










Valve Mounted Cylinder

Series CV/MVGQ

ø10, ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

Series Variations

| Series | Action | Standard variations | | | | | Bore size (mm) | Page |
|---|---|---------------------|------------------|----------------------------|------------------|---------------------|---|----------------------|
| | | Built-in magnet | With air cushion | Built-in One-touch fitting | With auto switch | With strong scraper | | |
| Series CVJ5  | Double acting | ● | | | ● | | 10 16 | 10-15-4 |
| Series CVJ3  | Single acting (Spring return) (Spring extend) | ● | | | ● | | 10 16 | 10-15-10 |
| Series CVM5/CVM5K  | Double acting | Standard | ● | | ● | ● | 20 25 32 40 | 10-15-16 10-15-26 |
| | | Non-rotating rod | ● | | ● | ● | | |
| Series CVM3/CVM3K  | Single acting (Spring return) (Spring extend) | Standard | ● | | ● | ● | 20 25 32 40 | 10-15-31 10-15-44 |
| | | Non-rotating rod | ● | | ● | ● | | |
| Series CV3/CV3K  | Double acting | Standard | ● | ● | | ● | 40, 50 63, 80 100 | 10-15-50 |
| | | Non-rotating rod | ● | ● | | ● | | 40, 50 63 |
| Series CVS1/CVS1K  | Double acting | Standard | ● | ● | | ● | 40, 50 63, 80 100 | 10-15-67 |
| | | Non-rotating rod | ● | ● | | ● | | 40, 50 63 |
| Series MVGQ  | Double acting | ● | | | ● | | 12, 16 20, 25 32, 40 50, 63 80, 100 | 10-16-1 |

RE^A_B

REC

C□X

C□Y

MQ^Q_M

RHC

MK(2)

RS^Q_G

RS^H_A

RZQ

MI^W_S

CEP1

CE1

CE2

ML2B

C_G5-S

CV

MVGQ

CC

RB

J

D-

-X

20-

Data



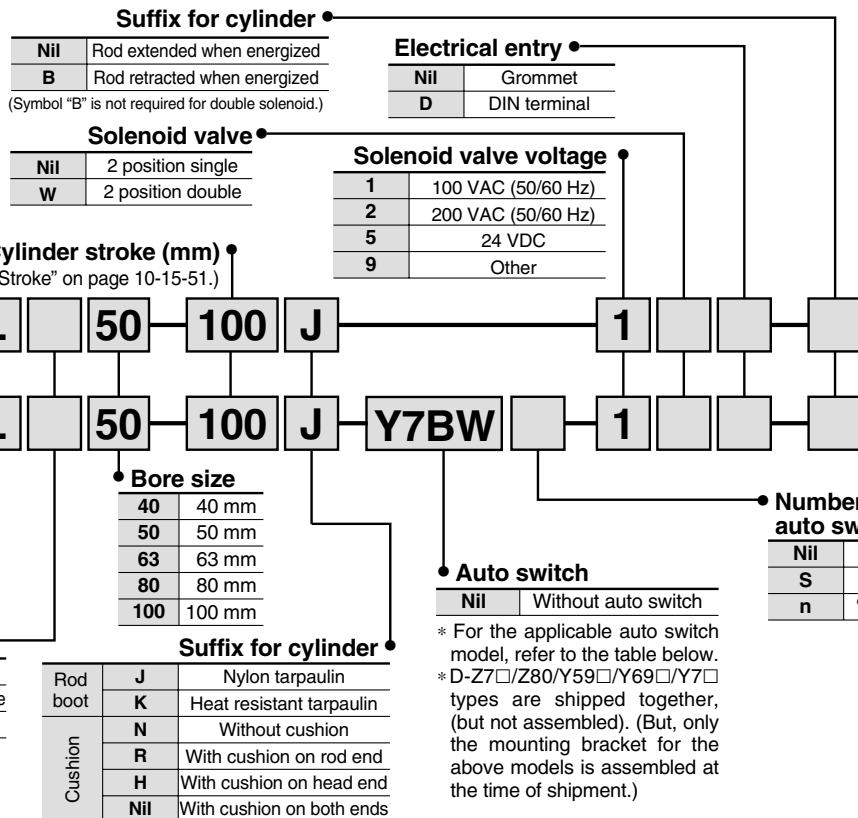
Valve Mounted Cylinder Double Acting, Single Rod Series CV3

Lube/Non-lube Type: ø40, ø50, ø63, ø80, ø100

How to Order

Built-in Magnet Cylinder Model

In the case of built-in magnet without auto switch, the symbol for auto switch is "Nil".
(Example) CDV3LN50-100-1



Without auto switch

With auto switch

Mounting style

| | |
|----|-----------------------|
| B | Basic style |
| L | Axial foot style |
| F | Rod side flange style |
| C* | Single clevis style |
| D* | Double clevis style |
| T | Center trunnion style |

* Except tubing I.D. ø40

Applicable Auto Switch/Refer to page 10-20-1 for further information on auto switches.

| Type | Special function | Electrical entry | Indicator/light | Wiring (Output) | Load voltage | | Auto switch model | | Lead wire length (m)* | | | Pre-wire connector | Applicable load | | | | | | |
|---|------------------|--|-----------------|-------------------------|--------------|-----------|-------------------|---------------|-----------------------|--------------|--------------|--------------------|-----------------|------------|---|------------|------------|---|---|
| | | | | | DC | AC | Tie-rod mounting | Band mounting | 0.5 (Nil) | 3 (L) | 5 (Z) | | | | | | | | |
| Reed switch | — | Grommet | Yes | 3-wire (NPN equivalent) | — | 5 V | — | Z76 | — | ● | ● | — | — | IC circuit | — | | | | |
| | | | | | | | | — | Z73 | — | ● | ● | | | | ● | — | | |
| | | | | | | | | — | B53*** | — | ● | ● | | | | ● | | | |
| | | Terminal conduit | | 2-wire | 24 V | 12 V | — | — | — | A54 | B54*** | ● | ● | ● | — | — | — | | |
| | | | | | | | | | | — | A33C | A33 | — | — | | | | — | — |
| | | | | | | | | | | — | A34C | A34 | — | — | | | | — | |
| DIN terminal | 2-wire | 200 V | — | — | — | — | A44C | A44 | — | — | — | — | — | Relay, PLC | | | | | |
| | | | | | | | — | A59W | B59W*** | ● | ● | | | | — | | | | |
| | | | | | | | — | — | — | — | — | | | | — | | | | |
| Solid state switch | — | Grommet | Yes | 3-wire (NPN) | 24 V | 5 V, 12 V | — | Y59A | G59*** | ● | ● | ○ | — | IC circuit | — | | | | |
| | | | | | | | | 3-wire (PNP) | — | — | — | — | | | | — | — | — | |
| | | | | | | | | — | — | — | — | — | | | | — | — | | |
| | | | | Terminal conduit | 2-wire | 12 V | — | — | — | — | J51 | — | ● | ● | ○ | — | — | | |
| | | | | | | | | | | | — | Y59B | K59*** | ● | ● | | | ○ | |
| | | | | | | | | | | | — | G39C | G39 | — | — | | | — | — |
| | | Grommet | | 3-wire (NPN) | 24 V | 5 V, 12 V | — | — | — | K39C | K39 | — | — | — | — | Relay, PLC | | | |
| | | | | | | | | | | 2-wire | — | — | — | — | | | — | | |
| | | | | | | | | | | 3-wire (PNP) | — | — | — | — | | | — | | |
| | | Diagnostic indication (2-color indication) | | Grommet | 3-wire (NPN) | Yes | 3-wire (PNP) | 24 V | 5 V | — | Y7NW | G59W*** | ● | ● | ○ | — | IC circuit | | |
| | | | | | | | | | | | 3-wire (PNP) | — | — | — | — | | | — | — |
| | | | | | | | | | | | 2-wire | — | — | — | — | | | — | |
| With diagnostic output (2-color indication) | Grommet | 4-wire (NPN) | Yes | — | 24 V | 12 V | — | Y7PW | G5PW*** | ● | ● | ○ | — | IC circuit | | | | | |
| | | | | | | | | — | — | — | — | — | | | — | — | | | |
| | | | | | | | | — | — | — | — | — | | | — | | | | |
| — | Grommet | 4-wire (NPN) | Yes | — | 24 V | 12 V | — | Y7BW | K59W*** | ● | ● | ○ | — | IC circuit | | | | | |
| | | | | | | | | — | — | — | — | — | | | — | — | | | |
| | | | | | | | | — | — | — | — | — | | | — | | | | |
| — | Grommet | 4-wire (NPN) | Yes | — | 24 V | 5 V, 12 V | — | F59F | G59F*** | ● | ● | ○ | — | IC circuit | | | | | |
| | | | | | | | | — | — | — | — | — | | | — | — | | | |
| | | | | | | | | — | — | — | — | — | | | — | | | | |

* Lead wire length symbols: 0.5 m..... Nil (Example) A54
3 m..... L (Example) A54L
5 m..... Z (Example) A54Z

- Since there are other applicable auto switches than listed, refer to page 10-15-61 for details.
- For details about auto switches with pre-wire connector, refer to page 10-20-66.

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

** D-G5□W/K59W/G59F cannot be mounted on bore sizes ø40 and ø50 lube style cylinder.

*** D-B5□W/G5□/K5□ types are mountable only upon a receipt of order. (Not mountable after the time of shipment)

Valve Mounted Cylinder Double Acting, Single Rod Series CV3

Adjustable speed.

Built-in throttle valves are provided to enable speed adjustments in each direction.

Operation type can be changed to rod extended when energized or rod retracted when energized.

Ease of maintenance and inspection.

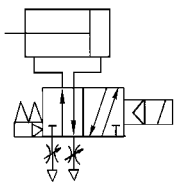
The solenoid valve can be separated easily and the cylinder can also be disassembled.

A manual operation mechanism is provided as standard equipment (non-locking).

An auto switch cylinder with the switch installed can also be manufactured.



JIS Symbol



Made to Order Specifications
(For details, refer to page 10-21-1.)

| Symbol | Specifications |
|--------|---|
| -XA□ | Change of rod end shape |
| -XC4 | With heavy duty scraper |
| -XC6 | Piston rod and rod end nut made of stainless steel |
| -XC7 | Tie-rod, cushion valve, and tie-rod nut and similar parts made of stainless steel |
| -XC15 | Change of tie-rod length |
| -XC22 | Fluoro rubber seals |
| -XC29 | Double knuckle joint with spring pin |

⚠ Precautions

Minimum stroke for auto switch mounting

⚠ Caution

1. Each switch and mounting style of cylinder has different minimum mountable stroke. Be careful especially of the center trunnion style. (For details, refer to page 10-15-62.)

Specifications

| | | |
|-------------------------------------|---|----------|
| Applicable bore size (mm) | 40, 50, 63, 80, 100 | |
| Type | Lube | Non-lube |
| Series | CV3 | CV3□N |
| Action | Double acting | |
| Fluid | Air | |
| Proof pressure | 1.35 MPa | |
| Maximum operating pressure | 0.9 MPa | |
| Minimum operating pressure | 0.15 MPa | |
| Ambient & fluid temperature | -10 to 50°C (No freezing) | |
| Cushion | Air cushion | |
| Thread tolerance | JIS Class 2 | |
| Stroke length tolerance | Up to 250 st : $^{+0.0}_{-0}$, 251 to 1000 st : $^{+0.14}_{-0}$ | |
| Effective area of valve (Cv factor) | 18 mm ² (1.0) | |
| Port size | Rc 1/4 | |
| Electrical entry | Grommet, DIN terminal | |
| Piston speed | ø40 to ø80: 50 to 500 mm/s*, ø100: 50 to 350 mm/s* | |
| Mounting | Basic style, Axial foot style, Rod side flange style Single clevis style, Double clevis style, Center trunnion style | |

* Operate within the range of absorbed energy.

