

# Clamp Cylinder with Lock New

Ø 32, Ø 40, Ø 50, Ø 63

RoHS

Maintains a clamped or unclamped state when air supply pressure drops or residual pressure is released

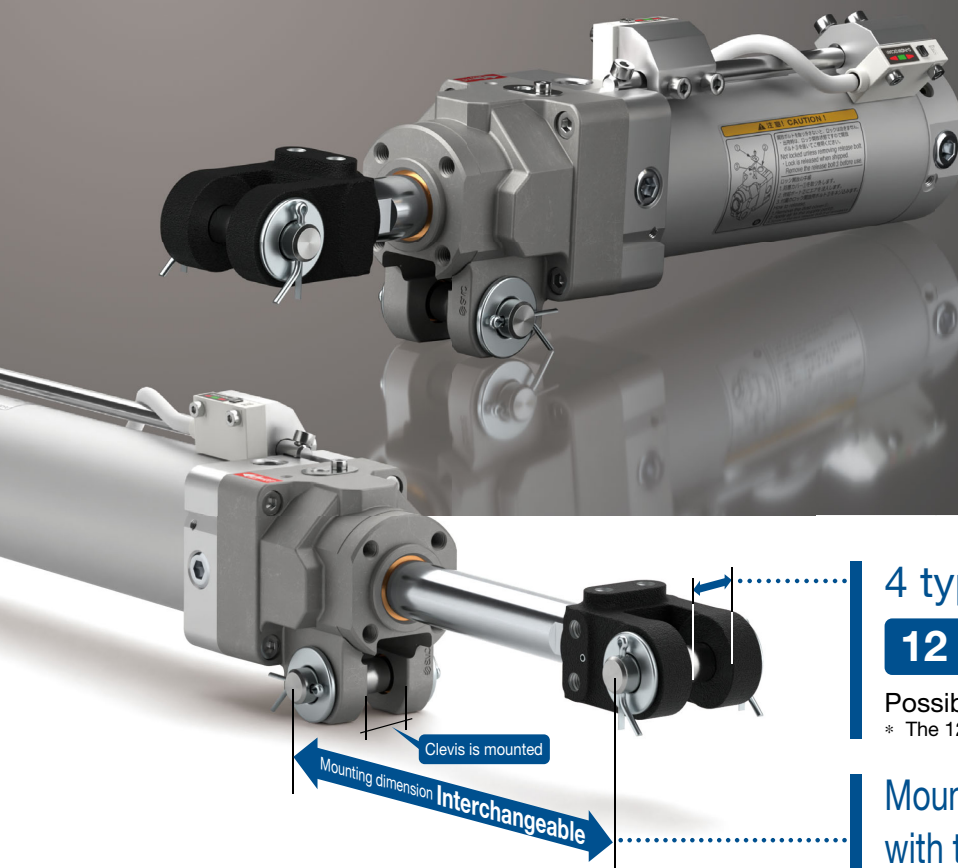
Overall length

Max. 7 mm shorter

Body is shortened while maintaining the mounting interchangeability with the existing series (CLK2).

Weight

Max. 7 % lighter



4 types of clevis widths

12 mm

12.5 mm

16.5 mm

19.5 mm

Possible to select depending on the application

\* The 12 mm clevis width is only available for bore size Ø 32.

Mounting dimensions are interchangeable with the existing CLK2 series model.

**CLK2 Series**

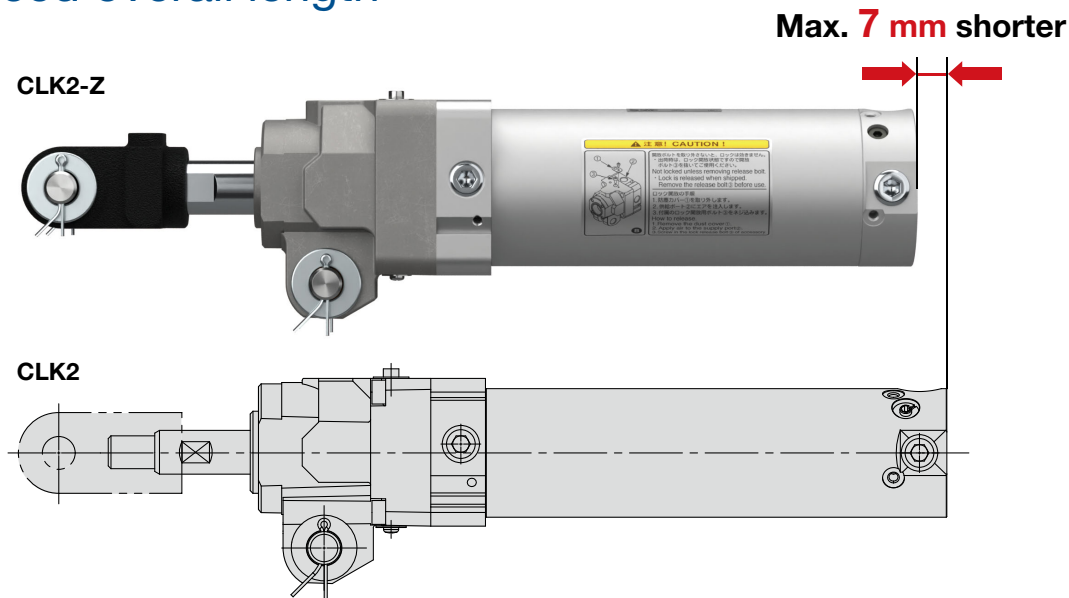


CAT.EUS20-324A-UK

Can be locked at any position within the entire stroke

- Locking is possible at any desired position.
- Able to easily accommodate changes in workpiece thickness

Reduced overall length



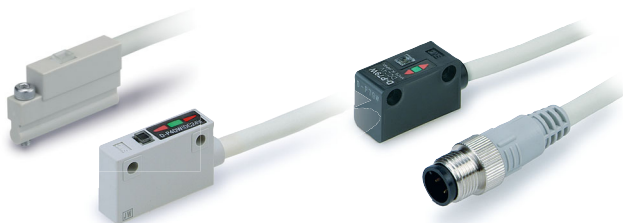
Able to maintain an unlocked state

- Assembly and maintenance simplified

Various types of auto switches can be mounted.

Magnetic field resistant auto switches

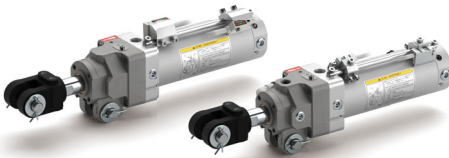
D-P3DWA, D-P4DW  
D-P79WSE, D-P74□



Standard auto switches

D-M9□W, D-A9□



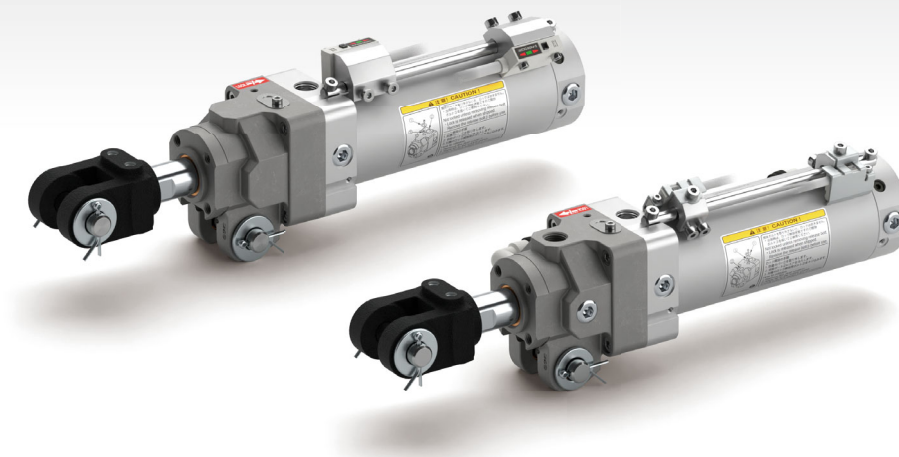
| Series                                                                                                                     |                                         | Bore size [mm] |    |    |    | Clevis width [mm] | Stroke [mm]              | Page |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------|----|----|----|-------------------|--------------------------|------|
|                                                                                                                            |                                         | 32             | 40 | 50 | 63 |                   |                          |      |
| <br><b>New</b> Clamp cylinder with lock | Without magnet<br><b>CLK2□-Z</b>        | ●              |    |    |    | 12                | 50, 75, 100,<br>125, 150 | 3    |
|                                                                                                                            |                                         |                | ●  |    |    | 12.5, 16.5        |                          |      |
|                                                                                                                            |                                         |                |    | ●  | ●  | 12.5, 16.5, 19.5  |                          |      |
|                                                                                                                            | Standard magnet type<br><b>CLK2G□-Z</b> | ●              |    |    |    | 12                |                          |      |
|                                                                                                                            |                                         |                | ●  |    |    | 12.5, 16.5        |                          |      |
|                                                                                                                            |                                         |                |    | ●  | ●  | 12.5, 16.5, 19.5  |                          |      |
|                                                                                                                            | Strong magnet type<br><b>CLK2P□-Z</b>   |                | ●  |    |    | 12.5, 16.5        |                          | 5    |
|                                                                                                                            |                                         |                |    | ●  | ●  | 12.5, 16.5, 19.5  |                          |      |

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## Clamp Cylinder with Lock **CLK2** Series

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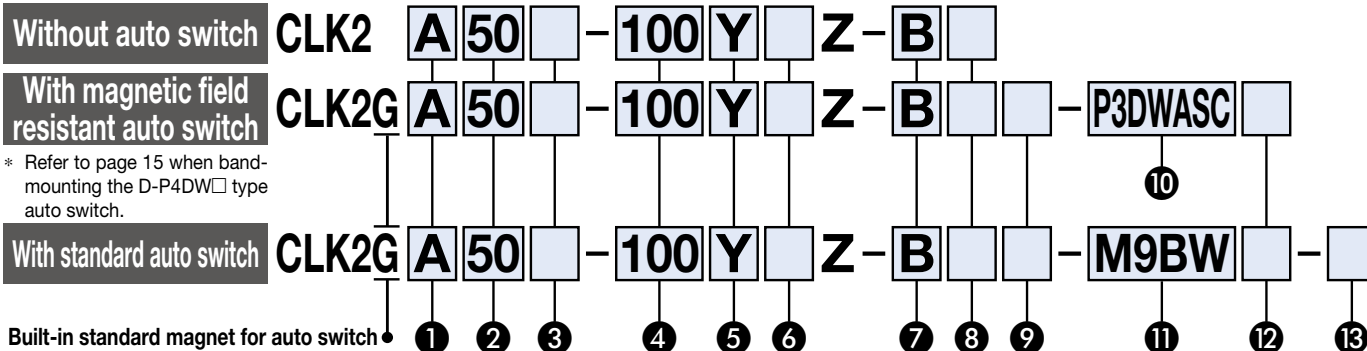
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# Clamp Cylinder with Lock CLK2/CLK2G Series

Ø 32, Ø 40, Ø 50, Ø 63

RoHS

## How to Order



### 1 Clevis width

|   |                                        |
|---|----------------------------------------|
| A | 12 mm (Ø 32), 16.5 mm (Ø 40/Ø 50/Ø 63) |
| B | 19.5 mm (Ø 50/Ø 63)                    |
| C | 12.5 mm (Ø 40/Ø 50/Ø 63)               |

### 2 Bore size

|    |       |
|----|-------|
| 32 | 32 mm |
| 40 | 40 mm |
| 50 | 50 mm |
| 63 | 63 mm |

### 3 Thread type

|    |     |
|----|-----|
| —  | Rc  |
| TN | NPT |
| TF | G   |

\* G thread is not available for Ø 32.

### 4 Cylinder stroke [mm]

|                       |
|-----------------------|
| 50, 75, 100, 125, 150 |
|-----------------------|

### 5 End bracket

|    |                      |
|----|----------------------|
| —  | None                 |
| I  | Single knuckle joint |
| IA | M6 without tap       |
| Y  | M6 with tap          |
| YA | Double knuckle joint |
|    | M6 without tap       |
|    | M6 with tap          |

\* A knuckle pin, cotter pins, and flat washers are provided as a standard for Y and YA.

\* IA and YA are not available for Ø 32.

### 6 Option

|     |                                             |
|-----|---------------------------------------------|
| —   | None                                        |
| B   | Limit switch mounting base*1                |
| D   | Dog fitting*1                               |
| L   | Foot bracket                                |
| K*2 | Pedestal (for 75, 100, 150 mm strokes only) |

\*1 Only IA or YA (M7 with tap) is selectable as the end bracket for the B, D, and BD types.

\*2 Only available for clevis width A (16.5 mm)

\* Option is not available for Ø 32.

### 7 Locking direction

|   |                    |
|---|--------------------|
| F | Extension locking  |
| B | Retraction locking |

### 8 Port/Bypass piping position

Refer to page 6.

### 9 Switch mounting rod position

|   |       |
|---|-------|
| — | Top   |
| L | Left  |
| R | Right |

\* Viewed from the rod end

\* When the auto switch D-P4 is mounted, bypass piping and a switch mounting rod cannot be placed at the same position.

### 10 Magnetic field resistant auto switch

|   |                                                                      |
|---|----------------------------------------------------------------------|
| — | Without auto switch (Built-in magnet)<br>Without switch mounting rod |
| P | Without auto switch (Built-in magnet)<br>With switch mounting rod    |

\* Select applicable auto switch models from Table 1.

### 11 Standard auto switch

|   |                                       |
|---|---------------------------------------|
| — | Without auto switch (Built-in magnet) |
|---|---------------------------------------|

\* Select applicable auto switch models from Table 2.

\* Auto switches are shipped together with the product but do not come assembled.

### 12 Number of auto switches

|   |   |
|---|---|
| — | 2 |
| S | 1 |
| n | n |

### 13 Auto switch mounting type

|   |               |
|---|---------------|
| — | Band mounting |
| P | Rod mounting  |

\* Only the band mounting type is available for bore size Ø 32. Option "P" (rod mounting) cannot be selected.

