



Operation Manual

PRODUCT NAME

Magnetically Coupled Rodless Cylinder
(Slider Type: Ball Bushing Bearing)

MODEL / Series / Product Number

CY1L Series

SMC Corporation

Contents

Safety Instructions

1. How to install

- 1-1. Surface to be installed
- 1-2. Installation procedure
- 1-3. Piping
- 1-4. Precautions to use with auto switch.
- 1-5. How to use the adjust bolt (with damper)
- 1-6. Precautions to use with shack absorber

2. Allowable loads and its selection method

- 2-1. Selecting procedure
- 2-2. Data for selection (Mathematical formula to obtain allowable loads and coefficient α)

3. Intermediate stop

- 3-1. In case of use external stopper (like adjust bolt, shock absorber etc.)
- 3-2. In case of stop intermediately by using pneumatic circuit
(Ref.; Possible energy for intermediate stop)

4. Operating air

5. Maintenance

6. Other precautions

7. Diagram for internal structure and Parts List.



Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “**Caution**,” “**Warning**” or “**Danger**.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)^{*1)}, and other safety regulations.

*1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components
ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components
IEC 60204-1: Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots
etc.



Danger

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.



Warning

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.



Caution

Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.



Safety Instructions

Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.

Use in non-manufacturing industries is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”. Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

***2) Vacuum pads are excluded from this 1 year warranty.**

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.

Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

1.How to install

1-1. Surface to be installed

The surface to be installed is required to have high flatness, but in case the flatness is not sufficient, the installation should be performed in order to enable the slide block (movable carriage) travel under the minimum operating pressure by shim adjusting or other means.

1-2. Installation procedure

Mounting of the body should be performed at both ends of plate.

Do not mount at the slide block (refer to the Figure-1).

It causes excessive lateral loads that leads the defective operation.

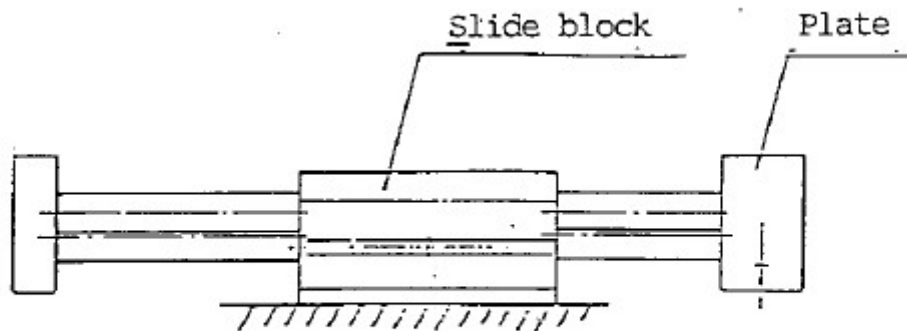


Figure -1 Mounting at slide block =Prohibitted=

Machining of installation parts on the plate portions are allowed following 2 types.

Those selections are for the mounting surface and position.

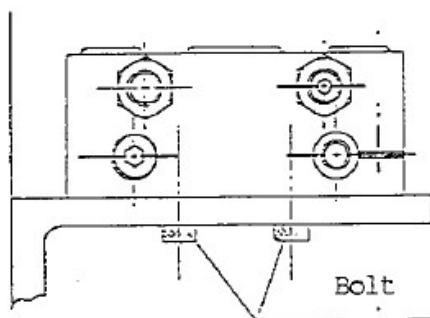


Figure -2 Fixing from underneath (Using plate part)

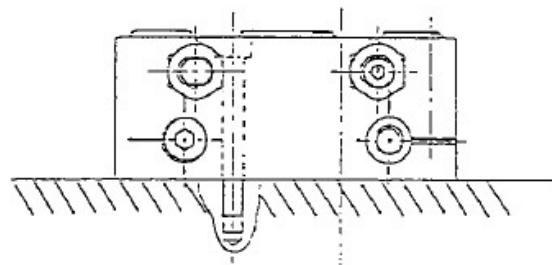


Figure -3 Fixing from upper (by hexagon socket head cap screw)

1-3. Piping

The piping port is on the plate A (thinner plate) with capability of concentrated piping. However, it is not available on the plate B (thicker plate).

Explanation for models with auto switch

Although the piping ports are located at one side, the mounting rail for the auto switch can be mounted on either side.

