

# Offset Pin Shift Cylinder

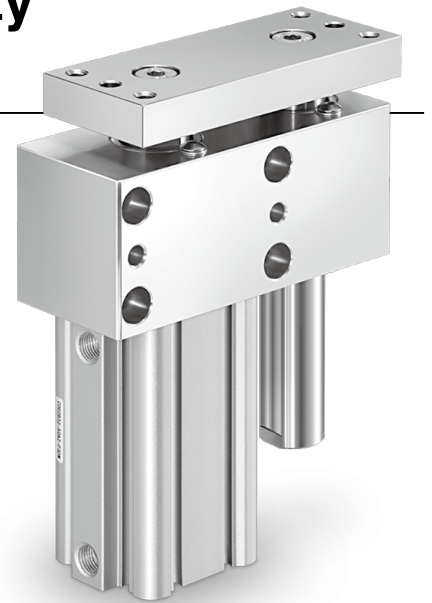
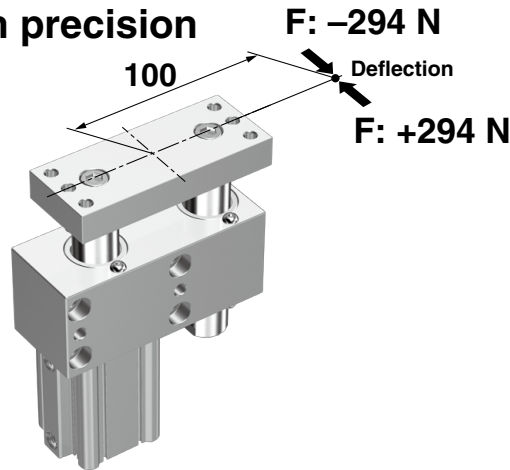
with high rigidity offset load capacity  
 $\varnothing 32$ ,  $\varnothing 40$ ,  $\varnothing 50$

## ■ High rigidity, High precision

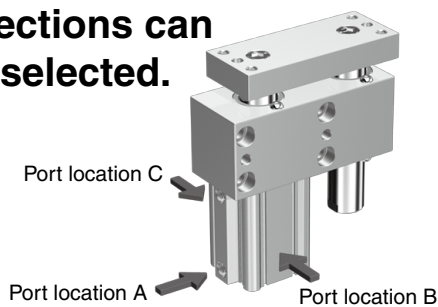
With plate extended:

**Deflection of  
 $\pm 0.1$  mm or less**

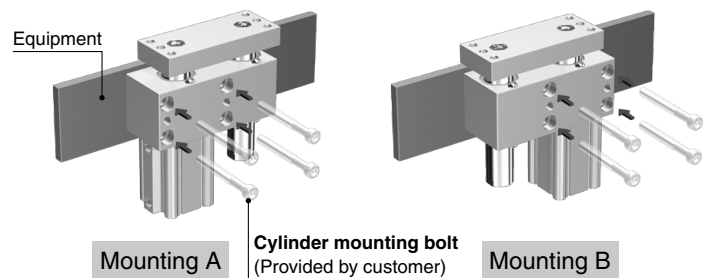
(For  $\varnothing 50$ , 25 mm stroke, when allowable moment 29.4 N·m is applied)



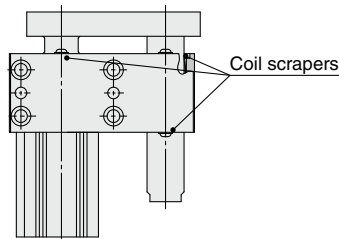
## ■ 3 different port location directions can be selected.



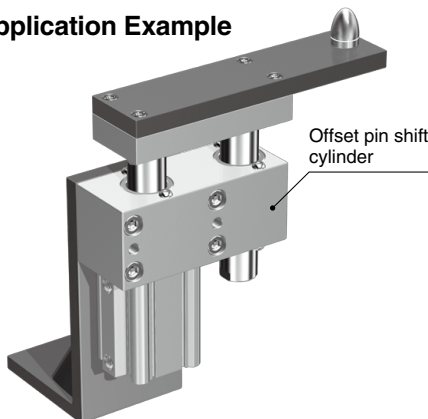
## ■ Can be mounted from 2 directions



## ■ Coil scrapers equipped as standard



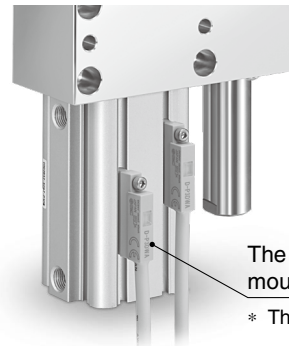
### Application Example



## ■ Auto switches are mountable.

Applicable Auto Switches:

