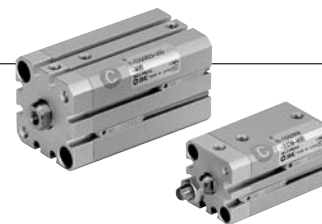


# Series 10-/21-11-/22-CQS

Compact cylinder ø12, ø16, ø20, ø25

## How to Order



**Mounting style**

|   |                                          |
|---|------------------------------------------|
| B | Through-hole/Both ends tapped (standard) |
|---|------------------------------------------|

**Bore size (mm)**

**Cylinder stroke (mm)**  
\*Refer to the table below for standard strokes.

**Clean series**

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

**Number of auto switches**

|     |        |
|-----|--------|
| Nil | 2 pcs. |
| S   | 1 pc.  |
| n   | n pcs. |

**With auto switch**

|     |                                    |
|-----|------------------------------------|
| Nil | No                                 |
| D   | With auto switch (Built-in magnet) |

**Copper, fluorine and silicon-free + low particulate generation**

|    |                     |
|----|---------------------|
| 21 | Relief type         |
| 22 | Vacuum suction type |

**Action**

|   |               |
|---|---------------|
| D | Double acting |
|---|---------------|

**Type of auto switch (With auto switch)**

|     |                                                |
|-----|------------------------------------------------|
| Nil | Without auto switch (Built-in magnet cylinder) |
|-----|------------------------------------------------|

\*For auto switch part numbers, refer to the next page.  
\*Auto switch is packaged together (not assembled).

**Rod end thread**

|     |                                  |
|-----|----------------------------------|
| Nil | Standard (Rod end female thread) |
| M   | Rod end male thread              |

Example model numbers: 10 - C D Q S B 12 - 5 D - M9B, 21 - C D Q S B 12 - 5 D - M9B

## Model

|                     | Model         | Bore size (mm) | Port size | Relief port | Action                      | Standard stroke (mm)                  |
|---------------------|---------------|----------------|-----------|-------------|-----------------------------|---------------------------------------|
| Relief type         | 10-/21-CQSB12 | 12             | M5 x 0.8  | M5 x 0.8    | Double acting<br>Single rod | 5, 10, 15, 20, 25, 30                 |
|                     | 10-/21-CQSB16 | 16             |           |             |                             |                                       |
|                     | 10-/21-CQSB20 | 20             |           |             |                             |                                       |
|                     | 10-/21-CQSB25 | 25             |           |             |                             | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 |
| Vacuum suction type | 11-/22-CQSB12 | 12             |           |             |                             | 5, 10, 15, 20, 25, 30                 |
|                     | 11-/22-CQSB16 | 16             |           |             |                             |                                       |
|                     | 11-/22-CQSB20 | 20             |           |             |                             |                                       |
|                     | 11-/22-CQSB25 | 25             |           |             |                             | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 |

## Specifications

| Item                          | Bore size (mm)                                                                                 |
|-------------------------------|------------------------------------------------------------------------------------------------|
|                               | 12/16/20/25                                                                                    |
| Proof pressure                | 1.5 MPa                                                                                        |
| Max. operating pressure       | 1.0 MPa                                                                                        |
| Min. operating pressure       | ø12, ø16: 0.07 MPa, ø20, ø25: 0.05 MPa                                                         |
| Ambient and fluid temperature | Without auto switch : -10°C to 70°C<br>With auto switch : -10°C to 60°C (With no condensation) |
| Cushion                       | No                                                                                             |
| Piston speed                  | 30 to 400 mm/s                                                                                 |
| Stroke length tolerance       | +1.0<br>0                                                                                      |
| Mounting                      | Through-hole, Both ends tapped                                                                 |
| Grease                        | 10-/11-: Fluorine grease<br>21-/22-: Lithium soap base grease                                  |
| Particle generation grade     | 10-/21-: Grade 2<br>11-/22-: Grade 1                                                           |

(Refer to front matter pages 13 to 22 for details.)

## Suction flow rate of vacuum suction type (Reference values)

| Size        | Suction flow rate l/min (ANR) |
|-------------|-------------------------------|
| 12/16/20/25 | 5                             |

## Auto switch specifications (Refer to Best Pneumatics catalog for detailed specifications and auto switches not in the following table.)

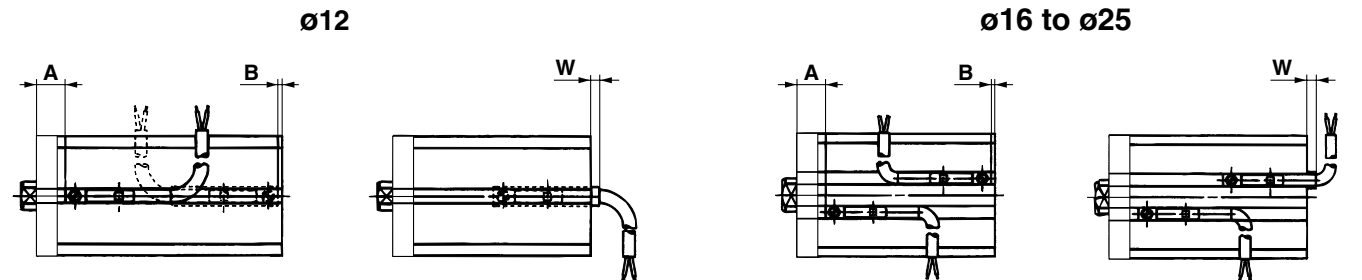
| Contact point      | Auto switch part no. | Load voltage    | Load current range    | Indicator light | Application            |
|--------------------|----------------------|-----------------|-----------------------|-----------------|------------------------|
| Reed switch        | D-A93                | 24 VDC, 100 VAC | 5 to 40mA, 5 to 20mA  | ○               | Relay, PLC             |
| Solid state switch | 2-wire type          | D-M9B           | 24 VDC (10 to 28 VDC) | ○               | 24 VDC Relay, PLC      |
|                    | 3-wire type          | D-M9N, D-M9P    | 28 VDC or less        | ○               | IC circuit, Relay, PLC |

Refer to applicable auto switch list → Page 182.

