

Compact Cylinder: Non-rotating Rod Type Double Acting, Single Rod Series CQSK

ø12, ø16, ø20, ø25

How to Order

CQSK B 20 - 30 D - [] - []

With auto switch CDQSK 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

Bore size

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

Cylinder stroke (mm)

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

For "Manufacture of Intermediate Strokes", refer to page 576.

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

Nil	Standard (Rod end female thread)
M	Rod end male thread
F	Boss on head side

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) CDQSKL25-30D

* Mounting brackets are shipped together, (but not assembled).
* Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for CQSK" on page 579.

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	●	●	○	○	
				3-wire (NPN)				M9NWV	M9NW	●	●	○	○	
	Diagnostic indication (2-color indication)			3-wire (PNP)	M9PWV	M9PW	●	●	○	○	IC circuit			
				2-wire	M9B WV	M9B W	●	●	○	○				
				3-wire (NPN)	M9NAV	M9NA	○	○	●	○		IC circuit		
				3-wire (PNP)	M9PAV	M9PA	○	○	●	○				
Water resistant (2-color indication)	2-wire	M9BAV	M9BA	○	○	●	○	—						
	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	A96V	A96	●	—	●	—	IC circuit
—	2-wire			A93V				A93	●	—	●	—	—	Relay, PLC
Reed switch	—	Grommet	No	—	24 V	12 V	100 V	A90V	A90	●	—	●	—	
				100 V or less			—	—	—	—	—	—	—	—

* 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-□

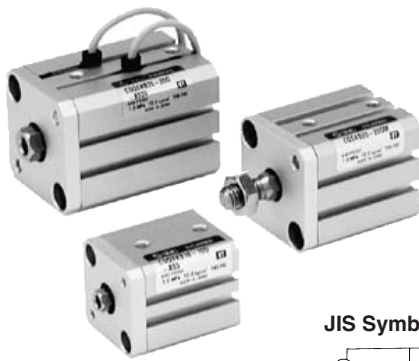
-X□

Individual

-X□

Technical data

Series CQSK



JIS Symbol



Made to Order Specifications

(For details, refer to pages 1426 and 1430 to 1446.)

Symbol	Specifications
-XC6	Piston rod and 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
-X1876	With concave shape end boss on the cylinder tube head side

Body Option

Description	Application
Rod end male thread	Available for all non-rotating rod type.

Mounting Bracket Part No.

Bore size (mm)	Foot ⁽¹⁾	Flange	Double clevis
12	CQSK-L012	CQSK-F012	CQSK-D012
16	CQSK-L016	CQSK-F016	CQSK-D016
20	CQSK-L020	CQSK-F020	CQSK-D020
25	CQSK-L025	CQSK-F025	CQSK-D025



Note 1) When ordering foot bracket, order 2 pieces per cylinder.

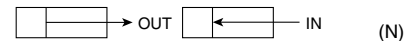
Note 2) Parts belonging to each bracket are as follows.

Foot or Flange style: Body mounting bolt
Double clevis style: Clevis pin, Type C retaining ring for axis, Body mounting bolt.

Standard 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			
Rod end thread	Female thread			
Stroke length tolerance	+1.0 mm 0			
Mounting	Through-hole/Both ends tapped common			
Piston speed	50 to 500 mm/s			
Allowable kinetic energy (J)	0.022	0.038	0.055	0.09
Rod non-rotating accuracy	±1°		±0.7°	

Theoretical Output



Bore size (mm)	Rod width across flats (mm)	Action	Piston area (mm ²)	Operating pressure (MPa)		
				0.3	0.5	0.7
12	5.2	IN	90	27	45	63
		OUT	113	34	57	79
16	6.2	IN	168	50	84	117
		OUT	201	60	101	141
20	8.2	IN	256	77	128	179
		OUT	314	94	157	220
25	10.2	IN	401	120	200	281
		OUT	491	147	245	344

Manufacture of Intermediate Stroke

Description	Spacer is installed in the standard stroke body.		
Part no.	Refer to "How to Order" for the standard model no. (page 575).		
Standard stroke	Description	Intermediate strokes by the 1 mm interval are available by using spacers with standard stroke cylinders.	
	Stroke range	Bore size	Stroke range
		12, 16	1 to 29
20, 25	1 to 49		
Example	Part no.: CQSKB25-47D CQSKB25-50D with 3 mm width spacer inside. B dimension is 77.5 mm.		