## Built-in Standard Magnet Cylinder Part No.

1) Built-in standard magnet type without auto switch and switch mounting rod

Symbol for the auto switch type is "—" as shown below.  
(Example) CLK2GA50-50YZ-B

2) Built-in standard magnet type without auto switch, with switch mounting rod

Symbol for the auto switch type is "P" as shown below.  
(Example) CLK2GA50-50YZ-B-P

\* The auto switch mounting bracket is not included.

# Clamp Cylinder with Lock **CLK2/CLK2G Series**

**Table 1. Magnetic Field Resistant Auto Switches** / Refer to the **Web Catalogue** for detailed auto switch specifications.

| Type                    | Rod mounting | Band mounting | 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-colour indicator | 2-wire (3-4)                 | 24 VDC       | 0.3 m            | Relay, PLC      |
|                         | ●            | —             | D-P3DWASE         |                                                            |                     |                    | 2-wire (1-4)                 |              |                  |                 |
|                         | ●            | —             | D-P3DWA           |                                                            | Grommet             |                    | 2-wire                       |              | 0.5 m            |                 |
|                         | ●            | —             | D-P3DWAL          |                                                            |                     |                    |                              |              | 3 m              |                 |
|                         | ●            | —             | D-P3DWAZ          |                                                            | Pre-wired connector |                    | 2-wire (3-4)<br>2-wire (1-4) |              | 5 m              |                 |
|                         | ●            | ●             | D-P4DWSC          |                                                            |                     |                    |                              |              | 0.3 m            |                 |
|                         | ●            | ●             | D-P4DWSE          |                                                            | Grommet             |                    | 2-wire                       |              | 3 m              |                 |
|                         | ●            | ●             | D-P4DWL           |                                                            |                     |                    |                              |              | 5 m              |                 |
|                         |              |               | D-P4DWZ           |                                                            |                     |                    |                              |              |                  |                 |

\* Refer to page 14 when ordering the auto switch mounting bracket or switch mounting rod assembly.

\* For the D-P3DWA□ type, the auto switch and auto switch mounting bracket are shipped together with the product but do not come assembled.

\* Bore size Ø 32 cannot be selected for the D-P3DWA□ type. For bore size Ø 32, order the D-P4DW□ type (band mounting) separately.

**Table 2. Standard Auto Switches** ⚠ Standard auto switches cannot be used under a strong magnetic field.

| 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            |                         | 0.5 (—)              | 1 (M) | 3 (L) | 5 (Z)      |                     |                 |            |
| Solid state auto switch | —                                          | Grommet          | Yes             | 3-wire (NPN)     | 24 V         | 5 V, 12 V | —             | M9N                     | ●                    | ●     | ●     | ○          | ○                   | IC circuit      | Relay, PLC |
|                         |                                            |                  |                 | 3-wire (PNP)     |              |           |               | M9P                     | ●                    | ●     | ●     | ○          | ○                   |                 |            |
|                         |                                            |                  |                 | 2-wire           |              |           |               | M9B                     | ●                    | ●     | ●     | ○          | ○                   |                 |            |
|                         | Diagnostic indication (2-colour indicator) |                  |                 | 3-wire (NPN)     | 5 V, 12 V    | M9NW      | ●             | ●                       | ●                    | ○     | ○     | IC circuit |                     |                 |            |
|                         |                                            |                  |                 | 3-wire (PNP)     |              | M9PW      | ●             | ●                       | ●                    | ○     | ○     |            |                     |                 |            |
|                         | Water resistant (2-colour indicator)       |                  |                 | 2-wire           | 12 V         | M9BW      | ●             | ●                       | ●                    | ○     | ○     | —          |                     |                 |            |
|                         |                                            |                  |                 | 3-wire (NPN)     | 5 V, 12 V    | M9NA      | ○             | ○                       | ●                    | ○     | ○     | IC circuit |                     |                 |            |
|                         |                                            |                  |                 | 3-wire (PNP)     |              | M9PA      | ○             | ○                       | ●                    | ○     | ○     |            |                     |                 |            |
|                         |                                            |                  |                 | 2-wire           |              | 12 V      | M9BA          | ○                       | ○                    | ●     | ○     |            | ○                   | —               |            |
|                         |                                            |                  |                 | Reed auto switch | —            | Grommet   | Yes           | 3-wire (NPN equivalent) | —                    | 5 V   | —     | A96        | ●                   | ●               |            |
| No                      | 2-wire                                     | 24 V             | 12 V            |                  |              |           | 100 V         | A93                     | ●                    | ●     | ●     | ●          | ○*1                 | —               | Relay, PLC |
|                         |                                            |                  | 5 V, 12 V       |                  |              |           | 100 V or less | A90                     | ●                    | ●     | ●     | ●          | ○*1                 | IC circuit      |            |

\*1 The load voltage used is 24 VDC.

\* Auto switches marked with a “○” are produced upon receipt of order

\* Auto switches and mounting brackets are shipped together with the product but do not come assembled.

\* For the standard magnet type (CLK2G), auto switches other than those described above cannot be used.

\* Lead wire length symbols: 0.5 m.....— (Example) M9NWW  
1 m.....M (Example) M9NWWVM  
3 m.....L (Example) M9NWWVL  
5 m.....Z (Example) M9NWWVZ

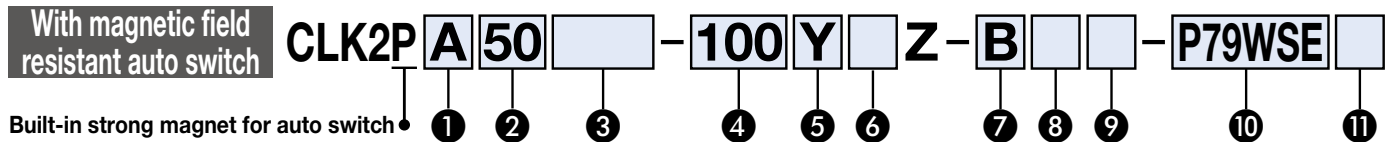
# Clamp Cylinder with Lock Strong Magnet Type

## CLK2P Series

Ø 40, Ø 50, Ø 63

RoHS

### How to Order



#### 1 Clevis width

|          |                          |
|----------|--------------------------|
| <b>A</b> | 16.5 mm (Ø 40/Ø 50/Ø 63) |
| <b>B</b> | 19.5 mm (Ø 50/Ø 63)      |
| <b>C</b> | 12.5 mm (Ø 40/Ø 50/Ø 63) |

#### 2 Bore size

|           |       |
|-----------|-------|
| <b>40</b> | 40 mm |
| <b>50</b> | 50 mm |
| <b>63</b> | 63 mm |

#### 3 Thread type

|           |     |
|-----------|-----|
| <b>—</b>  | Rc  |
| <b>TN</b> | NPT |
| <b>TF</b> | G   |

#### 4 Cylinder stroke [mm]

|                       |
|-----------------------|
| 50, 75, 100, 125, 150 |
|-----------------------|

#### 5 End bracket

|           |                      |                |
|-----------|----------------------|----------------|
| <b>—</b>  | None                 |                |
| <b>I</b>  | Single knuckle joint | M6 without tap |
| <b>IA</b> |                      | M6 with tap    |
| <b>Y</b>  | Double knuckle joint | M6 without tap |
| <b>YA</b> |                      | M6 with tap    |

\* A knuckle pin, cotter pins, and flat washers are provided as a standard for Y and YA.

#### 6 Option

|             |                                             |
|-------------|---------------------------------------------|
| <b>—</b>    | None                                        |
| <b>B</b>    | Limit switch mounting base*1                |
| <b>D</b>    | Dog fitting*1                               |
| <b>L</b>    | Foot bracket                                |
| <b>K</b> *2 | Pedestal (for 75, 100, 150 mm strokes only) |

\*1 Only IA or YA (M7 with tap) is selectable as the end bracket for the B, D, and BD types.

\*2 Only available for clevis width A (16.5 mm)

#### 7 Locking direction

|          |                    |
|----------|--------------------|
| <b>F</b> | Extension locking  |
| <b>B</b> | Retraction locking |

#### 8 Port/Bypass piping position

Refer to page 6.

#### 9 Switch mounting rod position

|          |       |
|----------|-------|
| <b>—</b> | Top   |
| <b>L</b> | Left  |
| <b>R</b> | Right |

\* Viewed from the rod end

\* When the auto switch is mounted, bypass piping and a switch mounting rod cannot be placed at the same position.

#### 10 Magnetic field resistant auto switch

|          |                                                                      |
|----------|----------------------------------------------------------------------|
| <b>—</b> | Without auto switch (Built-in magnet)<br>Without switch mounting rod |
| <b>P</b> | Without auto switch (Built-in magnet)<br>With switch mounting rod    |

\* Select applicable auto switch models from the table below.

#### 11 Number of auto switches

|          |   |
|----------|---|
| <b>—</b> | 2 |
| <b>S</b> | 1 |
| <b>n</b> | n |

### Built-in Standard Magnet Cylinder Part No.

1) Built-in standard magnet type without auto switch and switch mounting rod

Symbol for the auto switch type is “—” as shown below.

(Example) **CLK2PA50-50YZ-B**

2) Built-in standard magnet type without auto switch, with switch mounting rod

Symbol for the auto switch type is “P” as shown below.

(Example) **CLK2PA50-50YZ-B-P**

\* The auto switch mounting bracket is not included.

### Magnetic Field Resistant Auto Switches / Refer to the Web Catalogue for detailed auto switch specifications.

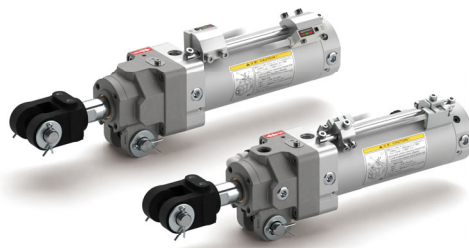
| Type             | Auto switch model | Applicable magnetic field | Electrical entry    | Indicator light    | Wiring (Pin no. in use) | Load voltage | Lead wire length | Applicable load |
|------------------|-------------------|---------------------------|---------------------|--------------------|-------------------------|--------------|------------------|-----------------|
| Reed auto switch | <b>D-P79WSE</b>   | DC/AC magnetic field      | Pre-wired connector | 2-colour indicator | 2-wire (1-4)            | 24 VDC       | 0.3 m            | Relay, PLC      |
|                  | <b>D-P74L</b>     |                           | Grommet             | 1-colour indicator | 2-wire                  | 24 VDC       | 3 m              |                 |
|                  | <b>D-P74Z</b>     |                           |                     |                    |                         | 100 VAC      | 5 m              |                 |

\* Refer to page 14 when ordering the auto switch mounting bracket or switch mounting rod assembly.

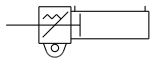
\* The auto switch and auto switch mounting bracket are shipped together with the product but do not come assembled.

\* For the strong magnet type (CLK2P), auto switches other than those described above cannot be used.

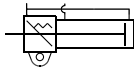




## Symbol



Retraction  
locking type



Extension  
locking type

## Port/Bypass Piping Position

| Symbol | Port position | Bypass piping position | Locking direction     |                      |
|--------|---------------|------------------------|-----------------------|----------------------|
|        |               |                        | B: Retraction locking | F: Extension locking |
| —      | Port on top   | Bypass piping on left  |                       |                      |
| 2      | Port on left  | Bypass piping on right |                       |                      |
| 3      | Port on right | Bypass piping on left  |                       |                      |
| 4      | Port on top   | Bypass piping on right | —                     |                      |
| 5      | Port on left  | Bypass piping on top   | —                     |                      |
| 6      | Port on right | Bypass piping on top   | —                     |                      |

⇒ Port Bypass piping

Refer to pages 13 to 17 for cylinders with auto switches.

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

## Clamp Cylinder with Lock Specifications

| Bore size [mm]                                   | 32                                                                         | 40  | 50  | 63   |
|--------------------------------------------------|----------------------------------------------------------------------------|-----|-----|------|
| <b>Action</b>                                    | Double acting, Single rod                                                  |     |     |      |
| <b>Fluid</b>                                     | Air                                                                        |     |     |      |
| <b>Proof pressure</b>                            | 1.5 MPa                                                                    |     |     |      |
| <b>Maximum operating pressure</b>                | 1.0 MPa                                                                    |     |     |      |
| <b>Minimum operating pressure</b>                | 0.2 MPa                                                                    |     |     |      |
| <b>Locking action</b>                            | Spring locking                                                             |     |     |      |
| <b>Locking pressure</b>                          | 0.05 MPa                                                                   |     |     |      |
| <b>Locking direction</b>                         | One direction (Retraction, Extension)                                      |     |     |      |
| <b>Lock holding force N*1 (Max. static load)</b> | 0.5 MPa or equivalent                                                      |     |     |      |
|                                                  | 402                                                                        | 629 | 982 | 1559 |
| <b>Lock application</b>                          | Drop prevention, Position holding                                          |     |     |      |
| <b>Ambient and fluid temperatures</b>            | Without auto switch: -10 °C to 70 °C<br>With auto switch : -10 °C to 60 °C |     |     |      |
| <b>Lubrication</b>                               | Not required (Non-lube)                                                    |     |     |      |
| <b>Piston speed</b>                              | 50 to 500 mm/s                                                             |     |     |      |
| <b>Stroke length tolerance</b>                   | 0 to +1.4 mm                                                               |     |     |      |
| <b>Cushion</b>                                   | Retraction direction (Head end): With air cushion                          |     |     |      |
| <b>Mounting</b>                                  | Double clevis*2                                                            |     |     |      |

\*1 The holding force (max. static load) shows the maximum capability and does not show the normal holding capability. So, select an appropriate cylinder while referring to page 18.

\*2 A pin (for clevis), cotter pins, and flat washers are provided as a standard.

