

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
ø12 to ø25

Without auto switch
ø32 to ø100

With auto switch

CQ2 **B** **20** **-30D** **—**

CQ2 **B** **32** **-30D** **Z** **—**

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

Mounting

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

* Mounting brackets are shipped together, (but not assembled).
* Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for C(D)Q2B" on pages 5 and 10.

Type

Nil	Pneumatic
H	Air-hydro Note 1)

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

Nil	M thread	ø12 to ø25
RC	Rc	
TN	NPT	ø32 to ø100
TF	G	
F	Built-in one-touch fittings Note 2)	

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.

Auto switch

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

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.

Number of auto switches

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

Made to Order
Refer to the next page for details.

Action

D Double acting

Cylinder stroke (mm)

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

Body option

Nil	Standard (Rod end female thread)
F	With boss on head end
C	With rubber bumper Note 4)
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.

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

Refer to pages 1263 to 1371 in Best Pneumatics No. 2 for further information on auto switches.
Applicable Auto Switches/Refer to the individual catalog (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 (Nil)	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	●	●	●	○	—	○			
	3-wire (NPN)			M9NWV				M9NW	●	●	●	○	—	○	IC circuit		
	3-wire (PNP)			M9PWV				M9PW	●	●	●	○	—	○			
	2-wire			M9BWW				M9BW	●	●	●	○	—	○			
	3-wire (NPN)			M9NAV**				M9NA**	○	○	●	○	—	○	IC circuit		
	3-wire (PNP)			M9PAV**				M9PA**	○	○	●	○	—	○			
	2-wire			M9BAV**				M9BA**	○	○	●	○	—	○			
	Magnetic field resistant (2-color indication)			2-wire (Non-polar)				—	—	—	P3DW	●	—	●	●	—	
Reed auto switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	—
			No	2-wire	24 V	5 V,12 V	100 V or less	A93V	A93	●	—	●	—	—	—	—	—
								A90V	A90	●	—	●	—	—	—	IC circuit	

* 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 156)

* Lead wire length symbols: 0.5 m Nil (Example) M9NV
1 m M (Example) M9NW
3 m L (Example) M9NL
5 m Z (Example) M9NZ

* 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 175.

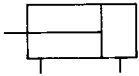
* For details about auto switches with pre-wired connector, refer to pages 1328 and 1329 in Best Pneumatics No. 2.

Compact Cylinder: Standard Double Acting, Single Rod *Series CQ2*



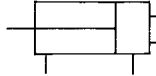
JIS Symbol

Double acting,
Single rod



Symbol

With boss on
head end



Made to Order

(For details, refer to pages 177 to 207.)

Symbol	Specifications
-XA□	Special rod end shape
-XB6	Heat resistant cylinder (-10 to 150°C) w/o auto switch only
-XB7	Cold resistant cylinder (-40 to 70°C) w/o auto switch only
-XB9	Low-speed cylinder (10 to 50 mm/s)
-XB10	Intermediate stroke (Exclusive body type)
-XB10A	Intermediate stroke (Spacer-installed type)
-XB11	Long stroke (Air-hydro type only)
-XB13	Low-speed cylinder (5 to 50 mm/s)
-XB14	Cylinder with heat resistant auto switch ø16 to ø63 only
-XC4	With heavy-duty scraper, ø20 to ø100 only
-XC6	Piston rod/Retaining ring/Rod end nut material: Stainless steel
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC10	Dual stroke cylinder/Double rod
-XC11	Dual stroke cylinder/Single rod
-XC26	With split pins for double clevis pin/ double knuckle joint pin and flat washers
-XC27	Double clevis pin/Double knuckle joint pin material: Stainless steel 304
-XC35	With coil scraper, ø32 to ø100 only
-XC36	With boss on rod end
-X144	Special port location, with auto switch ø12 to ø25 only
-X202	Full length dimension is the same as Series CQ1, Except ø16, ø25.
-X203	L dimension from rod cover is the same as Series CQ1, ø20, ø32 only.
-X271	Fluororubber seals
-X525	Long stroke of adjustable extension stroke cylinder (-XC8)
-X526	Long stroke of adjustable retraction stroke cylinder (-XC9)
-X636	Long stroke of dual stroke single rod cylinder
-X1876	Cylinder tube: With concave boss on head end

Note) -XB14: The body shape is the same as the existing product.

Refer to pages 169 to 175 for the specifications of cylinders with auto switches.

- 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.

Specifications

Pneumatic type

Bore size (mm)		12	16	20	25	32	40	50	63	80	100
Action		Double acting, Single rod									
Fluid		Air									
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)									
Lubrication		Not required (Non-lube)									
Piston speed		50 to 500 mm/s									
Allowable kinetic energy (J)	Standard	0.022	0.038	0.055	0.09	0.15	0.26	0.46	0.77	1.36	2.27
	With rubber bumper	0.043	0.075	0.11	0.18	0.29	0.52	0.91	1.54	2.71	4.54
Stroke length tolerance		+1.0 mm (Note) 0									

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

Air-hydro type

Bore size (mm)	20	25	32	40	50	63	80	100
Action	Double acting, Single rod							
Fluid	Turbine oil ^{Note)}							
Proof pressure	1.5 MPa							
Maximum operating pressure	1.0 MPa							
Minimum operating pressure	0.18 MPa				0.1 MPa			
Ambient and fluid temperature	5 to 60°C							
Piston speed	5 to 50 mm/s							
Cushion	None							
Stroke length tolerance	+1.0 mm 0							

Note) Refer to "Handling Precautions for SMC Products" (M-E03-3) for Actuator Precautions (5).

Standard Strokes

Pneumatic type

Bore size	Standard stroke (mm)
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50 to 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

- For long strokes exceeding the standard stroke range, refer to page 69.
- For intermediate strokes, refer to page 3.

Air-hydro type

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

Mounting Brackets/Part No.

Bore size (mm)	Model	Foot (Note 1)	Flange	Double clevis
12	Without switch	CQ2□□-□D	CQ-F012	CQ-D012
	With switch	CQ2□□-□DZ		
16	Without switch	CQ2□□-□D	CQ-F016	CQ-D016
	With switch	CQ2□□-□DZ		
20	Without switch	CQ2□□-□D	CQ-F020	CQ-D020
	With switch	CQ2□□-□DZ		
25	Without switch	CQ2□□-□D	CQ-F025	CQ-D025
	With switch	CQ2□□-□DZ		
32	CQ2□□-□DZ	CQ-L032	CQ-F032	CQ-D032
40	CQ2□□-□DZ	CQ-L040	CQ-F040	CQ-D040
50	CQ2□□-□DZ	CQ-L050	CQ-F050	CQ-D050
63	CQ2□□-□DZ	CQ-L063	CQ-F063	CQ-D063
80	CQ2□□-□DZ	CQ-L080	CQ-F080	CQ-D080
100	CQ2□□-□DZ	CQ-L100	CQ-F100	CQ-D100

Note 1) When ordering a foot bracket, the required quantity will be different depending on the bore size.
ø12 to ø25:

- Without switch: Order 2 pieces per cylinder.
 - With switch: Order 1 piece per cylinder. (Part number for a set of 2 foot brackets)
- ø32 to ø100:
- Order 2 pieces per cylinder.

Note 2) Parts belonging to each bracket are as follows.

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

Manufacture of Intermediate Strokes (Except air-hydro type)

1. Spacer-installed type 1: Standard model number

Intermediate stroke with ○: Available in 1 mm intervals

A spacer is installed on tubes with a stroke longer than the specified stroke (◆).

◆: Standard stroke

Bore size (mm)	Stroke range	Type	Stroke																	
			5	10	15	20	25	30	35	40	45	50	75	100						
12, 16	1 to 29	Spacer-installed type 1	○	◆	○	◆	○	◆	○	◆	○	◆								
20, 25	1 to 49		○	◆	○	◆	○	◆	○	◆	○	◆								
32, 40	1 to 99		○	◆	○	◆	○	◆	○	◆	○	◆								
50 to 100	1 to 99		○	◆	○	◆	○	◆	○	◆	○	◆								

Ordering example (when ordering ø32-57 mm stroke (with through-hole (standard), without switch)

Type	1. Spacer-installed type 1
Part no.	Standard model number
Order no.	CQ2B32-57DZ (uses 75 mm stroke tube) • CQ2B32-75DZ with 18 mm width spacer inside • The B dimension is 108 mm.

2. Spacer-installed type 2: Suffix “-XB10A”

Intermediate stroke with ○: Available in 1 mm intervals

A spacer is installed on tubes with a stroke longer than the specified stroke (●).

◆: Standard stroke ●: Stroke in stock

Bore size (mm)	Stroke range	Type	Stroke													
			55	60	65	70	75	80	85	90	95	100				
32, 40	51 to 94	Spacer-installed type 2	○	●	○	●	○	●	○	●	○	●				
50 to 100	51 to 94		○	●	○	●	○	●	○	●	○	●				

Ordering example (when ordering ø32-57 mm stroke (with through-hole (standard), without switch)

Type	2. Spacer-installed type 2
Part no.	Suffix “-XB10A” to the end of model number.
Order no.	CQ2B32-57DZ-XB10A (uses 60 mm stroke tube) • CQ2B32-60DZ-XB10 with 3 mm width spacer inside • The B dimension is 93 mm.

Note) Specify a spacer-installed type 1 with standard model number for ordering an intermediate stroke with a * mark. Refer to page 186 for details.

3. Exclusive body type: Suffix “-XB10”

Available in 1 mm intervals

Exclusive body can be manufactured for specified stroke upon request.

Bore size (mm)	Stroke range	Type
12, 16	6 to 29	Exclusive body
20, 25	6 to 49	
32, 40	6 to 99	
50 to 100	11 to 99	

Note) In the case of exclusive body type with ø32 to ø100 (-XB10) with the stroke length exceeding 50 mm, reference values of the longitudinal dimension (A/B dimension) will be the same as those with auto switch. Refer to page 185 for details.

Ordering example

(when ordering ø32-57 mm stroke (with through-hole (standard), without switch)

Type	3. Exclusive body type
Part no.	Suffix “-XB10” to the end of model number.
Order no.	CQ2B32-57DZ-XB10 (uses 57 mm stroke tube) • Makes 57 mm stroke tube. • The B dimension is 90 mm.

For 55, 60, 65, 70, 80, 85, 90, and 95 stroke, exclusive bodies are kept in inventory, enabling shorter delivery times.

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.

Mounting

⚠ Caution

The CQ2 series compact cylinders are designed to create compact mechanical equipment and promote space saving. Thus, if it is used in the same manner as conventional cylinders such as tie-rod cylinders, it may degrade the performance. Pay sufficient attention to the operating conditions when using.

Mounting

⚠ Caution

1. Allowable lateral load

Lateral load that can apply to the piston rod end is limited. If a cylinder is used with a lateral load over the limit, it may cause air leakage due to abnormal friction of seals, galling of cylinder tubes and pistons, or abnormal friction of the bearing part. The lateral load applied to the piston rod must be within the allowable range indicated in this catalog. When the load exceeds the limit, use a double rod cylinder, install a guide, or change the bore size to suit the load in order to make the load within the allowable range. As a standard product, an anti-lateral load type cylinder that is resistant to approx. 2 times more than the conventional compact CQ2 series is also available (page 128).

2. Connection with a work piece

When a work piece is mounted on the piston rod end, connect them aligning the center of piston rod and a work piece. If they are off-center, lateral load is generated and phenomena mentioned in (1) may occur. In order not to apply the off-center load, use of a floating joint or simple joint is recommended.

