

# Compact Cylinder: Anti-lateral Load

# CQ2 Series

ø32, ø40, ø50, ø63, ø80, ø100

## How to Order

Without auto switch

CQ2 **B** **S** 32  - 30  **D**  **C**  **Z** -

With auto switch

CDQ2 **B** **S** 32  - 30  **D**  **C**  **Z** - **M9BW**  -

With auto switch  
(Built-in magnet)

Mounting

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

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

\* Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for CQ2BS" on pages 920 and 923.

Type

**S** Anti-lateral load

Bore size

<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

Port thread type

<b>Nil</b>	Rc
<b>TN</b>	NPT
<b>TF</b>	G
<b>F</b>	Built-in One-touch Fittings (Note 1)

Note 1) Bore sizes available with One-touch fittings are ø32 to ø63. Besides, it is not possible to use for air-hydro type.

Cylinder stroke (mm)

Refer to page 918 for standard strokes.

Action

**D** Double acting

Made to Order  
Refer to page 918 for details.

Number of auto switches

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"n" pcs.

Auto switch

**Nil** Without auto switch

\* Refer to the below table for applicable auto switches.

Auto switch mounting groove

**Z** 4 surfaces

Body option 2

<b>Nil</b>	Standard (Rod end female thread)
<b>M</b>	Rod end male thread

Cushion

**C** Rubber bumper

Body option 1

<b>Nil</b>	Standard
<b>F</b>	With boss on head end

### 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) CDQ2LS40-30DCZ

### Applicable Auto Switches

Refer to pages 1575 to 1701 for further information on auto switches.  
Refer to pages 1630 and 1631 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 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)		
Solid state auto switch	Diagnostic indication (2-color indicator)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	○	○	○	IC circuit
				3-wire (PNP)				M9PV	M9P	●	●	○	○	IC circuit	
				2-wire				M9BV	M9B	●	●	○	○		
				3-wire (NPN)				M9NWV	M9NW	●	●	○	○	IC circuit	
	3-wire (PNP)	M9PWW	M9PW	●	●	○	○	IC circuit							
	2-wire	M9BWW	M9BW	●	●	○	○		—						
	Water resistant (2-color indicator)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NAV <sup>*1</sup>		M9NA <sup>*1</sup>	○	○	●	○	○
				3-wire (PNP)				M9PAV <sup>*1</sup>	M9PA <sup>*1</sup>	○	○	●	○	IC circuit	
2-wire				M9BAV <sup>*1</sup>				M9BA <sup>*1</sup>	○	○	●	○	—		
2-wire (Non-polar)				—				P3DWA	●	—	●	●		—	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	A96V	A96	●	—	●	—		—
				2-wire				A93V <sup>*2</sup>	A93	●	●	●	—	—	Relay, PLC
Reed auto switch	—	Grommet	No	2-wire	24 V	5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	

\*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) M9NV  
1 m ..... M (Example) M9NVM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWX

\* Solid state auto switches marked with "○" are produced upon receipt of order.

\* There are other applicable auto switches other than the listed above. For details, refer to page 970.

\* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.



Symbol

Rubber bumper



**Made to Order: Individual Specifications**  
(For details, refer to page 975.)

Symbol	Specifications
-X271	Fluororubber seals

## Made to Order

[Click here for details](#)

Symbol	Specifications
-XA□	Change of rod end shape
-XB10	Intermediate stroke (Exclusive body type)
-XC6	Piston rod/Retaining ring/Rod end nut material: Stainless steel
-XC26	With split pins for double clevis pin/ double knuckle joint pin and flat washers
-XC26□	Double clevis width/Double knuckle width 12.5 mm, 16.5 mm, 19.5 mm: With double clevis and double knuckle joint
-XC27	Double clevis pin/Double knuckle joint pin material: Stainless steel 304
-XC85	Grease for food processing equipment
-XC88	Spatter resistant coil scraper, Lube-retainer, Grease for welding (Piston rod: Stainless steel 304)
-XC89	Spatter resistant coil scraper, Lube-retainer, Grease for welding (Piston rod: S45C)

## Retaining Ring Installation/Removal

### ⚠ Caution

- For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).
- Even if a proper plier (tool for installing a 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.

## Specifications

Bore size (mm)	32	40	50	63	80	100
<b>Action</b>	Double acting, Single rod					
<b>Fluid</b>	Air					
<b>Proof pressure</b>	1.5 MPa					
<b>Maximum operating pressure</b>	1.0 MPa					
<b>Minimum operating pressure</b>	0.05 MPa					
<b>Ambient and fluid temperature</b>	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)					
<b>Lubrication</b>	Not required (Non-lube)					
<b>Piston speed</b>	50 to 500 mm/s					
<b>Allowable kinetic energy (J)</b>	0.29	0.52	0.91	1.54	2.71	4.54
<b>Stroke length tolerance</b>	+1.0 mm (Note) 0					

Note) Stroke length tolerance does not include the amount of dumper change.

