

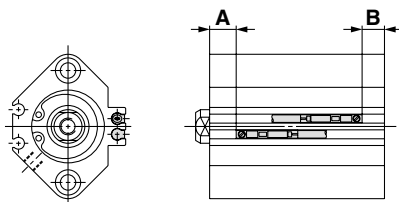
# Compact Cylinder Series **CDQ2** With Auto Switch 1

## 1 Auto Switch Proper Mounting Position (Detection at Stroke End) and its Mounting Height

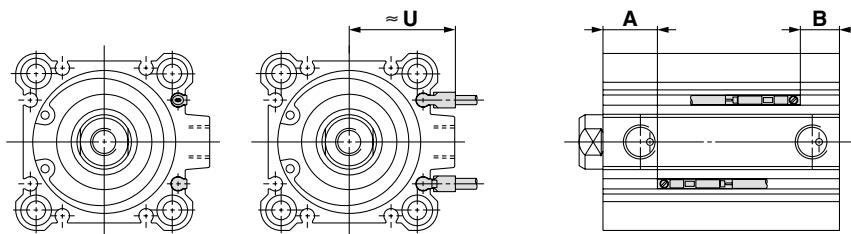
Applicable Cylinder Series: CDQ2, CDQ2W, CDQ2□□□-□S/-□T (Single acting), CDQ2, CDQ2W (Large bore size), CDQ2K, CDQ2KW (Non-rotating rod), CDQ2 (Long stroke), CDQ2□S (Anti-lateral load), CDQ2□R/□V (Water resistant)

D-A9□  
D-M9□  
D-M9□W  
D-M9□AL  
D-A9□V  
D-M9□V  
D-M9□WV  
D-M9□AVL

ø12 to ø25



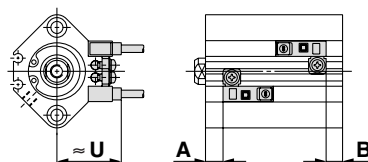
ø32 to ø200



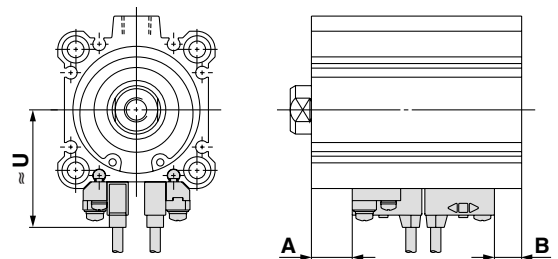
D-A7□  
D-A80  
D-A7□H  
D-A80H  
D-F7□  
D-J79  
D-F7□W  
D-J79W  
D-F79F

D-F7NTL  
D-F7BAL  
D-A73C  
D-A80C  
D-J79C  
D-A79W  
D-F7□WV  
D-F7□V  
D-F7BAVL

ø12 to ø25

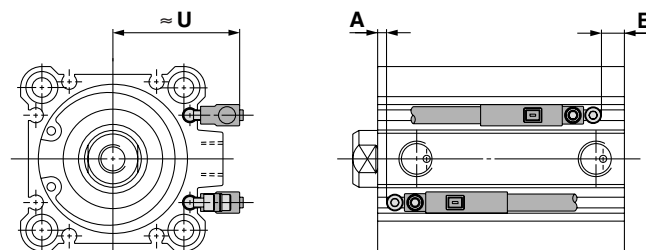


ø32 to ø160



D-P3DW□

ø32 to ø100



## Auto Switch Proper Mounting Position

### Applicable Cylinder Series: CDQ2 (Double acting, Single rod)

(mm)