3. Simultaneous use of multiple cylinders

It is difficult to control the speed of pneumatic cylinders. The following conditions cause speed change: change in supply pressure, load, temperature and lubrication, performance difference of each cylinder, deterioration of each part over time, etc. A speed controller can be used to control the speed of multiple cylinders simultaneously for a short period of time, but depending on conditions, it may not work as desired. If multiple cylinders cannot operate simultaneously, unreasonable force is applied to the piston rod because cylinder positions may not be the same. This may cause abnormal friction of seals and bearings, and galling of cylinder tubes and pistons. Do not use an application to operate several cylinders simultaneously by adjusting cylinder speed. If this is inevitable, use a high rigid guide against load, so that the cylinder is not damaged even when the each cylinder output is slightly different.

Allowable Kinetic Energy

Load Mass and Piston Speed

Bore size (mm)	12	16	20	25	32	40	50	63	80	100
Standard/ Allowable kinetic energy: Ea	0.022	0.038	0.055	0.09	0.15	0.26	0.46	0.77	1.36	2.27
With rubber bumper/ Allowable kinetic energy: Eb	0.043	0.075	0.110	0.18	0.29	0.52	0.91	1.54	2.71	4.54

$$\text{Kinetic energy } E \text{ (J)} = \frac{(m_1 + m_2) V^2}{2}$$

m1: Mass of cylinder movable parts kg
m2: Load mass kg
V: Piston speed m/s

Mass of Cylinder Movable Parts/Without Built-in Magnet (g)

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	5	6	7	8	10	11	—	—	—	—	—	—
16	9	11	13	15	17	19	—	—	—	—	—	—
20	15	18	21	24	27	31	34	37	40	44	—	—
25	24	28	33	37	42	46	51	55	60	64	—	—
32	45	52	60	68	76	84	92	100	107	115	170	209
40	64	72	80	88	96	104	112	119	127	135	190	229
50	—	117	129	141	153	166	178	190	202	214	300	361
63	—	153	165	177	190	202	214	226	239	251	337	398
80	—	270	289	308	327	347	366	385	404	423	557	653
100	—	487	515	543	570	598	625	653	681	708	901	1038

Mass of Cylinder Movable Parts/With Built-in Magnet (g)

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	8	9	10	11	12	13	—	—	—	—	—	—
16	16	18	20	22	24	26	—	—	—	—	—	—
20	28	31	34	37	40	44	47	50	53	56	—	—
25	44	48	53	57	62	66	71	75	80	84	—	—
32	78	86	93	101	109	117	125	133	140	148	187	227
40	109	117	125	133	140	148	156	164	172	180	219	258
50	—	187	199	211	223	236	248	260	272	285	346	407
63	—	254	266	278	290	303	315	327	339	352	413	474
80	—	433	453	472	491	510	530	549	568	587	683	778
100	—	741	768	796	823	851	879	906	934	962	1099	1236

Additional Mass of Cylinder Movable Parts

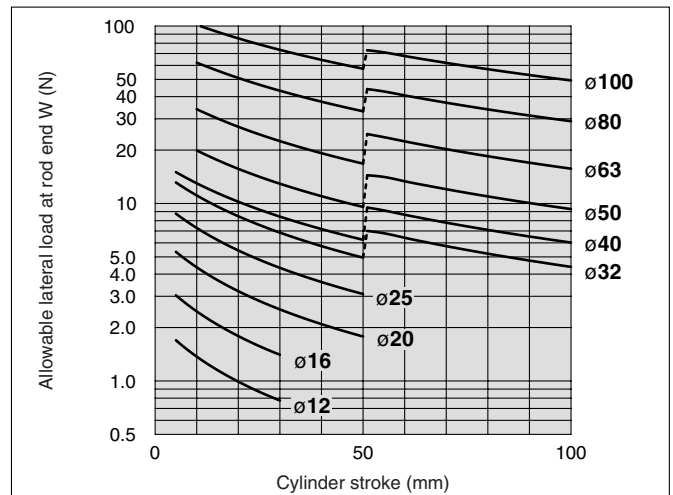
Bore size (mm)		12	16	20	25	32	40	50	63	80	100
Rod end male thread	Male thread	1.5	3	6	12	26	27	53	53	120	175
	Nut	1	2	4	8	17	17	32	32	49	116
With rubber bumper		0	0	-2	-3	-3	-7	-9	-18	-31	-56

Calculation: (Example) **CDQ2B32-20DCMZ**

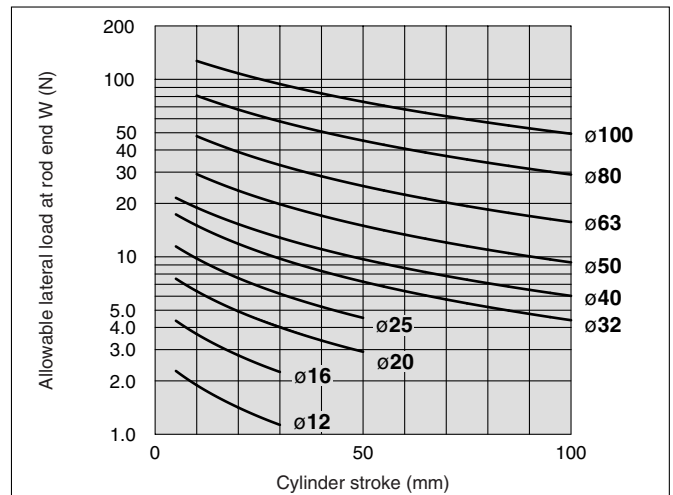
- Basic mass: CDQ2B32-20DCMZ 101 g
- Additional mass: Rod end male thread 43 g
- With rubber bumper -3 g
- 141 g

Allowable Lateral Load at Rod End

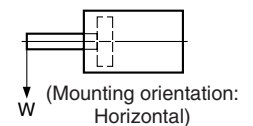
Without Auto Switch



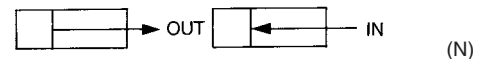
With Auto Switch



If an allowable lateral load at rod end is exceeding the value in the graph, we recommend anti-lateral load type cylinder be used.



Theoretical Output



Bore size (mm)	Operating direction	Operating pressure (MPa)		
		0.3	0.5	0.7
12	IN	25	42	59
	OUT	34	57	79
16	IN	45	75	106
	OUT	60	101	141
20	IN	71	118	165
	OUT	94	157	220
25	IN	113	189	264
	OUT	147	245	344
32	IN	181	302	422
	OUT	241	402	563
40	IN	317	528	739
	OUT	377	628	880
50	IN	495	825	1150
	OUT	589	982	1370
63	IN	841	1400	1960
	OUT	935	1560	2180
80	IN	1360	2270	3170
	OUT	1510	2510	3520
100	IN	2140	3570	5000
	OUT	2360	3930	5500

Series CQ2

Weight

Weight

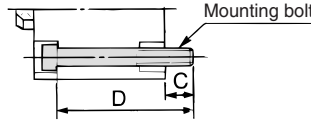
Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	29	35	41	47	54	60	—	—	—	—	—	—
16	42	50	59	67	76	84	—	—	—	—	—	—
20	63	75	88	101	114	127	140	152	165	178	—	—
25	86	100	115	129	144	158	173	187	202	216	—	—
32	125	145	165	184	204	224	244	263	283	303	448	547
40	187	208	230	251	273	294	315	337	358	380	552	664
50	—	339	372	405	438	471	504	537	570	603	872	1043
63	—	480	518	556	594	632	670	708	746	784	1112	1308
80	—	916	976	1036	1097	1157	1217	1277	1338	1398	1917	2215
100	—	1608	1688	1768	1849	1929	2010	2090	2170	2251	2982	3391

Mounting Bolt for CQ2B/Without Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CQ2B is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

Example) CQ-M3x25L 4 pcs.

Material: Chromium molybdenum steel
Surface treatment: Nickel plated



Additional Weight

Bore size (mm)	12	16	20	25	32	40	50	63	80	100
Both ends tapped	2	2	6	6	6	6	6	19	45	45
Rod end male thread	1.5	3	6	12	26	27	53	53	120	175
Nut	1	2	4	8	17	17	32	32	49	116
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)	55	67	164	186	142	154	243	317	683	1052
Rod flange (Including mounting bolts)	57	69	139	161	180	214	373	559	1056	1365
Head flange (Including mounting bolts)	54	65	133	152	165	198	348	534	1017	1309
Double clevis (Including pin, retaining rings, bolts)	32	39	88	123	151	196	393	554	1109	1887

Calculation: (Example) CQ2D32-20DCMZ

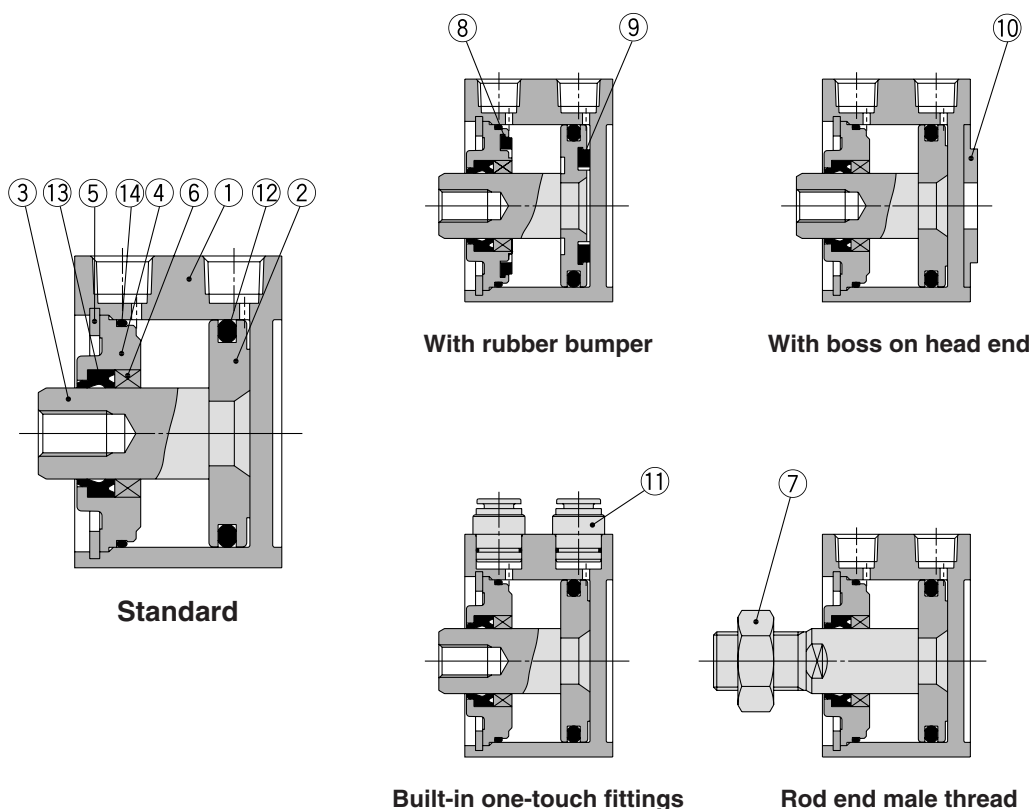
- Basic weight: CQ2B32-20DZ 184 g
- Additional weight: Both ends tapped 6 g
- Rod end male thread 43 g
- With rubber bumper 3 g
- Double clevis 151 g
- 381 g