## Weight (Basic weight is for a 0 mm stroke.)

|                                                                           |                                    |               |               |               | Unit: kg      |
|---------------------------------------------------------------------------|------------------------------------|---------------|---------------|---------------|---------------|
| Bore size [mm]                                                            |                                    | 32            | 40            | 50            | 63            |
| Cylinder basic weight                                                     | CLK2G                              | B:0.51 F:0.54 | B:1.06 F:1.12 | B:1.38 F:1.44 | B:1.83 F:1.89 |
|                                                                           | CLK2P                              | —             | B:1.19 F:1.25 | B:1.48 F:1.54 | B:1.97 F:1.99 |
|                                                                           | Additional weight per 25 mm stroke | 0.08          | 0.11          | 0.12          | 0.14          |
| Single knuckle joint                                                      |                                    | 0.25          | 0.25          | 0.20          |               |
| Double knuckle joint (A pin, cotter pins, and flat washers are included.) |                                    | 0.17          | 0.36          | 0.34          |               |
| Limit switch mounting base                                                |                                    | —             | 0.22          |               |               |
| Dog fitting                                                               |                                    | —             | 0.12          |               |               |
| Foot bracket                                                              |                                    | —             | 0.24          |               |               |
| Pedestal                                                                  |                                    | —             | 2.04          |               |               |

\* The above values do not include the weight of the auto switch and auto switch mounting bracket.

Calculation

Example) CLK2PB50-100YZ-B

• Basic weight ... 1.48 (Ø 50)

• Additional weight ... 0.12/25 mm

• Cylinder stroke ... 100 mm

• Double knuckle joint ... 0.34 (Y)

1.48 + 0.12 x 100 / 25 + 0.34 = 2.3 kg

## Theoretical Output

| Bore size [mm] | Rod size [mm] | Operating direction | Piston area [mm <sup>2</sup> ] | Operating pressure [MPa] |      |      |      |
|----------------|---------------|---------------------|--------------------------------|--------------------------|------|------|------|
|                |               |                     |                                | 0.3                      | 0.4  | 0.5  | 0.6  |
| 32             | 12            | OUT                 | 804                            | 241                      | 322  | 402  | 482  |
|                |               | IN                  | 691                            | 207                      | 276  | 346  | 415  |
| 40             | 16            | OUT                 | 1260                           | 378                      | 504  | 630  | 756  |
|                |               | IN                  | 1060                           | 318                      | 424  | 530  | 636  |
| 50             | 20            | OUT                 | 1960                           | 588                      | 784  | 980  | 1180 |
|                |               | IN                  | 1650                           | 495                      | 660  | 825  | 990  |
| 63             | 20            | OUT                 | 3120                           | 934                      | 1250 | 1560 | 1870 |
|                |               | IN                  | 2800                           | 840                      | 1120 | 1400 | 1680 |

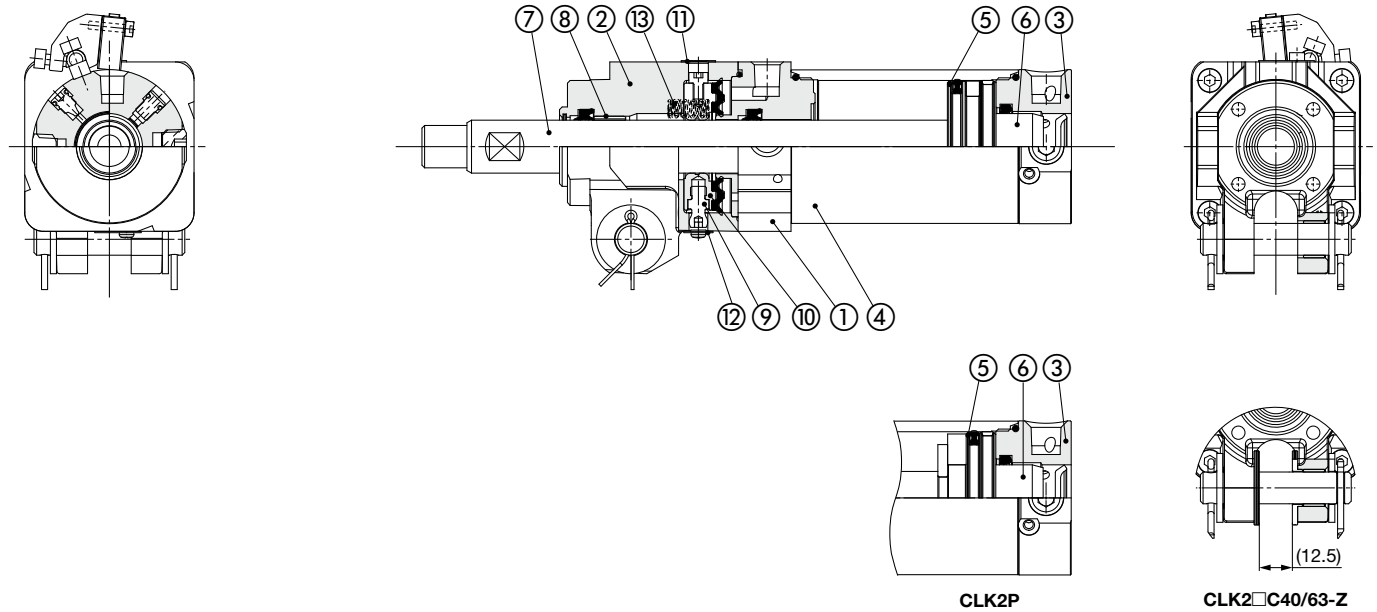
## Accessories (Options)

| Symbol | Description                                                                                     |                | Parts no.     |          |               |               |           |          |
|--------|-------------------------------------------------------------------------------------------------|----------------|---------------|----------|---------------|---------------|-----------|----------|
|        |                                                                                                 |                | CLK2GA/CLK2PA |          | CLK2GB/CLK2PB | CLK2GC/CLK2PC |           |          |
|        |                                                                                                 |                | 32            | 40       | 50, 63        | 50, 63        | 40        | 50, 63   |
| I      | Single knuckle joint                                                                            | M6 without tap | CLK-I03       | CLK-I04  | CKB-I04       | CLK-I04       | CKB-I04   |          |
| IA     |                                                                                                 | M6 with tap    | —             | CLK-IA04 | CKB-IA04      | CLK-IA04      | CKB-IA04  |          |
| Y      | Double knuckle joint (A knuckle pin, cotter pins, and flat washers are provided as a standard.) | M6 without tap | CLK-Y03       | CLK-Y04  | CKA-Y04       | CKB-Y04       | CLKC-Y04  | CKC-Y04  |
| YA     |                                                                                                 | M6 with tap    | —             | CLK-YA04 | CKA-YA04      | CKB-YA04      | CLKC-YA04 | CKC-YA04 |
| B      | Limit switch mounting base                                                                      |                | —             | —        | —             | CK-B04        | —         | —        |
| D      | Dog fitting                                                                                     |                | —             | —        | —             | CK-D04        | —         | —        |
| L      | Foot                                                                                            |                | —             | —        | —             | CK-L04        | —         | —        |
| K      | Pedestal                                                                                        | For 75 stroke  | —             | CKA-K075 | —             | —             | —         | —        |
|        |                                                                                                 | For 100 stroke | —             | CKA-K100 | —             | —             | —         | —        |
|        |                                                                                                 | For 150 stroke | —             | CKA-K150 | —             | —             | —         | —        |

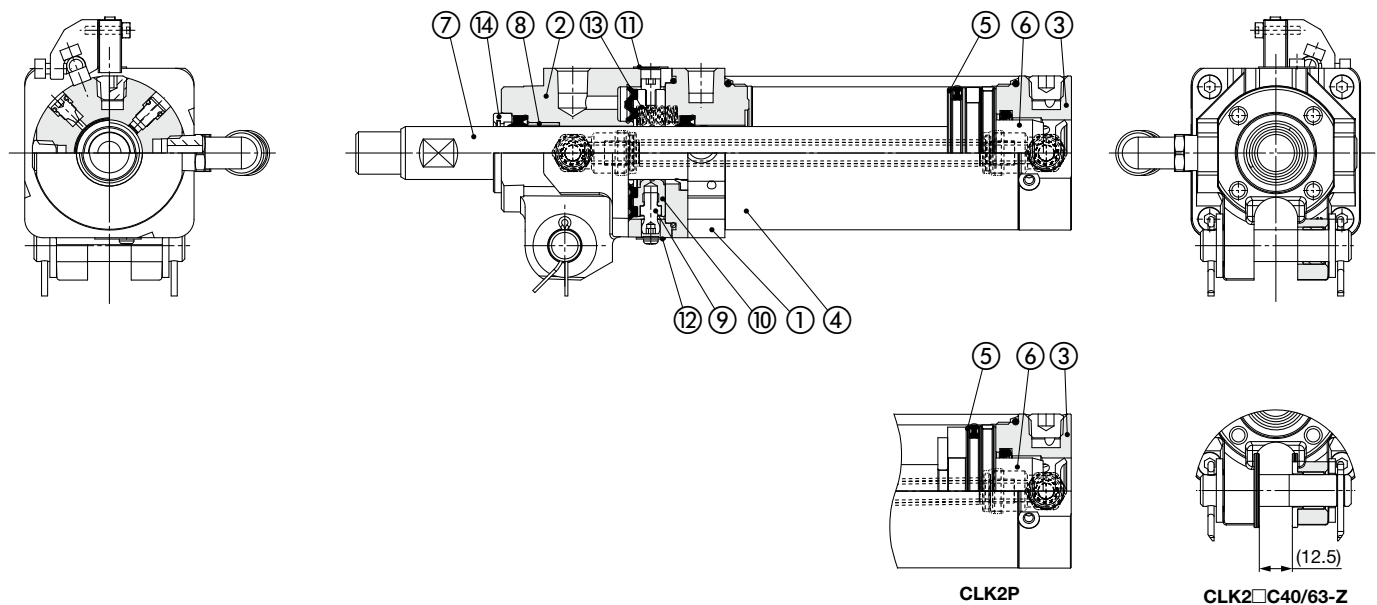
# CLK2 Series

Construction: CLK2□□32/40/50/63

## Retraction locking (B)



## Extension locking (F)



## Component Parts

| No. | Description   |
|-----|---------------|
| 1   | Rod cover     |
| 2   | Cover         |
| 3   | Head cover    |
| 4   | Cylinder tube |
| 5   | Piston        |
| 6   | Cushion ring  |
| 7   | Piston rod    |

| No. | Description                                                          |
|-----|----------------------------------------------------------------------|
| 8   | Bushing                                                              |
| 9   | Pivot                                                                |
| 10  | Lock ring                                                            |
| 11  | Dust cover                                                           |
| 12  | Dust cover                                                           |
| 13  | Brake spring                                                         |
| 14  | Retainer plate (For bore sizes $\varnothing 50$ , $\varnothing 63$ ) |