| Auto switch model<br>Bore size | D-A9□<br>D-A9□V |      | D-M9□<br>D-M9□V<br>D-M9□W<br>D-M9□WV<br>D-M9□AL<br>D-M9□AVL |      | D-A73<br>D-A80 |      | D-A72/A7□H/A80H<br>D-A73C/A80C/F7□<br>D-F79F/J79/F7□V<br>D-J79C/F7□W<br>D-J79W/F7□WV<br>D-F7BAVL/F7BAL |      | D-F7NTL |      | D-A79W |      | D-P3DW□ |      |
|--------------------------------|-----------------|------|-------------------------------------------------------------|------|----------------|------|--------------------------------------------------------------------------------------------------------|------|---------|------|--------|------|---------|------|
|                                | A               | B    | A                                                           | B    | A              | B    | A                                                                                                      | B    | A       | B    | A      | B    | A       | B    |
| 12                             | 2               | 3    | 6                                                           | 7    | 4.5            | 5.5  | 5                                                                                                      | 6    | 10      | 11   | 2      | 3    | —       | —    |
| 16                             | 5               | 2.5  | 9                                                           | 6.5  | 7.5            | 5    | 8                                                                                                      | 5.5  | 13      | 10.5 | 5      | 2.5  | —       | —    |
| 20                             | 5               | 3.5  | 9                                                           | 7.5  | 7.5            | 6    | 8                                                                                                      | 6.5  | 13      | 11.5 | 5      | 3.5  | —       | —    |
| 25                             | 5.5             | 4    | 9.5                                                         | 8    | 8              | 6.5  | 8.5                                                                                                    | 7    | 13.5    | 12   | 5.5    | 4    | —       | —    |
| 32                             | 8               | 5    | 12                                                          | 9    | 9              | 6    | 9.5                                                                                                    | 6.5  | 14.5    | 11.5 | 6.5    | 3.5  | 2.5     | 0    |
| 40                             | 12              | 7.5  | 16                                                          | 11.5 | 13             | 8.5  | 13.5                                                                                                   | 9    | 18.5    | 14   | 10.5   | 6    | 6.5     | 2    |
| 50                             | 10              | 10.5 | 14                                                          | 14.5 | 11             | 11.5 | 11.5                                                                                                   | 12   | 16.5    | 17   | 8.5    | 9    | 4.5     | 4.5  |
| 63                             | 12.5            | 13.5 | 16.5                                                        | 17.5 | 13.5           | 14.5 | 14                                                                                                     | 15   | 19      | 20   | 11     | 12   | 7       | 7.5  |
| 80                             | 15.5            | 18   | 19.5                                                        | 22   | 16.5           | 19   | 17                                                                                                     | 19.5 | 22      | 24.5 | 14     | 16.5 | 10      | 12   |
| 100                            | 20              | 23   | 24                                                          | 27   | 21             | 24   | 21.5                                                                                                   | 24.5 | 26.5    | 29.5 | 18.5   | 21.5 | 14.5    | 17.5 |

### Applicable Cylinder Series: CDQ2W (Double acting, Double rod)

(mm)

| Auto switch model<br>Bore size | D-A9□<br>D-A9□V |      | D-M9□<br>D-M9□V<br>D-M9□W<br>D-M9□WV<br>D-M9□AL<br>D-M9□AVL |      | D-A73<br>D-A80 |      | D-A72/A7□H/A80H<br>D-A73C/A80C/F7□<br>D-F79F/J79/F7□V<br>D-J79C/F7□W<br>D-J79W/F7□WV<br>D-F7BAVL/F7BAL |      | D-F7NTL |      | D-A79W |      | D-P3DW□ |      |
|--------------------------------|-----------------|------|-------------------------------------------------------------|------|----------------|------|--------------------------------------------------------------------------------------------------------|------|---------|------|--------|------|---------|------|
|                                | A               | B    | A                                                           | B    | A              | B    | A                                                                                                      | B    | A       | B    | A      | B    | A       | B    |
| 12                             | 2               | 7.5  | 6                                                           | 11.5 | 4.5            | 10   | 5                                                                                                      | 10.5 | 10      | 15.5 | 2      | 7.5  | —       | —    |
| 16                             | 5               | 8    | 9                                                           | 12   | 7.5            | 10.5 | 8                                                                                                      | 11   | 13      | 16   | 5      | 8    | —       | —    |
| 20                             | 5               | 10   | 9                                                           | 14   | 7.5            | 12.5 | 8                                                                                                      | 13   | 13      | 18   | 5      | 10   | —       | —    |
| 25                             | 5.5             | 10.5 | 9.5                                                         | 14.5 | 8              | 13   | 8.5                                                                                                    | 13.5 | 13.5    | 18.5 | 5.5    | 10.5 | —       | —    |
| 32                             | 8               | 12.5 | 12                                                          | 16.5 | 9              | 13.5 | 9.5                                                                                                    | 14   | 14.5    | 19   | 6.5    | 11   | 2.5     | 7    |
| 40                             | 12              | 18   | 16                                                          | 22   | 13             | 19   | 13.5                                                                                                   | 19.5 | 18.5    | 24.5 | 10.5   | 16.5 | 6.5     | 12.5 |
| 50                             | 10              | 20.5 | 14                                                          | 24.5 | 11             | 21.5 | 11.5                                                                                                   | 22   | 16.5    | 27   | 8.5    | 19   | 4.5     | 14.5 |
| 63                             | 12.5            | 19.5 | 16.5                                                        | 23.5 | 13.5           | 20.5 | 14                                                                                                     | 21   | 19      | 26   | 11     | 18   | 7       | 13.5 |
| 80                             | 15.5            | 25.5 | 19.5                                                        | 29.5 | 16.5           | 26.5 | 17                                                                                                     | 27   | 22      | 32   | 14     | 24   | 10      | 19.5 |
| 100                            | 20              | 30.5 | 24                                                          | 34.5 | 21             | 31.5 | 21.5                                                                                                   | 32   | 26.5    | 37   | 18.5   | 29   | 14.5    | 25   |