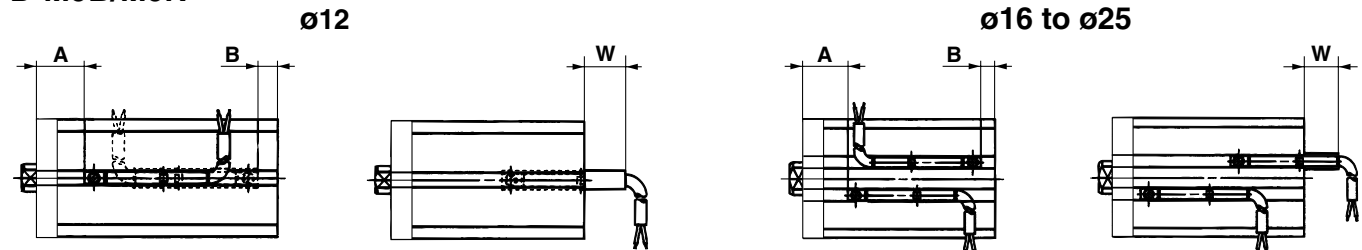
PLC: Programmable Logic Controller

## Auto Switch / Proper Mounting Positions for Stroke End Detection

### D-A93



### D-M9B/M9N



| Bore size<br>(mm) | D-A93 |     |     | D-M9B/M9N/M9P |     |     |
|-------------------|-------|-----|-----|---------------|-----|-----|
|                   | A     | B   | W   | A             | B   | W   |
| 12                | 11.5  | 0.5 | 4   | 15.5          | 4.5 | 5.5 |
| 16                | 12    | 0   | 4.5 | 16            | 4   | 6   |
| 20                | 16    | 3.5 | 1   | 20            | 7.5 | 2.5 |
| 25                | 17    | 5.5 | -1  | 21            | 9.5 | 0.5 |

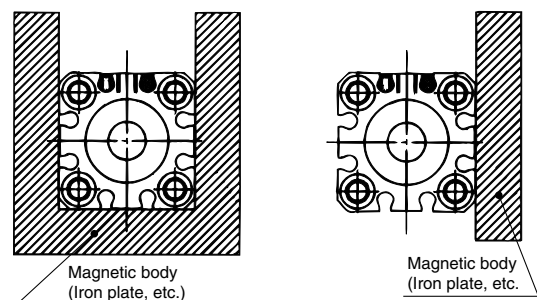
## ⚠ Specific Product Precautions

Be sure to read before handling.

### Caution on mounting

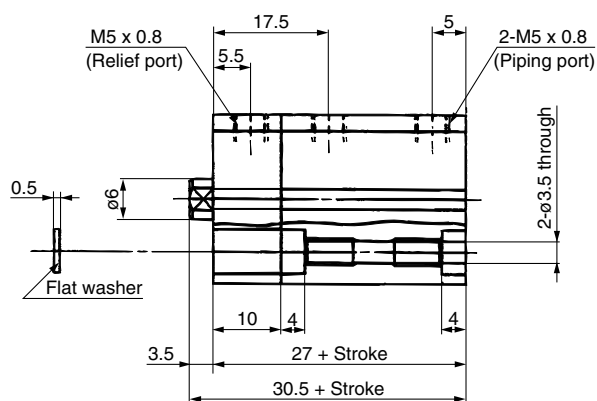
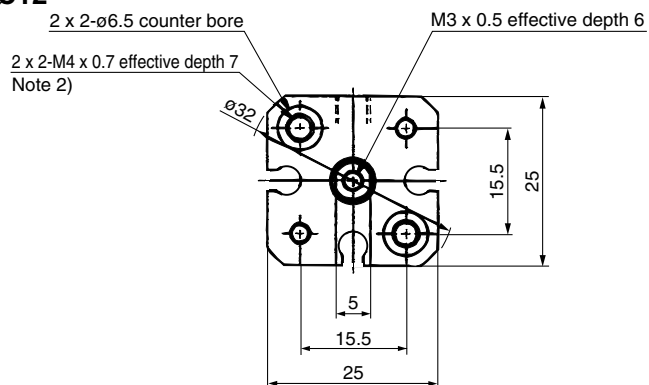
#### ⚠ Caution

1. When a magnetic object comes in close proximity with the cylinder as shown in the right picture (including proximity on one side only), the auto switch operation may become unstable. Consult SMC in such cases.

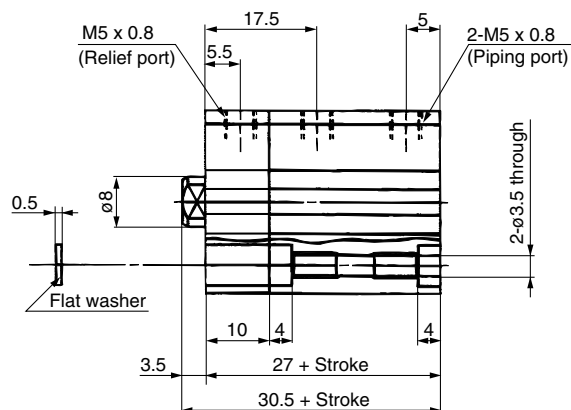
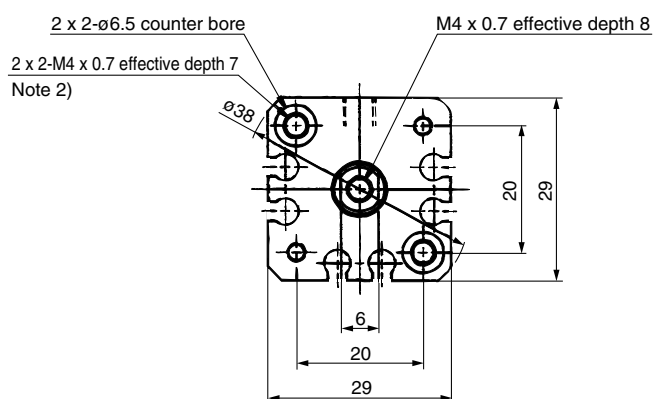