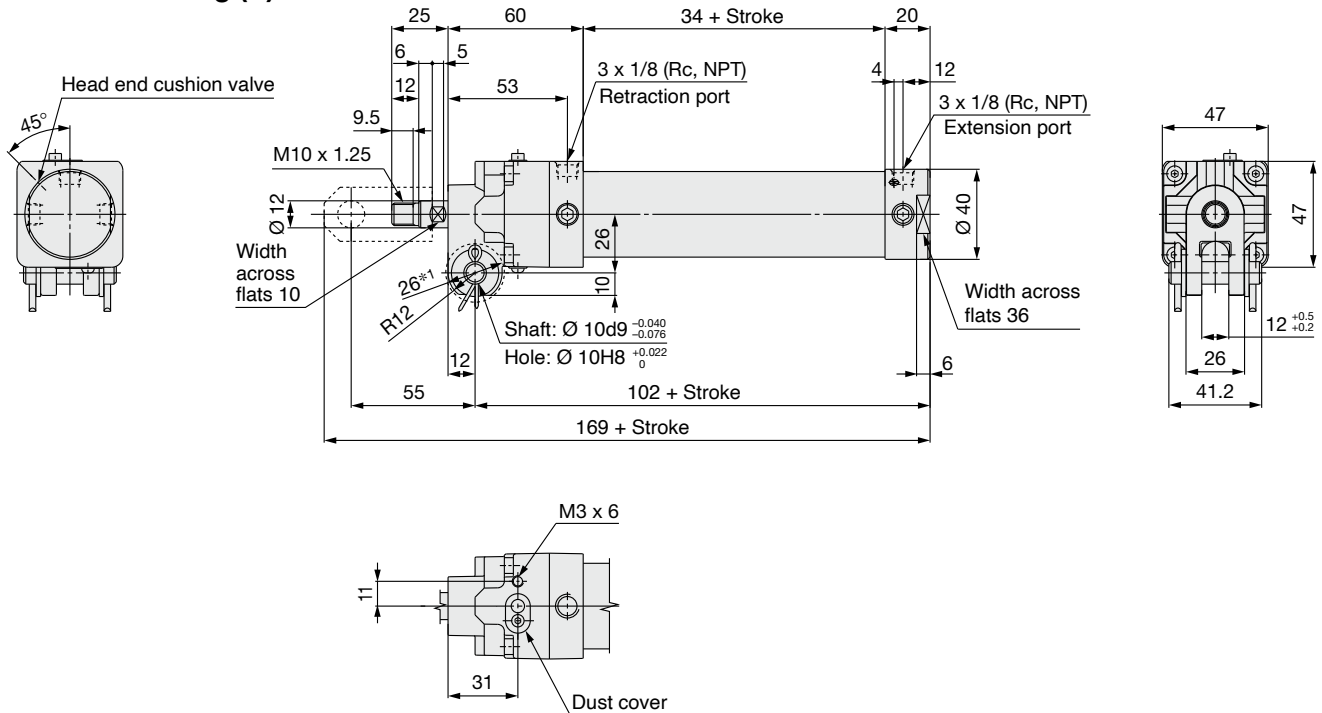


## Dimensions: CLK2A32 Without Auto Switch

### CLK2GA32 Built-in Standard Magnet Type /

### With Magnetic Field Resistant Solid State Auto Switch (D-P4DWS□)

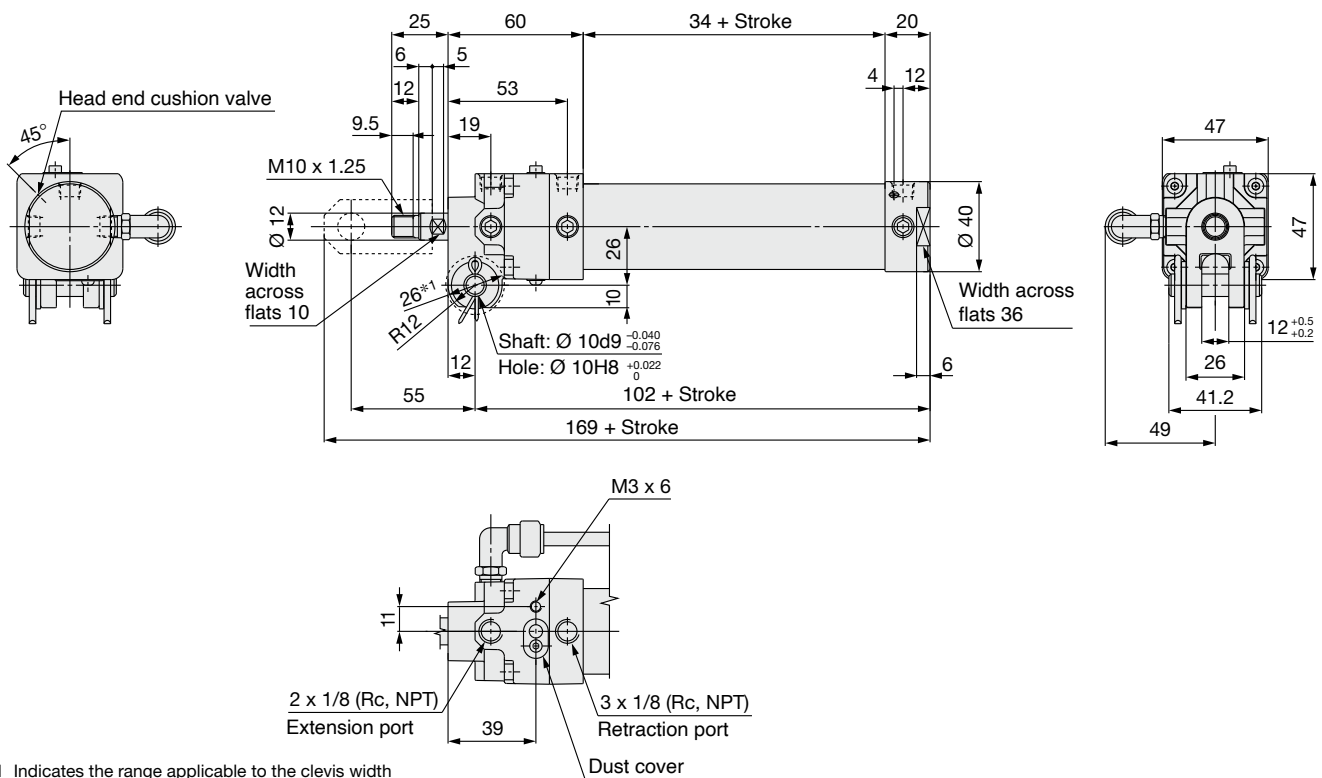
#### Retraction locking (B)



\*1 Indicates the range applicable to the clevis width

\* Refer to pages 11 and 12 for accessories.

#### Extension locking (F)



\*1 Indicates the range applicable to the clevis width

\* Refer to pages 11 and 12 for accessories.

# CLK2 Series

Dimensions: CLK2□40/50/63 Without Auto Switch

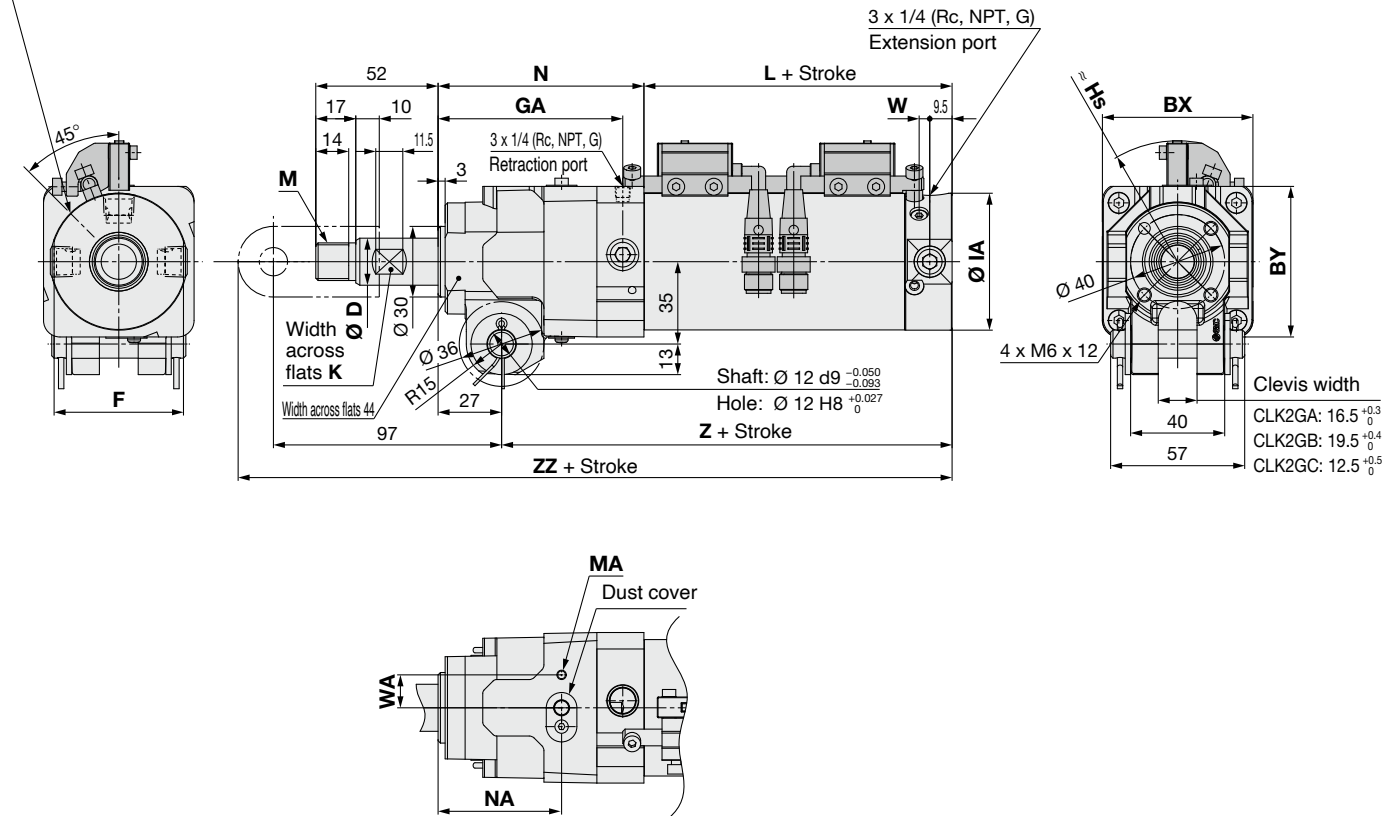
CLK2G□40/50/63 Built-in Standard Magnet Type /

With Magnetic Field Resistant Solid State Auto Switch (D-P4DWS□)

## Retraction locking (B)

Cushion valve Top width across flats 3

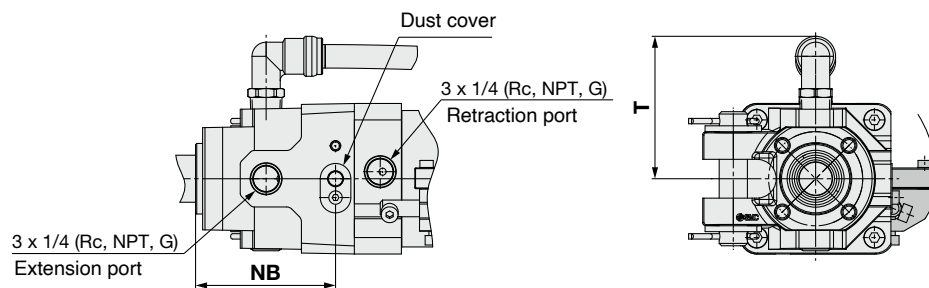
(Head cover side only)



| Symbol    | BX | BY | D  | F  | GA   | IA | K  | L  | M         | MA     | N    | NA   | W   | WA   | Z     | ZZ    | Hs   |
|-----------|----|----|----|----|------|----|----|----|-----------|--------|------|------|-----|------|-------|-------|------|
| Bore size |    |    |    |    |      |    |    |    |           |        |      |      |     |      |       |       |      |
| 40        | 56 | 54 | 16 | 44 | 77   | 47 | 14 | 53 | M12 x 1.5 | M4 x 7 | 86   | 51.5 | 5   | 12.5 | 112   | 224   | 45.5 |
| 50        | 64 | 64 | 20 | 55 | 78.5 | 58 | 17 | 56 | M16 x 1.5 | M4 x 7 | 87.5 | 52.5 | 4.5 | 14   | 116.5 | 228.5 | 51   |
| 63        | 74 | 74 | 20 | 69 | 82   | 72 | 17 | 56 | M16 x 1.5 | M5 x 7 | 91   | 53.5 | 4.5 | 19   | 120   | 232   | 58.5 |

\* Refer to pages 11 and 12 for accessories.

## Extension locking (F)



| Symbol    | NB   | T  |
|-----------|------|----|
| Bore size |      |    |
| 40        | 59   | 57 |
| 50        | 59.5 | 60 |
| 63        | 61   | 67 |

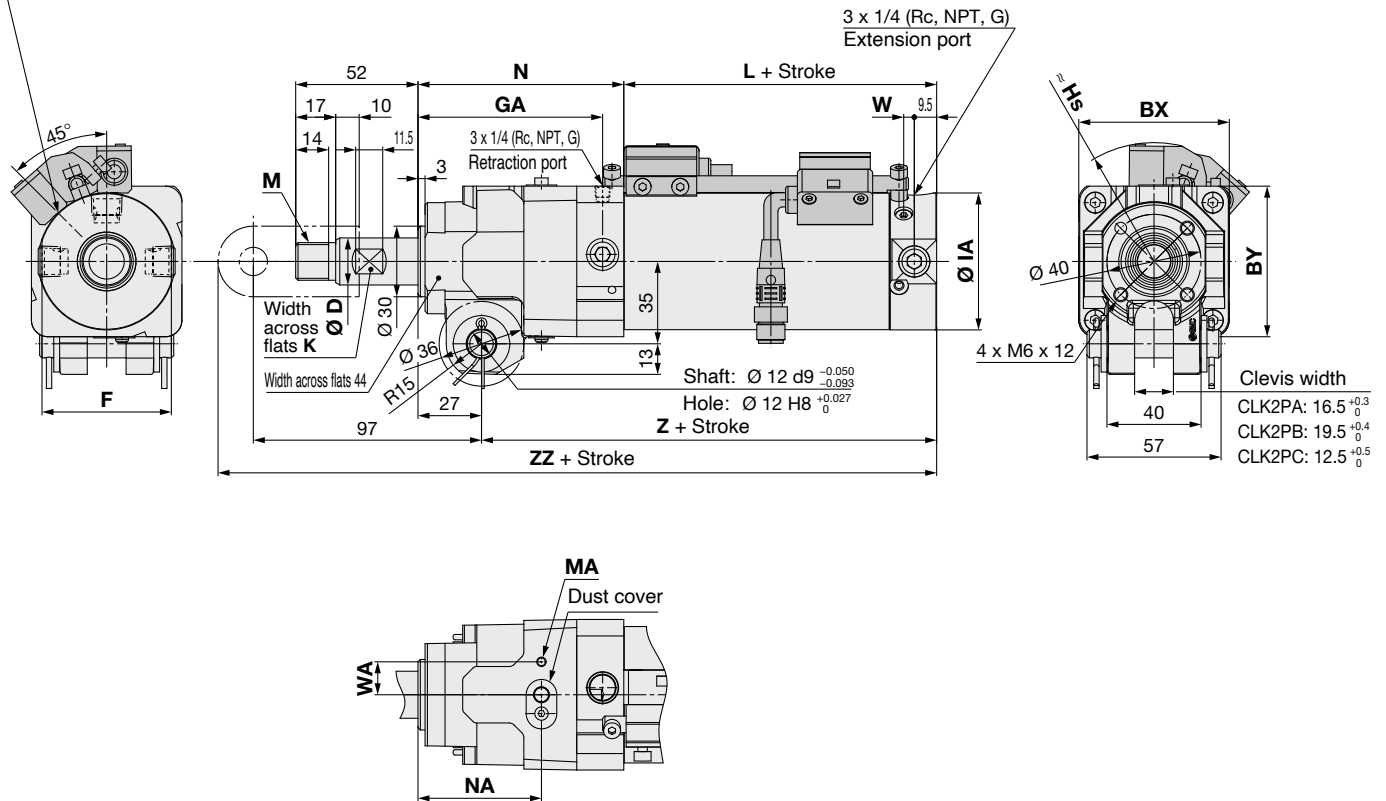
\* Only the dimensions listed on the left are different from those of the retraction locking (B) type.

\* Refer to pages 11 and 12 for accessories.