## Standard Strokes

Bore size	Standard stroke (mm)
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63, 80, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

## Manufacture of Intermediate Strokes

Type	A spacer is installed in the standard stroke body.	Exclusive body (-XB10)
<b>Part no.</b>	Refer to "How to Order" for the standard model number. (P. 917)	Suffix "-XB10" to the end of standard model number. (P. 917)
<b>Description</b>	Strokes in 1 mm increments are available by installing a spacer in the standard stroke cylinder.	Strokes in 1 mm increments are available by using an exclusive body with the specified stroke.
<b>Stroke range</b>	Bore size	Bore size
	Stroke range	Stroke range
<b>Example</b>	Part no.: CQ2BS50-57DCZ CQ2BS50-75DCZ with 18 mm width spacer inside The B dimension is 125.5 mm.	Part no.: CQ2BS50-57DCZ-XB10 Makes 57 stroke tube. The B dimension is 107.5 mm.

- In the case of exclusive body type with  $\phi 32$  to  $\phi 100$  (-XB10) with the stroke length exceeding 50 mm, reference values of the longitudinal dimension will be changed. Calculate length dimensions by deducting from those of 75 or 100 mm stroke models.

## Type

Bore size (mm)		32	40	50	63	80	100	
Pneumatic	Mounting	Through-hole (Standard)	●	●	●	●	●	
		Both ends tapped	●	●	●	●	●	
	Built-in magnet	—	●	●	●	●	●	
		—	●	●	●	●	●	
	Piping	Pipe thread	TN	NPT1/8	NPT1/8	NPT1/4	NPT1/4	NPT3/8
			TF	G1/8	G1/8	G1/4	G1/4	G3/8
		Built-in One-touch Fittings (Note 2)	$\phi 6$ (Note 1)	$\phi 6$	$\phi 8$	$\phi 8$	—	—
	Rod end male thread	—	●	●	●	●	●	
	With rubber bumper (Standard)	—	●	●	●	●	●	
	With boss on head end	—	●	●	●	●	●	

Note 1) The dimension of the  $\phi 32$ -5 mm stroke with built-in One-touch fittings is the same as that of the 10 mm stroke cylinder tube.

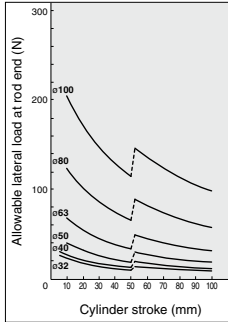
Note 2) One-touch fittings cannot be replaced.

Refer to pages 964 to 970 for the specifications of cylinders with autoswitches.

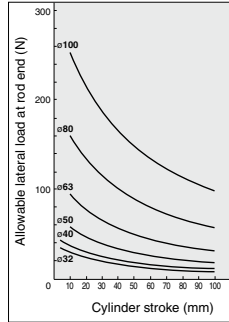
- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## Allowable Lateral Load at Rod End

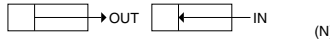
### Without Auto Switch



### With Auto Switch



## Theoretical Output



Bore size (mm)	Operating direction	Operating pressure (MPa)		
		0.3	0.5	0.7
32	IN	181	302	422
	OUT	241	402	563
40	IN	317	528	739
	OUT	377	628	880
50	IN	495	825	1155
	OUT	589	982	1374
63	IN	841	1402	1962
	OUT	935	1559	2182
80	IN	1361	2268	3175
	OUT	1508	2513	3519
100	IN	2144	3574	5003
	OUT	2356	3927	5498

## Weight

### Weight

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
32	134	154	174	193	213	233	252	272	291	311	457	556
40	211	232	254	275	297	318	340	361	383	404	577	689
50	—	369	402	435	467	500	533	566	598	632	902	1073
63	—	557	595	633	671	709	747	786	824	862	1189	1386
80	—	983	1043	1104	1164	1224	1284	1345	1405	1465	1985	2281
100	—	1711	1792	1872	1952	2033	2113	2194	2274	2354	3086	3494

### Additional Weight

Bore size (mm)	32	40	50	63	80	100
Both ends tapped	6	6	6	19	45	45
Rod end male thread	Male thread	26	27	53	53	175
	Nut	17	17	32	32	116
With boss on head end	5	7	13	25	45	96
Foot (Including mounting bolts)	142	154	243	320	690	1057
Compact foot (Including mounting bolts)	99	114	177	241	501	770
Rod flange (Including mounting bolts)	180	214	373	559	1056	1365
Head flange (Including mounting bolts)	165	198	348	534	1017	1309
Double clevis (Including pin, retaining rings, bolts)	151	196	393	554	1109	1887

Calculation: (Example) **CQ2DS32-20DCMZ**

- Basic weight: CQ2BS32-20DCZ ..... 193 g
- Additional weight: Both ends tapped ..... 6 g
- Rod end male thread ..... 43 g
- Double clevis ..... 151 g

393 g

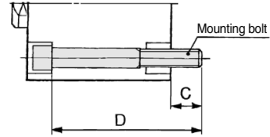
# CQ2 Series

## Mounting Bolt for CQ2BS/Without Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CQ2BS is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M5 x 40L 4 pcs.**

