

Compact Cylinder: Standard Double Acting, Single Rod Series CQ2

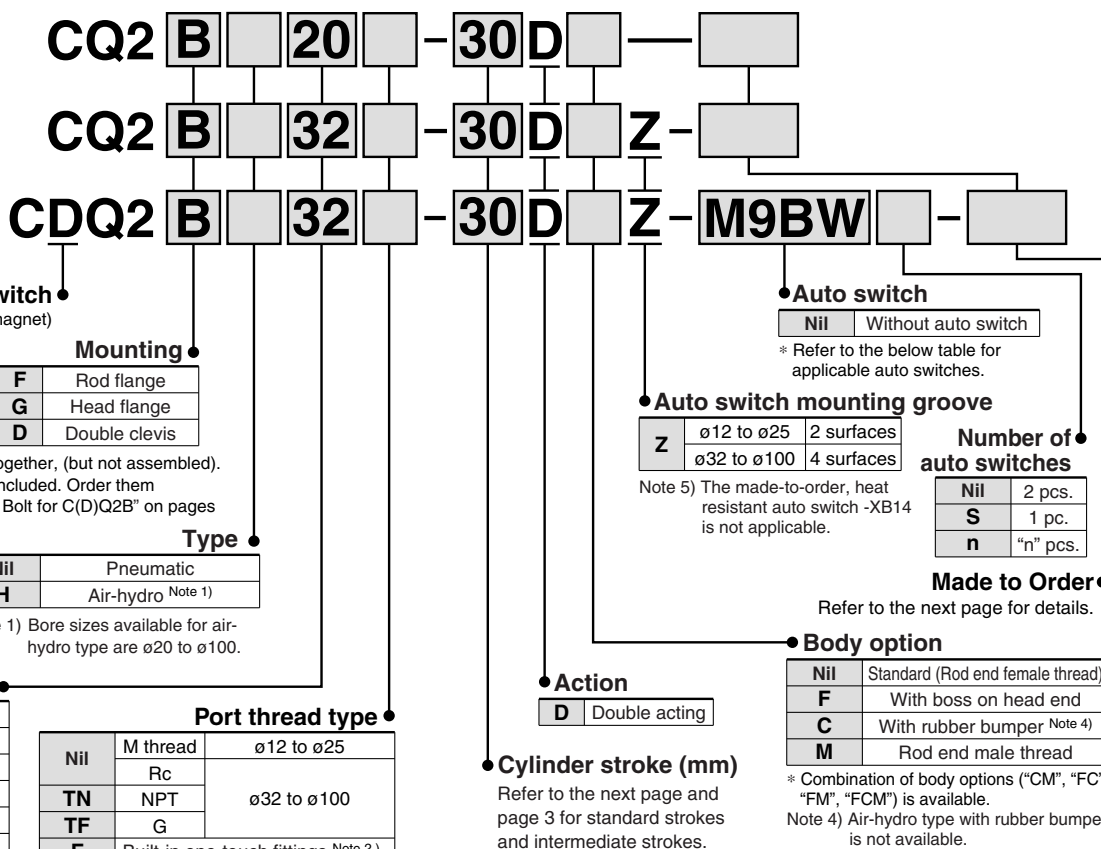
ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

How to Order

Without auto switch
ø12 to ø25

Without auto switch
ø32 to ø100

With auto switch



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.
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) | | | 12 V | | | | M9PV | M9P | ● | ● | ● | ○ | — | ○ | | | | |
| | 2-wire | | | 12 V | | | | M9BV | M9B | ● | ● | ● | ○ | — | ○ | | | | |
| | 3-wire (NPN) | | | 24 V | | | | 5 V, 12 V | — | M9NWV | M9NW | ● | ● | ● | ○ | — | | ○ | IC circuit |
| | 3-wire (PNP) | | | | | | | | | M9PWV | M9PW | ● | ● | ● | ○ | — | | ○ | |
| | 2-wire | | | | | | | | | M9BWV | 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 | 12 V | 100 V | A93V | A93 | ● | — | ● | — | — | — | — | — | Relay, PLC |
| | | | | | | 5 V, 12 V | 100 V or less | 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) M9NWM
3 m L (Example) M9NWL
5 m Z (Example) M9NWZ

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

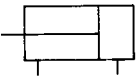
* For details about auto switches with pre-wired connector, refer to pages 1328 and 1329 in Best Pneumatics No. 2.

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



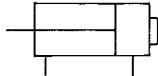
JIS Symbol

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 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 |
| 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 | 105 | 110 | 115 | 120 |
| 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.

Series CQ2

Weight

Weight

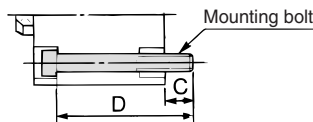
| Bore size (mm) | Cylinder stroke (mm) | | | | | | | | | | |
|-------------------|----------------------|------|------|------|------|------|------|------|------|------|------|
| | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 75 |
| 12 | 29 | 35 | 41 | 47 | 54 | 60 | — | — | — | — | — |
| 16 | 42 | 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 |
| 40 | 187 | 208 | 230 | 251 | 273 | 294 | 315 | 337 | 358 | 380 | 552 |
| 50 | — | 339 | 372 | 405 | 438 | 471 | 504 | 537 | 570 | 603 | 872 |
| 63 | — | 480 | 518 | 556 | 594 | 632 | 670 | 708 | 746 | 784 | 1112 |
| 80 | — | 916 | 976 | 1036 | 1097 | 1157 | 1217 | 1277 | 1338 | 1398 | 2215 |
| 100 | — | 1608 | 1688 | 1768 | 1849 | 1929 | 2010 | 2090 | 2170 | 2251 | 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 | | 65 | x 65L |
| -50D | | 70 | x 70L |
| CQ2B25-5D | 9.5 | 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 | 12.5 | 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 |
| CQ2B50-10DZ | 12.5 | 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 | 14.5 | 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 |
| CQ2B63-10DZ | 14.5 | 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 | 15.5 | 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 |
| CQ2B100-10DZ | 15.5 | 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 | 15.5 | 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 |

Series CQ2

Clean Series

10 - C ☐ **Q2B** Bore size - Stroke **D(M)Z**

• Clean series

| | |
|-----------|-------------|
| 10 | Relief type |
| 11 | Vacuum type |

• $\phi 12$, $\phi 16$, $\phi 20$, $\phi 25$, $\phi 32$
 $\phi 40$, $\phi 50$, $\phi 63$, $\phi 80$, $\phi 100$

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 | | | | | | | | | |

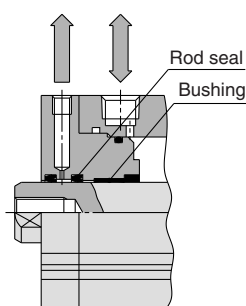
Note) $\phi 12$ with auto switch: With rubber bumper (Standard)

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

Construction

10-CQ2 series (Double seal)

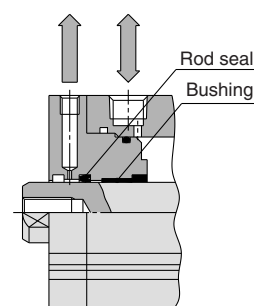
Relief port



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.