Standard /  $\frac{10}{11}$ -CQSB12 to 25,  $\frac{21}{22}$ -CQSB12 to 25

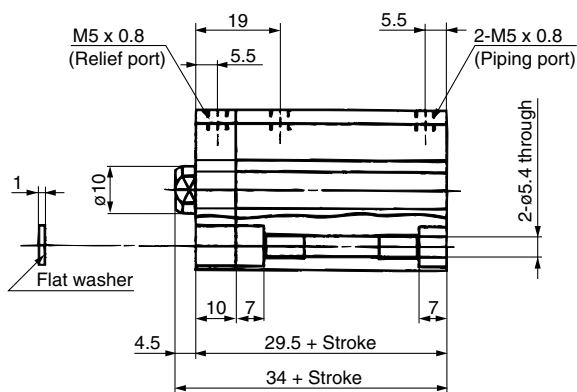
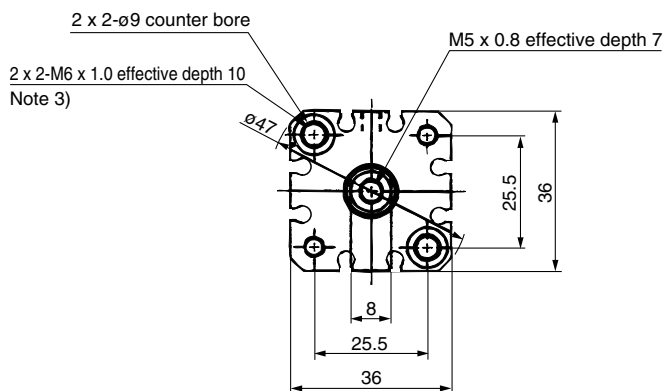
Ø12



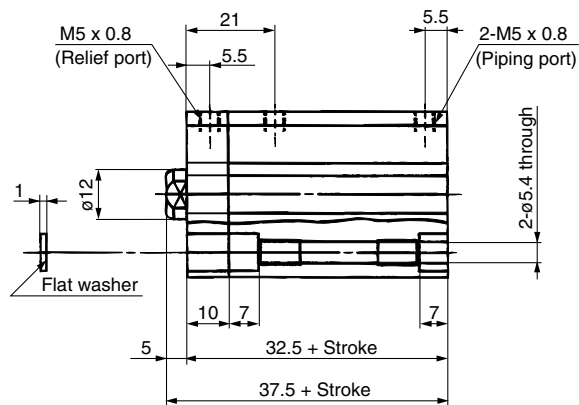
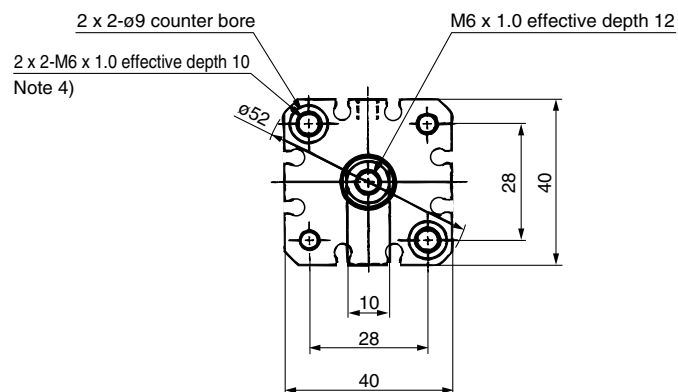
Ø16



Ø20



Ø25



Note 1) Standard strokes available in 5 mm increments.

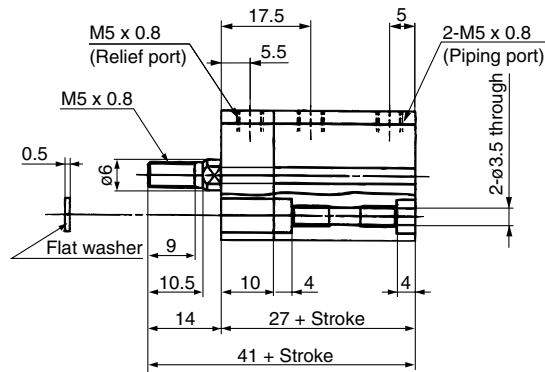
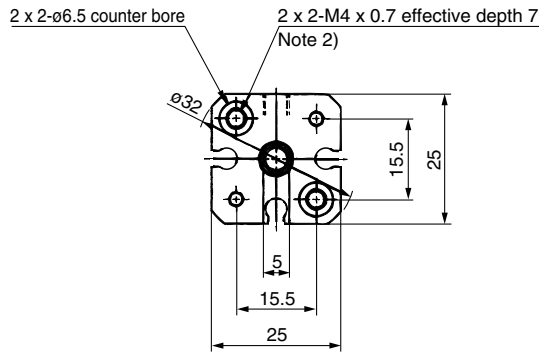
Note 2) Through-hole in case of 5 mm stroke.

Note 3) Through-hole in case of 5 to 15 mm stroke.

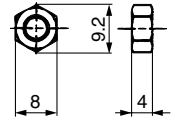
Note 4) Through-hole in case of 5 or 10 mm stroke.

Standard rod end male thread type / 10-CQSB12 to 25, 21-CQSB12 to 25

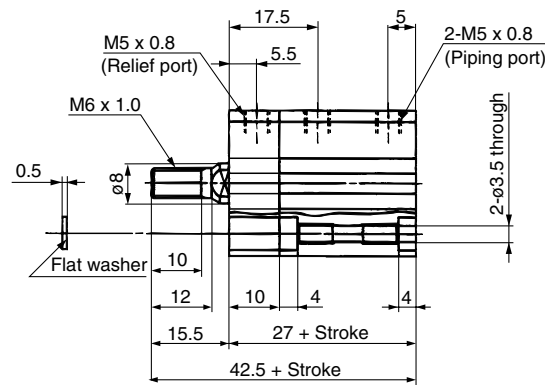
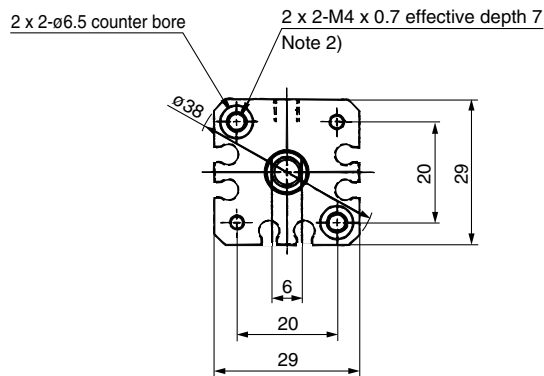
ø12



