Compact Cylinder: Standard Type
Double Acting, Double Rod
CQSW Series
ø12, ø16, ø20, ø25

How to Order

CQSW **B** **20** – **30** **D** **C** – ☐

With auto switch **CDQSW** **B** **20** – **30** **D** **C** – **M9BW** ☐ – ☐

With auto switch
(Built-in magnet)

Mounting type

B	Through-hole/Both ends tapped common (Standard)
L	Foot type
LC	Compact foot type
F	Flange type

∗ Mounting brackets are shipped together (but not assembled).
∗ Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for CQSW" on page 814.

Bore size

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

Cylinder stroke (mm)

Standard Stroke

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

For "Manufacture of Intermediate Strokes", refer to page 811.

Body option

Nil	Standard
C	With rubber bumper
M	Rod end male thread

∗ Combination of body options is available. CM

Action

D	Double acting

Auto switch

Nil	Without auto switch

∗ Refer to the table below for the applicable auto switch model.

Number of auto switches

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

Made to Order
Refer to page 811 for details.

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) CDQSWL25-30D

Applicable Auto Switches/
Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Perpendicular	Auto switch model: In-line	Lead wire length (m): 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	**M9NV**	**M9N**	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)			**M9PV**	**M9P**	●	●	●	○	○		
				2-wire	12 V		**M9BV**	**M9B**	●	●	●	○	○	—	
	Diagnostic indication (2-color indicator)			3-wire (NPN)	5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	○	IC circuit	
				3-wire (PNP)			**M9PWV**	**M9PW**	●	●	●	○	○		
				2-wire	12 V		**M9BWV**	**M9BW**	●	●	●	○	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)	5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	○	IC circuit	
				3-wire (PNP)			**M9PAV**∗1	**M9PA**∗1	○	○	●	○	○		
				2-wire	12 V		**M9BAV**∗1	**M9BA**∗1	○	○	●	○	○	—	
	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)	—		—	**P3DWA**∗∗	●	—	●	●	○		
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96V**	**A96**	●	—	●	—	—	IC circuit	—
			No	2-wire	24 V	12 V	100 V	**A93V**∗2	**A93**	●	●	●	●	—	—	Relay, PLC
							100 V or less	**A90V**	**A90**	●	—	●	—	—	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.

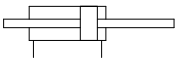
∗ Lead wire length symbols: 0.5 m····· Nil (Example) M9NW
1 m····· M (Example) M9NWM
3 m····· L (Example) M9NWL
5 m····· Z (Example) M9NWZ

∗ Solid state auto switches marked with "○" are produced upon receipt of order.
∗∗ Available only for ø25.
It is mounted away from the port side to avoid interference with fittings.

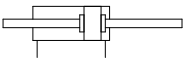
∗ Since there are other applicable auto switches than listed, refer to page 853 for details.
∗ For details about auto switches with pre-wired connector, refer to pages 1340 and 1341.
∗ Auto switches are shipped together (not assembled).
Note) There is the case D-A9□V/M9□V/M9□WV/M9□AV type auto switches cannot be mounted on the port surface, depending on the cylinder's stroke and the fitting size for piping. Consult with SMC for details.

Symbol

WIthout cushion



Rubber bumper



Specifications

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

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

Made to Order: Individual Specifications

(For details, refer to pages 854 and 855.)

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 here for 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
-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 of double acting, double rod.
Rubber bumper	

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 **web Catalog**.

Theoretical Output

(N)

Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm²)	Operating pressure (MPa)		
				0.3	0.5	0.7
12	6	IN	84.8	25	42	59
		OUT				
16	8	IN	151	45	75	106
		OUT				
20	10	IN	236	71	118	165
		OUT				
25	12	IN	378	113	189	264
		OUT				

Manufacture of Intermediate Stroke

Description	Spacer is installed in the standard stroke body.		Exclusive body (**-XB10**)	
Part no.	Suffix "-X633" to the end of standard model no. (page 810).		Suffix "-XB10" to the end of standard model no. (page 810).	
Description	Intermediate strokes in 1 mm increments are available by using spacers with standard stroke cylinders.		Dealing with the stroke in 1 mm increments by using an exclusive body with the specified stroke.	
Stroke range	Bore size	Stroke range	Bore size	Stroke range
	12, 16	6 to 29	12, 16	1 to 29
	20, 25	6 to 49	20, 25	1 to 49
Example	Part no.: CQSWB25-47D-X633 CQSWB25-50D with 3 mm width spacer inside. B dimension is 79 mm.		Part no.: CQSWB25-47D-XB10 Makes 47 stroke tube. B dimension is 76 mm.	