Cylinder model	C	D	Mounting bolt part no.
CQ2B12-5D	6.5	25	CQ-M3 x 25L
-10D		30	x 30L
-15D		35	x 35L
-20D		40	x 40L
-25D		45	x 45L
-30D		50	x 50L
CQ2B16-5D	5	25	CQ-M3 x 25L
-10D		30	x 30L
-15D		35	x 35L
-20D		40	x 40L
-25D		45	x 45L
-30D		50	x 50L
CQ2B20-5D	7.5	25	CQ-M5 x 25L
-10D		30	x 30L
-15D		35	x 35L
-20D		40	x 40L
-25D		45	x 45L
-30D		50	x 50L
-35D		55	x 55L
-40D		60	x 60L
-45D	9.5	65	x 65L
-50D		70	x 70L
CQ2B25-5D		30	CQ-M5 x 30L
-10D		35	x 35L
-15D		40	x 40L
-20D		45	x 45L
-25D		50	x 50L
-30D		55	x 55L
-35D		60	x 60L
-40D		65	x 65L
-45D		70	x 70L
-50D		75	x 75L
CQ2B32-5DZ	9	30	CQ-M5 x 30L
-10DZ		35	x 35L
-15DZ		40	x 40L
-20DZ		45	x 45L
-25DZ		50	x 50L
-30DZ		55	x 55L
-35DZ		60	x 60L
-40DZ		65	x 65L
-45DZ		70	x 70L
-50DZ		75	x 75L
-55DZ-XB10		90	x 90L
-60DZ-XB10		95	x 95L
-65DZ-XB10		100	x 100L
-70DZ-XB10		105	x 105L
-75DZ		110	x 110L
-80DZ-XB10		115	x 115L
-85DZ-XB10		120	x 120L
-90DZ-XB10		125	x 125L
-95DZ-XB10		130	x 130L
-100DZ		135	x 135L

Cylinder model	C	D	Mounting bolt part no.
CQ2B40-5DZ	7.5	35	CQ-M5 x 35L
-10DZ		40	x 40L
-15DZ		45	x 45L
-20DZ		50	x 50L
-25DZ		55	x 55L
-30DZ		60	x 60L
-35DZ		65	x 65L
-40DZ		70	x 70L
-45DZ		75	x 75L
-50DZ		80	x 80L
-55DZ-XB10		95	x 95L
-60DZ-XB10		100	x 100L
-65DZ-XB10		105	x 105L
-70DZ-XB10		110	x 110L
-75DZ		115	x 115L
-80DZ-XB10	12.5	120	x 120L
-85DZ-XB10		125	x 125L
-90DZ-XB10		130	x 130L
-95DZ-XB10		135	x 135L
-100DZ		140	x 140L
CQ2B50-10DZ		45	CQ-M6 x 45L
-15DZ		50	x 50L
-20DZ		55	x 55L
-25DZ		60	x 60L
-30DZ		65	x 65L
-35DZ		70	x 70L
-40DZ		75	x 75L
-45DZ		80	x 80L
-50DZ		85	x 85L
-55DZ-XB10		100	x 100L
-60DZ-XB10		105	x 105L
-65DZ-XB10		110	x 110L
-70DZ-XB10		115	x 115L
-75DZ	14.5	120	x 120L
-80DZ-XB10		125	x 125L
-85DZ-XB10		130	x 130L
-90DZ-XB10		135	x 135L
-95DZ-XB10		140	x 140L
-100DZ		145	x 145L
CQ2B63-10DZ		50	CQ-M8 x 50L
-15DZ		55	x 55L
-20DZ		60	x 60L
-25DZ		65	x 65L
-30DZ		70	x 70L
-35DZ		75	x 75L
-40DZ		80	x 80L
-45DZ		85	x 85L
-50DZ		90	x 90L
-55DZ-XB10		105	x 105L
-60DZ-XB10		110	x 110L
-65DZ-XB10		115	x 115L
-70DZ-XB10		120	x 120L
-75DZ		125	x 125L
-80DZ-XB10		130	x 130L
-85DZ-XB10		135	x 135L
-90DZ-XB10		140	x 140L
-95DZ-XB10		145	x 145L
-100DZ		150	x 150L

Cylinder model	C	D	Mounting bolt part no.
CQ2B80-10DZ	15	55	CQ-M10 x 55L
-15DZ		60	x 60L
-20DZ		65	x 65L
-25DZ		70	x 70L
-30DZ		75	x 75L
-35DZ		80	x 80L
-40DZ		85	x 85L
-45DZ		90	x 90L
-50DZ		95	x 95L
-55DZ-XB10		110	x 110L
-60DZ-XB10		115	x 115L
-65DZ-XB10		120	x 120L
-70DZ-XB10		125	x 125L
-75DZ		130	x 130L
-80DZ-XB10		135	x 135L
-85DZ-XB10	15.5	140	x 140L
-90DZ-XB10		145	x 145L
-95DZ-XB10		150	x 150L
-100DZ		155	x 155L
CQ2B100-10DZ		65	CQ-M10 x 65L
-15DZ		70	x 70L
-20DZ		75	x 75L
-25DZ		80	x 80L
-30DZ		85	x 85L
-35DZ		90	x 90L
-40DZ		95	x 95L
-45DZ		100	x 100L
-50DZ		105	x 105L
-55DZ-XB10		120	x 120L
-60DZ-XB10		125	x 125L
-65DZ-XB10		130	x 130L
-70DZ-XB10		135	x 135L
-75DZ		140	x 140L
-80DZ-XB10		145	x 145L
-85DZ-XB10		150	x 150L
-90DZ-XB10		155	x 155L
-95DZ-XB10		160	x 160L
-100DZ		165	x 165L

Construction



Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
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, Anodized
		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	Rod end nut	Carbon steel	Nickel plated
8	Bumper A	Urethane	

No.	Description	Material	Note
9	Bumper B	Urethane	
10	Centering location ring	Aluminum alloy	ø20 to ø100, Hard anodized
11	One-touch fitting	—	ø32 to ø63
12	Piston seal	NBR	
13	Rod seal	NBR	
14	Gasket	NBR	

Replacement Parts/Seal Kit (Pneumatic type)

Bore size (mm)	Kit no.	Contents
12	CQ2B12-PS	Kits include items 12, 13, 14 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	

* Seal kit includes 12, 13, 14. 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)

Replacement Parts/Seal Kit (Air-hydro type)

Bore size (mm)	Kit no.	Contents
20	CQ2BH20-PS	Kits include items 12, 13, 14 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 12, 13, 14. 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)

Series CQ2

Clean Series

10 – **C** ☐ **Q2B** **Bore size** – **Stroke** **D(M)Z**^{*1}

^{*1} “Z” is not available for ø12 to ø25 without auto switches.

• **Clean series**

10	Relief type
11	Vacuum type

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

Applicable for using inside the clean room graded Class 100 by making an actuator's rod section a double seal construction and discharging by relief port directly to the outside of clean room.



Specifications

Bore size (mm)	12	16	20	25	32	40	50	63	80	100
Action	Double acting, Single rod									
Proof pressure	1.5 MPa									
Maximum operating pressure	1.0 MPa									
Cushion	None ^{Note)}									
Piston speed	30 to 400 mm/s								30 to 300 mm/s	
Mounting	Through-hole									

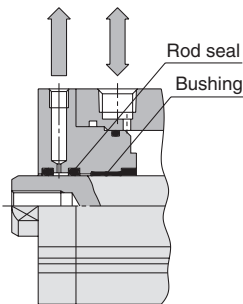
Note) ø12 with auto switch: With rubber bumper (Standard)

For details, refer to the separate catalog (CAT.E02-23), “Pneumatics Equipment for Clean Room.”

Construction

10-CQ2 series (Double seal)

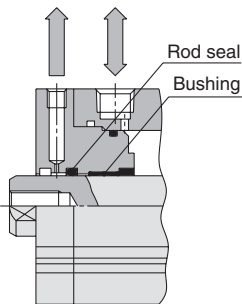
Relief port



A relief port is provided in the area between the double rod seals to discharge the exhaust air outside of the clean room. Thus, the amount of dust generated has been reduced to 1/20 of that of an ordinary cylinder.

11-CQ2 series (Single seal, Vacuum suction)

Vacuum port
(Vacuum suction)



Structurally identical to the “10-” series, the outer rod seal has been removed to evacuate through the vacuum port. This draws out any external air from the clearance between the rod and the cover to practically eliminate the generation of external dust. This should be used in an application that requires an even higher level of cleanliness than the 10- series.

Copper and Fluorine-free Series (For CRT Manufacturing Process)

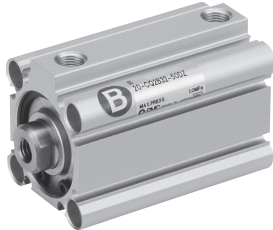
20-C□Q2B Bore size - Stroke **D(C)(M)Z^{*1}**

*1 "Z" is not available for ø12 to ø25 without auto switches.

• Copper and fluorine-free series

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

For preventing the influence of copper ions or halogen ions during CRT manufacturing processes, copper and fluorine materials are not used in the component parts.



Specifications

Bore size (mm)	12	16	20	25	32	40	50	63	80	100
Action	Double acting, Single rod									
Proof pressure	1.5 MPa									
Maximum operating pressure	1.0 MPa									
Cushion	None/Rubber bumper									
Piston speed	50 to 500 mm/s									
Mounting	Through-hole/Both ends tapped									

Water Resistant

Refer to pages 156 to 168 for details.

CDQ2 Mounting Bore size R - Stroke **D** Option **Z^{*2}** - **M9BAL** - **XC6** Suffix

• With auto switch
(Built-in magnet)

• Water resistant cylinder
R NBR seals (Nitrile rubber)
V FKM seals (Fluororubber)

• Water resistant
2-color indication
solid state auto switch

• Made to Order

• Suffix

Ideal for use under the atmosphere having coolant for machine tools, etc.
Compatible for the environment, where waterdrops are splashed around the food processing machinery and the car washers, etc.



Nil	Piston rod/Retaining ring/Rod end nut material: Stainless steel
A	Piston rod/Rod end nut/Cover holding bolt material: Stainless steel

Note) -XC6A: ø20 to ø32 only

*2 "Z" is not available for ø20 and ø25 without auto switches.

Specifications

Bore size (mm)	20	25	32	40	50	63	80	100
Action	Double acting, Single rod							
Cushion	None							
Made to Order	Piston rod/Retaining ring/Rod end nut material: Stainless steel (-XC6)							

* The specifications other than above are the same as those of the standard.
Some dimensions may vary from those of the standard. Refer to page 156 for details.

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.169 to 175
Minimum stroke for auto switch mounting	
Operating range	
Auto switch mounting brackets/Part no.	

