



# Magnetically Coupled Rodless Cylinder Direct Mount Type

## Series *CY1R*

ø6, ø10, ø50, ø63

### How to Order

**CY1R**   **25** **H** **300**   **Y7BW**  

**Direct mount type**

**Piping**

Nil	Standard type
G	Centralized piping type

Note) Type G is not available for ø6.

**Bore size**

6	6 mm
10	10 mm
50	50 mm
63	63 mm

**Magnetic holding force**

Holding force type	Applicable bore size (mm)
H	6, 10, 50, 63
L	50, 63

Refer to "Magnetic Holding Force" on page 8-15-33.

**Number of auto switches**

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

**Auto switch**

Nil	Without auto switch
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\* Auto switches can be mounted on type H only.  
Note) In the case of ø20 with switch rail but without switch, the cylinder construction is for reed switch.  
\* For the applicable auto switch model, refer to the table below.  
\* Auto switches are shipped together, (but not assembled).

**Switch rail**

Nil	With switch rail
N	Without switch rail

Note 1) Symbol N is standard type only.  
Note 2) With the switch rail, a built-in switch magnet is also included.

**Standard stroke**

Refer to "Standard Stroke" on page 8-15-33.

**Applicable Auto Switch**/Refer to page 8-30-1 for further information on auto switches.

**For ø6, ø10**

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model	Lead wire length (m) *			Pre-wire connector	Applicable load	
					DC	AC	AC		0.5 (Nil)	3 (L)	5 (Z)		IC circuit	Relay, PLC
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96	●	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	A93	●	●	—	—	—	Relay, PLC
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9N	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				M9P	●	●	○	○	IC circuit	
				2-wire				M9B	●	●	○	○	—	
				3-wire (NPN)				F9NW	●	●	○	○	IC circuit	
				3-wire (PNP)				F9PW	●	●	○	○	IC circuit	
				2-wire				F9BW	●	●	○	○	—	
Diagnostic indication (2-color indication)	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9N	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				M9P	●	●	○	○	IC circuit	

**For ø50, ø63**

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model	Lead wire length (m) *			Pre-wire connector	Applicable load	
					DC	AC	AC		0.5 (Nil)	3 (L)	5 (Z)		IC circuit	Relay, PLC
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	Z76	●	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	Z73	●	●	●	—	—	Relay, PLC
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	Y59A	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				Y7P	●	●	○	○	IC circuit	
				2-wire				Y59B	●	●	○	○	—	
				3-wire (NPN)				Y7NW	●	●	○	○	IC circuit	
				3-wire (PNP)				Y7PW	●	●	○	○	IC circuit	
				2-wire				Y7BW	●	●	○	○	—	
Diagnostic indication (2-color indication)	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	Y59A	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				Y7P	●	●	○	○	IC circuit	

\* Lead wire length symbols:

0.5 m ..... Nil (Example) A93  
3 m ..... L (Example) Y59BL  
5 m ..... Z (Example) F9NWZ

\* Solid state switches marked with "○" are produced upon receipt of order.

- Since there are other applicable auto switches than listed, refer to page 8-15-44 for details.
- For details about auto switches with pre-wire connector, refer to page 8-30-52.

# Magnetically Coupled Rodless Cylinder Direct Mount Type Series CY1R



## Specifications

Fluid	Air
Proof pressure	1.05 MPa
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.18 MPa
Ambient and fluid temperature	-10 to 60°C
Piston speed <sup>Note)</sup>	50 to 500 mm/s
Cushion	Rubber bumper on both ends
Lubrication	Non-lube
Stroke length tolerance	0 to 250 st: $^{+1.0}_0$ , 251 to 1000 st: $^{+1.4}_0$ , 1001 st and up to: $^{+1.8}_0$
Mounting	Direct mount type

Note) When an auto switch is placed at an intermediate position, the maximum piston speed should be limited to no more than 300 mm/s due to relays, etc.

## Standard Stroke

Bore size (mm)	Standard stroke (mm)	Maximum available <sup>Note)</sup> stroke (mm)	Maximum stroke with switch stroke (mm)
6	50, 100, 150, 200	300	300
10	50, 100, 150, 200, 250, 300	500	500
50	100, 150, 200, 250, 300, 350	2000	1500
63	400, 450, 500, 600, 700, 800, 900, 1000		

Note) Please contact SMC if it is used by exceeding the maximum stroke length.



**Made to Order Specifications**  
(For details, refer to page 8-31-1.)

Symbol	Specifications
-XC57	With floating joint
-X168	Helical insert thread specifications

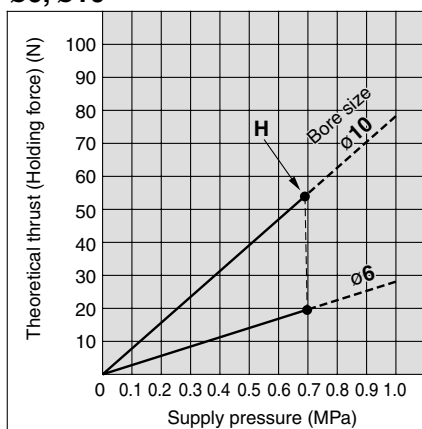
## Magnetic Holding Force (N)

Bore size (mm)	6	10	50	63	
Holding force	Type H	19.6	53.9	1471	2256
	Type L	—	—	863	1373

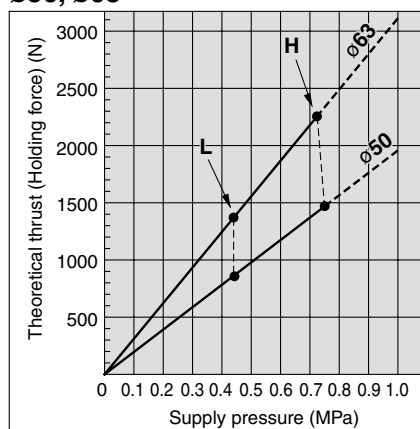
When calculating the actual thrust, design should consider the minimum actuating pressure.