Refer to pages 852 to 853 for cylinders with auto switches.

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

Weight/Without Auto Switch

(g)

Bore size (mm)	Cylinder stroke (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)

(g)

Bore size (mm)	Cylinder stroke (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

(g)

Bore size (mm)		**12**	**16**	**20**	**25**
Rod end male thread	Male thread	3	6	12	24
	Nut	2	4	8	16
With rubber bumper		0	–1	–2	–2
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

Calculation: (Example) **CQSWF12-10DM**

- Cylinder weight: CQSWB12-10D·····46 g
- Additional weight: Rod end male thread·····5 g

: Rod side flange type····· 58 g

109 g

⚠Caution

Retaining Ring Installation/Removal

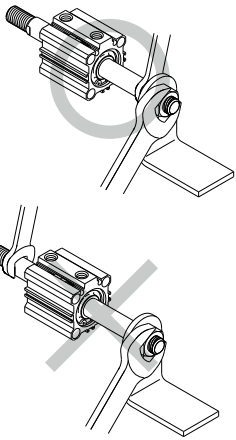
1. For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
2. Even if a proper plier (tool for installing type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out 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.

⚠Warning

Mounting

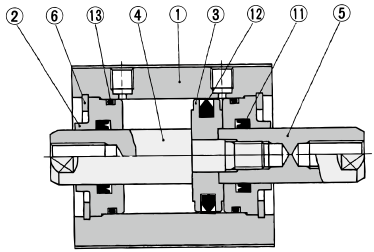
Do not apply the reverse torque to the piston rods sticking out from both sides of this cylinder at the same time. The torque makes connection threads inside loosen, which may cause an accident or malfunction.

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.

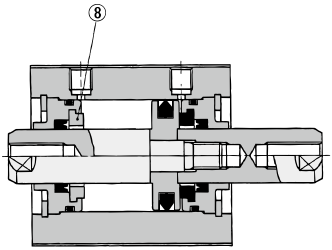


Construction

Basic type

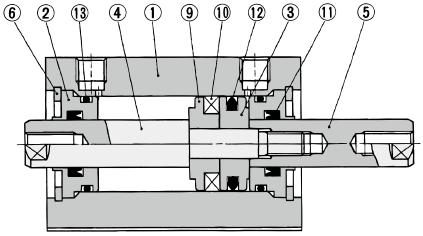


With rubber bumper

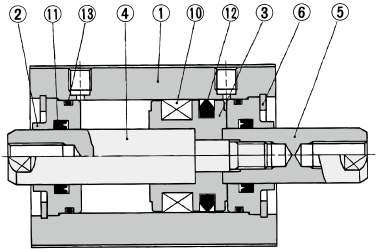


With auto switch (Built-in magnet)

ø12, ø16



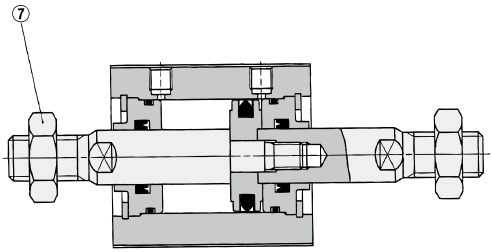
ø20, ø25



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 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

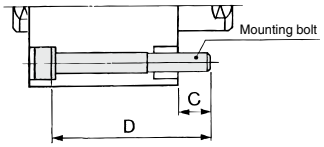
Bore size (mm)	Kit no.	Contents
12	CQSWB12-PS	Set of nos. above ⑪, ⑫, ⑬
16	CQSWB16-PS	
20	CQSWB20-PS	
25	CQSWB25-PS	

∗ Seal kit includes ⑪, ⑫, ⑬. Order the seal kit, based on each bore size.
∗ Since the seal kit does not include a grease pack, order it separately.
Grease pack part no.: GR-S-010 (10 g)

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 through-hole, be sure to use the attached plain washer.