Allowable Kinetic Energy

| Bore size (mm) | 40 | 50 | 63 | 80 | 100 |
|--------------------------|-------|-------|-------|--------|--------|
| Allowable kinetic energy | 2.4 J | 4.4 J | 7.8 J | 11.7 J | 20.5 J |

Solenoid Valve Specifications

| | | | |
|---------------------------------|---------------------------------|---------|--------------------------------|
| Applicable solenoid valve model | V3□08 | | |
| Coil rated voltage | 100/200 VAC (50/60 Hz), 24 VDC | | |
| Allowable voltage | -15 to 10% of the rated voltage | | |
| Coil insulation | Class B or equivalent (130°C) | | |
| Apparent power ^{Note)} | AC | Inrush | 50 Hz: 8.5 VA 60 Hz: 7.5 VA |
| | | Holding | 50 Hz: 7.0 VA 60 Hz: 5.5 VA |
| | DC | 6 W | |

Note) At the rated voltage.

Standard Stroke

| Bore size (mm) | Standard stroke (mm) |
|----------------|--|
| 40 | 25, 50, 75, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500 |
| 50, 63 | 25, 50, 75, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600 |
| 80, 100 | 25, 50, 75, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700 |

Note) The cylinders with the standard strokes indicated above can be delivered in a short term. Intermediate stroke except mentioned above is manufactured upon receipt of order. When the auto switch is attached, the minimum stroke is going to be different. Refer to page 10-15-62. The minimum stroke length is different in the trunnion style. For further information, refer to page 10-15-62.

Rod Boot Material

| Symbol | Rod boot material | Maximum ambient temperature |
|--------|--------------------------|-----------------------------|
| J | Nylon tarpaulin | 70°C |
| K | Heat resistant tarpaulin | 110°C* |

* Maximum ambient temperature for the rod boot itself.

Accessory

| Mounting | | Basic style | Foot style | Rod side flange style | Single clevis style | Double* clevis style | Center trunnion style |
|--------------------|----------------------------------|-------------|------------|-----------------------|---------------------|----------------------|-----------------------|
| Standard equipment | Rod end nut | ● | ● | ● | ● | ● | ● |
| | Clevis pin | — | — | — | — | ● | — |
| Option | Single knuckle joint | ● | ● | ● | ● | ● | ● |
| | Double knuckle joint* (with pin) | ● | ● | ● | ● | ● | ● |
| | With rod boot | ● | ● | ● | ● | ● | ● |

* Pin, plain washer and cotter pin are packaged together with double clevis and double knuckle joint.

RE_B^A

REC

C□X

C□Y

MQ_M^Q

RHC

MK(2)

RS_G^Q

RS_A^H

RZQ

MI_S^W

CEP1

CE1

CE2

ML2B

C_G¹5-S

CV

MVGQ

CC

RB

J

D-

-X

20-

Data

Series CV3

Weight

(kg)

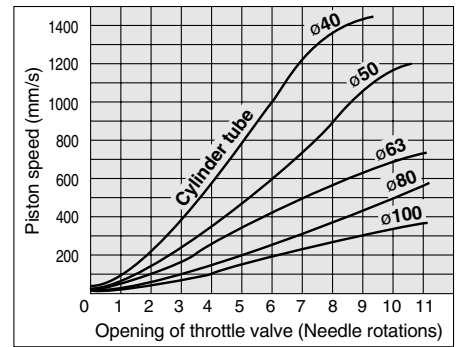
| Bore size (mm) | | 40 | 50 | 63 | 80 | 100 |
|--|--|-------------|-------------|-------------|-------------|-------------|
| Basic weight | Basic style | 1.30 (1.35) | 1.73 (1.77) | 2.57 (2.61) | 4.29 (4.44) | 6.01 (6.21) |
| | Axial foot style | 1.47 (1.52) | 1.93 (1.97) | 2.86 (2.9) | 5.08 (5.23) | 6.94 (7.14) |
| | Rod side flange style | 1.56 (1.61) | 2.14 (2.18) | 3.19 (3.23) | 5.39 (5.54) | 7.40 (7.6) |
| | Single clevis style | — | 2.46 (2.5) | 3.68 (3.72) | 6.23 (6.38) | 8.66 (8.86) |
| | Double clevis style | — | 2.51 (2.55) | 3.73 (3.77) | 6.29 (6.44) | 8.73 (8.93) |
| | Trunnion style | 1.95 (2.05) | 2.52 (3.52) | 3.96 (4.16) | 6.67 (6.96) | 9.58 (9.97) |
| Additional weight per each 50 mm of stroke | All mounting brackets (Except trunnion style of iron tube) | 0.22 (0.28) | 0.28 (0.35) | 0.37 (0.43) | 0.52 (0.70) | 0.65 (0.87) |
| | Trunnion style of steel | (0.36) | (0.46) | (0.65) | (0.86) | (1.07) |
| Accessory bracket | Single knuckle | 0.23 | 0.26 | 0.26 | 0.60 | 0.83 |
| | Double knuckle (with pin) | 0.37 | 0.43 | 0.43 | 0.87 | 1.27 |

Calculation: (Example) CV3L40-100-1

*(): Steel tube type.

- Basic weight.....1.47 (kg)
- Additional weight.....0.22 (kg/50 st)
- Cylinder stroke.....100 (st) $1.47 + 0.22 \times 100 \div 50 = 1.9$ kg

Opening Range of Throttle Valve and Driving Speed



Conditions: Operating pressure 0.5 MPa, Horizontal mounting, No load, Spring return side

- Driving speeds indicated above are for reference.

Mounting Bracket Part No.

Mounting Bracket Part No.

| Bore size (mm) | 40 | 50 | 63 | 80 | 100 |
|------------------|---------|---------|---------|---------|---------|
| Axial foot * | CA1-L04 | CA1-L05 | CA1-L06 | CA1-L08 | CA1-L10 |
| Flange | CA1-F04 | CA1-F05 | CA1-F06 | CA1-F08 | CA1-F10 |
| Single clevis | — | CV3-C05 | CV3-C06 | CV3-C08 | CV3-C10 |
| Double clevis ** | — | CV3-D05 | CV3-D06 | CV3-D08 | CV3-D10 |

* Order two foot brackets per cylinder.

** For double clevis style, pin for clevis, plain washer and split pin are shipped together.

Auto Switch Mounting Bracket Part No.

| Auto switch model | Bore size (mm) | | | | |
|--|----------------|---------|---------|---------|---------|
| | 40 | 50 | 63 | 80 | 100 |
| D-A5□/A6□/A59W/F5□/J5□ D-F5□W/J59W/F5NTL/F59F | BT-04 | BT-04 | BT-06 | BT-08 | BT-08 |
| D-A3□/A44/G39/K39 | BD1-04M | BD1-05M | BD1-06M | BD1-08M | BD1-10M |
| D-B5□/B64/B59W/G5□/K59 D-G5□W/K59W/G59F/G5NTL | BA-04 | BA-05 | BA-06 | BA-08 | BA-10 |
| D-A3□C/A44C/G39C/K39C* | BA3-040 | BA3-050 | BA3-063 | BA3-080 | BA3-100 |
| D-Z7□/Z80/Y59□/Y69□/Y7P D-Y7PV/Y7□W/Y7□WV | BA4-040 | BA4-040 | BA4-063 | BA4-080 | BA4-080 |

* Mounting brackets are provided with D-A3□C/A44C/G39C/K39C. When ordering, indicate as described below, in accordance with the cylinder size.

- Ex.) ø40.....D-A3□C-4 ø80.....D-A3□C-8
 ø50.....D-A3□C-5 ø100.....D-A3□C-10
 ø63.....D-A3□C-6

Mounting of Auto Switch

D-B5□, B64, G5□, D-K5□ types are mountable only upon a receipt of order. (Not mountable after the time of shipment)

⚠ Precautions

Be sure to read before handling. Refer to pages 10-24-3 to 10-24-6 for Safety Instructions and Actuator Precautions.

Precautions

⚠ Warning

- Do not loosen the cushion valve more than 2 turns from the fully closed state.**

Do not loosen it more than 2 turns because this could cause the cushion valve to be ejected.

⚠ Caution

- Do not use an air cylinder as an air-hydro cylinder, because this could result in oil leakage.**

2. Do not twist the rod boot during installation.
If the cylinder is installed with its bellows twisted, it could damage the bellows.

- 3. Use a socket wrench when replacing mounting brackets.**

The use of other tools could cause parts such as nuts to become deformed or affect their ease of service. For the sockets to be used, refer to the table below.

| Bore size (mm) | Nut | Width across flats | Socket |
|----------------|--|--------------------|--------------------------------------|
| 40, 50 | JIS B 1181 Class 3 Intermediate M8 x 1.25 | 13 | JIS B 4636 + 2 point angle socket 13 |
| 63 | JIS B 1181 Class 3 Intermediate M10 x 1.25 | 17 | JIS B 4636 + 2 point angle socket 17 |
| 80, 100 | JIS B 1181 Class 3 Intermediate M12 x 1.75 | 19 | JIS B 4636 + 2 point angle socket 19 |

- 4. Do not replace the bushings or the cushion seals.**

The bushings and the cushion seals are press-fitted. To replace them, they must be replaced together as a cover assembly.

- 5. To replace a seal, apply grease to the new seal before installing it.**

If the cylinder is put into operation without applying grease to the seal, it could cause the seal to wear significantly, leading to premature air leakage.

- 6. Do not disassemble a trunnion style cylinder.**

It is extremely difficult to align the axial center of the trunnion with the axial center of the cylinder. Thus, if this style of cylinder is disassembled and reassembled, there is the likelihood that the required dimensional accuracy cannot be attained, which could lead to a malfunction.

- 7. Operate the cylinder at a drive speed within the range of 50 and 500 mm/s.**

(Operate within the range of absorbed energy. Refer to page.)
"Air Cylinders/Model Selection" in Best Pneumatics Vol. 6/7.

RE^A_B

REC

C□X

C□Y

MQ^Q_M

RHC

MK(2)

RS^Q_G

RS^H_A

RZQ

MI^W_S

CEP1

CE1

CE2

ML2B

C¹/₆5-S

CV

MVGQ

CC

RB

J

D-

-X

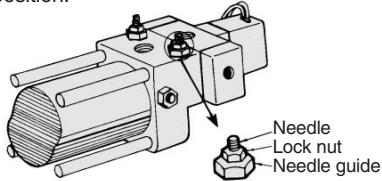
20-

Data

Series CV3

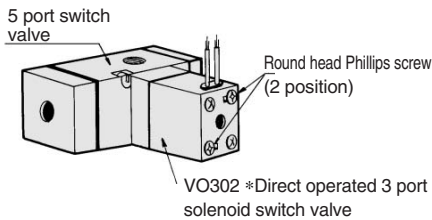
Piston Speed Adjustment

- To slow down the piston speed, screw in the needle of the silencer exhaust throttle valve clockwise, to reduce the amount of air that is discharged.
- The throttle valve needle opens fully when it is loosened 11 turns from its fully closed position.



