Compact Cylinder

CQS Series

ø12, ø16, ø20, ø25

Ideal for machine designs with small space requirements

The "D-M9" auto switch will not protrude from switch mounting groove.

Square body shape gives you flexibility for designing machine.

Cross-section of a cylinder tube is the same configuration regardless of w/ switch or w/o switch.

Auto switch mounting allows for flexible designing requirements

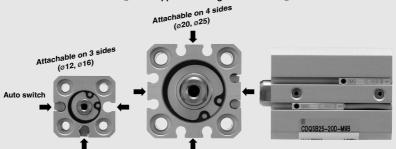
3 faces on $\emptyset12, \emptyset16,$ and all 4 faces including port side on $\emptyset20, \emptyset25.$

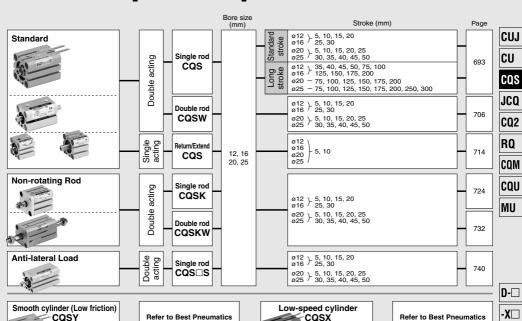
2 way basic mounting: Through-hole or both ends tapped

Basic mounting is 2 way. You can choose either through-hole or both ends tapped mounting.

Non-rotating accuracy Non-rotating rod

Hexagonal cross sectional shape piston rod for high non-rotation accuracy. \emptyset 12, \emptyset 16 — \pm 1° \emptyset 20, \emptyset 25 — \pm 0.7°





SMC

No. 2-3.

No. 2-3.

Technical Data

cas Series Compact Cylinder

43% (for ø12)

Reduction of installation space

Added compact type foot brackets.

Compact foot bracket has the same width as the cylinder.

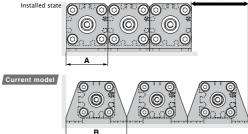
Overall width reduced by up to



■More compact installation space possible

- Short pitch mounting is possible.
- Allows installation close against a wall.

Shortened installation width



Bore size (mm)	Compact foot type width A (mm)	Current foot type width B (mm)	Reduced width for short pitch mounting (mm)				
			1 unit	2 units	3 units		
12	25	44	19	38	57		
16	29	48	19	38	57		
20	36	62	26	52	78		
25	40	66	26	52	78		

^{*} Short pitch mounting is possible only without auto switch. Consult with SMC for mounting with auto switch.

■Height from the bottom of brackets to the center of a cylinder is the same as the current model.

Compact foot bracket

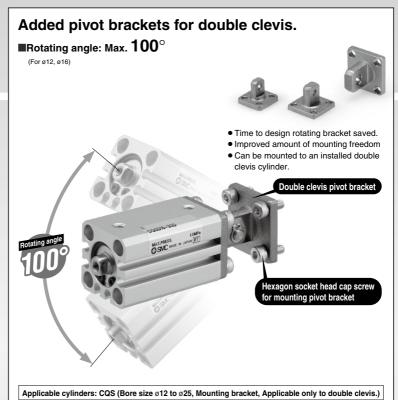
LH2=LH1

LH2

Applicable cylinders: C(D)QS, C(D)QSW, C(D)QS (Single acting, return/extend), C(D)QSK, C(D)QSKW (Non-rotating), C(D)QS□S (Anti-lateral load)

CQS Series Compact Cylinder

Reduction in labor for design



CUJ

CU

COS JCO

CQ2

RQ CQM

CQU

MU

D-□

Technic Data



Combinations of Standard Products and Made

COS Series

Standard		Series		CQS (Standard)						
○ : Made to O	rder specifications	Action/	Double	e acting	Single	acting				
Special pro Not availab	oduct (Contact SMC for details.)	Туре	Single rod	Double rod	Single rod/ Extension	Single rod/ Retraction				
Symbol	Specification	Applicable bore size	ø12 to ø25							
Standard	Standard		•	•	•	•				
D	Built-in magnet		•	•	•	•				
CQS□-□M	Rod end male thread		•	•	•	•				
cqs□-□c	With rubber bumper		•	•	0	0				
CQS□-□F	With boss on head end	ø12 to ø25	•	_	•	•				
CQSLF	Foot, Flange	012 10 025	•	•	•	•				
CQSD	Double clevis type		•	_	•	•				
10-, 11-	Clean series		•	0	0	0				
25A-	Copper (Cu) and zinc (Zn)-free (5)		•	0	0	0				
20-	Copper (4) and Fluorine-free		•	•	•	•				
CQS□M	Cylinder with Stable Lubrication Function (Lube-retainer) (6)	ø20 to ø25	•	0	0	0				
XB6	Heat-resistant cylinder (−10 to 150 °C)		0	0	0	0				
XB7	Cold-resistant cylinder (-40 to 70 °C)		0	0	0	0				
XB9	Low-speed cylinder (5 to 50 mm/s)		0	0	0	0				
XB10	Intermediate stroke (Using exclusive body)		0	0	0	0				
XB13	Low-speed cylinder (5 to 50 mm/s)		0	0	0	0				
XC6	Piston rod, retaining ring, rod end nut made of stainless steel		0	0	0	0				
XC8	Adjustable stroke cylinder/Adjustable extension type		0	_	0	0				
XC9	Adjustable stroke cylinder/Adjustable retraction type		0	_	0	0				
XC10	Dual stroke cylinder/Double rod type		0	_	0	0				
XC11	Dual stroke cylinder/Single rod type	ø12 to ø25	0	_	0	0				
XC36	With boss on rod side		0	0	0	0				
XC85	Grease for food processing equipment		0	0	0	0				
XC92	Dust resistant cylinder		0	0	0	0				
X235	Change of piston rod end of double rod cylinder		_	0	_	_				
X271	Fluororubber seal		0	0	0	0				
X525	Long stroke of adjustable extension stroke cylinder (-XC8)		0	_	0	0				
X526	Long stroke of adjustable retraction stroke cylinder (-XC9)		0	_	0	0				
X633	Intermediate stroke of double rod type		_	0	_	_				
X636	Long stroke of dual stroke single rod		0	_	0	_				
	1					1	1			

tube head side Note 1) A rubber bumper comes as standard.

Note 2) For a12 and ø16 only. (C) for ø20 and ø25. Note 3) Refer to Best Pneumatics No. 2-3 for low-speed cylinders.

With concave shape end boss on the cylinder

Note 4) Copper-free for the externally exposed part. For details, refer to the Web Catalog. Note 5) For details, refer to the SMC website. Note 6) Only the products with an auto switch and without rubber bumper are compatible.



X1876

to Order Specifications

CQS Series

CQSK (Non-rotating rod)		CQS (Long stroke)	CQS□S (Anti-lateral load)	CQSY Smooth cylinder (Low friction) (3)	CQSX Low-speed cylinder (3
Double	acting	Double acting	Double acting	Double acting	Double acting
Single rod	Double rod	Single rod	Single rod	Single rod	Single rod
		1	ø12 to ø25		
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
0	0	• (1)	• (1)	• (1)	•
•	_	0	•	0	0
•	•	•	•	•	•
•	_	•	•	•	•
0	0	0	0	_	•
0	0	•	•	0	0
0	0	•	•	_	_
_	_	0	0	0	0
0	0	0	0	_	_
0	0	0	0	_	_
0	0	0	0	_	_
0	0	0	0	0	0
0	0	0	0	_	_
0	0	0	0	0	0
0	_	0	0	0	0
0	_	0	0	0	0
0	_	0	0	0	0
0	_	0	0	0	0
0	0	(2)	(2)	(2)	(2)
0	0	0	0		
_	_	0	0	_	
_	0	_	_	_	
0	0	0	0	_	_
0	_	0	0	0	0
0	_	0	0	0	0
_	0	_	_	_	_
0	_	0	0	0	0
0	_	_	0	0	_

CN

CQS

JCQ CQ2

RQ CQM

CQU MU

D-□

-X 🗆 Technical Data





CQS Series Specific Product Precautions

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Operating Precautions

∧Caution

- All loads to piston rod must be applied in axial direction only.
 - When a lateral load is applied unavoidably, ensure that it should not exceed the allowable lateral load to the rod end as specified in graph (1) to (5).
 - When installing a cylinder, centering should be required accurately.
 - Adoption of guide mechanism is strongly recommended for the case when CQS is used as stopper to prevent non-rotating piston rod from side loads.
- 2. 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.

Retaining Ring Installation/Removal

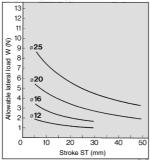
⚠ Caution

- For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- 2. Even if a proper plier (tool for installing type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

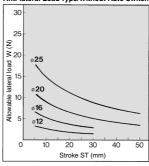
Allowable Lateral Load at Rod End



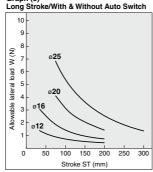
Graph (1) Standard: Non-rotating Rod Type/Without Auto Switch



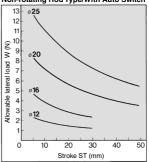
Graph (3) Anti-lateral Load Type/Without Auto Switch



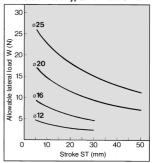
Graph (5)



Graph (2) Standard: Non-rotating Rod Type/With Auto Switch



Graph (4) Anti-lateral Load Type/With Auto Switch



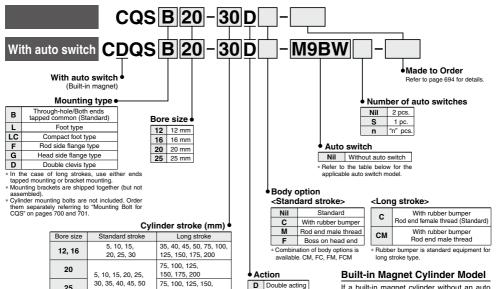
- Note 1) Graph (1) to (5): Rod end female thread
- Note 2) Lateral load allowance varies depending upon rod end shape dimensions or load value (distance to the center of the gravity of load). Please consult with SMC.

Compact Cylinder: Standard Type Double Acting, Single Rod

CQS Series

ø12, ø16, ø20, ø25

How to Order



For "Manufacture of Intermediate Strokes", refer to page 694

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

Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches.

175, 200, 250, 300

	_ Lectrical 를 Wiring				L	oad volta	ge	Auto swit	ch model	Lead wire length (m)				Pre-wired			
Туре	Special function	entry	Indicator light	(Output)	DC		AC	Perpendicular	In-line	0.5 1 (Nil) (M)		3 (L)	5	connector	Applical	ole load	
	_			3-wire (NPN)		5 V. 12 V		M9NV	M9N	•	•	•	0	0	IC circuit		
듈				3-wire (PNP)		5 V, 12 V		M9PV	M9P	•	•	•	0	0	IC CITCUIT		
switch				2-wire		12 V]	M9BV	M9B	•	•	•	0	0	_		
	Diagnostic indication (2-color indicator)]		3-wire (NPN)		5 V. 12 V]	M9NWV	M9NW	•	•	•	0	0	IC circuit		
anto		Grommet	Yes	3-wire (PNP)	24 V	1 1		M9PWV	M9PW	•	•	•	0	0	IC CIrcuit	Relay, PLC	
		Grommet	res	2-wire	24 V	12 V 5 V, 12 V	-	M9BWV	M9BW	•	•	•	0	0	_		
state	Water resistant (2-color indicator)]		3-wire (NPN)]	M9NAV*1	M9NA*1	0	0	•	0	0	IC circuit		
				3-wire (PNP)				M9PAV*1	M9PA*1	0	0	•	0	0	IO CITCUIT	uit	
Solid	(2 color maleator)			2-wire		12 V	1 !	M9BAV*1	M9BA*1	0	0	•		0			
-	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)				_	P3DWA**	•	I —	•	•	0	_		
Reed anto switch				Yes	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	•	-	•	_	_	IC circuit	1
Be c		Grommet	No	2-wire 24 V	24.1/	12 V	100 V	A93V*2	A93	•	•	•	•	_	_	Relay,	
=					24 V	12 V	100 V or less	A90V	A90	•	I —	•	<u> </u>	_	IC circuit	PLC	
*1 W	ater resistant type auto switche	o can be mei	into	d on the above r	nodale hi	ıt in euch c	asa SMC o	annot guara	ntee water re	eietan	^^						

- 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.
- *2 1 m type lead wire is only applicable to D-A93

25

- * 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 "O" are produced upon receipt of order.
- ** Available only for ø25.
 - It is mounted away from the port side to avoid interference with fittings
- * Since there are other applicable auto switches than listed, refer to page 749 for details
- * For details about auto switches with pre-wired connector, refer to pages 1648 and 1649. Auto switches are shipped together (not assembled)
- Note) There is the case D-A9\\(\tilde{V}\)/M9\\(\tilde{V} piping. Consult with SMC for details.



CUJ CU

cas

JCQ **CO2**

RQ

CQM COU

MU

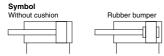
D-□

-X□ Technical Data

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CQS Series





Made to Order: Order Individual Specifications (For details, refer to pages 750 to 752)

Symbol	Specifications
-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

Made to Order Specifications

Click here for details

Office field details									
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								
-XC85	Grease for food processing equipment								
-XC92	Dust resistant cylinder								

Body Option

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

* Rubber bumper is standard equipment for long stroke type.

Moisture Control Tube IDK Series

When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to the IDK series in the Best Pneumatics No. 6.

Specifications

Bore size (n	nm)	12	16	20	25				
Action		Double acting, Single rod							
Fluid	Fluid			ir					
Lubrication			Not required	(Non-lube)					
Proof pressure			1.5 [ИPа					
Maximum operating press	sure	1.0 MPa							
Minimum operating press	ure	0.07 MPa 0.05 MF			MPa				
Ambient and fluid temper				Without auto switch: -10 to 70°C (No freezing)					
Ambient and fluid temper	ature	With auto switch: -10 to 60°C (No freezing)							
Cushion			None, Rubb	er bumper *					
Rod end thread			Female	thread					
Stroke length tolerance		Stand	ard stroke: +	Long strok	ke: +1.4 *				
Piston speed	50 to 500 mm/s								
Allewahle kinetie enevery (1)	Standard type	0.022	0.038	0.055	0.09				
Allowable kinetic energy (J)	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.

Theoretica	al Output		OUT IN (N)						
Bore size	Rod size	Operating	Piston area	Operat	ing pressure	ure (MPa)			
(mm)	(mm)	direction	(mm²)	0.3	0.5	0.7			
12	6	IN	84.8	25	42	59			
12	8	OUT	113	34	57	79			
16	8	IN	151	45	75	106			
10	· •	OUT	201	60	101	141			
20	10	IN	236	71	118	165			
20	10	OUT	314	94	157	220			
25	10	IN	378	113	189	264			
25	12	OUT	491	147	245	344			

Manufacture of Intermediate Stroke

Desc	ription	Spacer is in standard str	stalled in the oke body.	Exclusive body (-XB10)			
Part no.		Refer to "How to Ord model no. (page 69		Suffix "-XB10" to the end of standard model no. (page 693).			
Standard stroke	Description	Intermediate stroke increments are ava spacers with standard	•	Dealing with the stroke in 1 mm increments 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		
		20, 25	1 to 49	20, 25	6 to 49		
	Description	Intermediate stroke increments are ava spacers with standa	•	Dealing with the stroke in 1 mm increments by using an exclusive body with the specified stroke.			
Long stroke		Bore size	Stroke range	Bore size	Stroke range		
	Stroke range	12, 16	31 to 199	12, 16	31 to 199		
	oogo	20	51 to 199	20	51 to 199		
		25	51 to 299	25	51 to 299		
Example		Part no.: CQSB25 CQSB25-50D wit spacer inside. B dimension is 72	h 3 mm width	Part no.: CQSB25-47D-XB10 Makes 47 stroke tube. B dimension is 69.5 mm.			

Refer to pages 747 to 749 for cylinders with auto switches.

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



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

Weight/Without Auto Switch

Bore size							(Cylino	der s	troke	(mm	1)						
(mm)	5	10	15	20	25	30	35	40	45	50	75	100	125	150	175	200	250	300
12	29	36	42	49	56	63	93	100	107	113	147	180	213	246	279	312	_	_
16	38	47	56	64	73	82	119	128	136	145	187	229	271	313	355	397	_	-
20	63	75	88	101	114	127	140	153	166	178	306	370	434	498	562	627	_	-
25	91	107	123	139	155	171	186	202	218	234	399	478	557	636	715	794	952	1110

For standard stroke

(g)

(g)

0-1	(C	COCDOO	ODON
Calculation:	(Examble)	CQ3D20-	20レしw

•	Cylinder weight: CQSB20-20D	01 g
•	Additional weight: Rod end male thread	·10 g
•	Additional weight: Rubber bumper	-2 g
	Additional weight: Double clevis type	.92 n

201 g

Weight/With Auto Switch (Built-in magnet)

1	Bore size							(Cylin	der s	troke	(mm	1)						
	(mm)	5	10	15	20	25	30	35	40	45	50	75	100	125	150	175	200	250	300
	12	37	43	50	57	63	70	94	101	108	114	148	181	214	247	280	313	_	_
Ī	16	48	57	66	74	83	92	121	129	137	146	188	231	273	315	357	399	_	_
Ī	20	93	106	119	132	144	157	170	182	195	208	311	375	439	503	567	632	_	_
	25	134	150	166	182	197	213	229	245	261	277	406	485	564	643	721	800	958	1116

- - ----- | 18/- ! - !- 4

Additional Weight					(g)	
Bore size (mm)	Bore size (mm)					
Rod end male thread	Male thread	1.5	3	6	12	
riod end male tiread	Nut	1	2	4	8	
With boss on head end		0.7	1.3	2	3	
Rubber bumper * (No need to add for	long stroke)	0	1	-2	-3	
Compact foot type (Including mounting	g bolt)	41 (39)	51 (47)	121 (115)	140 (131)	
Foot type (Including mounting bolt)		55 (53)	65 (61)	159 (153)	181 (172)	
Rod side flange type (Including moun	Rod side flange type (Including mounting bolt)					
Head side flange type (Including mou	56	66	137	171		
Double clevis type (Including pin, sna	34	40	92	127		

^{():} denotes the values of long stroke model.

Mounting Bracket Part No.

	9			
Bore size (mm)	Foot (1)	Compact foot (1)	Flange	Double clevis
12	CQS-L012	CQS-LC012	CQS-F012	CQS-D012
16	CQS-L016	CQS-LC016	CQS-F016	CQS-D016
20	CQS-L020	CQS-LC020	CQS-F020	CQS-D020
25	CQS-L025	CQS-LC025	CQS-F025	CQS-D025

Note1) When ordering foot and compact foot brackets, order 2 pieces

Protection of the action of th

CUJ CU

> cqs JCQ

CQ2

RQ CQM

CQU

MU

D-□ -X□ Technical Data



CQS Series

Allowable Kinetic Energy

Load Mass and Piston Sp	Load Mass and Piston Speed											
Bore size (mm)	12	16	20	25								
Standard/ Allowable kinetic energy: Ea	0.022	0.038	0.055	0.09								
With rubber bumper/ Allowable kinetic energy: Eb	0.043	0.075	0.110	0.18								

Kinetic energy E (J) = $\frac{(m1+m2)V^2}{2}$

m1: Mass of cylinder movable parts kgm2: Load mass kgV: Piston speed m/s

Mass of Movable Parts/Without Built-in Magnet: CQSB□-□D(C)(M) (g)

Bore size (mm)							(Cylino	der st	troke	(mm)						
	5	10	15	20	25	30	35	40	45	50	75	100	125	150	175	200	250	300
12	5	6	7	8	9	11	16	17	18	19	25	30	36	41	47	53	_	_
16	8	10	12	14	16	18	28	30	32	34	44	54	64	74	84	94	_	_
20	15	18	21	24	28	31	34	37	40	43	73	88	104	119	135	150	_	_
25	23	28	32	37	41	46	50	55	59	64	112	135	157	179	202	224	269	314

Mass of Movable Parts/With Built-in Magnet: CDQSB□-□D(C)(M) (g)

Bore size (mm)							(Cylino	der st	troke	(mm	1)						
	5	10	15	20	25	30	35	40	45	50	75	100	125	150	175	200	250	300
12	5	7	8	9	10	11	16	18	19	20	25	31	37	42	48	53	_	_
16	9	11	13	15	17	19	29	31	33	35	45	55	65	75	85	95	_	_
20	21	24	27	30	33	36	39	42	46	49	78	93	109	124	140	155	_	_
25	37	42	46	51	55	59	64	68	73	77	118	141	163	186	208	230	275	320

Additional Mass of Movable Parts

raamona maoo or moras					(9)
Bore size (mm)	12	16	20	25	
Ded and male thorond	Male thread	2	3	6	13
Rod end male thread	Nut	1	2	4	8
Rubber bumper (No need to add for lor	Rubber bumper (No need to add for long stroke)				
Foot type, Rod side flange type (No need	2	4	6	9	

Calculation: (Example) CQSB20-20DCM

: With rubber bumper -2 g

Clean Series (Standard stroke is only available.)



Clean Series

10 Relief type
11 Vacuum type

The type which is applicable for using inside the clean room graded ISO Class 4 by making an actuator's rod section a double seal construction and discharging by relief port directly to the outside of clean room.

Specifications

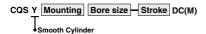
Action	Double acting, Single rod
Bore size (mm)	ø12, ø16, ø20, ø25
Proof pressure	1.5 MPa
Maximum operating pressure	1.0 MPa
Rubber bumper	None
Piping	Screw-in piping
Piston speed	30 to 400 mm/s
Mounting	Through-hole/Both ends tapped common
Auto switch	Mountable

Note) For details, please contact SMC.

Relief port

For details, refer to the "Pneumatic Clean Series" (CAT.E02-23)

Smooth Cylinder



Smooth operation with a little sticking and slipping at low speed.

Dual-side low friction operation is possible.



Some of the parts are different from the dimensions of the double acting, single rod type.

Refer to Best Pneumatics No. 2-3.