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

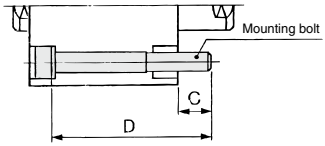
Cylinder model	C	D	Mounting bolt part no.
CQSWB20-25D	10	55	CQ-M5 x 55L
-30D		60	x 60L
-35D		65	x 65L
-40D		70	x 70L
-45D		75	x 75L
-50D		80	x 80L
CQSWB25-5D	7	35	CQ-M5 x 35L
-10D		40	x 40L
-15D		45	x 45L
-20D		50	x 50L
-25D		55	x 55L
-30D		60	x 60L
-35D		65	x 65L
-40D		70	x 70L
-45D		75	x 75L
-50D		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 through-hole, be sure to use the attached plain washer.

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

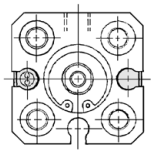
Cylinder model	C	D	Mounting bolt part no.
CDQSWB20-25D	10	65	CQ-M5 x 65L
-30D		70	x 70L
-35D		75	x 75L
-40D		80	x 80L
-45D		85	x 85L
-50D		90	x 90L
CDQSWB25-5D	7	45	CQ-M5 x 45L
-10D		50	x 50L
-15D		55	x 55L
-20D		60	x 60L
-25D		65	x 65L
-30D		70	x 70L
-35D		75	x 75L
-40D		80	x 80L
-45D		85	x 85L
-50D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

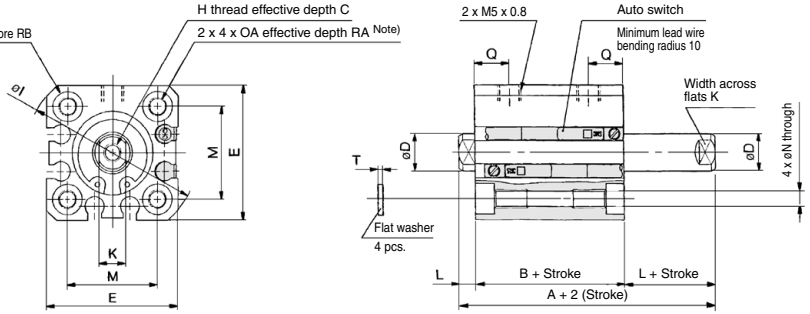
Material: Chromium molybdenum steel
Surface treatment: Zinc chromated

Dimensions: ø12 to ø25

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

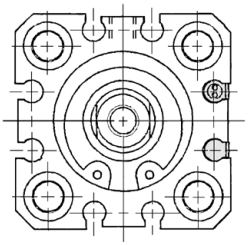
ø12



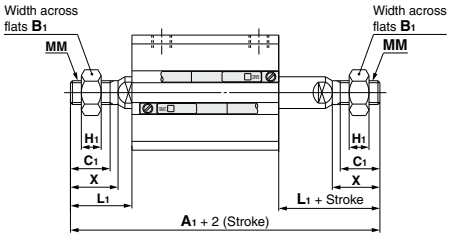


ø16

ø20, ø25



Rod end male thread



Rod End Male Thread

Bore size (mm)	Without auto switch A_1	With auto switch A_1	B_1	C_1	H_1	L_1	MM	X
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

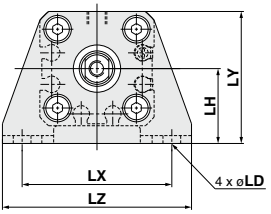
Basic Type

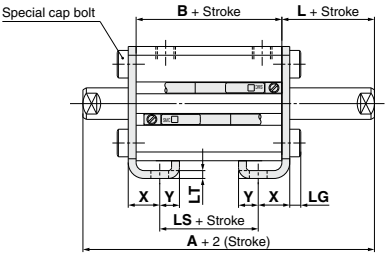
Bore size (mm)	Stroke range (mm)	Without auto switch A	Without auto switch B	With auto switch A	With auto switch B	C	D	E	H	I	K	L	M	N	OA	OB	Q	RA	RB	T
12	5 to 30	29	22	34	27	6	6	25	M3 x 0.5	32	5	3.5	15.5	3.5	M4 x 0.7	6.5	7.5	7	4	0.5
16	5 to 30	29	22	34	27	8	8	29	M4 x 0.7	38	6	3.5	20	3.5	M4 x 0.7	6.5	7.5	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 809.