- After the specified speed has been set, secure the needle with the lock nut.

Change of Voltage Specifications



<Step>

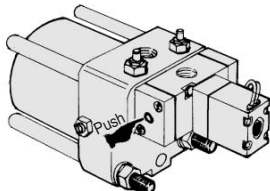
- Loosen the Phillips screw with a screwdriver.
- Detach the VO302* direct operated 3 port solenoid valve switch* from the 5 port solenoid valve (V3108, V3208) and replace it.

How to order pilot valve:

- For single solenoid valve
 - Pilot valve only
VO302A-00** 1 pc.
 - With gasket
VO302S-00** 1 pc.
- For double solenoid valve
 - Pilot valve only
VO302A-00** 2 pcs.
 - With gasket
VO302D-00** 2 pcs.

Manual Operation

Manual operation (non-locking) is possible by pushing the manual button about 3 mm.



Changing between Rod Extended when Energized and Rod Retracted when Energized

Ex.) From rod extended when energized to rod retracted when energized

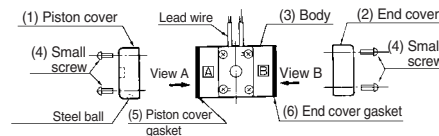


Fig. 1

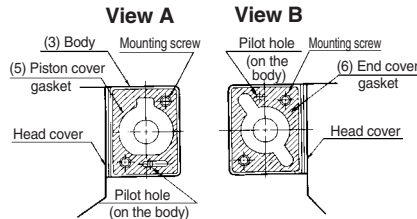


Fig. 2

<Step>

- Loosen small screw (4) and remove piston cover (1) and end cover (2) from body (3). See Fig. 1. Leave piston cover gasket (5) and end cover gasket (6) attached to body (3). The installed position of the gasket at this time is shown in Fig. 2.
- Push spool valve (7) and spool spring (8) out from the end cover side (the letter "B" side of the body) of body (3). (Do not push them out from the opposite direction. Fig. 3)

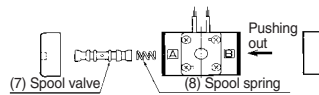


Fig. 3

- Invert the spool valve 180° and insert it from the piston cover side (the side of the body marked "A") of body e. (Fig. 4)

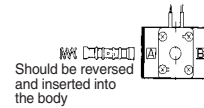


Fig. 4

- Interchange piston cover gasket (5) and end cover gasket (6). (Fig. 5)

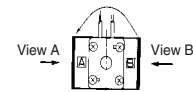


Fig. 5

The positions for gaskets after replacement are like the Fig. 6.

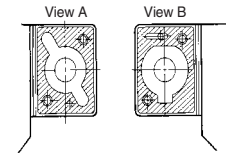


Fig. 6

- Interchange piston cover (1) and end cover (2). The installation must be performed from the piston cover side (the letter "B" side of the body). (Refer to Fig. 7.)

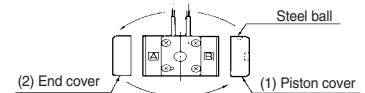
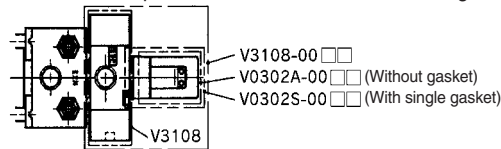


Fig. 7

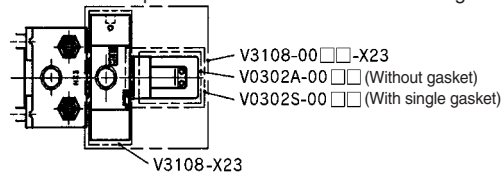
At this time, install so that the steel ball of the piston cover faces the surface from which the lead wires protrude.

Solenoid Valve for CV3, Pilot Valve Part No.

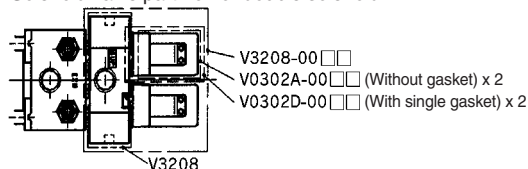
Solenoid valve part no. for rod extension when energized



Solenoid valve part no. for rod retraction when energized



Solenoid valve part no. for double solenoid

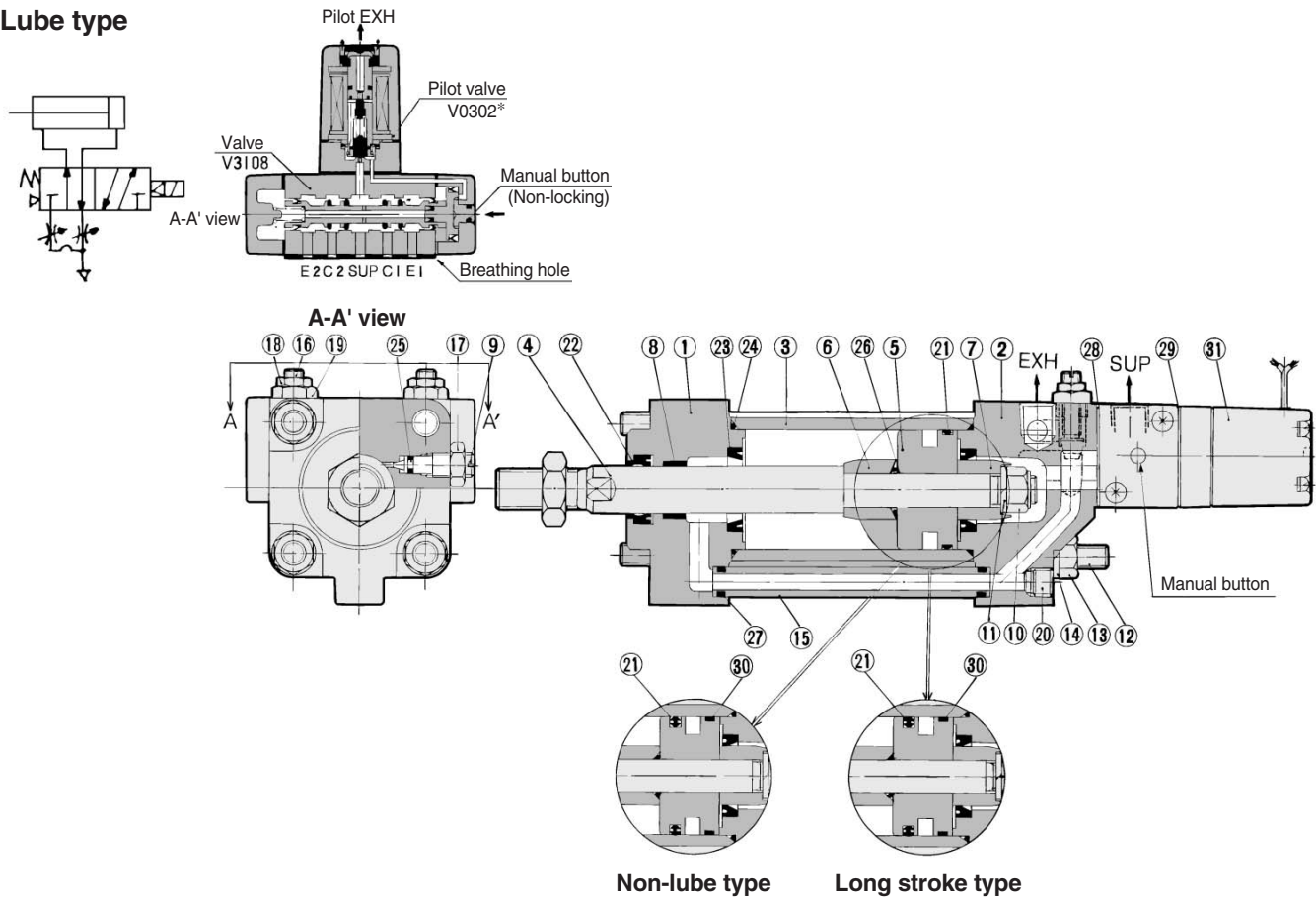


Note) Part number for the plate name of pilot valve is all V0302A.

Valve Mounted Cylinder Double Acting, Single Rod Series CV3

Construction

Lube type



Component Parts

| No. | Description | Material | Note |
|-----|----------------|----------------------------|---------------------------|
| ① | Rod cover | Aluminum alloy | Matt black painted |
| ② | Head cover | Aluminum alloy | Matt black painted |
| ③ | Cylinder tube | Aluminum alloy | Hard anodized |
| ④ | Piston rod | Carbon steel | Hard chrome plated |
| ⑤ | Piston | Aluminum alloy | Chromated |
| ⑥ | Cushion ring A | Rolled steel | Zinc chromated |
| ⑦ | Cushion ring B | Rolled steel | Zinc chromated |
| ⑧* | Bushing | Lead-bronze casted | |
| ⑨ | Cushion valve | Rolled steel | Electroless nickel plated |
| ⑩ | Piston nut | Rolled steel | Zinc chromated |
| ⑪ | Spring washer | Steel wire | Zinc chromated |
| ⑫ | Tie-rod | Carbon steel | Chromated |
| ⑬ | Tie-rod nut | Carbon steel | Black zinc chromated |
| ⑭ | Spring washer | Steel wire | Black zinc chromated |
| ⑮ | Pipe | Carbon steel tube | Chromated |
| ⑯ | Valve | Sulfur easy chipping steel | Electroless nickel plated |
| ⑰ | Lock nut | Carbon steel | Nickel plated |
| ⑱ | Lock nut | Carbon steel | Nickel plated |
| ⑲ | Needle guide | Sulfur easy chipping steel | Electroless nickel plated |
| ⑳ | Plug | Chromium molybdenum steel | Black zinc chromated |
| ㉑ | Wear ring | Resin | |

| No. | Description | Material | Note |
|-----|------------------------|----------|------|
| ㉒ | Piston seal | NBR | |
| ㉓ | Rod seal | NBR | |
| ㉔* | Cushion seal | NBR | |
| ㉕ | Cylinder tube gasket | NBR | |
| ㉖ | Cushion valve seal | NBR | |
| ㉗* | Piston gasket | NBR | |
| ㉘ | Pipe gasket | NBR | |
| ㉙ | Head cover gasket | NBR | |
| ㉚ | Single solenoid gasket | NBR | |
| ㉛ | Double solenoid gasket | NBR | |

* Not replaceable.