Specifications

Bore size (mm)	12	16	20	25						
Type Pneumatic (Non-lube)										
Action	g, Single roo	t								
Fluid		А	ir							
Proof pressure		1.05	MPa							
Maximum operating pressure		0.7 [MPa							
Ambient and fluid	Without auto switch: -10 to 70°C (No freezing)									
temperature	With auto switch: -10 to 60°C (No freezing)									
Cushion	None, Rubber bumper*									
Rod end thread		Female	thread							
Stroke length tolerance		+1.	0 *							
Mounting	Through-hole/Both ends tapped common									
Piston speed	50 to 500 mm/s									
Allowable leakage		0.5 L/min (A	NR) or less							

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

12

0.03

Minimum operating pressure

Low-speed Cylinder

cas x	Mounting	Bore size	Stroke	D(C)(M)
T.	ow-speed Cvi			

Smooth operation with a little sticking and slipping at low speed.

Can start smoothly with a little ejection even after being rendered for hours.



The dimensions are the same as the double acting, single rod type. Refer to Best Pneumatics No. 2-3.

Specifications

Bore size (mm)

Minimum operating pressure

Specifications										
Bore size (mm)	12	16	20	25						
Туре		Pneumatic	(Non-lube)							
Action		Double actin	g, Single ro	d						
Fluid		Α	ir							
Proof pressure 1.5 MPa Maximum operating pressure 1.0 MPa										
Rubber bumper	None, Rubber bumper*									
Rod end thread		Female	thread							
Stroke length tolerance		Standard s	stroke +1.0							
Mounting	Through	-hole/Both e	nds tapped	common						
Piston speed	ø12, ø16: 1 to 300 mm/s ø20, ø25: 0.5 to 300 mm/s									

 $[\]ast$ Stroke length tolerance does not include the deflection of the bumper.

Minimum operating pressure (MPa)						
12 16 20 25						
Minimum operating pressure	0.03	0.03	0.025	0.025		

CUJ

CQS JCQ

(MPa)

25

20

0.02

CQ2

RQ

CQU

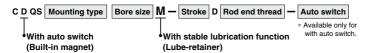
MU

D-□

-X□

Technical

Compact Cylinder with Stable Lubrication Function (Lube-retainer)



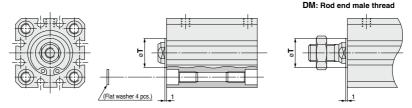


Specifications

<u>opeomedieme</u>			
Bore size (mm) 20, 25			
Action	Double acting, Single rod		
Minimum operating pressure	0.1 MPa		
Piston speed	50 to 500 mm/s		
Cushion	None		

^{*} Specifications other than those shown above are the same as the standard model.

Dimensions (Dimensions other than those shown below are the same as the standard model.)



		(mm
Bore size	Standard stroke	T
20	5, 10, 15, 20, 25, 30,	15
25	35, 40, 45, 50	18

^{*} The mounting dimensions of the mounting bracket are the same as the standard model.

Mounting Bracket Part No.

Bore size (mm)	Foot	Compact foot	Flange
20	CQS-LM020	CQS-LCM020	CQS-FM020
25	CQS-LM025	CQS-LCM025	CQS-FM025

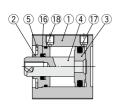
- * The double clevis type is the same as the standard model.
- * When ordering foot and compact foot brackets, order 2 pieces per cylinder.

For details, refer to the Web Catalog.

Construction

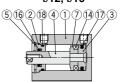
Basic type

With rubber bumper





With auto switch (Built-in magnet) ø12, ø16

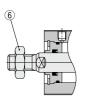


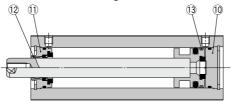
Rod end male thread

Long stroke

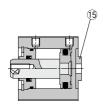


ø20, ø25





With boss on head end



Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Collar	Aluminum alloy	Anodized
3	Piston	Aluminum alloy	
4	Piston rod	Stainless steel	
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Rod end nut	Carbon steel	Zinc chromated
7	Spacer for switch type	Aluminum alloy	Chromated
8	Bumper A	Urethane	
9	Bumper B	Urethane	
10	Bottom plate	Aluminum alloy	Anodized
	Bottom plate	Aluminum alloy	Anouizeu

Component Parts					
No.	Description	Materia	Note		
11	Collar	Aluminum alloy	Anodized		
12	Bushing	Oil-impregnated sintered alloy			
13	Wear ring	Resin			
14	Magnet	_			
15	Centering location ring	Aluminum alloy	Anodized		
16*	Rod seal	NBR			
17*	Piston seal	NBR			
18*	Tube gasket	NBR			

Replacement Parts: Seal Kit (Basic type)

ricpiacement raits. Sear tit (Basic type)				
Bore size (mm) Kit no. Contents				
12	CQSB12-PS			
16	CQSB16-PS	Set of nos. above		
20	CQSB20-PS	16, 17, 18		
25	CQSB25-PS	1		

Replacement Parts: Seal Kit (Long stroke)

Bore size (mm)	Kit no.	Contents
12	CQSB12-L-PS	
16	CQSB16-L-PS	Set of nos. above
20	CQSB20-L-PS	16, 17, 18
25	CQSB25-L-PS	

* Seal kit includes (\$\overline{0}\$, (\$\overline{0}\$), (\$\overline{0}\$). Order the seal kit, based on each bore size. (The long stroke type includes 2 tube gaskets.)
* Since the seal kit does not include a grease pack, order it separately.

SMC

-X□ Technical Data

D-□

CUJ CU cqs JCQ

CQ2 RQ CQM CQU

MU

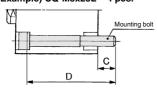
Grease pack part no.: GR-S-010 (10 g)

Mounting Bolt for CQS without Auto Switch

Mounting method: Mounting bolt for through-hole mounting type of CQSB is available as an option.

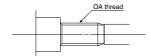
Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

Example) CQ-M3x25L



Note 1) The appropriate plain washer must be used for through-hole mounting.

Note 2) Please contact SMC for details concerning the mounting botts to be used with a12 and a16 that exceed 30 mm strokes, or ø20 and ø25 that exceed 50 mm strokes.



Cylinder model	С	D	Mounting bolt part no.
CQSB12-5D		25	CQ-M3 x 25L
-10D		30	x 30L
-15D	6.5	35	x 35L
-20D	0.5	40	x 40L
-25D		45	x 45L
-30D		50	x 50L
-35DC			
-40DC	1		
-45DC	1		
-50DC			cylinder by
-75DC			A screws that ed with the
-100DC			
-125DC	cylinder tube.		
-150DC	1		
-175DC			
-200DC	1		
CQSB16-5D		25	CQ-M3 x 25L
-10D	1	30	x 30L
-15D	1	35	x 35L
-20D	6.5	40	x 40L
-25D	1	45	x 45L
-30D	1	50	x 50L
-35DC			
-40DC	1		
-45DC	1		
-50DC			cylinder by
-75DC			A screws that
-100DC			ed with the
-125DC	cylinder tube.		
-150DC			
-175DC			
-200DC			
	_		

Cylinder model	С	D	Mounting bolt part no.
CQSB20-5D		25	CQ-M5 x 25L
-10D		30	x 30L
-15D		35	x 35L
-20D		40	x 40L
-25D	6.5	45	x 45L
-30D	0.5	50	x 50L
-35D		55	x 55L
-40D		60	x 60L
-45D		65	x 65L
-50D		70	x 70L
-75DC			
-100DC			cylinder by
125DC			A screws that
-150DC	are provided with the cylinder tube.		
175DC			0.
-200DC			
CQSB25-5D		30	CQ-M5 x 30L
-10D		35	x 35L
		40	x 40L
-20D		45	x 45L
-25D	8.5	50	x 50L
_30D		55	x 55L
-35D		60	x 60L
-40D		65	x 65L
-45D		70	x 70L
-50D -75DC		75	x 75L
-100DC -125DC	Secu	re the	cylinder by
-125DC	using the OA screws		
-150DC			ed with the
-200DC	cylinder tube.		e.
-250DC	1		
-300DC			

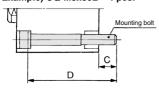
Material: Chromium molybdenum steel Surface treatment: Nickel plated

Mounting Bolt for CDQS with Auto Switch

Mounting method: Mounting bolt for through-hole mounting type of CDQSB is available as an option.

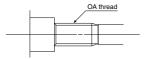
Refer to the following for ordering procedures Order the actual number of bolts that will be used.

Example) CQ-M3x30L



Note 1) The appropriate plain washer must be used

for through-hole mounting. Note 2) Please contact SMC for details concerning the mounting bolts to be used with ø12 and ø16 that exceed 30 mm strokes, or ø20 and ø25 that exceed 50 mm strokes



Accessory

For accessory bracket for the CQS series, refer to page 796, since it is commonly used with the CQ2 series.

- Single knuckle joint
- · Double knuckle joint
- Pin for knuckle
- Bod end nut

Cylinaci inoaci			intouring boil part no.
CDQSB12-5D		30	CQ-M3 x 30L
-10D		35	x 35L
-15D	6.5	40	x 40L
-20D	0.5	45	x 45L
-25D		50	x 50L
-30D		55	x 55L
-35DC			
-40DC			
-45DC			
	Secure the cylinder		e cylinder by
-50DC			
-75DC	using	the O	A screws that
	using are	the O provid	ed with the
-75DC	using are	the O	ed with the
-75DC -100DC	using are	the O provid	ed with the
-75DC -100DC -125DC -150DC -175DC	using are	the O provid	ed with the
-75DC -100DC -125DC -150DC -175DC -200DC	using are	the O provid	ed with the
-75DC -100DC -125DC -150DC -175DC -200DC CDQSB16-5D	using are	the O provid	ed with the
-75DC -100DC -125DC -150DC -150DC -175DC -200DC CDQSB16-5D -10D	using are	the O provid der tub	led with the e.
-75DC -100DC -125DC -150DC -175DC -200DC CDQSB16-5D	using are cylino	the O provid der tub	ed with the e. CQ-M3 x 30L x 35L
-75DC -100DC -125DC -15DC -175DC -175DC -200DC CDQSB16-5D -10D -15D -20D	using are	the O provid der tub	ed with the e.
-75DC -100DC -125DC -125DC -150DC -175DC -176DC -200DC CDQSB16-5D -10D -15D -20D -25D	using are cylino	the Oprovider tub	CQ-M3 x 30L x 35L x 40L
-75DC -100DC -125DC -15DC -175DC -175DC -200DC CDQSB16-5D -10D -15D -20D	using are cylino	30 35 40 45	CQ-M3 x 30L x 35L x 40L x 45L

Secure the cylinder by using the OA screws that

are provided with the

cylinder tube.

-40DC -45DC -50DC

-75DC

-100DC

-125DC -150DC

-175DC

-200DC

Cylinder model C D Mounting bolt part no.

Cylinder model	С	D	Mounting bolt part no.
CDQSB20-5D		35	CQ-M5 x 35L
-10D		40	x 40L
-15D		45	x 45L
-20D		50	x 50L
-25D	6.5	55	x 55L
-30D	0.5	60	x 60L
35D		65	x 65L
-40D		70	x 70L
45D		75	x 75L
-50D		80	x 80L
75DC	_		
-100DC			cylinder by
-125DC			A screws that ed with the
-150DC	cylinder tube.		
-175DC			
-200DC			
CDQSB25-5D		40	CQ-M5 x 40L
-10D		45	x 45L
-15D		50	x 50L
-20D		55	x 55L
-25D	8.5	60	x 60L
_30D		65	x 65L
-35D		70	x 70L
-40D -45D		75	x 75L
-45D -50D		80	x 80L
-75DC		85	x 85L
-100DC			
-100DC	Secu	re the	cylinder by
-150DC			A screws that
-175DC			ed with the
-200DC	cylinder tube.		e.
-250DC			
-300DC			
	hromiu	m mal	vhdenum steel

Material: Chromium molybdenum steel Surface treatment: Zinc chromated

CUJ

CU cas

JCQ

CQ2 RQ

CQM CQU

MU

D-□ -X□

Technical



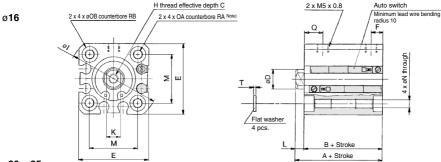
Dimensions: Ø12 to Ø25

Basic type (Through-hole/Both ends tapped common): CQSB/CDQSB

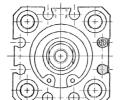
* For the auto switch mounting position and its mounting height, refer to page 747.

Ø12

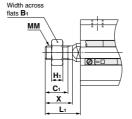




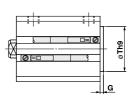
ø20, ø25



Rod end male thread



With boss on head end



- Length with intermediate stroke
- (1) Spacer ··· The dimensions will be identical to those of the nearest long stroke. Those that exceed the standard stroke will have the long stroke dimensions.
- (2) Exclusive body (-XB10)....Add stroke. Also, the stroke length that exceeds the standard stroke would be the long stroke dimension.

Rod End Male Thread

Bore size	B ₁	C ₁	H ₁	Standard stroke	Long stroke	ММ	x
(111111)				L ₁	L1		
12	8	9	4	14	24	M5 x 0.8	10.5
16	10	10	5	15.5	25.5	M6 x 1.0	12
20	13	12	5	18.5	28.5	M8 x 1.25	14
25	5 17	15	6	22.5	32.5	M10 x 1.25	17.5

With Boss on Head End (mm)

Bore size (mm)	G	Th9
12	1.5	15 0
16	1.5	20 _0.052
20	2	13 0 0 0
25	2	15 -0.043

Note1) The product with boss on head end is applicable to only the standard stroke. Note2) With boss on rod end : Option (Suffix "-XC36" to the end of part number.) Note that only bore sizes o12 and o16 are applicable to the long stroke.

Basic Type

	Standard			Sta	anda	rd str	oke			Long	L	ong	strok	е														
Bore size	stroke range	With	out a	uto s	witch	Wi	th au	to sw	itch	stroke range	With/\	Vithou	t auto	switch	С	D	E	н	1	Κ	M	N	OA	ОВ	Q	RA	RB	T
(mm)	(mm)	Α	В	F	L	Α	В	F	L	(mm)	Α	В	F	L														
12	5 to 30	20.5	17	5	3.5	25.5	22	5	3.5	35 to 200	45.5	32	7.5	13.5	6	6	25	M3 x 0.5	32	5	15.5	3.5	M4 x 0.7	6.5	7.5	7	4	0.5
16	5 to 30	20.5	17	5	3.5	25.5	22	5	3.5	35 to 200	45.5	32	7.5	13.5	8	8	29	M4 x 0.7	38	6	20	3.5	M4 x 0.7	6.5	7.5	7	4	0.5
20	5 to 50	24	19.5	5.5	4.5	34	29.5	5.5	4.5	75 to 200	55.5	41	8	14.5	7	10	36	M5 x 0.8	47	8	25.5	5.4	M6 x 1.0	9	8	10	7	1
25	5 to 50	27.5	22.5	5.5	5	37.5	32.5	5.5	5	75 to 300	59	44	9	15	12	12	40	M6 x 1.0	52	10	28	5.4	M6 x 1.0	9	9	10	7	1

Note 1) For the following bore/stroke sizes through-hole is threaded over the entire length: Basic type ø12 and ø16; 5 stroke, ø20; 5 to 15 stroke, ø25; 5 to 10 stroke, ø20 with auto switch built-in magnet; 5 stroke.

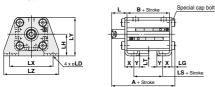
SMC

Note 2) Rubber bumper type has the same dimensions as those indicated above.

* For details about the rod end nut and accessory brackets, refer to page 796.

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

Foot type: CQSL/CDQSL

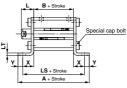


Rod end male thread



Compact foot type: CQSLC/CDQSLC

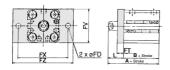




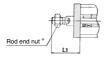
Rod end male thread



Rod side flange type: CQSF/CDQSF

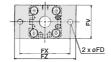


Rod end male thread



Head side flange type: CQSG/CDQSG





Rod end male thread



Foot Type

	Stan			Sta	andar	d stro	ke		Ļ	ong	Lor	ng stro	oke
Bore size (mm)	stro	oke nge	Withou	ut auto	switch	With	auto:	switch		roke nge	Without	With aut	o swite
(mm)		m)	Α	В	LS	Α	В	LS		nm)	Α	В	LS
12	5 to	30	35.3	17	5	40.3	22	10	35 t	o 200	50.3	32	20
16	5 to	30	35.3	17	5	40.3	22	10	35 t	o 200	50.3	32	20
20	5 to	50	41.2	19.5	7.5	51.2	29.5	17.5	75 1	o 200	62.7	41	29
25	5 to	50	44.7	22.5	7.5	54.7	32.5	17.5	75 t	o 300	66.2	44	29
Bore size (mm)	e size			LG	LI	н	т.	LX	LY	LZ	х	Υ	
12	13.5	24	4.5	2.8	10	7	2	34	29.5	44	8	4.5	-
16	13.5	25.5	4.5	2.8	19	9	2	38	33.5	48	8	5	
20	14.5	28.5	6.6	4	24	4 3	3.2	48	42	62	9.2	5.8	_
25	15	32.5	6.6	4	26	, ,	3.2	52	46	66	10.7	5.8	

Foot bracket material: Carbon steel Surface treatment: Nickel plated

Compact Foot Type

-	Stan	dard		C+	andar	d atra	ll o		L	ona	Lor	ng str	مادد
Bore size	stro	oke nge	Withou		switch	_		switch	st	roke inge	Without/		
(mm)		m)	Α	В	LS	Α	В	LS		nm)	Α	В	L
12	5 to	30	44.6	17	35.6	49.6	22	40.6	35 t	o 200	59.6	32	50
16	5 to	30	45.6	17	35.6	50.6	22	40.6	35 t	o 200	60.6	32	50
20	5 to	50	57.5	19.5	45.9	67.5	29.5	55.9	75 t	o 200	79	41	67
25	5 to	50	60.5	22.5	48.9	70.5	32.5	58.9	75 t	o 300	82	44	70
Bore size (mm)	L	L1	LD	LH	l L	T L	х	LY	LZ	х	Υ		
12	13.5	24	4.5	17	2	1	5.5	29.5	25	9.3	4.5		
16	13.5	25.5	4.5	19	2	2	20	33.5	29	9.3	5		
16 20	13.5 14.5	25.5 28.5	4.5 6.6	19 24		_	5.5	33.5 42	29 36	9.3 13.2	5 5.8		

Surface treatment: Zinc chromated

Rod Side Flange Type

	Standard	. ;	Standar	d stroke	Э	Long	Long	stroke
Bore size (mm)	stroke range	Without a	uto switch	With au	to switch	stroke range	Without/With	auto switch
(111111)	(mm)	Α	В	Α	В	(mm)	Α	В
12	5 to 30	30.5	17	35.5	22	35 to 200	45.5	32
16	5 to 30	30.5	17	35.5	22	35 to 200	45.5	32
20	5 to 50	34	19.5	44	29.5	75 to 200	55.5	41
25	5 to 50	37.5	22.5	47.5	32.5	75 to 300	59	44

	3 10	00	07.0	22.0	T7.0	02.0	75 10	
Bore size (mm)	FD	FT	FV	FX	FZ	L	L1	
12	4.5	5.5	25	45	55	13.5	24	
16	4.5	5.5	30	45	55	13.5	25.5	
20	6.6	8	39	48	60	14.5	28.5	
25	6.6	8	42	52	64	15	32.5	

Flange bracket material: Carbon steel Surface treatment: Nickel plated

Head Side Flange Type

iicuu	Olac i	iui	·yc	• у	PC									
	Standard Standard stroke								Long	L	ong	stroke	e	
Bore size (mm)	stroke range	With	out a	uto s	vitch	Wi	th aut	o swi	tch	stroke range	Witho	ut/With	auto :	switch
` '	(mm)	Α	В	L	L ₁	Α	В	L	L ₁	(mm)	Α	В	L	L ₁
12	5 to 30	26	17	3.5	14	31	22	3.5	14	35 to 200	51	32	13.5	24
16	5 to 30	26	17	3.5	15.5	31	22	3.5	15.5	35 to 200	51	32	13.5	25.5
20	5 to 50	32	19.5	4.5	18.5	42	29.5	4.5	18.5	75 to 200	63.5	41	14.5	28.5
25	5 to 50	35.5	22.5	5	22.5	45.5	32.5	5	22.5	75 to 300	67	44	15	32.5

Bore size (mm)	FD	FT	FV	FX	FZ
12	4.5	5.5	25	45	55
16	4.5	5.5	30	45	55
20	6.6	8	39	48	60
25	6.6	А	42	52	64

Flange bracket material: Carbon steel Surface treatment: Nickel plated

* For details about the rod end nut and accessory brackets, refer to page 796.





CUJ CU CQS JCQ

CQ2 RQ

CQM

CQU

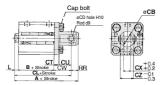
MU

703

CQS Series

Dimensions: Ø12 to Ø25

Double clevis type: CQSD/CDQSD



Rod end male thread



Double Cevis Type

	Standard				Sta	andaı	d str	oke				Long stroke		Lor	ng str	oke	
Bore size	nm) range –			t auto	swite	ch		With	auto :	switcl	n	range	With	out/V	Vith a	uto s	witch
(mm)	(mm)	Α	В	CL	L	L ₁	Α	В	CL	L	L ₁	(mm)	Α	В	CL	L	L ₁
12	5 to 30	40.5	17	34.5	3.5	14	45.5	22	39.5	3.5	14	35 to 200	65.5	32	59.5	13.5	24
16	5 to 30	41.5	17	35.5	3.5	15.5	46.5	22	40.5	3.5	15.5	35 to 200	66.5	32	60.5	13.5	25.5
20	5 to 50	51	19.5	42	4.5	18.5	61	29.5	52	4.5	18.5	75 to 200	82.5	41	73.5	14.5	28.5
25	5 to 50	57.5	22.5	47.5	5	22.5	67.5	32.5	57.5	5	22.5	75 to 300	89	44	79	15	32.5

Bore size (mm)	СВ	CD	СТ	CU	cw	сх	cz	RR
12	12	5	4	7	14	5	10	6
16	14	5	4	10	15	6.5	12	6
20	20	8	5	12	18	8	16	9
25	24	10	5	14	20	10	20	10

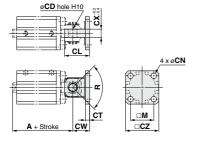
Double clevis bracket material: Carbon steel Surface treatment: Nickel plated

- \ast For details about the double clevis pivot bracket, refer to page 705. \ast For details about the rod end nut and accessory brackets, refer to page 796.