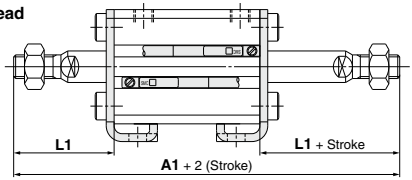
Dimensions: ø12 to ø25

Foot type: CQSWL/CDQSWL





Rod end male thread

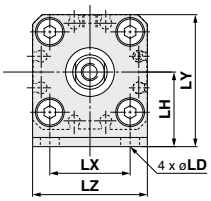


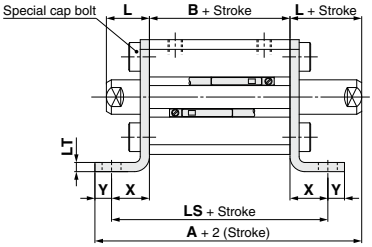
Foot Type

Bore size (mm)	Stroke range (mm)	Without auto switch				With auto switch				L	L1	LD	LG	LH	LT	LX	LY	LZ	X	Y
		A	A1	B	LS	A	A1	B	LS											
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

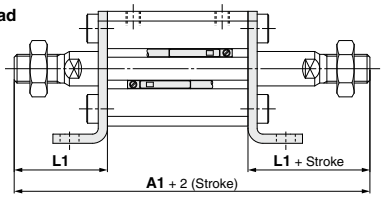
Foot bracket material: Carbon steel
Surface treatment: Nickel plated

Compact foot type: CQSWLC/CDQSWLC





Rod end male thread



Compact Foot Type

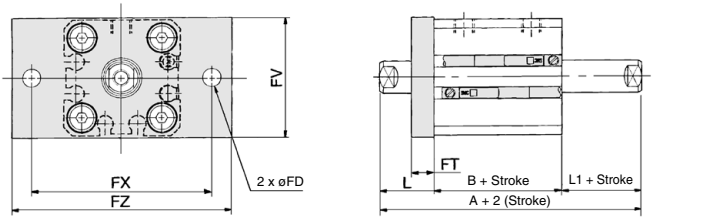
Bore size (mm)	Stroke range (mm)	Without auto switch				With auto switch				L	L1	LD	LH	LT	LX	LY	LZ	X	Y
		A	A1	B	LS	A	A1	B	LS										
12	5 to 30	49.3	70	22	40.6	54.3	75	27	45.6	13.5	24	4.5	17	2	15.5	29.5	25	9.3	4.5
16	5 to 30	49.8	73	22	40.6	54.8	78	27	45.6	13.5	25.5	4.5	19	2	20	33.5	29	9.3	5
20	5 to 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 809.

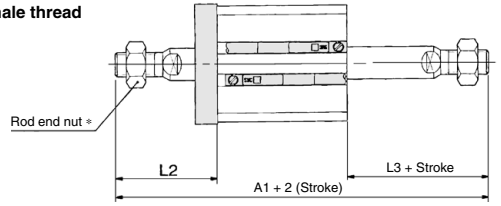
Compact foot bracket material: Carbon steel
Surface treatment: Zinc chromated

Dimensions: ø12 to ø25

Flange type: CQSWF/CDQSWF



Rod end male thread



Flange Type

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			FD	FT	FV	FX	FZ	L	L1	L2	L3
		A	A1	B	A	A1	B									
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

∗ For details about the rod end nut and accessory brackets, refer to page 899.
Note 1) The positions of width across flats on both sides are not the same.

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

Auto Switch Mounting

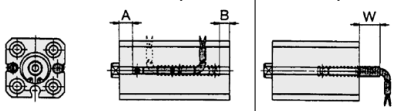
Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

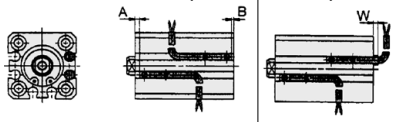
Basic type, Single acting (Spring return/Spring extend), Long stroke type, Anti-lateral load type

ø12 **Mounting** **a)** **b)**

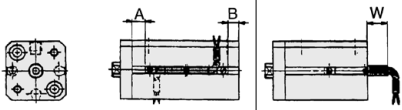
ø16 to ø25 **Mounting** **a)** **b)**

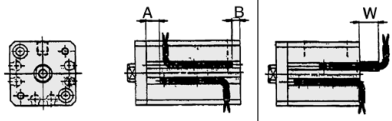
D-M9□
D-M9□W
D-M9□A
D-A9□



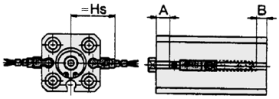


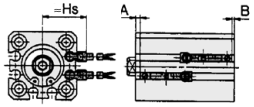
Non-rotating rod



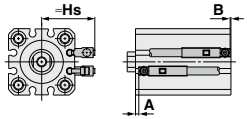


D-M9□V
D-M9□WV
D-M9□AV
D-A9□V
D-F8□





D-P3DWA ø25



Proper Auto Switch Mounting Position (Detection at stroke end)