Replacement Parts: Seal Kit

Lube Type

| Bore size (mm) | 40 | 50 | 63 | 80 | 100 |
|----------------|---------------------------------------|-----------|-----------|-----------|------------|
| Kit no. | CV3-40-PS | CV3-50-PS | CV3-63-PS | CV3-80-PS | CV3-100-PS |
| Contents | Set of nos. above ㉒, ㉓, ㉔, ㉕, ㉖, ㉗, ㉘ | | | | |

Non-lube Type

| Bore size (mm) | 40 | 50 | 63 | 80 | 100 |
|----------------|---------------------------------------|-----------|-----------|-----------|------------|
| Kit no. | CV3N40-PS | CV3N50-PS | CV3N63-PS | CV3N80-PS | CV3N100-PS |
| Contents | Set of nos. above ㉒, ㉓, ㉔, ㉕, ㉖, ㉗, ㉘ | | | | |

* Seal kit includes ㉒, ㉓, ㉔, ㉕, ㉖, ㉗, ㉘. Order the seal kit, based on each bore size. (The parts indicated with numbers ㉚ and ㉛ are not replaceable.)

| No. | Description | No. of solenoids | Rod extended when energized | Rod retracted when energized |
|-----|----------------|------------------|-----------------------------|------------------------------|
| ㉜ | Solenoid valve | Single | (1) | (2) |
| | | Double | | (3) |

* How to order solenoid valves

Note 1) V3108-00 [Voltage] [Electrical entry]

Note 2) V3108-00 [Voltage] [Electrical entry] x 23

Note 3) V3208-00 [Voltage] [Electrical entry]

For the dimensions of DIN terminal, refer to page 10-15-59.

RE_B^A

REC

C□X

C□Y

MQ_M^Q

RHC

MK(2)

RS_G^Q

RS_A^H

RZQ

MI_S^W

CEP1

CE1

CE2

ML2B

C₅-S

CV

MVGQ

CC

RB

J

D-

-X

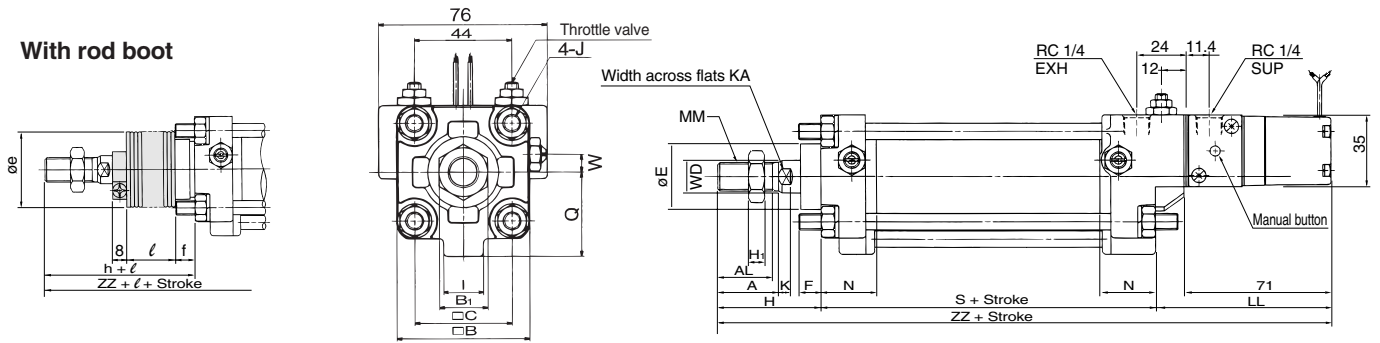
20-

Data

Series CV3

Basic Style: CV3B□

Lube type (CV3B), Non-lube type (CV3BN)



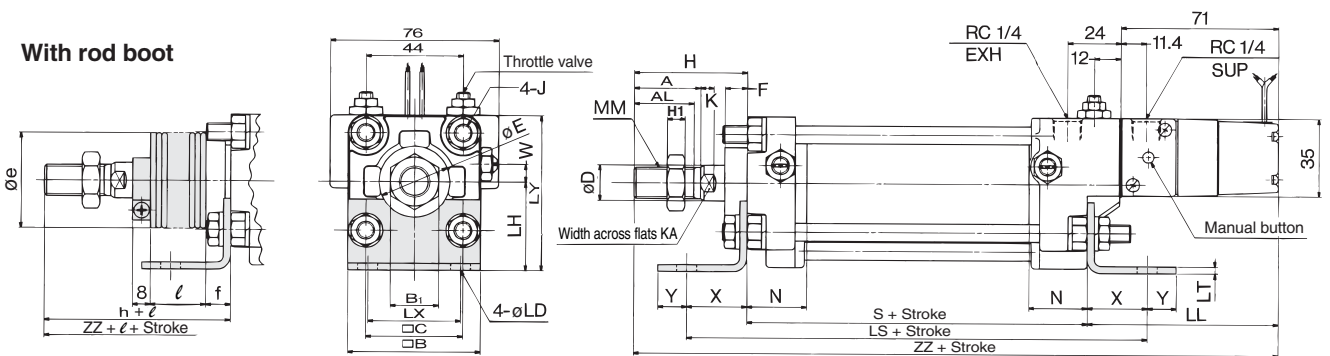
| Bore size (mm) | Stroke range* (mm) | A | AL | B | B ₁ | C | D | E | F | H ₁ | I | J | K | KA | LL | MM | N | Q | S |
|----------------|--------------------|----|----|-----|----------------|----|----|----|----|----------------|----|------------|----|----|----|-----------|----|------|-----|
| 40 | Up to 500 | 30 | 27 | 60 | 22 | 44 | 16 | 32 | 10 | 8 | 18 | M8 x 1.25 | 6 | 14 | 86 | M14 x 1.5 | 27 | 38 | 84 |
| 50 | Up to 600 | 35 | 32 | 70 | 27 | 52 | 20 | 40 | 10 | 11 | 18 | M8 x 1.25 | 7 | 18 | 83 | M18 x 1.5 | 30 | 43.5 | 90 |
| 63 | Up to 600 | 35 | 32 | 85 | 27 | 64 | 20 | 40 | 10 | 11 | 18 | M10 x 1.25 | 7 | 18 | 83 | M18 x 1.5 | 31 | 49 | 98 |
| 80 | Up to 750 | 40 | 37 | 102 | 32 | 78 | 25 | 52 | 14 | 13 | 20 | M12 x 1.75 | 11 | 22 | 84 | M22 x 1.5 | 37 | 63 | 116 |
| 100 | Up to 750 | 40 | 37 | 116 | 41 | 92 | 30 | 52 | 14 | 16 | 20 | M12 x 1.75 | 11 | 26 | 85 | M26 x 1.5 | 40 | 73 | 126 |

* The minimum stroke of the one with rod boot is 20 mm or more.

| Bore size (mm) | W | Without rod boot | | With rod boot | | | | |
|----------------|---|------------------|-----|---------------|------|----|------------|-----|
| | | H | ZZ | e | f | h | ℓ | ZZ |
| 40 | 8 | 51 | 221 | 43 | 11.2 | 59 | 1/4 stroke | 229 |
| 50 | 0 | 58 | 231 | 52 | 11.2 | 66 | 1/4 stroke | 239 |
| 63 | 0 | 58 | 239 | 52 | 11.2 | 66 | 1/4 stroke | 247 |
| 80 | 0 | 71 | 271 | 65 | 12.5 | 80 | 1/4 stroke | 280 |
| 100 | 0 | 72 | 283 | 65 | 14.0 | 81 | 1/4 stroke | 292 |

Axial Foot Style: CV3L□

Lube type (CV3L), Non-lube type (CV3LN)



| Bore size (mm) | Stroke range* (mm) | A | AL | B | B ₁ | C | D | E | F | H ₁ | J | K | LD | LH | LL | LS | LT | LX | LY |
|----------------|---------------------------|----|----|-----|----------------|----|----|----|----|----------------|------------|----|------|----|----|-----|-----|----|-----|
| 40 | Up to 500 501 to 800* | 30 | 27 | 60 | 22 | 44 | 16 | 32 | 10 | 8 | M8 x 1.25 | 6 | 9 | 40 | 86 | 138 | 3.2 | 42 | 70 |
| 50 | Up to 600 601 to 1000* | 35 | 32 | 70 | 27 | 52 | 20 | 40 | 10 | 11 | M8 x 1.25 | 7 | 9 | 45 | 83 | 144 | 3.2 | 50 | 80 |
| 63 | Up to 600 601 to 1000* | 35 | 32 | 85 | 27 | 64 | 20 | 40 | 10 | 11 | M10 x 1.25 | 7 | 11.5 | 50 | 83 | 166 | 3.2 | 59 | 93 |
| 80 | Up to 750 751 to 1000* | 40 | 37 | 102 | 32 | 78 | 25 | 52 | 14 | 13 | M12 x 1.75 | 11 | 13.5 | 65 | 84 | 204 | 4.5 | 76 | 116 |
| 100 | Up to 750 751 to 1000* | 40 | 37 | 116 | 41 | 92 | 30 | 52 | 14 | 16 | M12 x 1.75 | 11 | 13.5 | 75 | 85 | 212 | 6 | 92 | 133 |

| Bore size (mm) | MM | N | S | W | X | Y | Without rod boot | | With rod boot | | | | |
|----------------|-----------|----|-----|---|----|----|------------------|-----|---------------|------|----|------------|-----|
| | | | | | | | H | ZZ | e | f | h | ℓ | ZZ |
| 40 | M14 x 1.5 | 27 | 84 | 8 | 27 | 13 | 51 | 221 | 43 | 11.2 | 59 | 1/4 stroke | 229 |
| 50 | M18 x 1.5 | 30 | 90 | 0 | 27 | 13 | 58 | 231 | 52 | 11.2 | 66 | 1/4 stroke | 239 |
| 63 | M18 x 1.5 | 31 | 98 | 0 | 34 | 16 | 58 | 239 | 52 | 11.2 | 66 | 1/4 stroke | 247 |
| 80 | M22 x 1.5 | 37 | 116 | 0 | 44 | 16 | 71 | 271 | 65 | 12.5 | 80 | 1/4 stroke | 280 |
| 100 | M26 x 1.5 | 40 | 126 | 0 | 43 | 17 | 72 | 283 | 65 | 14.0 | 81 | 1/4 stroke | 292 |

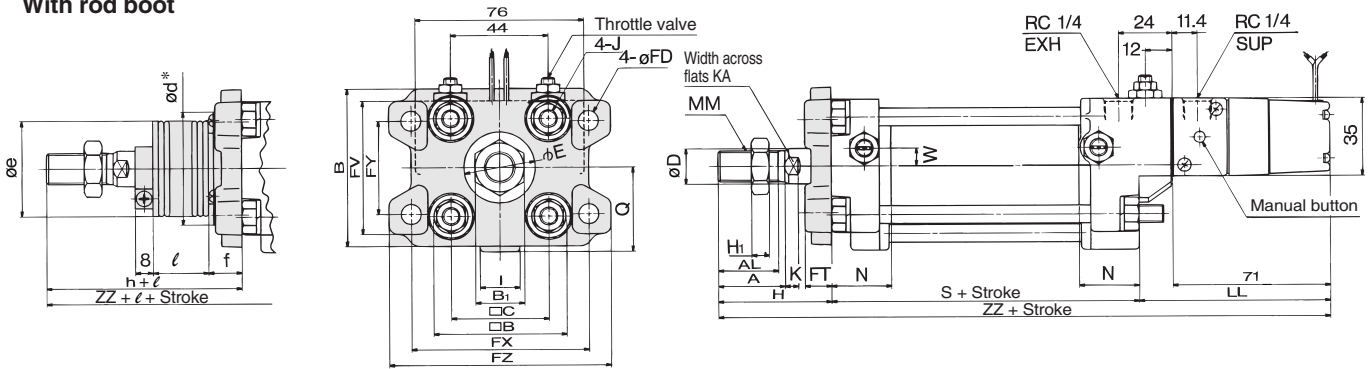
* The minimum stroke of the one with rod boot is 20 mm or more. * Long stroke