CQS Series Accessory Dimensions

Double Clevis Pivot Bracket

Bore size Ø12 to Ø25





(mm)

part no. size	e Stroke range		With auto switch	CW	СТ	CL	СХ	CD	M	CZ	R	CN	Hexagon socket head cap screw for mounting pivot bracket (Accessory)
CQ-C012 12	5 to 30	34.5	39.5	14	4	19	5	5	15.5	25	100°	4.5	M4 x 10L
CQ-C016 16	5 to 30	35.5	40.5	15	4	21	6.5	5	20	28	100°	4.5	M4 x 10L
CQ-C020 20	5 to 50	42	52	18	5	27	8	8	25.5	35	80°	6.6	M6 x 12L
CQ-C025 25	5 to 50	47.5	57.5	20	5	30	10	10	28	40	90°	6.6	M6 x 12L

 $[\]ast$ The double clevis pin and retaining ring are not included.

Double clevis pivot bracket material: Carbon steel Surface treatment: Nickel plated

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D-□ -X□

Technical Data

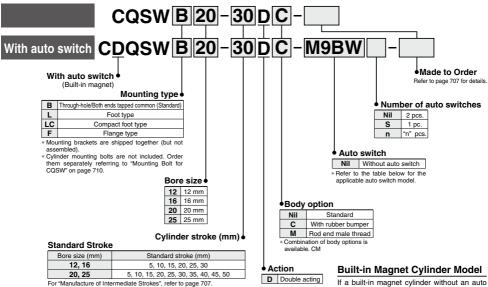


Compact Cylinder: Standard Type Double Acting, Double Rod

COSW Series

ø12, ø16, ø20, ø25

How to Order



switch is required, there is no need to enter the symbol for the auto switch. (Example) CDQSWL25-30D

Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switch

7,64	Applicable Auto Switches/heler to pages 1975 to 1701 for further information on auto switches.																						
			ig.	\A(!!	L	oad volta	ige	Auto swit	ch model	Lead wire length (m)													
Type Special function	Electrical entry	Indicator	Wiring (Output)	DC		AC	Perpendicular	ndicular In-line		1 (M)	3 (L)	>	Pre-wired connector	Applicable load									
				3-wire (NPN)		5 V. 12 V		VN6W	M9N	•	•	•	0	0	IC circuit								
등	_			3-wire (PNP)		5 V, 12 V		M9PV	M9P	•	•	•	0	0	IC CITCUIL								
<u>=</u>				2-wire		12 V]	M9BV	M9B	•	•	•	0	0	_								
	Diagnostic indication (2-color indicator) Ground	Grommet N				3-wire (NPN)		5 V, 12 V	,	W9NWV	M9NW	•	•	•	0	0	IC circuit						
ᆵ			Yes	3-wire (PNP)	24 V 2-wire (NPN)	5 V, 12 V		M9PWV	M9PW	•	•	•	0	0	IC CITCUIT	Relay,							
				2-wire		12 V 5 V, 12 V] _	M9BWV	M9BW	•	•	•		0	_	PLC							
state	Water resistant			3-wire (NPN)			1 1	M9NAV*1	M9NA*1	0	0	•	0	0	IC circuit								
	(2-color indicator)			3-wire (PNP)				M9PAV*1	M9PA*1	0	0	•	0	0	IC CITCUIT								
Solid	(2 color malcator)			2-wire		12 V		M9BAV*1	M9BA*1	0	0	•		0									
	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)		_		-	P3DWA**	•	I —	•	•	0	_								
witch			A	Yes	3-wire (NPN equivalent)	_	5 V	-	A96V	A96	•	-	•	-	_	IC circuit	-						
b Se	Reed auto switch	Grommet	.	2-wire	24 V	12 V	100 V	A93V*2	A93	•	•	•	•	_	_	Relay,							
a			Ī	1							No	Z-WIFE	24 V	12 V	100 V or less	A90V	A90	•	1-	•	I —	_	IC circuit

- *1 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. *2 1 m type lead wire is only applicable to D-A93.
- * Lead wire length symbols: 0.5 m Nil (Example) M9NW * Solid state auto switches marked with "O" are produced upon receipt of order.
 - 1 m······ M (Example) M9NWM ** Available only for ø25.
 - 3 m L (Example) M9NWL It is mounted away from the port side to avoid interference with fittings 5 m Z (Example) M9NWZ
- * Since there are other applicable auto switches than listed, refer to page 749 for details
- * For details about auto switches with pre-wired connector, refer to pages 1648 and 1649. * Auto switches are shipped together (not assembled).

Note) There is the case D-A9 \(\tilde{V}\)/M9 \(\tilde{V} piping. Consult with SMC for details.

Compact Cylinder: Standard Type CQSW Series Double Acting, Double Rod



Symbol Without cushion Rubber bumper

Made to Order

Made to Order: Individual Specifications (For details, refer to pages 750 and 751.)

Symbol	Specifications
-X235	Change of piston rod end of double rod cylinder
-X271	Fluororubber seals
-X633	Intermediate stroke of double rod cylinder

Made to Order Specifications

Click he	ere for details
Symbol	Specifications
-ХА□	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
-XC36	With boss in rod side
-XC85	Grease for food processing equipment

Body Option

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

Mounting Bracket Part No.

Bore size (mm)	Foot (1)	Compact foot (1)	Flange
12	CQS-L012	CQS-LC012	CQS-F012
16	CQS-L016	CQS-LC016	CQS-F016
20	CQS-L020	CQS-LC020	CQS-F020
25	CQS-L025	CQS-LC025	CQS-F025

Note 1) When ordering foot and compact foot brackets, order 2 pieces per cylinder.

Note 2) Parts belonging to each bracket are as follows. Foot, Compact foot, Flange type: Body mounting bolt

Moisture Control Tube IDK Series

When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to the IDK series in the Best Pneumatics No. 6.

Specifications

Bore size (m	m)	12	16	20	25				
Action	Action			Double acting, Double rod					
Fluid		А	ir						
Lubrication	Lubrication			d (Non-lube)					
Proof pressure	Proof pressure			MPa					
Maximum operating pres	Maximum operating pressure			MPa					
Minimum operating press	Minimum operating pressure			0.07 MPa 0.05 MPa					
Ambient and fluid terms		Without auto switch: -10 to 70°C (No freezing)							
Ambient and fluid tempe	rature	With auto switch: -10 to 60°C (No freezing)							
Cushion		None, Rubber bumper							
Rod end thread		Female thread							
Stroke length tolerance	Stroke length tolerance			+1.0 mm *					
Piston speed	Piston speed			50 to 500 mm/s					
Allowable kinetic energy (J)	Standard type	0.022	0.038	0.055	0.09				
Allowable kinetic energy (J)	With rubber bumper	0.043	0.075	0.11	0.18				

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

Theoretical Output

(N)

Bore size	Rod size	Operating	Piston area	Operating pressure (MPa)			
(mm)	(mm)	direction	(mm²)	0.3	0.5	0.7	
12	6	IN	04.0		40		
12		OUT	84.8	25	42	59	
16	8	IN	454	45	75	106	
10	°	OUT	151	45	75	106	
20	10	IN	000	74		405	
20	10	OUT	236	71	118	165	
O.F.	12	IN	070	440	400	004	
25	'2	OUT	378	113	189	264	

Manufacture of Intermediate Stroke

manada	o or micorinou	iato oti oito				
Description	Spacer is installed in th	e standard stroke body.	Exclusive body (-XB10)			
Part no.	Suffix "-X633" to the	e end of standard	Suffix "-XB10" to the end of standard			
Part no.	model no. (page 70	6).	model no. (page 70	16).		
	Intermediate stroke	s in 1 mm	Dealing with the str	oke in 1 mm		
Description	increments are avail	lable by using	increments by using	g an exclusive body		
	spacers with standa	ard stroke cylinders.	with the specified stroke.			
	Bore size Stroke range		Bore size	Stroke range		
Stroke range	12, 16	6 to 29	12, 16	1 to 29		
	20, 25	6 to 49	20, 25	1 to 49		
	Part no.: CQSWB2	5-47D-X633	Part no.: CQSWB25-47D-XB10			
Fyomenia	CQSWB25-50D wit	th 3 mm width	Makes 47 stroke tube.			
Example	spacer inside.		B dimension is 76 mm.			
	B dimension is 79 r	nm.				

Refer to pages 747 to 749 for cylinders with auto switches.

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

CQS JCQ

CUJ

CU

CQ2

RQ CQM

CQU

MU

D
-X

Technical



CQSW Series

Weight/Without Auto Switch

										(3)	
Bore size	Cylinder stroke (mm)										
(mm)	5	10	15	20	25	30	35	40	45	50	
12	38	46	54	62	69	77	-	-	-	-	
16	50	61	71	81	92	102	-	-	-	-	
20	89	104	120	136	152	167	183	199	215	231	
25	127	146	166	186	206	227	247	267	287	308	

Weight/With Auto Switch (Built-in magnet)

Bore size	Cylinder stroke (mm)										
(mm)	5	10	15	20	25	30	35	40	45	50	
12	46	54	62	70	77	85	-	-	-	-	
16	60	71	81	91	102	112	-	-	-	-	
20	119	134	150	166	182	198	214	230	245	261	
25	154	174	195	215	235	255	276	296	316	336	

Additional Weight

Additional Weight					(9)
Bore size (mm)	12	16	20	25	
Dad and male three d	Male thread	3	6	12	24
Rod end male thread	Nut	2	4	8	16
With rubber bumper	With rubber bumper			-2	-2
Foot type (Including mounting bo	olt)	55	65	159	181
Compact foot type (Including mo	41	51	121	140	
Rod side flange type (Including r	58	70	143	180	

Calculation: (Example) CQSWF12-10DM

Cylinder weight: CQSWB12-10D		
Additional weight: Rod end male thread	٠5	ç
: Rod side flange type	58	ç

109 g

⚠ Caution

(q)

(a)

Retaining Ring Installation/Removal

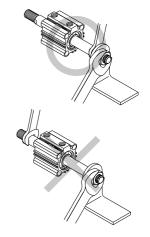
- For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- 2. Even if a proper plier (tool for installing type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

∆Warning

Mounting

Do not apply the reverse torque to the piston rods sticking out from both sides of this cylinder at the same time. The torque makes connection threads inside loosen, which may cause an accident or malfunction.

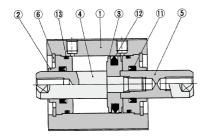
Install or remove a load while the piston rod width across flats are secured. Do not fix the other side of piston rod width across flat and apply the reverse torque.



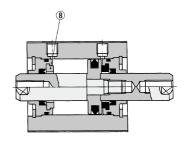
Compact Cylinder: Standard Type CQSW Series Double Acting, Double Rod

Construction

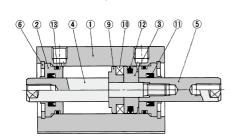
Basic type



With rubber bumper

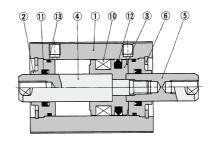


With auto switch (Built-in magnet)



ø12, ø16

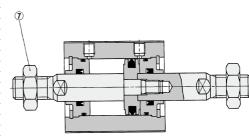
ø20, ø25



Component Parts

••••	p		
No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Collar	Aluminum alloy	Anodized
3	Piston	Aluminum alloy	
4	Piston rod A	Stainless steel	
5	Piston rod B	Stainless steel	
6	Retaining ring	Carbon tool steel	Phosphate coated
7	Rod end nut	Carbon steel	Zinc chromated
8	Bumper	Urethane	
9	Spacer for switch	Aluminum alloy	Chromated
10	Magnet	_	
11	Rod seal	NBR	
12	Piston seal	NBR	
13	Tube gasket	NBR	
	-		

Rod end male thread



Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
12	CQSWB12-PS	
16	CQSWB16-PS	Set of nos. above (1), (12), (13)
20	CQSWB20-PS	Set of flos. above (f), (2, (g)
25	CQSWB25-PS	

^{*} Seal kit includes ①, ②, ③. Order the seal kit, based on each bore size.

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

D-□

CUJ CU

cqs JCQ CQ2 RQ CQM CQU MU

-X□ Technical Data



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

CQSW Series

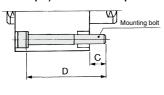
Mounting Bolt for CQSW

Mounting method: Mounting bolt for through-hole mounting type of CQSW is available as an option.

Refer to the following for ordering procedures.

Order the actual number of bolts that will be used.

Example) CQ-M3x30L 4 pcs.



Note) When mounting a cylinder with throughhole, be sure to use the attached plain washer.

Cylinder model	С	D	Mounting bolt part no.
CQSWB12-5D		30	CQ-M3 x 30L
-10D]	35	x 35L
-15D	6.5	40	x 40L
-20D	6.5	45	x 45L
-25D	1	50	x 50L
-30D]	55	x 55L
CQSWB16-5D		30	CQ-M3 x 30L
-10D		35	x 35L
-15D	6.5	40	x 40L
-20D	0.5	45	x 45L
-25D		50	x 50L
-30D]	55	x 55L
CQSWB20-5D		35	CQ-M5 x 35L
-10D	10	40	x 40L
-15D] 10	45	x 45L
-20D]	50	x 50L

Cylinder model	С	D	Mounting bolt part no.
CQSWB20-25D		55	CQ-M5 x 55L
-30D		60	x 60L
-35D	10	65	x 65L
-40D	10	70	x 70L
-45D		75	x 75L
-50D		80	x 80L
CQSWB25-5D		35	CQ-M5 x 35L
-10D		40	x 40L
-15D		45	x 45L
-20D]	50	x 50L
-25D	7	55	x 55L
-30D	_ ′	60	x 60L
-35D		65	x 65L
-40D		70	x 70L
-45D		75	x 75L
-50D		80	x 80L

Material: Chromium molybdenum steel Surface treatment: Zinc chromated

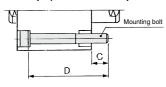
Mounting Bolt for CDQSW with Auto Switch

Mounting method: Mounting bolt for through-hole mounting type of CDQSW is available as an option.

Refer to the following for ordering procedures.

Order the actual number of bolts that will be used.

Example) CQ-M3x35L 4 pcs.



Note) When mounting a cylinder with throughhole, be sure to use the attached plain washer.

Cylinder model	С	D	Mounting bolt part no.
CDQSWB12-5D		35	CQ-M3 x 35L
-10D		40	x 40L
-15D	6.5	45	x 45L
-20D	6.5	50	x 50L
-25D		55	x 55L
-30D		60	x 60L
CDQSWB16-5D		35	CQ-M3 x 35L
-10D		40	x 40L
-15D	6.5	45	x 45L
-20D	0.5	50	x 50L
-25D		55	x 55L
-30D		60	x 60L
CDQSWB20-5D		45	CQ-M5 x 45L
-10D	10	50	x 50L
-15D	10	55	x 55L
-20D		60	x 60L

Cylinder model	С	D	Mounting bolt part no.
CDQSWB20-25D		65	CQ-M5 x 65L
-30D		70	x 70L
-35D	4.0	75	x 75L
-40D	10	80	x 80L
-45D		85	x 85L
-50D		90	x 90L
CDQSWB25-5D		45	CQ-M5 x 45L
-10D		50	x 50L
-15D		55	x 55L
-20D		60	x 60L
-25D	_	65	x 65L
-30D	7	70	x 70L
-35D		75	x 75L
-40D		80	x 80L
-45D		85	x 85L
-50D		90	x 90L

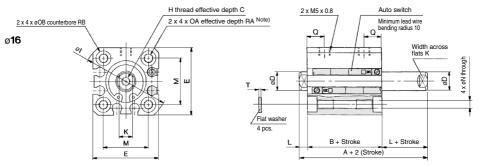
Material: Chromium molybdenum steel Surface treatment: Zinc chromated

Dimensions: Ø12 to Ø25

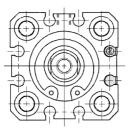
Basic type (Through-hole/Both ends tapped common): CQSWB/CDQSWB

ø12

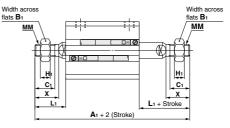




ø20, ø25



Rod end male thread



Rod End Male Thread

Bore size	Without auto switch	With auto switch	B₁	C ₁	Ηı	1.	ММ	v
(mm)	A 1	A 1	D1	C1	п	L ₁	IVIIVI	Х
12	50	55	8	9	4	14	M5 x 0.8	10.5
16	53	58	10	10	5	15.5	M6 x 1.0	12
20	63	73	13	12	5	18.5	M8 x 1.25	14
25	74	84	17	15	6	22.5	M10 x 1.25	17.5

Basic Type

Bore size	Stroke range	Without a	uto switch	With au	o switch	_	D	_	ш		ĸ		М	N	OA	ОВ	Q	RA	RB	т
(mm)	(mm)	Α	В	Α	В	C	י ו	=		•	_ ^	-	IVI	IN	UA	06	u	nA	no	' '
12	5 to 30	29	22	34	27	6	6	25	M3 x 0.5	32	5	3.5	15.5	3.5	M4 x 0.7	6.5	7.5	7	4	0.5
16	5 to 30	29	22	34	27	8	8	29	M4 x 0.7	38	6	3.5	20	3.5	M4 x 0.7	6.5	7.5	7	4	0.5
20	5 to 50	35	26	45	36	7	10	36	M5 x 0.8	47	8	4.5	25.5	5.4	M6 x 1.0	9	8	10	7	1
25	5 to 50	39	29	49	39	12	12	40	M6 x 1.0	52	10	5	28	5.4	M6 x 1.0	9	9	10	7	1

Note 1) For basic type ø20 and ø25 with 5 stroke, through-hole is threaded over the entire length. Note 2) Rubber bumper type has the same dimensions as those indicated above

Note 3) The positions of width across flats on both sides are not the same.

* For details about the rod end nut and accessory brackets, refer to page 796.

ØSMC

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JCQ

CQ2

RQ CQM

CQU

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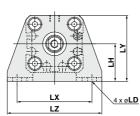
D-□

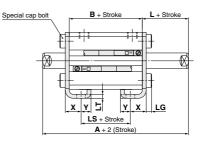
-X□ Technical Data

CQSW Series

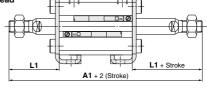
Dimensions: Ø12 to Ø25

Foot type: CQSWL/CDQSWL





Rod end male thread

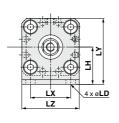


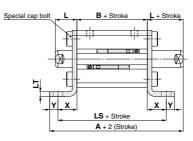
Foot Type

Bore size	Stroke range	Wit	hout a	uto sw	itch	W	ith aut	o swite	ch		14	10	LG	LH	1.7	ΙY	ıv	17	v	v
(mm)	(mm)	Α	A1	В	LS	Α	A1	В	LS	-	LI	LD	LG	Ln	LI	L^	LT	LZ	^	1
12	5 to 30	49	70	22	10	54	75	27	15	13.5	24	4.5	2.8	17	2	34	29.5	44	8	4.5
16	5 to 30	49	73	22	10	54	78	27	15	13.5	25.5	4.5	2.8	19	2	38	33.5	48	8	5
20	5 to 50	55	83	26	14	65	93	36	24	14.5	28.5	6.6	4	24	3.2	48	42	62	9.2	5.8
25	5 to 50	59	94	29	14	69	104	39	24	15	32.5	6.6	4	26	3.2	52	46	66	10.7	5.8

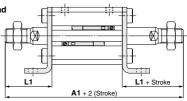
Foot bracket material: Carbon steel Surface treatment: Nickel plated

Compact foot type: CQSWLC/CDQSWLC





Rod end male thread



Compact Foot Type

Ī	Bore size	Stroke range	Witl	nout a	uto sw	itch	W	ith aut	o swit	ch		14	LD	LH	1.7	LX	ıv	17	<	v
	(mm)	(mm)	Α	A1	В	LS	Α	A1	В	LS	L .	LI	LD	LΠ	LI	LA	LT	LZ	^	T
	12	5 to 30	49.3	70	22	40.6	54.3	75	27	45.6	13.5	24	4.5	17	2	15.5	29.5	25	9.3	4.5
	16	5 to 30	49.8	73	22	40.6	54.8	78	27	45.6	13.5	25.5	4.5	19	2	20	33.5	29	9.3	5
Ξ	20	5 to 50	59.5	83	26	52.4	69.5	93	36	62.4	14.5	28.5	6.6	24	3.2	25.5	42	36	13.2	5.8
	25	5 to 50	63	94	29	55.4	73	104	39	65.4	15	32.5	6.6	26	3.2	28	46	40	13.2	5.8

^{*} For details about the rod end nut and accessory brackets, refer to page 796.

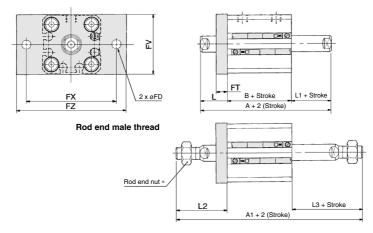
Compact foot bracket material: Carbon steel Surface treatment: Zinc chromated



Compact Cylinder: Standard Type CQSW Series Double Acting, Double Rod

Dimensions: Ø12 to Ø25

Flange type: CQSWF/CDQSWF



Flange Type

Bore size	Stroke range	Witho	ut auto :	switch	With	auto sv	/itch	FD	FT	FV	FX	FZ		14	L2	L3
(mm)	(mm)	Α	A1	В	Α	A1	В	רט	г	FV	ΓΛ.		-		LZ	Lo
12	5 to 30	39	60	22	44	65	27	4.5	5.5	25	45	55	13.5	3.5	24	14
16	5 to 30	39	63	22	44	68	27	4.5	5.5	30	45	55	13.5	3.5	25.5	15.5
20	5 to 50	45	73	26	55	83	36	6.6	8	39	48	60	14.5	4.5	28.5	18.5
25	5 to 50	49	84	29	59	94	39	6.6	8	42	52	64	15	5	32.5	22.5

 $[\]ast$ For details about the rod end nut and accessory brackets, refer to page 796. Note 1) The positions of width across flats on both sides are not the same.