Weight

Weight

Bore size (mm)	Cylinder stroke (mm)												(g)
	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

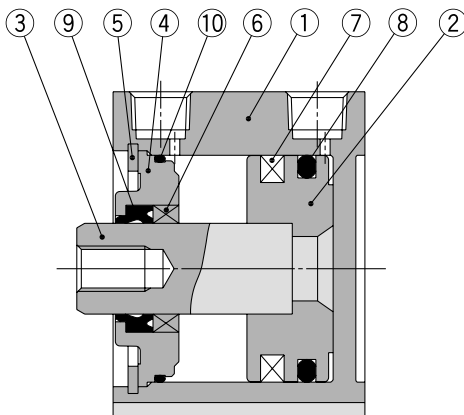
Bore size (mm)	12	16	20	25	32	40	50	63	80	100	(g)
Both ends tapped	1	1	3	3	6	6	6	19	45	45	
Rod end male thread	1.5	3	6	12	26	27	53	53	120	175	
Nut	1	2	4	8	17	17	32	32	49	116	
With boss on head end	0.7	1.3	2	3	5	7	13	25	45	96	
With rubber bumper	0	0	-2	-3	-3	-7	-9	-18	-31	-56	
Built-in one-touch fittings	—	—	—	—	12	12	21	21	—	—	
Foot (Including mounting bolts)	49	62	147	169	142	154	243	317	683	1052	
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 anodized
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, Anodized
		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	

* 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)

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.

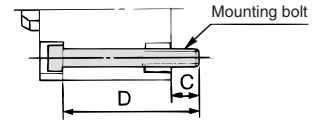
Grease pack part no.: **GR-S-010** (10 g)

Mounting Bolt for CDQ2B/With Auto Switch

Mounting method: Mounting bolt for through-hole mounting of the CDQ2B is available as an option. Refer to the following for ordering procedures. Order the actual number of bolts that will be used.

Example) CQ-M3x35L 2 pcs.

Material: Chromium molybdenum steel
Surface treatment: Nickel plated



Cylinder model	C	D	Mounting bolt part no.
CDQ2B12-5DZ	5.5	35	CQ-M3 x 35L
-10DZ		40	x 40L
-15DZ		45	x 45L
-20DZ		50	x 50L
-25DZ		55	x 55L
-30DZ		65	x 60L
CDQ2B16-5DZ	8	40	CQ-M3 x 40L
-10DZ		45	x 45L
-15DZ		50	x 50L
-20DZ		55	x 55L
-25DZ		60	x 60L
-30DZ		65	x 65L
CDQ2B20-5DZ	10.5	40	CQ-M5 x 40L
-10DZ		45	x 45L
-15DZ		50	x 50L
-20DZ		55	x 55L
-25DZ		60	x 60L
-30DZ		65	x 65L
-35DZ		70	x 70L
-40DZ		75	x 75L
-45DZ		80	x 80L
-50DZ		85	x 85L
CDQ2B25-5DZ	9.5	40	CQ-M5 x 40L
-10DZ		45	x 45L
-15DZ		50	x 50L
-20DZ		55	x 55L
-25DZ		60	x 60L
-30DZ		65	x 65L
-35DZ		70	x 70L
-40DZ		75	x 75L
-45DZ		80	x 80L
-50DZ		85	x 85L
CDQ2B32-5DZ	9	40	CQ-M5 x 40L
-10DZ		45	x 45L
-15DZ		50	x 50L
-20DZ		55	x 55L
-25DZ		60	x 60L
-30DZ		65	x 65L
-35DZ		70	x 70L
-40DZ		75	x 75L
-45DZ		80	x 80L
-50DZ		85	x 85L
-55DZ-XB10		90	x 90L
-60DZ-XB10		95	x 95L
-65DZ-XB10		100	x 100L
-70DZ-XB10		105	x 105L
-75DZ		110	x 110L
-80DZ-XB10		115	x 115L
-85DZ-XB10		120	x 120L
-90DZ-XB10		125	x 125L
-95DZ-XB10		130	x 130L
-100DZ		135	x 135L

Cylinder model	C	D	Mounting bolt part no.
CDQ2B40-5DZ	7.5	45	CQ-M5 x 45L
-10DZ		50	x 50L
-15DZ		55	x 55L
-20DZ		60	x 60L
-25DZ		65	x 65L
-30DZ		70	x 70L
-35DZ		75	x 75L
-40DZ		80	x 80L
-45DZ		85	x 85L
-50DZ		90	x 90L
-55DZ-XB10		95	x 95L
-60DZ-XB10		100	x 100L
-65DZ-XB10		105	x 105L
-70DZ-XB10		110	x 110L
-75DZ		115	x 115L
-80DZ-XB10		120	x 120L
-85DZ-XB10		125	x 125L
-90DZ-XB10		130	x 130L
-95DZ-XB10		135	x 135L
-100DZ		140	x 140L
CDQ2B50-10DZ	12.5	55	CQ-M6 x 55L
-15DZ		60	x 60L
-20DZ		65	x 65L
-25DZ		70	x 70L
-30DZ		75	x 75L
-35DZ		80	x 80L
-40DZ		85	x 85L
-45DZ		90	x 90L
-50DZ		95	x 95L
-55DZ-XB10		100	x 100L
-60DZ-XB10		105	x 105L
-65DZ-XB10		110	x 110L
-70DZ-XB10		115	x 115L
-75DZ		120	x 120L
-80DZ-XB10		125	x 125L
-85DZ-XB10		130	x 130L
-90DZ-XB10		135	x 135L
-95DZ-XB10		140	x 140L
-100DZ		145	x 145L
CDQ2B63-10DZ	14.5	60	CQ-M8 x 60L
-15DZ		65	x 65L
-20DZ		70	x 70L
-25DZ		75	x 75L
-30DZ		80	x 80L
-35DZ		85	x 85L
-40DZ		90	x 90L
-45DZ		95	x 95L
-50DZ		100	x 100L
-55DZ-XB10		105	x 105L
-60DZ-XB10		110	x 110L
-65DZ-XB10		115	x 115L
-70DZ-XB10		120	x 120L
-75DZ		125	x 125L
-80DZ-XB10		130	x 130L
-85DZ-XB10		135	x 135L
-90DZ-XB10		140	x 140L
-95DZ-XB10		145	x 145L
-100DZ		150	x 150L

Cylinder model	C	D	Mounting bolt part no.
CDQ2B80-10DZ	15	65	CQ-M10 x 65L
-15DZ		70	x 70L
-20DZ		75	x 75L
-25DZ		80	x 80L
-30DZ		85	x 85L
-35DZ		90	x 90L
-40DZ		95	x 95L
-45DZ		100	x 100L
-50DZ		105	x 105L
-55DZ-XB10		110	x 110L
-60DZ-XB10		115	x 115L
-65DZ-XB10		120	x 120L
-70DZ-XB10		125	x 125L
-75DZ		130	x 130L
-80DZ-XB10		135	x 135L
-85DZ-XB10		140	x 140L
-90DZ-XB10		145	x 145L
-95DZ-XB10		150	x 150L
-100DZ		155	x 155L
CDQ2B100-10DZ	15.5	75	CQ-M10 x 75L
-15DZ		80	x 80L
-20DZ		85	x 85L
-25DZ		90	x 90L
-30DZ		95	x 95L
-35DZ		100	x 100L
-40DZ		105	x 105L
-45DZ		110	x 110L
-50DZ		115	x 115L
-55DZ-XB10		120	x 120L
-60DZ-XB10		125	x 125L
-65DZ-XB10		130	x 130L
-70DZ-XB10		135	x 135L
-75DZ		140	x 140L
-80DZ-XB10		145	x 145L
-85DZ-XB10		150	x 150L
-90DZ-XB10		155	x 155L
-95DZ-XB10		160	x 160L
-100DZ		165	x 165L

Standard

Large Bore
Size

Long Stroke

Non-rotating
Rod

Axial Piping

Anti-lateral
Load

With End Lock

Water
Resistant

With Auto
Switch

Auto Switch

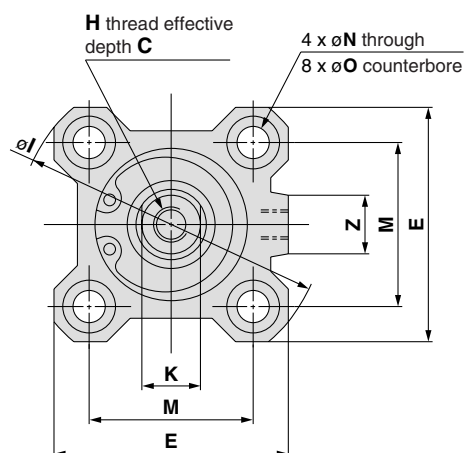
Made to Order

Series CQ2

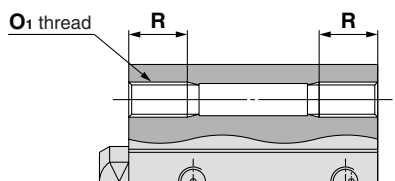
Dimensions

ø12 to ø25/Without Auto Switch

Standard (Through-hole): CQ2B



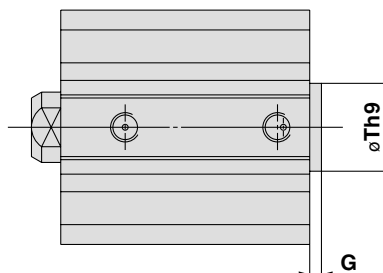
Both ends tapped: CQ2A



Both Ends Tapped (mm)

Bore size (mm)	O ₁	R
12	M4 x 0.7	7
16	M4 x 0.7	7
20	M6 x 1.0	10
25	M6 x 1.0	10

With boss on head end

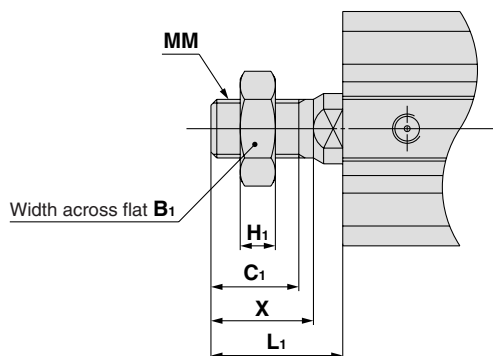


With Boss on Head End (mm)

Bore size (mm)	G	Th9
12	1.5	15 ⁰ _{-0.043}
16	1.5	20 ⁰ _{-0.052}
20	2	13 ⁰ _{-0.043}
25	2	15 ⁰ _{-0.043}

Note 1) With boss on rod end: Option (Suffix "-XC36" to the end of model number.)

Rod end male thread



Rod End Male Thread (mm)

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

Standard

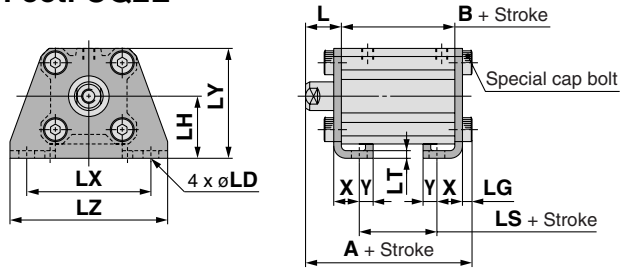
Bore size (mm)	Stroke range (mm)	A	B	C	D	E	F	H	I	K	L	M	N	O	Q	Z
12	5 to 30	20.5	17	6	6	25	5	M3 x 0.5	32	5	3.5	15.5	3.5	6.5 depth 3.5	7.5	—
16	5 to 30	22	18.5	8	8	29	5.5	M4 x 0.7	38	6	3.5	20	3.5	6.5 depth 3.5	8	10
20	5 to 50	24	19.5	7	10	36	5.5	M5 x 0.8	47	8	4.5	25.5	5.5	9 depth 7	9	10
25	5 to 50	27.5	22.5	12	12	40	5.5	M6 x 1.0	52	10	5	28	5.5	9 depth 7	11	10

Note 2) The external dimensions with rubber bumper are same as those of the standard, as shown above.