Valve Mounted Cylinder Double Acting, Single Rod Series CV3

Rod Side Flange Style: CV3F

Lube type (CV3F), Non-lube type (CV3FN)

With rod boot



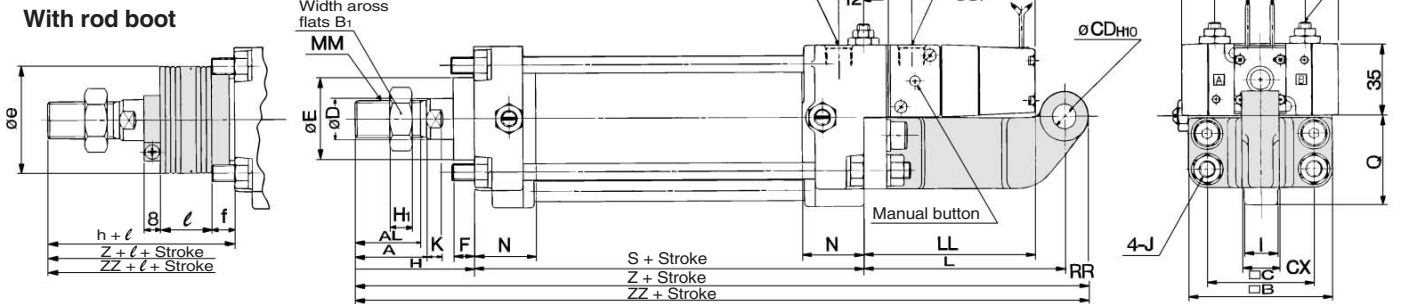
| Bore size (mm) | Stroke range* (mm) | A | AL | B | B ₁ | C | D | E | FD | FT | FV | FX | FY | FZ | H ₁ | I | J | K | |
|----------------|----------------------------|----|----|-----|----------------|----|----|----|----|------|----|-----|-----|----|----------------|----|----|------------|----|
| 40 | Up to 500 501 to 800** | 30 | 27 | 71 | 60 | 22 | 44 | 16 | 32 | 9 | 12 | 60 | 80 | 42 | 100 | 8 | 18 | M8 x 1.25 | 6 |
| 50 | Up to 600 601 to 1000** | 35 | 32 | 81 | 70 | 27 | 52 | 20 | 40 | 9 | 12 | 70 | 90 | 50 | 110 | 11 | 18 | M8 x 1.25 | 7 |
| 63 | Up to 600 601 to 1000** | 35 | 32 | 101 | 85 | 27 | 64 | 20 | 40 | 11.5 | 15 | 86 | 105 | 59 | 130 | 11 | 18 | M10 x 1.25 | 7 |
| 80 | Up to 750 751 to 1000** | 40 | 37 | 119 | 102 | 32 | 78 | 25 | 52 | 13.5 | 18 | 102 | 130 | 76 | 160 | 13 | 20 | M12 x 1.75 | 11 |
| 100 | Up to 750 751 to 1000** | 40 | 37 | 133 | 116 | 41 | 92 | 30 | 52 | 13.5 | 18 | 116 | 150 | 92 | 180 | 16 | 20 | M12 x 1.75 | 11 |

| Bore size (mm) | LL | MM | N | Q | S | W | Without rod boot | | With rod boot | | | | | |
|----------------|----|-----------|----|------|-----|---|------------------|-----|---------------|----|------|----|------------|-----|
| | | | | | | | H | ZZ | d** | e | f | h | ℓ | ZZ |
| 40 | 86 | M14 x 1.5 | 27 | 38 | 84 | 8 | 51 | 221 | 52 | 43 | 15 | 59 | 1/4 stroke | 229 |
| 50 | 83 | M18 x 1.5 | 30 | 43.5 | 90 | 0 | 58 | 231 | 58 | 52 | 15 | 66 | 1/4 stroke | 239 |
| 63 | 83 | M18 x 1.5 | 31 | 49 | 98 | 0 | 58 | 239 | 58 | 52 | 17.5 | 66 | 1/4 stroke | 247 |
| 80 | 84 | M22 x 1.5 | 37 | 63 | 116 | 0 | 71 | 271 | 80 | 65 | 21.5 | 80 | 1/4 stroke | 280 |
| 100 | 85 | M26 x 1.5 | 40 | 73 | 126 | 0 | 72 | 283 | 80 | 65 | 21.5 | 81 | 1/4 stroke | 292 |

* The minimum stroke of the one with rod boot is 20 mm or more. ** When drilling holes to get through the rod boot for the purpose of mounting, make the holes larger than the outer diameter (ϕd) of the rod boot mounting bracket.

Single Clevis Style: CV3C

Lube type (CV3C), Non-lube type (CV3CN)
Bore size $\phi 40$ is not available.



** Bore size $\phi 40$ is not available.

| Bore size** (mm) | Stroke range* (mm) | A | AL | B | B ₁ | C | ϕCD_{H10} | CX | D | E | F | H ₁ | I | J | K | L | LL |
|------------------|--------------------|----|----|-----|----------------|----|-----------------------------------|--------------------------------------|----|----|----|----------------|----|------------|----|-----|----|
| 50 | Up to 600 | 35 | 32 | 70 | 27 | 52 | 12 ^{+0.070} ₀ | 18 ^{-0.1} _{-0.3} | 20 | 40 | 10 | 11 | 18 | M8 x 1.25 | 7 | 98 | 83 |
| 63 | Up to 600 | 35 | 32 | 85 | 27 | 64 | 16 ^{+0.070} ₀ | 25 ^{-0.1} _{-0.3} | 20 | 40 | 10 | 11 | 18 | M10 x 1.25 | 7 | 100 | 83 |
| 80 | Up to 750 | 40 | 37 | 102 | 32 | 78 | 20 ^{+0.084} ₀ | 31.5 ^{-0.1} _{-0.3} | 25 | 52 | 14 | 13 | 20 | M12 x 1.75 | 11 | 105 | 84 |
| 100 | Up to 750 | 40 | 37 | 116 | 41 | 92 | 25 ^{+0.084} ₀ | 35.5 ^{-0.1} _{-0.3} | 30 | 52 | 14 | 16 | 20 | M12 x 1.75 | 11 | 110 | 85 |

| Bore size** (mm) | MM | N | Q | RR | S | Without rod boot | | | With rod boot | | | | | |
|------------------|-----------|----|------|----|-----|------------------|-----|-----|---------------|------|----|------------|-----|-----|
| | | | | | | H | Z | ZZ | e | f | h | ℓ | Z | ZZ |
| 50 | M18 x 1.5 | 30 | 43.5 | 12 | 90 | 58 | 246 | 258 | 52 | 11.2 | 66 | 1/4 stroke | 254 | 266 |
| 63 | M18 x 1.5 | 31 | 49 | 16 | 98 | 58 | 256 | 272 | 52 | 11.2 | 66 | 1/4 stroke | 264 | 280 |
| 80 | M22 x 1.5 | 37 | 63 | 20 | 116 | 71 | 292 | 312 | 65 | 12.5 | 80 | 1/4 stroke | 301 | 321 |
| 100 | M26 x 1.5 | 40 | 73 | 25 | 126 | 72 | 308 | 333 | 65 | 14.0 | 81 | 1/4 stroke | 317 | 342 |

* The minimum stroke of the one with rod boot is 20 mm or more.

RE^A_B

REC

C□X

C□Y

MQ^Q_M

RHC

MK(2)

RS^Q_G

RS^H_A

RZQ

MI^W_S

CEP1

CE1

CE2

ML2B

C¹/₅-S

CV

MVGQ

CC

RB

J

D-

-X

20-

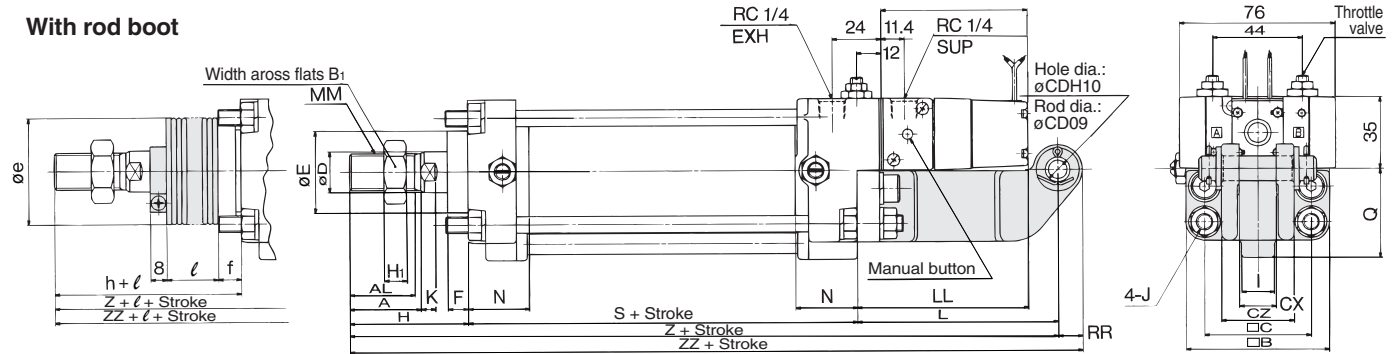
Data

Series CV3

Double Clevis Style: CV3D□

Lube type (CV3D), Non-lube type (CV3DN)
Bore size ø40 is not available.

With rod boot



** Bore size ø40 is not available.

| Bore size** (mm) | Stroke range* (mm) | A | AL | B | B ₁ | C | CD | CX | CZ | D | E | F | H ₁ | I | J | K | L |
|------------------|--------------------|----|----|-----|----------------|----|----|--------------------------------------|------|----|----|----|----------------|----|------------|----|-----|
| 50 | Up to 600 | 35 | 32 | 70 | 27 | 52 | 12 | 18 ^{+0.3} _{+0.1} | 35.5 | 20 | 40 | 10 | 11 | 18 | M8 x 1.25 | 7 | 98 |
| 63 | Up to 600 | 35 | 32 | 85 | 27 | 64 | 16 | 25 ^{+0.3} _{+0.1} | 50 | 20 | 40 | 10 | 11 | 18 | M10 x 1.25 | 7 | 100 |
| 80 | Up to 750 | 40 | 37 | 102 | 32 | 78 | 20 | 31.5 ^{+0.3} _{+0.1} | 63 | 25 | 52 | 14 | 13 | 20 | M12 x 1.75 | 11 | 105 |
| 100 | Up to 750 | 40 | 37 | 116 | 41 | 92 | 25 | 35.5 ^{+0.3} _{+0.1} | 71 | 30 | 52 | 14 | 16 | 20 | M12 x 1.75 | 11 | 110 |