### Applicable Cylinder Series: CDQ2□□□-□S/-□T (Single acting)

(mm)

| Auto switch model<br>Bore size | D-A9□<br>D-A9□V |              | D-M9□<br>D-M9□V<br>D-M9□W<br>D-M9□WV<br>D-M9□AL<br>D-M9□AVL |              | D-A73<br>D-A80 |             | D-A72/A7□H/A80H<br>D-A73C/A80C/F7□<br>D-F79F/J79/F7□V<br>D-J79C/F7□W<br>D-J79W/F7□WV<br>D-F7BAVL/F7BAL |              | D-F7NTL    |                | D-A79W   |              |
|--------------------------------|-----------------|--------------|-------------------------------------------------------------|--------------|----------------|-------------|--------------------------------------------------------------------------------------------------------|--------------|------------|----------------|----------|--------------|
|                                | A               | B            | A                                                           | B            | A              | B           | A                                                                                                      | B            | A          | B              | A        | B            |
| 12                             | 2               | 3<br>(7.5)   | 6                                                           | 7<br>(11.5)  | 4.5            | 5.5<br>(10) | 5                                                                                                      | 6<br>(10.5)  | 10         | 11<br>(15.5)   | 2        | 3<br>(7.5)   |
| 16                             | 5<br>(3)        | 2.5<br>(4.5) | 9<br>(7)                                                    | 6.5<br>(8.5) | 7.5<br>(5.5)   | 5<br>(7)    | 8<br>(6)                                                                                               | 5.5<br>(7.5) | 13<br>(11) | 10.5<br>(12.5) | 5<br>(3) | 2.5<br>(4.5) |
| 20                             | 5               | 3.5          | 9                                                           | 7.5          | 7.5            | 6           | 8                                                                                                      | 6.5          | 13         | 11.5           | 5        | 3.5          |
| 25                             | 5.5             | 4            | 9.5                                                         | 8            | 8              | 6.5         | 8.5                                                                                                    | 7            | 13.5       | 12             | 5.5      | 4            |
| 32                             | 8               | 5            | 12                                                          | 9            | 9              | 6           | 9.5                                                                                                    | 6.5          | 14.5       | 11.5           | 6.5      | 3.5          |
| 40                             | 12              | 7.5          | 16                                                          | 11.5         | 13             | 8.5         | 13.5                                                                                                   | 9            | 18.5       | 14             | 10.5     | 6            |
| 50                             | 10              | 10.5         | 14                                                          | 14.5         | 11             | 11.5        | 11.5                                                                                                   | 12           | 16.5       | 17             | 8.5      | 9            |

( ) : Spring extend type

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

# Compact Cylinder Series **CDQ2** With Auto Switch 2

## 1 Auto Switch Proper Mounting Position (Detection at Stroke End) and its Mounting Height

### Auto Switch Proper Mounting Position

Applicable Cylinder Series: CDQ2, CDQ2W (Large bore size)

(mm)

| Auto switch model<br>Bore size | D-A9□<br>D-A9□V |      | D-M9□<br>D-M9□V<br>D-M9□W<br>D-M9□WV<br>D-M9□AL<br>D-M9□AVL |      | D-A73<br>D-A80 |      | D-A72/A7□H/A80H<br>D-A73C/A80C<br>D-F7□/F7□V<br>D-F79F/F7□W<br>D-F7□WV/J79<br>D-J79W/J79C<br>D-F7BAL<br>D-F7BAVL |    | D-A79W |    | D-F7NTL |    |
|--------------------------------|-----------------|------|-------------------------------------------------------------|------|----------------|------|------------------------------------------------------------------------------------------------------------------|----|--------|----|---------|----|
|                                | A               | B    | A                                                           | B    | A              | B    | A                                                                                                                | B  | A      | B  | A       | B  |
| 125                            | 30              | 30   | 34                                                          | 34   | 32.5           | 32.5 | 33                                                                                                               | 33 | 30     | 30 | 38      | 38 |
| 140                            | 30              | 30   | 34                                                          | 34   | 32.5           | 32.5 | 33                                                                                                               | 33 | 30     | 30 | 38      | 38 |
| 160                            | 34              | 34   | 38                                                          | 38   | 36.5           | 36.5 | 37                                                                                                               | 37 | 34     | 34 | 42      | 42 |
| 180                            | 40.5            | 40.5 | 44.5                                                        | 44.5 | —              | —    | —                                                                                                                | —  | —      | —  | —       | —  |
| 200                            | 43.5            | 43.5 | 47.5                                                        | 47.5 | —              | —    | —                                                                                                                | —  | —      | —  | —       | —  |