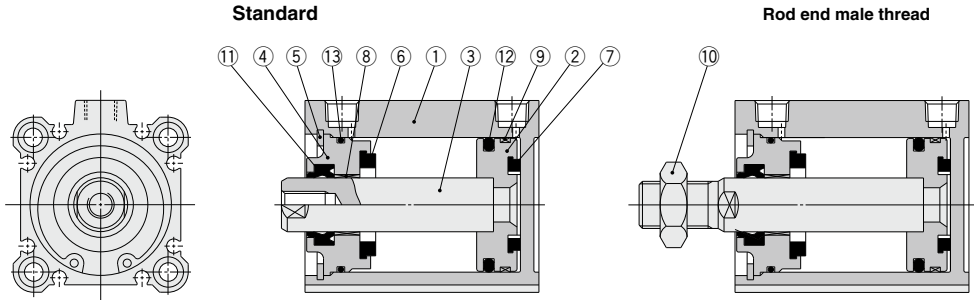
Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



Cylinder model	C	D	Mounting bolt part no.
<b>CQ2BS32-5DCZ</b>	9	40	CQ-M5 x 40L
-10DCZ		45	x 45L
-15DCZ		50	x 50L
-20DCZ		55	x 55L
-25DCZ		60	x 60L
-30DCZ		65	x 65L
-35DCZ		70	x 70L
-40DCZ		75	x 75L
-45DCZ		80	x 80L
-50DCZ		85	x 85L
-75DCZ		120	x 120L
-100DCZ		145	x 145L
<b>CQ2BS40-5DCZ</b>		7.5	45
-10DCZ	50		x 50L
-15DCZ	55		x 55L
-20DCZ	60		x 60L
-25DCZ	65		x 65L
-30DCZ	70		x 70L
-35DCZ	75		x 75L
-40DCZ	80		x 80L
-45DCZ	85		x 85L
-50DCZ	90		x 90L
-75DCZ	125		x 125L
-100DCZ	150		x 150L
<b>CQ2BS50-10DCZ</b>	12.5		55
-15DCZ		60	x 60L
-20DCZ		65	x 65L
-25DCZ		70	x 70L
-30DCZ		75	x 75L
-35DCZ		80	x 80L
-40DCZ		85	x 85L
-45DCZ		90	x 90L
-50DCZ		95	x 95L
-75DCZ		130	x 130L
-100DCZ		155	x 155L

Cylinder model	C	D	Mounting bolt part no.	
<b>CQ2BS63-10DCZ</b>	14.5	60	CQ-M8 x 60L	
-15DCZ		65	x 65L	
-20DCZ		70	x 70L	
-25DCZ		75	x 75L	
-30DCZ		80	x 80L	
-35DCZ		85	x 85L	
-40DCZ		90	x 90L	
-45DCZ		95	x 95L	
-50DCZ		100	x 100L	
-75DCZ		135	x 135L	
-100DCZ		160	x 160L	
<b>CQ2BS80-10DCZ</b>		15	65	CQ-M10 x 65L
-15DCZ			70	x 70L
-20DCZ	75		x 75L	
-25DCZ	80		x 80L	
-30DCZ	85		x 85L	
-35DCZ	90		x 90L	
-40DCZ	95		x 95L	
-45DCZ	100		x 100L	
-50DCZ	105		x 105L	
-75DCZ	140		x 140L	
-100DCZ	165		x 165L	
<b>CQ2BS100-10DCZ</b>	15.5		75	CQ-M10 x 75L
-15DCZ			80	x 80L
-20DCZ		85	x 85L	
-25DCZ		90	x 90L	
-30DCZ		95	x 95L	
-35DCZ		100	x 100L	
-40DCZ		105	x 105L	
-45DCZ		110	x 110L	
-50DCZ		115	x 115L	
-75DCZ		150	x 150L	
-100DCZ		175	x 175L	

## Construction



### Component Parts

No.	Description	Material	Note
1	<b>Cylinder tube</b>	Aluminum alloy	Hard anodized
2	<b>Piston</b>	Aluminum alloy	
3	<b>Piston rod</b>	Carbon steel	Hard chrome plated
4	<b>Collar</b>	Aluminum alloy	Anodized
5	<b>Retaining ring</b>	Carbon tool steel	Phosphate coated
6	<b>Bumper A</b>	Urethane	
7	<b>Bumper B</b>	Urethane	
8	<b>Bushing</b>	Bearing alloy	
9	<b>Wear ring</b>	Resin	
10	<b>Rod end nut</b>	Carbon steel	Zinc chromated
11	<b>Rod seal</b>	NBR	
12	<b>Piston seal</b>	NBR	
13	<b>Tube gasket</b>	NBR	

### Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
32	CQ2B32-PS	Kits include items ①, ②, ③ from the table.
40	CQ2B40-PS	
50	CQ2B50-PS	
63	CQ2B63-PS	
80	CQ2B80-PS	
100	CQ2B100-PS	

- \* Seal kit includes ①, ②, ③. 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 Brackets/Part No.

Bore size (mm)	Foot <small>Note 1)</small>	Compact foot <small>Note 1)</small>	Flange	Double clevis
32	CQ-L032	CQ-LC032	CQ-F032	CQ-D032
40	CQ-L040	CQ-LC040	CQ-F040	CQ-D040
50	CQ-L050	CQ-LC050	CQ-F050	CQ-D050
63	CQ-L063	CQ-LC063	CQ-F063	CQ-D063
80	CQ-L080	CQ-LC080	CQ-F080	CQ-D080
100	CQ-L100	CQ-LC100	CQ-F100	CQ-D100

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: Body mounting bolts

Double clevis: Clevis pin, Type C retaining rings for axis, Body mounting bolts

Note 3) For details about accessories (options), refer to pages 796 to 798.