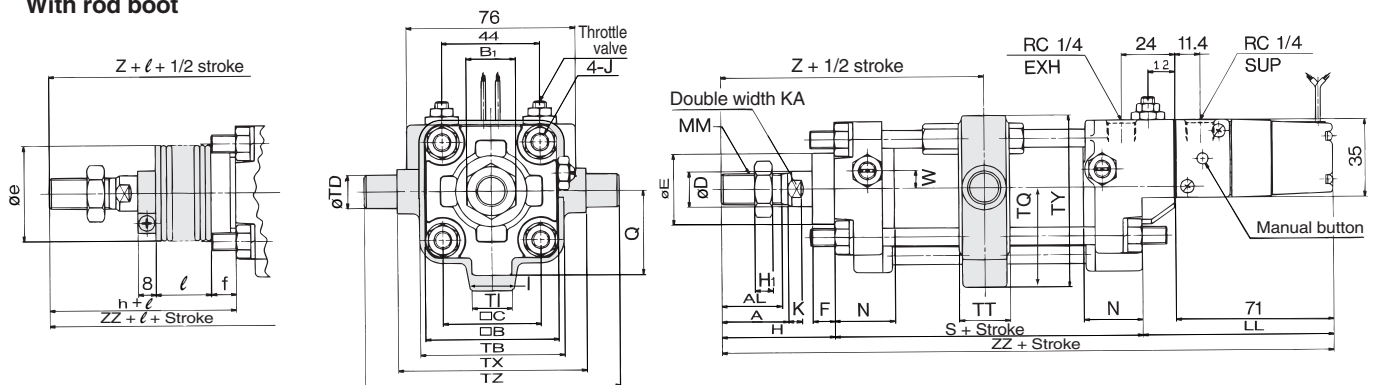
| Bore size** (mm) | LL | MM | N | Q | RR | S | Without rod boot | | | With rod boot | | | | | |
|------------------|----|-----------|----|------|----|-----|------------------|-----|-----|---------------|------|----|------------|-----|-----|
| | | | | | | | H | Z | ZZ | e | f | h | ℓ | Z | ZZ |
| 50 | 83 | M18 x 1.5 | 30 | 43.5 | 12 | 90 | 58 | 246 | 258 | 52 | 11.2 | 66 | 1/4 stroke | 254 | 266 |
| 63 | 83 | M18 x 1.5 | 31 | 49 | 16 | 98 | 58 | 256 | 272 | 52 | 11.2 | 66 | 1/4 stroke | 264 | 280 |
| 80 | 84 | M22 x 1.5 | 37 | 63 | 20 | 116 | 71 | 292 | 312 | 65 | 12.5 | 80 | 1/4 stroke | 301 | 321 |
| 100 | 85 | M26 x 1.5 | 40 | 73 | 25 | 126 | 72 | 308 | 333 | 65 | 14.0 | 81 | 1/4 stroke | 317 | 342 |

* Clevis pin and snap ring (cotter pin for 40) are shipped together. The minimum stroke with rod boot is 20 mm or more.

Center Trunnion Style: CV3T□

Lube type (CV3T), Non-lube type (CV3TN)

With rod boot



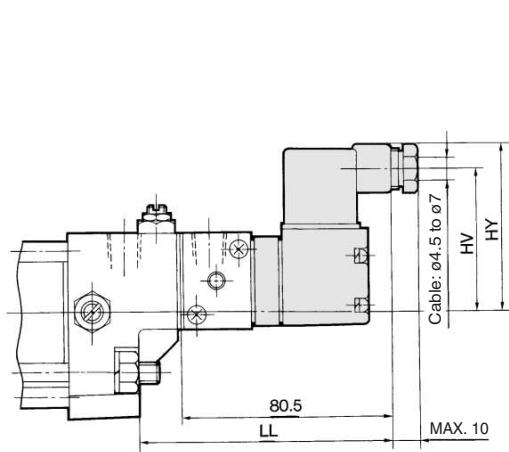
| Bore size (mm) | Stroke range* (mm) | A | AL | B | B ₁ | C | D | E | F | H ₁ | J | K | LL | MM | N | S | TB |
|----------------|--------------------|----|----|-----|----------------|----|----|----|----|----------------|------------|----|----|-----------|----|-----|-----|
| 40 | 25 to 500 | 30 | 27 | 60 | 22 | 44 | 16 | 32 | 10 | 8 | M8 x 1.25 | 6 | 86 | M14 x 1.5 | 27 | 84 | 65 |
| 50 | 25 to 600 | 35 | 32 | 70 | 27 | 52 | 20 | 40 | 10 | 11 | M8 x 1.25 | 7 | 83 | M18 x 1.5 | 30 | 90 | 75 |
| 63 | 50 to 600 | 35 | 32 | 85 | 27 | 64 | 20 | 40 | 10 | 11 | M10 x 1.25 | 7 | 83 | M18 x 1.5 | 31 | 98 | 90 |
| 80 | 50 to 750 | 40 | 37 | 102 | 32 | 78 | 25 | 52 | 14 | 13 | M12 x 1.75 | 11 | 84 | M22 x 1.5 | 37 | 116 | 110 |
| 100 | 50 to 750 | 40 | 37 | 116 | 41 | 92 | 30 | 52 | 14 | 16 | M12 x 1.75 | 11 | 85 | M26 x 1.5 | 40 | 126 | 130 |

| Bore size (mm) | øTD _{es} | TI | TQ | TT | TX | TY | TZ | W | I | Q | Without rod boot | | | With rod boot | | | | | |
|----------------|--|----|------|----|-----|-------|-----|---|----|------|------------------|-----|-----|---------------|------|----|------------|-----|-----|
| | | | | | | | | | | | H | Z | ZZ | e | f | h | ℓ | Z | ZZ |
| 40 | 15 ^{-0.032} _{-0.059} | 20 | 45 | 23 | 85 | 77.5 | 115 | 8 | 18 | 38 | 51 | 93 | 221 | 43 | 11.2 | 59 | 1/4 stroke | 101 | 229 |
| 50 | 15 ^{-0.032} _{-0.059} | 20 | 50 | 23 | 95 | 87.5 | 125 | 0 | 18 | 43.5 | 58 | 103 | 231 | 52 | 11.2 | 66 | 1/4 stroke | 111 | 239 |
| 63 | 18 ^{-0.032} _{-0.059} | 20 | 57 | 28 | 110 | 102 | 146 | 0 | 18 | 49 | 58 | 107 | 239 | 52 | 11.2 | 66 | 1/4 stroke | 115 | 247 |
| 80 | 25 ^{-0.040} _{-0.073} | 24 | 69.5 | 35 | 140 | 124.5 | 190 | 0 | 20 | 63 | 71 | 129 | 271 | 65 | 12.5 | 80 | 1/4 stroke | 138 | 280 |
| 100 | 25 ^{-0.040} _{-0.073} | 24 | 79.5 | 43 | 162 | 144.5 | 212 | 0 | 20 | 73 | 72 | 135 | 283 | 65 | 14.0 | 81 | 1/4 stroke | 144 | 292 |

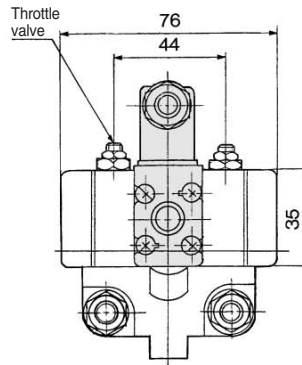
* The minimum stroke of the one with rod boot is 20 mm or more.

Valve Mounted Cylinder Double Acting, Single Rod Series CV3

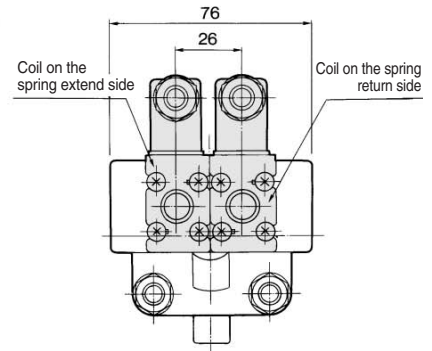
Electrical Entry: Dimensions for DIN



Single



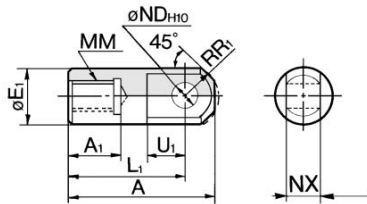
Double



| Bore size (mm) | LL | HV | HY |
|----------------|------|----|----|
| 40 | 95.5 | 55 | 64 |
| 50 | 92.5 | 60 | 69 |
| 63 | 92.5 | 68 | 77 |
| 80 | 93.5 | 76 | 85 |
| 100 | 94.5 | 83 | 92 |

Accessory Dimensions

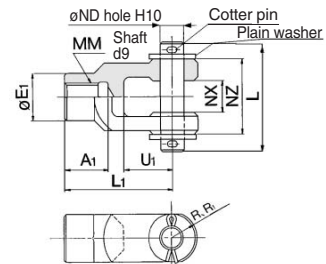
I Type Single Knuckle Joint



Material: Free cutting sulfur steel

| Part no. | Applicable bore size (mm) | A | A ₁ | øE ₁ | L ₁ | MM | R ₁ | U ₁ | øND _{H10} | NX |
|----------|---------------------------|-----|----------------|-----------------|----------------|-----------|----------------|----------------|-----------------------------------|------------------------------------|
| I-04 | 40 | 69 | 22 | 24 | 55 | M14 x 1.5 | 15.5 | 20 | 12 ^{+0.070} ₀ | 16 ^{-0.1} _{-0.3} |
| I-05 | 50, 63 | 74 | 27 | 28 | 60 | M18 x 1.5 | 15.5 | 20 | 12 ^{+0.070} ₀ | 16 ^{-0.1} _{-0.3} |
| I-08 | 80 | 91 | 37 | 36 | 71 | M22 x 1.5 | 22.5 | 26 | 18 ^{+0.070} ₀ | 28 ^{-0.1} _{-0.3} |
| I-10 | 100 | 105 | 37 | 40 | 83 | M26 x 1.5 | 24.5 | 28 | 20 ^{+0.084} ₀ | 30 ^{-0.1} _{-0.3} |

Y Type Double Knuckle Joint

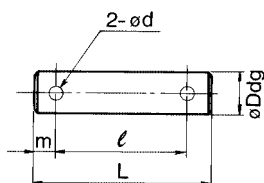


Material: Cast iron

| Part no. | Applicable bore size (mm) | A ₁ | E ₁ | L ₁ | MM | RR1 | U ₁ | ND | NX | NZ | L | Coter pin size | Plain washer size |
|----------|---------------------------|----------------|----------------|----------------|-----------|-----|----------------|----|-----------------------------------|----|------|----------------|-------------------|
| Y-04C | 40 | 22 | 24 | 55 | M14 x 1.5 | 13 | 25 | 12 | 16 ^{+0.3} _{0.1} | 38 | 55.5 | ø3 x 18ℓ | Polished round 12 |
| Y-05C | 50, 63 | 27 | 28 | 60 | M18 x 1.5 | 15 | 27 | 12 | 16 ^{+0.3} _{0.1} | 38 | 55.5 | ø3 x 18ℓ | Polished round 12 |
| Y-08C | 80 | 37 | 36 | 71 | M22 x 1.5 | 19 | 28 | 18 | 28 ^{+0.3} _{0.1} | 55 | 76.5 | ø4 x 25ℓ | Polished round 18 |
| Y-10C | 100 | 37 | 40 | 83 | M26 x 1.5 | 21 | 38 | 20 | 30 ^{+0.3} _{0.1} | 61 | 83 | ø4 x 30ℓ | Polished round 20 |

* Knuckle pin, cotter pin, and plain washer are shipped together.