**Dimensions: CLK2P□40/50/63 Built-in Strong Magnet Type /  
With Magnetic Field Resistant Reed Auto Switch (D-P79WSE)**

### Retraction locking (B)

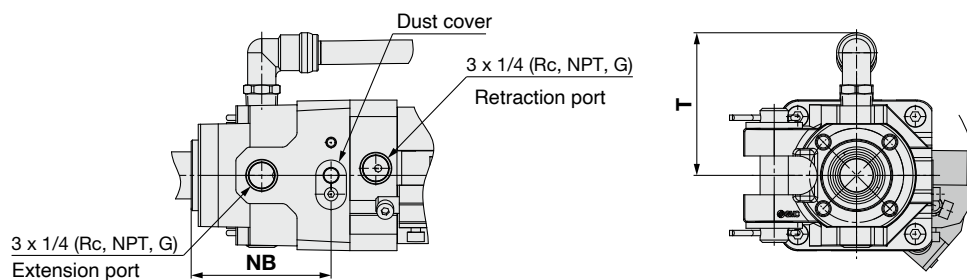
Cushion valve Top width across flats 3  
(Head cover side only)



| [mm]                |    |    |    |    |      |    |    |    |           |        |      |      |     |      |       |       |      |
|---------------------|----|----|----|----|------|----|----|----|-----------|--------|------|------|-----|------|-------|-------|------|
| Symbol<br>Bore size | BX | BY | D  | F  | GA   | IA | K  | L  | M         | MA     | N    | NA   | W   | WA   | Z     | ZZ    | Hs   |
| 40                  | 56 | 54 | 16 | 44 | 77   | 47 | 14 | 58 | M12 x 1.5 | M4 x 7 | 86   | 51.5 | 5   | 12.5 | 117   | 229   | 47.5 |
| 50                  | 64 | 64 | 20 | 55 | 78.5 | 58 | 17 | 58 | M16 x 1.5 | M4 x 7 | 87.5 | 52.5 | 4.5 | 14   | 118.5 | 230.5 | 51   |
| 63                  | 74 | 74 | 20 | 69 | 82   | 72 | 17 | 58 | M16 x 1.5 | M5 x 7 | 91   | 53.5 | 4.5 | 19   | 122   | 234   | 57.5 |

\* Refer to pages 11 and 12 for accessories.

### Extension locking (F)



|           |        | [mm] |    |
|-----------|--------|------|----|
| Bore size | Symbol | NB   | T  |
| 40        |        | 59   | 57 |
| 50        |        | 59.5 | 60 |
| 63        |        | 61   | 67 |

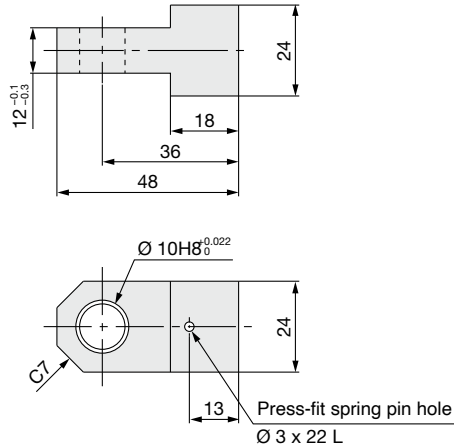
\* Only the dimensions listed on the left are different from those of the retraction locking (B) type.

\* Refer to pages 11 and 12 for accessories.

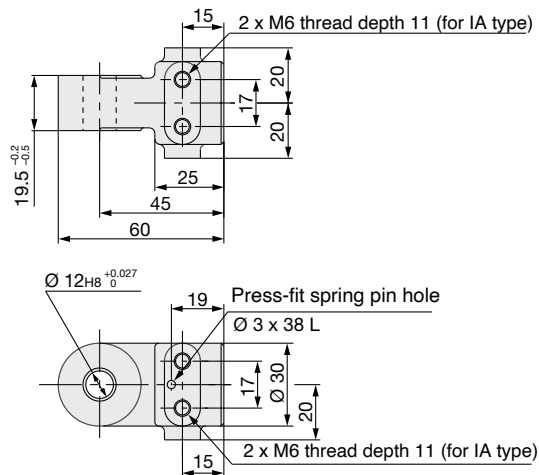
# CLK2 Series Accessories 1

## Single Knuckle Joint

For  $\varnothing 32$



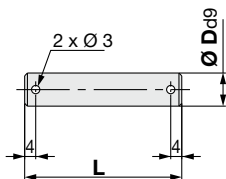
For  $\varnothing 40, \varnothing 50, \varnothing 63$



| Part no.        | Rod end bracket symbol | Applicable cylinder |
|-----------------|------------------------|---------------------|
| <b>CLK-I03</b>  | I (M6 without tap)     | CLK2□A32-Z          |
| <b>CLK-I04</b>  | I (M6 without tap)     | CLK2□A40-Z          |
| <b>CLK-IA04</b> | IA (M6 with tap)       | CLK2□B40-Z          |
| <b>CKB-I04</b>  | I (M6 without tap)     | CLK2□A50 to 63-Z    |
| <b>CKB-IA04</b> | IA (M6 with tap)       | CLK2□B50 to 63-Z    |

\* A spring pin is attached to the single knuckle joint as a standard.

## Pin (for Clevis/Double Knuckle Joint)

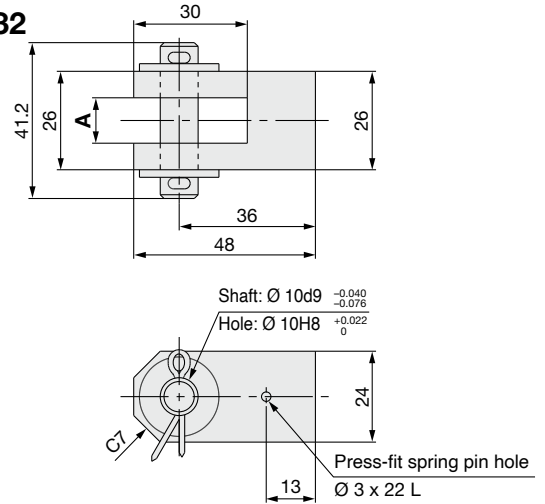


| Part no.       | D                   | L    | Applicable cylinder |
|----------------|---------------------|------|---------------------|
| <b>CLK-P03</b> | 10 (+0.040, -0.076) | 41.2 | CLK2□A32-Z          |
| <b>CK-P04</b>  | 12 (+0.050, -0.093) | 57   | CLK2□□40 to 63-Z    |

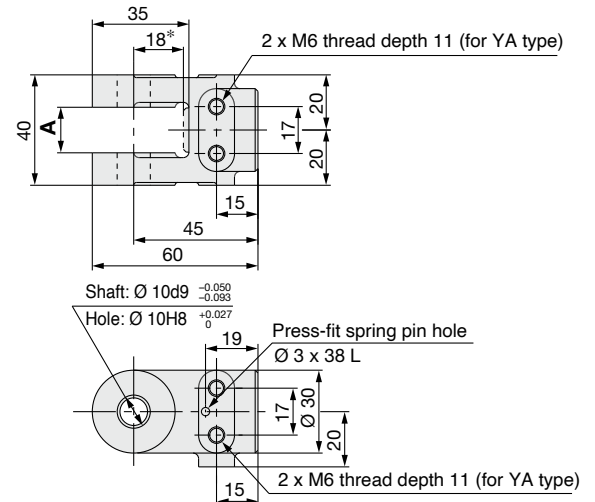
\* Cotter pins and flat washers are attached to the pin as a standard.

## Double Knuckle Joint

For  $\varnothing 32$



For  $\varnothing 40, \varnothing 50, \varnothing 63$



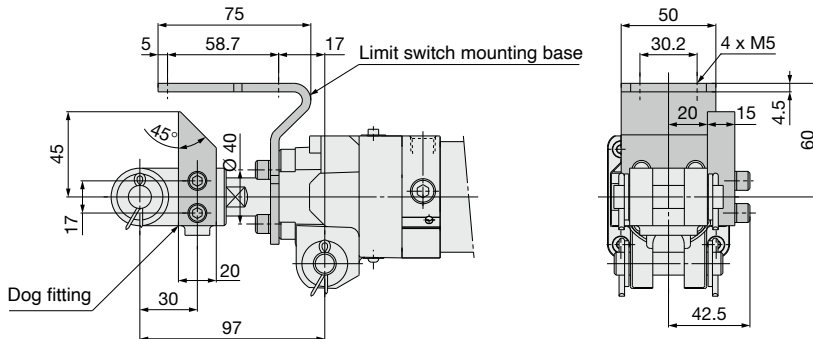
| Part no.         | Rod end bracket symbol | A               | Applicable cylinder |
|------------------|------------------------|-----------------|---------------------|
| <b>CLK-Y03</b>   | Y (M6 without tap)     | 12 (+0.5, -0.2) | CLK2□A32-Z          |
| <b>CLK-Y04</b>   | Y (M6 without tap)     | 16.5 (+0.3, 0)  | CLK2□A40-Z          |
| <b>CLK-YA04</b>  | YA (M6 with tap)       |                 | CLK2□A50 to 63-Z    |
| <b>CKA-Y04</b>   | Y (M6 without tap)     |                 |                     |
| <b>CKA-YA04</b>  | YA (M6 with tap)       | 19.5 (+0.4, 0)  | CLK2□B50 to 63-Z    |
| <b>CKB-Y04</b>   | Y (M6 without tap)     |                 |                     |
| <b>CKB-YA04</b>  | YA (M6 with tap)       |                 |                     |
| <b>CLKC-Y04</b>  | Y (M6 without tap)     | 12.5 (+0.5, 0)  | CLK2□C40-Z          |
| <b>CLKC-YA04</b> | YA (M6 with tap)       |                 |                     |
| <b>CKC-Y04</b>   | Y (M6 without tap)     |                 | CLK2□C50 to 63-Z    |
| <b>CKC-YA04</b>  | YA (M6 with tap)       |                 |                     |

\* A pin (for knuckle), cotter pins, flat washers, and a spring pin are attached to the double knuckle joint as a standard.

\* The dimension with \* shows the value when mounted on the piston rod.

# CLK2 Series Accessories 2

## Limit Switch Mounting Base/Dog Fitting



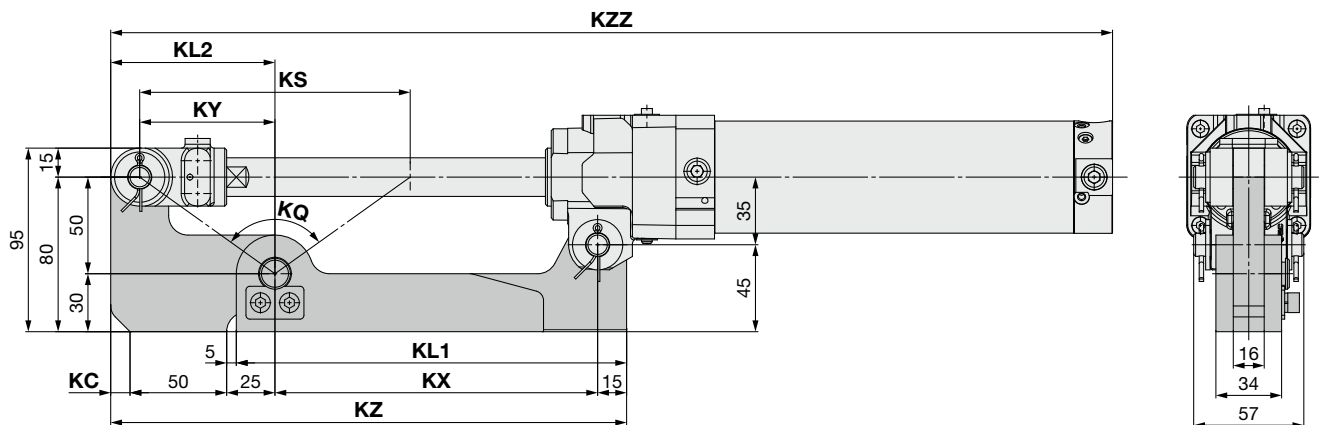
When you attach a dog fitting, be sure to use a knuckle joint, M6 with tap (rod end bracket symbol IA or YA).  
The dog fitting cannot be attached to the knuckle joint, M6 without tap (rod end bracket symbol I or Y).

| Part no. | Option symbol | Name                       | Applicable cylinder |
|----------|---------------|----------------------------|---------------------|
| CK-B04   | B             | Limit switch mounting base | CLK2□40 to 63-Z     |
| CK-D04   | D             | Dog fitting                |                     |

\* Limit switch mounting base and dog fitting can be repositioned by removing the hexagon socket head cap screw.

\* When ordering the limit switch mounting base or the dog fitting individually, mounting bolts (hexagon socket head cap screws) and spring washers will be provided as a standard.