Applicable Cylinder Series: CDQ2 (Long stroke)

(mm)

| Auto switch model<br>Bore size | D-A9□<br>D-A9□V |      | D-M9□<br>D-M9□V<br>D-M9□W<br>D-M9□WV<br>D-M9□AL<br>D-M9□AVL |      | D-A73<br>D-A80 |      | D-A72/A7□H/A80H<br>D-A73C/A80C/F7□<br>D-F79F/J79/F7□V<br>D-J79C/F7□W<br>D-J79W/F7□WV<br>D-F7BAVL/F7BAL |      | D-F7NTL |      | D-A79W |      | D-P3DW□ |      |
|--------------------------------|-----------------|------|-------------------------------------------------------------|------|----------------|------|--------------------------------------------------------------------------------------------------------|------|---------|------|--------|------|---------|------|
|                                | A               | B    | A                                                           | B    | A              | B    | A                                                                                                      | B    | A       | B    | A      | B    | A       | B    |
| 32                             | 8.5             | 16.5 | 12.5                                                        | 20.5 | 9.5            | 17.5 | 10                                                                                                     | 18   | 15      | 23   | 7      | 15   | 3       | 11   |
| 40                             | 12              | 22.5 | 16                                                          | 26.5 | 13             | 23.5 | 13.5                                                                                                   | 24   | 18.5    | 29   | 10.5   | 21   | 6.5     | 17   |
| 50                             | 10              | 25.5 | 14                                                          | 29.5 | 11             | 26.5 | 11.5                                                                                                   | 27   | 16.5    | 32   | 8.5    | 24   | 4.5     | 19.5 |
| 63                             | 12.5            | 24.5 | 16.5                                                        | 28.5 | 13.5           | 25.5 | 14                                                                                                     | 26   | 19      | 31   | 11     | 23   | 7       | 18.5 |
| 80                             | 15.5            | 30.5 | 19.5                                                        | 34.5 | 16.5           | 31.5 | 17                                                                                                     | 32   | 22      | 37   | 14     | 29   | 10      | 24.5 |
| 100                            | 18.5            | 37   | 22.5                                                        | 41   | 19.5           | 38   | 20                                                                                                     | 38.5 | 25      | 43.5 | 17     | 35.5 | 13      | 31   |

Applicable Cylinder Series: CDQ2K (Non-rotating rod)

(mm)

| Auto switch model<br>Bore size | D-A9□<br>D-A9□V |      | D-M9□<br>D-M9□V<br>D-M9□W<br>D-M9□WV<br>D-M9□AL<br>D-M9□AVL |      | D-A73<br>D-A80 |      | D-A72/A7□H/A80H<br>D-A73C/A80C/F7□<br>D-F79F/J79/F7□V<br>D-J79C/F7□W<br>D-J79W/F7□WV<br>D-F7BAVL/F7BAL |     | D-F7NTL |      | D-A79W |     | D-P3DW□ |     |
|--------------------------------|-----------------|------|-------------------------------------------------------------|------|----------------|------|--------------------------------------------------------------------------------------------------------|-----|---------|------|--------|-----|---------|-----|
|                                | A               | B    | A                                                           | B    | A              | B    | A                                                                                                      | B   | A       | B    | A      | B   | A       | B   |
| 12                             | 7               | 3    | 11                                                          | 7    | 9.5            | 5.5  | 10                                                                                                     | 6   | 15      | 11   | 7      | 3   | —       | —   |
| 16                             | 10              | 2.5  | 14                                                          | 6.5  | 12.5           | 5    | 13                                                                                                     | 5.5 | 18      | 10.5 | 10     | 2.5 | —       | —   |
| 20                             | 13              | 3.5  | 17                                                          | 7.5  | 15.5           | 6    | 16                                                                                                     | 6.5 | 21      | 11.5 | 13     | 3.5 | —       | —   |
| 25                             | 13.5            | 4    | 17.5                                                        | 8    | 16             | 6.5  | 16.5                                                                                                   | 7   | 21.5    | 12   | 13     | 4   | —       | —   |
| 32                             | 17              | 5    | 21                                                          | 9    | 18             | 6    | 18.5                                                                                                   | 6.5 | 23.5    | 11.5 | 15.5   | 3.5 | 11.5    | 0   |
| 40                             | 12              | 7.5  | 16                                                          | 11.5 | 13             | 8.5  | 13.5                                                                                                   | 9   | 18.5    | 14   | 10.5   | 6   | 6.5     | 2   |
| 50                             | 10              | 10.5 | 14                                                          | 14.5 | 11             | 11.5 | 11.5                                                                                                   | 12  | 16.5    | 17   | 8.5    | 9   | 4.5     | 4.5 |
| 63                             | 12.5            | 13.5 | 16.5                                                        | 17.5 | 13.5           | 14.5 | 14                                                                                                     | 15  | 19      | 20   | 11     | 12  | 7       | 7.5 |

