

Compact Cylinder: Standard Double Acting, Single Rod

Series CQ2

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

How to Order

Without auto switch 12 to ø25

Without auto switch ø32 to ø100

With auto switch

CQ2 **B** **20** **-30** **D** **—** **—** **—**

CQ2 **B** **32** **-30** **D** **Z** **—** **—** **—**

CDQ2 **B** **32** **-30** **D** **Z** **L** **W** **-M9BW** **—** **—**

Mounting

B	Through-hole (Standard)	F	Rod flange
A	Both ends tapped	G	Head flange
L	Foot	D	Double clevis
LC	Compact foot		

* Mounting brackets are shipped together, (but not assembled).

Type

—	Pneumatic
H	Air-hydro <small>Note 1)</small>

Note 1) Bore sizes available for air-hydro type are ø20 to ø100.

Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Port thread type

—	M thread	ø12 to ø25
	Rc	
TN	NPT	ø32 to ø100
TF	G	
F	Built-in one-touch fittings <small>Note 2)</small>	

Note 2) Bore sizes available with one-touch fittings are ø32 to ø63. Besides, it is not possible to use for air-hydro type.

Note 3) "TF" is not available for air-hydro type.

* For cylinders without auto switch, M threads are compatible only for ø32-5 mm stroke.

Mounting bolt

—	None
L	Shipped together

* Mounting bolt is shipped together only when the mounting bracket is "B".
* For details about the mounting bolt sizes, refer to pages 5 and 10.
* Mounting bolt is shipped together.

Auto switch mounting groove

Z	ø12 to ø25	2 surfaces
	ø32 to ø100	4 surfaces

Note 5) The made-to-order, heat resistant auto switch -XB14 is not applicable.

Body option

—	Standard (Rod end female thread)
F	With boss on head end
C	With rubber bumper <small>Note 4)</small>
M	Rod end male thread

* Combination of body options ("CM", "FC", "FM", "FCM") is available.
Note 4) Air-hydro type with rubber bumper is not available.

Action

D	Double acting
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Cylinder stroke (mm)

Refer to the next page and page 3 for standard strokes and intermediate strokes.

Auto switch

—	Without auto switch
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* Refer to the below table for applicable auto switches.

Number of auto switches

—	2 pcs.
S	1 pc.
n	"n" pcs.

Made to Order

Refer to the next page for details.

Rod end bracket

(Refer to pages 19 and 20.)

—	None
D	Simple joint A type + Joint
E	Simple joint B type + Joint
V	Single knuckle joint
W	Double knuckle joint

* The single knuckle joint and double knuckle joint cannot be mounted for the rod end female thread.
* A knuckle joint pin is not provided with the single knuckle joint.
* The simple joint A and B types cannot be mounted for the rod end male thread.
* Rod end bracket is shipped together.

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) CDQ2L32-25DZ

Applicable Auto Switches

Refer to pages 1263 to 1371 in Best Pneumatics No. 2 for further information on auto switches.
Refer to the individual catalogue (ES20-201) for the D-P3DW type.

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 (—)	1 (M)	3 (L)	5 (Z)	None (N)						
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC		
	3-wire (PNP)			M9PV				M9P	●	●	●	○	—	○					
	2-wire			M9BV				M9B	●	●	●	○	—	○					
	Diagnostic indication (2-colour indication)			3-wire (NPN)				5 V, 12 V	M9NWV	M9NW	●	●	●	○	—	○		IC circuit	
	3-wire (PNP)			12 V				M9PWV	M9PW	●	●	●	○	—	○				
	Water resistant (2-colour indication)			2-wire				12 V	M9BWV	M9BW	●	●	●	○	—	○		—	
				3-wire (NPN)				5 V, 12 V	M9NAV**	M9NA**	○	○	●	○	—	○		IC circuit	
				3-wire (PNP)				12 V	M9PAV**	M9PA**	○	○	●	○	—	○			
				2-wire				12 V	M9BAV**	M9BA**	○	○	●	○	—	○		—	
	Magnetic field resistant (2-colour indication)			2-wire (Non-polar)				—	—	P3DW	●	—	●	●	—	○		—	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	—		
				2-wire	24 V	12 V	100 V	A93V	A93	●	—	●	—	—	—	—	—	IC circuit	Relay, PLC
						5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	—	—			

* Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.
If water resistance is needed, we recommend water resistant cylinders be used. (Page 178)

* Lead wire length symbols: 0.5 m — (Example) M9NW
1 m M (Example) M9NWM
3 m L (Example) M9NWL
5 m Z (Example) M9NWX

* Solid state auto switches marked with "○" are produced upon receipt of order.
* The D-P3DW□ type is available from ø32 to ø100 only.

* There are other applicable auto switches other than the listed above. For details, refer to page 199.