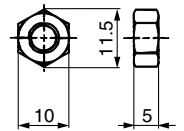
Rod end nut



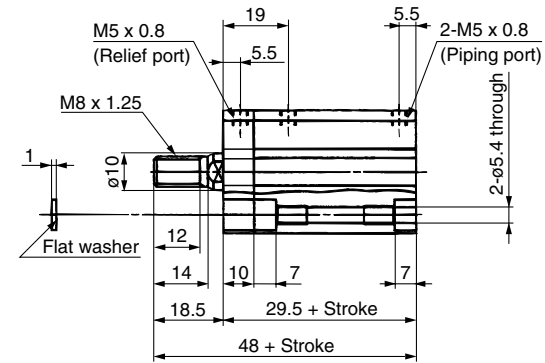
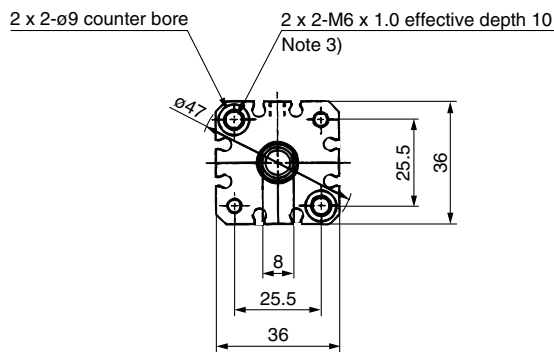
ø16



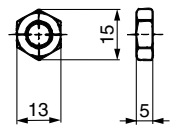
Rod end nut



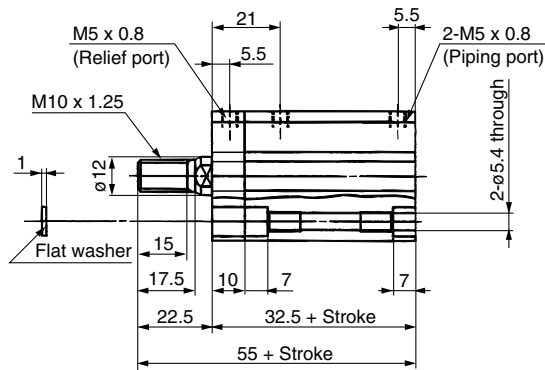
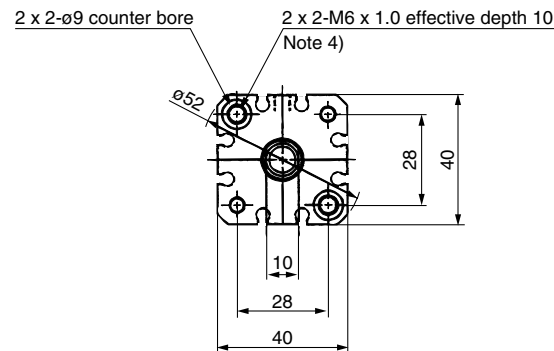
ø20



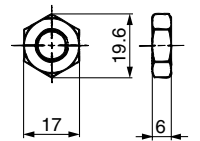
Rod end nut



ø25



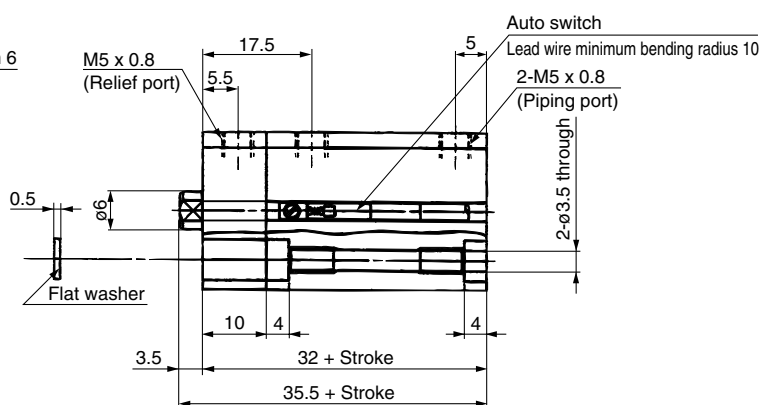
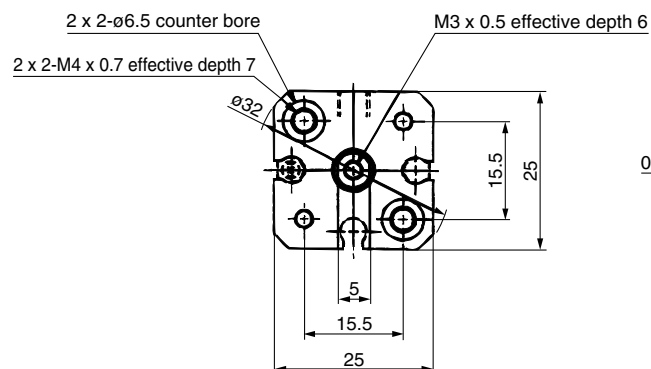
Rod end nut



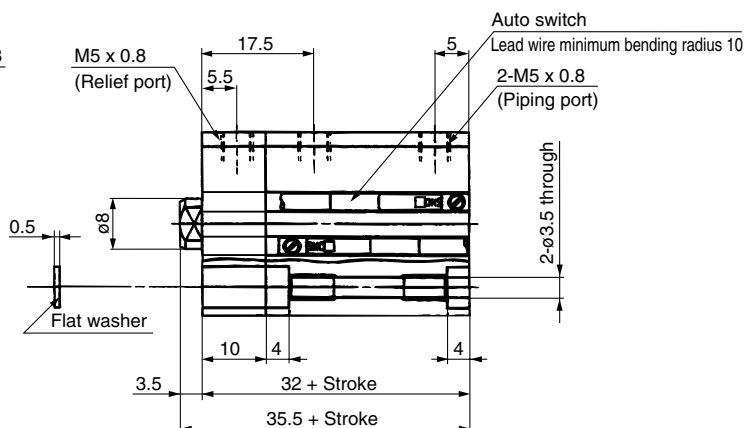
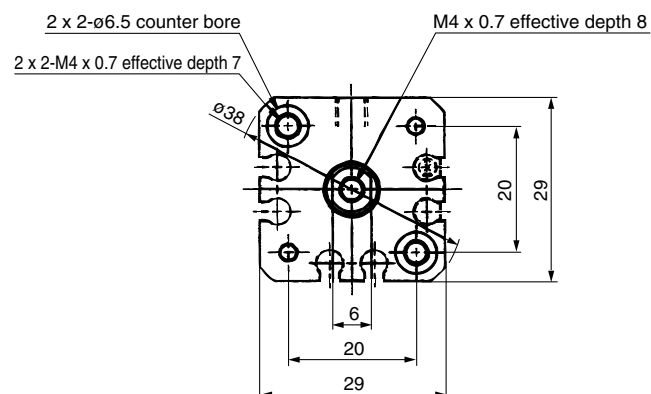
Note 1) Standard strokes available in 5 mm increments.  
Note 2) Through-hole in case of 5 mm stroke.  
Note 3) Through-hole in case of 5 to 15 mm stroke.  
Note 4) Through-hole in case of 5 or 10 mm stroke.

