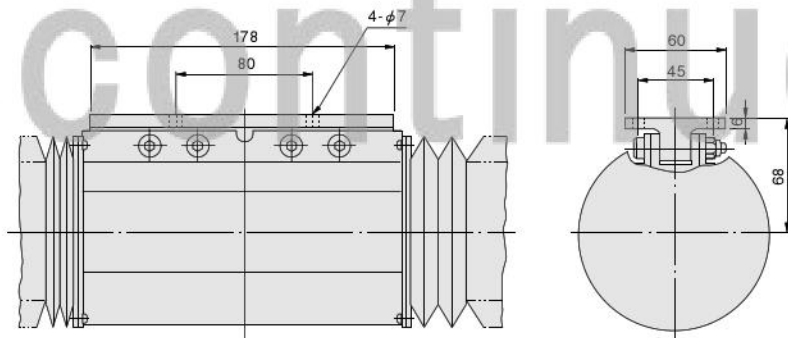
Dimensions of ORCJ40 (Unit mm)

ORCJ40X Stroke

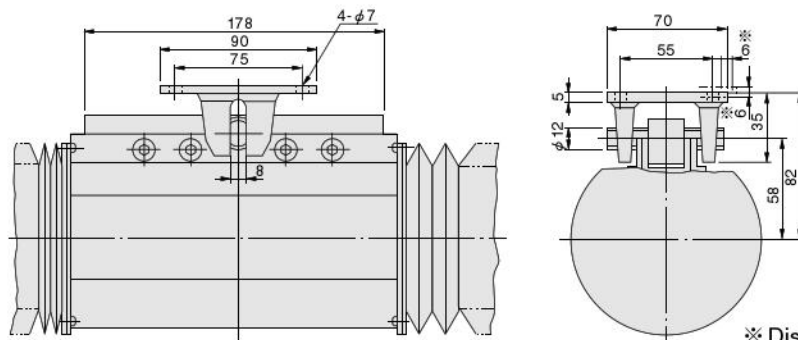


Code	Stroke	0~250	251~500	501~750	751~1000
A		69	119	169	219

● Option
T mount : -T

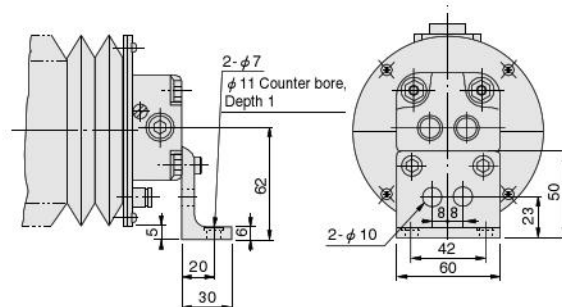


M mount : -M



※ Distance possible to be moved up or down, or left or right.

L-type mounting bracket : -L



SENSOR SWITCHES

Reed Switch Type

Order Code

● Sensor switches (With holder)

			Sensor switch model	Lead wire length	Basic cylinder type	Bore size
Reed switch type	Without indicator lamp	DC5~28V AC85~115V	ZC301	A B	-ORCJ	25 32 40
Reed switch type	With indicator lamp	DC10~28V	ZC305			

● For details of the sensor switch, see page 1096.

● A : 1000mm
B : 3000mm

● Blank : Without sensor holder

● Order code example for holder only

C3 - ORCJ 25

Bore size
25 : For ϕ 25
32 : For ϕ 32
40 : For ϕ 40

Basic cylinder type

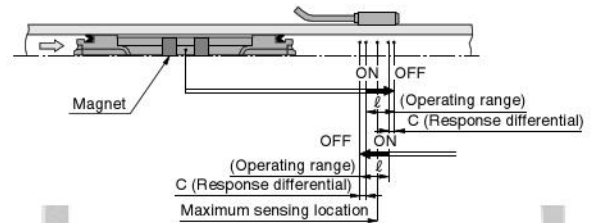
Sensor Switch Operating Range · Response Differential · Maximum Sensing Location

● Operating range : ℓ

The distance the piston travels, in one direction, while the switch is in the ON position.

● Response differential : C

The distance between the point where the piston turns the switch ON, and the point where the switch turns OFF as the piston travels in the opposite direction.



● ORCJ (Basic type)

Sensor switch model	ZC301□, ZC305□			mm
Bore size	25	32	40	
Operating range : ℓ	8.6~10.4	17.3~19.6		
Response differential : C	1.6 or less	2.5 or less		
Maximum sensing location**	ZC301 : 7 ZC305 : 10.5			

Remark : The value of the above table is a reference value.

Note : Distance from the end surface of the sensor switch.

