

# Compact Cylinder: Standard Double Acting, Double Rod

## CQ2W Series

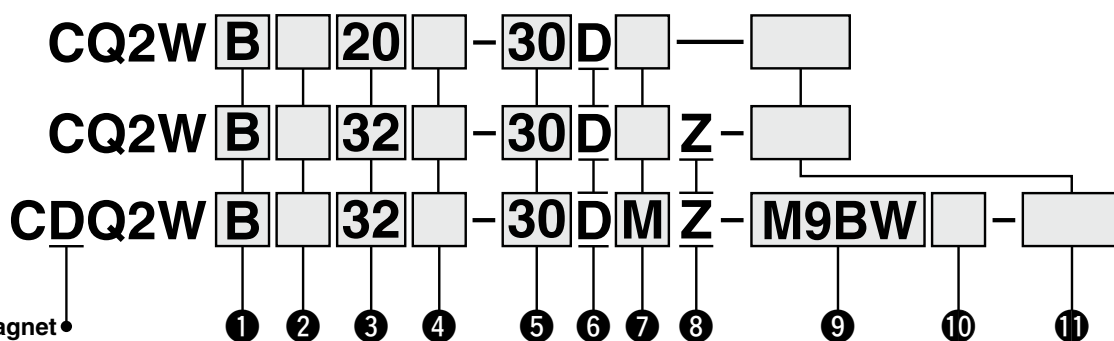
ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

### How to Order

Without auto switch  
ø12 to ø25

Without auto switch  
ø32 to ø100

With auto switch



#### With auto switch magnet

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

#### 1 Mounting

<b>B</b>	Through-hole
<b>A</b>	Both ends tapped
<b>L</b>	Foot
<b>LC</b>	Compact foot
<b>F</b>	Flange

\* Mounting brackets are shipped together with the product but do not come assembled.

\* A through-hole type mounting bolt is available as an option. For details ⇨ p. 34

#### 2 Type

<b>Nil</b>	Pneumatic
<b>H</b>	Air-hydro*1

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

#### 3 Bore size

<b>12</b>	12 mm
<b>16</b>	16 mm
<b>20</b>	20 mm
<b>25</b>	25 mm
<b>32</b>	32 mm
<b>40</b>	40 mm
<b>50</b>	50 mm
<b>63</b>	63 mm
<b>80</b>	80 mm
<b>100</b>	100 mm

#### 4 Port thread type

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

\*1 The bore sizes available with One-touch fittings are ø32 to ø63. However, they cannot be selected for the air-hydro type.

\* "TF" is not selectable for the air-hydro type.

\* For cylinders without an auto switch magnet, M threads are compatible only with ø32-5 mm stroke.

#### 5 Cylinder stroke (For details on the minimum stroke for auto switch mounting ⇨ p. 145)

##### Pneumatic type (Non-lube)

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

\* For the manufacturing of intermediate strokes ⇨ p. 31

##### Air-hydro type

Bore size	Standard stroke [mm]
<b>20, 25</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
<b>32, 40</b>	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
<b>50, 63, 80, 100</b>	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

#### 6 Action

<b>D</b>	Double acting
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#### 7 Body option

<b>Nil</b>	Rod end female thread
<b>C</b>	With rubber bumper*1
<b>M</b>	Rod end male thread

\*1 The type with a rubber bumper is not selectable for the air-hydro type.

\* Combined body options "CM" can be selected.

#### 8 Auto switch mounting groove

<b>Z</b>	ø12 to ø25	2 surfaces
	ø32 to ø100	4 surfaces

# CQ2 Series

## Simple Joint (CQ2): $\phi 32$ to $\phi 100$

### Joint/Mounting Bracket (Type A/B) Part Nos.

Bore size [mm]	Joint	Type A mounting bracket	Type B mounting bracket
32, 40	YU-03	YA-03	YB-03
50, 63	YU-05	YA-05	YB-05
80	YU-08	YA-08	YB-08
100	YU-10	YA-10	YB-10

<Ordering>

Joints are not included with type A or B mounting brackets.  
Order them separately.

(Example)

Bore size  $\phi 40$

Part no.