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

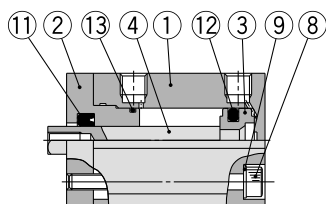
- Minimum auto switch mounting stroke
- Proper auto switch mounting position (detection at stroke end) and mounting height
- Operating range
- Switch mounting bracket: Part no.

Series CQSK

Construction

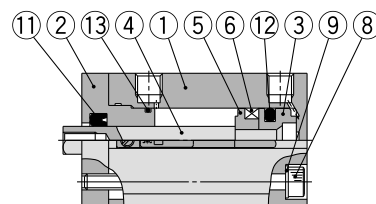
Basic style

ø12

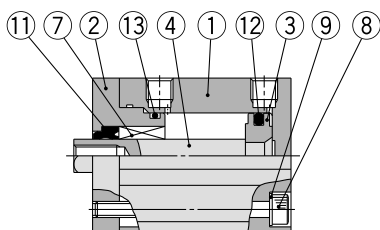


With auto switch (Built-in magnet)

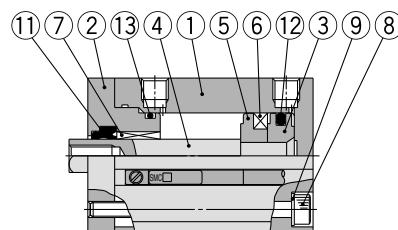
ø12



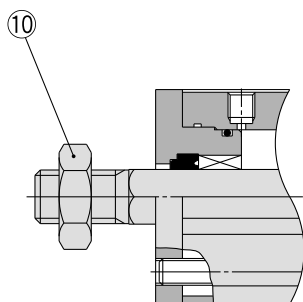
ø16, ø20, ø25



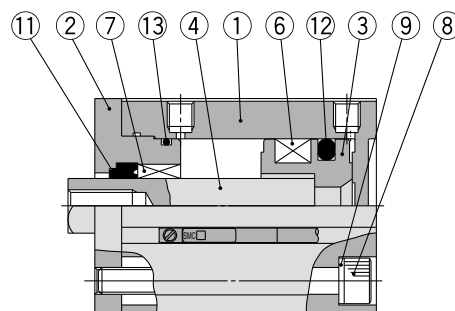
ø16



Rod end male thread



ø20, ø25



Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Rod cover	Aluminum alloy	Anodized
3	Piston	Aluminum alloy	Chromated
4	Piston rod	Stainless steel	
5	Spacer for switch type	Aluminum alloy	Chromated
6	Magnet	—	
7	Non-rotating guide	Oil impregnated sintered alloy	ø16, ø20 and ø25
8	Hexagon socket head cap screw	Alloy steel	Nickel plated
9	Plain washer	Rolled steel	Nickel plated
10	Rod end nut	Carbon steel	Nickel plated
11*	Rod seal	NBR	
12*	Piston seal	NBR	
13*	Tube gasket	NBR	

Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
12	CQSKB12-PS	Set of nos. above ①, ②, ⑬.
16	CQSKB16-PS	
20	CQSKB20-PS	
25	CQSKB25-PS	

* Seal kit includes ①, ②, ⑬. Order the seal kit, based on each bore size.

* Since the seal kit does not include a grease pack, order it separately.

Grease pack part no.: GR-S-010 (10 g)

⚠ Precautions

Operating Precautions

⚠ Caution

- Any kind of operation producing rotational torque to piston rod must be considered. The non-rotating guide would be deformed and the accuracy would be compromised. Refer to the table below for rotation torque allowance.

Allowable rotational torque (N-m) or less	ø12	ø16	ø20	ø25
		0.04	0.04	0.2

- Load to piston rod must always be in an axial direction.
- When a workpiece is secured to the end of the piston rod, ensure that the piston rod is retracted entirely, and place a wrench on the portion of the rod that protrudes beyond the section. Also, tighten by giving consideration to prevent the tightening torque from being applied to the non-rotating guide.