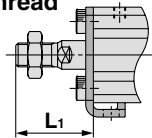
* For details about the rod end nut and accessory brackets, refer to page 19.

Note 3) For calculation on the longitudinal dimension of intermediate strokes, refer to page 3.

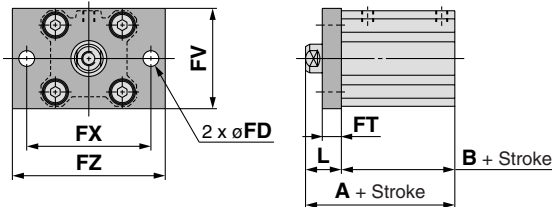
Foot: CQ2L



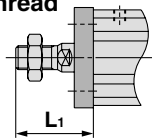
Rod end male thread



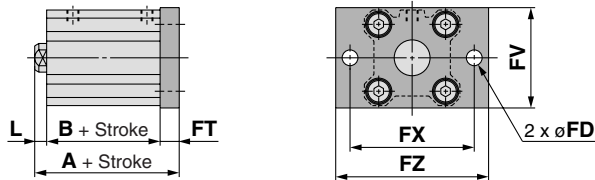
Rod flange: CQ2F



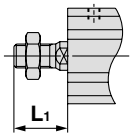
Rod end male thread



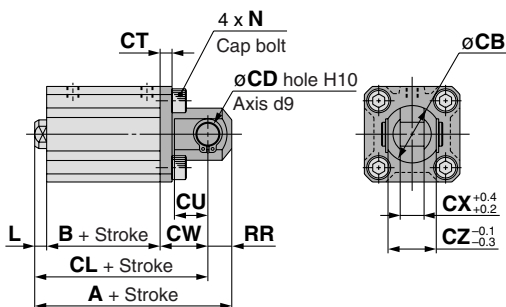
Head flange: CQ2G



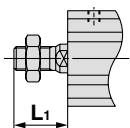
Rod end male thread



Double clevis: CQ2D



Rod end male thread



Foot

Bore size (mm)	Stroke range (mm)	A	B	L	L ₁	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
12	5 to 30	35.3	17	13.5	24	4.5	2.8	17	5	2	34	29.5	44	8	4.5
16	5 to 30	36.8	18.5	13.5	25.5	4.5	2.8	19	6.5	2	38	33.5	48	8	5
20	5 to 50	41.2	19.5	14.5	28.5	6.6	4	24	7.5	3.2	48	42	62	9.2	5.8
25	5 to 50	44.7	22.5	15	32.5	6.6	4	26	7.5	3.2	52	46	66	10.7	5.8

Foot bracket material: Carbon steel
Surface treatment: Nickel plated

Rod Flange

Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV	FX	FZ	L	L ₁
12	5 to 30	30.5	17	4.5	5.5	25	45	55	13.5	24
16	5 to 30	32	18.5	4.5	5.5	30	45	55	13.5	25.5
20	5 to 50	34	19.5	6.6	8	39	48	60	14.5	28.5
25	5 to 50	37.5	22.5	6.6	8	42	52	64	15	32.5

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

Head Flange

Bore size (mm)	Stroke range (mm)	A	L	L ₁
12	5 to 30	26	3.5	14
16	5 to 30	27.5	3.5	15.5
20	5 to 50	32	4.5	18.5
25	5 to 50	35.5	5	22.5

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

Double Clevis

Bore size (mm)	Stroke range (mm)	A	B	CB	CD	CL	CT	CU	CW	CX	CZ	L	L ₁	N	RR
12	5 to 30	40.5	17	12	5	34.5	4	7	14	5	10	3.5	14	M4 x 0.7	6
16	5 to 30	43	18.5	14	5	37	4	10	15	6.5	12	3.5	15.5	M4 x 0.7	6
20	5 to 50	51	19.5	20	8	42	5	12	18	8	16	4.5	18.5	M6 x 1.0	9
25	5 to 50	57.5	22.5	24	10	47.5	5	14	20	10	20	5	22.5	M6 x 1.0	10

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

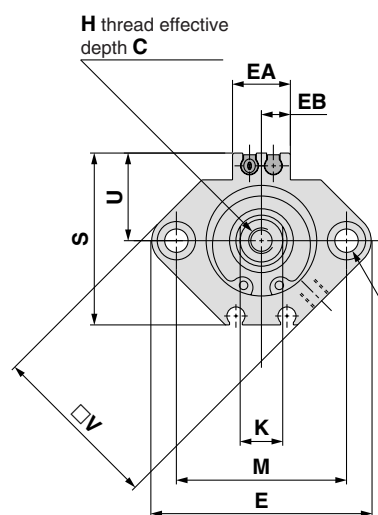
* For details about the rod end nut and accessory brackets, refer to page 19.
* Double clevis pin and retaining rings are included.

Series CQ2

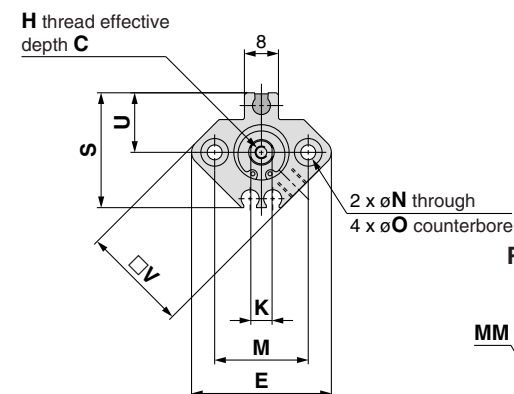
Dimensions

ø12 to ø25/With Auto Switch

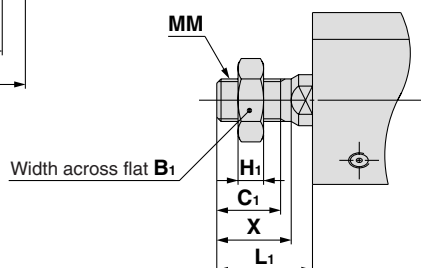
Standard (Through-hole): CDQ2B



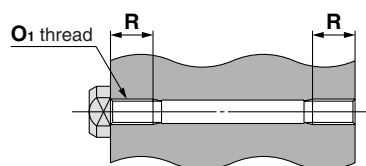
ø16 to ø25



ø12



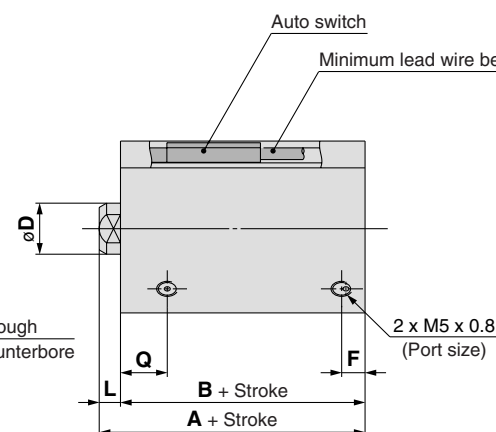
Both ends tapped: CDQ2A



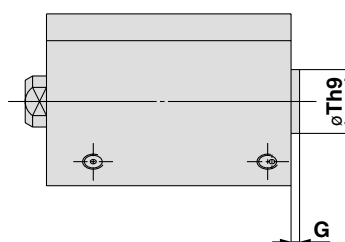
Both Ends

Tapped (mm)

Bore size (mm)	O ₁	R
12	M4 x 0.7	7
16	M4 x 0.7	7
20	M6 x 1.0	10
25	M6 x 1.0	10



With boss on head end



With Boss on Head End (mm)

Bore size (mm)	G	Th9
12	1.5	15 ⁰ _{-0.043}
16	1.5	20 ⁰ _{-0.052}
20	2	13 ⁰ _{-0.043}
25	2	15 ⁰ _{-0.043}

Note 1) With boss on rod end: Option (Suffix "-XC36" to the end of model number.)

Rod End Male Thread (mm)

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

Standard For auto switch proper mounting position and its mounting height, refer to pages 169 to 175.

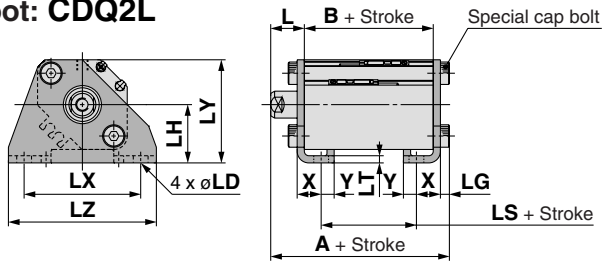
Bore size (mm)	Stroke range (mm)	A	B	C	D	E	EA	EB	F	H	K	L	M	N	O	Q	S	U	V
12	5 to 30	31.5	28	6	6	33	—	—	6.5	M3 x 0.5	5	3.5	22	3.5	6.5 depth 3.5	11	27.5	14	25
16	5 to 30	34	30.5	8	8	37	13.2	6.6	5.5	M4 x 0.7	6	3.5	28	3.5	6.5 depth 3.5	10	29.5	15	29
20	5 to 50	36	31.5	7	10	47	13.6	6.8	5.5	M5 x 0.8	8	4.5	36	5.5	9 depth 7	10.5	35.5	18	36
25	5 to 50	37.5	32.5	12	12	52	13.6	6.8	5.5	M6 x 1.0	10	5	40	5.5	9 depth 7	11	40.5	21	40

Note 2) The external dimensions with rubber bumper are same as those of the standard, as shown above.

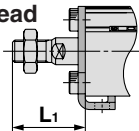
* For details about the rod end nut and accessory brackets, refer to page 19.

Note 3) For calculation on the longitudinal dimension of intermediate strokes, refer to page 3.

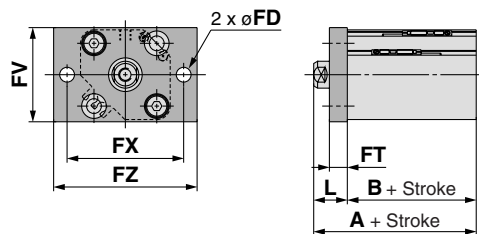
Foot: CDQ2L



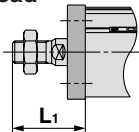
Rod end male thread



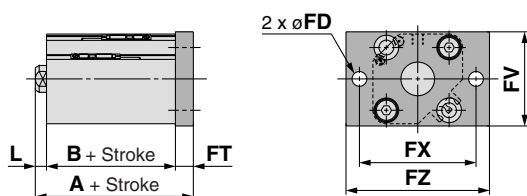
Rod flange: CDQ2F



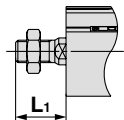
Rod end male thread



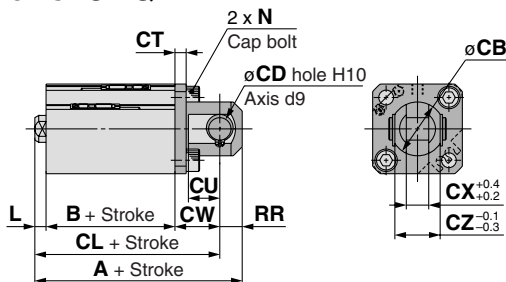
Head flange: CDQ2G



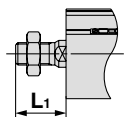
Rod end male thread



Double clevis: CDQ2D



Rod end male thread



Foot

Bore size (mm)	Stroke range (mm)	A	B	L	L ₁	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
12	5 to 30	46.3	28	13.5	24	4.5	2.8	17	16	2	34	29.5	44	8	4.5
16	5 to 30	48.8	30.5	13.5	25.5	4.5	2.8	19	18.5	2	38	33.5	48	8	5
20	5 to 50	53.2	31.5	14.5	28.5	6.6	4	24	19.5	3.2	48	42	62	9.2	5.8
25	5 to 50	54.7	32.5	15	32.5	6.6	4	26	17.5	3.2	52	46	66	10.7	5.8

Foot bracket material: Carbon steel
Surface treatment: Nickel plated

Rod Flange

Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV	FX	FZ	L	L ₁
12	5 to 30	41.5	28	4.5	5.5	25	45	55	13.5	24
16	5 to 30	44	30.5	4.5	5.5	30	45	55	13.5	25.5
20	5 to 50	46	31.5	6.6	8	39	48	60	14.5	28.5
25	5 to 50	47.5	32.5	6.6	8	42	52	64	15	32.5

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

Head Flange

Bore size (mm)	Stroke range (mm)	A	L	L ₁
12	5 to 30	37	3.5	14
16	5 to 30	39.5	3.5	15.5
20	5 to 50	44	4.5	18.5
25	5 to 50	45.5	5	22.5

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

(* The dimensions except A, L and L₁ are the same as those of the rod flange.)