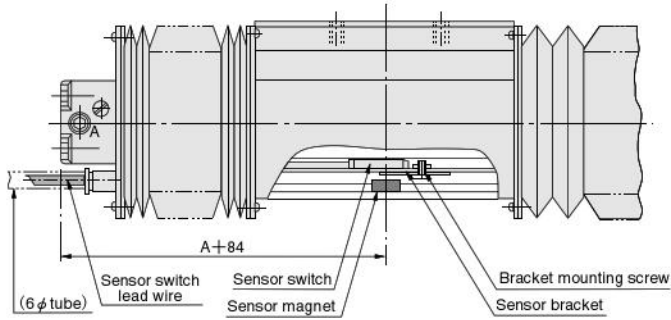
Moving Sensor Switch

- Loosen the screws, which fix the bellows, with a screwdriver, and remove the bellows.
- The sensor switch can be moved in the direction of the stroke by loosening the mounting screw of the sensor holder with a screwdriver.
(Tightening torque 0.2N·m {2.0kgf·cm} or less)
- Return the bellows to former position, and fix with the screw.
(Tightening torque 0.3N·m {3.0kgf·cm} or less)

Dimensions and Mounting Location of Sensor Switch

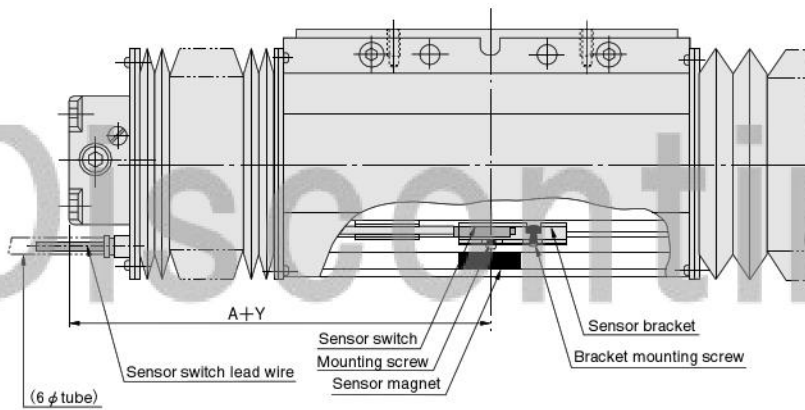
If the sensor switch is installed in the position as in the dimensions below, the sensor switch comes to its maximum sensing location at the end of the stroke (dimensions A and Y in the table are reference values).

ORCJ25



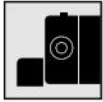
		mm			
Code		A			
Bore size	Stroke	0~250	251~500	501~750	751~1000
25		69	119	169	219

ORCJ32, 40



		mm				
Code		A				Y
Bore size	Stroke	0~250	251~500	501~750	751~1000	
32		69	119	169	219	107
40	125					

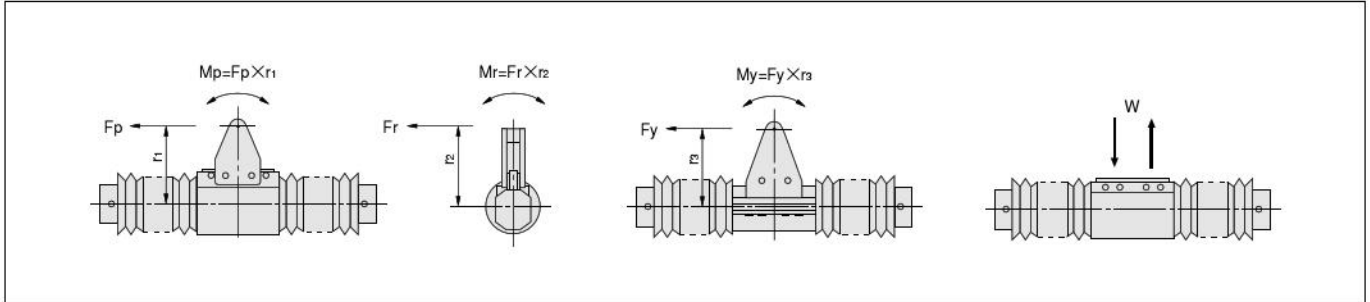
Handling Instructions, and Precautions



Selection and Mounting

Allowable load and moment

It is possible to operate by applying the load directly on the slit type rodless cylinders with bellows, but the load and the moment must not exceed the value in the table below.



Bore size mm	Mp N·m {kgf·m}	Mr N·m {kgf·m}	My N·m {kgf·m}	W N {kgf}
25	14.7 {1.5}	1.0 {0.1}	2.0 {0.2}	294.2 {30}
32	29.4 {3.0}	2.0 {0.2}	4.9 {0.5}	490.3 {50}
40	58.8 {6.0}	3.9 {0.4}	7.8 {0.8}	735.5 {75}

Pitching movement : $M_p = F_p \times r_1$ {N·m}
 Rolling movement : $M_r = F_r \times r_2$ {N·m}
 Yawing movement : $M_y = F_y \times r_3$ {N·m}
 Maximum load capacity : W {N}

Remark : The rolling angle (swing) of the piston mount, when the allowable rolling moment is applied, is as follows for both sides together.
 $\phi 25$ and $\phi 32$: within about 1.5°; $\phi 40$: within about 1°.

- Cautions:**
- The moment including the inertia force generated when the load is moved or stopped must not exceed the values in the above table. For the mass and the piston speed, see the **Cushion capacity**.
 - Rolling moment: Mr should not be applied as much as possible.