- Magnetic field-resistant solid state auto switch:  
 D-P3DWA□, D-P4DW□
- Small auto switch:  
 D-M9□, D-A9□



The D-P3DWA□, D-M9□, and D-A9□ are mountable on 3 surfaces.

\* The D-P4DW□ is mountable on 2 surfaces.

# CDQ2B-X2839

# Offset Pin Shift Cylinder

## CDQ2B-X2839

Ø32, Ø40, Ø50

### How to Order

**C D Q2B 40 - 50 A Z - P3DWA - X2839**

**Built-in magnet for auto switch**

**Bore size**

|    |       |
|----|-------|
| 32 | 32 mm |
| 40 | 40 mm |
| 50 | 50 mm |

**Stroke [mm]**

| Bore size | Stroke     |
|-----------|------------|
| 32        | 25, 50     |
| 40        | 25, 50, 75 |
| 50        | 25, 50, 75 |

**Port location**

| A | B | C |
|---|---|---|
|   |   |   |

**Offset pin shift cylinder**

**Number of auto switches**

|     |   |
|-----|---|
| Nil | 2 |
| S   | 1 |

**Auto switch**

|     |                     |
|-----|---------------------|
| Nil | Without auto switch |
|-----|---------------------|

Select applicable auto switch models from the table below.

**Auto Switch Models:** Refer to the Best Pneumatics Catalog for further information on auto switches.

#### Magnetic Field-resistant Auto Switches

| Type                    | Auto switch model | Applicable magnetic field                                  | Electrical entry    | Indicator light   | Wiring (Pin no. in use) | Load voltage | Lead wire length | Applicable load |
|-------------------------|-------------------|------------------------------------------------------------|---------------------|-------------------|-------------------------|--------------|------------------|-----------------|
| Solid state auto switch | D-P3DWASC         | AC magnetic field (Single-phase AC welding magnetic field) | Pre-wired connector | 2-color indicator | 2-wire (3-4)            | 24 VDC       | 0.3 m            | Relay, PLC      |
|                         | D-P3DWASE         |                                                            |                     |                   | 2-wire (1-4)            |              | 0.5 m            |                 |
|                         | D-P3DWA           |                                                            | Grommet             |                   | 2-wire                  |              | 3 m              |                 |
|                         | D-P3DWAL          |                                                            |                     |                   |                         |              | 5 m              |                 |
|                         | D-P3DWAZ          |                                                            | Pre-wired connector |                   | 2-wire (3-4)            |              | 0.3 m            |                 |
|                         | P4DWSC            |                                                            |                     |                   | 2-wire (1-4)            |              | 3 m              |                 |
|                         | P4DWSE            |                                                            | Grommet             |                   | 2-wire                  |              | 5 m              |                 |
|                         | P4DWL             |                                                            |                     |                   |                         |              |                  |                 |
|                         | P4DWZ             |                                                            |                     |                   |                         |              |                  |                 |