Proper Auto Switch Mounting Position

Auto switch model / Bore size	D-M9□/M9□W			D-M9□V/M9□WV/M9□AV			D-M9□A			D-A9□			D-A9□V			D-F8□			D-P3DWA		
	A	B	W	A	B	Hs	A	B	W	A	B	W	A	B	Hs	A	B	Hs	A	B	Hs
Single rod: Basic type, Single acting (Spring return/Spring extend), Non-rotating rod																					
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	—	—	—
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 stroke																					
12	9	11	−1	9	11	19.5	9	11	1	5	7	-5 [-2.5]	5	7	17	7	9	27	—	—	—
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-lateral load type																					
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 acting: Basic type, Non-rotating rod																					
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	—	—	—
25	11	16	−6	11	16	27	11	16	−4	7	12	−10 [−7.5]	7	12	24.5	9	14	34.5	6.5	11.5	33

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.

Operating Range

(mm)

Auto switch model	Bore size (mm)			
	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

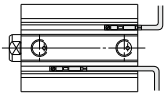
∗ Since this is a guideline including hysteresis, not meant to be guaranteed. (assuming approximately ±30% dispersion.) There may be the case it will vary substantially depending on an ambient environment.

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□	Note 2) 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

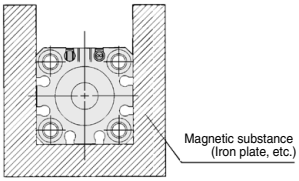
Note 1) The D-M9□/M9□W/M9□A and P3DWA□ cannot be installed on the single acting: single rod type.
Note 2) Available only for ø25.
Note 3) As the dimension stated in ( ) shows the minimum mountable stroke when the auto switch does not project from the end face of the cylinder body and the lead wire bending space is not hindered, the auto switch needs to be ordered separately. (Refer to the figure below.)



⚠ Caution

Avoid proximity to magnetic objects.

- 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 switches (D-M9□E(V)) and solid state auto switch D-F8 are also available. For details, refer to pages 1289 and 1290.

∗ For solid state auto switches, auto switches with a pre-wired connector are also available. Refer to pages 1340 and 1341 for details.

⚠ Precautions

Be sure to read this before handling the products.
Refer to page 20 for safety instructions and pages 21 to 30 for actuator and auto switch precautions.

Made to Order: Individual Specifications 1

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

Made to Order

1 Special Piston Rod End for Double Rod Type Cylinder

Symbol **-X235**

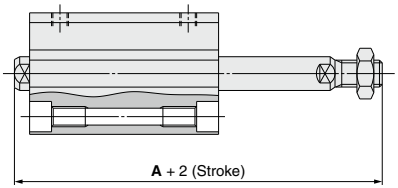
Male thread is used at one piston rod end of double rod type cylinder and female thread is used at the other end.

C□QSW | **Mounting** | **Bore size** — | **Stroke** | **D** — **X235**

"D" in the case of "-235"

Piston rod end
Male thread, Female thread

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



Symbol \ Bore size	12	16	20	25
A	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

Symbol **-X271**

Material for seals is changed to fluororubber.

C□QS | **Standard model no.** — **X271**

Fluororubber for seals

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)

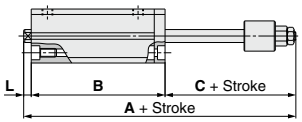
Symbol **-X525**

C□QS | **Mounting** | **Bore size** — | **Stroke** | **D(M)** — **X525**

Long stroke of XC8

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.