CJ

CU

CQS

JCQ

**CQ2**

RQ

CQM

CQU

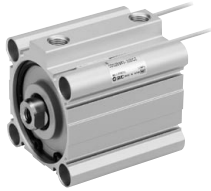
MU

D-□

-X□

Technical Data

# Anti-lateral Load CDQ2 Series With Auto Switch



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

Auto switch proper mounting position and its mounting height	P.964 to 970
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
<b>32</b>	191	211	230	250	270	289	309	329	348	368	468	567
<b>40</b>	284	305	327	348	369	391	412	434	455	477	589	701
<b>50</b>	—	480	513	546	579	611	644	677	710	743	915	1087
<b>63</b>	—	710	748	787	825	863	901	939	977	1015	1211	1408
<b>80</b>	—	1229	1289	1350	1410	1470	1530	1591	1651	1711	2008	2305
<b>100</b>	—	2070	2150	2231	2311	2391	2472	2552	2633	2713	3121	3529

### Additional Weight (g)

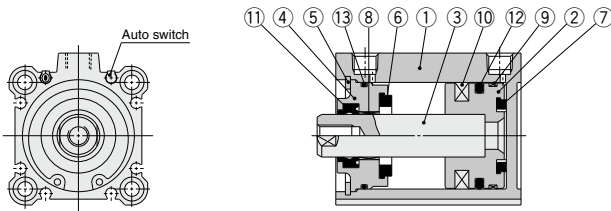
Bore size (mm)	32	40	50	63	80	100
Both ends tapped	6	6	6	19	45	45
Rod end male thread	Male thread	26	27	53	53	120
	Nut	17	17	32	32	49
Foot (Including mounting bolts)	142	154	243	320	690	1057
Compact foot (Including mounting bolts)	99	114	177	241	501	770
Rod flange (Including mounting bolts)	180	214	373	559	1056	1365
Head flange (Including mounting bolts)	165	198	348	534	1017	1309
Double clevis (Including pin, retaining rings, bolts)	151	196	393	554	1109	1887

Calculation: (Example) **CDQ2DS32-20DCMZ** Add each weight of auto switches when auto switches are mounted.

- Basic weight: CDQ2BS32-20DCZ.....250 g
- Additional weight: Both ends tapped..... 6 g
- Rod end male thread..... 43 g
- Double clevis.....151 g

450 g

## Construction



## Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	
3	Piston rod	Carbon steel	Hard chrome plated
4	Collar	Aluminum alloy	Anodized
5	Retaining ring	Carbon tool steel	Phosphate coated
6	Bumper A	Urethane	
7	Bumper B	Urethane	
8	Bushing	Bearing alloy	
9	Wear ring	Resin	
10	Magnet	—	
11	Rod seal	NBR	
12	Piston seal	NBR	
13	Tube gasket	NBR	

## Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
<b>32</b>	CQ2B32-PS	Kits include items (1), (2), (3) from the table.
<b>40</b>	CQ2B40-PS	
<b>50</b>	CQ2B50-PS	
<b>63</b>	CQ2B63-PS	
<b>80</b>	CQ2B80-PS	
<b>100</b>	CQ2B100-PS	

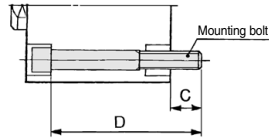
\* Seal kit includes (1), (2), (3) Order the seal kit based on each bore size.  
\* Since the seal kit does not include a grease pack, order it separately.  
**Grease pack part no.: GR-S-010 (10 g)**

### Mounting Bolt for CDQ2BS/With Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CDQ2BS is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

**Example) CQ-M5 x 50L 4 pcs.**

Material: Chromium molybdenum steel  
Surface treatment: Zinc chromated



Cylinder model	C	D	Mounting bolt part no.
<b>CDQ2BS32-5DCZ</b>	9	50	CQ-M5 x 50L
<b>-10DCZ</b>		55	x 55L
<b>-15DCZ</b>		60	x 60L
<b>-20DCZ</b>		65	x 65L
<b>-25DCZ</b>		70	x 70L
<b>-30DCZ</b>		75	x 75L
<b>-35DCZ</b>		80	x 80L
<b>-40DCZ</b>		85	x 85L
<b>-45DCZ</b>		90	x 90L
<b>-50DCZ</b>		95	x 95L
<b>-75DCZ</b>		120	x 120L
<b>-100DCZ</b>		145	x 145L
<b>CDQ2BS40-5DCZ</b>	7.5	55	CQ-M5 x 55L
<b>-10DCZ</b>		60	x 60L
<b>-15DCZ</b>		65	x 65L
<b>-20DCZ</b>		70	x 70L
<b>-25DCZ</b>		75	x 75L
<b>-30DCZ</b>		80	x 80L
<b>-35DCZ</b>		85	x 85L
<b>-40DCZ</b>		90	x 90L
<b>-45DCZ</b>		95	x 95L
<b>-50DCZ</b>		100	x 100L
<b>-75DCZ</b>		125	x 125L
<b>-100DCZ</b>		150	x 150L
<b>CDQ2BS50-10DCZ</b>	12.5	65	CQ-M6 x 65L
<b>-15DCZ</b>		70	x 70L
<b>-20DCZ</b>		75	x 75L
<b>-25DCZ</b>		80	x 80L
<b>-30DCZ</b>		85	x 85L
<b>-35DCZ</b>		90	x 90L
<b>-40DCZ</b>		95	x 95L
<b>-45DCZ</b>		100	x 100L
<b>-50DCZ</b>		105	x 105L
<b>-75DCZ</b>		130	x 130L
<b>-100DCZ</b>		155	x 155L