## Theoretical Cylinder Thrust **⚠ Caution**

ø6, ø10



ø50, ø63



MX

MTS

MY

CY

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CX

D-

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20-

Data

# Series CY1R

## Weight

(kg)

Item		Bore size (mm)			
		6	10	50	63
Basic weight (For 0 st)	CY1R□H CY1RG□H (With switch rail)	0.092	0.111	3.59	5.45
	CY1R□L CY1RG□L (With switch rail)	—	—	3.29	4.95
	CY1R□H (Without switch rail)	0.075	0.080	3.30	5.10
	CY1R□L (Without switch rail)	—	—	3.00	4.60
Additional weight per each 50mm of stroke (With switch rail)		0.016	0.034	0.177	0.212
Additional weight per each 50mm of stroke (Without switch rail)		0.004	0.014	0.095	0.120

Calculation

(Example) CY1R10H-300 (with switch rail)

Basic weight...0.111 (kg), Additional weight...0.034 (kg/50 st), Cylinder stroke...300 (st)

$0.111 + 0.034 \times 300 \div 50 = 0.315$  kg

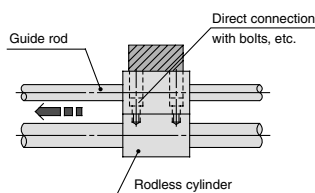
## ⚠ Precautions

Be sure to read before handling. Refer to pages 8-34-3 to 8-34-6 for Safety Instructions and Actuator Precautions.

### Mounting

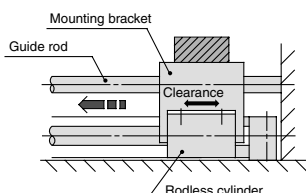
#### ⚠ Caution

1. **Take care to avoid nicks or other damage on the outside surface of the cylinder tube.**  
This can lead to a damage of the scraper and the wear ring, which in turn can cause malfunction.
2. **Use caution to the rotation of the external slider.**  
Rotation should be controlled by connecting it to another shaft (linear guide, etc.).
3. **Do not operate with the magnetic coupling out of position.**  
If the magnetic coupling is out of position, push the external slider by hand (or the piston slider with air pressure) back to the proper position at the stroke end.
4. **The cylinder is mounted with bolts through the mounting holes in the end covers. Be sure they are tightened securely.**
5. **If gaps occur between the mounting surface and the end covers when mounting with bolts, perform shim adjustment using spacers, etc. so that there is no unreasonable stress.**
6. **Be sure that both end covers are secured to the mounting surface before operating the cylinder.**  
Avoid operation with the external slider secured to the surface.
7. **Do not apply a lateral load to the external slider.**  
When a load is mounted directly to the cylinder, variations in the alignment of each shaft center cannot be offset, which results in the generation of a lateral load that can cause malfunction. The cylinder should be operated using a connection method which allows for shaft alignment variations and deflection due to the cylinder's own weight. A drawing of a recommended mounting is shown in Fig. (2).



Variations in the load and cylinder shaft alignment cannot be offset and may result in a malfunction.

**Fig. (1)**  
Incorrect mounting



Shaft alignment variations are offset by providing clearance between the mounting bracket and cylinder. Moreover, the mounting bracket is extended above the cylinder shaft center, so that the cylinder is not subjected to moment.

**Fig. (2)**  
Recommended mounting

8. **Use caution regarding the allowable load weight when operating in a vertical direction.**  
The allowable load weight when operating in a vertical direction (reference values on page 8-15-38) is determined by the model selection method, however, if a load greater than the allowable value is applied, the magnetic coupling may break and there is a possibility of dropping the load. When using this type of application, please contact SMC regarding the operating conditions (pressure, load, speed, stroke, frequency, etc.).

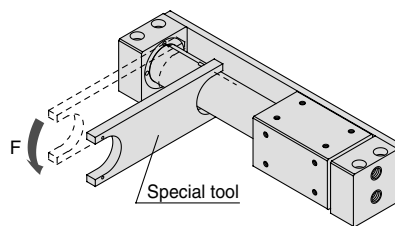
### Disassembly and Maintenance

#### ⚠ Warning

1. **Use caution as the attractive power of the magnets is very strong.**  
When removing the external slider and piston slider from the cylinder tube for maintenance, etc., handle with caution, since the magnets installed in each slider have very strong attractive power.

#### ⚠ Caution

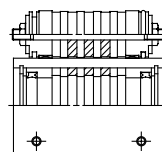
1. **Special tools are necessary for disassembly.**



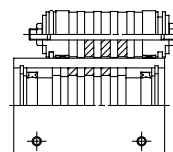
#### Special Tool Part No.

Part no.	Applicable bore size (mm)
CYRZ-V	6, 10
CYRZ-X	50
CYRZ-Y	63

2. **Use caution when taking off the external slider, as the piston slider will be directly attracted to it.**  
When removing the external slider or piston slider from the cylinder tube, first force the sliders out of their magnetically coupled positions, and then remove them individually when there is no longer any holding force. If they are removed while still magnetically coupled, they will be directly attracted to one another and will not come apart.
3. **Since it is possible to change the magnetic holding force (for example, from CY1R50L to CY1R50H), please contact SMC if this is necessary.**
4. **Do not disassemble the magnetic components (piston slider, external slider).**  
This can cause a loss of holding force and malfunction.
5. **When disassembling to replace the seals and wear ring, refer to the separate disassembly instructions.**
6. **Use caution to the direction of the external slider and the piston slider.**  
Since the external slider and piston slider are directional for  $\phi 6$ ,  $\phi 10$  and holding force type L, refer to the figures below when performing disassembly or maintenance. Put the external slider and piston slider together, and insert the piston slider into the cylinder tube so that they will have the correct positional relationship as shown in Fig. (3). If they align as shown in Fig. (4), insert the piston slider after turning it around  $180^\circ$ . If the direction is not correct, it will be impossible to obtain the specified holding force.