With auto switch / <sup>10-</sup><sub>11-</sub>CDQSB12 to 25, <sup>21-</sup><sub>22-</sub>CDQSB12 to 25

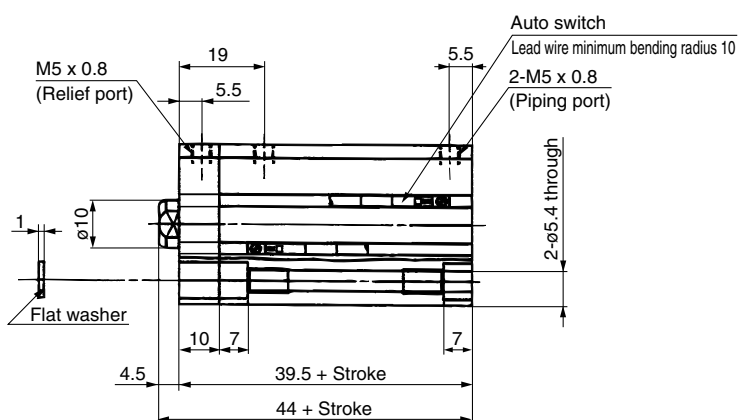
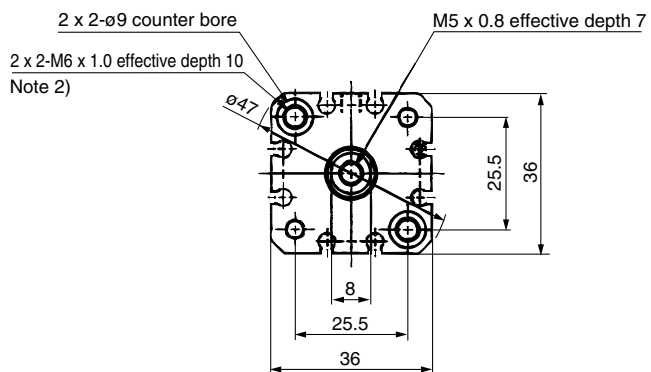
ø12



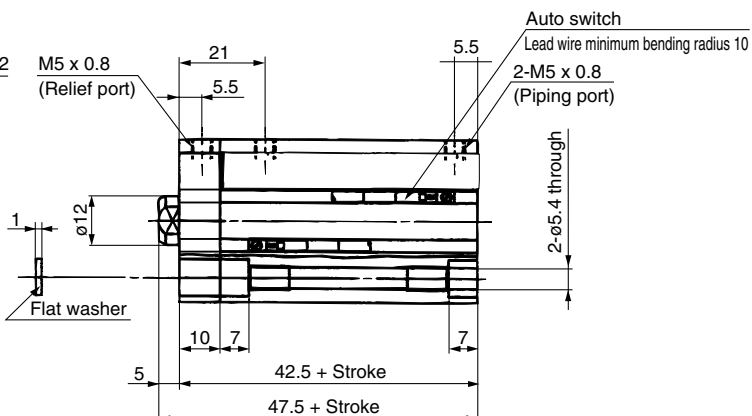
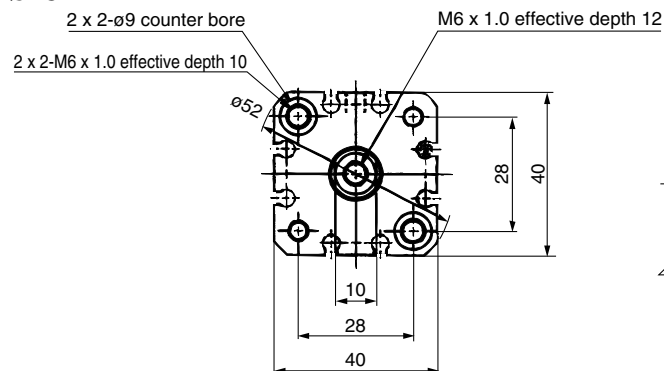
ø16



ø20



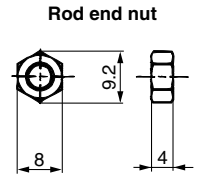
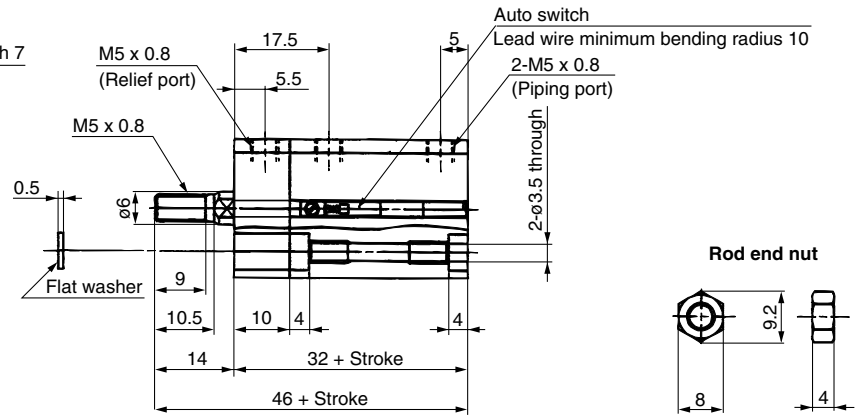
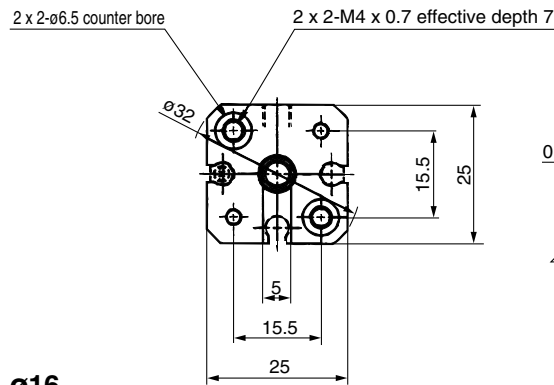
ø25