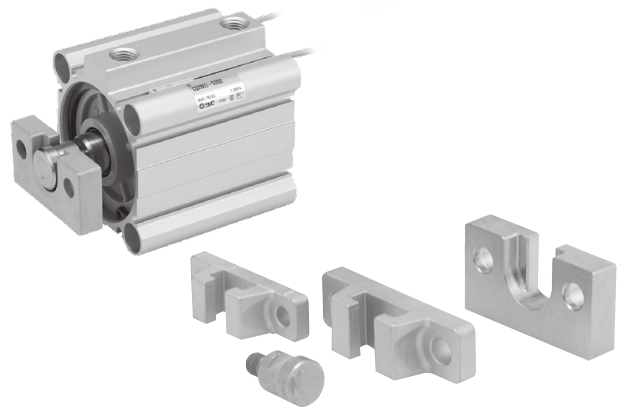
• Type A mounting bracket .....YA-03

• Joint.....YU-03

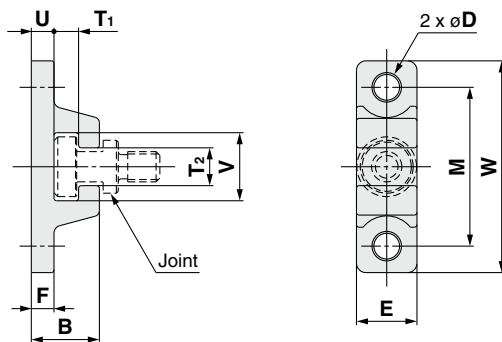
### Allowable Eccentricity

[mm]

Bore size [mm]	32	40	50	63	80	100
Eccentricity tolerance	$\pm 1$				$\pm 1.5$	$\pm 2$
Backlash	0.5					



### Type A Mounting Bracket



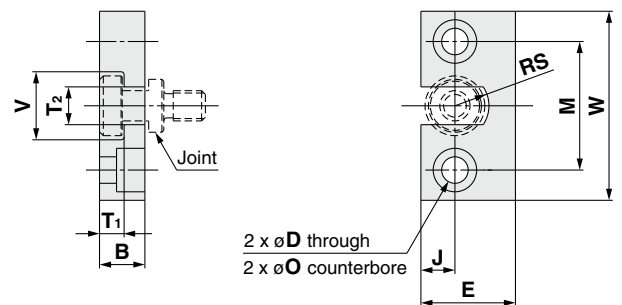
Material: Chromium molybdenum steel (Nickel plating)  
[mm]

Bore size [mm]	Part no.	B	D	E	F	M	T <sub>1</sub>	T <sub>2</sub>
32, 40	YA-03	18	6.8	16	6	42	6.5	10
50, 63	YA-05	20	9	20	8	50	6.5	12
80	YA-08	26	11	25	10	62	8.5	16
100	YA-10	31	14	30	12	76	10.5	18

Bore size [mm]	Part no.	U	V	W	Weight [g]
32, 40	YA-03	6	18	56	55
50, 63	YA-05	8	22	67	100
80	YA-08	10	28	83	195
100	YA-10	12	36	100	340

### Type B Mounting Bracket



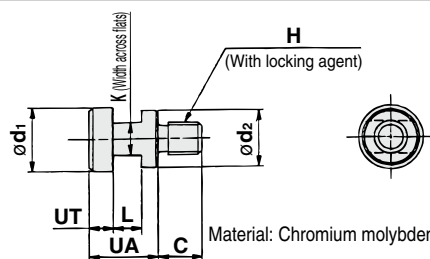
Material: Stainless steel  
[mm]

Bore size [mm]	Part no.	B	D	E	J	M	O
32, 40	YB-03	12	7	25	9	34	11.5 depth 7.5
50, 63	YB-05	12	9	32	11	42	14.5 depth 8.5
80	YB-08	16	11	38	13	52	18 depth 12
100	YB-10	19	14	50	17	62	21 depth 14

Bore size [mm]	Part no.	T <sub>1</sub>	T <sub>2</sub>	V	W	RS	Weight [g]
32, 40	YB-03	6.5	10	18	50	9	80
50, 63	YB-05	6.5	12	22	60	11	120
80	YB-08	8.5	16	28	75	14	230
100	YB-10	10.5	18	36	90	18	455