Flange bracket material: Carbon steel Surface treatment: Nickel plated

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Technical Data

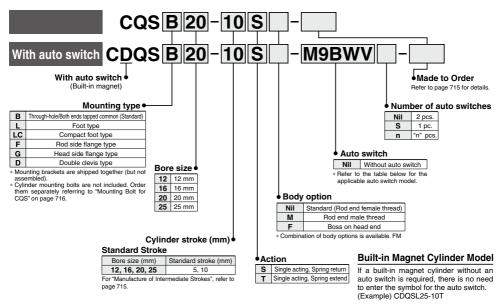


Compact Cylinder: Standard Type Single Acting, Single Rod

CQS Series

ø12, ø16, ø20, ø25





Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches

P F	ilicable Auto Swit			to pages to:												
		Electrical.	light	VA (5)	L	oad volta	ge	Auto swit	ch model	Lead	wire	lengtl	h (m)	Dan and and		
Туре	Special function	Electrical entry	Indicator	Wiring (Output)	С	С	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5	Pre-wired connector	Applica	ble load
_				3-wire (NPN)		5 V. 12 V		M9NV	(M9N)	•	•	•	0	0	IC circuit	
switch	_			3-wire (PNP)		5 V, 12 V		M9PV	(M9P)	•	•	•	0	0	IC CIrcuit	
l s				2-wire		12 V	1	M9BV	(M9B)	•	•	•	0	0		
anto	Diagnostic indication	1		3-wire (NPN)		5 V. 12 V		M9NWV	(M9NW)	•	•	•	0	0	IC circuit	
	Diagnostic indication (2-color indicator)	Grommet	Yes	3-wire (PNP)	24 V	12 V 5 V, 12 V	_	M9PWV	(M9PW)	•	•	•	0	0	IC CIrcuit	Relay,
state	(2-color indicator)			2-wire			1	M9BWV	(M9BW)	•	•	•	0	0		PLC
	Motor registent	1		3-wire (NPN)				M9NAV*1	(M9NA)*1	0	0	•	0	0	IC circuit	
Solid	Water resistant (2-color indicator)			3-wire (PNP)				M9PAV*1	(M9PA)*1	0	0	•	0	0	IC CIrcuit	
	(2 color iridicator)			2-wire		12 V		M9BAV*1	(M9BA)*1	0	0	•	0	0	_	
Reed auto switch		Grommet	Yes	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	•	-	•	_	_	IC circuit	-
5 Be	_	Gioillilet		2-wire	24 V	12 V	100 V	A93V*2	A93	•	•	•	•	_	_	Relay,
ari			No	Z-WIFE	24 V	12 V	100 V or less	A90V	A90	•	_	•	_	_	IC circuit	PLĆ

- *1 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.
- *2 1 m type lead wire is only applicable to D-A93.
- * Lead wire length symbols: 0.5 m----- Nil (Example) M9NWV
 - 1 m······ M (Example) M9NWVM
 - 3 m······ L (Example) M9NWVL 5 m····· Z (Example) M9NWVZ
- * Solid state auto switches marked with "O" are produced upon receipt of order.
- * Since there are other applicable auto switches than listed, refer to page 749 for details
- * For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.
- * Auto switches are shipped together (not assembled).

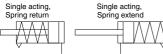
 Note 1) There is the case D-A9□V/M9□V/M9□V/M9□AV type auto switches cannot be mounted on the port surface, depending on the cylinder's stroke and the fitting size for piping. Consult with SMC for details
- Note 2) The D-M9 [in-line entry) type auto switch in () cannot be mounted due to the manufacturable stroke. When this auto switch satisfies the conditions stated in Note 3) on page 749, it can be ordered separately



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



Symbol



Made to Order: **Individual Specifications**

(For details, refer to pages 750 and 752.)

_	(·
Symbol	Specifications
-X271	Fluororubber seals
-X1876	With concave shape end boss on the cylinder tube head side

Made to Order Specifications

Click here for details

Symbol	Specifications
-XA□	Change of rod end shape
-XB10	Intermediate stroke (Using exclusive body), Extension type only
-XC6	Piston rod, retaining ring, rod end nut made of stainless steel
-XC36	With boss on rod side, ø12 and ø16 only
-XC85	Grease for food processing equipment

Body Option

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

Mounting Bracket Part No.

	Bore size (mm)	Foot (1)	Compact foot (1)	Flange	Double clevis
	12	CQS-L012	CQS-LC012	CQS-F012	CQS-D012
Γ	16	CQS-L016	CQS-LC016	CQS-F016	CQS-D016
	20	CQS-L020	CQS-LC020	CQS-F020	CQS-D020
	25	CQS-L025	CQS-LC025	CQS-F025	CQS-D025

Note 1) When ordering foot and compact foot brackets, order 2 pieces per cylinder.

Note 2) Parts belonging to each bracket are as follows. Foot, Compact foot, Flange type: Body mounting bolt Double clevis type: Clevis pin, Type C retaining ring for axis, Body mounting bolt.

Moisture **Control Tube IDK Series**

When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to the IDK series in the Best Pneumatics No. 6.

Standard Specifications

Bore size (mm)	12	16	20	25
Action		Single acting	g, Single rod	
Fluid		Α	ir	
Lubrication		Not required	d (Non-lube)	
Proof pressure		1.5	MPa	
Maximum operating pressure	1.0 MPa			
Minimum operating pressure	0.25	0.25 MPa 0.18 MPa		
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing)			
Ambient and fluid temperature	With auto switch: -10 to 60°C (No freezing)			
Cushion	None			
Rod end thread	Female thread			
Stroke length tolerance	+1.0 mm			
Piston speed	50 to 500 mm/s			
Allowable kinetic energy (J)	0.022 0.038 0.055 0.09			

i neoi	neoretical Output (N)									
Action	Bore size Rod size Operating Piston area		Operating pressure (MPa)		Retracted	Extended				
ACTION	(mm)	(mm)	direction	(mm ²)	0.3	0.5	0.7	side	side	
	40	6	IN	-		43	0.5	14	4	
	12	6	OUT	113	20	43	65	14	4	
٤	16	8	IN	-	45	0.0	100	15		
retu	16	•	OUT	201	45	86	126	15	6	
Spring return	20	10	IN	-	70	141	141 204	15	_	
Spr	20	10	OUT	314	78	141			6	
	25	25 12	IN	-	126	224	323	21	11	
			OUT	491						
	12	12 6	IN	84.8	14	31	48	10	3	
			OUT	-	14	31	40	10	3	
pue		8	IN	151	24	F.4	0.5	10	4	
exte	16	•	OUT	-	24	54	85	19	4	
Spring extend	200	10	IN	236		01	400		_	
Spr	20	20 10	OUT	-	44	91	138	27	5	
	0.5	40	IN	378					40	
	25	25	12	OUT	-	84	160	235	29	10

Manufacture of Intermediate Stroke

(Single acting, Spring retract type is excluded.)

Single acting, Spring retract type is excluded.)					
Description	Spacer is installed in the standard stroke body.				
Part no.	Refer to "How to Order" for the standard model no. (page 714).				
Description	Intermediate strokes in 1 mm increments are available by using spacers with standard stroke cylinders.				
Stroke range	Bore size	Stroke range			
Stroke range	12 to 25	1 to 9			
Example	Part no.: CQSB20-3T CQSB20-5T with 2 mm width spacer inside. B dimension is 24.5 mm.				

Refer to pages 747 to 749 for cylinders with auto switches.

- . Minimum auto switch mounting stroke
- · Proper auto switch mounting position (detection at stroke end) and mounting height
- · Operating range

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D-□ -X□ Technical



Weight/Without Auto Switch Spring return (Spring extend)

opining return (opining extend) (g)						
Bore size	Cylinder stroke (mm)					
(mm)	5	10				
12	29 (31)	36 (37)				
16	39 (39)	48 (47)				
20	63 (68)	76 (79)				
25	92 (98)	108 (113)				

* (): Denotes the values of spring extend.

Weight/With Auto Switch (Built-in magnet) Spring return (Spring extend)

Bore size	Cylinder stroke (mm)			
(mm)	5	10		
12	37 (39)	44 (45)		
16	49 (51)	58 (59)		
20	94 (104)	107 (115)		
25	130 (150)	146 (165)		

^{*():} Denotes the values of spring extend.

Additional Weight (g)

Bore size (mm)	12	16	20	25	
Rod end male thread	Male thread	1.5	3	6	12
nou enu maie uneau	Nut	1	2	4	8
Foot type (Including mounting bolt)		55	65	159	181
Compact foot type (Including mounting bolt)		41	51	121	140
Rod side flange type (Including mounting bolt)		58	70	143	180
Head side flange type (Including mounting bolt)		56	66	137	171
Double clevis type (Including pin, ret	aining ring, bolt)	34	40	92	127

Calculation: (Example) CQSG16-10S

Retaining Ring Installation/Removal

- 1. For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- 2. Even if a proper plier (tool for installing type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

Mounting Bolt for CQS without Auto Switch

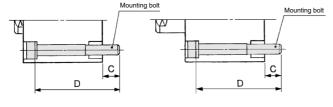
Mounting method: Mounting bolt for through-hole mounting type of CQS is available as an option.

Refer to the following for ordering procedures. Order the actual number of bolts that will be used

Example) CQ-M3x25L 4 pcs.

Single acting, Spring return

Single acting, Spring extend



Note) When mounting a cylinder with through-hole, be sure to use the attached plain washer.

Mounting Bolt for CDQS with Auto Switch

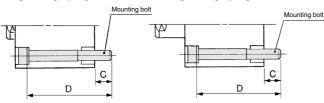
Mounting method: Mounting bolt for through-hole mounting type of CDQS is available as an option.

Refer to the following for ordering procedures Order the actual number of bolts that will be used.

Example) CQ-M3x30L 4 pcs.

Single acting, Spring return

Single acting, Spring extend



Note) When mounting a cylinder with through-hole, be sure to use the attached plain washer.

Single Acting, Spring Return

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Cylinder model	С	D	Mounting bolt part no.			
CQSB12-5S	6.5	25	CQ-M3 x 25L			
-10S	0.5	30	x 30L			
CQSB16-5S	6.5	25	CQ-M3 x 25L			
-10S		30	x 30L			
CQSB20-5S	6.5	25	CQ-M5 x 25L			
-10S	6.5	30	x 30L			
CQSB25-5S	8.5	30	CQ-M5 x 30L			
-10S		35	x 35L			

Single Acting, Spring Extend

Cylinder model	С	D	Mounting bolt part no.
CQSB12-5T	6.5	25	CQ-M3 x 25L
-10T	6.5	30	x 30L
CQSB16-5T	6.5	25	CQ-M3 x 25L
-10T		30	x 30L
CQSB20-5T	6.5	25	CQ-M5 x 25L
-10T		30	x 30L
CQSB25-5T	8.5	30	CQ-M5 x 30L
-10T		35	x 35L

Material: Chromium molybdenum steel Surface treatment: Zinc chromated

Single Acting, Spring Return

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Cylinder model	С	D	Mounting bolt part no				
CDQSB12-5S	6.5	30	CQ-M3 x 30L				
-10S	6.5	35	x 35L				
CDQSB16-5S	6.5	30	CQ-M3 x 30L				
-10S	6.5	35	x 35L				
CDQSB20-5S	6.5	35	CQ-M5 x 35L				
-10S	0.5	40	x 40L				
CDQSB25-5S	8.5	40	CQ-M5 x 40L				
-10S	0.5	45	45L				

Single Acting, Spring Extend

Cylinder model	С	D	Mounting bolt part no.
CDQSB12-5T	6.5	30	CQ-M3 x 30L
-10T	6.5	35	x 35L
CDQSB16-5T	6.5	30	CQ-M3 x 30L
-10T	6.5	35	x 35L
CDQSB20-5T	6.5	35	CQ-M5 x 35L
-10T	0.5	40	x 40L
CDQSB25-5T	8.5	40	CQ-M5 x 40L
-10T	0.5	45	x 45L

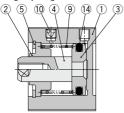
Material: Chromium molybdenum steel Surface treatment: Zinc chromated

[•] Cylinder weight: CQSB16-10S-

^{..66} g . Additional weight: Head side flange type

Construction

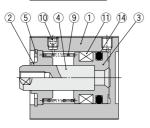
Single acting, Spring return



Single acting, Spring return/With auto switch (Built-in magnet)

ø12.16 (5)(2)(10)(4)(1)(9)(8)(1)(14)(3)

ø20, 25



Component Parts

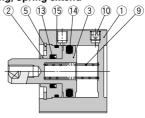
COI	mponent Parts		
No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Collar	Aluminum alloy	Anodized
3	Piston	Aluminum alloy	Single acting, Spring return
	Piston	Stainless steel	Single acting, Spring extend
4	Piston rod	Stainless steel	
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Retaining ring	Carbon tool steel	Nickel plated
7	Rod end nut	Carbon steel	Zinc chromated
8	Spacer for switch type	Aluminum alloy	Chromated
9	Return spring	Piano wire	Zinc chromated
10	Plug with fixed orifice	Alloy steel	Nickel plated
11	Magnet	_	
12	Centering location ring	Aluminum alloy	Anodized
13*	Rod seal	NBR	
14*	Piston seal	NBR	
15*	Tube gasket	NBR	

Replacement Parts/Seal Kit Single acting, Spring return

Bore size (mm)	Kit no.	Contents
12	CQSB12-S-PS	
16	CQSB16-S-PS	Set of nos, above (14)
20	CQSB20-S-PS	Set of flos. above (4)
25	CQSB25-S-PS	

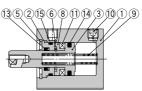
^{*} Seal kit includes (4). Order the seal kit, based on each bore size.

Single acting, Spring extend

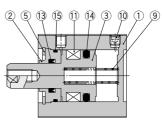


Single acting, Spring extend/With auto switch (Built-in magnet)

ø12. 16

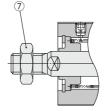


ø20, 25

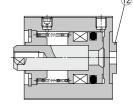


Rod end male thread

Single acting, Spring return Single acting, Spring extend



With boss on head end



Replacement Parts/Seal Kit Single acting Spring extend

Single acting, Sp	ing extend	
Bore size (mm)	Kit no.	Contents
12	CQSB12-T-PS	
16	CQSB16-T-PS	Set of nos. above
20	CQSB20-T-PS	(13), (14), (15)
25	CQSB25-T-PS	

^{*} Seal kit includes 3, 4, 5. Order the seal kit, based on each bore size.

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^{*} Since the seal kit does not include a grease pack, order it separately. Grease pack part no.: GR-S-010 (10 g)

^{*} Since the seal kit does not include a grease pack, order it separately. Grease pack part no.: GR-S-010 (10 g)

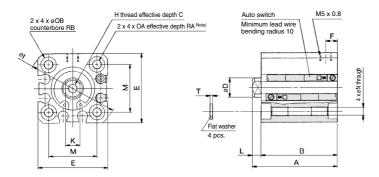
Dimensions: Ø12 to Ø25/Single Acting, Spring Return

Basic type (Through-hole/Both ends tapped common): CQSB/CDQSB

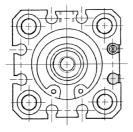
ø12



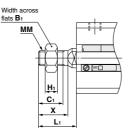




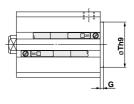
ø20, ø25



Rod end male thread



With boss on head end



Rod End Male Thread

Bore size (mm)	Вı	C ₁	Нı	L ₁	MM	Х
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

With Boss on Head End (mm)

Bore size (mm)	G	Th9
12	1.5	15_0.043
16	1.5	20_0.052
20	2	13-0.043
25	2	15-0.043

Note) With boss on rod end : Option (Suffix "-XC36" to the end of part number.)

Basic Type

Dave size	Ctualia vanaa	With	out a	uto s	witch	Wi	th aut	o swi	tch															
Bore size (mm)	Stroke range (mm)	-	4	E	3	-	١	E	3	С	D	Е	F	Н	1	K	L	M	N	OA	ОВ	RA	RB	Т
(11111)	(11111)	5 ST	10 ST																					
12		25.5	30.5	22	27	30.5	35.5	27	32	6	6	25	5	M3 x 0.5	32	5	3.5	15.5	3.5	M4 x 0.7	6.5	7	4	0.5
16	5 40	25.5	30.5	22	27	30.5	35.5	27	32	8	8	29	5	M4 x 0.7	38	6	3.5	20	3.5	M4 x 0.7	6.5	7	4	0.5
20	5, 10	29	34	24.5	29.5	39	44	34.5	39.5	7	10	36	5.5	M5 x 0.8	47	8	4.5	25.5	5.4	M6 x 1.0	9	10	7	1
25		32.5	37.5	27.5	32.5	42.5	47.5	37.5	42.5	12	12	40	5.5	M6 x 1.0	52	10	5	28	5.4	M6 x 1.0	9	10	7	1

Note) For basic type ø12 and ø16 with 5 stroke, through-hole is threaded over the entire length.

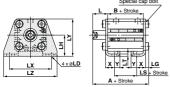
For basic type ø20, ø25 with 5 and 10 stroke, through-hole is threaded over the entire length.

With auto switch (Built-in magnet)/ø20; 5 stroke.

^{*} For details about the rod end nut and accessory brackets, refer to page 796.

Dimensions: Ø12 to Ø25/Single Acting, Spring Return

Foot type: CQSL/CDQSL



Foot Type

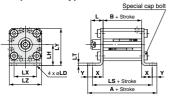
Bore size	Stroke range	Witho	ut auto	switch	With	auto s	witch	١. ا	1.		اءا			ı. v	ıv	17	x	v
(mm)	(mm)	Α	В	LS	Α	В	LS	-	Lı	LD	LG	LΠ		L^	LT	LZ	^	T
12		35.3	17	5	40.3	22	10	13.5	24	4.5	2.8	17	2	34	29.5	44	8	4.5
16	5. 10	35.3	17	5	40.3	22	10	13.5	25.5	4.5	2.8	19	2	38	33.5	48	8	5
20	0, 10	41.2	19.5	7.5	51.2	29.5	17.5	14.5	28.5	6.6	4	24	3.2	48	42	62	9.2	5.8
25		44.7	22.5	7.5	54.7	32.5	17.5	15	32.5	6.6	4	26	3.2	52	46	66	10.7	5.8

Foot bracket material: Carbon steel Surface treatment: Nickel plated

Rod end male thread



Compact foot type: CQSLC/CDQSLC



Compact Foot Type

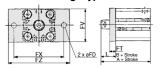
Bore size	Stroke range	Withou	ut auto	switch	With	auto s	witch		1.				ıv	LY	17	v	v
(mm)	(mm)	Α	В	LS	Α	В	LS	_	Lı	LD	Ln	LI	LA	LT	LZ	^	T
12		44.6	17	35.6	49.6	22	40.6	13.5	24	4.5	17	2	15.5	29.5	25	9.3	4.5
16	5. 10	45.6	17	35.6	50.6	22	40.6	13.5	25.5	4.5	19	2	20	33.5	29	9.3	5
20	3, 10	57.5	19.5	45.9	67.5	29.5	55.9	14.5	28.5	6.6	24	3.2	25.5	42	36	13.2	5.8
25]	60.5	22.5	48.9	70.5	32.5	58.9	15	32.5	6.6	26	3.2	28	46	40	13.2	5.8

Compact foot bracket material: Carbon steel Surface treatment: Zinc chromated

Rod end male thread



Rod side flange type: CQSF/CDQSF

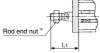


Rod Side Flange Type

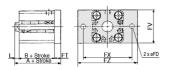
Bore size	Stroke range	Without a	uto switch	With aut	to switch	FD	FT	FV	FX	FZ		
(mm)	(mm)	Α	В	Α	В	רט	ы	FV	FX	FZ	L	L1
12		30.5	17	35.5	22	4.5	5.5	25	45	55	13.5	24
16	5. 10	30.5	17	35.5	22	4.5	5.5	30	45	55	13.5	25.5
20	0, 10	34	19.5	44	29.5	6.6	8	39	48	60	14.5	28.5
25		37.5	22.5	47.5	32.5	6.6	8	42	52	64	15	32.5

Flange bracket material: Carbon steel Surface treatment: Nickel plated

Rod end male thread



Head side flange type: CQSG/CDQSG



Head Side Flange Type

Bore size	Stroke range	Without a	uto switch	With aut	o switch	FD	FT	FV	FX	FZ		1.	
(mm)	(mm)	Α	В	Α	В	ייין	F1	FV	F^	[2	_	L1	
12		26	17	31	22	4.5	5.5	25	45	55	3.5	14	
16	5, 10	26	17	31	22	4.5	5.5	30	45	55	3.5	15.5	
20	0, 10	32	19.5	42	29.5	6.6	8	39	48	60	4.5	18.5	
25		35.5	22.5	45.5	32.5	6.6	8	42	52	64	5	22.5	

Flange bracket material: Carbon steel Surface treatment: Nickel plated

Rod end male thread



* For details about the rod end nut and accessory brackets, refer to page 796.

SMC

D-□ -X□

CUJ

COS JCO

CQ2 RQ

CQU

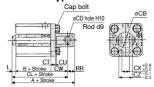
MU

Technical Data



Dimensions: \emptyset 12 to \emptyset 25/Single Acting, Spring Return

Double clevis type: CQSD/CDQSD



Double Clevis Type

Bore size	e Stroke range	Without auto switch			With auto switch			CB	CD	СТ	CII	CW CY		C7	١.		DD
(mm)	(mm)	Α	В	CL	Α	В	CL	СВ	CD	<u>.</u>	00	CW	CA	C2	-	L1	nn
12		40.5	17	34.5	45.5	22	39.5	12	5	4	7	14	5	10	3.5	14	6
16	5, 10	41.5	17	35.5	46.5	22	40.5	14	5	4	10	15	6.5	12	3.5	15.5	6
20	3, 10	51	19.5	42	61	29.5	52	20	8	5	12	18	8	16	4.5	18.5	9
25		57.5	22.5	47.5	67.5	32.5	57.5	24	10	5	14	20	10	20	5	22.5	10
									_							$\overline{}$	

Double clevis bracket material: Carbon steel Surface treatment: Nickel plated

Rod end male thread



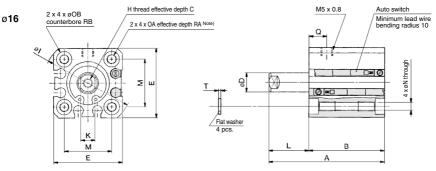
- * For details about the double clevis pivot bracket, refer to page 705.
- * For details about the rod end nut and accessory brackets, refer to page 796.