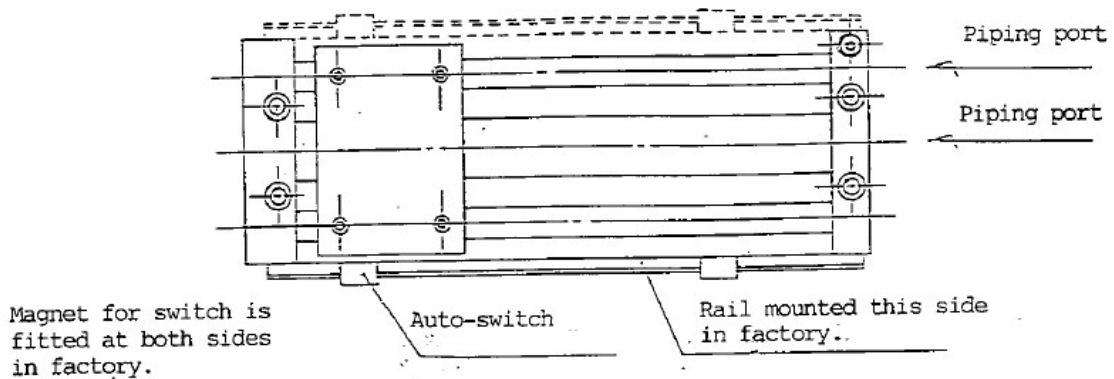


Fig.4. In case of with Auto-switch

1-4. Precautions to use with auto switch

1-4-1) The switch mounting rail (in case of larger than CY1L15 or equal) has a peculiar configuration to allow the lead wire to stay in its groove. (Figure-5)

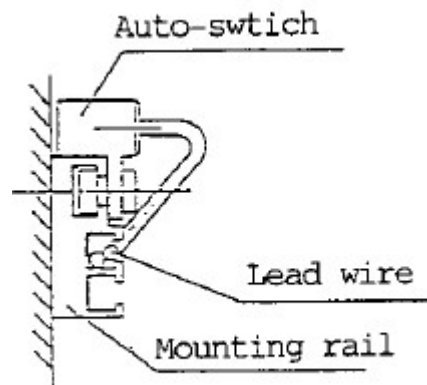


Fig.5. Switch mounting rail

1-4-2) It is possible to install the auto switch at the half way.

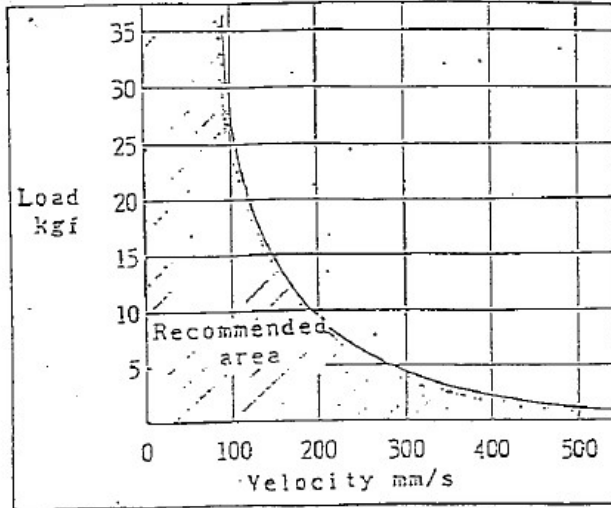
However, thinking of response time of load relay, the adjustment is required in order to detect the cylinder velocity within 300mm/sec.

1-4-3) As for the precautions for circuit diagram of switch inside and protection box of

contact point etc. Refer to the catalog of Rodless cylinder (CY1 series).

1-5. How to use the adjust bolt (damper).

The adjustment of stroke can be performed at the stroke end by the standard adjust bolt. Thinking of durability, its operation to stop by adjust bolt is advised within range of loads and velocity shown in the following Fig.



Standard adjust bolt; Relation between loads and velocity

Note) Operation beyond above legal range, use of shock absorber (RB series of SMC) is advised.

Even working pressure is more than holding force, no anxiety for piston jumping is needed at the stroke end. However, when stroke (of minus side) is adjusted more than stated figure X (in Table 1) by adjust blot (like shock absorber), care should be taken to adjust under maximum working pressure.

Table 1. Adjusting span of adjust bolt

Model	Adjust: Xmm
CY1L6H	1.5
CY1L10H	2.5
CY1L15*	4.0
CY1L20*	5.5
CY1L25*	4.5
CY1L32*	4.0
CY1L40*	5.5

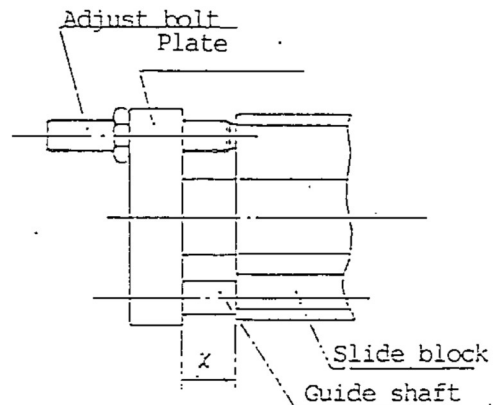


Fig.6. Adjustment by adjust bolt

1-6. Precautions to use with shock absorber

1-6-1) Both shock absorber and adjust bolt can be installed together.