Double Clevis

Bore size (mm)	Stroke range (mm)	A	B	CB	CD	CL	CT	CU	CW	CX	CZ	L	L ₁	N	RR
12	5 to 30	51.5	28	12	5	45.5	4	7	14	5	10	3.5	14	M4 x 0.7	6
16	5 to 30	55	30.5	14	5	49	4	10	15	6.5	12	3.5	15.5	M4 x 0.7	6
20	5 to 50	63	31.5	20	8	54	5	12	18	8	16	4.5	18.5	M6 x 1.0	9
25	5 to 50	67.5	32.5	24	10	57.5	5	14	20	10	20	5	22.5	M6 x 1.0	10

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

* For details about the rod end nut and accessory brackets, refer to page 19.
* Double clevis pin and retaining rings are included.

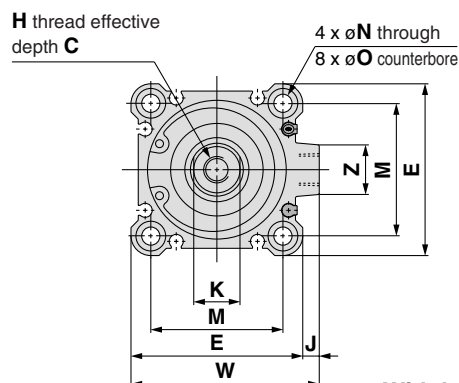
Series CQ2

Dimensions

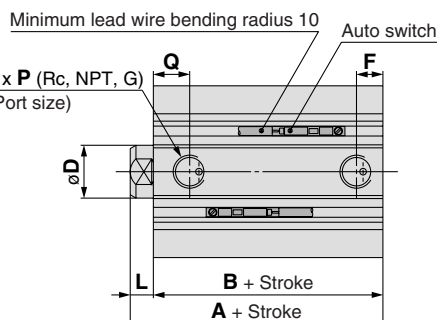
ø32 to ø50/With Auto Switch

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

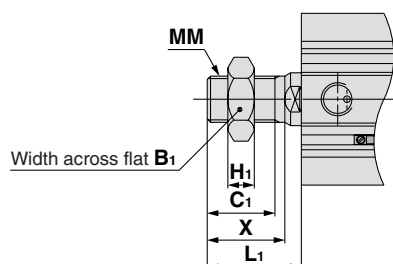
Standard (Through-hole): CQ2B/CDQ2B



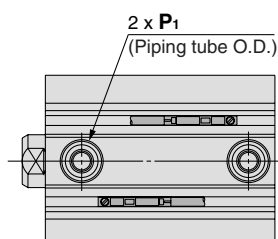
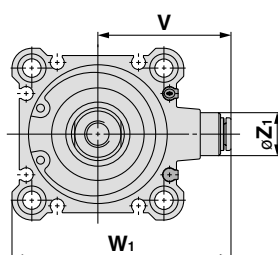
With boss on
head end



Rod end male thread



Built-in one-touch fittings: ø32 to ø50



Standard For auto switch proper mounting position and its mounting height, refer to pages 169 to 175.

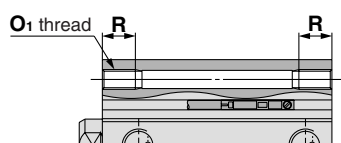
Bore size (mm)	Stroke range (mm)	Without auto switch					With auto switch					C	D	E	H	J	K	L	M	N
		A	B	F	P	Q	A	B	F	P	Q									
32	5	30	23	5.5	M5 x 0.8	11.5	40	33	7.5	1/8	10.5	13	16	45	M8 x 1.25	4.5	14	7	34	5.5
	10 to 50	40	33	7.5	1/8	10.5	40	33	7.5	1/8	10.5	13	16	45	M8 x 1.25	4.5	14	7	34	5.5
	75, 100	40	33	7.5	1/8	10.5	40	33	7.5	1/8	10.5	13	16	45	M8 x 1.25	4.5	14	7	34	5.5
40	5 to 50	36.5	29.5	8	1/8	11	46.5	39.5	8	1/8	11	13	16	52	M8 x 1.25	5	14	7	40	5.5
	75, 100	46.5	39.5	8	1/8	11	46.5	39.5	8	1/8	11	13	16	52	M8 x 1.25	5	14	7	40	5.5
	10 to 50	38.5	30.5	10.5	1/4	10.5	48.5	40.5	10.5	1/4	10.5	15	20	64	M10 x 1.5	7	17	8	50	6.6
50	75, 100	48.5	40.5	10.5	1/4	10.5	48.5	40.5	10.5	1/4	10.5	15	20	64	M10 x 1.5	7	17	8	50	6.6

Bore size (mm)	O	W	Z
32	9 depth 7	49.5	14
40	9 depth 7	57	15
50	11 depth 8	71	19

Note 2) The external dimensions with rubber bumper are same as those of the standard, as shown above.
* For details about the rod end nut and accessory brackets, refer to page 19.

Note 3) For calculation on the longitudinal dimension of intermediate strokes, refer to page 3. The spacer-installed type (Standard, -XB10A) and the exclusive body type (-XB10) are available.

Both ends tapped: CQ2A/CDQ2A



Both Ends Tapped

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

With Boss on Head End

Bore size (mm)	Th9
32	21 ⁰ _{-0.052}
40	28 ⁰ _{-0.052}
50	35 ⁰ _{-0.062}

Note 1) With boss on rod end: Option
(Suffix "-XC36" to the end of
model number.)

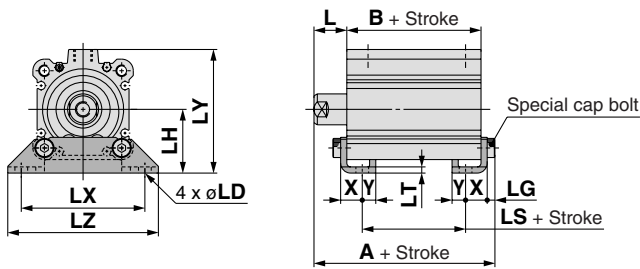
Rod End Male Thread

Bore size (mm)	B ₁	C ₁	H ₁	L ₁	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

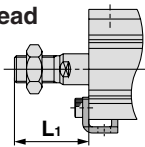
Built-in One-touch Fittings

Bore size (mm)	Z ₁	P ₁	V	W ₁
32	13	6	36.5	59
40	13	6	40.5	66
50	16	8	50	82

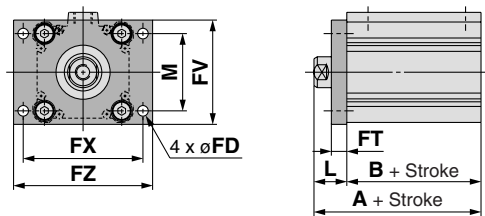
Foot: CQ2L/CDQ2L



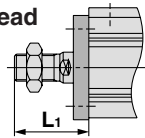
Rod end male thread



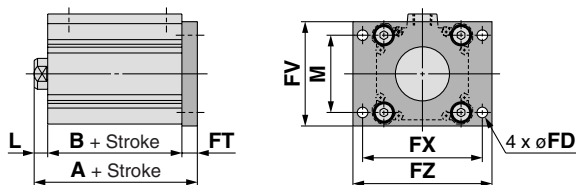
Rod flange: CQ2F/CDQ2F



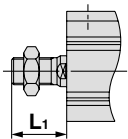
Rod end male thread



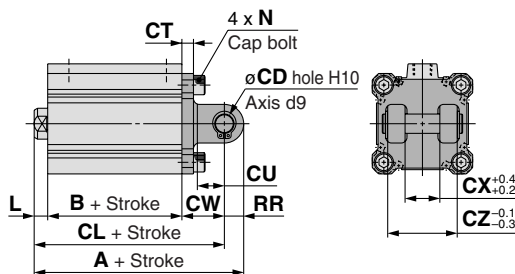
Head flange: CQ2G/CDQ2G



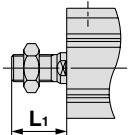
Rod end male thread



Double clevis: CQ2D/CDQ2D



Rod end male thread



Foot

Foot															(mm)	
Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L ₁	LD	LG	LH	LT	LX	LY	
		A	B	LS	A	B	LS									
32	5 to 50	47.2	23	7	57.2	33	17	17	38.5	6.6	4	30	3.2	57	57	
	75, 100	57.2	33	17												
40	5 to 50	53.7	29.5	13.5	63.7	39.5	23.5	17	38.5	6.6	4	33	3.2	64	64	
	75, 100	63.7	39.5	23.5												
50	10 to 50	56.7	30.5	7.5	66.7	40.5	17.5	18	43.5	9	5	39	3.2	79	78	
	75, 100	66.7	40.5	17.5												

Foot bracket material: Carbon steel
Surface treatment: Nickel plated

Bore size (mm)	LZ	X	Y
32	71	11.2	5.8
40	78	11.2	7
50	95	14.7	8

Rod Flange

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		FD	FT	FV	FX	FZ	L	L ₁	M
		A	B	A	B								
32	5 to 50	40	23	50	33	5.5	8	48	56	65	17	38.5	34
	75, 100	50	33										
40	5 to 50	46.5	29.5	56.5	39.5	5.5	8	54	62	72	17	38.5	40
	75, 100	56.5	39.5										
50	10 to 50	48.5	30.5	58.5	40.5	6.6	9	67	76	89	18	43.5	50
	75, 100	58.5	40.5										

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

Head Flange

Bore size (mm)	Stroke range (mm)	(mm)		L	L ₁
		Without auto switch	With auto switch		
		A	A		
32	5 to 50	38	48	7	28.5
	75, 100	48			
40	5 to 50	44.5	54.5	7	28.5
	75, 100	54.5			
50	10 to 50	47.5	57.5	8	33.5
	75, 100	57.5			

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

(* The dimensions except A, L and L₁ are the same as those of the rod flange.)