Dimensions: Ø12 to Ø25/Single Acting, Spring Extend

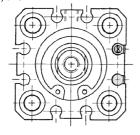
Basic type (Through-hole/Both ends tapped common): CQSB/CDQSB

ø12





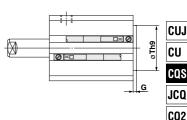
ø20, ø25



Rod end male thread

Width across flats B₁ MM H₁ C₁ X

With boss on head end



Rod End Male Thread

Bore size	B ₁ C ₁		н₁	L	-1	мм	х		
(mm)	D1	C1	l III	5 ST	10 ST	IVIIVI	_ ^		
12	8	9	4	19	24	M5 x 0.8	10.5		
16	10	10	5	20.5	25.5	M6 x 1.0	12		
20	13	12	5	23.5	28.5	M8 x 1.25	14		
25	17	15	6	27.5	32.5	M10 x 1.25	17.5		
	13	12	5	23.5	28.5	M8 x 1.25	14		

With Boss on Head End (mm)

Bore size (mm)	G	Th9
12	1.5	15-0.043
16	1.5	20 -0.052
20	2	13-0.043
25	2	15 -0.043
Note) Wit	h hoee	on rod and · On

s on rod end : Option (Suffix "-XC36" to the end of part number.)

Basic Type

Doro sino	Bore size Stroke range		Without auto switch		With auto switch								-												
(mm)	(mm)	-	4		3	-	4	E	3	С	D	Ε	Н	1	K	٠	-	M	N	OA	OB	Q	RA	RB	Т
(11111)	()	5 ST	10 ST	5 ST	10 ST	5 ST	10 ST	5 ST	10 ST							5 ST	10 ST								
12		30.5	40.5	22	27	35.5	45.5	27	32	6	6	25	M3 x 0.5	32	5	8.5	13.5	15.5	3.5	M4 x 0.7	6.5	7.5	7	4	0.5
16	- 40	30.5	40.5	22	27	35.5	45.5	27	32	8	8	29	M4 x 0.7	38	6	8.5	13.5	20	3.5	M4 x 0.7	6.5	7.5	7	4	0.5
20	5, 10	34	44	24.5	29.5	44	54	34.5	39.5	7	10	36	M5 x 0.8	47	8	9.5	14.5	25.5	5.4	M6 x 1.0	9	8	10	7	1
25	1	37.5	47.5	27.5	32.5	47.5	57.5	37.5	42.5	12	12	40	M6 x 1.0	52	10	10	15	28	5.4	M6 x 1.0	9	9	10	7	1

Note) For basic type ø12 and ø16 with 5 stroke, through-hole is threaded over the entire length. For basic type ø20, ø25 with 5 and 10 stroke, through-hole is threaded over the entire length. With auto switch (Built-in magnet)/ø20; 5 stroke.

^{*} For details about the rod end nut and accessory brackets, refer to page 796.



721

D-□ -X□

Technical Data

cas

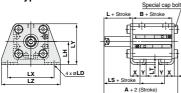
JCQ

RQ CQM CQU

MU

Dimensions: Ø12 to Ø25/Single Acting, Spring Extend

Foot type: CQSL/CDQSL



Rod end male thread



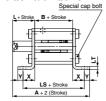
Foot Type

Bore size	Stroke	range	Witho	ut auto	With	auto s	witc	h				
(mm)	(m	nm)	Α	В	LS	Α	В	LS	S			
12			35.3	17	5	40.3	22	10)			
16		10	35.3	17	5	40.3	22	10)			
20	5,	5, 10		19.5	7.5	51.2	29.5	17	.5			
25				22.5	7.5	54.7	32.5	17	.5			
Bore size (mm)	L	Lı	LD	LG	LH	Lī	Г	X.	LY	LZ	х	Υ
	L 13.5	L ₁	LD	LG 2.8	LH	L1 2		.X	LY 29.5	LZ	X	Y 4.5
(mm)							3					
(mm) 12	13.5	24	4.5	2.8	17	2	3	34	29.5	44	8	4.5

Foot bracket material: Carbon steel Surface treatment: Nickel plated

Compact foot type: CQSLC/CDQSLC





Rod end male thread

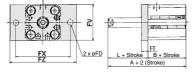


Compact Foot Type

ore size	Stroke	range	Witho	vvitn	aut	o sw	vitch					
(mm)	(m	ım)	Α	В	LS	Α	E	3	LS			
12		5, 10		17	35.6	49.3	2	2 .	40.6	-		
16	_			17	35.6	49.8	2	2 .	40.6			
20	5,			19.5	45.9	63	29	.5	55.9			
25				22.5	48.9	66.5	32	.5	58.9			
ore size (mm)	L	Lı	LD	LH	LT	L	K	LY	,	LZ	х	Υ
12	13.5	24	4.5	17	2	15	.5	29.	5	25	9.3	4.5
16	13.5	25.5	4.5	19	2	20)	33.	5	29	9.3	5
20	14.5	28.5	6.6	24	3.2	25	.5	42		36	13.2	5.8
25	15	15 32.5 6		26	3.2	28	зΤ	46	Г	40	13.2	5.8
	(mm) 12 16 20 25 ore size (mm) 12 16 20	(mm) (m 12 16 20 5, ore size (mm) L 12 13.5 16 13.5 20 14.5	(mm) (mm) 12 16 20 5, 10 25 core size (mm) L L1 12 13.5 24 16 13.5 25.5 20 14.5 28.5	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	(mm) (mm) A B 12 44.3 17 20 5, 10 44.8 17 55 55.5 22.5 ore size (mm) L L1 LD LH 12 13.5 24 4.5 17 16 13.5 25.5 4.5 19 20 14.5 28.5 6.6 24	(mm) (mm) A B LS 12 44.3 17 35.6 20 5, 10 44.8 17 35.6 25 56.5 22.5 48.9 ore size (mm) L L1 LD LH LT 12 13.5 24 4.5 17 2 16 13.5 25.5 4.5 19 2 20 14.5 28.5 6.6 24 3.2	(mm) (mm) A B LS A 12 44.3 17 35.6 49.3 20 5, 10 44.8 17 35.6 49.3 25 53 19.5 45.9 63.5 65.5 22.5 48.9 66.5 ore size (mm) L L1 LD LH LT LJ 12 13.5 24 4.5 17 2 15 16 13.5 25.5 4.5 19 2 2 2 20 14.5 28.5 6.6 24 3.2 25	(mm) (mm) A B LS A E 12 44.3 17 35.6 49.3 2 20 5, 10 44.8 17 35.6 49.8 2 25 56.5 22.5 48.9 66.5 32 ore size (mm) L L1 LD LH LT LX 12 13.5 24 4.5 17 2 20 16 13.5 25.5 4.5 19 2 20 20 14.5 28.5 6.6 24 3.2 25.5	(mm) (mm) A B LS A B 12 44.3 17 35.6 49.3 22 20 5, 10 44.8 17 35.6 49.8 22 25 56.5 22.5 48.9 66.5 32.5 ore size (mm) L L1 LD LH LT LX LY 12 13.5 24 4.5 17 2 15.5 29.5 16 13.5 25.5 4.5 19 2 20 33. 20 14.5 28.5 6.6 24 3.2 25.5 42	(mm) (mm) A B LS A B LS 12 44.3 17 35.6 49.3 22 40.6 20 5, 10 44.8 17 35.6 49.8 22 40.6 25 55.9 63 29.5 55.9 56.5 22.5 48.9 66.5 32.5 58.9 ore size (mm) L L1 LD LH LT LX LY 12 13.5 24.4 4.5 17 2 15.5 29.5 16 13.5 25.5 4.5 19 2 20 33.5 20 14.5 28.5 6.6 24 3.2 25.5 42	(mm) (mm) A B LS A B LS 12 44.3 17 35.6 49.3 22 40.6 20 5, 10 44.8 17 35.6 49.8 22 40.6 3 19.5 45.9 63 29.5 55.9 56.5 22.5 48.9 66.5 32.5 58.9 ore size (mm) L L1 LD LH LT LX LY LZ 12 13.5 24 4.5 17 2 15.5 29.5 25 16 13.5 25 4.5 19 2 20 33.5 29 20 14.5 28.5 6.6 24 3.2 25.5 42 36	(mm) (mm) A B LS A B LS 12 44.3 17 35.6 49.8 22 40.6 20 5, 10 44.8 17 35.9 49.8 22 40.6 25 55 53 19.5 45.9 63 29.5 55.9 ore size (mm) L L1 LD LH LT LX LY LZ X 12 13.5 24 4.5 17 2 15.5 29.5 59.3 16 13.5 25.5 4.5 19 2 20 33.5 29 9.3 20 14.5 28.5 6.6 24 3.2 25.5 42 36 13.2

Compact foot bracket material: Carbon steel Surface treatment: Zinc chromated

Rod side flange type: CQSF/CDQSF

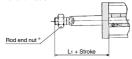


Rod Side Flange Type

Bore size	Stroke range	Without auto switch		With auto switch		ED	ЕТ	- 1/	FV	F7		
(mm)	(mm)	Α	В	Α	В	רט	FI	FV	「へ		-	L1
12		30.5	17	35.5	22	4.5	5.5	25	45	55	13.5	24
16	5. 10	30.5	17	35.5	22	4.5	5.5	30	45	55	13.5	25.5
20	5, 10	34	19.5	44	29.5	6.6	8	39	48	60	14.5	28.5
25		37.5	22.5	47.5	32.5	6.6	8	42	52	64	15	32.5

Flange bracket material: Carbon steel Surface treatment: Nickel plated

Rod end male thread



Head side flange type: CQSG/CDQSG



	- 2
FX FZ	2xøFD

Head Side Flange Type

Bore size	Stroke range	Without auto switch		With auto switch		ED	ЕТ	EV	EV	E7		1.
(mm)	(mm)	Α	В	Α	В	ги	-	rv	- ^		<u>-</u>	L1
12		26	17	31	22	4.5	5.5	25	45	55	3.5	14
16	F 10	26	17	31	22	4.5	5.5	30	45	55	3.5	15.5
20	5, 10	32	19.5	42	29.5	6.6	8	39	48	60	4.5	18.5
25		35.5	22.5	45.5	32.5	6.6	8	42	52	64	5	22.5

Flange bracket material: Carbon steel Surface treatment: Nickel plated

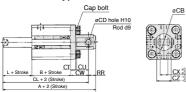
Rod end male thread



^{*} For details about the rod end nut and accessory brackets, refer to page 796.

Dimensions: Ø12 to Ø25/Single Acting, Spring Extend

Double clevis type: CQSD/CDQSD



Rod end male thread



Double Clevis Type

25

24 10 5 14 20 10 20

	Bore size	Stroke r	ange	Wi	ithou	ıt au	ıto	swite	ch	Wit	h a	auto s	witch			
	(mm)	(mn	1)	-	A	В		CL		Α	Т	В	CL			
	12			40	0.5	17	7	34.	5	45.5	5	22	39.5			
	16		^	41.5		17	7	35.	5	46.5	5	22	40.5			
	20	5, 1	, [51 19		9.5 42			61		29.5	52			
	25			57	57.5 22		.5	47.5		67.5	5	32.5	57.5			
	Bore size (mm)	СВ	CD		СТ	•	С	U	C	w	c	x	cz	L	Lı	RR
3	12	12	5	П	4		7	7	-	14		5	10	3.5	14	6
	16	14	5	П	4		1	0		15	6	6.5	12	3.5	15.5	6
	20	20	8		5		1:	2		18		8	16	4.5	18.5	9

5 Double clevis bracket material: Carbon steel Surface treatment: Nickel plated

22.5 10

* For details about the rod end nut and accessory brackets, refer to page 796.

CUJ

CU

cqs JCQ

CQ2

RQ CQM

CQU

MU

D-□ -X□

Technical Data

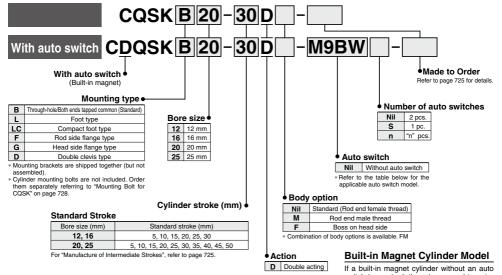


Compact Cylinder: Non-rotating Rod Type **Double Acting, Single Rod**

QSK Series

ø12, ø16, ø20, ø25

How to Order



switch is required, there is no need to enter the symbol for the auto switch. (Example) CDQSKL25-30D

Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches

		Electrical.	ight	NAC of the second	L	oad volta	ge	Auto swit	ch model	Lead	wire l	engt	h (m)	Date or diseased			
Туре	Special function	Electrical entry	Indicator light	Wiring (Output)	DC		AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5	Pre-wired connector	Applical	ole load	
<u>-</u>				3-wire (NPN)		5 V. 12 V	M9PV	M9NV	M9N	•	•	•	0	0	IC circuit		
switch	_			3-wire (PNP)		5 V, 12 V		M9PV	M9P	•	•	•	0	0	IC CITCUIT		
				2-wire		12 V		M9B	•	•	•	0	0	_			
anto	Diagnostic indication (2-color indicator) Gromm	Grommet Y		3-wire (NPN)	24 V	5 V, 12 V	M9NWV	M9NW	•	•	•	0	0	IC circuit			
			Yes	3-wire (PNP)		5 V, 12 V		M9PWV	M9PW	•	•	•	0	0	IO CIICUII	Relay, PLC	
state				2-wire		12 V		M9BWV	M9BW	•	•	•	0	0	_		
<u> </u>	Water resistant			3-wire (NPN)		5 V. 12 V	VI I	M9NAV*1	M9NA*1	0	0	•	0	0	IC circuit		
Solid	(2-color indicator)			3-wire (PNP)	1	5 V, 12 V		M9PAV*1	M9PA*1	0	0	•	0	0	IC CITCUIT		
Ň	(2 color indicator)			2-wire		12 V		M9BAV*1	M9BA*1	0	0	•	0	0	_		
Reed auto switch	_		Yes	Yes	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	•	-	•	_	_	IC circuit	-
5 æ		Grommet	[2-wire 24 V	12 V	100 V	A93V*2	A93	•	•	•	•	_	_	Relay,		
an			No		24 V	12 V	100 V or less	A90V	A90	•	_	•	_	_	IC circuit	PLC	

- *1 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.
- *2 1 m type lead wire is only applicable to D-A93
- * 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 "O" are produced upon receipt of order.
- * Since there are other applicable auto switches than listed, refer to page 749 for details * For details about auto switches with pre-wired connector, refer to pages 1648 and 1649

^{*} Auto switches are shipped together (not assembled).

Note) There is the case D-A9□V/M9□V/M9□WV/M9□AV 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



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



Symbol Without cushion



Made to Order:

Individual Specifications (For details, refer to page 752.)

Symbol	Specifications
-X1876	With concave shape end boss on the cylinder tube head side

Made to Order Specifications Click here for details

Symbol	Specifications							
-XA□	Change of Rod End Shape							
-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								

Body Option

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

Mounting Bracket Part No.

Bore size (mm)	Foot (1)	Compact foot (1)	Flange	Double clevis		
12	CQSK-L012	CQSK-LC012	CQSK-F012	CQSK-D012		
16	CQSK-L016	CQSK-LC016	CQSK-F016	CQSK-D016		
20	CQSK-L020	CQSK-LC020	CQSK-F020	CQSK-D020		
25	CQSK-L025	CQSK-LC025	CQSK-F025	CQSK-D025		

Note 1) When ordering foot and compact foot brackets, order 2 pieces per cylinder.

Note 2) Parts belonging to each bracket are as follows. Foot, Compact foot, Flange type: Body mounting

Double clevis type: Clevis pin, Type C retaining ring for axis, Body mounting bolt.

Moisture **Control Tube IDK Series**

When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to the IDK series in the Best Pneumatics No. 6.

Standard Specifications

Bore size (mm)	12	16	20	25			
Action		Double actin	g, Single rod				
Fluid		А	ir				
Lubrication		Not required (Non-lube)					
Proof pressure		1.5	MPa				
Maximum operating pressure		1.01) MPa				
Minimum operating pressure	0.07	MPa	0.05 MPa				
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing)						
Ambient and fluid temperature	With auto switch: -10 to 60°C (No freezing)						
Cushion		No	ne				
Rod end thread	Female thread						
Stroke length tolerance	+1.0 mm 0						
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 O	utput		→ 0	UT L		(N			
Bore size	Rod width across	Action	Piston area	Operating pressure (MP					
(mm)	flats (mm)	Action	(mm²)	0.3	0.5	0.7			
12	5.2	IN	90	27	45	63			
12	5.2	OUT	113	34	57	79			
16	6.2	IN	168	50	84	117			
10	0.2	OUT	201	60	101	141			
20	8.2	IN	256	77	128	179			
20	0.2	OUT	314	94	157	220			
		IN	401	120	200	281			

OUT

491

Manufacture of Intermediate Stroke

10.2

Descrip	otion	Spacer is installed in the standard stroke body.					
Part i	10.	Refer to "How to Order" for the standard model no. (page 724)					
	Description	Intermediate strokes in 1 mm increments are available by using spacers with standard stroke cylinders.					
Standard stroke		Bore size	Stroke range				
	Stroke range	12, 16	1 to 29				
		20, 25	1 to 49				
Exam	ple	Part no.: CQSKB25–47D CQSKB25-50D with 3 mm width spacer inside. B dimension is 77.5 mm.					

Refer to pages 747 to 749 for cylinders with auto switches.

- · Minimum auto switch mounting stroke
- · Proper auto switch mounting position (detection at stroke end) and mounting height
- · Operating range

25

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D-□ -X□ Technical



CQSK Series

Weight/Without Auto Switch

			13										
Bore size		Cylinder stroke (mm)											
(mm)	5	10	15	20	25	30	35	40	45	50			
12	39	46	53	60	67	74	-	-	-	-			
16	52	61	69	78	86	95	-	-	-	-			
20	89	102	116	129	143	156	170	183	197	211			
25	124	141	157	174	190	207	224	240	257	273			

Calculation: (Example) CQSKF20-5DM

Cylinder weight: CQSKB20-5D89 g
Additional weight: Rod end male thread10 g
: Rod side flange type ······142 g

-142 g 241 g

Weight/With Auto Switch (Built-in magnet)

Weight With Auto Switch (Bull-III magnet)											
Bore size		Cylinder stroke (mm)									
(mm)	5	10	15	20	25	30	35	40	45	50	
12	47	54	62	69	76	83	-	-	-	-	
16	63	71	80	88	97	106	-	-	-	-	
20	122	136	149	163	176	190	203	217	230	244	
25	168	185	201	218	235	251	268	284	301	317	

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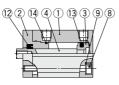
Additional Weight	Additional Weight									
Bore size (mm)		12	16	20	25					
Rod end male thread	Male thread	1.5	3	6	12					
Hod end male thread	1	2	4	8						
With boss on head end	0.7	1.3	2	3						
Foot type (Including mounting bolt)		55	64	158	179					
Compact foot type (Including mour	ting bolt)	41	51	121	140					
Rod side flange type (Including mo	unting bolt)	58	69	142	178					
Head side flange type (Including m	56	66	137	171						
Double clevis type (Including pin, re	etaining ring, bolt)	34	40	92	127					

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

Construction

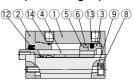
Basic type

ø12

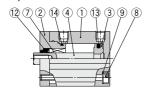


With auto switch (Built-in magnet)

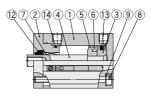
ø12



ø16, ø20, ø25

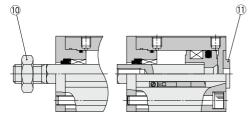


ø16

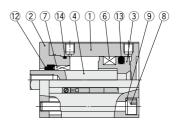


Rod end male thread

With boss on head end



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	
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	Zinc chromated
11	Centering location ring	Aluminum alloy	Anodized
12*	Rod seal	NBR	
13*	Piston seal	NBR	
14*	Tube gasket	NBR	

1. 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.

↑ Precautions

Operating Precautions

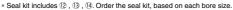
					_ [
Allowable rotational torque	ø12	ø16	ø 20	ø 25	CQU
(N·m) or less	0.04	0.04	0.2	0.25	
2. Load to piston roo	d must alwa	vs be in an	axial direct	ion.	MU

2. Load to piston rod must always be in an axial direction.

3. 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.

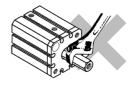
Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
12	CQSKB12-PS	
16	CQSKB16-PS	Set of nos. above ① , ③ , ④.
20	CQSKB20-PS	Set of nos. above ② , ⑤ , ⑭.
25	CQSKB25-PS	



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

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



D-□ -X□ Technical

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Mounting Bolt for CQSK

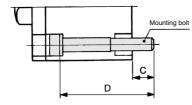
Mounting method: Mounting bolt for through-hole mounting type of CQSK is available as an option.

Refer to the following for ordering procedures.

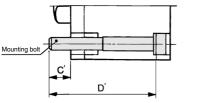
Order the actual number of bolts that will be used.

Example) CQ-M3x25L 2 pcs.

Head side mounting type



Rod side mounting type



Note) When mounting a cylinder with through-hole, be sure to use the attached plain washer.