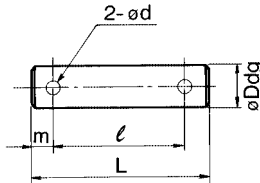
Clevis Pin



Material: Carbon steel

| Part no. | Applicable bore size (mm) | øDd9 | L | ød | ℓ | m | Applicable plain washer | Applicable cotter pin |
|----------|---------------------------|--|------|----|------|-----|-------------------------|-----------------------|
| CDP-3A | 50 | 12 ^{-0.050} _{-0.093} | 55.5 | 3 | 47.5 | 4.0 | Polished round 12 | 3 x 18 |
| CVD-06 | 63 | 16 ^{-0.050} _{-0.093} | 75 | 4 | 65 | 5.0 | Polished round 16 | 4 x 22 |
| CVD-08 | 80 | 20 ^{-0.065} _{-0.117} | 94 | 5 | 79 | 7.5 | Polished round 20 | 5 x 30 |
| CVD-10 | 100 | 25 ^{-0.085} _{-0.117} | 105 | 5 | 90 | 7.5 | Polished round 24 | 5 x 35 |

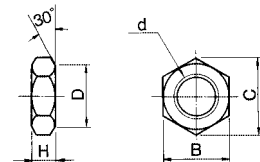
Knuckle Pin



Material: Carbon steel

| Part no. | Applicable bore size (mm) | øDd9 | L | ℓ | m | ød (Drill through) | Applicable plain washer | Applicable cotter pin |
|----------|---------------------------|--|------|------|---|--------------------|-------------------------|-----------------------|
| CDP-3A | 40, 50, 63 | 12 ^{-0.050} _{-0.093} | 55.5 | 47.5 | 4 | 3 | Polished round 12 | ø3 x 18ℓ |
| CDP-5A | 80 | 18 ^{-0.050} _{-0.093} | 76.5 | 66.5 | 5 | 4 | Polished round 18 | ø4 x 25ℓ |
| CDP-6A | 100 | 20 ^{-0.065} _{-0.117} | 83 | 73 | 5 | 4 | Polished round 20 | ø4 x 30ℓ |

Rod End Nut



Material: Rolled steel

| Part no. | Applicable bore size (mm) | d | H | B | C | D |
|----------|---------------------------|-----------|----|----|------|----|
| NT-04 | 40 | M14 x 1.5 | 8 | 22 | 25.4 | 21 |
| NT-05 | 50, 63 | M18 x 1.5 | 11 | 27 | 31.2 | 26 |
| NT-08 | 80 | M22 x 1.5 | 13 | 32 | 37 | 31 |
| NT-10 | 100 | M26 x 1.5 | 16 | 41 | 47.3 | 39 |

RE^A_B

REC

C□X

C□Y

MQ^Q_M

RHC

MK(2)

RS^Q_G

RS^H_A

RZQ

MI^W_S

CEP1

CE1

CE2

ML2B

C¹_{5-S}

CV

MVGQ

CC

RB

J

D-

-X

20-

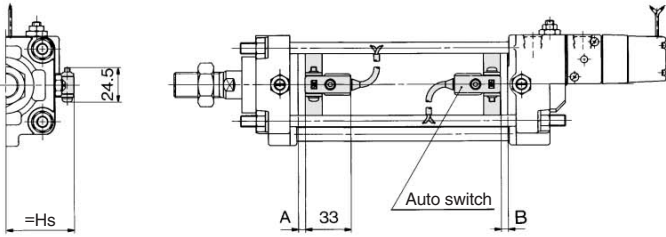
Data

Series CV3

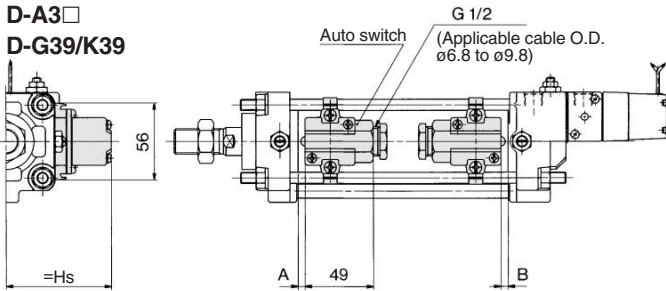
Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

<Band mounting style>

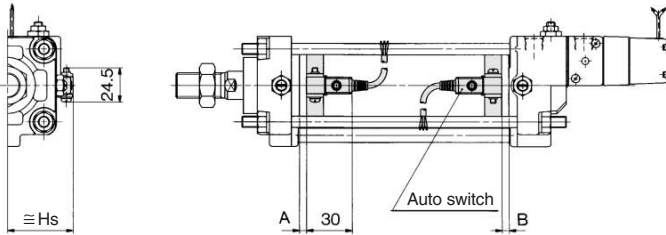
D-B5□/B64/B59W



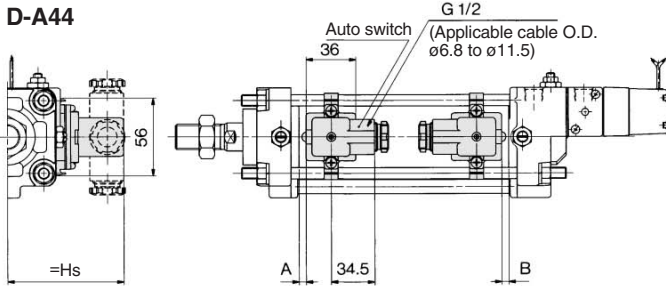
D-A3□
D-G39/K39



D-G5□/K59
D-G5□W/K59W
D-G59F/G5NTL

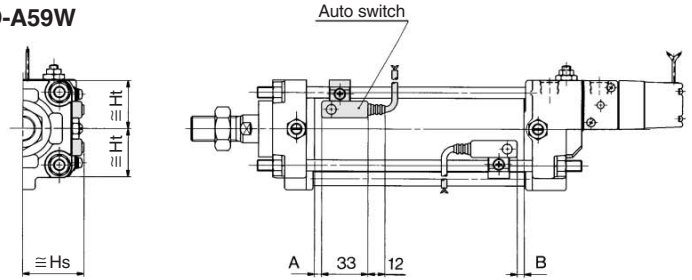


D-A44

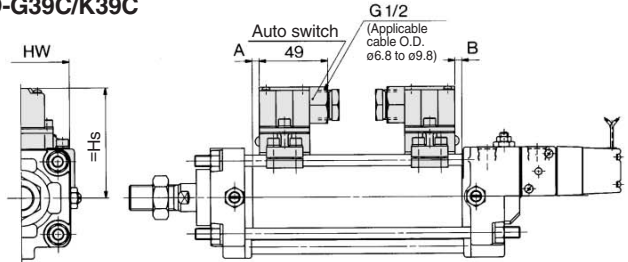


<Tie-rod mounting style>

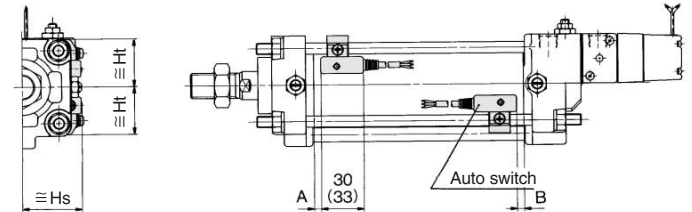
D-A5□, D-A6□
D-A59W



D-A3□C
D-G39C/K39C

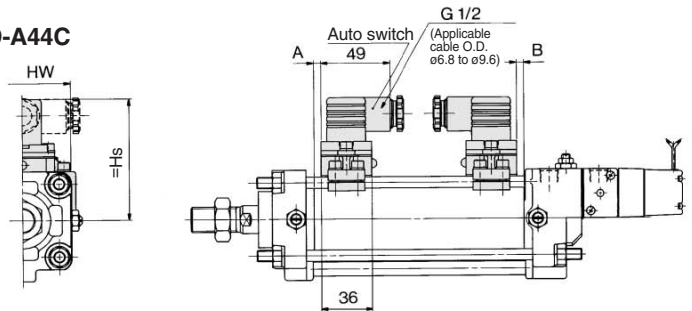


D-F5□/J5□
D-F5NTL
D-F5□W/J59W
D-F59F

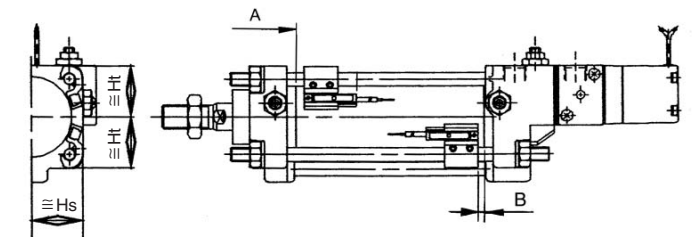


() : Denotes the values of D-F5LF.

D-A44C



D-Z7/Z8
D-Y59□/Y69□/Y7P/Y7PV
D-Y7□W/Y7□WV



Valve Mounted Cylinder Double Acting, Single Rod **Series CV3**

Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

Proper Auto Switch Mounting Position

| Auto switch model | D-A5□, D-A6□ D-A3□/A3□C D-A44/A44C D-G39/G39C D-K39/K39C | | D-B5□/B64 D-G5□W D-K59W D-G59F | | D-F5□ D-J5□ D-F5□W D-J59W D-F59F | | D-G5□ D-K59 D-G5NTL | | D-A59W | | D-F5NTL | | D-B59W D-Z7□/Z80 D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W D-Y7□WV | |
|-------------------|--|---------------|---|------------|--|--------------|---------------------------|---------------|-------------|----------------|----------------|---------------|---|--------------|
| | A | B | A | B | A | B | A | B | A | B | A | B | A | B |
| 40 | 0 (0) | 1 (0) | 0 (0.5) | 1.5 (0) | 3.5 (6.5) | 7.5 (4.5) | 0 (2) | 3 (0) | 1 (4) | 5 (2) | 8.5 (11.5) | 12.5 (9.5) | 0.5 (3.5) | 4.5 (1.5) |
| 50 | 0 (0) | 1 (0) | 0 (0.5) | 1.5 (0) | 3.5 (6.5) | 7.5 (4.5) | 0 (2) | 3 (0) | 1 (4) | 5 (2) | 8.5 (11.5) | 12.5 (9.5) | 0.5 (3.5) | 4.5 (1.5) |
| 63 | 0 (2.5) | 5.5 (1.5) | 0 (3) | 6 (2) | 5.5 (9) | 12 (8) | 1 (4.5) | 7.5 (3.5) | 3 (6.5) | 9.5 (5.5) | 10.5 (14) | 17 (13) | 2.5 (6) | 9 (5) |
| 80 | 2 (6) | 8.5 (4) | 2.5 (6.5) | 9 (4.5) | 8.5 (12.5) | 15 (10.5) | 4 (8) | 10.5 (6) | 6 (10) | 12.5 (8) | 13.5 (17.5) | 20 (15.5) | 5.5 (9.5) | 12 (7.5) |
| 100 | 4 (7.5) | 10.5 (6.5) | 4.5 (8) | 11 (7) | 10.5 (14) | 17 (13) | 6 (9.5) | 12.5 (8.5) | 8 (11.5) | 14.5 (10.5) | 15.5 (19) | 22 (18) | 7.5 (11) | 14 (10) |

- Note 1) (): Denotes the values of non-lube type.
 Note 2) D-G5□W, K59W, G58A and G59F can not be attached on ø40 and ø50 lube type cylinder.
 Note 3) D-B5□ type, D-G5□ type, D-K5□ type are mountable only upon a receipt of order. (Not mountable after the time of shipment)