## Pedestal

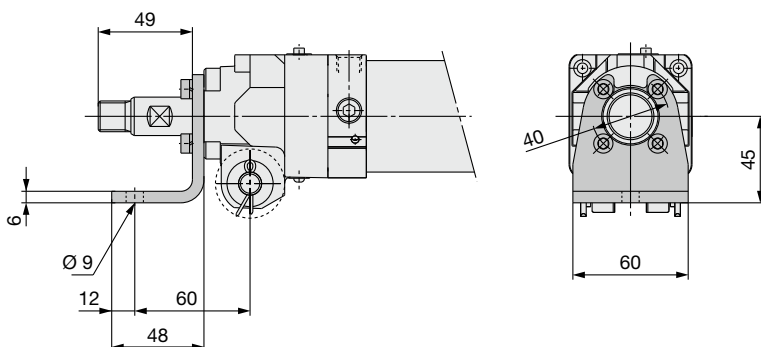


Unit: mm

| Part no. | Option symbol | KL1 | KL2 | KX  | KZ  | KY | KS  | KQ      | KC | KZZ            |               |           | Applicable cylinder  |
|----------|---------------|-----|-----|-----|-----|----|-----|---------|----|----------------|---------------|-----------|----------------------|
|          |               |     |     |     |     |    |     |         |    | Bore size [mm] |               |           |                      |
|          |               |     |     |     |     |    |     |         |    | 40             | 50            | 63        |                      |
| CKA-K075 | K             | 167 | 75  | 132 | 222 | 35 | 70  | 69°59'  | 0  | 394 (399)      | 398.5 (400.5) | 402 (404) | CLK2□A40 to 63-75YZ  |
| CKA-K100 |               | 177 | 75  | 142 | 232 | 45 | 90  | 83°58'  | 0  | 429 (434)      | 432.5 (435.5) | 437 (439) | CLK2□A40 to 63-100YZ |
| CKA-K150 |               | 202 | 85  | 167 | 267 | 70 | 140 | 108°55' | 10 | 514 (519)      | 518.5 (520.5) | 522 (524) | CLK2□A40 to 63-150YZ |

\* ( ) denotes the dimensions for CLK2PA

## Foot Bracket



| Part no. | Option symbol | Applicable cylinder |
|----------|---------------|---------------------|
| CK-L04   | L             | CLK2□40 to 63-Z     |

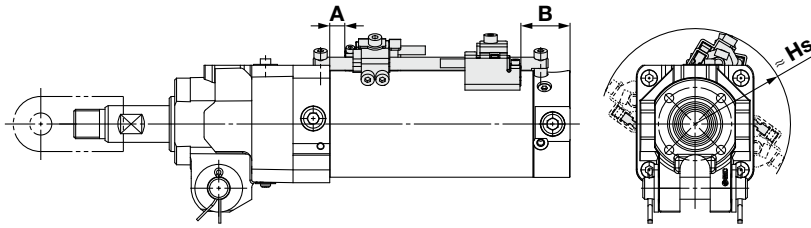
\* Mounting bolts (hexagon socket head cap screws) and spring washers will be provided as a standard for the foot bracket.  
\* When mounting the cylinder, use both the foot bracket and clevis pin. Please avoid using the foot bracket by itself as this may result in damage.

## CLK2 Series

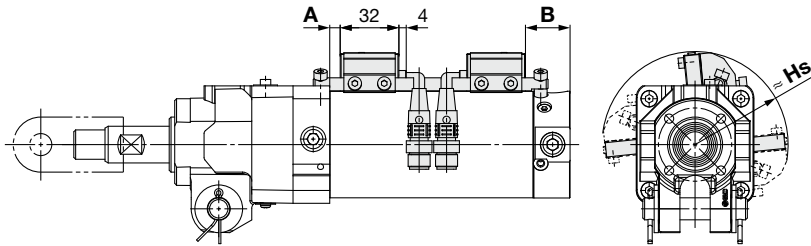
# Auto Switch Mounting (Rod Mounting Type)

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

#### D-P3DWA□

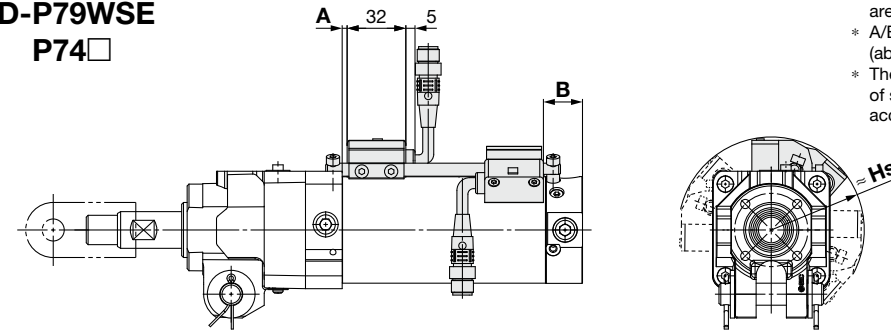


#### D-P4DW□



\* The drawing shows the auto switch rod mounting example for the D-P4DWS□ type.

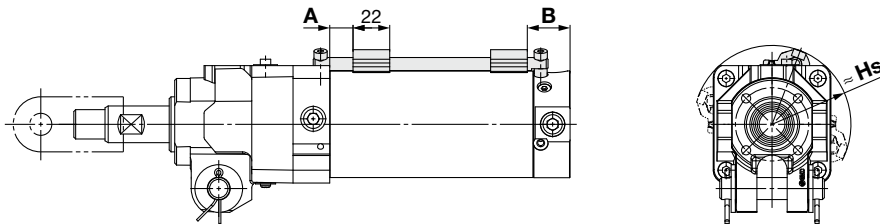
#### D-P79WSE P74□



\* The drawing shows the auto switch rod mounting example for the D-P79WSE type.

#### D-M9□

#### D-A9□



Unit: mm

| Auto switch model  | Symbol | Bore size [mm] |      |      |
|--------------------|--------|----------------|------|------|
|                    |        | 40             | 50   | 63   |
| D-P3DWA□           | A      | 6.5            | 8    | 8    |
|                    | B      | 25.5           | 27   | 27   |
|                    | Hs     | 46.5           | 52   | 59   |
| D-P4DW□            | A      | 4              | 5.5  | 5.5  |
|                    | B      | 23             | 24.5 | 24.5 |
|                    | Hs     | 45.5           | 51   | 58.5 |
| D-P79WSE<br>D-P74□ | A      | 0              | 0    | 0    |
|                    | B      | 21.5           | 26   | 26   |
|                    | Hs     | 47.5           | 51   | 57.5 |
| D-M9□              | A      | 11             | 12.5 | 12.5 |
|                    | B      | 30             | 31.5 | 31.5 |
|                    | Hs     | 39             | 44.5 | 51.5 |
| D-A9□              | A      | 7              | 8.5  | 8.5  |
|                    | B      | 26             | 27.5 | 27.5 |
|                    | Hs     | 39             | 44.5 | 51.5 |

\* The mounting position should be referred for reference only for the auto switch mounting position at the stroke end detection. Adjust the auto switch after confirming the operation to set actually.

\* The applicable bore sizes of the CLK2GB (Clevis width 19.5 mm) are Ø 50 and Ø 63.

\* A/B dimensions are the distance from the standard position (above drawing) to the end surface of the auto switch.

\* The auto switch mounting position is temporarily set at the time of shipping from our factory. Change it to the desired position in accordance to your facility.

### Operating Range

Unit: mm

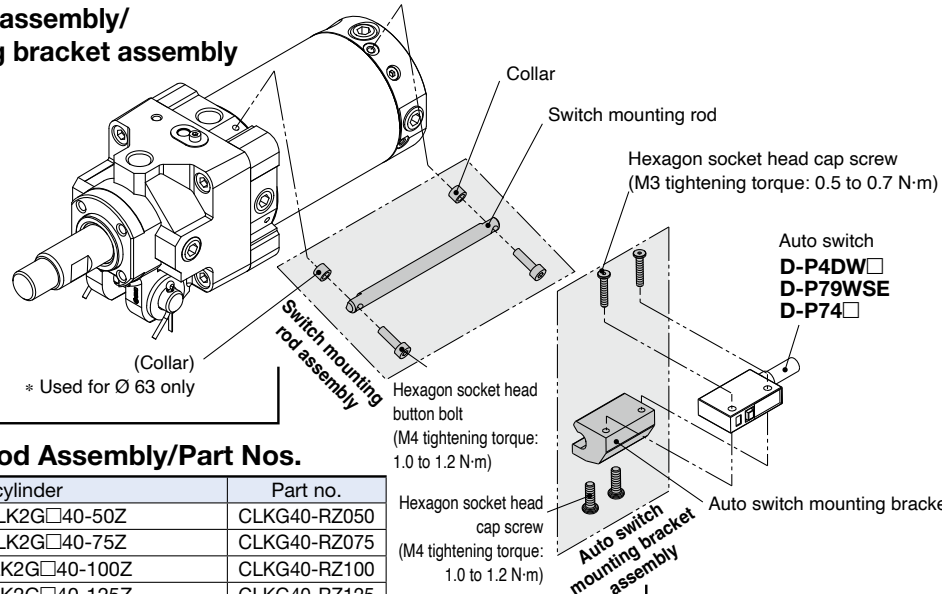
| Auto switch model | Bore size [mm] |     |     |
|-------------------|----------------|-----|-----|
|                   | 40             | 50  | 63  |
| D-P3DWA□          | 6              | 5.5 | 6   |
| D-P4DW□           | 4              | 4   | 4.5 |
| D-P79WSE          | 8              | 9   | 9.5 |
| D-P74□            | 8              | 9   | 9.5 |
| D-M9□             | 4              | 4.5 | 5   |
| D-A9□             | 8              | 8   | 9   |

\* Values which include hysteresis are for reference purposes only. They are not a guarantee (assuming approximately ±30 % dispersion) and may change substantially depending on the ambient environment.



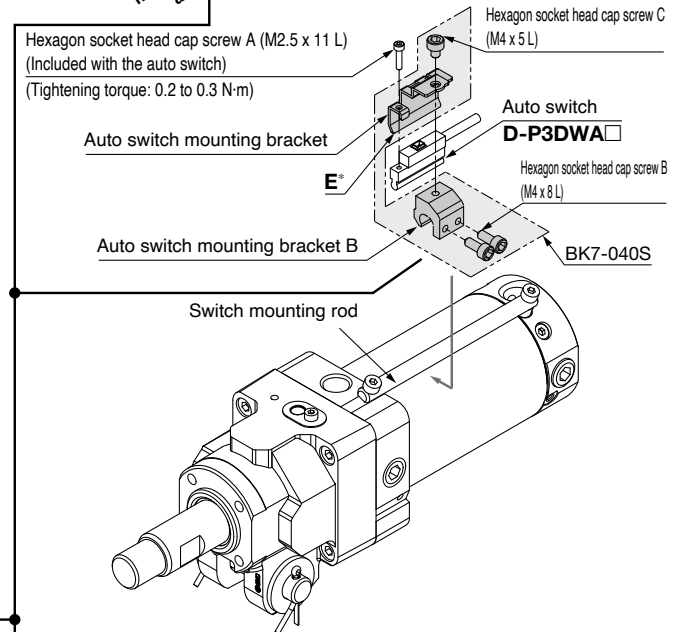
## Auto Switch Mounting Brackets/Part Nos.

Switch mounting rod assembly/  
Auto switch mounting bracket assembly



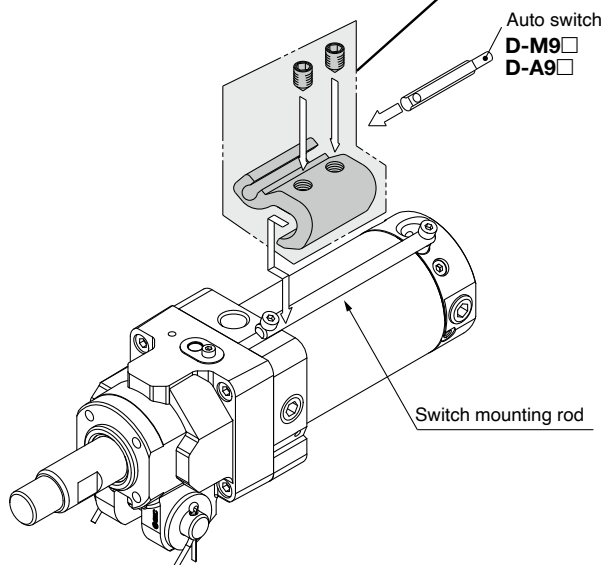
### Switch Mounting Rod Assembly/Part Nos.

|                          | Applicable cylinder         | Part no.     |
|--------------------------|-----------------------------|--------------|
| CLK2G□40-Z               | CLK2G□40-50Z                | CLKG40-RZ050 |
|                          | CLK2G□40-75Z                | CLKG40-RZ075 |
|                          | CLK2G□40-100Z               | CLKG40-RZ100 |
|                          | CLK2G□40-125Z               | CLKG40-RZ125 |
|                          | CLK2G□40-150Z               | CLKG40-RZ150 |
| CLK2P□40-Z<br>CLK2G□50-Z | CLK2P□40-50Z/CLK2G□50-50Z   | CLKG50-RZ050 |
|                          | CLK2P□40-75Z/CLK2G□50-75Z   | CLKG50-RZ075 |
|                          | CLK2P□40-100Z/CLK2G□50-100Z | CLKG50-RZ100 |
|                          | CLK2P□40-125Z/CLK2G□50-125Z | CLKG50-RZ125 |
|                          | CLK2P□40-150Z/CLK2G□50-150Z | CLKG50-RZ150 |
| CLK2P□50-Z               | CLK2P□50-50Z                | CLKP50-RZ050 |
|                          | CLK2P□50-75Z                | CLKP50-RZ075 |
|                          | CLK2P□50-100Z               | CLKP50-RZ100 |
|                          | CLK2P□50-125Z               | CLKP50-RZ125 |
|                          | CLK2P□50-150Z               | CLKP50-RZ150 |
| CLK2G□63-Z               | CLK2G□63-50Z                | CKG50-RZ050A |
|                          | CLK2G□63-75Z                | CKG50-RZ075A |
|                          | CLK2G□63-100Z               | CKG50-RZ100A |
|                          | CLK2G□63-125Z               | CKG50-RZ125A |
|                          | CLK2G□63-150Z               | CKG50-RZ150A |
| CLK2P□63-Z               | CLK2P□63-50Z                | CKP50-RZ050A |
|                          | CLK2P□63-75Z                | CKP50-RZ075A |
|                          | CLK2P□63-100Z               | CKP50-RZ100A |
|                          | CLK2P□63-125Z               | CKP50-RZ125A |
|                          | CLK2P□63-150Z               | CKP50-RZ150A |



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

| Applicable cylinder | Applicable auto switch | Bore size [mm] |    |    |
|---------------------|------------------------|----------------|----|----|
|                     |                        | 40             | 50 | 63 |
| CLK2G-Z             | D-P3DWA                | BK7-040S       |    |    |
|                     | D-P4DW                 | BK1T-040       |    |    |
|                     | D-M9<br>D-A9           | BA7-040        |    |    |
| CLK2P-Z             | D-P79WSE<br>D-P74L/Z   | BAP1T-040      |    |    |

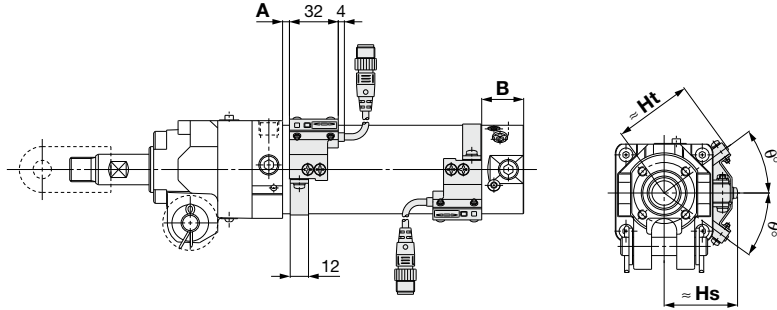


## CLK2 Series

# Auto Switch Mounting (Band Mounting Type)

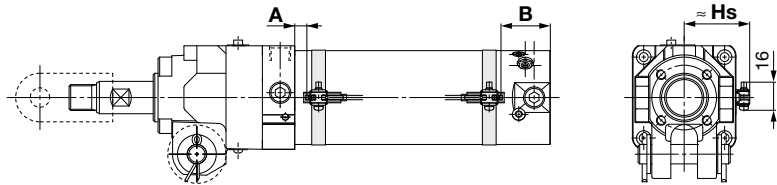
### Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height

#### D-P4DW□



\* The drawing shows the auto switch band mounting example for the D-P4DWS□ type.