Cylinder model	C	D	Mounting bolt part no.
<b>CDQ2BS63-10DCZ</b>	14.5	70	CQ-M8 x 70L
<b>-15DCZ</b>		75	x 75L
<b>-20DCZ</b>		80	x 80L
<b>-25DCZ</b>		85	x 85L
<b>-30DCZ</b>		90	x 90L
<b>-35DCZ</b>		95	x 95L
<b>-40DCZ</b>		100	x 100L
<b>-45DCZ</b>		105	x 105L
<b>-50DCZ</b>		110	x 110L
<b>-75DCZ</b>		135	x 135L
<b>-100DCZ</b>		160	x 160L
<b>CDQ2BS80-10DCZ</b>		15	75
<b>-15DCZ</b>	80		x 80L
<b>-20DCZ</b>	85		x 85L
<b>-25DCZ</b>	90		x 90L
<b>-30DCZ</b>	95		x 95L
<b>-35DCZ</b>	100		x 100L
<b>-40DCZ</b>	105		x 105L
<b>-45DCZ</b>	110		x 110L
<b>-50DCZ</b>	115		x 115L
<b>-75DCZ</b>	140		x 140L
<b>-100DCZ</b>	165		x 165L
<b>CDQ2BS100-10DCZ</b>	15.5		85
<b>-15DCZ</b>		90	x 90L
<b>-20DCZ</b>		95	x 95L
<b>-25DCZ</b>		100	x 100L
<b>-30DCZ</b>		105	x 105L
<b>-35DCZ</b>		110	x 110L
<b>-40DCZ</b>		115	x 115L
<b>-45DCZ</b>		120	x 120L
<b>-50DCZ</b>		125	x 125L
<b>-75DCZ</b>		150	x 150L
<b>-100DCZ</b>		175	x 175L

**CJU**

**CU**

**CQS**

**JCQ**

**CQ2**

**RQ**

**CQM**

**CQU**

**MU**

**D-□**

**-X□**

Technical  
Data

# CQ2 Series

## Dimensions

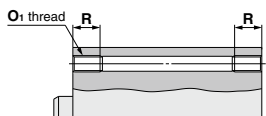
### Ø32 to Ø50/With Auto Switch

(In the case of without auto switches, the A, B dimensions will be only changed. Refer to the dimension table.)

Standard (Through-hole): CQ2BS/CDQ2BS

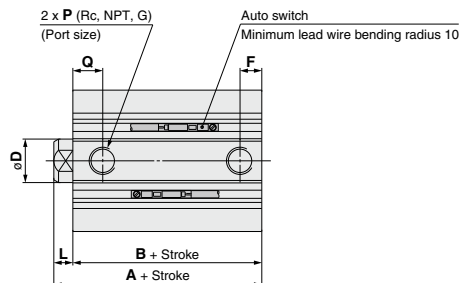
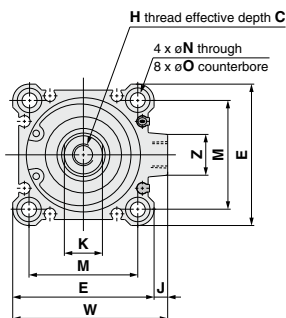
Both ends tapped: CQ2AS/CDQ2AS

#### CDQ2AS

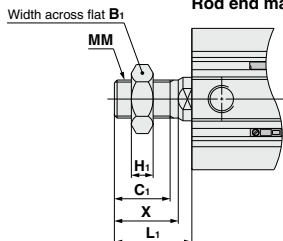


#### Both Ends Tapped

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



#### Rod end male thread



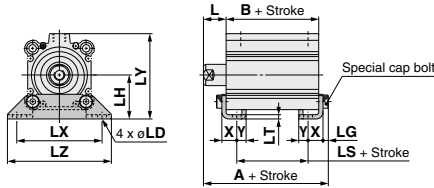
The dimensions with boss on head end are equivalent to those of the CQ2 series, double acting, single rod. Refer to page 790.