1-6-2) Adjustment is possible at stroke end by shock absorber as by adjust bolt.

Note) About adjusting span, please refer to Table 1.

1-6-3) Screws at bottom of the body, shock absorber must not be turned (they are not adjustment screw), loosening those may cause leakage.

1-6-4) Nut tightening torque to install shock absorber to the plate part should be subject to following Table 2.

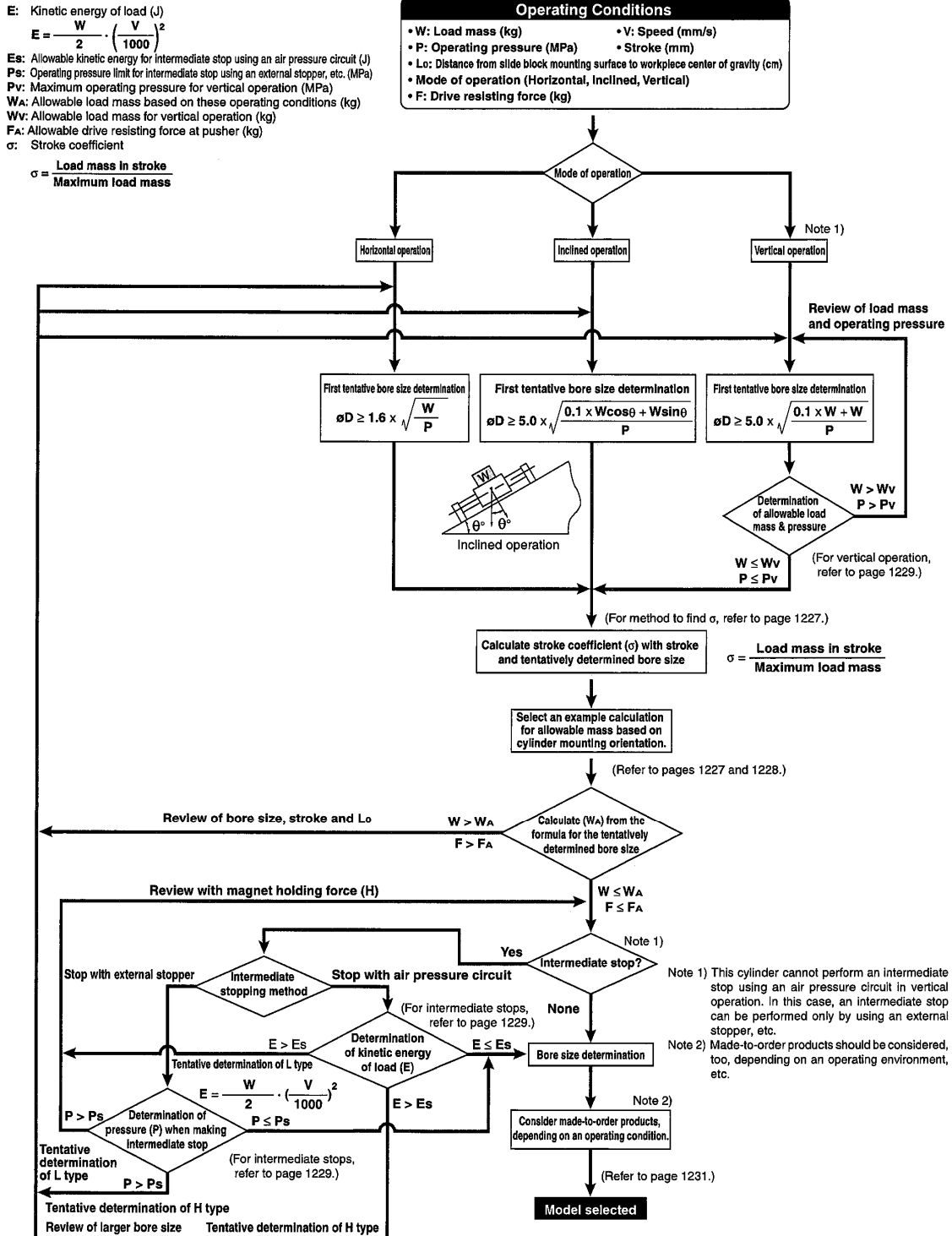
Table 2. Tightening torque of the nut to shock absorber

Model	RB0805	RB1006	RB1411	RB2015
O.D. of screw (mm)	M8	M10	M14	M20
Nut tightening torque (N · m)	1.67	3.14	10.8	23.5

2. Allowable loads and its selecting method.

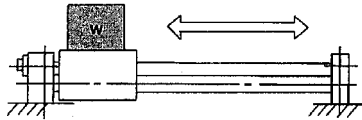
2-1. About selection procedures.