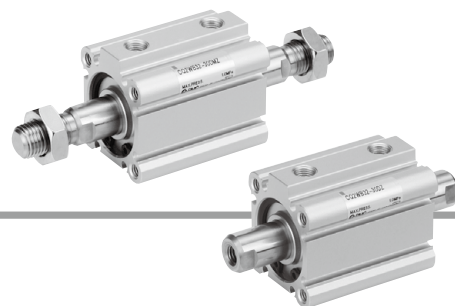
### Joint



Material: Chromium molybdenum steel (Nickel plating)  
[mm]

Bore size [mm]	Part no.	UA	C	d <sub>1</sub>	d <sub>2</sub>	H	K	L	UT	Weight [g]
32, 40	YU-03	17	11	15.8	14	M8 x 1.25	8	7	6	25
50, 63	YU-05	17	13	19.8	18	M10 x 1.5	10	7	6	40
80	YU-08	22	20	24.8	23	M16 x 2	13	9	8	90
100	YU-10	26	26	29.8	28	M20 x 2.5	14	11	10	160

# Compact Cylinder: Standard Double Acting, Double Rod **CQ2W Series**



## 9 Auto switch

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

## 10 Number of auto switches

Nil	2
S	1
n	n

## 11 Made to order common specifications

For details ⇨ p. 31

## Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.

(Example) CDQ2WL32-25DZ

For details on **auto switch mounting** ⇨ p. 139 to 152

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

## Applicable Auto Switches / Refer to the Web Catalog for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length [m]					Pre-wired connector	Applicable load			
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)					
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	24 V	5 V,	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC	
	3-wire (PNP)			12 V		M9PV		M9P	●	●	●	○	—	○				
	2-wire			12 V		M9BV		M9B	●	●	●	○	—	○				
	3-wire (NPN)			5 V,		M9NWV		M9NW	●	●	●	○	—	○	IC circuit			
	3-wire (PNP)			12 V		M9PWV		M9PW	●	●	●	○	—	○				
	2-wire			12 V		M9BWV		M9BW	●	●	●	○	—	○				
	3-wire (NPN)			5 V,		M9NAV*1		M9NA*1	○	○	●	○	—	○	IC circuit			
	3-wire (PNP)			12 V		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	—	
				2-wire	24 V	12 V	100 V	A93V*2	A93	●	●	●	●	—	—	—	—	Relay, PLC
						5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	—	—	—	IC circuit

\*1 Water-resistant type auto switches can be mounted on the models on page 29, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the model numbers on page 29.

\*2 The 1 m lead wire is only applicable to the 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

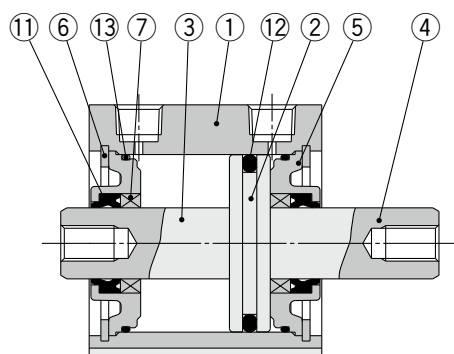
\* Solid state auto switches marked with "○" are produced upon receipt of order.  
\* The D-P3DWA□ type is only available in sizes ø25 to ø100.

\* There are applicable auto switches other than those listed above. For details ⇨ p. 152