#### Rod End Male Thread

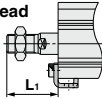
Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
32	22	20.5	8	28.5	M14 x 1.5	23.5
40	22	20.5	8	28.5	M14 x 1.5	23.5
50	27	26	11	33.5	M18 x 1.5	28.5

Bore size (mm)	Stroke range (mm)	(mm)																		
		Without auto switch		With auto switch		C	D	E	F	H	J	K	L	M	N	O	P	Q	W	Z
		A	B	A	B															
32	5 to 50	40	33	50	43	13	16	45	7.5	M8 x 1.25	4.5	14	7	34	5.5	9 depth 7	1/8	10	49.5	14
	75, 100	50	43																	
40	5 to 50	46.5	39.5	56.5	49.5	13	16	52	7.5	M8 x 1.25	5	14	7	40	5.5	9 depth 7	1/8	12.5	57	15
	75, 100	56.5	49.5																	
50	10 to 50	48.5	40.5	58.5	50.5	15	20	64	10.5	M10 x 1.5	7	17	8	50	6.6	11 depth 8	1/4	10.5	71	19
	75, 100	58.5	50.5																	

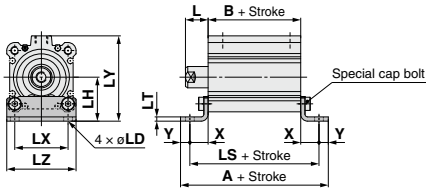
**Foot: CQ2LS/CDQ2LS**



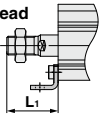
Rod end male thread



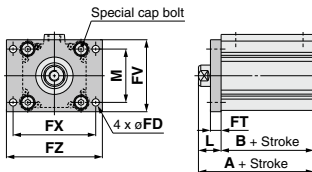
**Compact foot: CQ2LCS/CDQ2LCS**



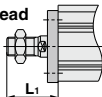
Rod end male thread



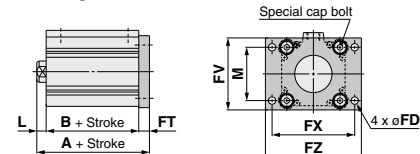
**Rod flange: CQ2FS/CDQ2FS**



Rod end male thread



**Head flange: CQ2GS/CDQ2GS**



Rod end male thread



**Foot**

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
32	5 to 50	57.2	33	17	67.2	43	27	17	38.5	6.6
	75, 100	67.2	43	27						
40	5 to 50	63.7	39.5	23.5	73.7	49.5	33.5	17	38.5	6.6
	75, 100	73.7	49.5	33.5						
50	10 to 50	66.7	40.5	17.5	76.7	50.5	27.5	18	43.5	9
	75, 100	76.7	50.5	27.5						

Bore size (mm)	Stroke range (mm)	LG	LH	LT	LX	LY	LZ	X	Y
32	5 to 50	4	30	3.2	57	57	71	11.2	5.8
	75, 100								
40	5 to 50	4	33	3.2	64	64	78	11.2	7
	75, 100								
50	10 to 50	5	39	3.2	79	78	95	14.7	8
	75, 100								

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

**Compact Foot**

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
32	5 to 50	72	33	60.4	82	43	70.4	17	38.5	6.6
	75, 100	82	43	70.4						
40	5 to 50	80.9	39.5	66.9	90.9	49.5	76.9	17	38.5	6.6
	75, 100	90.9	49.5	76.9						
50	10 to 50	89.9	40.5	73.9	99.9	50.5	83.9	18	43.5	9
	75, 100	99.9	50.5	83.9						

Bore size (mm)	Stroke range (mm)	LH	LT	LX	LY	LZ	X	Y
32	5 to 50	30	3.2	34	57	45	13.7	5.8
	75, 100							
40	5 to 50	33	3.2	40	64	52	13.7	7
	75, 100							
50	10 to 50	39	3.2	50	78	64	16.7	8
	75, 100							

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

**Rod Flange**

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ
		A	B	A	B					
32	5 to 50	50	33	60	43	5.5	8	48	56	65
	75, 100	60	43							
40	5 to 50	56.5	39.5	66.5	49.5	5.5	8	54	62	72
	75, 100	66.5	49.5							
50	10 to 50	58.5	40.5	68.5	50.5	6.6	9	67	76	89
	75, 100	68.5	50.5							

Bore size (mm)	Stroke range (mm)	L	L <sub>1</sub>	M
32	5 to 50	17	38.5	34
	75, 100			
40	5 to 50	17	38.5	40
	75, 100			
50	10 to 50	18	43.5	50
	75, 100			

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

**Head Flange**

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch	
		A	A	L	L <sub>1</sub>
32	5 to 50	48		7	28.5
	75, 100	58			
40	5 to 50	54.5		7	28.5
	75, 100	64.5			
50	10 to 50	57.5		8	33.5
	75, 100	67.5			

\* The dimensions except A, L and L<sub>1</sub> are the same as those of the rod flange. Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

\* For details about the rod end nut and accessory brackets, refer to pages 796 to 798.

CUJ

CU

CQS

JCQ

CQ2

RQ

CQM

CQU

MU

D-□

-X□

Technical Data

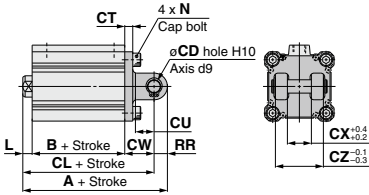
# CQ2 Series

## Dimensions

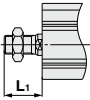
### Ø32 to Ø50/With Auto Switch

(In the case of without auto switches, the A, B dimensions will be only changed. Refer to the dimension table.)