Auto Switch Mounting Height

| Auto switch model | D-B5□/B64 D-B59W D-G5□ D-K59 D-G5NTL D-G5□W D-K59W D-G59F | | D-A3□ D-G39 D-K39 | | D-A44 | | D-A5□ D-A6□ D-A59W | | D-F5□ D-J5□ D-F5□W D-J59W D-F59F D-F5NTL | | D-A3□C D-G39C D-K39C | | D-A44C | | D-Z7□/Z80 D-Y59□ D-Y7P D-Y7□W | | D-Y69□ D-Y7PV D-Y7I WV | |
|-------------------|--|------|-------------------------|------|-------|------|--------------------------|------|---|------|----------------------------|------|--------|------|--|--|------------------------------|--|
| | Hs | Hs | Hs | Hs | Ht | Hs | Ht | Hs | Hw | Hs | Hw | Hs | Ht | Hs | Ht | | | |
| 40 | 38 | 72.5 | 80.5 | 40 | 31 | 38.5 | 31 | 73 | 69 | 81 | 69 | 30 | 30 | 30.5 | 30 | | | |
| 50 | 43.5 | 78 | 86 | 43.5 | 35 | 42.5 | 35 | 78.5 | 77 | 86.5 | 77 | 34 | 34 | 35 | 34 | | | |
| 63 | 50.5 | 85 | 93 | 49 | 42 | 48 | 42 | 85.5 | 91 | 93.5 | 91 | 41 | 41 | 42.5 | 41 | | | |
| 80 | 59 | 93.5 | 101.5 | 55.5 | 50 | 54 | 50 | 94 | 107 | 102 | 107 | 49.5 | 48.5 | 51 | 48.5 | | | |
| 100 | 69.5 | 104 | 112 | 63 | 57.5 | 62 | 57.5 | 104 | 121 | 112 | 121 | 58.5 | 56 | 59 | 56 | | | |

Operating Range

| Auto switch model | Bore size (mm) | | | | |
|--|----------------|----|-----|-----|------|
| | 40 | 50 | 63 | 80 | 100 |
| D-Z7□/Z80 | 8 | 7 | 9 | 9.5 | 10.5 |
| D-A3□/A44 D-A3□C/D-A44C | 9 | 10 | 11 | 11 | 11 |
| D-A5□/A6□ | | | | | |
| D-B5□/B64 | | | | | |
| D-A59W | 13 | 13 | 14 | 14 | 15 |
| D-B59W | 14 | 14 | 17 | 16 | 18 |
| D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV | 8 | 7 | 5.5 | 6.5 | 6.5 |
| D-F5□/J5□ D-F5□W/J59W D-F5NTL/F59F | 4 | 4 | 4.5 | 4.5 | 4.5 |
| D-G5□/K59 D-G5□W/K59W D-G5NTL/G59F | 5 | 6 | 6.5 | 6.5 | 7 |
| D-G39/K39 D-G39C, D-K39C | 9 | 9 | 10 | 10 | 11 |

* Since this is a guideline including hysteresis, not meant to be guaranteed. (Assuming approximately ±30% dispersion.)
 There may be the case it will vary substantially depending on an ambient environment.

Other than the models listed in "How to Order", the following auto switches are applicable.

For detailed specifications, refer to page 10-20-1.

| Type | Model | Electrical entry (Fetching direction) | Features |
|--------------------|---|---------------------------------------|-------------------------|
| Reed switch | D-A53/A56 | Grommet (In-line) | Without indicator light |
| | D-A64/A67 | | |
| | D-B64 | | |
| | D-Z80 | | |
| Solid state switch | D-F59/F5P/J59 | Grommet (In-line) | — |
| | D-F59W/F5PW/J59W | | |
| | D-F5NTL | | 2-color indication |
| | D-G5NTL | | With timer |
| | D-Y69A/Y7PV/Y69B D-Y7NWV/Y7PWV/Y7BWV | | Grommet (Perpendicular) |

* With pre-wire connector is also available in solid state auto switches.
 For details, refer to page 10-20-66.

* Normally closed (NC = b contact), solid state switch (D-Y7G/Y7H type) are also available. For details, refer to page 10-20-41.

RE_B^A
 REC
 C□X
 C□Y
 MQ_M^Q
 RHC
 MK(2)
 RS_G^Q
 RS_A^H
 RZQ
 MI_S^W
 CEP1
 CE1
 CE2
 ML2B
 C_G¹/_S
CV
 MVGQ
 CC
 RB
 J
 D-
 -X
 20-
 Data

Series CV3

Minimum Stroke For Auto Switch Mounting

n: Number of auto switches

| Auto switch model | No. of auto switches mounted | Mounting brackets other than center trunnion | Center trunnion | | | | |
|---|-----------------------------------|--|---|---|---|---|---|
| | | | ø40 | ø50 | ø63 | ø80 | ø100 |
| D-A5□/A6□ D-F5□/J5□ D-F5□W/J59W D-F59F | 2 (Different sides, Same side), 1 | 15 | 90 | | 100 | 110 | 120 |
| | n (Same side) | $15 + 55 \frac{(n-2)}{2}$ n = 2, 4, 6, 8... | $90 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $100 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $110 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $120 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | |
| D-A59W | 2 (Different sides, Same side) | 20 | 90 | | 100 | 110 | 120 |
| | n (Same side) | $20 + 55 \frac{(n-2)}{2}$ n = 2, 4, 6, 8... | $90 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $100 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $110 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $120 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | |
| | 1 | 15 | 90 | | 100 | 110 | 120 |
| D-F5NTL | 2 (Different sides, Same side), 1 | 25 | 110 | | 120 | 130 | 140 |
| | n (Same side) | $25 + 55 \frac{(n-2)}{2}$ n = 2, 4, 6, 8... | $110 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $120 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $130 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $140 + 55 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | |
| D-B5□/B64 D-G5□/K59 D-G5□W D-K59W D-G59F D-G5NTL | 2 | Different sides | 15 | 90 | | 100 | 110 |
| | | Same side | 75 | 90 | | 100 | 110 |
| | n | Different sides | $15 + 50 \frac{(n-2)}{2}$ n = 2, 4, 6, 8... | $90 + 50 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $100 + 50 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $110 + 50 \frac{(n-4)}{2}$ n = 4, 8, 12, 16, ... | |
| | | Same side | $75 + 50 (n-2)$ n = 2, 3, 4... | $90 + 50 (n-2)$ n = 2, 4, 6, 8... | $100 + 50 (n-2)$ n = 2, 4, 6, 8... | $110 + 50 (n-2)$ n = 2, 4, 6, 8... | |
| | 1 | 10 | 90 | | 100 | 110 | |
| D-B59W | 2 | Different sides | 20 | 90 | | 100 | 110 |
| | | Same side | 75 | 90 | | 100 | 110 |
| | n | Different sides | $20 + 50 \frac{(n-2)}{2}$ n = 2, 4, 6, 8... | $90 + 50 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $100 + 50 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $110 + 50 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | |
| | | Same side | $75 + 50 (n-2)$ n = 2, 3, 4... | $90 + 50 (n-2)$ n = 2, 4, 6, 8... | $100 + 50 (n-2)$ n = 2, 4, 6, 8... | $110 + 50 (n-2)$ n = 2, 4, 6, 8... | |
| | 1 | 15 | 90 | | 100 | 110 | |
| D-A3□ D-G39 D-K39 | 2 | Different sides | 35 | 100 | | 100 | 110 |
| | | Same side | 100 | 100 | | 100 | 110 |
| | n | Different sides | $35 + 30 (n-2)$ n = 2, 3, 4... | $100 + 30 (n-2)$ n = 2, 4, 6, 8... | $100 + 30 (n-2)$ n = 2, 4, 6, 8... | $110 + 30 (n-2)$ n = 2, 4, 6, 8... | |
| | | Same side | $100 + 100 (n-2)$ n = 2, 3, 4... | $100 + 100 (n-2)$ n = 2, 4, 6, 8... | | $110 + 100 (n-2)$ n = 2, 4, 6, 8... | |
| 1 | 10 | 100 | | 100 | 110 | | |
| D-A44 | 2 | Different sides | 35 | 90 | | 100 | 110 |
| | | Same side | 55 | 90 | | 100 | 110 |
| | n | Different sides | $35 + 30 (n-2)$ n = 2, 3, 4... | $90 + 30 (n-2)$ n = 2, 4, 6, 8... | $100 + 30 (n-2)$ n = 2, 4, 6, 8... | $110 + 30 (n-2)$ n = 2, 4, 6, 8... | |
| | | Same side | $55 + 50 (n-2)$ n = 2, 3, 4... | $90 + 50 (n-2)$ n = 2, 4, 6, 8, ... | $100 + 50 (n-2)$ n = 2, 4, 6, 8... | $110 + 50 (n-2)$ n = 2, 4, 6, 8... | |
| | 1 | 10 | 90 | | 100 | 110 | |
| D-A3□C D-G39C D-K39C | 2 | Different sides | 20 | 100 | | 100 | 110 |
| | | Same side | 100 | 100 | | 100 | 110 |
| | n | Different sides | $20 + 35 (n-2)$ n = 2, 3, 4... | $100 + 35 (n-2)$ n = 2, 4, 6, 8... | $100 + 35 (n-2)$ n = 2, 4, 6, 8... | $110 + 35 (n-2)$ n = 2, 4, 6, 8... | |
| | | Same side | $100 + 100 (n-2)$ n = 2, 3, 4, 5... | $100 + 100 (n-2)$ n = 2, 4, 6, 8... | | $110 + 100 (n-2)$ n = 2, 4, 6, 8... | |
| 1 | 10 | 100 | | 100 | 110 | | |
| D-A44C | 2 | Different sides | 20 | 90 | | 100 | 110 |
| | | Same side | 55 | 90 | | 100 | 110 |
| | n | Different sides | $25 + 35 (n-2)$ n = 2, 3, 4... | $90 + 35 (n-2)$ n = 2, 4, 6, 8... | $100 + 35 (n-2)$ n = 2, 4, 6, 8... | $110 + 35 (n-2)$ n = 2, 4, 6, 8... | |
| | | Same side | $55 + 50 (n-2)$ n = 2, 3, 4... | $90 + 50 (n-2)$ n = 2, 4, 6, 8... | $100 + 50 (n-2)$ n = 2, 4, 6, 8... | $110 + 50 (n-2)$ n = 2, 4, 6, 8... | |
| | 1 | 10 | 90 | | 100 | 110 | |
| D-Z7□/Z80 D-Y59□/Y7P D-Y7□W | 2 (Different sides, Same side), 1 | 15 | 80 | 85 | 90 | 95 | 105 |
| | n | $15 + 40 \frac{(n-2)}{2}$ n = 2, 4, 6, 8... | $80 + 40 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $85 + 40 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $90 + 40 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $95 + 40 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $105 + 40 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... |
| D-Y69□/Y7PV D-Y7□WV | 2 (Different sides, Same side), 1 | 10 | 65 | | 75 | 80 | 90 |
| | n | $10 + 30 \frac{(n-2)}{2}$ n = 2, 4, 6, 8... | $65 + 30 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $75 + 30 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $80 + 30 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | $90 + 30 \frac{(n-4)}{2}$ n = 4, 8, 12, 16... | |