Selection procedures of CY1L* (Ball bushing type)



2-2. Information to select Rodless Cylinder (CY1L: Ball bushing type)

1. Horizontal Operation (Floor mounting)



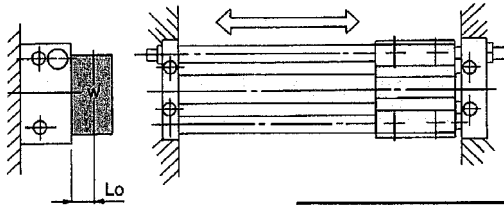
Maximum Load Mass (Center of slide block) (kg)

Bore size (mm)	6	10	15	20	25	32	40
Max. load mass (kg)	1.8	3	7	12	20	30	50
Stroke (Max)	Up to 300 st	Up to 300 st	Up to 500 st	Up to 500 st	Up to 500 st	Up to 600 st	Up to 600 st

The above maximum load mass values will change with the stroke length for each cylinder size, due to limitation from warping of the guide shafts. (Take note of the coefficient σ .)

Moreover, depending on the operating direction, the allowable load mass may be different from the maximum load mass.

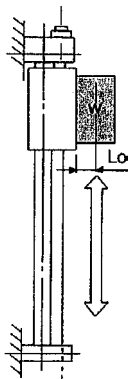
2. Horizontal Operation (Wall mounting)



L_o : Distance from mounting surface to load center of gravity (cm)

Bore size (mm)	Allowable load mass (W _A) (kg)
6	$\frac{\sigma \cdot 6.48}{6.8 + 2L_o}$
10	$\frac{\sigma \cdot 15.0}{8.9 + 2L_o}$
15	$\frac{\sigma \cdot 45.5}{11.3 + 2L_o}$
20	$\frac{\sigma \cdot 101}{13.6 + 2L_o}$
25	$\frac{\sigma \cdot 180}{15.2 + 2L_o}$
32	$\frac{\sigma \cdot 330}{18.9 + 2L_o}$
40	$\frac{\sigma \cdot 624}{22.5 + 2L_o}$

3. Vertical Operation

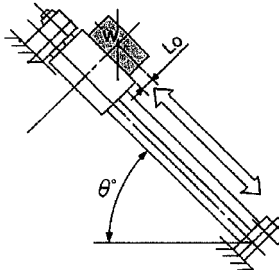


Bore size (mm)	Allowable load mass (W _V) (kg)
6	$\frac{\sigma \cdot 1.53}{1.6 + L_o}$
10	$\frac{\sigma \cdot 5.00}{1.95 + L_o}$
15	$\frac{\sigma \cdot 15.96}{2.4 + L_o}$
20	$\frac{\sigma \cdot 31.1}{2.8 + L_o}$
25	$\frac{\sigma \cdot 54.48}{3.1 + L_o}$
32	$\frac{\sigma \cdot 112.57}{3.95 + L_o}$
40	$\frac{\sigma \cdot 212.09}{4.75 + L_o}$

L_o : Distance from mounting surface to load center of gravity (cm)

Note) Safety factor is taken into consideration to prevent from falling.

4. Inclined Operation (In operating direction)



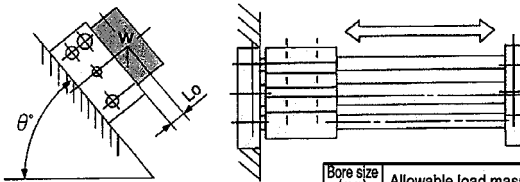
Angle	up to 45°	up to 60°	up to 75°	up to 90°
k	1	0.9	0.8	0.7

Angle coefficient (k) : k = [to 45° (= θ)] = 1,
[to 60°] = 0.9, [to 75°] = 0.8,
[to 90°] = 0.7

Lo: Distance from mounting surface to load center of gravity (cm)

Bore size (mm)	Allowable load mass (WA) (kg)
6	$\sigma \cdot 4.05 \cdot K$
	$1.7 \cos \theta + 2 (1.6 + Lo) \sin \theta$
10	$\sigma \cdot 10.2 \cdot K$
	$2.8 \cos \theta + 2 (1.95 + Lo) \sin \theta$
15	$\sigma \cdot 31.1 \cdot K$
	$2.9 \cos \theta + 2 (2.4 + Lo) \sin \theta$
20	$\sigma \cdot 86.4 \cdot K$
	$6 \cos \theta + 2 (2.8 + Lo) \sin \theta$
25	$\sigma \cdot 105.4 \cdot K$
	$3.55 \cos \theta + 2 (3.1 + Lo) \sin \theta$
32	$\sigma \cdot 178 \cdot K$
	$4 \cos \theta + 2 (3.95 + Lo) \sin \theta$
40	$\sigma \cdot 361.9 \cdot K$
	$5.7 \cos \theta + 2 (4.75 + Lo) \sin \theta$

