

# Magnetically Coupled Rodless Cylinder: Direct Mount Type

## Series *CY3R*

ø6, ø10 ø15, ø20 ø25, ø32, ø40, ø50, ø63

### How to Order

**CY3R** **25** **300** **M9B**

**Direct mount type**

**Piping type**

Nil	Both sides piping type
G	Centralized piping type

Note 1) Type G (centralized piping) is not available for ø6.

**Bore size**

6	6 mm
10	10 mm
15	15 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm

**Port thread type**

Symbol	Type	Bore size
Nil	M thread	6, 10, 15
	Rc	20, 25, 32, 40
TN	NPT	50, 63
TF	G	50, 63

**Number of auto switches**

Nil	2 pcs.
S	1 ps,
n	"n" pcs.

**Auto switch type**

Nil	Without auto switch
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Note 1) In case of ø20 with switch rail but without switch, the cylinder construction is for reed switch.  
\* Refer to the table below for auto switch model numbers.  
\* The auto switch is shipped together, but not assembled.

**Switch rail**

Nil	With switch rail
N	Without switch rail

Note 1) A type with switch rail has built-in switch magnets.  
Note 2) ø15 has built-in switch magnets even without switch rail.

**Standard stroke**  
Refer to page 12 for standard stroke.

**Applicable Auto Switches**/The applicable auto switch is determined by the bore size. Refer to pages 21 to 23 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage			Auto switch model	Lead wire length (m)*			Pre-wired connector	Applicable load	
					DC		AC		0.5 (Nil)	3 (L)	5 (Z)			
Reed switch	—	Grommet	No	2-wire	24 V	5 V, 12 V	100 V or less	A90	●	●	—	—	IC circuit	Relay, PLC
			Yes	3-wire (NPN equiv.)	—	5 V	—	A93	●	●	—	—	—	—
			Yes	3-wire (NPN)	—	5 V	—	A96	●	●	—	—	IC circuit	—
Solid state switch	Diagnostic indication (2-color display)	Grommet	Yes	3-wire (PNP)	24 V	5 V, 12 V		M9N	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				M9P	●	●	○	○	—	
				2-wire				M9B	●	●	○	○	—	
				3-wire (NPN)				F9NW	●	●	○	○	IC circuit	
				3-wire (PNP)				F9PW	●	●	○	○	—	
				2-wire				F9BW	●	●	○	○	—	
				2-wire									—	

\* Lead wire length symbols: 0.5 m..... Nil (Example) M9N  
3 m... L (Example) M9NL  
5 m... Z (Example) M9NZ

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

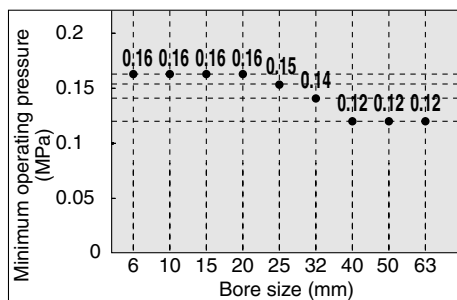
- For ø25, 32, 40, 50, and 63, other than the applicable auto switches listed in "How to Order" the other auto switches can be mounted. For detailed specifications, refer to page 18
- With pre-wired connector is also available in solid state auto switches. For specifications, refer to "SMC Best Pneumatics" catalog vol. 8, page 8-30-52.



**Made to Order**  
(Refer to page 24 for details.)

Symbol	Specifications
-X116	Hydro specifications
-X160	High speed specifications
-X322	Outside of cylinder tube with hard chrome plating
-X1468	Interchangeable specification with CY1□6
-XC57	With floating joint

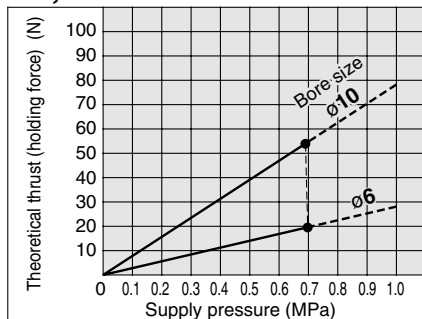
## Minimum Operating Pressure



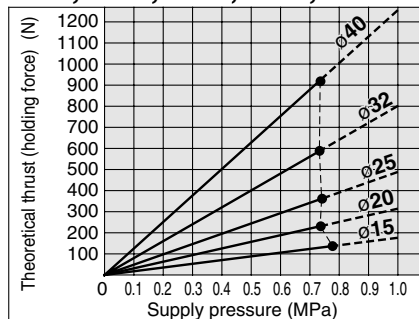
Note) Values show when the cylinder is operating without a load.

## Theoretical Cylinder Thrust

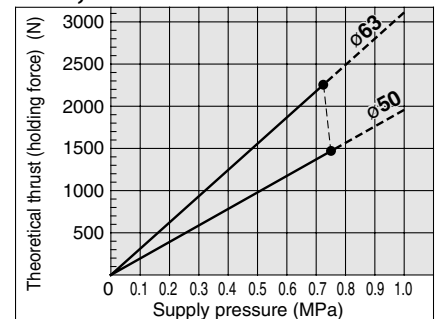
ø6, ø10



ø15, ø20, ø25, ø32, ø40



ø50, ø63



## Weight

Unit: kg

Bore size (mm)		6	10	15	20	25	32	40	50	63
Basic weight (at 0 st)	With switch rail	0.086	0.111	0.272	0.421	0.622	1.217	1.98	3.54	5.38
	Without switch rail	0.069	0.08	0.225	0.351	0.542	1.097	1.82	3.25	5.03
Additional weight per 50 mm of stroke	With switch rail	0.016	0.034	0.040	0.051	0.056	0.076	0.093	0.159	0.188
	Without switch rail	0.004	0.014	0.015	0.020	0.023	0.033	0.040	0.077	0.096

Calculation method/Example: CY3R25-500 (with switch rail) Basic weight. .0.622 (kg), Additional weight. .0.056 (kg/50 st), Cylinder stroke. 500 (st)  
 $0.622 + 0.056 \times 500 \div 50 = 1.182$  (kg)

## Specifications

Fluid	Air
Proof pressure	1.05 MPa
Max. operating pressure	0.7 MPa
Min. operating pressure	Refer to the minimum operating pressure table.
Ambient and fluid temperature	-10 to 60°C
Piston speed	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 to: $+1.8_0$
Mounting	Direct mount type
Mounting orientation	Horizontal, Inclined, Vertical Note 2)

Note 1) When an auto switch is installed at an intermediate position of a type with auto switch, keep the maximum piston speed at 300 mm/s or below to ensure operation of relays or other devices.

Note 2) When vertically mounting, it is impossible to perform an intermediate stop by means of a pneumatic circuit.

## Standard Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke without switch (mm)	Max. stroke with switch (mm)
6	50, 100, 150, 200	300	300
10	50, 100, 150, 200, 250, 300	500	500
15	50, 100, 150, 200, 250, 300, 350, 400, 450, 500	1000	750
20	100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800	1500	1000
25			1200
32			1500
40	100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900, 1000	2000	1500
50			
63			

Note) The longer the stroke, the larger the amount of deflection in a cylinder tube. Pay attention to the mounting bracket and clearance value.

## Magnetic Holding Force

Bore size (mm)	6	10	15	20	25	32	40	50	63
Holding force (N)	19.6	53.9	137	231	363	588	922	1471	2256



**Caution**

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