#### Small Auto Switches Small auto switches cannot be used under a strong magnetic field.

| Main note reference: <b>Main note reference cannot be used under a strong magnetic field.</b> |                  |                  |                 |                         |              |               |                   |         |                      |       |       |            |                     |                 |            |            |            |
|-----------------------------------------------------------------------------------------------|------------------|------------------|-----------------|-------------------------|--------------|---------------|-------------------|---------|----------------------|-------|-------|------------|---------------------|-----------------|------------|------------|------------|
| 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)      |                     |                 |            |            |            |
| 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           |                  |                 | 12 V                    |              | M9BV          |                   | M9B     | ●                    | ●     | ●     | ○          | ○                   | —               |            |            |            |
|                                                                                               | 3-wire (NPN)     |                  |                 |                         |              | M9NVW         |                   | M9NW    | ●                    | ●     | ●     | ○          | ○                   |                 |            |            | IC circuit |
|                                                                                               | 3-wire (PNP)     |                  |                 | M9PWV                   | M9PW         | ●             |                   | ●       | ●                    | ○     | ○     | IC circuit |                     |                 |            |            |            |
|                                                                                               | 2-wire           |                  |                 | 12 V                    | M9BWV        | M9BW          |                   | ○       | ●                    | ●     | ○     |            | ○                   | —               |            |            |            |
|                                                                                               | 3-wire (NPN)     |                  |                 |                         | M9NAV        | M9NA          |                   | ○       | ○                    | ●     | ○     |            | ○                   |                 |            |            | IC circuit |
|                                                                                               | 3-wire (PNP)     |                  |                 | M9PAV                   | M9PA         | ○             |                   | ○       | ●                    | ○     | ○     |            | —                   |                 |            |            |            |
|                                                                                               | 2-wire           |                  |                 | 12 V                    | M9BAV        | M9BA          |                   | ○       | ○                    | ●     | ○     |            |                     | ○               |            |            |            |
|                                                                                               |                  |                  |                 |                         |              |               |                   |         |                      |       |       |            |                     |                 |            |            |            |
| Reed auto switch                                                                              | —                | Grommet          | Yes             | 3-wire (NPN equivalent) | 24 V         | 5 V           | —                 | A96V    | A96                  | ●     | —     | ●          | —                   | —               | IC circuit | —          |            |
|                                                                                               |                  |                  |                 | 12 V                    |              | 100 V         | A93V*1            | A93     | ●                    | ●     | ●     | ●          | —                   | —               | —          | —          |            |
|                                                                                               |                  |                  | No              | 5 V, 12 V               |              | 100 V or less | A90V              | A90     | ●                    | —     | ●     | —          | —                   | —               | —          | IC circuit | Relay, PLC |

\*1 The 1 m lead wire is only applicable to the D-A93.

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

\* Auto switches and mounting brackets are shipped together, but not assembled.

\* Lead wire length symbols: 0.5 m.....Nil (Example) M9NWV  
1 m..... M (Example) M9NWVM  
3 m..... L (Example) M9NWVL  
5 m..... Z (Example) M9NWVZ

# Offset Pin Shift Cylinder **CDQ2B-X2839**

## Specifications

| Bore size                  |           | 32                                     | 40     | 50     |
|----------------------------|-----------|----------------------------------------|--------|--------|
| Maximum operating pressure |           | 1.0 MPa                                |        |        |
| Proof pressure             |           | 1.5 MPa                                |        |        |
| Minimum operating pressure |           | 0.2 MPa                                |        |        |
| Ambient temperature        |           | -10 to 60°C (No freezing)              |        |        |
| Cushion                    |           | Head end: Rubber bumper, Rod end: None |        |        |
| Allowable kinetic energy   | Extended  | 0.15 J                                 | 0.26 J | 0.46 J |
|                            | Retracted | 0.29 J                                 | 0.52 J | 0.91 J |

## Weight

| Bore size | Stroke [mm] |     |     |
|-----------|-------------|-----|-----|
|           | 25          | 50  | 75  |
| 32        | 1.5         | 1.6 | —   |
| 40        | 3.3         | 3.5 | 3.7 |
| 50        | 5.4         | 5.7 | 6.0 |

## Deflection

**Bore Size: 32** [mm]

| Stroke | Offset <b>W</b> | Lateral load <b>F</b> [N] |              |
|--------|-----------------|---------------------------|--------------|
|        |                 | 98                        | 196          |
| 25     | 0               | ±0.1 or less              | ±0.1 or less |
|        | 50              |                           | ±0.2 or less |
|        | 100             |                           |              |
|        | 150             | ±0.1 or less              | ±0.2 or less |
| 50     | 0               |                           | ±0.2 or less |
|        | 50              |                           |              |
|        | 100             |                           |              |
|        | 150             | ±0.2 or less              |              |