Double Clevis

Bore size (mm)	Stroke range (mm)	(mm)													
		Without auto switch			With auto switch			CD	CT	CU	CW	CX	CZ	L	L ₁
		A	B	CL	A	B	CL								
32	5 to 50	60	23	50	70	33	60	10	5	14	20	18	36	7	28.5
	75, 100	70	33	60											
40	5 to 50	68.5	29.5	58.5	78.5	39.5	68.5	10	6	14	22	18	36	7	28.5
	75, 100	78.5	39.5	68.5											
50	10 to 50	80.5	30.5	66.5	90.5	40.5	76.5	14	7	20	28	22	44	8	33.5
	75, 100	90.5	40.5	76.5											

Double clevis bracket material: Cast iron
Surface treatment: Painted

Bore size (mm)	N	RR
32	M6 x 1.0	10
40	M6 x 1.0	10
50	M8 x 1.25	14

* For details about the rod end nut and accessory brackets, refer to page 19.
* Double clevis pin and retaining rings are included.

Series CQ2

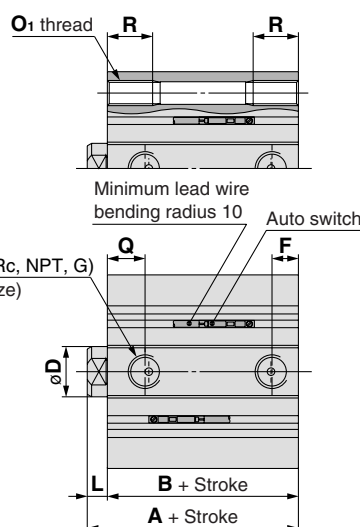
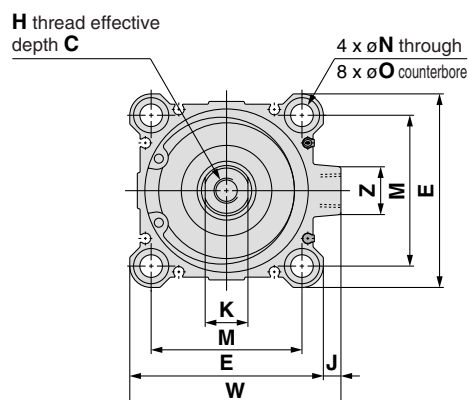
Dimensions

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.)

Both ends tapped: CQ2A/CDQ2A

Standard (Through-hole): CQ2B/CDQ2B

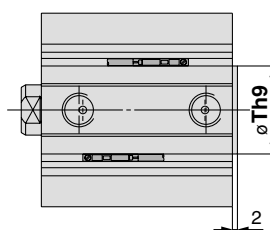


Both Ends Tapped

(mm)

Bore size (mm)	Ø1	R
63	M10 x 1.5	18
80	M12 x 1.75	22
100	M12 x 1.75	22

With boss on head end



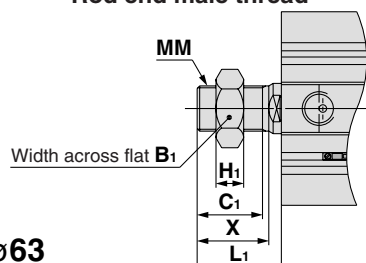
With Boss on Head End

(mm)

Bore size (mm)	Th9
63	35 ⁰ _{-0.062}
80	43 ⁰ _{-0.062}
100	59 ⁰ _{-0.074}

Note 1) With boss on rod end: Option (Suffix "-XC36" to the end of model number.)

Rod end male thread

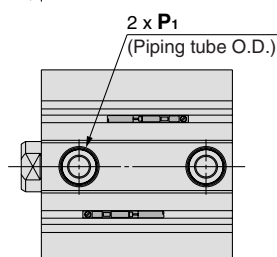
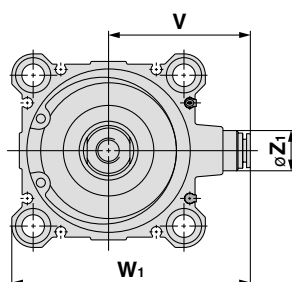


Rod End Male Thread

(mm)

Bore size (mm)	B1	C1	H1	L1	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

Built-in one-touch fittings: Ø63



Built-in One-touch Fittings

(mm)

Bore size (mm)	Z1	P1	V	W1
63	16	8	56.5	95

Standard For auto switch proper mounting position and its mounting height, refer to pages 169 to 175.

(mm)

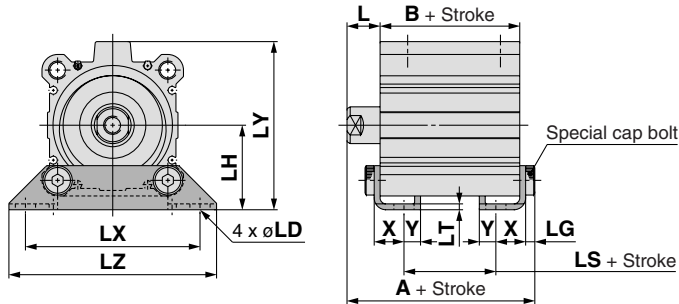
Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		C	D	E	F	H	J	K	L	M	N	O	P	Q	W	Z
		A	B	A	B															
63	10 to 50	44	36	54	46	15	20	77	10.5	M10 x 1.5	7	17	8	60	9	14 depth 10.5	1/4	15	84	19
	75, 100	54	46																	
80	10 to 50	53.5	43.5	63.5	53.5	21	25	98	12.5	M16 x 2.0	6	22	10	77	11	17.5 depth 13.5	3/8	16	104	25
	75, 100	63.5	53.5																	
100	10 to 50	65	53	75	63	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
	75, 100	75	63																	

Note 2) The external dimensions with rubber bumper are same as those of the standard, as shown above.

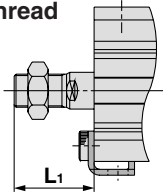
* For details about the rod end nut and accessory brackets, refer to page 19.

Note 3) For calculation on the longitudinal dimension of intermediate strokes, refer to page 3.

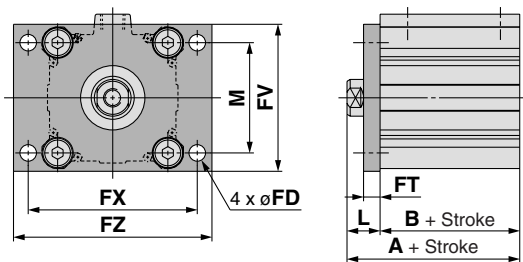
Foot: CQ2L/CDQ2L



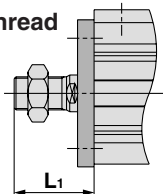
Rod end male thread



Rod flange: CQ2F/CDQ2F



Rod end male thread



Foot (mm)

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			L	L ₁	LD	LG	LH	LT
		A	B	LS	A	B	LS						
63	10 to 50	62.2	36	10	72.2	46	20	18	43.5	11	5	46	3.2
	75, 100	72.2	46	20									
80	10 to 50	75	43.5	13.5	85	53.5	23.5	20	53.5	13	7	59	4.5
	75, 100	85	53.5	23.5									
100	10 to 50	88	53	19	98	63	29	22	53.5	13	7	71	6
	75, 100	98	63	29									

Foot bracket material: Carbon steel
Surface treatment: Nickel plated

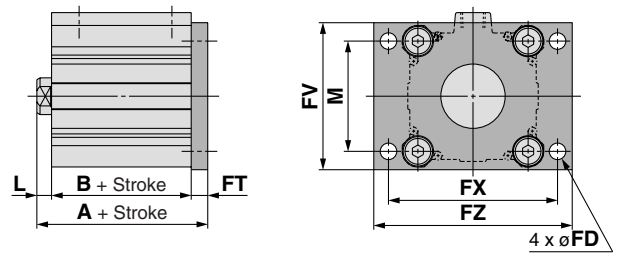
Bore size (mm)	Stroke range (mm)	LX	LY	LZ	X	Y
63	10 to 50	95	91.5	113	16.2	9
	75, 100					
80	10 to 50	118	114	140	19.5	11
	75, 100					
100	10 to 50	137	136	162	23	12.5
	75, 100					

Rod Flange (mm)

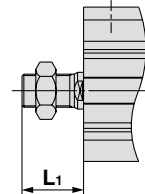
Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			FD	FT	FV	FX	FZ	L	L ₁	M
		A	B		A	B									
63	10 to 50	54	36		64	46		9	9	80	92	108	18	43.5	60
	75, 100	64	46												
80	10 to 50	63.5	43.5		73.5	53.5		11	11	99	116	134	20	53.5	77
	75, 100	73.5	53.5												
100	10 to 50	75	53		85	63		11	11	117	136	154	22	53.5	94
	75, 100	85	63												

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

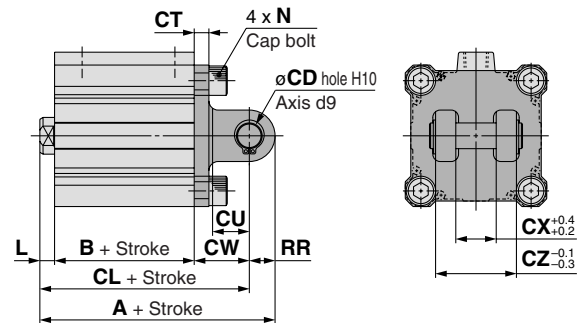
Head flange: CQ2G/CDQ2G



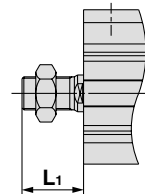
Rod end male thread



Double clevis: CQ2D/CDQ2D



Rod end male thread



Head Flange (mm)

Bore size (mm)	Stroke range (mm)	Without auto switch	With auto switch	L	L ₁
		A	A		
63	10 to 50	53	63	8	33.5
	75, 100	63			
80	10 to 50	64.5	74.5	10	43.5
	75, 100	74.5			
100	10 to 50	76	86	12	43.5
	75, 100	86			

* The dimensions except A, L and L₁ are the same as those of the rod flange.

Flange bracket material: Carbon steel Surface treatment: Nickel plated

Double Clevis (mm)

Bore size (mm)	Stroke range (mm)	Without auto switch			With auto switch			CD	CT	CU	CW	CX
		A	B	CL	A	B	CL					
63	10 to 50	88	36	74	98	46	84	14	8	20	30	22
	75, 100	98	46	84								
80	10 to 50	109.5	43.5	91.5	119.5	53.5	101.5	18	10	27	38	28
	75, 100	119.5	53.5	101.5								
100	10 to 50	132	53	110	142	63	120	22	13	31	45	32
	75, 100	142	63	120								

Double clevis bracket material: Cast iron
Surface treatment: Painted

Bore size (mm)	Stroke range (mm)	CZ	L	L ₁	N	RR
63	10 to 50	44	8	33.5	M10 x 1.5	14
	75, 100					
80	10 to 50	56	10	43.5	M12 x 1.75	18
	75, 100					
100	10 to 50	64	12	43.5	M12 x 1.75	22
	75, 100					

* For details about the rod end nut and accessory brackets, refer to page 19.
* Double clevis pin and retaining rings are included.