**Fig. (3)**  
Correct position



**Fig. (4)**  
Incorrect position

Example of 50 and  $\phi 63$  with holding force type L

MX

MTS

MY

CY

MG

CX

D-

-X

20-

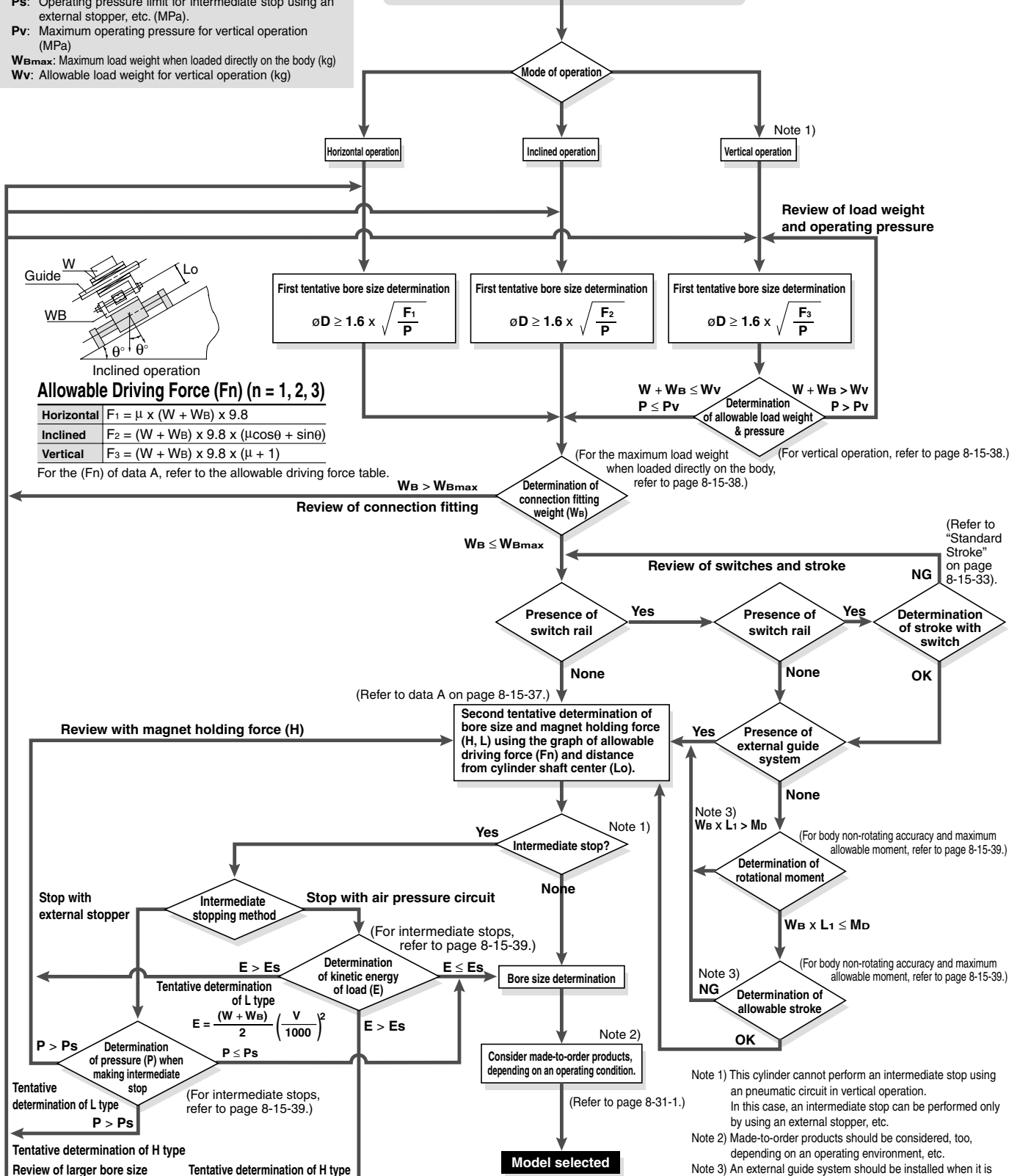
Data

# Series CY1R Model Selection 1

E: Kinetic energy of load (J)  

$$E = \frac{(W + W_B)}{2} \cdot \left(\frac{V}{1000}\right)^2$$
 Es: Allowable kinetic energy for intermediate stop using an air pressure circuit (J)  
 Fn: Allowable driving force (N)  
 Mb: Maximum allowable moment when connection fitting, etc., is directly loaded (N-m)  
 Ps: Operating pressure limit for intermediate stop using an external stopper, etc. (MPa).  
 Pv: Maximum operating pressure for vertical operation (MPa)  
 WBmax: Maximum load weight when loaded directly on the body (kg)  
 Wv: Allowable load weight for vertical operation (kg)

- Operating Conditions**
- W: Load weight (kg)
  - WB: Connection fitting weight (kg)
  - μ: Guide's coefficient of friction
  - Lo: Distance from cylinder shaft center to work piece point of application (cm)
  - L1: Distance from the cylinder shaft center to the center of the gravity of connection fitting, etc. (mm)
  - Presence of switches
  - P: Operating pressure (MPa)
  - V: Speed (mm/s)
  - Stroke (mm)
  - Mode of operation (Horizontal, Inclined, Vertical)



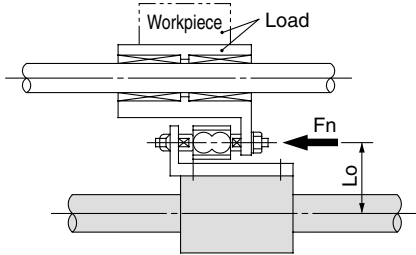
# Series CY1R

# Model Selection 2

## Caution on Design (1)

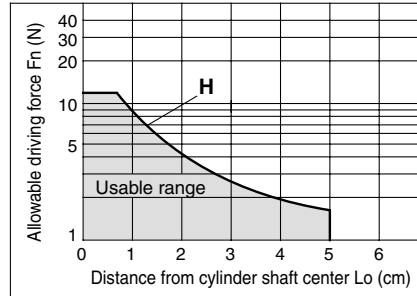
### Selection procedure

1. Find the drive resisting force  $F_n$  (N) when moving the load horizontally.
2. Find the distance  $L_o$  (cm) from the point of the load where driving force is applied, to the center of the cylinder shaft.
3. Select the bore size and type of magnet holding force (types H, L) from  $L_o$  and  $F_n$  based on data (A).