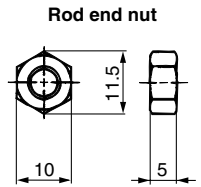
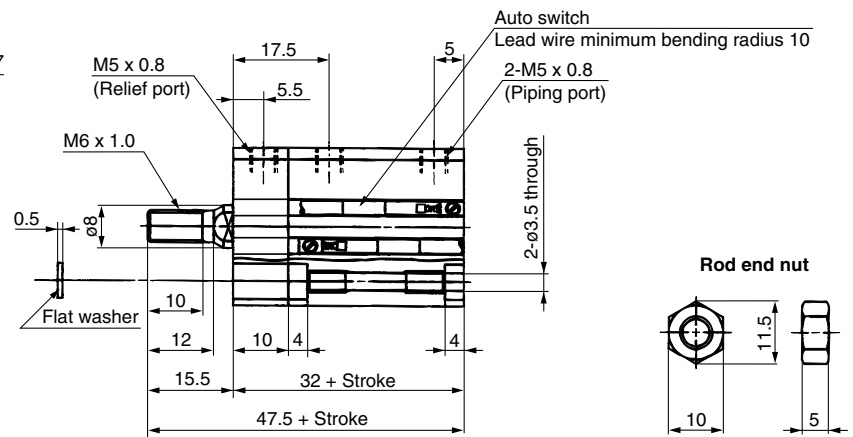
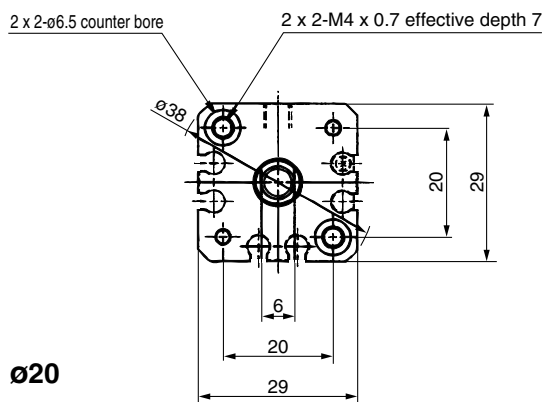
Note 1) Standard strokes available in 5 mm increments.  
Note 2) Through-hole in case of 5 mm stroke.

With auto switch / Rod end male thread type / 10-11-CDQSB12 to 25, 21-22-CDQSB12 to 25

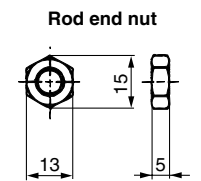
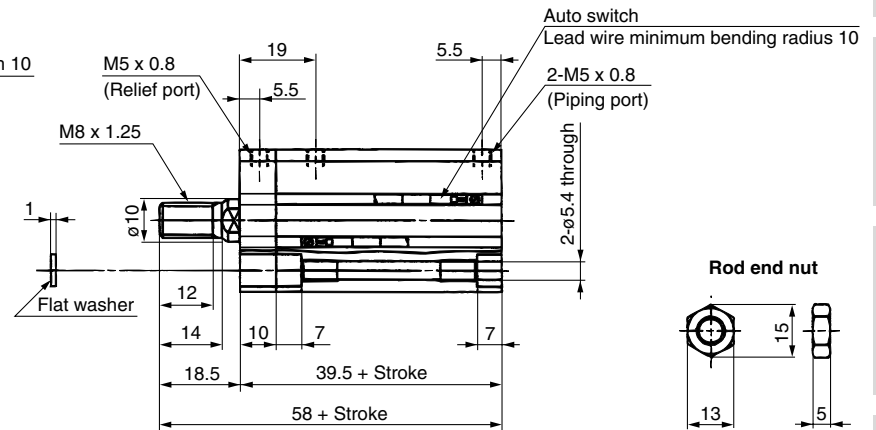
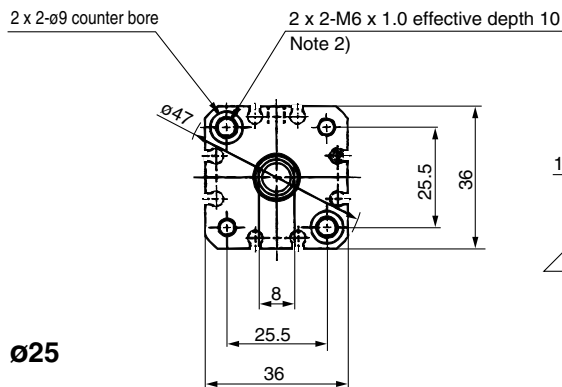
ø12



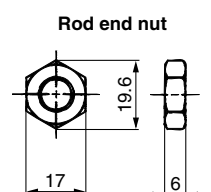
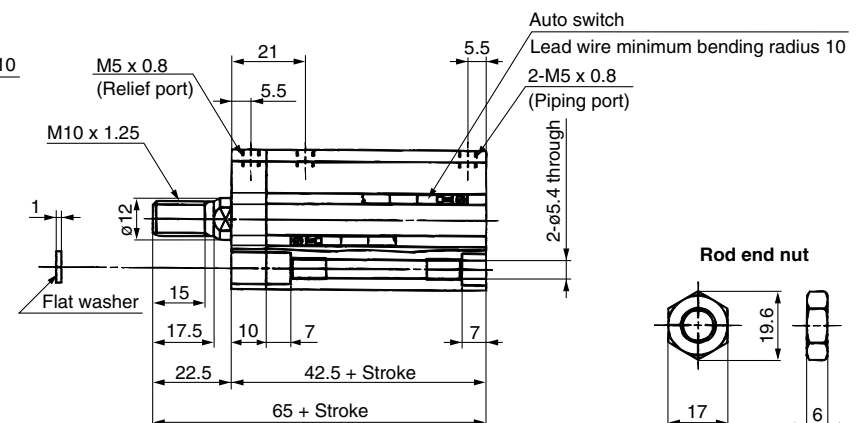
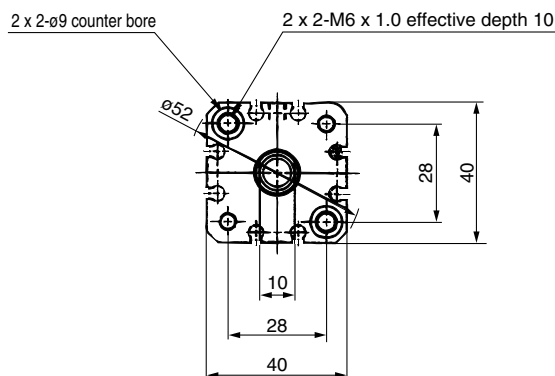
ø16