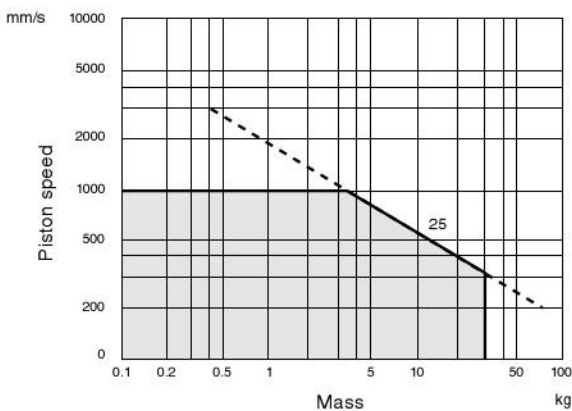
Cushion capacity

All the slit type rodless cylinders with bellows have adjustable cushions as standard equipment, but the range of the allowance at the mass and the speed should be within the range of the following graphs. If one of these is exceeded, an external shock absorber should be installed to absorb the shock.

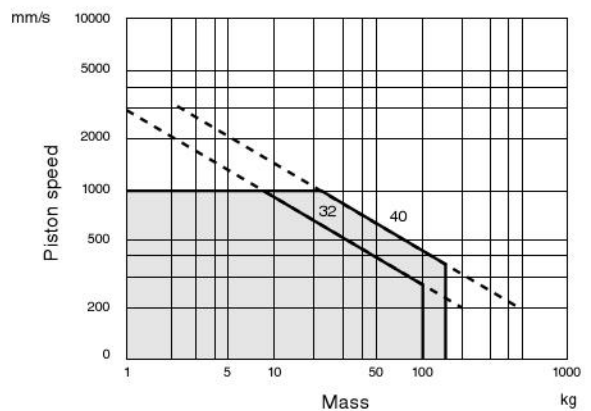
Cushioning stroke

Bore size	Cushioning stroke mm
25	21
32	26
40	40

● ORCJ25



● ORCJ32, 40



- Cautions:**
- Check the specifications table for the highest operating speed. Consult us for values exceeding those in the table.
 - The mass shown in the graph is the total mass carried by the rodless cylinders.
 - The cushion can be adjusted according to the piston speed and the mass, to effectively absorb the shock.



General precautions

Mounting

1. The mounting direction is not restricted.
2. Electric welding should be absolutely avoided during and after the installation of the rodless cylinders. Welding current onto the cylinder could cause breakdown or melt inner parts and/or body.

Caution: Do not allow a strong shock to the slit section of the cylinder body.

The intermediate stop control

Design-wise, there is an external leakage of air from the slit type rodless cylinders. Therefore, problems occur such as the stopping position cannot be maintained in the intermediate stop control with all ports block 3-position valve etc., and the piston speed cannot be controlled when restarting. Use a double-sided pressure control circuit, such as using a PAB connection 3-position valve.

Consult us with regard to intermediate stop control circuits under a constant heavy load, due to vertical mounting, etc.

Piping

Always thoroughly flush out (blowing compressed air) the piping before connecting to the cylinder. Extraneous metal chips, sealing tape, rust, etc., generated during plumbing may cause air leakage or other improper operation.

Atmosphere

1. Do not weld near the cylinder.
2. Do not use when the media or ambient atmosphere contains any of the following substances:
Organic solvents, phosphorus acid ester type hydraulic oil, sulfurous acid gas, chlorine gas, acids

Lubrication

This equipment can be used without lubrication. If lubrication is used, use turbine oil Class 1 (ISO VG32) or its equivalents.

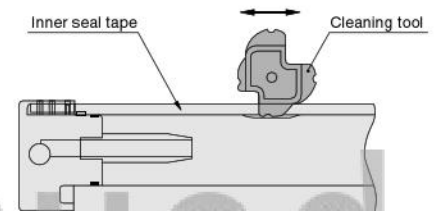
Media

1. Use air for the media. Consult us for the use of any other media.
2. Air used in the cylinder should be clean air that contains no deteriorated compressor oil, etc. Install an air filter (filtration of 40 μm or less) near the cylinder or valve to remove drain contaminants or dust. In addition, drain the air filter periodically.

Maintenance

Design-wise, it is difficult to completely eliminate external leakage of air from the slit type rodless cylinders, but dust, etc. which has adhered to the inner seal tape, and which causes most of the initial air leakage, can be easily removed.

First, detach the bellows, and loosen the outer seal tape mounting screws, then detach outer seal tape and supply about 0.1 MPa pressure air into the rodless cylinders. Next, put a cleaning tool into the cylinder barrel slit, while pushing down on the inner seal tape, and moving it along the slit, and air blows out the dust.



- Cautions:**
1. Wear protective glasses while working.
 2. Use the supplied special cleaning tool for maintenance. When a driver is used, the inner seal tape and the cylinder body may be damaged.
 3. If air leakage does not stop even after carrying out the above maintenance procedure, please overhaul according to the user's manual.