#### Double clevis: CQ2DS/CDQ2DS



#### Rod end male thread



#### Double Clevis

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			(mm)		
		A	B	CL	A	B	CL	CD	CT	CU
32	5 to 50	70	33	60	80	43	70	10	5	14
	75, 100	80	43	70						
40	5 to 50	78.5	39.5	68.5	88.5	49.5	78.5	10	6	14
	75, 100	88.5	49.5	78.5						
50	10 to 50	90.5	40.5	76.5	100.5	50.5	86.5	14	7	20
	75, 100	100.5	50.5	86.5						

Bore size (mm)	Stroke range (mm)	CW	CX	CZ	L	L <sub>1</sub>	N	RR
32	5 to 50	20	18	36	7	28.5	M6 x 1.0	10
	75, 100							
40	5 to 50	22	18	36	7	28.5	M6 x 1.0	10
	75, 100							
50	10 to 50	28	22	44	8	33.5	M8 x 1.25	14
	75, 100							

Double clevis bracket material: Cast iron  
Surface treatment: Painted

- \* For details about the rod end nut and accessory brackets, refer to pages 796 to 798.
- \* Double clevis pin and retaining rings are included.

Dimensions

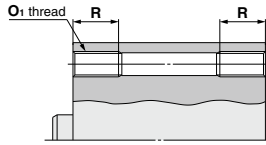
**∅63 to ∅100/With Auto Switch**

(In the case of without auto switches, the A, B dimensions will be only changed. Refer to the dimension table.)

Standard (Through-hole): **CQ2BS/CDQ2BS**

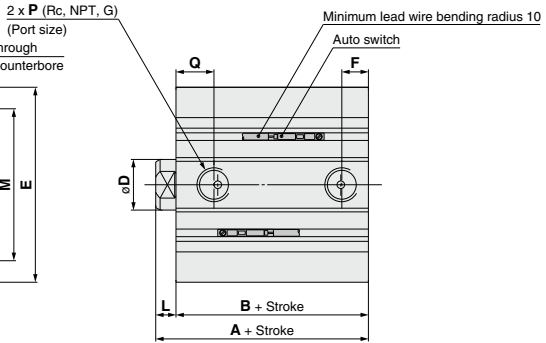
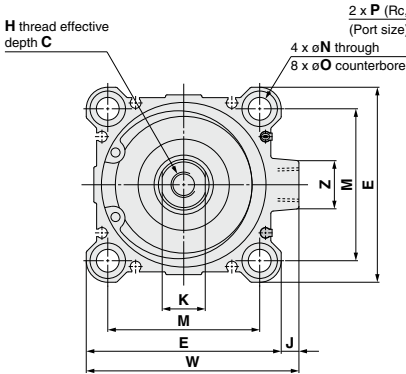
Both ends tapped: **CQ2AS/CDQ2AS**

The dimensions with boss on head end are equivalent to those of the CQ2 series, double acting, single rod. Refer to page 793.

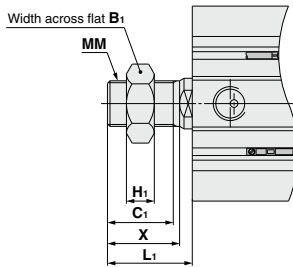


**Both Ends Tapped**

Bore size (mm)	O1	R
63	M10 x 1.5	18
80	M12 x 1.75	22
100	M12 x 1.75	22



**Rod end male thread**



**Rod End Male Thread**

(mm)

Bore size (mm)	B <sub>1</sub>	C <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	MM	X
63	27	26	11	33.5	M18 x 1.5	28.5
80	32	32.5	13	43.5	M22 x 1.5	35.5
100	41	32.5	16	43.5	M26 x 1.5	35.5

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		(mm)															
		A	B	A	B	C	D	E	F	H	J	K	L	M	N	O	P	Q	W	Z	
		63	10 to 50	54	46	64	56	15	20	77	10.5	M10 x 1.5	7	17	8	60	9	14 depth	10.5	1/4	15
80	75, 100	64	56	73.5	63.5	21	25	98	12.5	M16 x 2.0	6	22	10	77	11	17.5 depth	13.5	3/8	16	104	25
	10 to 50	63.5	53.5																		
100	75, 100	75	63	85	73	27	30	117	13	M20 x 2.5	6.5	27	12	94	11	17.5 depth	13.5	3/8	23	123.5	25
	10 to 50	75	63																		

- CUJ
- CU
- CQS
- JCQ
- CQ2**
- RQ
- CQM
- CQU
- MU

- D-□
- X□
- Technical Data

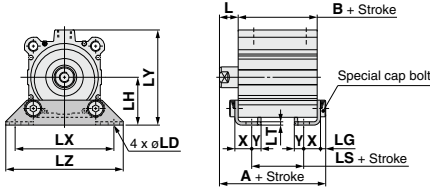
# CQ2 Series

## Dimensions

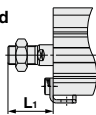
### Ø63 to Ø100/With Auto Switch

(In the case of without auto switches, the A, B dimensions will be only changed. Refer to the dimension table.)