#### D-A9□/M9□(W)



Unit: mm

| Auto switch model         | Symbol | Bore size [mm] |     |      |      |
|---------------------------|--------|----------------|-----|------|------|
|                           |        | 32             | 40  | 50   | 63   |
| D-P4DW□                   | A      | 0              | 4   | 5.5  | 5.5  |
|                           | B      | 27.5           | 23  | 24.5 | 24.5 |
|                           | Hs     | 38             | 43  | 48   | 55   |
|                           | Ht     | 41.5           | 46  | 51.5 | 58.5 |
|                           | θ      | 45°            | 40° | 36°  | 33°  |
| D-M9□<br>D-M9□W<br>D-M9□A | A      | 7              | 11  | 12.5 | 12.5 |
|                           | B      | 34.5           | 30  | 31.5 | 31.5 |
|                           | Hs     | 30             | 35  | 40.5 | 47.5 |
| D-A9□                     | A      | 3              | 7   | 8.5  | 8.5  |
|                           | B      | 30.5           | 26  | 27.5 | 27.5 |
|                           | Hs     | 30             | 35  | 40.5 | 47.5 |

\* The mounting position should be referred for reference only for the auto switch mounting position at the stroke end detection. Adjust the auto switch after confirming the operation to set actually.

\* A/B dimensions are the distance from the standard position (above drawing) to the end surface of the auto switch.

\* As for the D-P4DW type, band mounting type, the auto switch mounting bracket and the auto switch have to be ordered separately. For details, refer to page 17.

### Operating Range

Unit: mm

| Auto switch model | Bore size [mm] |     |     |     |
|-------------------|----------------|-----|-----|-----|
|                   | 32             | 40  | 50  | 63  |
| D-P4DW□           | 4.5            | 5   | 5   | 5.5 |
| D-M9□             | 4              | 3.5 | 4   | 4   |
| D-M9□W<br>D-M9□A  | 5              | 5.5 | 6.5 | 7   |
| D-A9□             | 8              | 8   | 8   | 9   |

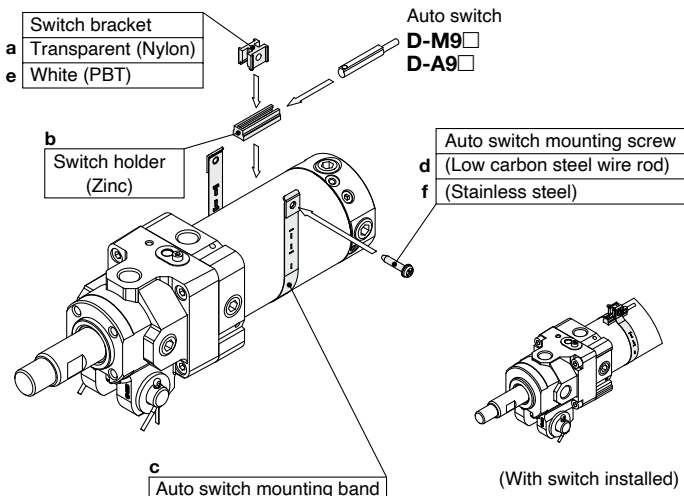
\* Values which include hysteresis are for reference purposes only. They are not a guarantee (assuming approximately ± 3.0 % dispersion) and may change substantially depending on the ambient environment.

## Auto Switch Mounting Brackets/Part Nos.

| Auto switch model | Bore size [mm] |         |         |         |
|-------------------|----------------|---------|---------|---------|
|                   | 32             | 40      | 50      | 63      |
| <b>D-P4DW</b> □   | BA8-032        | BA8-040 | BA8-050 | BA8-063 |

| Auto switch model                                | Bore size [mm]                      |                                     |                                     |                                     |
|--------------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
|                                                  | 32                                  | 40                                  | 50                                  | 63                                  |
| <b>D-M9</b> □<br><b>D-M9</b> □W<br><b>D-A9</b> □ | BMA3-032*1<br>(A set of a, b, c, d) | BMA3-040*1<br>(A set of a, b, c, d) | BMA3-050*1<br>(A set of a, b, c, d) | BMA3-063*1<br>(A set of a, b, c, d) |
| <b>D-M9</b> □A*2                                 | BMA3-032S<br>(A set of b, c, e, f)  | BMA3-040S<br>(A set of b, c, e, f)  | BMA3-050S<br>(A set of b, c, e, f)  | BMA3-063S<br>(A set of b, c, e, f)  |

\* Band (c) is mounted so that the projected part is on the internal side (contact side with the tube).

\*1 As the switch bracket is made of polyamide, its performance may be affected by chemicals such as alcohol, chloroform, methylamines, hydrochloric acid, and sulfuric acid, so it cannot be used in environments where these chemicals come into contact with the product.

\*2 When mounting a D-M9□A type auto switch, if the switch bracket is mounted on the indicator light, it may damage the auto switch. Therefore, be sure to avoid mounting the switch bracket on the indicator light.

# CLK2 Series

## Auto Switch Mounting

### Magnetic Field Resistant Auto Switch D-P4DW□□ / Band Mounting Compliant

Band mounting of the magnetic field resistant auto switch (D-P4DW□□) to the built-in standard magnet clamp cylinder (the CLK2G32 to 63 series) is possible by ordering the auto switch mounting bracket and the auto switch individually.

#### How to Order

Please order the switch mounting bracket, auto switch, and clamp cylinder individually.

Refer to the table below for auto switch mounting bracket part numbers.

| Auto switch component part no. | Applicable auto switch | Applicable cylinder |
|--------------------------------|------------------------|---------------------|
| BA8-032                        | D-P4DW□                | <b>CLK2G□32-Z</b>   |
| BA8-040                        |                        | <b>CLK2G□40-Z</b>   |
| BA8-050                        |                        | <b>CLK2G□50-Z</b>   |
| BA8-063                        |                        | <b>CLK2G□63-Z</b>   |

\* Refer to page 16 for mounting brackets.

#### Ordering Example

Example case ① Built-in standard magnet cylinder:  
CLK2GA50-50YZ-B ..... 1

Example case ② Magnetic field resistant auto switch:  
D-P4DWSC ..... 2

Example case ③ Auto switch mounting bracket:  
BA8-050 ..... 2

\* Please order the same quantity for the auto switch mounting bracket and the magnetic field resistant auto switch respectively.

\* Band mounting for the magnetic field resistant auto switch D-P79WSE type, D-P74□ type is not applicable.

#### Applicable Magnetic Field Resistant Auto Switches (Refer to the **Web Catalogue** for detailed auto switch specifications.)

| Applicable cylinder | Type                    | Auto switch model | Applicable magnetic field                                  | Electrical entry    | Indicator light  | Wiring (Pin no. in use) | Load voltage | Lead wire length | Applicable load |
|---------------------|-------------------------|-------------------|------------------------------------------------------------|---------------------|------------------|-------------------------|--------------|------------------|-----------------|
| CLK2G-Z             | Solid state auto switch | P4DWSC            | AC magnetic field (Single-phase AC welding magnetic field) | Pre-wired connector | 2-colour display | 2-wire (3-4)            | 24 VDC       | 0.3 m            | Relay, PLC      |
|                     |                         |                   |                                                            | 2-wire (1-4)        |                  | 3 m                     |              |                  |                 |
|                     |                         | P4DWL             |                                                            | Grommet             |                  | 2-wire                  |              | 5 m              |                 |
|                     |                         | P4DWZ             |                                                            |                     |                  |                         |              |                  |                 |



## CLK2 Series

# Specific Product Precautions 1

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: <https://www.smc.eu>

### Cushion Adjustment

#### ⚠ Danger

1. The cushion valve and plug are crimped. Do not rotate 2 rotations or more from the fully closed state. Exceeding this limit is dangerous because it may cause the valves (plugs) to be detached and ejected.

### Selection

#### ⚠ Warning

1. Since the holding force (max. static load) indicates a cylinder's ability to hold a static load without being affected by vibration or impact, max. load (work-piece mass) should be 50 % or less of the holding force (max. static force).

2. Do not perform intermediate stops while the cylinder is operating.

This cylinder is designed to lock inadvertent movement in the static condition. If the locking mechanism is used to stop the cylinder at an intermediate position during operation, the cylinder or unlocking mechanism may fail or the product's service life may be significantly shorten.

3. Select the correct locking position, as this cylinder does not generate holding force opposite to the locking direction.

The extension locking type does not generate holding force in the cylinder's retracting direction, and the retraction locking type does not generate holding force in the cylinder's extending direction.

4. Even when locked, there may be stroke movement of maximum 1 mm in the locking direction due to external forces such as the weight of the work piece.

Even when locked, if air pressure drops, stroke movement of maximum 1 mm may be generated in the locking direction of the lock mechanism due to external forces such as the work piece weight.

5. When locked, do not apply impact loads, strong vibration or rotational force, etc.

This will lead to lock mechanism damage, reduced service life, malfunction of unlocked condition, etc.

### Preparing for Operation

#### ⚠ Warning

1. When shipped from the factory, an unlocked condition is maintained by the unlocking bolt. Be sure to remove this bolt before operating. (The unlocking bolt can be stored in tap A after it is removed.)

Since the unlocking bolt is required to maintain the unlocked condition during maintenance, pay attention not to lose it.

Step 1) With no air pressure in the cylinder, retraction locking operates when the piston rod is retracted, and extension locking operates when it is extended.

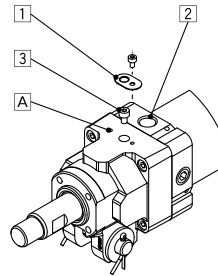
Step 2) Remove Dust cover 1.

Step 3) Supply air pressure of 0.2 MPa or more to port 2 in the figure on the upper right.

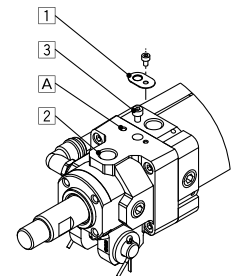
### Preparing for Operation

#### ⚠ Warning

Step 4) Remove the unlocking bolt 3 using a hexagon wrench.



Retraction locking type



Extension locking type

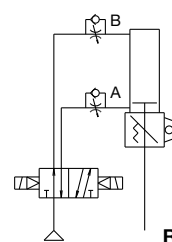
2. Adjust the speed controller and the retraction side air cushion.

If there is excessive impact or collision noise at the stroke end, the connection may become loose and cause damage to machinery.

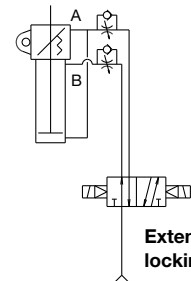
3. Before restarting operation from the locked position, be sure to restore air pressure to the B port in the figure below.

It is very dangerous to apply pressure to the A port with the B port in an unpressurized state, because the cylinder will move suddenly when unlocked.

This may damage the locking mechanism, shorten the service life or cause unlocking malfunction.



Retraction locking type



Extension locking type

\* The symbol for the cylinder with lock in the pneumatic circuit uses SMC original symbol.

### Pneumatic Circuits

#### ⚠ Warning

1. Do not use 3-position valves.

The lock may be released due to the inflow of the unlocking pressure.

2. Install speed controllers for meter-out control.

Malfunction may occur if meter-in control is used or speed controllers are not used.

3. Be careful of reverse exhaust pressure flow from a common exhaust type manifold.

Since the lock may be released due to reverse exhaust pressure flow, use an individual exhaust type manifold or single type valve.



## CLK2 Series

# Specific Product Precautions 2

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: <https://www.smc.eu>

### Mounting

#### ⚠ Caution

1. Be sure to connect the load to the rod end with the cylinder in an unlocked condition.

If this is done when in a locked condition, it may cause damage to the lock mechanism.

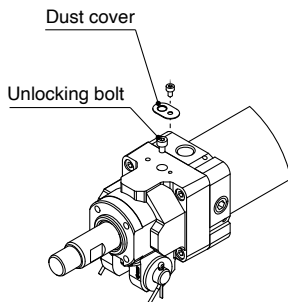
### Unlocking

#### ⚠ Warning

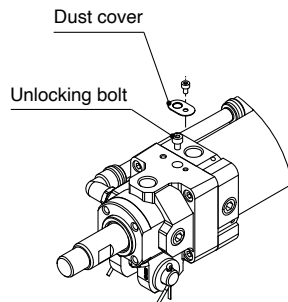
##### Maintaining an Unlocked Condition

1. To maintain an unlocked condition, be sure to follow the steps shown below.

- 1) After carefully confirming safety, operate a switching valve (solenoid valve, etc.) so that retraction locking operates when the piston rod is retracted, and extension locking operates when it is extended. Furthermore, air pressure of 0.2 MPa or more is required when this is done.
- 2) Remove the dust proof cover.
- 3) Screw in the accessory unlocking bolt (hexagon socket head cap screw Ø 32: M3 x 5 L, Ø 40: M4 x 6 L, Ø 50: M4 x 6 L, Ø 63: M5 x 6 L).