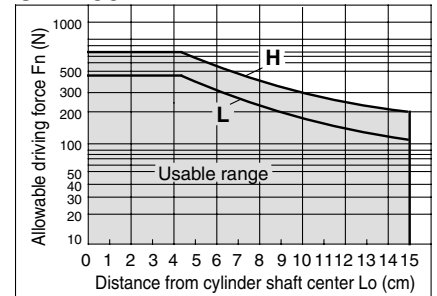


<Data (A) : Distance from cylinder shaft center — Allowable driving capacity>

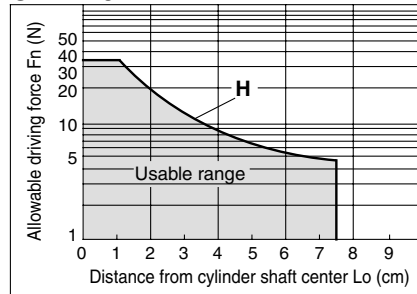
**CY1R6**



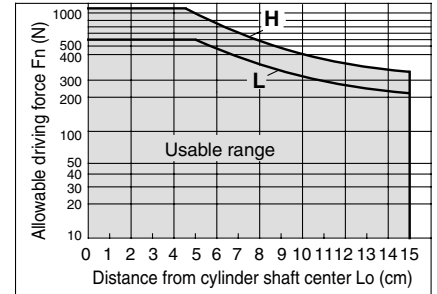
**CY1R50**



**CY1R10**



**CY1R63**



MX

MTS

MY

**CY**

MG

CX

D-

-X

20-

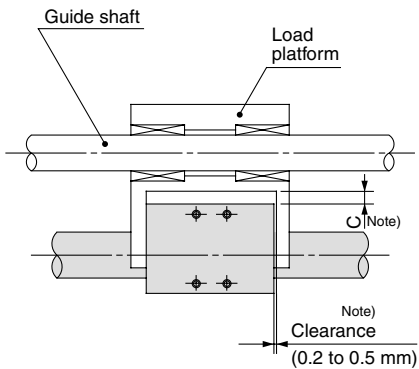
Data

# Series CY1R Model Selection 3

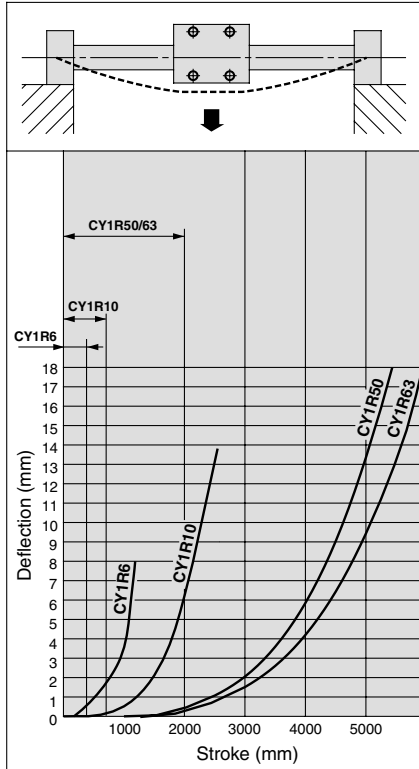
## Caution on Design (2)

### Cylinder Self Weight Deflection

When the cylinder is mounted horizontally, deflection appears due to its own weight as shown in the data, and the longer the stroke, the greater the amount of variation in the shaft centers. Therefore, a connection method should be considered which allows for this variation as shown in the drawing.



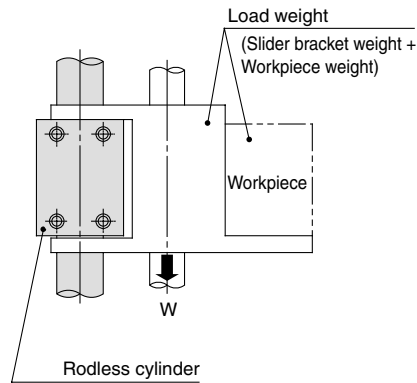
Note) Referring to the self-weight deflection in the graph below, provide clearance so that the cylinder does not touch the mounting surface or the load section, and is able to operate smoothly within the minimum operating pressure range for a full stroke.



\* The above deflection data indicate values when the external slider has moved to the middle of the stroke.

### Vertical Operation

The load should be guided by a ball type bearing (LM guide, etc.). If a slide bearing is used, sliding resistance will increase due to the load weight and moment, and this can cause malfunction.



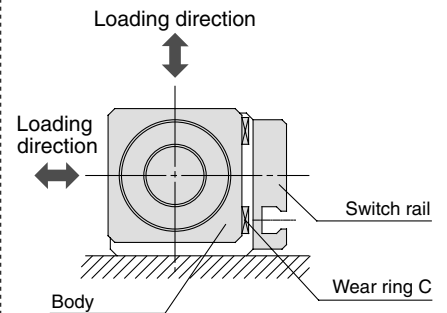
Bore size (mm)	Model	Allowable load weight (Wv) (kg)	Maximum operating pressure (Pv) (MPa)
6	CY1R 6H	1.0	0.55
10	CY1R10H	2.7	0.55
50	CY1R50H	75.0	0.65
	CY1R50L	44.0	0.40
63	CY1R63H	115.0	0.65
	CY1R63L	70.0	0.40

Note) Use caution, since the magnetic coupling may be dislocated if it is used over the maximum operating pressure.

### Maximum Load Weight when Loaded Directly on Body

When the load is applied directly to the body, it should be no greater than the maximum values shown in the table below.

Model	Maximum load weight (W <sub>max</sub> ) (kg)
CY1R6H	0.2
CY1R10H	0.4
CY1R50□	2.5
CY1R63□	3.0



# Series CY1R

## Model Selection 4

### Caution on Design (3)

#### Intermediate Stop

##### (1) Intermediate Stopping of Load with an External Stopper, etc.

When stopping a load in mid-stroke using an external stopper, etc., operate within the operating pressure limits shown in the table below. Use caution, as operation at a pressure exceeding these limits can result in breaking of the magnetic coupling.

Bore size (mm)	Model	Operating pressure limit for intermediate stop (Ps) (MPa)
6	CY1R6H	0.55
10	CY1R10H	0.55
50	CY1R50H	0.65
	CY1R50L	0.40
63	CY1R63H	0.65
	CY1R63L	0.40

##### (2) Intermediate Stopping of Load with an Air Pressure Circuit

When performing an intermediate stop of a load using an air pressure circuit, operate at or below the kinetic energy shown in the table below. Use caution, as operation when exceeding the allowable value can result in breaking of the magnetic coupling.

##### (Reference values)

Bore size (mm)	Model	Allowable kinetic energy for intermediate stop (Es) (J)
6	CY1R6H	0.007
10	CY1R10H	0.03
50	CY1R50H	3.12
	CY1R50L	1.83
63	CY1R63H	5.07
	CY1R63L	3.09

#### Body Non-rotating Accuracy and Maximum Allowable Moment (with Switch Rail) (Reference Values)

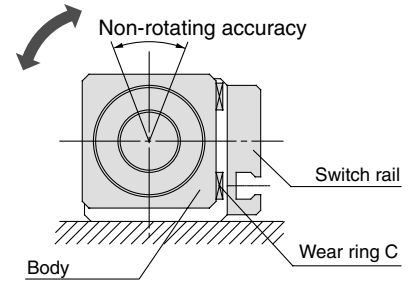
Reference values for non-rotating accuracy and maximum allowable moment at stroke end are indicated below.