Applicable Cylinder Series: CDQ2KW

(mm)

| Auto switch model<br>Bore size | D-A9□<br>D-A9□V |      | D-M9□<br>D-M9□V<br>D-M9□W<br>D-M9□WV<br>D-M9□AL<br>D-M9□AVL |      | D-A73<br>D-A80 |      | D-A72/A7□H/A80H<br>D-A73C/A80C/F7□<br>D-F79F/J79/F7□V<br>D-J79C/F7□W<br>D-J79W/F7□WV<br>D-F7BAVL/F7BAL |      | D-F7NTL |      | D-A79W |      | D-P3DW□ |      |
|--------------------------------|-----------------|------|-------------------------------------------------------------|------|----------------|------|--------------------------------------------------------------------------------------------------------|------|---------|------|--------|------|---------|------|
|                                | A               | B    | A                                                           | B    | A              | B    | A                                                                                                      | B    | A       | B    | A      | B    | A       | B    |
| 12                             | 7.5             | 7.5  | 11.5                                                        | 11.5 | 9.5            | 10   | 10                                                                                                     | 10.5 | 15      | 15.5 | 7.5    | 7.5  | —       | —    |
| 16                             | 10              | 8    | 14                                                          | 12   | 12.5           | 10.5 | 13                                                                                                     | 11   | 18      | 16   | 10     | 8    | —       | —    |
| 20                             | 13              | 10   | 17                                                          | 14   | 15.5           | 12.5 | 16                                                                                                     | 13   | 21      | 18   | 13     | 10   | —       | —    |
| 25                             | 13.5            | 10.5 | 17.5                                                        | 14.5 | 16             | 13   | 16.5                                                                                                   | 13.5 | 21.5    | 18.5 | 13.5   | 10.5 | —       | —    |
| 32                             | 17              | 12.5 | 21                                                          | 16.5 | 18             | 13.5 | 18.5                                                                                                   | 14   | 23.5    | 19   | 15.5   | 11   | 11.5    | 7    |
| 40                             | 12              | 18   | 16                                                          | 22   | 13             | 19   | 13.5                                                                                                   | 19.5 | 18.5    | 24.5 | 10.5   | 16.5 | 6.5     | 12.5 |
| 50                             | 10              | 20.5 | 14                                                          | 24.5 | 11             | 21.5 | 11.5                                                                                                   | 22   | 16.5    | 27   | 8.5    | 19   | 4.5     | 14.5 |
| 63                             | 12.5            | 19.5 | 16.5                                                        | 23.5 | 13.5           | 20.5 | 14                                                                                                     | 21   | 19      | 26   | 11     | 18   | 7       | 13.5 |

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

**Applicable Cylinder Series: CDQ2□S (Anti-lateral load)**

(mm)

