

Compact Cylinder: Standard Double Acting, Single Rod

CQ2 Series

ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

How to Order

Without auto switch
ø12 to ø25

CQ2 B [] 20 [] - 30 D [] - [] [] - []

Without auto switch
ø32 to ø100

CQ2 B [] 32 [] - 30 D [] Z - [] [] - []

With auto switch

CDQ2 B [] 32 [] - 30 D M Z - L W - M9BW [] - []

With auto switch magnet

The overall length of the cylinder with an auto switch magnet is longer than that of the cylinder without an auto switch magnet by the length of the built-in magnet. For details, refer to the dimensions of each size.

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬

① Mounting

B	Through-hole
A	Both ends tapped
L	Foot
LC	Compact foot
F	Rod flange
G	Head flange
D	Double clevis

- * Mounting brackets are shipped together with the product but do not come assembled.
- * Refer to ⑨ for the through-hole type mounting bolt.
- * For cylinders with mounting options "L," "LC," or "F," the cylinder rod protrusion dimensions (Dimensions L and L₁) vary from the standard cylinder. When only ordering the cylinder, order the rod end length increased by 10 mm (-XC2) cylinder. For details ⇨ p. 178

② Type

Nil	Pneumatic
H	Air-hydro* ¹

- *¹ The bore sizes available for the air-hydro type are ø20 to ø100.

③ Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

④ Port thread type

Nil	M thread	ø12 to ø25
	Rc	
TN	NPT	ø32 to ø100
TF	G	
F	Built-in One-touch fittings* ¹	

- *¹ The bore sizes available with One-touch fittings are ø32 to ø63. However, they cannot be selected for the air-hydro type.
- * "TF" is not selectable for the air-hydro type.
- * For cylinders without an auto switch magnet, M threads are compatible only with ø32-5 mm stroke.

⑤ Cylinder stroke (For details on the minimum L stroke for auto switch mounting ⇨ p. 157)

Bore size	Standard stroke [mm]
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63, 80, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

- * For long strokes exceeding the standard stroke range ⇨ p. 80
- * For details on the manufacturing of intermediate strokes ⇨ p. 18
- * The bore sizes available for the air-hydro type are ø20 to ø100.

⑦ Body option

Nil	Rod end female thread
F	With boss on head end
C	With rubber bumper* ¹
M	Rod end male thread

- *¹ The type with a rubber bumper is not selectable for the air-hydro type.
- * Combined body options, such as "FC," "FM," "FCM," and "CM" can be selected.

⑨ Through-hole type mounting bolt

Nil	None
L	Shipped together

- * Mounting bolt is shipped together with the product only when the mounting bracket is "B" (Through-hole). For details: Without auto switch magnet ⇨ p. 21 With auto switch magnet ⇨ p. 22
- * **When a made-to-order option is selected, the mounting bolt is not shipped together with the product. Please order it separately.**

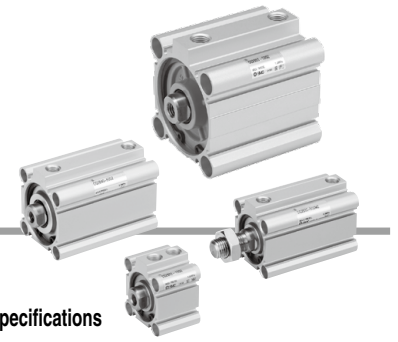
⑩ Rod end bracket (⇨ p. 34 to 36)

Nil	None
D	Type A mounting bracket + Joint
E	Type B mounting bracket + Joint
V	Single knuckle joint
W	Double knuckle joint

- * Options "D" and "E" must be used in combination with body option (Nil), the rod end female thread, and options "V" and "W" must be used in combination with body option (M), the rod end male thread.
- * A knuckle pin is not provided with the single knuckle joint (V). If a pin is required, please order it separately. For details ⇨ p. 34
- * **When a made-to-order option is selected, the rod end bracket cannot be selected. Please order it separately.**

⑧ Auto switch mounting groove

Z	ø12 to ø25	2 surfaces
	ø32 to ø100	4 surfaces



11 Auto switch

Nil	Without auto switch
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* For applicable auto switches, refer to the table below.

12 Number of auto switches

Nil	2
S	1
n	n

13 Made to order common specifications

For details ⇨ p. 17

Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch. (Example) CDQ2L32-25DZ

For details on **auto switch mounting** ⇨ p. 149 to 165

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

Proposals for Improving Water and Dust-resistance

SMC offers a wide range of models suitable for various operating environments. This includes models that can be used in environments that the basic model cannot, such as those where coolant liquid, water droplets/splashing, dust, etc., are present.

For details, refer to the **Web Catalog**.

- **Water-resistant cylinder**
- **Cylinder with Stable Lubrication Function (Lube-retainer)**
- **Dust resistant cylinder**

Applicable Auto Switches / Refer to the **Web Catalog** 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	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)		Relay, PLC	IC circuit	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—			○
				3-wire (PNP)				M9PV	M9P	●	●	●	○	—	○		
				2-wire				M9BV	M9B	●	●	●	○	—	○		
				3-wire (NPN)				M9NVV	M9NV	●	●	●	○	—	○		
	3-wire (PNP)			M9PVV				M9PV	●	●	●	○	—	○			
	2-wire			M9BVV				M9BV	●	●	●	○	—	○			
	3-wire (NPN)			M9NAV*1				M9NA*1	○	○	●	○	—	○			
	3-wire (PNP)			M9PAV*1				M9PA*1	○	○	●	○	—	○			
	2-wire			M9BAV*1				M9BA*1	○	○	●	○	—	○			
	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)				—	—	—	P3DWA	●	—	●	●	—	○
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V, 12 V	100 V	A96V	A96	●	●	●	●	—	○	Relay, PLC	IC circuit
				2-wire				A93V	A93	●	●	●	●	—	○*2		
				—				A90V	A90	●	●	●	●	—	○*2		

*1 Water-resistant type auto switches can be mounted on the models on page 15, but SMC cannot guarantee water resistance.

A water-resistant type cylinder (⇨ p. 107) is recommended for use in environments which require water resistance.

*2 The load voltage used is 24 VDC.

* Lead wire length symbols: 0.5 m Nil (Example) M9NV
 1 m M (Example) M9NVV
 3 m L (Example) M9NWL
 5 m Z (Example) M9NWZ

* Auto switches marked with a "○" are produced upon receipt of order.
 * The D-P3DWA type is only available in sizes ø25 to ø100.

* There are applicable auto switches other than those listed above. For details ⇨ p. 165

Standard	Double Acting, Double Rod	CQ2W
Standard	Double Acting, Single Rod	CQ2
Standard	Single Acting, Spring Return, Single Rod	CQ2
Large Bore Size	Double Acting, Double Rod	CQ2W
Large Bore Size	Double Acting, Single Rod	CQ2
Anti-lateral Load	Double Acting, Single Rod	CQ2S
Long Stroke	Double Acting, Single Rod	CQ2
Non-rotating Rod	Double Acting, Single Rod	CQ2K
Non-rotating Rod	Double Acting, Double Rod	CQ2KW
Water Resistant	Double Acting, Single Rod	CQ2-RV
Water Resistant	Double Acting, Double Rod	CQ2W-RV
Axial Piping	Double Acting, Single Rod	CQP2
Axial Piping	Single Acting, Spring Return, Single Rod	CQP2
With End Lock	Double Acting, Single Rod	CBQ2
Auto Switch		
Made to Order		