Bore size (mm)	Non-rotating accuracy (°)	Maximum allowable moment (M <sub>0</sub> ) (N·m)	Allowable stroke (2) (mm)
6	7.3	0.02	100
10	6.0	0.05	100
50	2.4	1.00	500
63	2.2	1.37	500

Note 1) Avoid operations where rotational torque (moment) is applied. In such a case, the use of an external guide is recommended.

Note 2) The above reference values will be satisfied within the allowable stroke ranges, but caution is necessary, because as the stroke becomes longer, the inclination (rotation angle) within the stroke can be expected to increase.

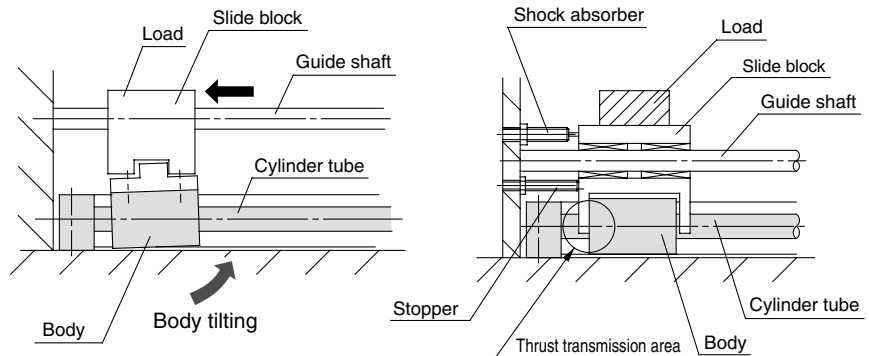
Note 3) When a load is applied directly to the body, the loaded weight should be no greater than the allowable load weights on page 8-15-38.



#### Stroke End Stopping Method

When stopping a load having a large inertial force at the stroke end, tilting of the body and damage to the bearings and cylinder tube may occur. (Refer to the left hand figure below.)

As shown in the right hand figure below, a shock absorber should be used together with the stopper, and thrust should also be transmitted from the center of the body so that tilting will not occur.



MX

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CY

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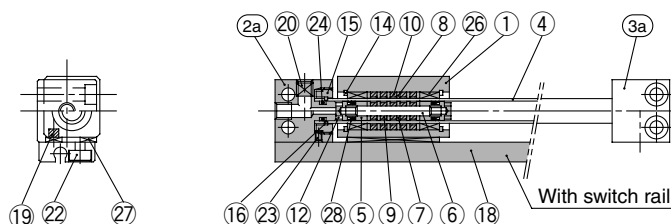
Data



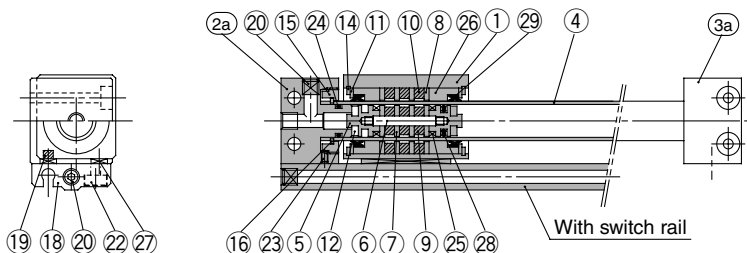
# Series CY1R

## Construction: Standard Type

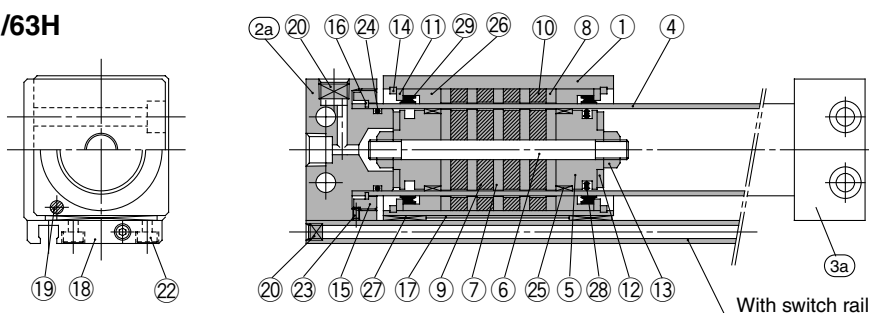
### CY1R6H



### CY1R10H



### CY1R50H/63H



## Component Parts

No.	Description	Material	Note
①	Body	Aluminum alloy	Hard anodized
②a	End cover A	Aluminum alloy	Hard anodized
②b	End cover C	Aluminum alloy	Hard anodized
③a	End cover B	Aluminum alloy	Hard anodized
③b	End cover D	Aluminum alloy	Hard anodized
④	Cylinder tube	Stainless steel	
⑤	Piston	ø6, ø10: Brass ø50, ø63: Aluminum alloy	ø6, ø10: Electroless nickel plated ø50, ø63: Chromated
⑥	Shaft	Stainless steel	
⑦	Piston side yoke	Rolled steel plate	Zinc chromated
⑧	External slider side yoke	Rolled steel plate	Zinc chromated
⑨	Magnet A	Rare earth magnet	
⑩	Magnet B	Rare earth magnet	
⑪	Spacer	Rolled steel plate	Nickel plated
⑫	Bumper	Urethane rubber	
⑬	Piston nut	Carbon steel	ø50, ø63
⑭	Snap ring	Carbon tool steel	Nickel plated
⑮	Attachment ring	Aluminum alloy	Hard anodized
⑯	Type C snap ring for axis	ø10: Stainless steel ø6, ø50, ø63: Hard steel wire	
⑰	Magnetic shielding plate	Rolled steel plate	Chromated
⑱	Switch rail	Aluminum alloy	Clear anodized
⑲	Magnet	Rare earth magnet	
⑳	Hexagon socket head plug	Chromium steel	Nickel plated

No.	Description	Material	Note
㉑	Steel ball	Chromium steel	ø50, ø63: W/o Hexagon socket head plug
㉒	Hexagon socket head cap screw	Chromium steel	Nickel plated
㉓	Hexagon socket head set screw	Chromium steel	Nickel plated
㉔*	Cylinder tube gasket	NBR	
㉕*	Wear ring A	Special resin	
㉖*	Wear ring B	Special resin	
㉗*	Wear ring C	Special resin	
㉘*	Piston seal	NBR	
㉙*	Scraper	NBR	
㉚*	Switch rail gasket	NBR	