| Auto switch model<br>Bore size | D-A9□<br>D-A9□V |      | D-M9□<br>D-M9□V<br>D-M9□W<br>D-M9□WV<br>D-M9□AL<br>D-M9□AVL |      | D-A73<br>D-A80 |      | D-A72/A7□H/A80H<br>D-A73C/A80C/F7□<br>D-F79F/J79/F7□V<br>D-J79C/F7□W<br>D-J79W/F7□WV<br>D-F7BAVL/F7BAL |      | D-F7NTL |      | D-A79W |      | D-P3DW□ |      |
|--------------------------------|-----------------|------|-------------------------------------------------------------|------|----------------|------|--------------------------------------------------------------------------------------------------------|------|---------|------|--------|------|---------|------|
|                                | A               | B    | A                                                           | B    | A              | B    | A                                                                                                      | B    | A       | B    | A      | B    | A       | B    |
| 32                             | 14              | 9    | 18                                                          | 13   | 15             | 10   | 15.5                                                                                                   | 10.5 | 20.5    | 15.5 | 12.5   | 7.5  | 8       | 3.5  |
| 40                             | 17.5            | 12   | 21.5                                                        | 16   | 18.5           | 13   | 19                                                                                                     | 13.5 | 24      | 18.5 | 16     | 10.5 | 11.5    | 6.5  |
| 50                             | 15              | 15.5 | 19                                                          | 19.5 | 16             | 16.5 | 16.5                                                                                                   | 17   | 21.5    | 22   | 13.5   | 14   | 9.5     | 9.5  |
| 63                             | 17.5            | 18.5 | 21.5                                                        | 22.5 | 18.5           | 19.5 | 19                                                                                                     | 20   | 24      | 25   | 16     | 17   | 12      | 12.5 |
| 80                             | 20.5            | 23   | 24.5                                                        | 27   | 21.5           | 24   | 22                                                                                                     | 24.5 | 27      | 29.5 | 19     | 21.5 | 15      | 17   |
| 100                            | 23.5            | 29.5 | 27.5                                                        | 33.5 | 24.5           | 30.5 | 25                                                                                                     | 31   | 30      | 36   | 22     | 28   | 18      | 23.5 |

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

**Applicable Cylinder Series:  
CDQ2□R/□V (Water resistant)**

(mm)

| Auto switch model<br>Bore size | D-M9□AL<br>D-M9□AVL |      | D-F7BAL<br>D-F7BAVL |      |
|--------------------------------|---------------------|------|---------------------|------|
|                                | A                   | B    | A                   | B    |
| 20                             | 19                  | 7.5  | 18                  | 6.5  |
| 25                             | 19.5                | 8    | 18                  | 7    |
| 32                             | 22                  | 9    | 19.5                | 6.5  |
| 40                             | 16                  | 11.5 | 13.5                | 9    |
| 50                             | 14                  | 14.5 | 11.5                | 12   |
| 63                             | 16.5                | 17.5 | 14                  | 15   |
| 80                             | 19.5                | 22   | 17                  | 19.5 |
| 100                            | 24                  | 27   | 21.5                | 24.5 |

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

**Auto Switch Mounting Height**

**Applicable Cylinder Series: CDQ2, CDQ2W, CDQ2□□□-□S/-□T (Single acting), CDQ2K, CDQ2KW (Non-rotating rod), CDQ2 (Long stroke), CDQ2□S (Anti-lateral load), CDQ2□R/□V (Water resistant)**

(mm)

| Auto switch model<br>Bore size | D-M9□V | D-A9□V | D-F7□/J79<br>D-F7□W/J79W<br>D-F7BAL<br>D-F79F/F7NTL<br>D-A7□H/A80H | D-F7□V<br>D-F7□WV | D-J79C | D-A7□<br>D-A80 | D-A73C<br>D-A80C | D-A79W | D-P3DW□ |
|--------------------------------|--------|--------|--------------------------------------------------------------------|-------------------|--------|----------------|------------------|--------|---------|
|                                | U      | U      | U                                                                  | U                 | U      | U              | U                | U      | U       |
| 12                             | 21.5   | 19     | 21.5                                                               | 23.5              | 26.5   | 21             | 27.5             | 24.5   | —       |
| 16                             | 22.5   | 20     | 22.5                                                               | 24.5              | 27.5   | 22             | 28.5             | 25.5   | —       |
| 20                             | 25     | 23     | 25.5                                                               | 27.5              | 30     | 24.5           | 31               | 28     | —       |
| 25                             | 28     | 26     | 28                                                                 | 30.5              | 32.5   | 27.5           | 34               | 31     | —       |
| 32                             | 30     | 27.5   | 36                                                                 | 36.5              | 39.5   | 34             | 40.5             | 37.5   | 33      |
| 40                             | 32     | 30     | 38                                                                 | 40                | 42.5   | 37.5           | 43.5             | 40.5   | 36.5    |
| 50                             | 37.5   | 35     | 43.5                                                               | 45                | 48     | 43             | 49               | 46     | 42      |
| 63                             | 42.5   | 40.5   | 48.5                                                               | 50.5              | 53.5   | 48             | 54.5             | 51.5   | 47      |
| 80                             | 51     | 49     | 57                                                                 | 59                | 61.5   | 56.5           | 62.5             | 59.5   | 55.5    |
| 100                            | 59     | 57     | 65.5                                                               | 67                | 70     | 64.5           | 71               | 68     | 65.5    |

\* The applicable auto switches for the CDQ2□R/□V (water resistant) are the D-M9□A(V)L type.

\* The D-P3DW□ type is available from ø32 to ø100.

