

Compact Cylinder: Standard Type Double Acting, Single Rod Series CQS

ø12, ø16, ø20, ø25

How to Order

CQS B 20 - 30 D - [] - []

With auto switch CDQS B 20 - 30 D - [] - **M9BW** - [] - []

With auto switch (Built-in magnet)

Mounting style

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

* In the case of long strokes, use either ends tapped mounting or bracket mounting.
* Mounting brackets are shipped together, (but not assembled).
* Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for CQS" on pages 556 and 557.

Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm

Cylinder stroke (mm)

Bore size	Standard stroke	Long stroke
12, 16	5, 10, 15, 20, 25, 30	35, 40, 45, 50, 75, 100, 125, 150, 175, 200
20	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	75, 100, 125, 150, 175, 200
25		75, 100, 125, 150, 175, 200, 250, 300

For "Manufacture of Intermediate Strokes", refer to page 552.

Number of auto switches

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

Auto switch

Nil	Without auto switch
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* Refer to the table below for the applicable auto switch model.

Body option

<Standard stroke>

Nil	Standard
C	With rubber bumper
M	Rod end male thread
F	Boss on head side

* Combination of body options is available.

<Long stroke>

C	With rubber bumper Rod end female thread (Standard)
CM	With rubber bumper Rod end male thread

* Rubber bumper is standard equipment for long stroke type.

Action

D	Double acting
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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) CDQSL25-30D

- CUJ
- CU
- CQS
- CQ2
- RQ
- CQM
- MU

Applicable Auto Switch/Refer to pages 1263 to 1371 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)					
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	IC circuit		
				3-wire (PNP)				M9PV	M9P	●	●	●	○	○			
				2-wire				M9BV	M9B	●	●	●	○	○			
	Diagnostic indication (2-color indication)			3-wire (NPN)	24 V	5 V, 12 V	—	M9NWV	M9NW	●	●	●	○	○		○	IC circuit
				3-wire (PNP)				M9PWV	M9PW	●	●	●	○	○			
				2-wire				M9BWV	M9BW	●	●	●	○	○			
	Water resistant (2-color indication)			3-wire (NPN)	24 V	5 V, 12 V	—	M9NAV	M9NA	○	○	●	○	○		○	IC circuit
				3-wire (PNP)				M9PAV	M9PA	○	○	●	○	○			
				2-wire				M9BAV	M9BA	○	○	●	○	○			
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	100 V or less	A96V	A96	●	—	●	—	—	IC circuit	—	
				2-wire				A93V	A93	●	—	●	—	—	—		—
			No	2-wire	24 V	12 V	100 V or less	A90V	A90	●	—	●	—	—	IC circuit	Relay, PLC	

* 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

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

* Since there are other applicable auto switches than listed, refer to page 597 for details.
* For details about auto switches with pre-wired connector, refer to pages 1328 and 1329.
* Auto switches are shipped together (not assembled).
Note) There is the case A9□V/M9□V/M9□WV/M9□AVL type auto switches cannot be mounted on the port surface, depending on the cylinder's stroke and the fitting size for piping. Consult with SMC for details.

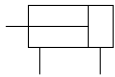


- D-□
- X□
- Individual
- X□
- Technical data

Series CQS



JIS Symbol



Made to Order Specifications

(For details, refer to pages 1373 to 1565.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat-resistant cylinder (-10 to 150 °C) (without an auto switch)
-XB7	Cold-resistant cylinder (-40 to 70 °C) (without an auto switch)
-XB9	Low speed cylinder (10 to 50 mm/s)
-XB10	Intermediate stroke (Using exclusive body)
-XB13	Low speed cylinder (5 to 50 mm/s)
-XC6	Piston rod, retaining ring, rod end nut made of stainless steel
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC10	Dual stroke cylinder/Double rod type
-XC11	Dual stroke cylinder/Single rod type
-XC36	With boss in rod side
-X271	Fluororubber seals
-X525	Long stroke of adjustable extension stroke cylinder (-XC8)
-X526	Long stroke of adjustable retraction stroke cylinder (-XC9)
-X636	Long stroke of dual stroke single rod
-X1876	With concave shape end boss on the cylinder tube head side

Body Option

Description	Application
Rod end male thread	Available for all standard models of double acting, single rod.
Rubber bumper	

* Rubber bumper is standard equipment for long stroke type.

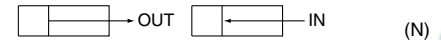
Specifications

Bore size (mm)		12	16	20	25
Action		Double acting, Single rod			
Fluid		Air			
Lubrication		Not required (Non-lube)			
Proof pressure		1.5 MPa			
Maximum operating pressure		1.0 MPa			
Minimum operating pressure		0.07 MPa	0.05 MPa		
Ambient and fluid temperature		Without auto switch: -10 to 70°C (No freezing)			
		With auto switch: -10 to 60°C (No freezing)			
Cushion		None, Rubber bumper *			
Rod end thread		Female thread			
Stroke length tolerance		Standard stroke: $+1_0^0$ Long stroke: $+1_0^{1.4}$ *			
Mounting		Through-hole/Both ends tapped common			
Piston speed		50 to 500 mm/s			
Allowable kinetic energy (J)	Standard type	0.022	0.038	0.055	0.09
	With rubber bumper	0.043	0.075	0.11	0.18

* Stroke length tolerance does not include the deflection of the bumper.

* Only rubber bumper is available for the long stroke type.

Theoretical Output



Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm ²)	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

Manufacture of Intermediate Stroke

Description		Spacer is installed in the standard stroke body.		Exclusive body (-XB10)	
Part no.		Refer to "How to Order" for the standard model no. (page 551).		Suffix "-XB10" to the end of standard model no. (page 551).	
Standard stroke	Description	Intermediate strokes by the 1 mm interval are available by using spacers with standard stroke cylinders.		Dealing with the stroke by the 1 mm interval by using an exclusive body with the specified stroke.	
		Bore size	Stroke range	Bore size	Stroke range
	Stroke range	12, 16	1 to 29	12, 16	6 to 29
Long stroke	Description	Intermediate strokes by the 1 mm interval are available by using spacers with standard stroke cylinders.		Dealing with the stroke by the 1 mm interval by using an exclusive body with the specified stroke.	
		Bore size	Stroke range	Bore size	Stroke range
	Stroke range	12, 16	31 to 199	12, 16	31 to 199
		20	51 to 199	20	51 to 199
25	51 to 299	25	51 to 299		
Example		Part no.: CQSB25-47D CQSB25-50D with 3 mm width spacer inside. B dimension is 72.5 mm.		Part no.: CQSB25-47D-XB10 Makes 47 stroke tube. B dimension is 69.5 mm.	

Refer to pages 595 to 597 for cylinders with auto switches.

- Minimum auto switch mounting stroke
- Proper auto switch mounting position (detection at stroke end) and mounting height
- Operating range
- Switch mounting bracket/Part no.