## Replacement Parts: Seal Kit

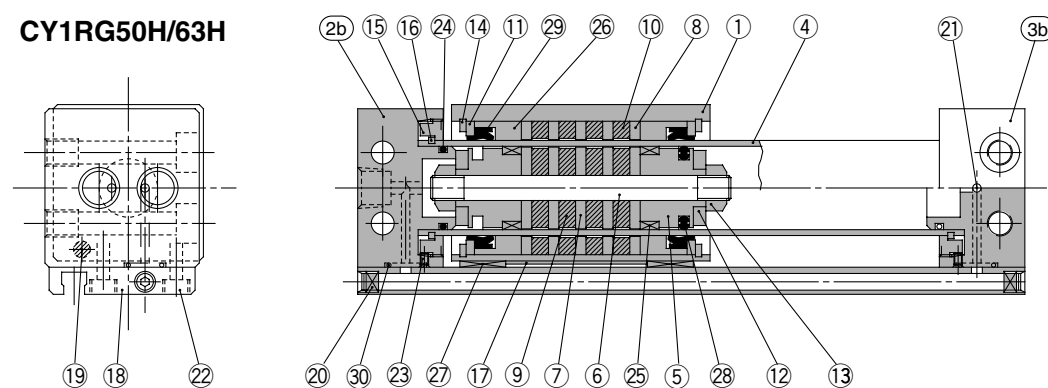
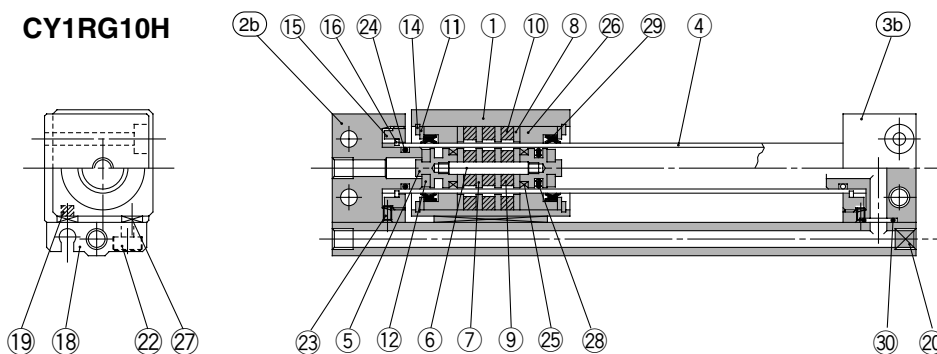
Bore size (mm)	Kit no.	Contents
6	CY1R6-PS	Set of nos. above ㉔, ㉕, ㉖, ㉗, ㉘
10	CY1R10-PS	Set of nos. above ㉔, ㉕, ㉖, ㉗, ㉘, ㉙, ㉚
50	CY1R50-PS	
63	CY1R63-PS	

\* Seal kit includes ㉔, ㉕, ㉖, ㉗, ㉘ for ø6. ㉔ to ㉚ are for ø50 and ø63. Order the seal kit, based on each bore size.

# Magnetically Coupled Rodless Cylinder Direct Mount Type Series CY1R

## Construction: Centralized Piping Type

Note) Centralized piping is not available for  $\phi 6$ .



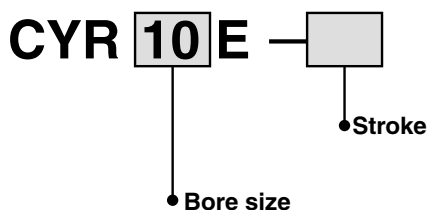
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- MTS
- MY
- CY**
- MG
- CX
- D-
- X
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- Data

### Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
10	CY1R10-PS	Set of nos. at left ②4, ②5, ②6, ②7, ②8, ②9, ③0
50	CY1R50-PS	
63	CY1R63-PS	

\* Seal kit includes ②4 to ③0.  
Order the seal kit, based on each bore size.

### Switch Rail Accessory Kit



### Switch Rail Accessory Kit

Bore size (mm)	Kit no.	Contents
6	CYR6E-□	Nos. at left ⑱, ⑲, ⑳, ㉑
10	CYR10E-□	Nos. at left ⑱, ⑲, ⑳, ㉑, ㉒
50	CYR50E-□	Nos. at left
63	CYR63E-□	⑰, ⑱, ⑲, ⑳, ㉑, ㉒

Note) □ indicates the stroke.