**Applicable Cylinder Series: CDQ2, CDQ2W (Large bore size)**

(mm)

| Auto switch model<br>Bore size | D-M9□V<br>D-M9□WV<br>D-M9□AVL | D-A9□V | D-A7□<br>D-A80 | D-A7□H/A80H<br>D-F7□/J79<br>D-F7□W/J79W<br>D-F7BAL<br>D-F79F/F7NTL | D-A73C<br>D-A80C | D-F7□V<br>D-F7□WV<br>D-F7BAVL | D-J79C | D-A79W |
|--------------------------------|-------------------------------|--------|----------------|--------------------------------------------------------------------|------------------|-------------------------------|--------|--------|
|                                | U                             | U      | U              | U                                                                  | U                | U                             | U      | U      |
| 125                            | 69.5                          | 67.5   | 75.5           | 76.5                                                               | 82.5             | 79                            | 81     | 78     |
| 140                            | 76.5                          | 74.5   | 82.5           | 83.5                                                               | 89.5             | 86                            | 88     | 85     |
| 160                            | 85.5                          | 83.5   | 91.5           | 92.5                                                               | 98.5             | 95                            | 97     | 94     |
| 180                            | 105.5                         | 103.5  | —              | —                                                                  | —                | —                             | —      | —      |
| 200                            | 112.5                         | 110.5  | —              | —                                                                  | —                | —                             | —      | —      |

# Compact Cylinder Series **CDQ2** With Auto Switch 3

## 2 Minimum Stroke for Auto Switch Mounting

Applicable Cylinder Series: CDQ2, CDQ2W, CDQ2□□□-□S/-□T (Single acting), CDQ2K, CDQ2KW (Non-rotating rod), CDQ2 (Long stroke), CDQ2□S (Anti-lateral load), CDQ2□R/□V (Water resistant)

| Number of auto switches | D-M9□V<br>D-F7□V<br>D-J79C | D-A9□V<br>D-A7□<br>D-A80<br>D-A73C<br>D-A80C | D-A9□ | D-M9□WV<br>D-M9□AVL*<br>D-F7□WV<br>D-F7BAVL | D-M9□<br>D-M9□W<br>D-M9□AL*<br>D-A7□H<br>D-A80H<br>D-F7□<br>D-J79 | D-A79W | D-F7□W<br>D-J79W<br>D-F7BAL<br>D-F79F<br>D-F7NTL | D-P3DW□ |
|-------------------------|----------------------------|----------------------------------------------|-------|---------------------------------------------|-------------------------------------------------------------------|--------|--------------------------------------------------|---------|
| With 1 pc.              | 5                          | 5                                            | 10    | 10                                          | 15                                                                | 15     | 20                                               | 15      |
| With 2 pcs.             | 5                          | 10                                           | 10    | 15                                          | 15                                                                | 20     | 20                                               | 15      |

\* The applicable auto switches for the CDQ2□R/□V (water resistant) are the D-M9□A(V)L type.

Applicable Cylinder Series: CDQ2, CDQ2W (Large bore size) (mm)

| Number of auto switches | D-M9□<br>D-M9□V<br>D-F7□<br>D-F7□V<br>D-J79<br>D-J79C | D-A9□<br>D-A9□V<br>D-A7□<br>D-A80<br>D-A73C<br>D-A80C<br>D-A7□H<br>D-A80H | D-M9□W<br>D-M9□WV<br>D-M9□AL<br>D-M9□AVL | D-F7□W<br>D-F7□WV<br>D-J79W<br>D-F7BAL<br>D-F7BAVL<br>D-F7NTL<br>D-F79F | D-A79W |
|-------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------|--------|
| With 1 pc.              | 5                                                     | 5                                                                         | 10                                       | 15                                                                      |        |
| With 2 pcs.             | 5                                                     | 10                                                                        | 15                                       | 20                                                                      |        |

## 3 Operating Range

Applicable Cylinder Series: CDQ2, CDQ2W, CDQ2□□□-□S/-□T (Single acting), CDQ2K, CDQ2KW (Non-rotating rod), CDQ2 (Long stroke), CDQ2□S (Anti-lateral load), CDQ2□R/□V (Water resistant)