Standard

Large Bore Size

Long Stroke

Non-rotating Rod

Axial Piping

Anti-lateral Load

With End Lock

Water Resistant

With Auto Switch

Auto Switch

Made to Order

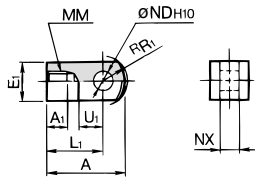
Series CQ2

Accessory Brackets

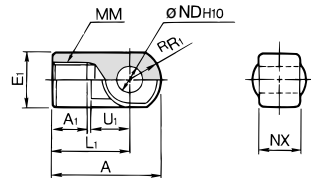
Single Knuckle Joint

I-G012, I-Z015A
I-G02, I-G03

I-G04, I-G05
I-G08, I-G10



Material: Carbon steel
Surface treatment: Nickel plated



Material: Cast iron
Surface treatment: Nickel plated

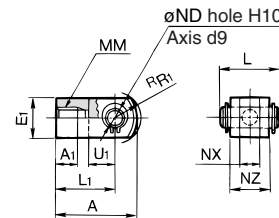
(mm)

Part no.	Applicable bore size (mm)	A	A ₁	E ₁	L ₁	MM	R _{R1}	U ₁	ND _{H10}	NX
I-G012	12	21.5	6	□10	16	M5 x 0.8	6.3	7	5 ^{+0.048} ₀	5 ^{-0.2} _{-0.4}
I-Z015A	16	32	8	□12	25	M6 x 1	8.1	14	5 ^{+0.048} ₀	6.4 ^{-0.1} _{-0.3}
I-G02	20	34	8.5	□16	25	M8 x 1.25	10.3	11.5	8 ^{+0.058} ₀	8 ^{-0.2} _{-0.4}
I-G03	25	41	10.5	□20	30	M10 x 1.25	12.8	14	10 ^{+0.058} ₀	10 ^{-0.2} _{-0.4}
I-G04	32, 40	42	14	ø22	30	M14 x 1.5	12	14	10 ^{+0.058} ₀	18 ^{-0.3} _{-0.5}
I-G05	50, 63	56	18	ø28	40	M18 x 1.5	16	20	14 ^{+0.070} ₀	22 ^{-0.3} _{-0.5}
I-G08	80	71	21	ø38	50	M22 x 1.5	21	27	18 ^{+0.070} ₀	28 ^{-0.3} _{-0.5}
I-G10	100	79	21	ø44	55	M26 x 1.5	24	31	22 ^{+0.084} ₀	32 ^{-0.3} _{-0.5}

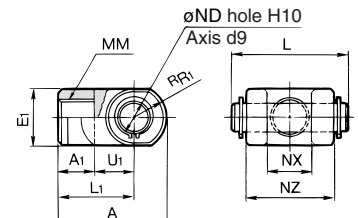
Double Knuckle Joint

Y-G012, Y-Z015A
Y-G02, Y-G03

Y-G04, Y-G05
Y-G08, Y-G10



Material: Carbon steel
Surface treatment: Nickel plated



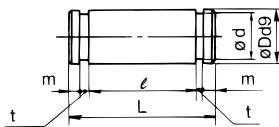
Material: Cast iron
Surface treatment: Nickel plated

(mm)

Part no.	Applicable bore size (mm)	A	A ₁	E ₁	L ₁	MM	R _{R1}	U ₁	ND _{H10}	NX	NZ	L	Applicable pin part no.
Y-G012	12	21.5	6	□10	16	M5 x 0.8	6.3	7	5 ^{+0.048} ₀	5 ^{+0.4} _{-0.2}	10	14.6	IY-G012
Y-Z015A	16	28	11	□12	21	M6 x 1	8.1	10	5 ^{+0.048} ₀	6.5 ^{+0.2} _{-0.2}	12	16.6	IY-J015
Y-G02	20	34	8.5	□16	25	M8 x 1.25	10.3	11.5	8 ^{+0.058} ₀	8 ^{+0.4} _{-0.2}	16	21	IY-G02
Y-G03	25	41	10.5	□20	30	M10 x 1.25	12.8	14	10 ^{+0.058} ₀	10 ^{+0.4} _{-0.2}	20	25.6	IY-G03
Y-G04	32, 40	42	16	ø22	30	M14 x 1.5	12	14	10 ^{+0.058} ₀	18 ^{+0.5} _{-0.3}	36	41.6	IY-G04
Y-G05	50, 63	56	20	ø28	40	M18 x 1.5	16	20	14 ^{+0.070} ₀	22 ^{+0.5} _{-0.3}	44	50.6	IY-G05
Y-G08	80	71	23	ø38	50	M22 x 1.5	21	27	18 ^{+0.070} ₀	28 ^{+0.5} _{-0.3}	56	64	IY-G08
Y-G10	100	79	24	ø44	55	M26 x 1.5	24	31	22 ^{+0.084} ₀	32 ^{+0.5} _{-0.3}	64	72	IY-G10

* Knuckle pin and retaining rings are included.

Knuckle Pin (Common with double clevis pin)

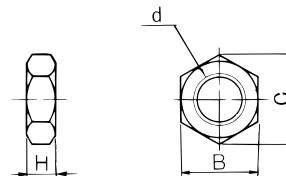


Material: Carbon steel
(mm)

Part no.	Applicable bore size (mm)	Dd9	L	d	ℓ	m	t	Applicable retaining ring
IY-G012	12	5 ^{-0.030} _{-0.060}	14.6	4.8	10.2	1.5	0.7	Type C5 for axis
IY-J015	16	5 ^{-0.030} _{-0.060}	16.6	4.8	12.2	1.5	0.7	Type C5 for axis
IY-G02	20	8 ^{-0.040} _{-0.076}	21	7.6	16.2	1.5	0.9	Type C8 for axis
IY-G03	25	10 ^{-0.040} _{-0.076}	25.6	9.6	20.2	1.55	1.15	Type C10 for axis
IY-G04	32, 40	10 ^{-0.040} _{-0.076}	41.6	9.6	36.2	1.55	1.15	Type C10 for axis
IY-G05	50, 63	14 ^{-0.050} _{-0.093}	50.6	13.4	44.2	2.05	1.15	Type C14 for axis
IY-G08	80	18 ^{-0.050} _{-0.093}	64	17	56.2	2.55	1.35	Type C18 for axis
IY-G10	100	22 ^{-0.065} _{-0.117}	72	21	64.2	2.55	1.35	Type C22 for axis

* Type C retaining rings for axis are included.

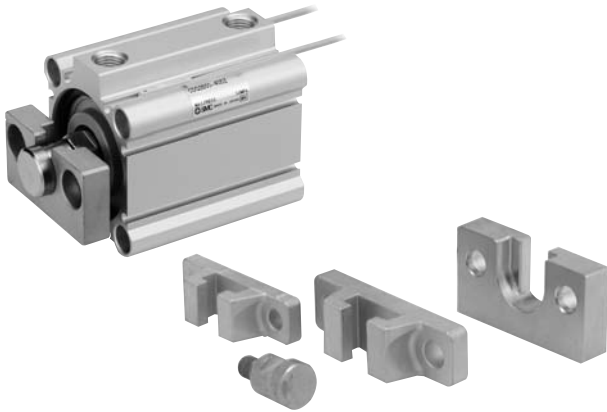
Rod End Nut



Material: Carbon steel
Surface treatment: Nickel plated
(mm)

Part no.	Applicable bore size (mm)	d	H	B	C
NTJ-015A	12	M5 x 0.8	4	8	9.2
NT-015A	16	M6 x 1	5	10	11.5
NT-02	20	M8 x 1.25	5	13	15.0
NT-03	25	M10 x 1.25	6	17	19.6
NT-04	32, 40	M14 x 1.5	8	22	25.4
NT-05	50, 63	M18 x 1.5	11	27	31.2
NT-08	80	M22 x 1.5	13	32	37.0
NT-10	100	M26 x 1.5	16	41	47.3

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



Joint/Mounting Bracket (Type A/B)/Part No.

YA - 03

• Applicable air cylinder bore size

03	For $\phi 32$, $\phi 40$
05	For $\phi 50$, $\phi 63$
08	For $\phi 80$
10	For $\phi 100$

• Mounting bracket

YA	Type A mounting bracket
YB	Type B mounting bracket
YU	Joint

Allowable Eccentricity

Bore size (mm)	32	40	50	63	80	100
Eccentricity tolerance		± 1			± 1.5	± 2
Backlash			0.5			

<Ordering>

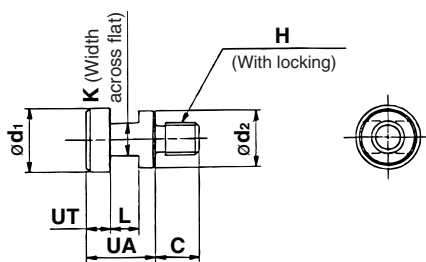
- Joints are not included with type A or B mounting brackets. Order them separately.

(Example)

- Bore size $\phi 40$ Part no.
- Type A mounting bracket YA-03
- Joint YU-03

Joint/Mounting Bracket (Type A/B)/Part No.

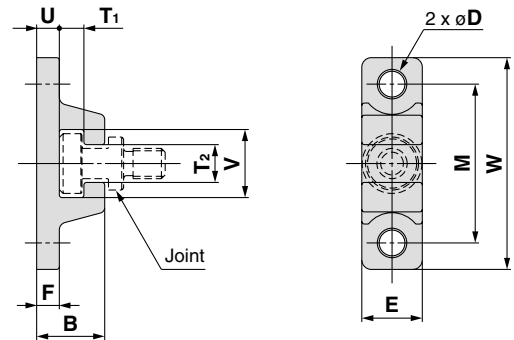
Bore size (mm)	Joint	Applicable mounting bracket	
		Type A mounting bracket	Type B mounting bracket
32, 40	YU-03	YA-03	YB-03
50, 63	YU-05	YA-05	YB-05
80	YU-08	YA-08	YB-08
100	YU-10	YA-10	YB-10



Material: Chromium molybdenum steel (Nickel plated)
(mm)

Part no.	Applicable bore size (mm)	UA	C	d1	d2	H	K	L	UT	Weight (g)
YU-03	32, 40	17	11	15.8	14	M8 x 1.25	8	7	6	25
YU-05	50, 63	17	13	19.8	18	M10 x 1.5	10	7	6	40
YU-08	80	22	20	24.8	23	M16 x 2	13	9	8	90
YU-10	100	26	26	29.8	28	M20 x 2.5	14	11	10	160

Type A Mounting Bracket

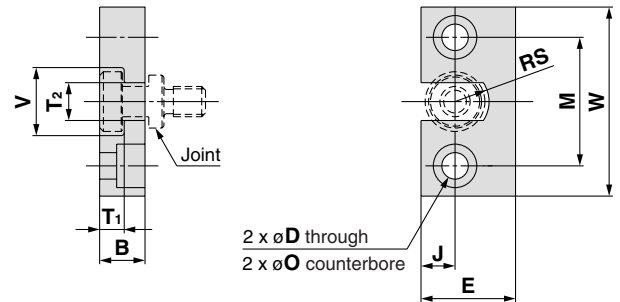


Material: Chromium molybdenum steel (Nickel plated)
(mm)

Part no.	Bore size (mm)	B	D	E	F	M	T1	T2
YA-03	32, 40	18	6.8	16	6	42	6.5	10
YA-05	50, 63	20	9	20	8	50	6.5	12
YA-08	80	26	11	25	10	62	8.5	16
YA-10	100	31	14	30	12	76	10.5	18

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

Type B Mounting Bracket



Material: Stainless steel
(mm)

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

Part no.	Bore size (mm)	T1	T2	V	W	RS	Weight (g)
YB-03	32, 40	6.5	10	18	50	9	80
YB-05	50, 63	6.5	12	22	60	11	120
YB-08	80	8.5	16	28	75	14	230
YB-10	100	10.5	18	36	90	18	455

Standard

Large Bore Size

Long Stroke

Non-rotating Rod

Axial Piping

Anti-lateral Load

With End Lock

Water Resistant

With Auto Switch

Auto Switch

Made to Order