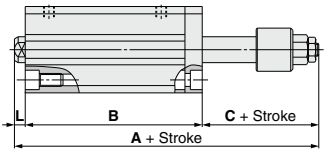
ø12, ø16



ø12, ø16

Bore (mm) \ Symbol / Stroke	A				B				C	L	Applicable stroke
	35st	40st	45st	50st	35st	40st	45st	50st			
12	91.1 (96.1)	96.1 (101.1)	101.1 (106.1)	106.1 (111.1)	62 (67)	67 (72)	72 (77)	77 (82)	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 (82)	26	3.5	

ø20, ø25



ø20, ø25

Bore (mm) \ Symbol / Stroke	A		B		C	L	Applicable stroke
	55 to 75st	80 to 100st	55 to 75st	80 to 100st			
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	

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

Symbol
4 Long Stroke of Adjustable Retraction Stroke Cylinder (-XC9) -X526

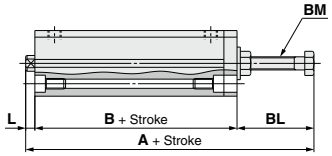
C□QS | Mounting | Bore size | — | Stroke | D (M) — X526

X526: Long stroke of XC9

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

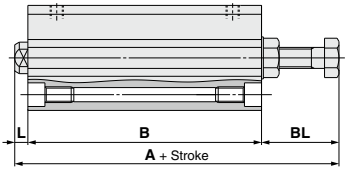
ø12, ø16



Bore (mm) \ Symbol	A	B	L	BL	BM	Applicable stroke
12	69.8	37	3.5	29.3	M5 x 0.8	35, 40, 45, 50, 75, 100
16	69.5	37	3.5	29	M6 x 1.0	
20	76	41	4.5	30.5	M8 x 1.25	75,100, 125, 150, 175, 200
25	78.5	44	5	29.5	M8 x 1.25	75, 100, 125, 150, 175, 200, 250, 300

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

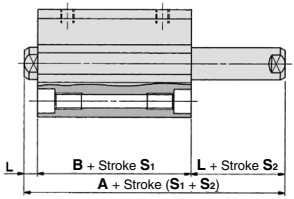


Symbol
5 Intermediate Stroke of Double Rod Type -X633

C□QSW
C□QSKW | Standard model no. | — X633

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

Dimensions



Bore (mm) \ Symbol	C(D)QSW A	C(D)QSW B	C(D)QSKW A	C(D)QSKW B	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 stroke 5 mm intervals	In the case of 6 to 29 stroke 1 mm intervals
16	29 (34)	22 (27)	34 (39)	27 (32)	3.5		
20	35 (45)	26 (36)	40 (50)	31 (41)	4.5	In the case of 5 to 50 stroke 5 mm intervals	In the case of 6 to 49 stroke 1 mm intervals
25	39 (49)	29 (39)	44 (54)	34 (44)	5		

Note 1) ( ): Denotes the dimensions with auto switch.
Note 2) Installing a spacer inside the standard cylinder tube, stroke S_1 has 5 mm intervals for controlling intermediate strokes in 1 mm increments.
Example) In the case of CDQ2WB40-18D, stroke S_1 is 20 mm and stroke S_2 is 18 mm.

Made to Order: Individual Specifications 2

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

Made to Order

Symbol
-X636

6 Long Stroke of Dual Stroke Single Rod Type

C□QSB [Bore size] — [Stroke S_1] + [Stroke S_2-S_1] **DC (M) — X636**

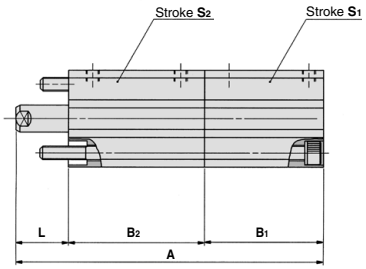
Long stroke of XC11

Applicable stroke

mm

Bore size	Stroke
ø12, ø16	Max. stroke S_2: up to 50 mm
ø20, ø25	Max. stroke S_2: up to 100 mm

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.



Bore size: ø12, ø16 mm

Symbol / Bore	A	B_1	B_2	L	Stroke range S_1	Stroke range S_2
ø12	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
ø16	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

Symbol / Stroke / Bore	A: Stroke S_2 55 to 75	A: Stroke S_2 80 to 100	B_1	B_2: Stroke S_2 55 to 75	B_2: Stroke S_2 80 to 100	L	Stroke range S_1	Stroke range S_2
ø20	150 (160) + Stroke S_1	175 (185) + Stroke S_1	19.5 (29.5) + Stroke S_1	116	141	14.5	5 to 50	55 to 100
ø25	156.5 (166.5) + Stroke S_1	181.5 (191.5) + Stroke S_1	22.5 (32.5) + Stroke S_1	119	144	15	5 to 50	55 to 100

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