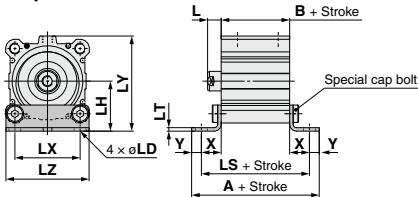
#### Foot: CQ2LS/CDQ2LS



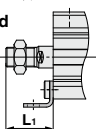
Rod end male thread



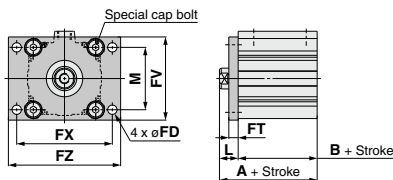
#### Compact foot: CQ2LCS/CDQ2LCS



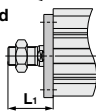
Rod end male thread



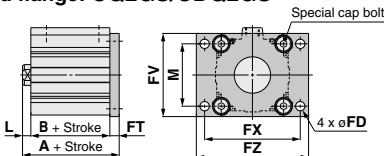
#### Rod flange: CQ2FS/CDQ2FS



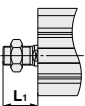
Rod end male thread



#### Head flange: CQ2GS/CDQ2GS



Rod end male thread



#### Foot

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
63	10 to 50	72.2	46	20	82.2	56	30	18	43.5	11
	75, 100	82.2	56	30						
80	10 to 50	85	53.5	23.5	95	63.5	33.5	20	53.5	13
	75, 100	95	63.5	33.5						
100	10 to 50	98	63	29	108	73	39	22	53.5	13
	75, 100	108	73	39						

Bore size (mm)	Stroke range (mm)	LG	LH	LT	LX	LY	LZ	X	Y
63	10 to 50	5	46	3.2	95	91.5	113	16.2	9
	75, 100								
80	10 to 50	7	59	4.5	118	114	140	19.5	11
	75, 100								
100	10 to 50	7	71	6	137	136	162	23	12.5
	75, 100								

Foot bracket material: Carbon steel  
Surface treatment: Nickel plated

#### Compact Foot

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L <sub>1</sub>	LD
		A	B	LS	A	B	LS			
63	10 to 50	100.4	46	82.4	110.4	56	92.4	18	43.5	11
	75, 100	110.4	56	92.4						
80	10 to 50	120.5	53.5	98.5	130.5	63.5	108.5	20	53.5	13
	75, 100	130.5	63.5	108.5						
100	10 to 50	136	63	111	146	73	121	22	53.5	13
	75, 100	146	73	121						

Bore size (mm)	Stroke range (mm)	LH	LT	LX	LY	LZ	X	Y
63	10 to 50	46	3.2	60	91.5	77	18.2	9
	75, 100							
80	10 to 50	59	4.5	77	114	98	22.5	11
	75, 100							
100	10 to 50	71	6	94	136	117	24	12.5
	75, 100							

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

#### Rod Flange

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ
		A	B	A	B					
63	10 to 50	64	46	74	56	9	9	80	92	108
	75, 100	74	56							
80	10 to 50	73.5	53.5	83.5	63.5	11	11	99	116	134
	75, 100	83.5	63.5							
100	10 to 50	85	63	95	73	11	11	117	136	154
	75, 100	95	73							

Bore size (mm)	Stroke range (mm)	L	L <sub>1</sub>	M
63	10 to 50	18	43.5	60
	75, 100			
80	10 to 50	20	53.5	77
	75, 100			
100	10 to 50	22	53.5	94
	75, 100			

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

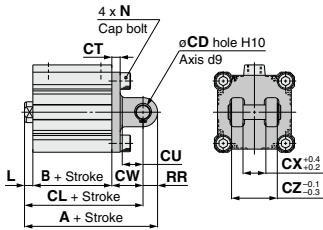
#### Head Flange

Bore size (mm)	Stroke range (mm)	Without auto switch	With auto switch	L	L <sub>1</sub>
		A	A		
63	10 to 50	63	73	8	33.5
	75, 100	73			
80	10 to 50	74.5	84.5	10	43.5
	75, 100	84.5			
100	10 to 50	86	96	12	43.5
	75, 100	96			

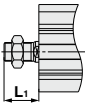
(\* The dimensions except A, L and L<sub>1</sub> are the same as those of the rod flange.)  
Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

\* For details about the rod end nut and accessory brackets, refer to pages 796 to 798.

**Double clevis: CQ2DS/CDQ2DS**



**Rod end male thread**



**Double Clevis**

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			(mm)		
		A	B	CL	A	B	CL	CD	CT	CU
63	10 to 50	98	46	84						
	75, 100	108	56	94	108	56	94	14	8	20
80	10 to 50	119.5	53.5	101.5						
	75, 100	129.5	63.5	111.5	129.5	63.5	111.5	18	10	27
100	10 to 50	142	63	120						
	75, 100	152	73	130	152	73	130	22	13	31

Bore size (mm)	Stroke range (mm)	CW	CX	CZ	L	L <sub>1</sub>	N	RR
63	10 to 50							
	75, 100	30	22	44	8	33.5	M10 x 1.5	14
80	10 to 50							
	75, 100	38	28	56	10	43.5	M12 x 1.75	18
100	10 to 50							
	75, 100	45	32	64	12	43.5	M12 x 1.75	22

Double clevis bracket material: Cast iron  
Surface treatment: Painted

- \* For details about the rod end nut and accessory brackets, refer to pages 796 to 798.
- \* Double clevis pin and retaining rings are included.

**CUJ**

**CU**

**CQS**

**JCQ**

**CQ2**

**RQ**

**CQM**

**CQU**

**MU**

**D-□**

**-X□**

Technical Data