**Bore Size: 40** [mm]

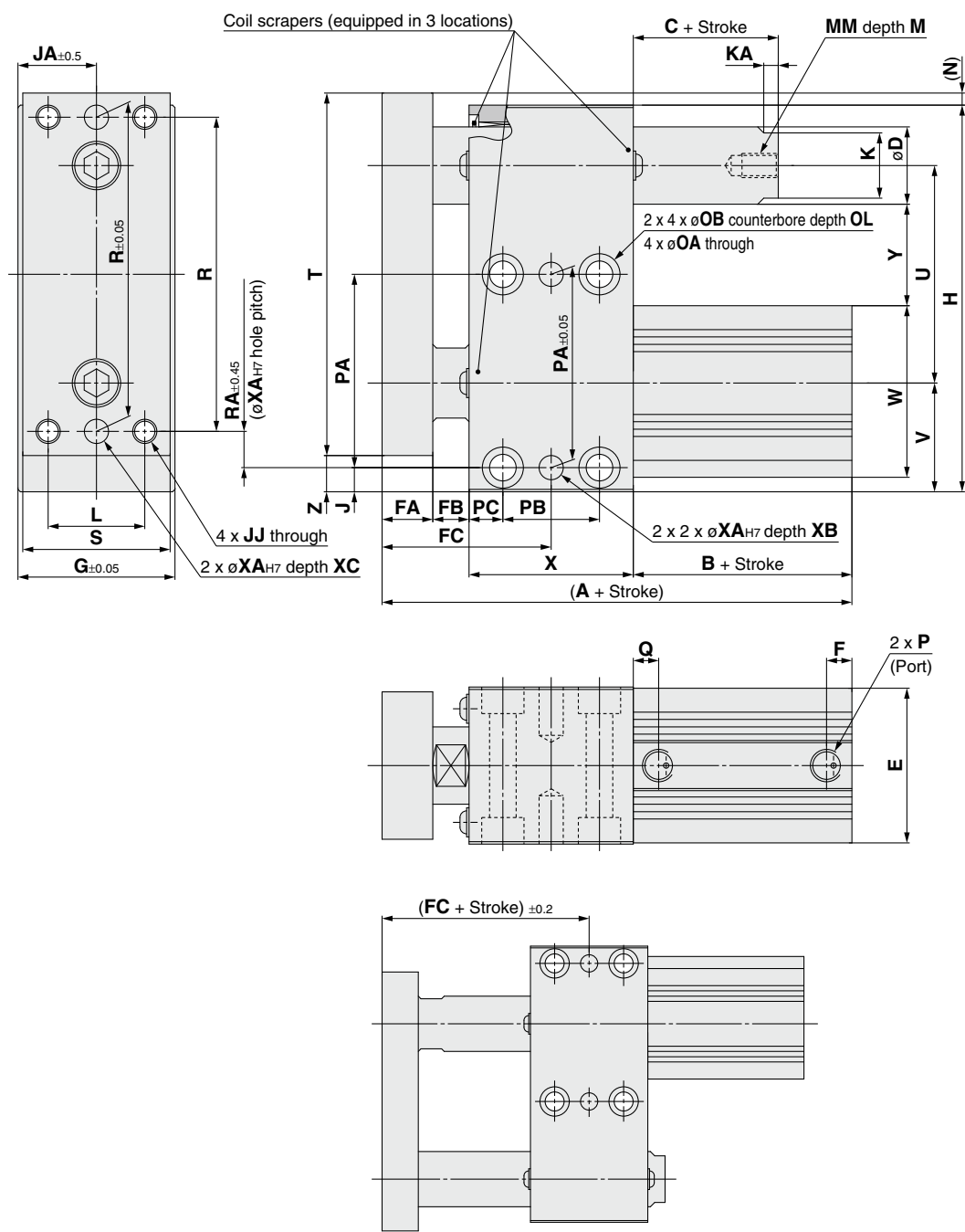
| Stroke | Offset <b>W</b> | Lateral load <b>F</b> [N] |              |              |
|--------|-----------------|---------------------------|--------------|--------------|
|        |                 | 98                        | 196          | 294          |
| 25     | 0               | ±0.1 or less              | ±0.1 or less | ±0.1 or less |
|        | 50              |                           | ±0.2 or less | ±0.2 or less |
|        | 100             |                           |              |              |
|        | 150             | ±0.1 or less              | ±0.2 or less | ±0.2 or less |
| 50     | 0               |                           |              |              |
|        | 50              |                           |              |              |
|        | 100             |                           |              |              |
|        | 150             | ±0.2 or less              |              |              |
| 75     | 0               | ±0.1 or less              | ±0.2 or less | ±0.2 or less |
|        | 50              |                           |              | —            |
|        | 100             |                           |              |              |
|        | 150             | ±0.2 or less              | —            | —            |