ø20



ø25



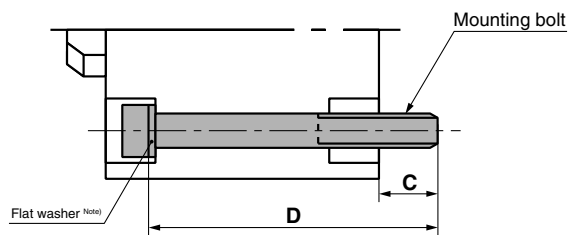
Note 1) Standard strokes available in 5 mm increments.  
Note 2) Through-hole in case of 5 mm stroke.

## CQS Mounting Bolt

Mounting: Special long bolt for through-hole mounting is available as option.

How to Order: Prefix "Bolt" to the part no. of the required bolt.

Example) Bolt M3 x 35L 2 pieces



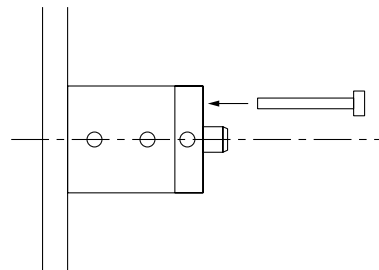
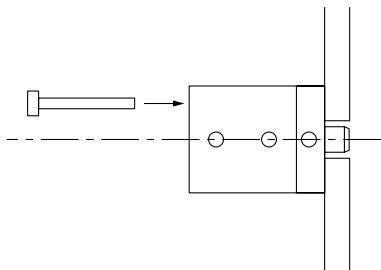
Note) Be sure to use the attached flat washer when mounting a cylinder with a through-hole.

### Rod side mounting / Without auto switch

| Model  |        |                  | C   | D  | Mounting bolt |
|--------|--------|------------------|-----|----|---------------|
| 10-21- | 11-22- | <b>CQSB12-5D</b> | 6.5 | 35 | M3 x 35L      |
|        |        | <b>-10D</b>      |     | 40 | x 40L         |
|        |        | <b>-15D</b>      |     | 45 | x 45L         |
|        |        | <b>-20D</b>      |     | 50 | x 50L         |
|        |        | <b>-25D</b>      |     | 55 | x 55L         |
|        |        | <b>-30D</b>      |     | 60 | x 60L         |
| 10-21- | 11-22- | <b>CQSB16-5D</b> | 6.5 | 35 | M3 x 35L      |
|        |        | <b>-10D</b>      |     | 40 | x 40L         |
|        |        | <b>-15D</b>      |     | 45 | x 45L         |
|        |        | <b>-20D</b>      |     | 50 | x 50L         |
|        |        | <b>-25D</b>      |     | 55 | x 55L         |
|        |        | <b>-30D</b>      |     | 60 | x 60L         |
| 10-21- | 11-22- | <b>CQSB20-5D</b> | 6.5 | 35 | M5 x 35L      |
|        |        | <b>-10D</b>      |     | 40 | x 40L         |
|        |        | <b>-15D</b>      |     | 45 | x 45L         |
|        |        | <b>-20D</b>      |     | 50 | x 50L         |
|        |        | <b>-25D</b>      |     | 55 | x 55L         |
|        |        | <b>-30D</b>      |     | 60 | x 60L         |
|        |        | <b>-35D</b>      |     | 65 | x 65L         |
|        |        | <b>-40D</b>      |     | 70 | x 70L         |
|        |        | <b>-45D</b>      |     | 75 | x 75L         |
|        |        | <b>-50D</b>      |     | 80 | x 80L         |
| 10-21- | 11-22- | <b>CQSB25-5D</b> | 8.5 | 40 | M5 x 40L      |
|        |        | <b>-10D</b>      |     | 45 | x 45L         |
|        |        | <b>-15D</b>      |     | 50 | x 50L         |
|        |        | <b>-20D</b>      |     | 55 | x 55L         |
|        |        | <b>-25D</b>      |     | 60 | x 60L         |
|        |        | <b>-30D</b>      |     | 65 | x 65L         |
|        |        | <b>-35D</b>      |     | 70 | x 70L         |
|        |        | <b>-40D</b>      |     | 75 | x 75L         |
|        |        | <b>-45D</b>      |     | 80 | x 80L         |
|        |        | <b>-50D</b>      |     | 85 | x 85L         |

### Head side mounting / Without auto switch

| Model  |        |                  | C   | D  | Mounting bolt |
|--------|--------|------------------|-----|----|---------------|
| 10-21- | 11-22- | <b>CQSB12-5D</b> | 6.5 | 25 | M3 x 25L      |
|        |        | <b>-10D</b>      |     | 30 | x 30L         |
|        |        | <b>-15D</b>      |     | 35 | x 35L         |
|        |        | <b>-20D</b>      |     | 40 | x 40L         |
|        |        | <b>-25D</b>      |     | 45 | x 45L         |
|        |        | <b>-30D</b>      |     | 50 | x 50L         |
| 10-21- | 11-22- | <b>CQSB16-5D</b> | 6.5 | 25 | M3 x 25L      |
|        |        | <b>-10D</b>      |     | 30 | x 30L         |
|        |        | <b>-15D</b>      |     | 35 | x 35L         |
|        |        | <b>-20D</b>      |     | 40 | x 40L         |
|        |        | <b>-25D</b>      |     | 45 | x 45L         |
|        |        | <b>-30D</b>      |     | 50 | x 50L         |
| 10-21- | 11-22- | <b>CQSB20-5D</b> | 6.5 | 25 | M5 x 25L      |
|        |        | <b>-10D</b>      |     | 30 | x 30L         |
|        |        | <b>-15D</b>      |     | 35 | x 35L         |
|        |        | <b>-20D</b>      |     | 40 | x 40L         |
|        |        | <b>-25D</b>      |     | 45 | x 45L         |
|        |        | <b>-30D</b>      |     | 50 | x 50L         |
|        |        | <b>-35D</b>      |     | 55 | x 55L         |
|        |        | <b>-40D</b>      |     | 60 | x 60L         |
|        |        | <b>-45D</b>      |     | 65 | x 65L         |
|        |        | <b>-50D</b>      |     | 70 | x 70L         |
| 10-21- | 11-22- | <b>CQSB25-5D</b> | 8.5 | 30 | M5 x 30L      |
|        |        | <b>-10D</b>      |     | 35 | x 35L         |
|        |        | <b>-15D</b>      |     | 40 | x 40L         |
|        |        | <b>-20D</b>      |     | 45 | x 45L         |
|        |        | <b>-25D</b>      |     | 50 | x 50L         |
|        |        | <b>-30D</b>      |     | 55 | x 55L         |
|        |        | <b>-35D</b>      |     | 60 | x 60L         |
|        |        | <b>-40D</b>      |     | 65 | x 65L         |
|        |        | <b>-45D</b>      |     | 70 | x 70L         |
|        |        | <b>-50D</b>      |     | 75 | x 75L         |

