

# Smooth Cylinder

# Series CQSY

ø12, ø16, ø20, ø25

## How to Order

**CQSY B 20 - 30 D C**

**With auto switch** **CDQSY B 20 - 30 D C - M9BW**

**With auto switch**  
(Built-in magnet)

**Mounting style**

<b>B</b>	Through-hole/Both ends tapped (Standard)
<b>L</b>	Foot style
<b>F</b>	Rod side flange style
<b>G</b>	Head side flange style
<b>D</b>	Double clevis style

\* Mounting brackets are not mounted and are supplied loose at the time of shipment.

**Bore size**

<b>12</b>	12 mm
<b>16</b>	16 mm
<b>20</b>	20 mm
<b>25</b>	25 mm

**Cylinder stroke (mm)**  
Refer to "Standard Stroke" on page 1049.

**Auto switch**

<b>Nil</b>	Without auto switch
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\* For the applicable auto switch model, refer to the table below.

**Bumper/Rod end thread**

<b>C</b>	Rubber bumper & Rod end female thread
<b>CM</b>	Rubber bumper & Rod end male thread

**Action**

<b>D</b>	Double acting
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**Number of auto switches**

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	n pcs.

**Built-in Magnet Cylinder Model**  
If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.  
(Example) CDQSYL25-30D

## Applicable Auto Switch/Refer to pages 1719 to 1827 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire (m)				Pre-wired connector	Applicable load			
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)					
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC	
	3-wire (PNP)			12 V		M9PV		M9P	●	●	●	○	○	—			
	2-wire			5 V, 12 V		M9BV		M9B	●	●	●	○	○	—			
	3-wire (NPN)			5 V, 12 V	M9NWV	M9NW		●	●	●	○	○	IC circuit				
	3-wire (PNP)				M9PWV	M9PW		●	●	●	○	○	—				
	2-wire				M9BWV	M9BW		●	●	●	○	○	—				
	3-wire (NPN)			5 V, 12 V	M9NAV***	M9NA***		○	○	●	○	○	IC circuit				
	3-wire (PNP)				M9PAV***	M9PA***		○	○	●	○	○	—				
	2-wire				M9BAV***	M9BA***		○	○	●	○	○	—				
	Magnetic field resistant (2-color indication)			2-wire (Non-polar)	—	—		P3DW**	●	—	●	●	○	—			
Reed switch	—	Grommet	Yes	3-wire (Equiv. NPN)	—	5 V	—	A96V	A96	●	—	●	—	—	IC circuit	—	
				2-wire	24 V	12 V	100 V	A93V	A93	●	—	●	—	—	—	—	Relay, PLC
							100V or less	A90V	A90	●	—	●	—	—	—	IC circuit	

\*\*\* Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Consult with SMC regarding water resistant types with the above model numbers.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ

\* ○: Manufactured upon receipt of order.

\*\* D-P3DW□ is compatible with ø25.

It is mounted away from the port side to avoid interference with fittings.

\* In addition to the models in the above table, there are some other auto switches that are applicable. For more information, refer to page 1055.

\* Refer to pages 1784 and 1785 for details of auto switches with a pre-wired connector. For D-P3DW□, refer to pages 1773-1 and 1773-2.

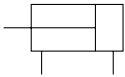
\* Auto switches are not mounted and are supplied loose at the time of shipment.

Note) Please also confirm whether the selected auto switch can be mounted at the desired position. Auto switches of models D-A9□V, M9□V, M9□WV and M9□AVL may not be mounted on the side with ports due to the cylinder stroke or the size of the fittings.

**Specifications**

Bore size (mm)	12	16	20	25
Type	Pneumatic (Non-lube)			
Action	Double acting, Single rod			
Fluid	Air			
Proof pressure	1.05 MPa			
Maximum operating pressure	0.7 MPa			
Ambient and fluid temperature	Without auto switch -10 to 70°C (with no freezing)			
	With auto switch -10 to 60°C (with no freezing)			
Cushion	Rubber bumper			
Rod end thread	Female thread			
Stroke length tolerance	+1.0 mm (Note) 0			
Mounting	Through-hole/Both ends tapped common			
Operating piston speed	5 to 500 mm/s			
Allowable leakage rate	0.5 l/min (ANR) or less			

Note) Stroke length tolerance does not include the amount of bumper change.

**JIS Symbol****Minimum Operating Pressure**

Unit: MPa				
Bore size (mm)	12	16	20	25
Minimum operating pressure	0.03		0.02	

**Standard Stroke**

Bore size (mm)	Standard stroke (mm)
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50

**Replacement Parts: Seal Kit**

Bore size (mm)	Kit no.	Contents
12	CQSY12-PS	Piston seal 1 pc. Rod seal 1 pc.
16	CQSY16-PS	Tube gasket 1 pc. Grease pack (10 g) 1 pc.
20	CQSY20-PS	
25	CQSY25-PS	

When only grease for maintenance is necessary, please order by the following part numbers.

Grease pack part no.: **GR-L-005** (5 g)  
**GR-L-010** (10 g)  
**GR-L-150** (150 g)

**Theoretical Output**

Unit: N						
Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm <sup>2</sup> )	Operating pressure (MPa)		
				0.3	0.5	0.7
12	6	IN	84.8	25	42	59
		OUT	113	34	57	79
16	8	IN	151	45	75	106
		OUT	201	60	101	141
20	10	IN	236	71	118	165
		OUT	314	94	157	220
25	12	IN	378	113	189	264
		OUT	491	147	245	344

**Intermediate Stroke**

Method		Installation of spacer on standard stroke body.	
Model no.		Refer to page 1048 for standard model no.	
Standard stroke	Method	Intermediate strokes at 1 mm intervals are available by using spacers with standard stroke cylinders.	
	Stroke range	Bore size (mm)	Stroke range (mm)
		12, 16	1 to 29
		20, 25	1 to 49
Example		Part no.: CQSYB25-47DC CQSYB25-50DC with 3 mm width spacer inside. B dimension is 77.5 mm.  Calculation:ø25, B dimension 27.5 mm (without auto switch) 27.5 (B dimension) + 50 (st) = 77.5 (mm)	

**REA****REB****REC****C□Y****C□X****MQ****RHC****RZQ****D-□****-X□**Individual  
**-X□**