**Bore Size: 50** [mm]

| Stroke | Offset <b>W</b> | Lateral load <b>F</b> [N] |              |              |
|--------|-----------------|---------------------------|--------------|--------------|
|        |                 | 98                        | 196          | 294          |
| 25     | 0               | ±0.1 or less              | ±0.1 or less | ±0.1 or less |
|        | 50              |                           |              | ±0.2 or less |
|        | 100             |                           |              |              |
|        | 150             | ±0.1 or less              | ±0.2 or less | ±0.1 or less |
| 50     | 0               |                           |              | ±0.2 or less |
|        | 50              |                           |              |              |
|        | 100             |                           |              | ±0.2 or less |
|        | 150             | ±0.2 or less              | ±0.2 or less |              |
| 75     | 0               | ±0.1 or less              | ±0.2 or less | ±0.2 or less |
|        | 50              |                           |              | —            |
|        | 100             |                           |              |              |
|        | 150             | ±0.2 or less              | —            | —            |

# CDQ2B-X2839

## Dimensions



The above figure shows the condition when a stroke is extended.

|           |            |       |      |    |    |    |      |    |    |    |    |     |     |      |           |    |     |    |    |           |   | [mm] |
|-----------|------------|-------|------|----|----|----|------|----|----|----|----|-----|-----|------|-----------|----|-----|----|----|-----------|---|------|
| Bore size | Stroke     | A     | B    | C  | D  | E  | F    | FA | FB | FC | G  | H   | J   | JA   | JJ        | K  | KA  | L  | M  | MM        | N |      |
| 32        | 25, 50     | 102   | 33   | 10 | 20 | 45 | 7.5  | 13 | 8  | 45 | 46 | 109 | 7   | 23   | M6 x 1.0  | 17 | 4.5 | 30 | 12 | M8 x 1.25 | 5 |      |
| 40        | 25, 50, 75 | 128.5 | 39.5 | 10 | 25 | 52 | 7.5  | 18 | 11 | 60 | 53 | 137 | 8.5 | 26.5 | M8 x 1.25 | 22 | 5   | 34 | 15 | M10 x 1.5 | 5 |      |
| 50        |            | 144.5 | 40.5 | 10 | 32 | 64 | 10.5 | 21 | 15 | 70 | 65 | 160 | 10  | 32.5 | M10 x 1.5 | 27 | 6   | 40 | 15 | M10 x 1.5 | 5 |      |

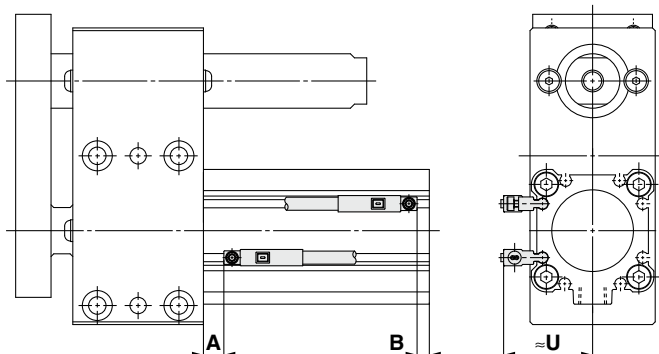
| Bore size | Stroke     | OA  | OB | OL   | P     | PA | PB | PC | Q    | R   | RA | S  | T   | U  | V    | W    | X  | XA | XB | XC | Y    | Z  |
|-----------|------------|-----|----|------|-------|----|----|----|------|-----|----|----|-----|----|------|------|----|----|----|----|------|----|
| 32        | 25, 50     | 6.4 | 11 | 16.5 | Rc1/8 | 55 | 30 | 9  | 10   | 90  | 10 | 44 | 104 | 55 | 34.5 | 49.5 | 48 | 6  | 12 | 8  | 22.5 | 10 |
| 40        | 25, 50, 75 | 9   | 14 | 8.6  | Rc1/8 | 70 | 40 | 11 | 12.5 | 110 | 15 | 51 | 127 | 75 | 41   | 57   | 60 | 8  | 15 | 10 | 36.5 | 15 |
| 50        |            | 11  | 17 | 11   | Rc1/4 | 80 | 40 | 14 | 10.5 | 130 | 15 | 61 | 150 | 90 | 45   | 71   | 68 | 10 | 20 | 12 | 42   | 15 |