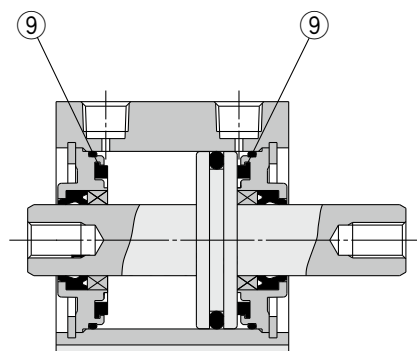
# CQ2W Series

## Construction

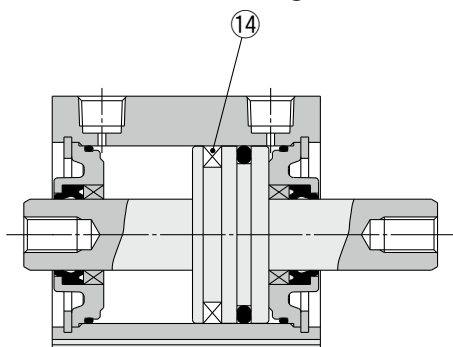
Without auto switch magnet



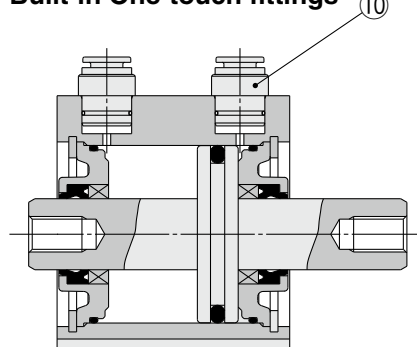
With rubber bumper



With auto switch magnet



Built-in One-touch fittings



## Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	
3	Piston rod A	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø100, Hard chrome plating
4	Piston rod B	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø100, Hard chrome plating
5	Collar	Aluminum alloy	ø12 to ø40, Anodized
		Aluminum alloy casted	ø50 to ø100, Chromated, Painted
6	Retaining ring	Carbon tool steel	Phosphate coated
7	Bushing	Bearing alloy	For ø50 or more only
8	Rod end nut	Carbon steel	Zinc chromated
9	Bumper	Urethane	Pneumatic type only
10	One-touch fitting	—	ø32 to ø63
11	Rod seal	NBR	
12	Piston seal	NBR	
13	Tube gasket	NBR	
14	Magnet	—	

## Replacement Parts/Seal Kit

### Pneumatic Type

Bore size [mm]	Kit no.	Contents
12	CQ2WB12-PS	Set of nos. 11, 12, 13
16	CQ2WB16-PS	
20	CQ2WB20-PS	
25	CQ2WB25-PS	
32	CQ2WB32-PS	
40	CQ2WB40-PS	
50	CQ2WB50-PS	
63	CQ2WB63-PS	
80	CQ2WB80-PS	
100	CQ2WB100-PS	

\* Seal kit includes 11, 12, 13. Order the seal kit based on each bore size.

\* The seal kit does not include a grease pack. Order it separately.

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

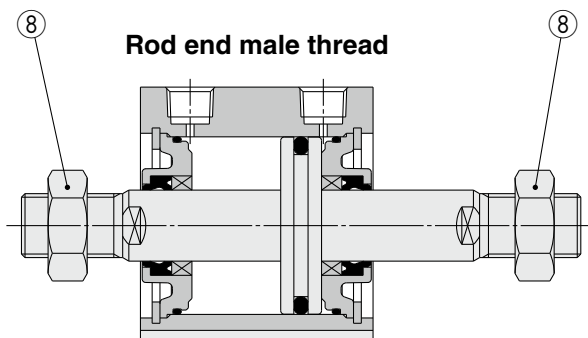
### Air-hydro Type

Bore size [mm]	Kit no.	Contents
20	CQ2WBH20-PS	Set of nos. 11, 12, 13
25	CQ2WBH25-PS	
32	CQ2WBH32-PS	
40	CQ2WBH40-PS	
50	CQ2WBH50-PS	
63	CQ2WBH63-PS	
80	CQ2WBH80-PS	
100	CQ2WBH100-PS	

\* Seal kit includes 11, 12, 13. Order the seal kit based on each bore size.

\* The seal kit does not include a grease pack. Order it separately.

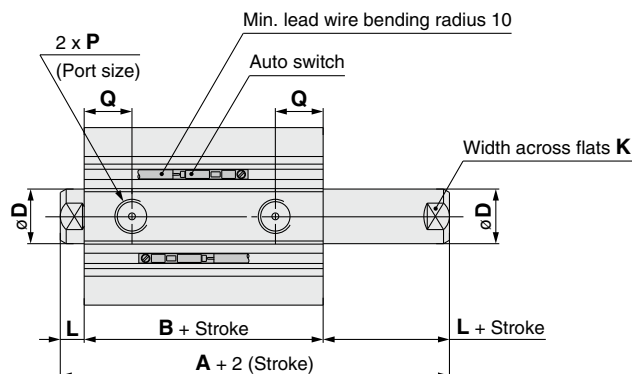
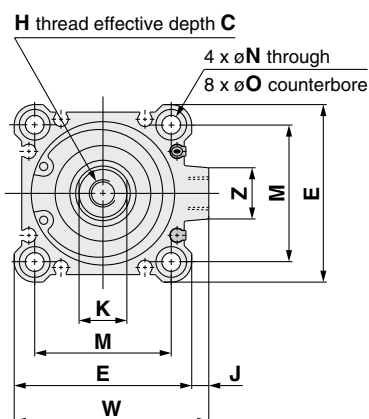
Grease pack part no.: GR-S-010 (10 g)