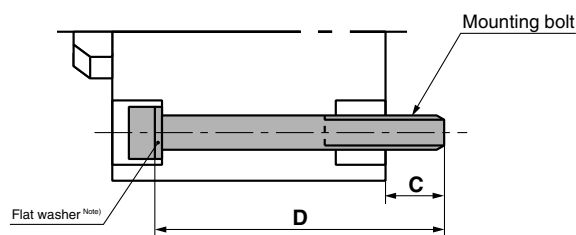


## CDQS Mounting Bolt

Mounting: Special long bolt for through-hole mounting is available as option.

How to Order: Prefix "Bolt" to the part no. of the required bolt.

Example) Bolt M3 x 40 2 pieces



Note) Be sure to use the attached plain washer for mounting, cylinder with through-holes.

### Rod side mounting / With auto switch

| Model  |        |            | C   | D  | Mounting bolt |
|--------|--------|------------|-----|----|---------------|
| 10-21- | 11-22- | CDQSB12-5D | 6.5 | 40 | M3 x 40L      |
|        |        | -10D       |     | 45 | x 45L         |
|        |        | -15D       |     | 50 | x 50L         |
|        |        | -20D       |     | 55 | x 55L         |
|        |        | -25D       |     | 60 | x 60L         |
|        |        | -30D       |     | 65 | x 65L         |
| 10-21- | 11-22- | CDQSB16-5D | 6.5 | 40 | M3 x 40L      |
|        |        | -10D       |     | 45 | x 45L         |
|        |        | -15D       |     | 50 | x 50L         |
|        |        | -20D       |     | 55 | x 55L         |
|        |        | -25D       |     | 60 | x 60L         |
|        |        | -30D       |     | 65 | x 65L         |
| 10-21- | 11-22- | CDQSB20-5D | 6.5 | 45 | M5 x 45L      |
|        |        | -10D       |     | 50 | x 50L         |
|        |        | -15D       |     | 55 | x 55L         |
|        |        | -20D       |     | 60 | x 60L         |
|        |        | -25D       |     | 65 | x 65L         |
|        |        | -30D       |     | 70 | x 70L         |
|        |        | -35D       |     | 75 | x 75L         |
|        |        | -40D       |     | 80 | x 80L         |
|        |        | -45D       |     | 85 | x 85L         |
|        |        | -50D       |     | 90 | x 90L         |
| 10-21- | 11-22- | CDQSB25-5D | 8.5 | 50 | M5 x 50L      |
|        |        | -10D       |     | 55 | x 55L         |
|        |        | -15D       |     | 60 | x 60L         |
|        |        | -20D       |     | 65 | x 65L         |
|        |        | -25D       |     | 70 | x 70L         |
|        |        | -30D       |     | 75 | x 75L         |
|        |        | -35D       |     | 80 | x 80L         |
|        |        | -40D       |     | 85 | x 85L         |
|        |        | -45D       |     | 90 | x 90L         |
|        |        | -50D       |     | 95 | x 95L         |

### Head side mounting / With auto switch

| Model  |        |            | C   | D  | Mounting bolt |
|--------|--------|------------|-----|----|---------------|
| 10-21- | 11-22- | CDQSB12-5D | 6.5 | 30 | M3 x 30L      |
|        |        | -10D       |     | 35 | x 35L         |
|        |        | -15D       |     | 40 | x 40L         |
|        |        | -20D       |     | 45 | x 45L         |
|        |        | -25D       |     | 50 | x 50L         |
|        |        | -30D       |     | 55 | x 55L         |
| 10-21- | 11-22- | CDQSB16-5D | 6.5 | 30 | M3 x 30L      |
|        |        | -10D       |     | 35 | x 35L         |
|        |        | -15D       |     | 40 | x 40L         |
|        |        | -20D       |     | 45 | x 45L         |
|        |        | -25D       |     | 50 | x 50L         |
|        |        | -30D       |     | 55 | x 55L         |
| 10-21- | 11-22- | CDQSB20-5D | 6.5 | 35 | M5 x 35L      |
|        |        | -10D       |     | 40 | x 40L         |
|        |        | -15D       |     | 45 | x 45L         |
|        |        | -20D       |     | 50 | x 50L         |
|        |        | -25D       |     | 55 | x 55L         |
|        |        | -30D       |     | 60 | x 60L         |
|        |        | -35D       |     | 65 | x 65L         |
|        |        | -40D       |     | 70 | x 70L         |
|        |        | -45D       |     | 75 | x 75L         |
|        |        | -50D       |     | 80 | x 80L         |
| 10-21- | 11-22- | CDQSB25-5D | 8.5 | 40 | M5 x 40L      |
|        |        | -10D       |     | 45 | x 45L         |
|        |        | -15D       |     | 50 | x 50L         |
|        |        | -20D       |     | 55 | x 55L         |
|        |        | -25D       |     | 60 | x 60L         |
|        |        | -30D       |     | 65 | x 65L         |
|        |        | -35D       |     | 70 | x 70L         |
|        |        | -40D       |     | 75 | x 75L         |
|        |        | -45D       |     | 80 | x 80L         |
|        |        | -50D       |     | 85 | x 85L         |