Cylinder model	С	D	Mounting bolt part no.	C'	D'	Mounting bolt part no.
CQSKB12-5D		25	CQ-M3 x 25L		30	CQ-M3 x 30L
-10D	l	30	x 30L		35	x 35L
-15D	1	35	x 35L		40	x 40L
-20D	6.5	40	x 40L	6.5	45	x 45L
-25D	1	45	x 45L		50	x 50L
-30D	1	50	x 50L		55	x 55L
CQSKB16-5D		25	CQ-M3 x 25L		30	CQ-M3 x 30L
-10D		30	x 30L		35	x 35L
-15D		35	x 35L		40	x 40L
-20D	6.5	40	x 40L	6.5	45	x 45L
-25D	1	45	x 45L		50	x 50L
-30D	1	50	x 50L		55	x 55L
CQSKB20-5D		25	CQ-M5 x 25L		30	CQ-M5 x 30L
-10D	1	30	x 30L		35	x 35L
-15D	1	35	x 35L		40	x 40L
-20D	1	40	x 40L	6.5	45	x 45L
-25D	1	45	x 45L		50	x 50L
-30D	6.5	50	x 50L		55	x 55L
-35D]	55	x 55L		60	x 60L
-40D	1	60	x 60L		65	x 65L
-45D	1	65	x 65L		70	x 70L
-50D]	70	x 70L		75	x 75L
CQSKB25-5D		30	CQ-M5 x 30L		35	CQ-M5 x 35L
-10D]	35	x 35L		40	x 40L
-15D		40	x 40L		45	x 45L
-20D		45	x 45L		50	x 50L
-25D	8.5	50	x 50L	8.5	55	x 55L
-30D	0.5	55	x 55L	0.5	60	x 60L
-35D		60	x 60L		65	x 65L
-40D		65	x 65L		70	x 70L
-45D		70	x 70L		75	x 75L
-50D	1	75	x 75L		80	x 80L

Material: Chromium molybdenum steel Surface treatment: Zinc chromated

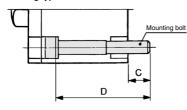
Mounting Bolt for CDQSK

Mounting method: Mounting bolt for through-hole mounting type of CDQSK is available as an option.

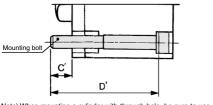
Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

Example) CQ-M3x30L 2 pcs.

Head side mounting type



Rod side mounting type



Note) When mounting a cylinder with through-hole, be sure to use the attached plain washer.

Cylinder model	С	D	Mounting bolt part no.	C'	D'	Mounting bolt part no.
CDQSKB12-5D		30	CQ-M3 x 30L		35	CQ-M3 x 35L
-10D		35	x 35L		40	x 40L
-15D	6.5	40	x 40L	6.5	45	x 45L
-20D	6.5	45	x 45L	0.5	50	x 50L
-25D		50	x 50L		55	x 55L
-30D		55	x 55L		60	x 60L
CDQSKB16-5D		30	CQ-M3 x 30L		35	CQ-M3 x 35L
-10D		35	x 35L		40	x 40L
-15D	6.5	40	x 40L	6.5	45	x 45L
-20D	6.5	45	x 45L	0.5	50	x 50L
-25D		50	x 50L		55	x 55L
-30D		55	x 55L		60	x 60L
CDQSKB20-5D		35	CQ-M5 x 35L		40	CQ-M5 x 40L
-10D		40	x 40L		45	x 45L
-15D		45	x 45L		50	x 50L
-20D		50	x 50L		55	x 55L
-25D		55	x 55L		60	x 60L
-30D	6.5	60	x 60L	6.5	65	x 65L
-35D		65	x 65L		70	x 70L
-40D		70	x 70L		75	x 75L
-45D		75	x 75L		80	x 80L
-50D		80	x 80L		85	x 85L
CDQSKB25-5D		40	CQ-M5 x 40L		45	CQ-M5 x 45L
-10D		45	x 45L		50	x 50L
-15D		50	x 50L		55	x 55L
-20D		55	x 55L		60	x 60L
-25D	ا م د	60	x 60L	8.5	65	x 65L
-30D	8.5	65	x 65L	8.5	70	x 70L
-35D		70	x 70L		75	x 75L
-40D		75	x 75L		80	x 80L
-45D		80	x 80L	_	85	x 85L
-50D		85	x 85L		90	x 90L

Material: Chromium molybdenum steel Surface treatment: Zinc chromated

ØSMC

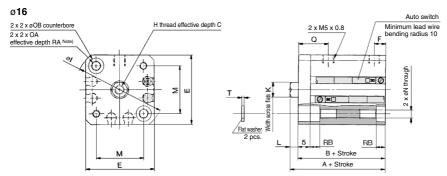
Dimensions: Ø12 to Ø25

Basic type (Through-hole/Both ends tapped common): CQSK/CDQSK

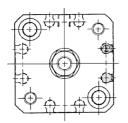
 For the auto switch mounting position and its mounting height, refer to page 748.

ø12

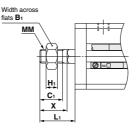




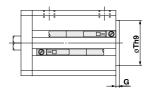
ø20, ø25



Rod end male thread



With boss on head end



Rod End Male Thread

Tiou Life Maic Tilleau													
Bore size (mm)	Вı	C ₁	H1	Lı	MM	X							
12	8	9	4	14	M5 x 0.8	10.5							
16	10	10	5	15.5	M6 x 1.0	12							
20	13	12	5	18.5	M8 x 1.25	14							
25	17	15	6	22.5	M10 x 1.25	17.5							

With Boss on Head End (mm)

With Boss on ricad End (inin												
G	Th9											
1.5	15_0.043											
1.5	20 0 0 0 0 0											
2	13_0.043											
2	15_0.043											
	1.5 1.5 2											

Basic Type

Bore size	Stroke range	Without a	uto switch	With au	to switch	_	^ F				v		м	N	OA	ОВ		RA	RB	
(mm)	(mm)	Α	В	Α	В	C	_	F		٠.	_ N	L .	IVI	IN	UA	ОВ	Q	KA	KD	•
12	5 to 30	25.5	22	30.5	27	6	25	5	M3 x 0.5	32	5.2	3.5	15.5	3.5	M4 x 0.7	6.5	12.5	7	4	0.5
16	5 to 30	25.5	22	30.5	27	8	29	5	M4 x 0.7	38	6.2	3.5	20	3.5	M4 x 0.7	6.5	12.5	7	4	0.5
20	5 to 50	29	24.5	39	34.5	7	36	5.5	M5 x 0.8	47	8.2	4.5	25.5	5.4	M6 x 1.0	9	13	10	7	1
25	5 to 50	32.5	27.5	42.5	37.5	12	40	5.5	M6 x 1.0	52	10.2	5	28	5.4	M6 x 1.0	9	14	10	7	1

Note) For basic type ø12 and ø16 with 5 stroke, through-hole is threaded over the entire length.

For basic type ø20 with 5 to 15 stroke, through-hole is threaded over the entire length. For basic type ø25 with 5 and 10 stroke, through-hole is threaded over the entire length.

Note) With auto switch (Built-in magnet): ø20; 5 stroke

* For details about the rod end nut and accessory brackets, refer to page 796.



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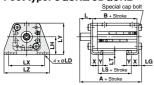
CQM CQU MU

Technical Data

CQSK Series

Dimensions: Ø12 to Ø25

Foot type: CQSKL/CDQSKL



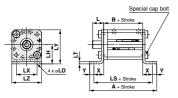
Foot Type

Bore size	Stroke range					With auto switch			L	ın	ıc		H LT		ıv	17	v	v
(mm)	(mm)	Α	В	LS	Α	В	LS	-	_	LD	LG			^	LI	LZ	^	•
12	5 to 30	40.3	22	10	45.3	27	15	13.5	24	4.5	2.8	17	2	34	29.5	44	8	4.5
16	5 to 30	40.3	22	10	45.3	27	15	13.5	25.5	4.5	2.8	19	2	38	33.5	48	8	5
20	5 to 50	46.2	24.5	12.5	56.2	34.5	22.5	14.5	28.5	6.6	4	24	3.2	48	42	62	9.2	5.8
25	5 to 50	49.7	27.5	12.5	59.7	37.5	22.5	15	32.5	6.6	4	26	3.2	52	46	66	10.7	5.8

Foot bracket material: Carbon steel Surface treatment: Nickel plated



Compact foot type: CQSKLC/CDQSKLC



Compact Foot Type

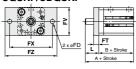
Boi	re size	Stroke range					With auto switch			L	ın	LH	1 T	1 V	ıv	17	v	γ
(r	mm)	(mm)	Α	В	LS	Α	В	LS	-	Li	בט	LII					^	١.
	12	5 to 30	49.6	22	40.6	54.6	27	45.6	13.5	24	4.5	17	2	15.5	29.5	25	9.3	4.5
	16	5 to 30													33.5		9.3	
	20	5 to 50	62.5	24.5	50.9	72.5	34.5	60.9	14.5	28.5	6.6	24	3.2	25.5	42	36	13.2	5.8
	25	5 to 50	65.5	27.5	53.9	75.5	37.5	63.9	15	32.5	6.6	26	3.2	28	46	40	13.2	5.8

Compact foot bracket material: Carbon steel Surface treatment: Zinc chromated

Rod end male thread



Rod side flange type: CQSKF/CDQSKF

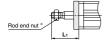


Rod Side Flange Type

E	Bore size	Stroke range	Without a	Without auto switch		to switch	FD	СТ	FV	EV	E7		1.
	(mm)	(mm)	Α	В	Α	В	FD	г.	FV	F^		_	L1
	12	5 to 30	35.5	22	40.5	27	4.5	5.5	25	45	55	13.5	24
Г	16	5 to 30	35.5	22	40.5	27	4.5	5.5	30	45	55	13.5	25.5
	20	5 to 50	39	24.5	49	34.5	6.6	8	39	48	60	14.5	28.5
	25	5 to 50	42.5	27.5	52.5	37.5	6.6	8	42	52	64	15	32.5

Flange bracket material: Carbon steel Surface treatment: Nickel plated

Rod end male thread



Head side flange type: CQSKG/CDQSKG







Head Side Flange Type

Bore size	Bore size Stroke range		Without auto switch		With auto switch		ст	EV	FX	F7		1.
(mm)	(mm)	Α	В	Α	В	FD	r.	FV	F.A.	FZ.	-	L1
12	5 to 30	31	22	36	27	4.5	5.5	25	45	55	3.5	14
16	5 to 30	31	22	36	27	4.5	5.5	30	45	55	3.5	15.5
20	5 to 50	37	24.5	47	34.5	6.6	8	39	48	60	4.5	18.5
25	5 to 50	40.5	27.5	50.5	37.5	6.6	8	42	52	64	5	22.5

Flange bracket material: Carbon steel Surface treatment: Nickel plated

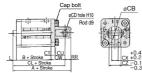
^{*} For details about the rod end nut and accessory brackets, refer to page 796.



Compact Cylinder: Non-rotating Rod Type CQSK Series

Dimensions: Ø12 to Ø25

Double clevis type: CQSKD/CDQSKD



Rod end male thread



Double Clevis Type

Bore size	Stroke range	Witho	ut auto	switch	With	With auto switch		CB	CD	СТ	CII	CW	cv	C7	l i	Lı	DD
(mm)	(mm)	Α	В	CL	Α	В	CL	СВ	CD	<u>ر</u> د	00	CW	CA	CZ	- 1	-	nn
12	5 to 30	45.5	22	39.5	50.5	27	44.5	12	5	4	7	14	5	10	3.5	14	6
16	5 to 30	46.5	22	40.5	51.5	27	45.5	14	5	4	10	15	6.5	12	3.5	15.5	6
20	5 to 50	56	24.5	47	66	34.5	57	20	8	5	12	18	8	16	4.5	18.5	9
25	5 to 50	62.5	27.5	52.5	72.5	37.5	62.5	24	10	5	14	20	10	20	5	22.5	10
									Dou	ble cl	evis	hrack	et m	ateria	l· Ca	rhon	stee

Surface treatment: Nickel plated

- * For details about the double clevis pivot bracket, refer to page 705.
- * For details about the rod end nut and accessory brackets, refer to page 796.

CUJ

CU

cqs JCQ

CQ2

RQ CQM

CQU

MU

D-□ -X□

Technical Data

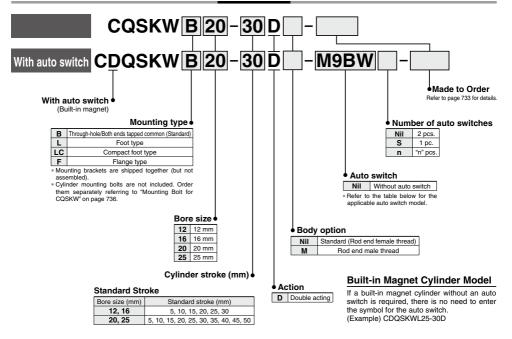


Compact Cylinder: Non-rotating Rod Type **Double Acting, Double Rod**

QSKW Series

Ø12, Ø16, Ø20, Ø25

How to Order



Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches.

			ŧ		L	oad volta	ige	Auto swit	ch model	Lead	wire	lengt	h (m)															
Туре	Special function	Electrical entry	Indicator light	Wiring (Output)	DC		AC	Perpendicular In-line		0.5 (Nil)	1 (M)	3 (L)	5	Pre-wired connector	Applical	ble load												
_				3-wire (NPN)		5 V, 12 V		M9NV	M9N	•	•	•		0	IC circuit													
switch	_			3-wire (PNP)		5 V, 12 V		M9PV	M9P	•	•	•		0	IC circuit													
				2-wire		12 V		M9BV	M9B	•	•	•		0	_													
욕	Diagnostic indication	1		3-wire (NPN)		5 V. 12 V		M9NWV	M9NW	•	•	•		0	IC circuit													
	Grommet	Yes	3-wire (PNP)	24 V	5 V, 12 V	_	M9PWV	M9PW	•	•	•		0	IC CITCUIL	Helay,													
state	(E color indicator)			2-wire		12 V]	M9BWV	M9BW	•	•	•		0	IC circuit	PLC												
	Water resistant			3-wire (NPN)		5 V, 12 V		M9NAV*1	M9NA*1		0	•		0														
Solid	(2-color indicator)			3-wire (PNP)				M9PAV*1	M9PA*1	0	0	•		0														
Ň	(E color indicator)			2-wire		12 V]	M9BAV*1	M9BA*1		0	•		0	_	1												
Reed auto switch		Grommet												Yes	Yes	3-wire (NPN equivalent)	_	5 V	-	A96V	A96	•	_	•	-	_	IC circuit	
D S	_		No	2-wire 24 V	24.1/	12 V	100 V	A93V*2	A93	•	•	•	•	_	_	Relay,												
a					12 V	100 V or less	A90V	A90	•	_	•	-	_		PLĆ													

- *1 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. *2 1 m type lead wire is only applicable to D-A93
- * 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 "O" are produced upon receipt of order.
- * Since there are other applicable auto switches than listed, refer to page 749 for details
- * For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.
- * Auto switches are shipped together (not assembled).

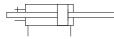
 Note) There is the case D-A9□V/M9□WV/M9□WV/M9□AV type auto switches cannot be mounted on the port surface, depending on the cylinder's stroke and the fitting size for piping. Consult with SMC for details.



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



Symbol Without cushion





Made to Order: **Individual Specifications** (For details, refer to page 751)

Symbol	Specifications
-X633	Intermediate stroke of double rod cylinder

Made to Order Specifications

Click here for details

Symbol	Specifications
-XA□	Change of rod end shape
-XC6	Piston rod, retaining ring, rod end nut made of stainless steel

Body Option

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

Mounting Bracket Part No.

Bore size (mm)	Foot (1)	Compact foot (1)	Flang
12	CQSK-L012	CQSK-LC012	CQSK-F012
16	CQSK-L016	CQSK-LC016	CQSK-F016
20	CQSK-L020	CQSK-LC020	CQSK-F020
25	CQSK-L025	CQSK-LC025	CQSK-F025

Note 1) When ordering foot and compact foot brackets, order 2 pieces per cylinder.

Note 2) Parts belonging to each bracket are as follows.
Foot, Compact foot, Flange type: Body mounting bolt

Moisture **Control Tube IDK Series**

When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to the IDK series in the Best Pneumatics No. 6.

Specifications

Bore size (mm)	12	16	20	25				
Action		Double actin	g, Single rod					
Fluid		Д	ir					
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 a	Without auto switch: -10 to 70°C (No freezing)						
Ambient and fluid temperature	With aut	With auto switch: -10 to 60°C (No freezing)						
Cushion		No	ne					
Rod end thread		Female	thread					
Stroke length tolerance		+1.0	mm					
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

Operating pressure (MPa) Bore size Rod width across Piston area flats (mm) (mm²) (mm) 0.3 0.5 0.7 90 12 5.2 27 45 63 16 6.2 168 50 84 117 256 20 8.2 77 128 179 25 10.2 120 200 281

Manufacture of Intermediate Stroke

Description	Spacer is installed in th	Spacer is installed in the standard stroke body.							
Part no.	Suffix "-X633" to the end of sta	Suffix "-X633" to the end of standard model no. (page 706).							
Description		termediate strokes in 1 mm increments are available by sing spacers with standard stroke cylinders.							
Stroke range	Bore size	Stroke range							
-	12, 16	6 to 29							
	20, 25	6 to 49							
Example	Part no.: CQSKW25-47D-X63 CQSKWB25-50D with 3 mm w B dimension is 84 mm.								

Refer to pages 747 to 749 for cylinders with auto switches

- · Minimum auto switch mounting stroke
- Proper auto switch mounting position (detection at stroke end) and mounting height
- · Operating range

CUJ CU

cas

JCQ CO2

RQ

CQM

CQU MU

> D-□ -X□

Technical



COSKW Series

Weight/Without Auto Switch

Cylinder stroke (mm) Bore size (mm) 50 5 10 15 20 25 30 35 40 45 12 48 56 65 73 80 88 16 64 75 84 95 105 115 20 115 131 148 164 191 196 213 229 246 264 25 160 180 200 221 241 263 285 305 320 347

Weight/With Auto Switch (Built-in magnet)

Bore size										
(mm)	5	10	15	20	25	30	35	40	45	50
12	56	65	74	82	90	98	-	-	-	-
16	75	85	95	105	116	126	-	-	-	-
20	148	164	180	197	214	231	247	265	280	297
25	188	209	230	251	273	293	315	335	356	376

Additional Weight

Additional Wolght					(9)
Bore size (mm)		12	16	20	25
Rod end male thread	Male thread	1.5	3	6	12
nou end maie inread	Nut	1	2	4	8
Foot type (Including mounting bo	Foot type (Including mounting bolt)			158	179
Compact foot type (Including mo	Compact foot type (Including mounting bolt)			121	140
Rod side flange type (Including r	58	69	142	178	

Calculation: (Example) CQSKWF20-5DM

Cylinder weight: CQSKWB20-5D115	
Additional weight: Rod end male thread10	ć
: Rod side flange type ······142	Ç

·142 g

^Precautions

Operating Precautions

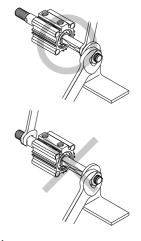
∕¶Warning

(q)

(q)

1. Do not apply the reverse torque to the piston rods sticking out from both sides of this cylinder at the same time. The torque makes connection threads inside loosen, which may cause an accident or malfunction.

Install or remove a load while the piston rod width across flats are secured. Do not fix the other side of piston rod width across flat and apply the reverse torque.



1. 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	ø12	ø16	ø 20	ø 25
(N·m) or less	0.04	0.04	0.2	0.25

2. Load to piston rod must always be in an axial direction.

Retaining Ring Installation/Removal

- 1. For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- 2. Even if a proper plier (tool for installing type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

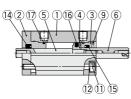


Compact Cylinder: Non-rotating Rod Type CQSKW Series Double Acting, Double Rod

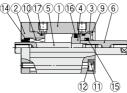
Construction

Basic type

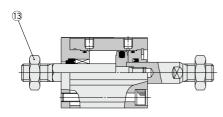
ø12



ø16, ø20, ø25



Rod end male thread



Component Parts

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

Replacement Parts/Seal Kit

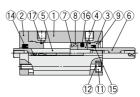
Bore size (mm)	Kit no.	Contents
12	CQSKWB12-PS	
16	CQSKWB16-PS	Set of nos. above (14, (15, (16, (17).
20	CQSKWB20-PS	Set of flos. above (4, (3, (4, (6),
25	CQSKWB25-PS	

* Seal kit includes (3, (5, (6, (7). Order the seal kit, based on each bore size. * Since the seal kit does not include a grease pack, order it separately.

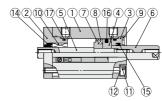
Grease pack part no.: GR-S-010 (10 g)

With auto switch (Built-in magnet)

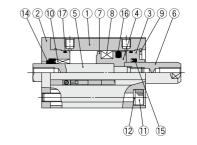
ø12



ø16



ø20, ø25



CUJ

CU CQS

JCQ

CQ2 RQ

CQM

MU

-X

Technical
Data



CQSKW Series

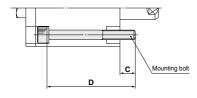
Mounting Bolt for CQSKW

Mounting method: Mounting bolt for through-hole mounting type of CQSKW is available as an option.

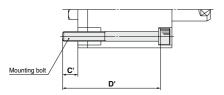
Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

Example) CQ-M3x30L 2 pcs.

Round rod side mounting



Non-rotating rod side mounting



Note) When mounting a cylinder with through-hole, be sure to use the attached plain washer.

Cylinder model	С	D	Mounting bolt part no.	C'	D'	Mounting bolt part no.
CQSKWB12-5D		25	CQ-M3 x 30L		30	CQ-M3 x 35L
-10D		30	x 35L		35	x 40L
-15D	١	35	x 40L		40	x 45L
-20D	6.5	40	x 45L	6.5	45	x 50L
-25D		45	x 50L		50	x 55L
-30D		50	x 55L		55	x 60L
CQSKWB16-5D		25	CQ-M3 x 30L		30	CQ-M3 x 35L
-10D		30	x 35L		35	x 40L
-15D	6.5	35	x 40L	6.5	40	x 45L
-20D	0.5	40	x 45L	6.5	45	x 50L
-25D		45	x 50L		50	x 55L
-30D		50	x 55L		55	x 60L
CQSKWB20-5D		25	CQ-M5 x 35L		30	CQ-M5 x 40L
-10D		30	x 40L		35	x 45L
-15D		35	x 45L		40	x 50L
-20D		40	x 50L		45	x 55L
-25D		45	x 55L		50	x 60L
-30D	10	50	x 60L	10	55	x 65L
-35D		55	x 65L		60	x 70L
-40D		60	x 70L		65	x 75L
-45D		65	x 75L		70	x 80L
-50D		70	x 80L		75	x 85L
CQSKWB25-5D		30	CQ-M5 x 35L		35	CQ-M5 x 40L
-10D		35	x 40L		40	x 45L
-15D		40	x 45L		45	x 50L
-20D		45	x 50L	- - - - -	50	x 55L
-25D	7	50	x 55L		55	x 60L
-30D	l ′	55	x 60L		60	x 65L
-35D		60	x 65L		65	x 70L
-40D		65	x 70L		70	x 75L
-45D		70	x 75L		75	x 80L
-50D		75	x 80L		80	x 85L

Material: Chromium molybdenum steel Surface treatment: Zinc chromated

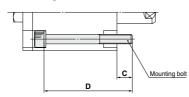
Mounting Bolt for CQSKW

Mounting method: Mounting bolt for through-hole mounting type of CDQSKW is available as an option.