# CDQ2B-X2839

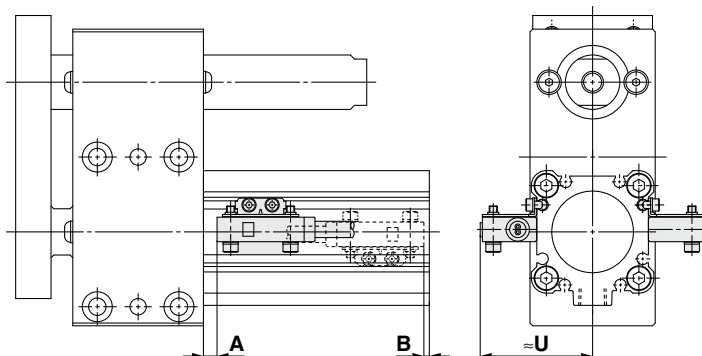
## Auto Switch Mounting

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

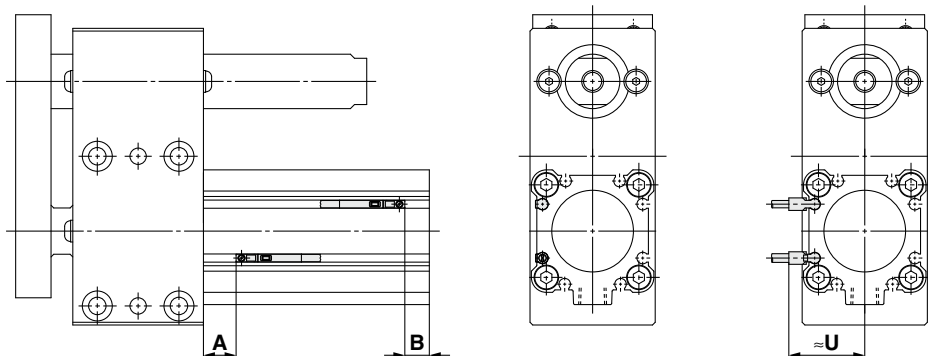
#### D-P3DWA□



#### D-P4DW□



#### D-M9□(V) D-M9□W(V) D-M9□A(V) D-A9□(V)



### Auto Switch Proper Mounting Position

| Auto switch model | D-P3DWA |     | D-P4DW |      | D-M9□<br>D-M9□V<br>D-M9□W<br>D-M9□WV<br>D-M9□A<br>D-M9□AV |      | D-A9□<br>D-A9□V |      |
|-------------------|---------|-----|--------|------|-----------------------------------------------------------|------|-----------------|------|
|                   | A       | B   | A      | B    | A                                                         | B    | A               | B    |
| Bore size 32      | 7.5     | 4.5 | 5      | 2    | 12                                                        | 9    | 8               | 5    |
| 40                | 11.5    | 7   | 9      | 4.5  | 16                                                        | 11.5 | 12              | 7.5  |
| 50                | 9.5     | 10  | 9.5    | 10.5 | 14                                                        | 14.5 | 10              | 10.5 |

### Auto Switch Proper Mounting Height

| Auto switch model | D-P3DWA | D-P4DW | D-M9□V | D-A9□V |
|-------------------|---------|--------|--------|--------|
| Bore size         | U       | U      | U      | U      |
| 32                | 35.5    | 41.5   | 30     | 27.5   |
| 40                | 38      | 45     | 32     | 30     |
| 50                | 43      | 50     | 37.5   | 35     |

### Minimum Stroke for Auto Switch Mounting

| Number of auto switches | D-P3DWA<br>D-M9□□<br>D-A9□□ | D-P4DW |
|-------------------------|-----------------------------|--------|
| 1                       | 25                          | 25     |
| 2                       | 25                          | 75     |