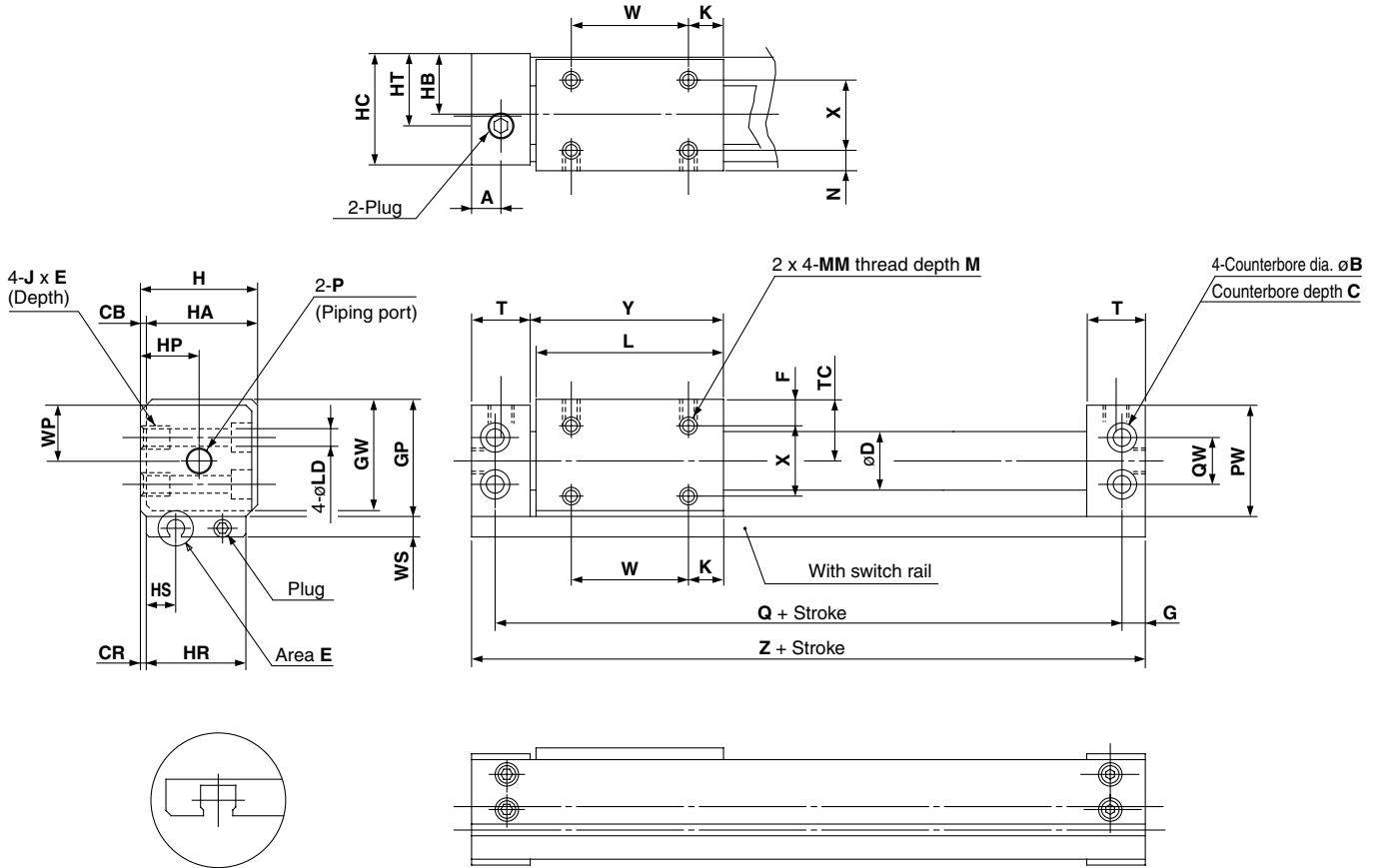
# Series CY1R

Standard Type:  $\phi 6$ ,  $\phi 10$ ,  $\phi 50$ ,  $\phi 63$

CY1R Bore size  $\frac{H}{L}$  - Stroke Nil  
N

Note 1) Type L is not available for  $\phi 6$  through  $\phi 10$ .

Note 2) The dimensions shows the one with switch rail (Nil).



(Area E) CY1R50/63

(mm)

Model	A	B	C	CB	CR	D	F	G	GP	GW	H	HA	HB	HC	HP	HR	HS	HT	J x E
CY1R 6	9	6.5	3.2	2	0.5	7.6	5.5	4	20	18.5	19	17	10.5	18	9	17	6	7	M4 x 0.7 x 6
CY1R10	9	6.5	3.2	2	0.5	12	6.5	4	27	25.5	26	24	14	25	14	24	5	14	M4 x 0.7 x 6
CY1R50	14	14	8.2	5	2	53	17	8.5	83	81.5	85	80	45	84	45	80	9	45	M10 x 1.5 x 15
CY1R63	15	14	8.2	5	3	66	18	8.5	95	93.5	97	92	51	96	51	90	9.5	51	M10 x 1.5 x 15

Model	K	L	LD	M	MM	N	P	PW	Q	QW	T	TC	W	WP	WS	X	Y	Z
CY1R 6	7	34	3.5	3.5	M3 x 0.5	3.5	M5 x 0.8	19	64	10	17.5	10.5	20	9.5	6	10	35.5	72
CY1R10	9	38	3.5	4	M3 x 0.5	4.5	M5 x 0.8	26	68	14	17.5	14	20	13	8	15	39.5	76
CY1R50	25	110	8.6	10	M8 x 1.25	15	Rc 1/4	82	159	48	30	42	60	41	10	50	113	176
CY1R63	24	118	8.6	10	M8 x 1.25	16	Rc 1/4	94	171	60	32	48	70	47	10	60	121	188

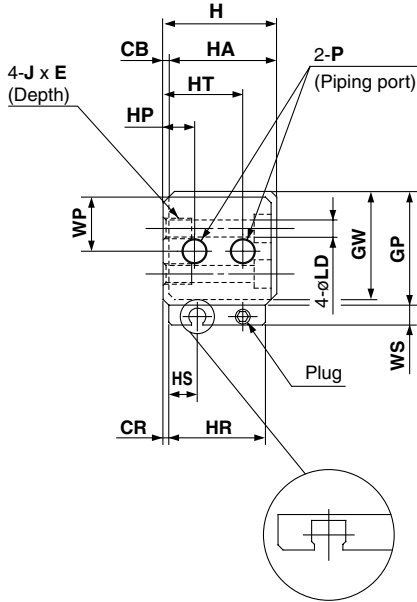
# Magnetically Coupled Rodless Cylinder Direct Mount Type **Series CY1R**

## Centralized Piping Type: $\phi 10$ , $\phi 50$ , $\phi 63$

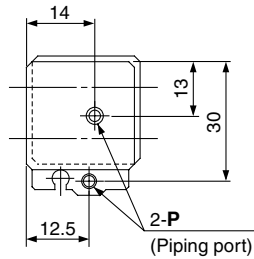
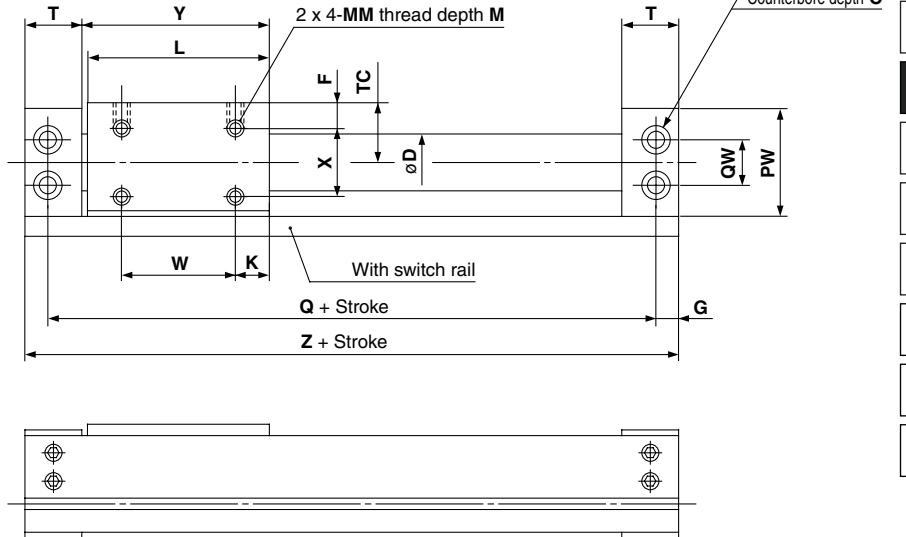
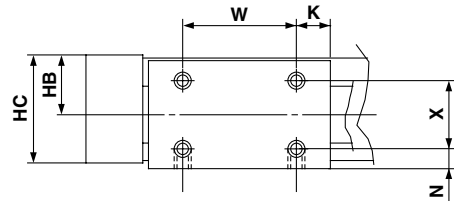
**CY1RG** Bore size  $\frac{H}{L}$  Stroke

Note) Type L is not available for  $\phi 10$ .