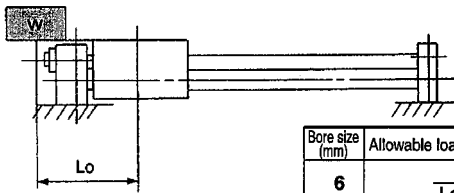
5. Inclined Operation (At a right angle to operating direction)



Lo: Distance from mounting surface to load center of gravity (cm)

Bore size (mm)	Allowable load mass (WA) (kg)
6	$\sigma \cdot 6.48$
	$3.6 + 2 (1.6 + Lo) \sin \theta$
10	$\sigma \cdot 15$
	$5 + 2 (1.95 + Lo) \sin \theta$
15	$\sigma \cdot 45.5$
	$6.5 + 2 (2.4 + Lo) \sin \theta$
20	$\sigma \cdot 115$
	$8 + 2 (2.8 + Lo) \sin \theta$
25	$\sigma \cdot 180$
	$9 + 2 (3.1 + Lo) \sin \theta$
32	$\sigma \cdot 330$
	$11 + 2 (3.95 + Lo) \sin \theta$
40	$\sigma \cdot 624$
	$13 + 2 (4.75 + Lo) \sin \theta$

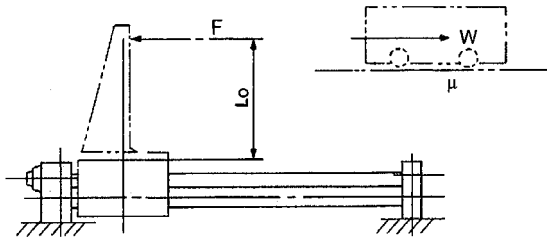
6. Load Center Offset in Operating Direction (Lo)



Lo: Distance from center of slide block to load's center of gravity (cm)

Bore size (mm)	Allowable load mass (WA) (kg)
6	$\sigma \cdot 2$
	$Lo + 1.7$
10	$\sigma \cdot 5.6$
	$Lo + 2.8$
15	$\sigma \cdot 13.34$
	$Lo + 2.9$
20	$\sigma \cdot 43.2$
	$Lo + 6$
25	$\sigma \cdot 46.15$
	$Lo + 3.55$
32	$\sigma \cdot 80$
	$Lo + 4$
40	$\sigma \cdot 188.1$
	$Lo + 5.7$

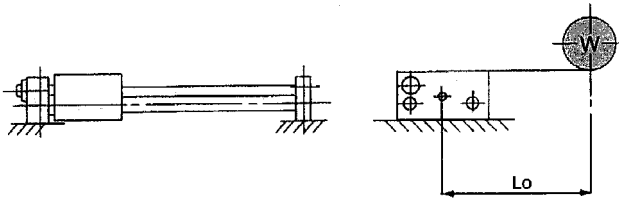
7. Horizontal Operation (Pushing load, Pusher)



F: Drive (from slide block to position L_o) resistance force $W \times \mu$ (kg)
 L_o : Distance from mounting surface to load center of gravity (cm)
 μ : Friction coefficient

Bore size (mm)	6	10	15	20
Allowable drive resisting force (F_A) (kg)	$\frac{\sigma \cdot 2.72}{1.6 + L_o}$	$\frac{\sigma \cdot 5.55}{1.95 + L_o}$	$\frac{\sigma \cdot 15.96}{2.4 + L_o}$	$\frac{\sigma \cdot 41.7}{2.8 + L_o}$
Bore size (mm)	25	32	40	
Allowable drive resisting force (F_A) (kg)	$\frac{\sigma \cdot 58.9}{3.1 + L_o}$	$\frac{\sigma \cdot 106.65}{3.95 + L_o}$	$\frac{\sigma \cdot 228}{4.75 + L_o}$	

8. Horizontal Operation (Load, Lateral offset L_o)



L_o : Distance from center of side block to load's center of gravity (cm)

Bore size (mm)	6	10	15	20
Allowable load mass (W_A) (kg)	$\frac{\sigma \cdot 6.48}{3.6 + L_o}$	$\frac{\sigma \cdot 15}{5 + L_o}$	$\frac{\sigma \cdot 45.5}{6.5 + L_o}$	$\frac{\sigma \cdot 80.7}{8 + L_o}$
Bore size (mm)	25	32	40	
Allowable load mass (W_A) (kg)	$\frac{\sigma \cdot 144}{9 + L_o}$	$\frac{\sigma \cdot 275}{11 + L_o}$	$\frac{\sigma \cdot 520}{13 + L_o}$	

How to Find σ when Selecting the Allowable Load Mass

Since the maximum load mass with respect to the cylinder stroke changes as shown in the table below, σ should be considered as a coefficient determined in accordance with each stroke.