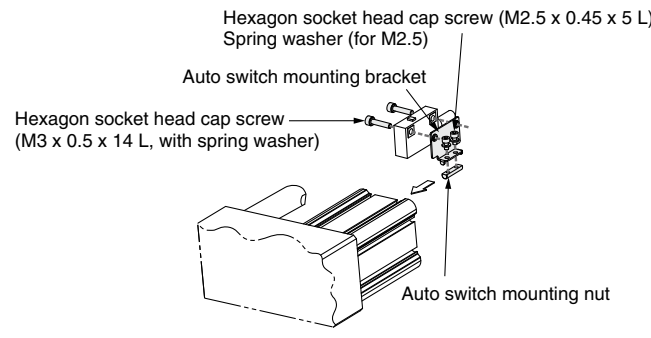
### Mounting

When installing the cylinders with auto switches, pay attention to the bending radius of the auto switch lead wire. For details, refer to the Operation Manual.

## Auto Switch Mounting Bracket Part Nos./Mounting Method

|                                       |                                                                      |
|---------------------------------------|----------------------------------------------------------------------|
| Applicable auto switch                | D-P3DWA□, D-M9□(V), D-M9□W(V), D-M9□A(V), D-A9□(V)                   |
| Bore size [mm]                        | ø32, ø40, ø50                                                        |
| Auto switch mounting bracket part no. | No mounting bracket required as the auto switch is directly mounted. |
| Auto switch tightening torque         | 0.2 to 0.3 N·m                                                       |

|                                                          |                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicable auto switch                                   | D-P4DW□                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                 |
| Bore size [mm]                                           | ø32, ø40                                                                                                                                                                                                                                                                                                                                         | ø50                                                                                                                                                                                                                                                                                                                                             |
| Auto switch mounting bracket part no.                    | BQ7-032                                                                                                                                                                                                                                                                                                                                          | BQ7-050                                                                                                                                                                                                                                                                                                                                         |
| Auto switch mounting bracket fitting parts lineup/weight | <ul style="list-style-type: none"> <li>• Auto switch mounting bracket</li> <li>• Auto switch mounting nut (M2.5 x 0.45 x 5 L)</li> <li>• Hexagon socket head cap screw (M3 x 0.5 x 14 L, with spring washer)</li> <li>• Hexagon socket head cap screw (M2.5 x 0.45 x 5 L)</li> <li>• Spring washer (for M2.5)</li> <li>Weight = 8.5 g</li> </ul> | <ul style="list-style-type: none"> <li>• Auto switch mounting bracket</li> <li>• Auto switch mounting nut (M2.5 x 0.45 x 5 L)</li> <li>• Hexagon socket head cap screw (M3 x 0.5 x 14 L, with spring washer)</li> <li>• Hexagon socket head cap screw (M2.5 x 0.45 x 5 L)</li> <li>• Spring washer (for M2.5)</li> <li>Weight = 12 g</li> </ul> |

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mounting of auto switch | <ol style="list-style-type: none"> <li>1. Fix the auto switch and the auto switch mounting bracket temporarily with the hexagon socket head cap screws (M3 x 14 L).</li> <li>2. Insert the hexagon socket head cap screws (M2.5 x 5 L) into the spring washers (for M2.5), and tighten the auto switch mounting bracket and auto switch mounting nut temporarily.</li> <li>3. Insert the temporarily fixed auto switch mounting nut into the mating groove of the cylinder tube.</li> <li>4. Check the detecting position of the auto switch and fix the auto switch firmly with the hexagon socket head cap screws (M2.5 x 5 L, M3 x 14 L).</li> </ol> <p>* The tightening torque for the hexagon socket head cap screw (M3 x 14 L) is 0.5 to 0.6 N·m.</p> <p>* The tightening torque for the hexagon socket head cap screw (M2.5 x 5 L) is 0.25 to 0.35 N·m.</p>  <p>Hexagon socket head cap screw (M2.5 x 0.45 x 5 L)<br/>Spring washer (for M2.5)<br/>Auto switch mounting bracket<br/>Hexagon socket head cap screw (M3 x 0.5 x 14 L, with spring washer)<br/>Auto switch mounting nut</p> |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