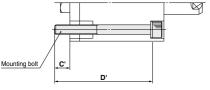
Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

Example) CQ-M3x35L 2 pcs.

Round rod side mounting



Non-rotating rod side mounting



Note) When mounting a cylinder with through-hole, be sure to use the attached plain washer.

Cylinder model	С	D	Manadas bakasatas	C'	D'	Manakar hakaratar
CDQSKWB12-5D	C		Mounting bolt part no.	U.		Mounting bolt part no.
		30	CQ-M3 x 35L		35	CQ-M3 x 40L
-10D		35	x 40L		40	x 45L
-15D	6.5	40	x 45L	6.5	45	x 50L
-20D		45	x 50L		50	x 55L
-25D -30D		50	x 55L		55	x 60L
		55	x 60L		60	x 65L
CDQSKWB16-5D		30	CQ-M3 x 35L		35	CQ-M3 x 40L
-10D		35	x 40L		40	x 45L
-15D	6.5	40	x 45L	6.5	45	x 50L
-20D		45	x 50L		50	x 55L
-25D		50	x 55L		55	x 60L
-30D		55	x 60L		60	x 65L
CDQSKWB20-5D		35	CQ-M5 x 45L		40	x 50L
-10D		40	x 50L		45	x 55L
-15D		45	x 55L		50	x 60L
-20D		50	x 60L		55	x 65L
-25D		55	x 65L		60	x 70L
-30D	10	60	x 70L	10	65	x 75L
-35D		65	x 75L		70	x 80L
-40D		70	x 80L		75	x 85L
-45D		75	x 85L		80	x 90L
-50D		80	x 90L		85	x 95L
CDQSKWB25-5D		40	CQ-M5 x 45L		45	CQ-M5 x 50L
-10D		45	x 50L		50	x 55L
-15D		50	x 55L		55	x 60L
-20D		55	x 60L		60	x 65L
-25D	7	60	x 65L	7	65	x 70L
-30D	· '	65	x 70L	,	70	x 75L
-35D		70	x 75L		75	x 80L
-40D		75	x 80L	L	80	x 85L
-45D		80	x 85L		85	x 90L
-50D		85	x 90L		90	x 95L

Material: Chromium molybdenum steel

Surface treatment: Zinc chromated

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

Dimensions: Ø12 to Ø25

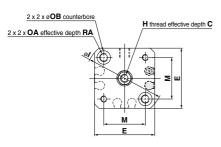
Basic type (Through-hole/Both ends tapped common): CQSKW/CDQSKW

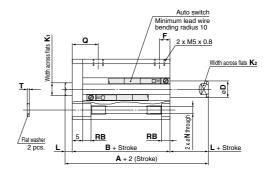
* For the auto switch mounting position and its mounting height, refer to page 748.

ø12



ø16

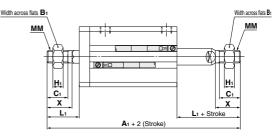




ø20, ø25



Rod end male thread



Rod End Male Thread

	_	_			8484	· ·
A 1	B₁	C ₁	H ₁	L ₁	MM	X
60	8	6	4	14	M5 x 0.8	10.5
63	10	10	5	15.5	M6 x 1.0	12
78	13	12	5	18.5	M8 x 1.25	14
89	17	15	6	22.5	M10 x 1.25	17.5
	60 63 78	60 8 63 10 78 13	60 8 9 63 10 10 78 13 12	60 8 9 4 63 10 10 5 78 13 12 5	60 8 9 4 14 63 10 10 5 15.5 78 13 12 5 18.5	60 8 9 4 14 M5 x 0.8 63 10 10 5 15.5 M6 x 1.0 78 13 12 5 18.5 M8 x 1.25

Basic Type

Dasic 1y																						
Bore size	Stroke range	Without a	uto switch	With au	to switch	С	_	_	_	ш	-	K ₁	K ₂		М	N	OA	ОВ	Q	RA	RB	-
(mm)	(mm)	Α	В	Α	В	٦	יי	=		п	•	N 1	N2	L .	IVI	IN	UA	ОВ	Q	HA	HD	' '
12	5 to 30	34	27	39	32	6	6	25	7.5	M3 x 0.5	32	5.2	5	3.5	15.5	3.5	M4 x 0.7	6.5	12.5	7	4	0.5
16	5 to 30	34	27	39	32	8	8	29	7.5	M4 x 0.7	38	6.2	6	3.5	20	3.5	M4 x 0.7	6.5	12.5	7	4	0.5
20	5 to 50	40	31	50	41	7	10	36	8	M5 x 0.8	47	8.2	8	4.5	25.5	5.4	M6 x 1.0	9	13	10	7	1
25	5 to 50	44	34	54	44	12	12	40	9	M6 x 1.0	52	10.2	10	5	28	5.4	M6 x 1.0	9	14	10	7	1

Note 1) For basic type ø20 and ø25 with 5 stroke, through-hole is threaded over the entire length.

Note 2) The positions of width across flats (K2) on both sides are not the same.

Technical Data

737

CUJ CU

cas

JCQ

CQ2 RQ

CQM CQU MU

D-□

-X□

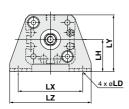
SMC

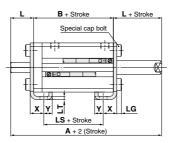
^{*} For details about the rod end nut and accessory brackets, refer to page 796.

CQSKW Series

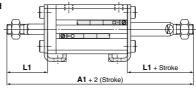
Dimensions: Ø12 to Ø25

Foot type: CQSKWL/CDQSKWL





Rod end male thread

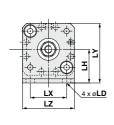


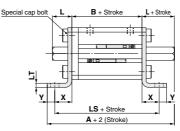
Foot Type

Bore size	Stroke range	Wit	hout a	uto sw	ritch	W	ith aut	o swit	ch		14	10	LG	LH	1.7	LX	ıv	17	v	v
(mm)	(mm)	Α	A1	В	LS	Α	A1	В	LS	-		LD	LG	Ln		^	LI	LZ	^	1
12	5 to 30	54	75	27	15	59	80	32	20	13.5	24	4.5	2.8	17	2	34	29.5	44	8	4.5
16	5 to 30	54	78	27	15	59	83	32	20	13.5	25.5	4.5	2.8	19	2	38	33.5	48	8	5
20	5 to 50	60	88	31	19	70	98	41	29	14.5	28.5	6.6	4	24	3.2	48	42	62	9.2	5.8
25	5 to 50	64	99	34	19	74	109	44	29	15	32.5	6.6	4	26	3.2	52	46	66	10.7	5.8
															F	oot bra	cket m	aterial:	Carbo	n steel

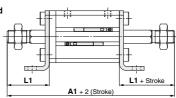
Surface treatment: Nickel plated

Compact foot type CQSKWLC/CDQSKWLC





Rod end male thread



Compact Foot Type

Bore size	Stroke range	Witl	hout a	uto sw	ritch	W	ith aut	o swit	ch		14	LD		1.7	ıv	ıv	17	<	v
(mm)	(mm)	Α	A1	В	LS	Α	A1	В	LS		LI	LD	LΠ	LI	LA	LT	LZ	^	T
12	5 to 30	54.3	75	27	45.6	59.3	80	32	50.6	13.5	24	4.5	17	2	15.5	29.5	25	9.3	4.5
16	5 to 30	54.8	78	27	45.6	59.8	83	32	50.6	13.5	25.5	4.5	19	2	20	33.5	29	9.3	5
20	5 to 50	64.5	88	31	57.4	74.5	98	41	67.4	14.5	28.5	6.6	24	3.2	25.5	42	36	13.2	5.8
25	5 to 50	68	99	34	60.4	78	109	44	70.4	15	32.5	6.6	26	3.2	28	46	40	13.2	5.8

^{*} For details about the rod end nut and accessory brackets, refer to page 796.

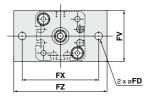
Compact foot bracket material: Carbon steel Surface treatment: Zinc chromated

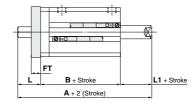


Compact Cylinder: Non-rotating Rod Type CQSKW Series Double Acting, Double Rod

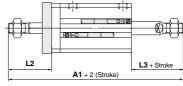
Dimensions: Ø12 to Ø25

Flange type: CQSKWF/CDQSKWF





Rod end male thread



Flange Type

Bore size	Stroke range	Witho	ut auto	switch	With	auto sv	vitch	FD	ЕТ	FV	FX	FZ		1.1	12	L3
(mm)	(mm)	Α	A1	В	Α	A1	В	FD	г	FV	ΓΛ.	FZ	-	LI	LZ	Lo
12	5 to 30	44	65	27	49	70	32	4.5	5.5	25	45	55	13.5	3.5	24	14
16	5 to 30	44	68	27	49	73	32	4.5	5.5	30	45	55	13.5	3.5	25.5	15.5
20	5 to 50	50	78	31	60	88	41	6.6	8	39	48	60	14.5	4.5	28.5	18.5
25	5 to 50	54	89	34	64	99	44	6.6	8	42	52	64	15	5	32.5	22.5

^{*} For details about the rod end nut and accessory brackets, refer to page 796. Note 1) The positions of piston rod width across flats (right side) are not constant.

Flange bracket material: Carbon steel Surface treatment: Nickel plated

CUJ

cqs

JCQ CQ2

RQ

CQM

MU

D
-X

Technical
Data

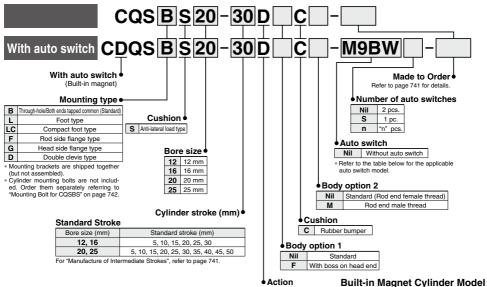


Compact Cylinder: Anti-lateral Load Type

COS Series

ø12, ø16, ø20, ø25

How to Order



D Double acting

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) CDQSLS12-25D

Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches.

			_			oad volta		Auto swit	ch model	Lead	wire	lengt	h (m)			
Туре	Special function	Electrical entry	Indicator light	Wiring (Output)	С	С	AC	Perpendicular	In-line	0.5 (Nil)		3 (L)	5	Pre-wired connector	Applical	ble load
ڃ				3-wire (NPN)		5 V. 12 V		M9NV	M9N	•	•	•	0	0	IC circuit	
switch	_			3-wire (PNP)		5 V, 12 V		M9PV	M9P	•	•	•	0	0	IC CIrcuit	
				2-wire		12 V		M9BV	M9B	•	•	•	0	0		
anto	Diagnostic indication			3-wire (NPN)		5 V, 12 V		M9NWV	M9NW	•	•	•	0	0	IC circuit	
	(2-color indicator)	Grommet	Yes	3-wire (PNP)	24 V	5 V, 12 V	_	M9PWV	M9PW	•	•	•	0	0	IC CIICUII	Relay,
state	(E dolor indicator)			2-wire		12 V		M9BWV	M9BW	•	•	•	0	0		PLC
S	Water resistant			3-wire (NPN)		5 V. 12 V		M9NAV*1	M9NA*1	0	0	•	0	0	IC circuit	
Solid	(2-color indicator)			3-wire (PNP)		5 V, 12 V		M9PAV*1	M9PA*1	0	0	•	0	0	IC CIICUII	
Ο̈	(E dolor indicator)			2-wire		12 V		M9BAV*1	M9BA*1	0	0	•	0	0		
Reed auto switch		Crommet	Yes	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	•	-	•	_	_	IC circuit	-
t B	_	Grommet		2-wire	24 V	12 V	100 V	A93V*2	A93	•	•	•	•	_	_	Relay,
an			No	2-wire	24 V	12 V	100 V or less	A90V	A90	•	<u> </u>	•	_	_	IC circuit	PLC

- *1 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.
- *2 1 m type lead wire is only applicable to D-A93
- * Lead wire length symbols: 0.5 m Nil (Example) M9NW
- * Solid state auto switches marked with "O" are produced upon receipt of order.
- 1 m M (Example) M9NWM 3 m······ L (Example) M9NWL 5 m····· Z (Example) M9NWZ

- * Since there are other applicable auto switches than listed, refer to page 749 for details.
 * For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.
- * Auto switches are shipped together (not assembled)
- Note) There is the case D-A9 \(\tilde{V} \times M9 \(\tilde{V} \tilde{V} \times M9 \(\ti piping.Consult with SMC for details.

Compact Cylinder: Anti-lateral Load Type CQS Series



Symbol Rubber bumper





Made to Order: Individual Specifications (For details, refer to pages 750 and 752.)

Symbol	Specifications
-X271	Fluororubber seals
-X1876	With concave shape end boss on the cylinder tube head side

Made to Order Specifications

Click here for details

Ollow Here for details						
Symbol	Specifications					
-XA□	Change of Rod End Shape					
-XB10	Intermediate stroke (Using exclusive body)					
-XC6	Piston rod, retaining ring, rod end nut made of stainless steel					
-XC85	Grease for food processing equipment					

Body Option

Description	Application
Rod end male thread	Available for Double acting, Single rod models.

Mounting Bracket Part No.

Bore size (mm)	Foot (1)	Compact foot (1)	Flange	Double clevis
12	CQS-L012	CQS-LC012	CQS-F012	CQS-D012
16	CQS-L016	CQS-LC016	CQS-F016	CQS-D016
20	CQS-L020	CQS-LC020	CQS-F020	CQS-D020
25	CQS-L025	CQS-LC025	CQS-F025	CQS-D025

Note1) When ordering foot and compact foot brackets, order 2 pieces per cylinder.

Note2) Parts belonging to each bracket are as follows. Foot, Compact foot, Flange type: Body mounting bolt Double clevis type: Clevis pin, type C retaining ring for axis, Body mounting bolt

Moisture Control Tube IDK Series

When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to the IDK series in the Best Pneumatics No. 6.

Standard Specifications

Bore size (mm)	12 16 20 25					
Action	Double acting, Single rod					
Fluid	Air					
Lubrication		Not required	d (Non-lube)			
Proof pressure		1.5	MPa			
Maximum operating pressure	1.0 MPa					
Minimum operating pressure	0.07	MPa	a 0.05 MPa			
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing)					
Ambient and nuid temperature	With auto switch: -10 to 60°C (No freezing)					
Cushion		Rubber I	oumper*			
Rod end thread		Female	thread			
Stroke length tolerance	+1.0 mm *					
Piston speed	50 to 500 mm/s					
Allowable kinetic energy (J)	0.043	0.075	0.11	0.18		

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

•	Theoretica	I Output		OUT IN (N					
ı	Bore size	Rod size	Operating	Piston area	Operati	ng pressure	(MPa)		
	(mm)	(mm)	direction	(mm²)	0.3	0.5	0.7		
	12	6	IN	84.8	25	42	59		
	12	8	OUT	113	34	57	79		
	16	8	IN	151	45	75	106		
	10		OUT	201	60	101	141		
	20	10	IN	236	71	118	165		
	20	10	OUT	314	94	157	220		
	25		IN	378	113	189	264		
	25	12	OUT	491	147	245	344		

Manufacture of Intermediate Stroke

Descri	ption	Spacer is installed in the standard stroke body.			
Part	no.	Refer to "How to Order" for the	e standard model no. (page 740).		
Description		Intermediate strokes in 1 mm increments are available by using spacers with standard stroke cylinders.			
Standard stroke		Bore size	Stroke range		
	Stroke range	12, 16	1 to 29		
		20, 25	1 to 49		
Exan	nple	Part no.: CQSBS25–47D CQSBS25-50D with 3 mm width spacer inside. B dimension is 77.5 mm.			

Refer to pages 747 to 749 for cylinders with auto switches.

- . Minimum auto switch mounting stroke
- Proper auto switch mounting position (detection at stroke end) and mounting height
- Operating range

CUJ

CU CQS

JCQ CO2

RQ

СОМ

CQU

MU

D
-X

Technical



CQS Series

Weight/Without Auto Switch

Bore size		Cylinder stroke (mm)								
(mm)	5	10	15	20	25	30	35	40	45	50
12	37	43	50	57	63	70	-	-	-	1
16	49	57	66	74	83	92	-	-	-	1
20	75	88	101	114	127	140	153	165	178	191
25	109	125	140	156	172	188	204	220	236	252

Weight/With Auto Switch (Built-in magnet)

Bore size	Cylinder stroke (mm)									
(mm)	5	10	15	20	25	30	35	40	45	50
12	45	51	58	65	71	78	-	-	-	1
16	59	67	76	85	94	103	-	-	-	1
20	106	119	132	145	157	170	183	195	208	221
25	151	167	183	199	215	231	246	262	278	294

Additional Weight

Additional Weight						
Bore size (mm)				25		
Male thread	1.5	3	6	12		
Nut	1	2	4	8		
With boss on head end			2	3		
	55	65	159	181		
g bolt)	41	51	121	140		
ting bolt)	58	70	143	180		
Head side flange type (Including mounting bolt)			137	171		
ining ring, bolt)	34	40	92	127		
	Nut g bolt) ting bolt) nting bolt)	Nut 1 0.7 55 g bolt) 41 ting bolt) 58 nting bolt) 56	Male thread 1.5 3 Nut 1 2 0.7 1.3 55 65 65 g bolt 41 51 ting bolt 56 66 66	Male thread 1.5 3 6		

For standard strokes

(g)

(g)

Calculation:	(Example	CQSDS20-20DCM
--------------	----------	---------------

Cylinder weight: CQSBS20-20DC114 g	
Additional weight: Rod end male thread10 g	
: Double clevis type 92 g	
216 g	

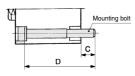
Mounting Bolt for CQSBS

Mounting method: Mounting bolt for through-hole mounting type of CQSBS is available as an option.

Refer to the following for ordering procedures.

Order the actual number of botts that will be used.

Example) CQ-M3x30L 4 pcs.



Note) When mounting a cylinder with through-hole, be sure to use the attached plain washer.

Cylinder model	С	D	Mounting bolt part no.
CQSBS12-5DC		30	CQ-M3 x 30L
-10DC		35	x 35L
-15DC	6.5	40	x 40L
-20DC	6.5	45	x 45L
-25DC		50	x 50L
-30DC		55	x 55L
CQSBS16-5DC		30	CQ-M3 x 30L
-10DC		35	x 35L
-15DC	6.5	40	x 40L
-20DC	0.5	45	x 45L
-25DC		50	x 50L
-30DC		55	x 55L
CQSBS20-5DC		30	CQ-M5 x 30L
-10DC	6.5	35	x 35L
-15DC	6.5	40	x 40L
-20DC		45	x 45L

Cylinder model	C	D	Mounting bolt part no.
CQSBS20-25DC		50	CQ-M5 x 50L
-30DC		55	x 55L
-35DC		60	x 60L
-40DC	6.5	65	x 65L
-45DC		70	x 70L
-50DC		75	x 75L
CQSBS25-5DC		35	CQ-M5 x 35L
-10DC		40	x 40L
-15DC	1	45	x 45L
-20DC		50	x 50L
-25DC	8.5	55	x 55L
-30DC	0.5	60	x 60L
-35DC		65	x 65L
-40DC		70	x 70L
-45DC		75	x 75L
-50DC		80	x 80L

Material: Chromium molybdenum steel Surface treatment: Zinc chromated

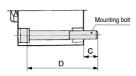
Mounting Bolt for CDQSBS with Auto Switch

Mounting method: Mounting bolt for through-hole mounting type of CQQSBS is available as an option.

Refer to the following for ordering procedures.

Order the actual number of bolts that will be used.

Example) CQ-M3x35L 4 pcs.



Note) When mounting a cylinder with through-hole, be sure to use the attached plain washer.

Cylinder model	С	D	Mounting bolt part no.
CDQSBS12-5DC		35	CQ-M3 x 35L
-10DC		40	x 40L
-15DC	6.5	45	x 45L
-20DC	0.5	50	x 50L
-25DC		55	x 55L
-30DC		60	x 60L
CDQSBS16-5DC		35	CQ-M3 x 35L
-10DC		40	x 40L
-15DC	6.5	45	x 45L
-20DC	0.5	50	x 50L
-25DC		55	x 55L
-30DC		60	x 60L
CDQSBS20-5DC		40	CQ-M5 x 40L
-10DC	6.5	45	x 45L
-15DC	0.5	50	x 50L
-20DC		55	x 55L

Cylinder model	С	D	Mounting bolt part no.
CDQSBS20-25DC		60	CQ-M5 x 60L
-30DC	1	65	x 65L
-35DC	ا ا	70	x 70L
-40DC	6.5	75	x 75L
-45DC		80	x 80L
-50DC		85	x 85L
CDQSBS25-5DC		45	CQ-M5 x 45L
-10DC		50	x 50L
-15DC		55	x 55L
-20DC		60	x 60L
-25DC	8.5	65	x 65L
-30DC	8.5	70	x 70L
-35DC		75	x 75L
-40DC		80	x 80L
-45DC		85	x 85L
-50DC		90	x 90L

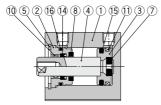
Material: Chromium molybdenum steel Surface treatment: Zinc chromated



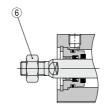
Compact Cylinder: Anti-lateral Load Type CQS Series

Construction

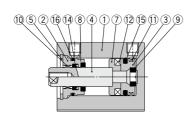
Basic type



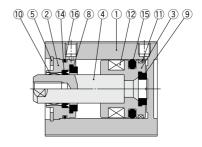
Rod end male thread



With auto switch (Built-in magnet) ø12, ø16



ø20, ø25



Component Parts

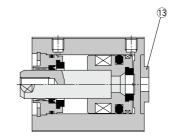
No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Collar	Aluminum alloy	Anodized
3	Piston	Aluminum alloy	
4	Piston rod	Stainless steel	
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Rod end nut	Carbon steel	Zinc chromated
7	Spacer for switch type	Aluminum alloy	Chromated
8	Bumper A	Urethane	
9	Bumper B	Urethane	
10	Bushing	Oil-impregnated sintered alloy	
11	Wear ring	Resin	
12	Magnet	_	
13	Centering location ring	Aluminum alloy	Anodized
14*	Rod seal	NBR	
15*	Piston seal	NBR	
16*	Tube gasket	NBR	

Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
12	CQSB12-PS	
16	CQSB16-PS	Cat of you about 14 15 16
20	CQSB20-PS	Set of nos. above 14, 15, 16.
25	CQSB25-PS	

^{*} Seal kit includes 4, 5, 6. Order the seal kit, based on each bore size.