Example) CY1L25□-650

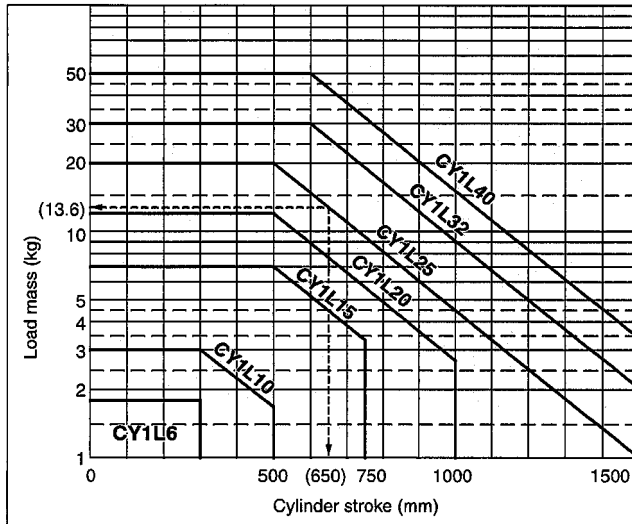
- (1) Maximum load mass = 20 kg
- (2) Load mass for 650 st = 13.6 kg
- (3) $\sigma = \frac{13.6}{20} = 0.68$ is the result.

Calculation Formula for σ ($\sigma \leq 1$)

ST: Stroke (mm)

Model	CY1L6	CY1L10	CY1L15
$\sigma =$	1	$\frac{10^{(0.86 - 1.3 \times 10^{-3} \times \text{ST})}}{3}$	$\frac{10^{(1.5 - 1.3 \times 10^{-3} \times \text{ST})}}{7}$
Model	CY1L20	CY1L25	CY1L32
$\sigma =$	$\frac{10^{(1.71 - 1.3 \times 10^{-3} \times \text{ST})}}{12}$	$\frac{10^{(1.98 - 1.3 \times 10^{-3} \times \text{ST})}}{20}$	$\frac{10^{(2.26 - 1.3 \times 10^{-3} \times \text{ST})}}{30}$
Model	CY1L40		
$\sigma =$	$\frac{10^{(2.48 - 1.3 \times 10^{-3} \times \text{ST})}}{50}$		

Note) Calculate with $\sigma = 1$ for all applications up to $\phi 10 - 300$ mmST, $\phi 15 - 500$ mmST, $\phi 20 - 500$ mmST, $\phi 25 - 500$ mmST, $\phi 32 - 600$ mmST and $\phi 40 - 600$ mmST.



3. Regarding intermediate stop

3-1. In case to stop by external stopper (adjust bolt, shock absorber and etc...)

Care should be taken for the followings, when it's stopped at half-way of the stroke by external stopper (adjust bolt, shock absorber and etc...)

3-1-1) Maximum working pressure

Operation of this device should be performed within stated figure in Table 3. of working pressure. Setting working pressure above those figures may cause getting out of place of sliding block acting force on travel part of piston side and external side exceeding holding force of those.

Table 3. Limit of working pressure when it's stopped intermediately

Cylinder bore	Model	Holding force (N)	Operating pressure limit for intermediate stop (MPa)
$\phi 6$	CY1L6H	19.6	0.55
$\phi 10$	CY1L10H	53.9	0.55
$\phi 15$	CY1L15H	137	0.65
	CY1L15L	81.4	0.40
$\phi 20$	CY1L20H	231	0.65
	CY1L20L	154	0.40
$\phi 25$	CY1L25H	363	0.65
	CY1L25L	221	0.40
$\phi 32$	CY1L32H	588	0.65
	CY1L32L	358	0.40
$\phi 40$	CY1L40H	922	0.65
	CY1L40L	569	0.40

Mathematical formula to calculate equivalent holding force

$$P_o = \frac{4 \cdot F}{\pi D^2}$$

Po: Equivalent holding force

F: Holding force

D: Inner diameter of cylinder tube.

Using this device within give range of working pressure, travel part of piston side and external side never gets out of place. If it's still got out of the place, it may be occurred due to wrong allocation of travel parts each other.

In such case occurred, relieve half-way stop inunctions and at stroke end push travel part manually (or apply equivalent pressure to holding force to travel part at piston side) to right position.

3-2. In case to stop intermediately using by pneumatic circuit

To stop intermediately by pneumatic circuit, following cares should be taken.

3-2-1) Intermediate stop requiring with high accuracy is unattainable.

Where required high accuracy half-way stop, air-hydraulic type (semi-standard) combining with air-hydro unit (CC series) is recommended. To place other this combination with air-hydro unit, just add -X116 to the end of the parts number. This option is available only sizes longer then $\phi 25$.

3-2-2) Care should be taken for kinetic energy of the load.