Bore Size

**ø32 to ø50** With/Without Auto Switch Magnet

Through-hole: **C□Q2WB**

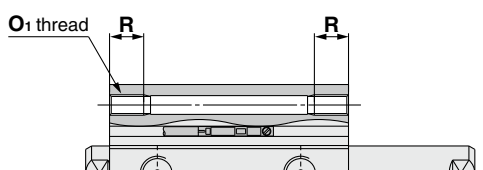


Bore size [mm]	Stroke range [mm]	Without auto switch magnet			With auto switch magnet		
		A	B	P	A	B	P
32	5	44.5	30.5	M5	54.5	40.5	1/8
	10 to 50			1/8			
	75,100	54.5	40.5				
40	5 to 50	54	40	1/8	64	50	1/8
	75,100	64	50				
50	10 to 50	56.5	40.5	1/4	66.5	50.5	1/4
	75,100	66.5	50.5				

- \* For details on the rod end nut and accessory brackets ⇨ p. 26, 27
- \* The positions of left and right width across flats are not constant.
- \* The external dimensions with rubber bumper are same as those of the standard, as shown above.
- \* For the auto switch proper mounting position and mounting height ⇨ p. 139 to 145

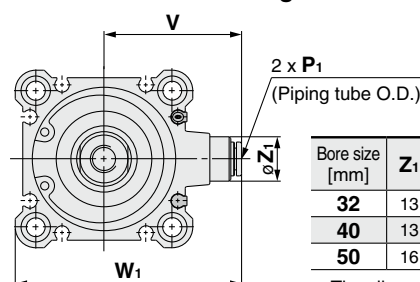
Bore size [mm]	C	D	E	H	J	K	L	M	N	O	Q	W	Z
32	13	16	45	M8 x 1.25	4.5	14	7	34	5.5	9 depth 7	10	49.5	14
40	13	16	52	M8 x 1.25	5	14	7	40	5.5	9 depth 7	12.5	57	15
50	15	20	64	M10 x 1.5	7	17	8	50	6.6	11 depth 8	14	71	19

Both ends tapped



Bore size [mm]	O <sub>1</sub>	R
32	M6 x 1.0	10
40	M6 x 1.0	10
50	M8 x 1.25	14

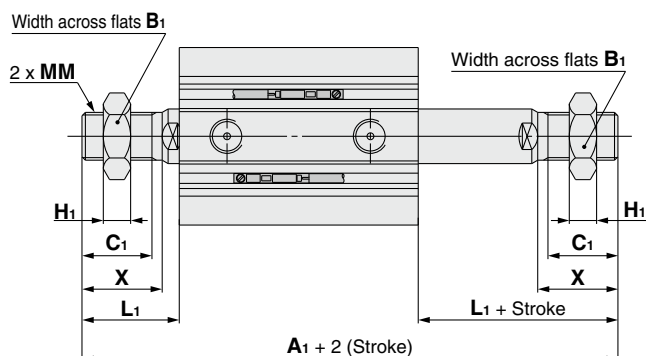
Built-in One-touch fittings



Bore size [mm]	Z <sub>1</sub>	P <sub>1</sub>	V	W <sub>1</sub>
32	13	6	36.5	59
40	13	6	40.5	66
50	16	8	50	82

- \* The dimensions of the ø32-5 mm stroke with built-in One-touch fittings (without magnet) are the same as those of the 10 mm stroke cylinder tube.

Rod end male thread



Bore size [mm]	Stroke range [mm]	Without auto switch magnet		With auto switch magnet	
		A <sub>1</sub>		A <sub>1</sub>	
32	5 to 50	87.5		97.5	
	75,100	97.5			
40	5 to 50	97		107	
	75,100	107			
50	10 to 50	107.5		117.5	
	75,100	117.5			

Bore size [mm]	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
32	22	20.5	8	28.5	M14 x 1.5	23.5
40	22	20.5	8	28.5	M14 x 1.5	23.5
50	27	26	11	33.5	M18 x 1.5	28.5