### CY1RG50/63



(Area E) CY1RG50/63



**CY1RG10**

Model	B	C	CB	CR	D	F	G	GP	GW	H	HA	HB	HC	HP	HR	HS	HT	J x E	K
<b>CY1RG10</b>	6.5	3.2	2	0.5	12	6.5	4	27	25.5	26	24	14	25	—	24	5	—	M4 x 0.7 x 6	9
<b>CY1RG50</b>	14	8.2	5	2	53	17	8.5	83	81.5	85	80	45	84	32	80	9	56	M10 x 1.5 x 15	25
<b>CY1RG63</b>	14	8.2	5	3	66	18	8.5	95	93.5	97	92	51	96	35	90	9.5	63.5	M10 x 1.5 x 15	24

Model	L	LD	M	MM	N	P	PW	Q	QW	T	TC	W	WP	WS	X	Y	Z
<b>CY1RG10</b>	38	3.5	4	M3 x 0.5	4.5	M5 x 0.8	26	68	14	17.5	14	20	13	8	15	39.5	76
<b>CY1RG50</b>	110	8.6	10	M8 x 1.25	15	Rc 1/4	82	159	48	30	42	60	41	10	50	113	176
<b>CY1RG63</b>	118	8.6	10	M8 x 1.25	16	Rc 1/4	94	171	60	32	48	70	47	10	60	121	188

(mm)

MX

MTS

MY

**CY**

MG

CX

D-

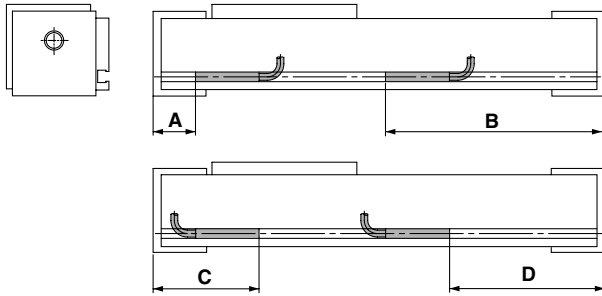
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# Series CY1R

## Proper Auto Switch Mounting Position (Detection at stroke end)



### ø6, ø10

Bore size (mm)	Applicable auto switch							
	D-A9□				D-M9□/F9□W			
	A	B	C	D	A	B	C	D
6	26	46	46	26	30	42	42	30
10	28	48	48	28	32	44	44	32

### ø50, ø63

Bore size (mm)	Applicable auto switch			
	D-Z7□/Z80/Y59□/Y69□ D-Y7P/Y7PV/Y7□W/Y7□WV			
	A	B	C	D
50	27.5	148.5	52.5	123.5
63	29.5	158.5	54.5	133.5

\* 50 mm is the minimum stroke available with 2 auto switches mounted.

## Operating Range

Auto switch model	Bore size (mm)								
	6	10	15	20	25	32	40	50	63
D-A9□	9	13	8	6	—	—	—	—	—
D-M9□, D-F9□W	5 (2.5)	7 (4)	5	4	—	—	—	—	—
D-Z7□/Z80	—	—	—	—	9	9	11	11	11
D-Y59□/Y69□/Y7P/Y7PV D-Y7□W/Y7□WV	—	—	—	—	7	6	6	7	6

\* Some switches cannot be mounted.

\* Since this is a guideline including hysteresis, not meant to be guaranteed. (Assuming approximately ±30% dispersion)

There may be the case it will vary substantially depending on an ambient environment.

Note) Figures in parentheses are the cases for D-M9□ switch type.

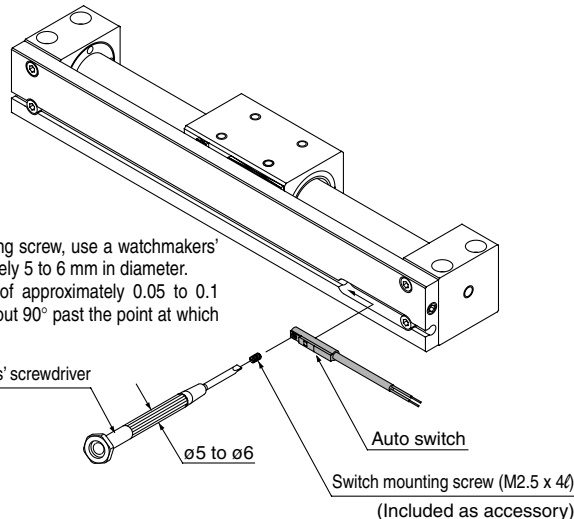
Other than the models listed in "How to Order", the following auto switches are applicable. For detailed specifications, refer to page 8-30-1.

Type	Model	Electrical entry (Fetching direction)	Features
Reed switch	D-A90	Grommet (In-line)	Without indicator light
	D-Z80		
Solid state switch	D-Y69A	Grommet (Perpendicular)	Diagnostic indication (2-color indication)
	D-Y69B		
	D-Y7PV		
	D-Y7NWV		
	D-Y7PWV		
	D-Y7BWV		

\* Normally closed (NC = b contact), solid state switch (D-F9G/F9H/Y7G/Y7H type) are also available. For details, refer to page 8-30-31.

## Mounting of Auto Switch

When mounting auto switches, they should be inserted into the cylinder's switch groove from the direction shown in the drawing on the right. After setting in the mounting position, use a flat head watchmakers' screwdriver to tighten the mounting screw which is included.



Note) When tightening an auto switch mounting screw, use a watchmakers' screwdriver with a handle of approximately 5 to 6 mm in diameter.

Furthermore, use a tightening torque of approximately 0.05 to 0.1 N·m. As a guide, it should be turned about 90° past the point at which tightening can be felt.

## Auto Switch Specifications

- Switches (switch rail) can be added to the standard type (without switch rail). Model no. of switch rail accessory is listed on pages 8-15-32 and 8-15-41. Order them along with auto switch.
- For switch magnet installation procedures, refer to the separate disassembly steps.