When intermediate stop function is performed by closed-center type of directional control valve (same thing is occurred when stop valve of hydro system is used), it may cause to run-away of the load (together with slide block.)

Figures in Table 4 shows kinetic energy which holding force can absorb. Those figures should be referred to use this device under conditions that enable intermediate stop in relation of load and velocity.

Table 4. Kinetic energy possible to stop intermediately (Reference)

Cylinder bore	Model	Holding force (N)	Kinetic energy possible to stop intermediately (J)
$\phi 6$	CY1L6H	19.6	0.007
$\phi 10$	CY1L10H	53.9	0.03
$\phi 15$	CY1L15H	137	0.13
	CY1L15L	81.4	0.076
$\phi 20$	CY1L20H	231	0.24
	CY1L20L	154	0.16
$\phi 25$	CY1L25H	363	0.45
	CY1L25L	221	0.27
$\phi 32$	CY1L32H	588	0.88
	CY1L32L	358	0.53
$\phi 40$	CY1L40H	922	1.53
	CY1L40L	569	0.95

4. Operating air

4-1. Since this cylinder is non-lube type, air to be supplied should be filtered by SMC made AF Series air filter and be regulated by AR Series regulator.

When it is needed to lubricate, please check our website for the brands of each company's class 1 turbine oil (with no additives) and class 2 (with additives).

4-2. If low dew point air is used as the fluid, the reliability (life) of the equipment may be affected due to deterioration of the lubrication properties inside the equipment.

Please consider using low dew point compatible products such as the 25A-series.

5. Maintenance

When this device is disassembled to replace piston packing, wearing and etc.. care should be taken for following points.

5-1. To remove sliding block or piston from cylinder tube, holding force must be released by shifting positions of sliding block and piston forcibly.

Removing those without doing so, respective magnets call each other directly and may become impossible to separate.

5-2. Upon completing above works to separate respective travel parts by loosening hexagon head cap screw (at plate A side) remove cylinder tube and plate A from guide shaft A and B. (While replacing works (of packing soon,) other parts should not be disassembled. Disassembling other parts may cause air leakage.)

5-3. Magnet assembly (piston travel part and external travel part) must not be disassembled. Disassembling this may cause to decrease of holding force and other defects.

5-4. Piston side travel part and external travel part have a direction (magnet holding force L type and $\phi 6, 10$). Refer to the figure 7. Let external travel part (slide block) and piston contact and insert into cylinder tube to form positions shown in the figure 7. When posture becomes as (b), turn only piston reverse to insert.

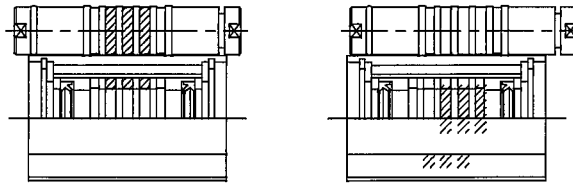


Fig. (1) Correct position

Fig. (2) Incorrect position

Example of $\varnothing 15$ with holding force type L

Fig7. Direction of the travel parts

5-5. When handle magnet assembly, watch on your arm should be put off (particularly analog one) not to get influence from strong magnetic field.

5-6. Through care should be taken for the magnet not to drop on the floor or knock against metal.

6. Other precautions.

6-1. Parts made of iron are used in travel part so care should be taken no water drops coming on the cylinder tube.

6-2. Grease should be periodically applied to bearing part of slide block.

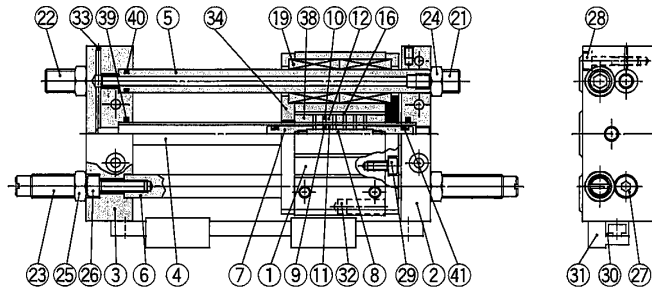
6-3. When it is installed, through air-flashing to piping are required not to allow contaminations or chips stay inside.

6-4. Care should be taken not to make flaw or gouge on external surface of cylinder tube and guide shaft. Leaving those flaw or gouge may damage the scraper, wear ring, and bush, causing malfunction.