Retraction locking type



Extension locking type

2. When the locking mechanism is to be used again, be sure to remove the unlocking bolt.

The locking mechanism will not work when the unlocking bolt is screwed in. Remove the unlocking bolt following the steps shown in the section on preparing for operation.

### Unlocking

#### ⚠ Warning

##### Manually Unlocking

1. Do not perform unlocking while an external force such as a load or spring force is being applied.

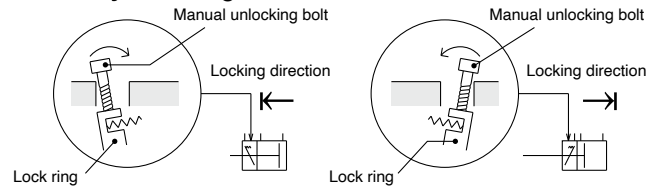
This is very dangerous because the cylinder will move suddenly.

Release the lock after preventing cylinder movement with a lifting device such as a jack.

2. After confirming safety, operate the manual release following the steps shown below.

Confirm that there are no personnel inside the load movement range, etc., and that there is no danger even if the load moves suddenly.

##### Manually unlocking



##### Extension locking

- 1) Remove the dust cover.
  - 2) Screw a manual unlocking bolt into the lock ring threads as shown above, and lightly push the bolt in the direction of the arrow (head side) to unlock.
- For the bolts, use commercially-available bolts of the sizes below  
 Ø 32: M3 x 20 L  
 Ø 40, Ø 50: M4 x 30 L  
 Ø 63: M5 x 30 L

##### Retraction locking

- 1) Remove the dust cover.
  - 2) Screw a manual unlocking bolt into the lock ring threads as shown above, and lightly push the bolt in the direction of the arrow (rod side) to unlock.
- For the bolts, use commercially-available bolts of the sizes below  
 Ø 32: M3 x 20 L  
 Ø 40, Ø 50: M4 x 30 L  
 Ø 63: M5 x 30 L

### Maintenance

#### ⚠ Caution

1. In order to maintain good performance, use with clean unlubricated air.

If lubricated air, compressor oil or drainage, etc., enters the cylinder, there is a danger of sharply reducing the locking performance.

2. Do not apply grease to the piston rod.

There is a danger of sharply reducing the locking performance.

3. Never disassemble the lock unit.

It contains a heavy duty spring which is dangerous. There is also a danger of reducing the locking performance.





## CLK2 Series

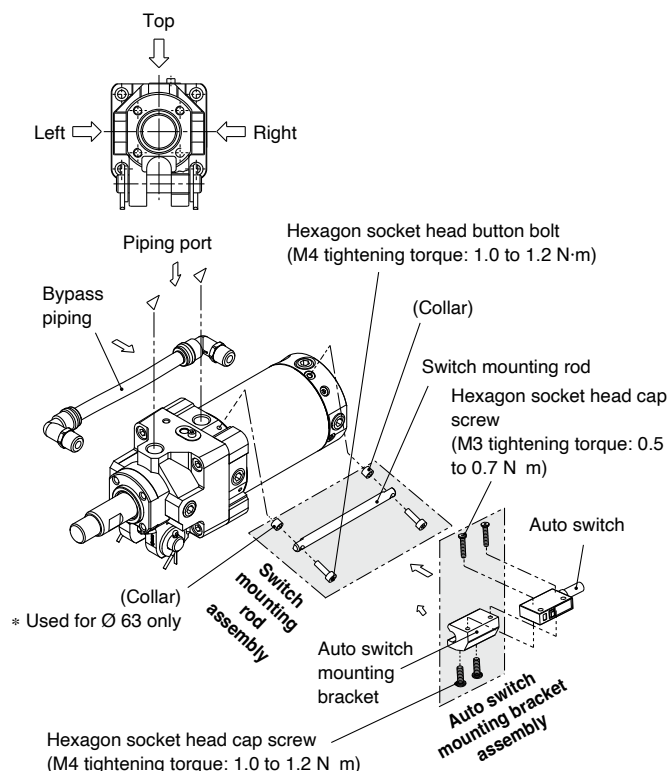
# Specific Product Precautions 3

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: <https://www.smc.eu>

### Piping Port / Switch Mounting Rod (bypass piping) Position Change

## Warning

1. Piping port position, switch mounting rod position, and bypass piping position can be selected by the part number. However, if there is an error in ordering and changes to the positions are required, please note the following.
  - a. Move all the parts that are aligned in a straight line in the stroke direction by 90° or 180° around the circumference of the cylinder. Never move parts in the stroke direction, as this will cause malfunction.
  - b. Do not operate with any parts removed. When the cylinder is operated with any part removed, malfunction will occur and it is very dangerous.
  - c. Although fittings with sealant are used for pipe fittings and plugs, wind them with pipe tape to prevent air leakage when reassembling after position changes.



### Handling

Magnetic field resistant auto switches D-P79WSE/D-P74□ type are specifically for use with magnetic field resistant cylinders and are not compatible with general auto switches or cylinders. Magnetic field resistant cylinders are labelled as follows.

Magnetic field resistant cylinder with built-in magnet  
(For use with auto switch D-P7 type)

### Mounting

1. The minimum stroke for mounting magnetic field resistant auto switches is 50 mm.
2. In order to fully use the capacity of magnetic field resistant auto switches, strictly observe the following precautions.
  - 1) Do not allow the magnetic field to occur when the cylinder piston is moving.
  - 2) When a welding cable or welding gun electrodes are near the cylinder, change the auto switch position to fall within the operational ranges shown in the graphs on page 22, or move the welding cable away from the cylinder.
  - 3) Cannot be used in an environment where welding cables surround the cylinder.
  - 4) If multiple objects that generate a magnetic field (such as a welding cable and a welding gun electrode) move close to an auto switch, the closest they are allowed to be to the auto switch can be calculated by multiplying the safety distance by the number of elements.
3. In an environment where spatter directly hits the lead wire, cover the lead wire with protective tubing. Use protective tubing with a bore size of Ø 8 or more that has excellent heat resistance and flexibility.
4. Be careful not to drop objects, make dents, or apply excessive impact force when handling.
5. When built-in strong magnet type cylinders are closely positioned to each other, please pay attention to the following items.
  - 1) When more than 2 pcs. cylinders with general purpose auto switches are juxtaposed, leave the distance of 40 mm or more between the cylinder tubes.
  - 2) Separate a reed magnetic field resistant auto switch from the tube surface of a closely mounted built-in strong magnet type cylinder by 30 mm or more.
  - 3) When a built-in strong magnet type cylinder and a cylinder with a general-purpose auto switch are closely positioned, separate the cylinder tubes 50 mm or more.
  - 4) Separate a general-purpose auto switch from the tube surface of a closely mounted built-in strong magnet cylinder by 50 mm or more away.





# CLK2 Series

## Specific Product Precautions 4

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: <https://www.smc.eu>

### Handling

#### Mounting

6. Avoid wiring in a manner in which repeated bending stress or tension is applied to lead wires.
7. Do not use in an environment with constant water and coolant splashing.
8. Please be careful of the mounting direction of the magnetic field resistant auto switch D-P79WSE type. Be sure to face the molded surface with soft-resin to the auto switch mounting bracket side for mounting. (Refer to page 13 for mounting example, and refer to the **Web Catalogue** for soft-resin mold surface.)

#### Wiring/Current and Voltage

1. Always connect the auto switch to the power supply after the load has been connected.
2. Series connection  
When auto switches are connected in series as shown below:

Note that the voltage drop due to the internal resistance of the LED increases.



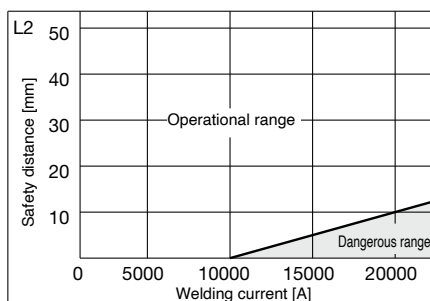
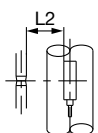
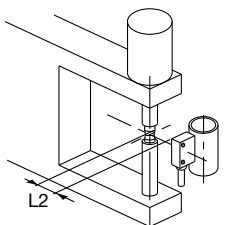
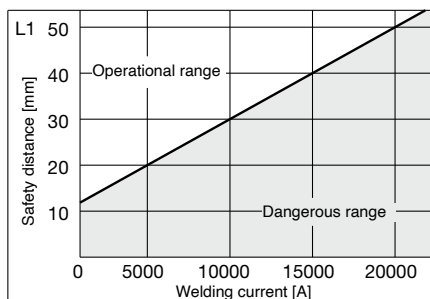
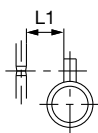
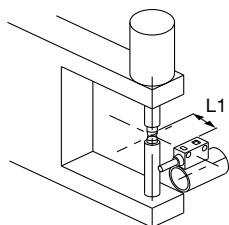


# CLK2 Series Specific Product Precautions 5

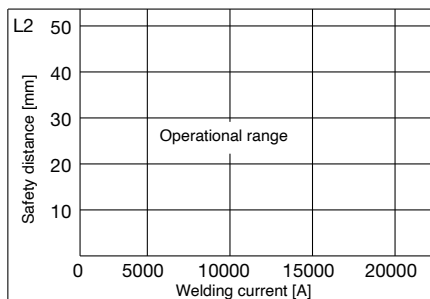
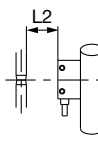
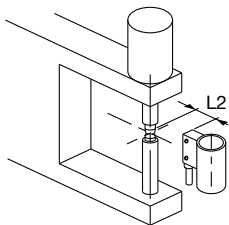
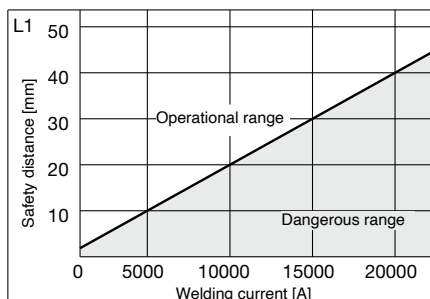
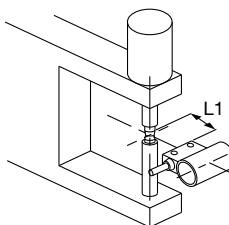
Be sure to read this before handling the products. Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smc.eu>

## Data: Magnetic Field Resistant Reed Switch (D-P79WSE, D-P74□) Safety Distance

### Safety Distance from Side of Auto Switch



### Safety Distance from Top of Auto Switch



## Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)<sup>1)</sup>, and other safety regulations.

-  **Danger:** **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
-  **Warning:** **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
-  **Caution:** **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

- 1) ISO 4414: Pneumatic fluid power – General rules and safety requirements for systems and their components.  
ISO 4413: Hydraulic fluid power – General rules and safety requirements for systems and their components.  
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)  
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots.  
etc.

### Warning

#### 1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

#### 2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

#### 3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

#### 4. SMC products cannot be used beyond their specifications. They are not developed, designed, and manufactured to be used under the following conditions or environments.

**Use under such conditions or environments is not allowed.**

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, combustion equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogues and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

### Caution

**SMC develops, designs, and manufactures products to be used for automatic control equipment, and provides them for peaceful use in manufacturing industries. Use in non-manufacturing industries is not allowed.**

Products SMC manufactures and sells cannot be used for the purpose of transactions or certification specified in the Measurement Act of each country.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

## Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”. Read and accept them before using the product.

### Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.<sup>2)</sup> Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.

#### 2) Suction cups (Vacuum pads) are excluded from this 1 year warranty.

A suction cup (vacuum pad) is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the suction cup (vacuum pad) or failure due to the deterioration of rubber material are not allowed by the limited warranty.

### Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

## Safety Instructions

Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.

SMC Corporation (Europe)

|                |                   |                      |                          |
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| Bulgaria       | +359 (0)2807670   | www.smc.bg           | sales.bg@smc.com         |
| Croatia        | +385 (0)13707288  | www.smc.hr           | sales.hr@smc.com         |
| Czech Republic | +420 541424611    | www.smc.cz           | office.at@smc.com        |
| Denmark        | +45 70252900      | www.smc.dk.com       | smc.dk@smc.com           |
| Estonia        | +372 651 0370     | www.smcee.ee         | info.ee@smc.com          |
| Finland        | +358 207513513    | www.smc.fi           | smc.fi@smc.com           |
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| Germany        | +49 (0)61034020   | www.smc.de           | info.de@smc.com          |
| Greece         | +30 210 2717265   | www.smchellas.gr     | sales@smchellas.gr       |
| Hungary        | +36 23513000      | www.smc.hu           | office.hu@smc.com        |
| Ireland        | +353 (0)14039000  | www.smcautomation.ie | technical.ie@smc.com     |
| Italy          | +39 03990691      | www.smcitalia.it     | mailbox.it@smc.com       |
| Latvia         | +371 67817700     | www.smc.lv           | info.lv@smc.com          |

|              |                     |                      |                         |
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| Netherlands  | +31 (0)205318888    | www.smc.nl           | info@smc.nl             |
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| Poland       | +48 22 344 40 00    | www.smc.pl           | office.pl@smc.com       |
| Portugal     | +351 214724500      | www.smc.eu           | apoiocliente.pt@smc.com |
| Romania      | +40 213205111       | www.smcromania.ro    | office.ro@smc.com       |
| Russia       | +7 (812)3036600     | www.smc.eu           | sales@smcru.com         |
| Slovakia     | +421 (0)413213212   | www.smc.sk           | sales.sk@smc.com        |
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