With boss on head end



CUJ

CU COS

JCQ CQ2

RQ

CQM CQU MU

D-□

-X -X Data



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

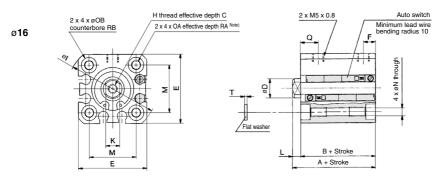
Grease pack part no.: GR-S-010 (10 g)

Dimensions: Ø12 to Ø25

Basic type (Through-hole/Both ends tapped common): CQSBS/CDQSBS

ø12

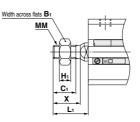




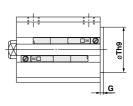
ø20, ø25



Rod end male thread



With boss on head end



Rod End Male Thread

Bore size (mm)	Вı	C ₁	Нı	Lı	MM	Х
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

With Boss on Head End (mm)

Bore size (mm)	G	Th9
12	1.5	15_0.043
16	1.5	20_0.052
20	2	13_0.043
25	2	15_0.043

Note) With boss on rod end: Option (Suffix "-XC36" to the end of part number.) Note that only bore sizes ø12 and ø16 are applicable to the long stroke.

Basic Type

Bore size (mm)	Stroke range (mm)	Without a	uto switch	With au	to switch	С	D	E	F	н	1	κ	L	М	N	OA	ов	Q	RA	RB	Т
12	5 to 30	25.5	22	30.5	27	6	6	25	5	M3 x 0.5	32	5	3.5	15.5	3.5	M4 x 0.7	6.5	7.5	7	4	0.5
16	5 to 30	25.5	22	30.5	27	8	8	29	5	M4 x 0.7	38	6	3.5	20	3.5	M4 x 0.7	6.5	7.5	7	4	0.5
20	5 to 50	29	24.5	39	34.5	7	10	36	5.5	M5 x 0.8	47	8	4.5	25.5	5.4	M6 x 1.0	9	8	10	7	1
25	5 to 50	32.5	27.5	42.5	37.5	12	12	40	5.5	M6 x 1.0	52	10	5	28	5.4	M6 x 1.0	9	9	10	7	1

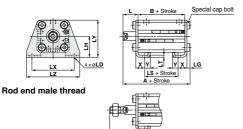
Note) For basic type 5 to 10 stroke with ø20 and 5 stroke with ø25, through-hole is threaded over the entire length. * For details about the rod end nut and accessory brackets, refer to page 796.



Compact Cylinder: Anti-lateral Load Type CQS Series

Dimensions: Ø12 to Ø25

Foot type: CQSLS/CDQSLS

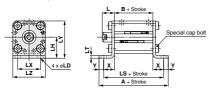


Foot Type

Bore size	Stro	ke rar	nge	Witho	out au	to s	swi	tch	With auto switch				
(mm)	((mm)	- [Α	В			LS	Α	E	3	LS	
12	5	5 to 30		40.3 22			10 45.		2	7	15		
16	5	5 to 30		40.3	22		10		45.3 2		7	15	
20	5	to 50		46.2	24.	5	1	2.5	56.2	34	.5	22.5	
25	5	to 50		49.7	27.	5	1	2.5	59.7	37	.5	22.5	
Bore size													
(mm)	L	L ₁	LD	LG	LH	Ľ	T	LX	LY	LZ	X	Y	
12	13.5	24	4.5	2.8	17	2	2	34	29.5	44	8	4.5	
16	13.5	25.5	4.5	2.8	19	2	2	38	33.5	48	8	5	
20	14.5	28.5	6.6	4	24	3.	.2	48	42	62	9.2	5.8	
25	15	32.5	6.6	4	26	3.	2	52	46	66	10.7	5.8	

Foot bracket material: Carbon steel Surface treatment: Nickel plated

Compact foot type: CQSLCS/CDQSLCS



Rod end male thread



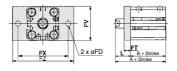
Compact Foot Type

Bore size	Stroke range	Witho	ut auto :	switch	With auto switch			
(mm)	(mm)	Α	В	LS	Α	В	LS	
12	5 to 30	49.6	22	40.6	54.6	27	45.6	
16	5 to 30	50.6	22	40.6	55.6	27	45.6	
20	5 to 50	62.5	24.5	50.9	72.5	34.5	60.9	
25	5 to 50	65.5	27.5	53.9	75.5	37.5	63.9	

Bore size (mm)	L	L ₁	LD	LH	LT	LX	LY	LZ	х	Υ
12	13.5	24	4.5	17	2	15.5	29.5	25	9.3	4.5
16	13.5	25.5	4.5	19	2	20	33.5	29	9.3	5
20	14.5	28.5	6.6	24	3.2	25.5	42	36	13.2	5.8
25	15	32.5	6.6	26	3.2	28	46	40	13.2	5.8

Compact foot bracket material: Carbon steel Surface treatment: Zinc chromated

Rod side flange type: CQSFS/CDQSFS





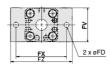
Rod Side Flange Type

Bore size	Stroke	e range	Witho	ut a	uto s	WITCH	With auto switch			
(mm)	(n	nm)	Α	AE				Α	В	
12	5 t	o 30	35.	35.5		22		10.5	27	
16	5 t	35.	35.5 22		2	40.5		27		
20	5 t	39)	24	1.5		49	34.5		
25	5 to 50		42.	5	27	7.5		2.5	37.5	
									_	
Bore size (mm)	FD	FT	F۷	F	Χ	FZ	2	L	L ₁	
	FD 4.5	FT 5.5	FV	Ľ	X	FZ		L 13.5	L ₁	
(mm)				4					ļ —·	
(mm) 12	4.5	5.5	25	4	15	55		13.5	24	

Flange bracket material: Carbon steel Surface treatment: Nickel plated

Head side flange type: CQSGS/CDQSGS





Rod end male thread



Head Side Flange Type

ileau Siu	ead Side Flange Type								
Bore size	Stroke	e range	Witho	ut a	uto s	witch	W	ith aut	o switch
(mm)	(n	nm)	Α		ı	В		Α	В
12	5 t	o 30	31		2	2	36		27
16	5 t	o 30	31		2	2	36		27
20	5 t	5 to 50			24.5		47		34.5
25	5 to 50		40.	5	27	7.5	5	0.5	37.5
				_		_	_		
Bore size (mm)	FD	FT	FV	F	X	FZ		L	L ₁
12	4.5	5.5	25	4	15	55	;	3.5	14
16	4.5 5.5		30	4	15	55	,	3.5	15.5
20	6.6	8	39	4	8	60)	4.5	18.5
25	6.6	8	42	5	2	64		5	22.5

Flange bracket material: Carbon steel Surface treatment: Nickel plated

* For details about the rod end nut and accessory brackets, refer to page 796.

D-□ -X□

COS CUJ

JCQ

CQ2 RQ

CQM

CQU Mu

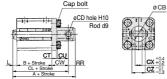
96. Technical Data



CQS Series

Dimensions: Ø12 to Ø25

Double clevis type: CQSDS/CDQSDS



Rod end male thread



Double Clevis Type

	Stroke range	Witho	ut auto	switch	With	With auto switch			
(mm)	(mm)	Α	В	CL	Α	В	CL		
12	5 to 30	45.5	22	39.5	50.5	27	44.5		
16	5 to 30	46.5	22	40.5	51.5	27	45.5		
20	5 to 50	56	24.5	47	66	34.5	57		
25	5 to 50	62.5	27.5	52.5	72.5	37.5	62.5		

Bore size (mm)	СВ	CD	СТ	CU	cw	сх	cz	L	L ₁	RR
12	12	5	4	7	14	5	10	3.5	14	6
16	14	5	4	10	15	6.5	12	3.5	15.5	6
20	20	8	5	12	18	8	16	4.5	18.5	9
25	24	10	5	14	20	10	20	5	22.5	10

Double clevis bracket material: Carbon steel Surface treatment: Nickel plated

^{*} For details about the double clevis pivot bracket, refer to page 705.
* For details about the rod end nut and accessory brackets, refer to page 796.

CQS□ Series Auto Switch Mounting

Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

Basic type, Single acting (Spring return/Spring extend), Long stroke type, Anti-lateral load type ø12 Mounting Ø16 to Ø25 Mounting a) b) a) b) D-M9□ D-M9□W D-M9□A D-A9□ Non-rotating rod D-M9□V D-M9□WV D-M9□AV D-A9□V D-F8□ D-P3DWA Ø25

Proper Auto Switch Mounting Position (Detection at stroke end)

			_	_	_				_		_				_						
Proper A	Auto	Swit	ch N	loun	ting l	Posit	ion														
Auto switch	D-M	9□/M9	□W	D-M9□\	/M9□WV	/M9□AV		-M9□	Α		D-A9□)-A9□	٧		D-F8□]	D-	P3DW	/A
Bore size model	Α	В	W	Α	В	Hs	Α	В	W	Α	В	W	Α	В	Hs	Α	В	Hs	Α	В	Hs
Single rod	Basic	type,	Singl	e actir	ng (Sp	ring re	turn/S	pring	exten	d), No	n-rota	ting ro	d	[]: Den	otes the	values o	f D-A93.	(): Den	tes the	values o	of type
12	5.5 (6.5)	3.5 (4.5)	5.5 (6.5)	5.5 (6.5)	4.5 (3.5)	19.5	5.5 (6.5)	4.5 (3.5)	7.5 (8.5)	1.5 (2.5)	0	1.5 [4] (2.5 [5])	1.5 (2.5)	0	17	3.5	2.5	27	_	_	-
16	6	4	6	6	4	21.5	6	4	8	2	0	2 [4.5]	2	0	19	4	2	29	_	_	_
20	10	7.5	2.5	10	7.5	25	10	7.5	4.5	6	3.5	-1.5 [1]	6	3.5	22.5	8.5	5	32.5	_	ı	_
25	11	9.5	0.5	11	9.5	27	11	9.5	2.5	7	5.5	-3.5 [-1]	7	5.5	24.5	9	7.5	34.5	6.5	5	33
Long stro	ke																				
12	9	11	-1	9	11	19.5	9	11	1	5	7	-5 [-2.5]	5	7	17	7	9	27	_	ı	_
16	9.5	10.5	-0.5	9.5	10.5	21.5	9.5	10.5	1.5	5.5	6	-4.5 [-2]	5.5	6	19	7.5	8.5	29	_	_	_
20	13	16	-6	13	16	25	13	16	-4	9	12	-10 [-7.5]	9	12	22.5	11	14	32.5	_	-	_
25	14	18	-8	14	18	27	14	18	-6	10	14	-12 [-9.5]	10	14	24.5	12	16	34.5	9.5	13.5	33
Anti-later	al loa	d typ	е																		
12	10	5	5	10	5	19.5	10	5	7	6	1	1 [3.5]	6	1	17	8	3	27	_	_	_
16	9.5	5.5	4.5	9.5	5.5	21.5	9.5	5.5	6.5	5.5	1.5	0.5 [3]	5.5	1.5	19	7.5	3.5	29	_	_	_
20	13	9.5	0.5	13	9.5	25	13	9.5	2.5	9	5.5	-3.5 [-1]	9	5.5	22.5	11	7.5	32.5	_	_	_
25	14	11.5	-1.5	14	11.5	27	14	11.5	0.5	10	7.5	-5.5 [-3]	10	7.5	24.5	12	9.5	34.5	9.5	7	33
Double a	ting:	Basi	c type	e, Nor	n-rota	ting r	od														
12	5.5	9.5	0.5	5.5	9.5	19.5	5.5	9.5	2.5	1.5	5.5	-3.5 [1]	1.5	5.5	17	3.5	7.5	27	_	_	_
16	6	9	1	6	9	21.5	6	9	3	2	5	-3 [-0.5]	2	5	19	4	7	29	_	_	_
20	10	14	-4	10	14	25	10	14	-2	6	10	-8 [-5.5]	6	10	22.5	8	12	32.5	_	_	_

Note 1) Negative figures in the table W indicate an auto switch is mounted inward from the edge of the cylinder body.

Note 2) The D-M9□/M9□W and M9□A cannot be installed on the single acting: single rod type

Note 3) Adjust the auto switch after confirming the operating conditions in the actual setting.

Note 4) The D-P3DWA□ is available only for ø25.



Auto Switch Mounting CQS Series

Operating Range

				(mm)				
Auto switch model	Bore size (mm)							
Auto switch model	12	16	20	25				
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	3	4	5.5	5.5				
D-A9□/A9□V	6	7.5	10	10				
D-F8□	2.5	3	4	4				
D-P3DWA	_	_	_	6				

* Since this is a guideline including hysteresis, not meant to be guaranteed. (assuming approximately ±30% dispersion.) There may be the case it will vary substantially depending on an ambient environment.

Minimum Auto Switch Mounting Stroke

								(mm)
No. of auto switch mounted	D-M9□V	D-M9□WV D-M9□AV	D-A9 □	D-A9□V	D-M9□	D-M9□W D-M9□A	D-F8□	D-P3DWA
1 pc.	5	10	10 (5)	5	15 (5)	15 (10)	5	15
2 pcs.	5	10	10	10	15 (5)	15 (10)	5	15

Note 1) The D-M9□/M9□W/M9□A and P3DWA□ cannot be installed on the single acting: single rod type.

Note 2) Available only for ø25.

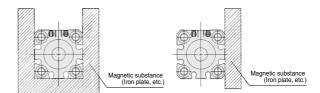
Note 3) As the dimension stated in () shows the minimum mountable stroke when the auto switch does not project from the end face of the cylinder body and the lead wire bending space is not hindered, the auto switch needs to be ordered separately. (Refer to the figure below.)



Be sure to read this before handling the products.

Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

•If the cylinder is used in an application in which a magnetic material is placed in close contact around the cylinder as shown in the graph on the right (including cases in which even one of the sides is in close contact) the operation of auto switches could become unstable. Therefore, please check with SMC for this type of application.



Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted.

* Normally closed (NC = b contact), solid state auto switch (D-F9G/F9H type, and D-F8 type) are also available. For details, refer to pages 1592 and 1593.

* For solid state auto switches, auto switches with a pre-wired connector are also available. Refer to pages 1648 and 1649 for details.

CUJ

COS JCO

CQ2

RQ CQM

CQU

MU

D-□

-X 🗆 Technical



CQS Series

Made to Order: Individual Specifications 1

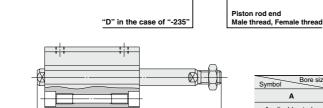
contact SMC for detailed dimensions, specifications and lead times.



1 Special Piston Rod End for Double Rod Type Cylinder

Symbol -X235

Male thread is used at one piston rod end of double rod type cylinder and female thread is used at the other end. Stroke D



A + 2 (Stroke)

* Specifications: Same as standard type Note) Please contact SMC for mounting bracket.

Symbol Bore size	12	16	20	25
Α	39.5 (44.5)	41 (46)	49 (59)	56.5 (66.5)
Applicable stroke	5 to	30	5 to	50

Note 1) Applicable stroke is available in 5 mm increments. Note 2) (): Denotes the dimensions with auto switch.

2 Fluororubber for Seals

C□QSW Mounting Bore size

Symbol -X271

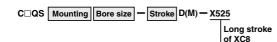
Material for seals is changed to fluororubber.



All series variations except non-rotating piston rod type of the CQS series is available. Specifications are the same as for each variation of CQS.

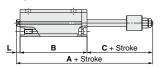
3 Long Stroke of Adjustable Extension Stroke Cylinder (-XC8)

Symbol -X525



Specifications are the same as for -XC8 of the CQ2/CQS series. Refer to "Made to Order Common Specifications". Note) For the tap mounting type (ø12 to ø25-without switch) and mounting bracket, please contact SMC.

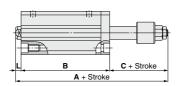
ø12. ø16



ø12. ø16

Symbol		Α					3		С		Applicable stroke	
12 91.	35st	40st	45st	50st	35st	40st	45st	50st		_	Applicable stroke	
12	91.1 (96.1)	96.1 (101.1)	101.1 (106.1)	106.1 (111.1)	62 (67)	67 (72)	72 (77)	77 (87)	25.6	3.5	35, 40, 45, 50	
16	91.5 (96.5)	96.5 (101.5)	101.5 (106.5)	106.5 (111.5)	62 (67)	67 (72)	72 (77)	77 (87)	26	3.5	35, 40, 45, 50	

ø20, ø25



ø20, ø25

Symbol	,	4		3				
Bore (mm)	55 to 75st	80 to 100st	55 to 75st	80 to 100st	С	L	Applicable stroke	
20	142.5 (152.5)	167.5 (177.5)	109 (119)	134 (144)	29	4.5	55 to 100	
25	146 (156)	171 (181)	112 (122)	137 (147)	29	5	55 10 100	

Note 1) (): Denotes dimensions with auto switch. Note 2) Applicable stroke is available in 5 mm increments



4 Long Stroke of Adjustable Retraction Stroke Cylinder (-XC9)

Symbol

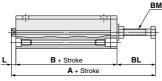
-X526



Specifications are the same as for -XC9 of the CQS series. Refer to "Made to Order Common Specifications". Note) Please contact SMC for bracket type.

Dimensions

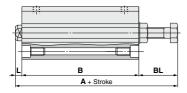




Applicable stroke
35, 40, 45, 50,
75, 100
00, 125, 150, 175, 200
0, 125, 150, 175, 200, 250, 300
0

Note 1) Intermediate stroke type (available in 5 mm increments) is for spacer so that dimensions are the same as for each type of 75, 100, 125, 150, 175, 200, 250, 300 stroke.

ø20, ø25



5 Intermediate Stroke of Double Rod Type

Symbol -X633

CUJ

CU COS

JCQ

CQ2

RQ

CQM

CQU

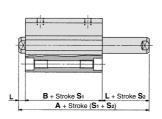
MU

C□QSW C□QSKW

Standard model no. - X633

* Specifications: Same as standard type. Note) Please contact SMC for bracket type.

Dimensions



Symbol	C(D))QSW C(D)QSKW			_			
Bore (mm)	Α	В	Α	В	L	Stroke S ₁	Stroke S ₂	
12	29 (34)	22 (27)	34 (39)	27 (32)	3.5	In the case of 5 to 30	In the case of 6 to 29	
16	29 (34)	22 (27)	34 (39)	27 (32)	3.5	stroke 5 mm intervals	stroke 1 mm intervals	
20	35 (45)	26 (36)	40 (50)	31 (41)	4.5	In the case of 5 to 50	In the case of 6 to 49	
25	39 (49)	29 (39)	44 (54)	34 (44)	5	stroke 5 mm intervals	stroke 1 mm intervals	

Note 1) (): Denotes the dimensions with auto switch.

Note 2) Installing a spacer inside the standard cylinder tube, stroke S₁ has 5 mm intervals for controlling

intermediate strokes in 1 mm increments.

Example) In the case of CDQ2WB40-18D, stroke S₁ is 20 mm and stroke S₂ is 18 mm.

D
-X

Technical Data

CQS Series

Made to Order: Individual Specifications 2

Please contact SMC for detailed dimensions, specifications and lead times.



mm

6 Long Stroke of Dual Stroke Single Rod Type

Symbol -X636

Applicable stroke	mi	n
Bore size	Stroke	
ø12, ø16	Max. stroke S2: up to 50 mm	
ø 20 , ø 25	Max. stroke S2: up to 100 mm	٦

Specifications are the same as for -XC11 of the CQS series.

Refer to "Made to Order Common Specifications".

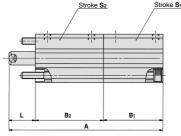
Note) Please contact SMC for tap mounting type and bracket mounting type.

Stroke S₁

Stroke S₁

Bore size: σ12, σ16

Symbol A B₁ B₂ L



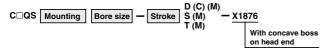
Symbol	Α	B ₁	B ₂	L	Stroke range	
Bore	_ ^	D1	D2		S ₁	S ₂
ø 12	62.5 (67.5) + Stroke (S ₁ + S ₂)	17 (22) + Stroke S ₁	32 + Stroke S ₂	13.5	5 to 30	35 to 50
ø 16	62.5 (67.5) + Stroke (S ₁ + S ₂)	17 (22) + Stroke S ₁	32 + Stroke S ₂	13.5	5 to 30	35 to 50

Bore size: ø20, ø25 mm Stroke range Stroke S: Stroke S2 S2 55 to 75 80 to 100 55 to 75 80 to 100 150 (160) 175 (185) 19.5 (29.5) ø20 141 5 to 50 55 to 100 + Stroke S₁ + St 156.5 (166.5) 181.5 (191.5) 22.5 (32.5) ø25 144 5 to 50 55 to 100 119 15 + Stroke S1 + St

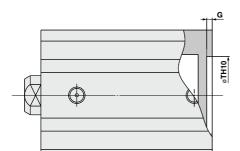
Note 1) (): Denotes the dimensions with auto switch. Note 2) Applicable stroke is available in 5 mm increments.

7 Cylinder Tube: With Concave Boss on Head End

Symbol -X1876



Specifications are the same as CQS. Note) CQS: Excluding ø12 and ø16.



Series	cqs			
Bore size (mm)	TH10	G		
20	19.3 + 0.084	1.4		
25	23.8 + 0.084	1.4		