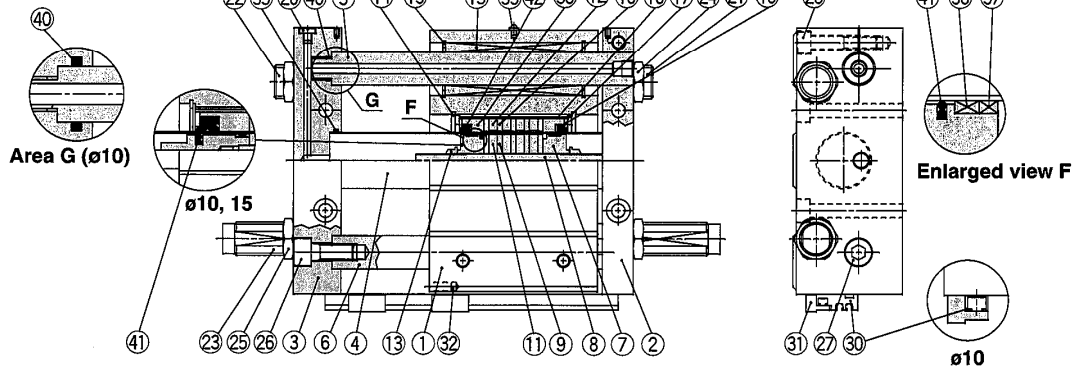
Construction

Slider type/Ball bushing bearing

CY1L6



CY1L10 to 40



Component Parts

No.	Description	Material	Note
1	Slide block	Aluminum alloy	Anodized
2	Plate A	Aluminum alloy	Anodized
3	Plate B	Aluminum alloy	Anodized
4	Cylinder tube	Stainless steel	
5	Guide shaft A	Carbon steel	Hard chrome plated
6	Guide shaft B	Carbon steel	Hard chrome plated
7	Piston	Aluminum alloy ^{Note 1)}	Chromated
8	Shaft	Stainless steel	
9	Piston side yoke	Rolled steel	Zinc chromated
10	External slider side yoke	Rolled steel	Zinc chromated
11	Magnet A	—	
12	Magnet B	—	
13	Piston nut	Carbon steel	Zinc chromated ø25 to ø40
14	Retaining ring	Carbon tool steel	Phosphate coated
15	Retaining ring	Carbon tool steel	Phosphate coated
16	External slider tube	Aluminum alloy	
17	Slider spacer	Rolled steel	Nickel plated
18	Spacer	Rolled steel	Nickel plated
19	Ball bushing	—	
20	Plug	Brass	Nickel plated ø25 to ø40 only
21	Adjusting bolt A	Chromium molybdenum steel	Nickel plated
22	Adjusting bolt B	Chromium molybdenum steel	Nickel plated
23	Shock absorber	—	
24	Hexagon nut	Carbon steel	Nickel plated
25	Hexagon nut	Carbon steel	Nickel plated
26	Hexagon socket head cap screw	Chromium molybdenum steel	Nickel plated
27	Hexagon socket head cap screw	Chromium molybdenum steel	Nickel plated
28	Hexagon socket head cap screw	Chromium molybdenum steel	Nickel plated

Note 1) Brass for ø6

No.	Description	Material	Note
29	Hexagon socket head cap screw	Chromium molybdenum steel	Nickel plated
30	Switch mounting rail	Aluminum alloy	
31	Auto switch	—	
32	Magnet for auto switch	—	
33	Steel ball	—	ø6, ø10, ø15 only
34	Side cover	Carbon steel	ø6 only
35	Grease cup	Carbon steel	ø15 or larger
36 *	Wear ring A	Special resin	
37 *	Wear ring	Special resin	
38 *	Wear ring B	Special resin	
39 *	Cylinder tube gasket	NBR	
40 *	Guide shaft gasket	NBR	
41 *	Piston seal	NBR	
42 *	Scraper	NBR	

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
6	CY1S6-PS-N	Set of nos. above ③⑧, ③⑨, ④①, ④②
10	CY1L10-PS-N	Set of nos. above ③⑧, ③⑨, ④①, ④②
15	CY1L15-PS-N	Set of nos. above ③⑥, ③⑦, ③⑧, ③⑨, ④①, ④②
20	CY1L20-PS-N	
25	CY1L25-PS-N	
32	CY1L32-PS-N	
40	CY1L40-PS-N	

Note 1) Seal kit includes ③⑧, ③⑨, ④①, ④② for ø6. ③⑥, ③⑦ to ④② are for ø10, ø15.

Note 2) ø6: Same for CY1S6

Note 3) For replacement of the ø10 wear ring A, contact SMC or your nearest sales representative.

* Seal kit includes a grease pack (ø6, ø10: 5 and 10 g, ø15 to ø40: 10 g). Order with the following part number when only the grease pack is needed.

Grease pack part no. for ø6, ø10: GR-F-005 (5 g) for external sliding parts, GR-S-010 (10 g) for tube interior

Grease pack part no. for ø15 to ø40: GR-S-010 (10 g)

Revision history

SMC Corporation

Tel: + 81 3 5207 8249 Fax: +81 3 5298 5362
URL <https://www.smcworld.com>

Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.
© SMC Corporation All Rights Reserved