* For details about auto switches with pre-wired connector, refer to pages 1328 and 1329 in Best Pneumatics No. 2.

Standard: Double Acting, Single Rod

Series **CDQ2**

With Auto Switch



Refer to the below pages for further information on auto switches.

Auto switch proper mounting position and its mounting height	P.193 to 199
Minimum stroke for auto switch mounting	
Operating range	
Auto switch mounting brackets/Part no.	

Weight

Weight

(g)

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	43	49	55	61	67	73	—	—	—	—	—	—
16	64	71	79	87	95	102	—	—	—	—	—	—
20	94	106	118	131	143	155	167	179	191	203	—	—
25	134	149	164	180	195	210	226	241	256	272	—	—
32	182	202	222	241	261	281	300	320	340	359	459	558
40	269	290	312	333	355	376	398	420	441	463	575	687
50	—	455	488	521	554	587	620	653	686	719	891	1062
63	—	627	665	703	741	779	817	855	893	931	1129	1326
80	—	1162	1222	1282	1342	1403	1463	1524	1584	1644	1941	2237
100	—	1966	2047	2127	2208	2288	2368	2449	2529	2610	3018	3426

Additional Weight

(g)

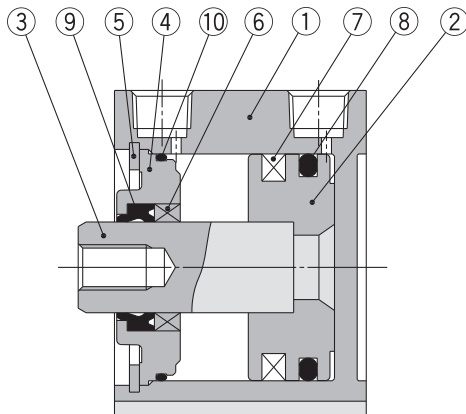
Bore size (mm)	12	16	20	25	32	40	50	63	80	100
Both ends tapped	1	1	3	3	6	6	6	19	45	45
Rod end male thread	Male thread	1.5	3	6	12	26	27	53	53	120
	Nut	1	2	4	8	17	17	32	32	49
With boss on head end	0.7	1.3	2	3	5	7	13	25	45	96
With rubber bumper	0	0	-2	-3	-3	-7	-9	-18	-31	-56
Built-in one-touch fittings	—	—	—	—	12	12	21	21	—	—
Foot (Including mounting bolts)	49	62	147	169	142	154	243	317	683	1052
Compact foot (Including mounting bolts)	32	40	97	116	99	114	117	241	501	770
Rod flange (Including mounting bolts)	54	67	131	153	180	214	373	559	1056	1365
Head flange (Including mounting bolts)	52	63	124	144	165	198	348	534	1017	1309
Double clevis (Including pin, retaining rings, bolts)	29	35	78	114	151	196	393	554	1109	1887

Calculation: (Example) **CDQ2D32-20DCMZ**

- Basic weight: CDQ2B32-20DZ..... 241 g
 - Additional weight: Both ends tapped 6 g
 - Rod end male thread 43 g
 - With rubber bumper -3 g
 - Double clevis 151 g
- 438 g

Add each weight of auto switches when auto switches are mounted.

Construction



Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodised
2	Piston	Aluminum alloy	Chromated
3	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø100, Hard chrome plated
4	Collar	Aluminum alloy	ø12 to ø40, Anodised
		Aluminum alloy casted	ø50 to ø100, Chromated, Painted
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Bushing	Bearing alloy	For ø50 or more only
7	Magnet	—	
8	Piston seal	NBR	
9	Rod seal	NBR	
10	Gasket	NBR	

Replacement Parts/Seal Kit (Pneumatic type)

Bore size (mm)	Kit no.	Contents
12	CQ2B12-PS	Kits include items ⑧, ⑨, ⑩ from the table.
16	CQ2B16-PS	
20	CQ2B20-PS	
25	CQ2B25-PS	
32	CQ2B32-PS	
40	CQ2B40-PS	
50	CQ2B50-PS	
63	CQ2B63-PS	
80	CQ2B80-PS	
100	CQ2B100-PS	

Replacement Parts/Seal Kit (Air-hydro type)

Bore size (mm)	Kit no.	Contents
20	CQ2BH20-PS	Kits include items ⑧, ⑨, ⑩ from the table.
25	CQ2BH25-PS	
32	CQ2BH32-PS	
40	CQ2BH40-PS	
50	CQ2BH50-PS	
63	CQ2BH63-PS	
80	CQ2BH80-PS	
100	CQ2BH100-PS	

- * Seal kit includes ⑧, ⑨, ⑩. 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)

- * Seal kit includes ⑧, ⑨, ⑩. 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)