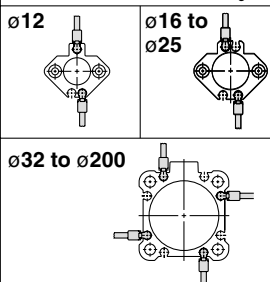
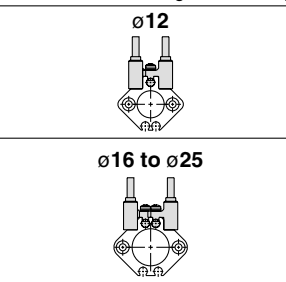
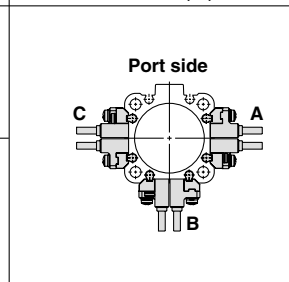
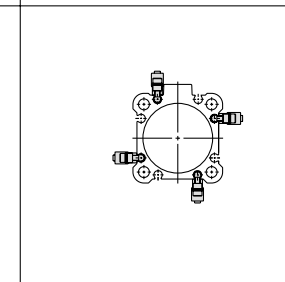
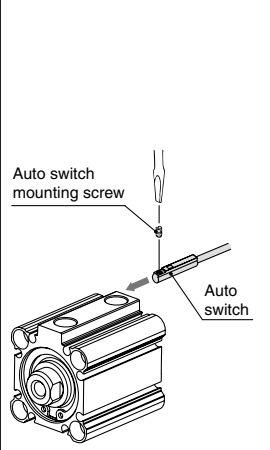
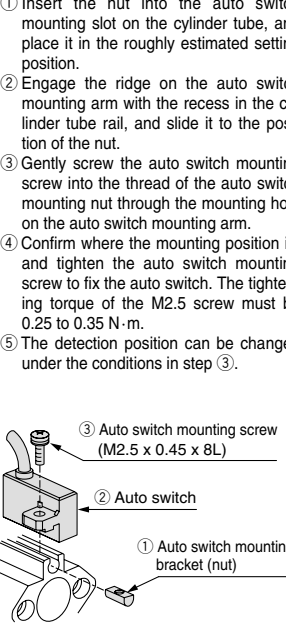
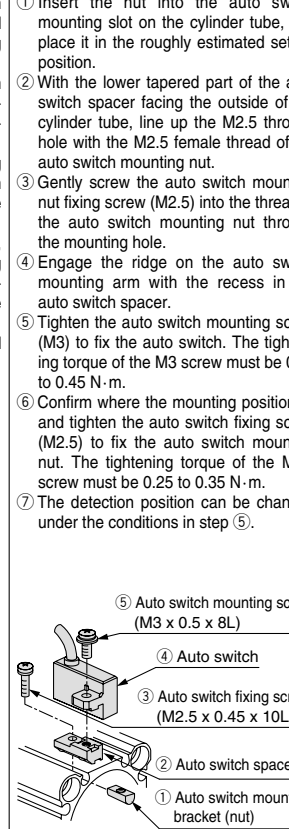
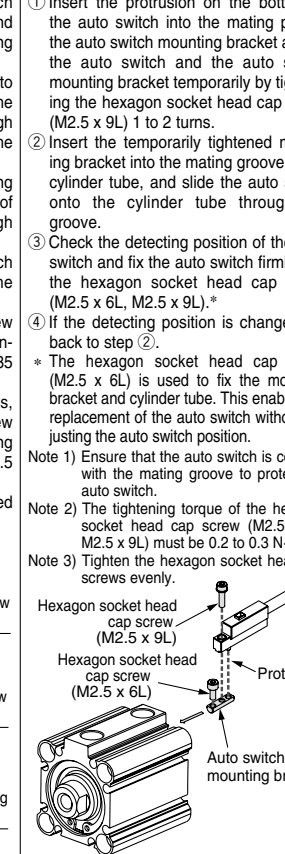
| Auto switch model                                                    | Bore size |      |      |     |      |      |      |     |      |      |      |      |      |     |      |
|----------------------------------------------------------------------|-----------|------|------|-----|------|------|------|-----|------|------|------|------|------|-----|------|
|                                                                      | 12        | 16   | 20   | 25  | 32   | 40   | 50   | 63  | 80   | 100  | 125  | 140  | 160  | 180 | 200  |
| D-A9□(V)                                                             | 7.5       | 9.5  | 10   | 9   | 9    | 9.5  | 9.5  | 11  | 10.5 | 10.5 | 13.5 | 12.5 | 12   | 13  | 12.5 |
| D-M9□(V)<br>D-M9□W(V)<br>D-M9□A(V)L*                                 | 3         | 5    | 5.5  | 5.5 | 5    | 5    | 6    | 6.5 | 7    | 7.5  | 7.5  | 8    | 7.5  | 7.5 | 8.5  |
| D-A7□(H)(C)<br>D-A80□(H)(C)                                          | 9.5       | 12   | 12   | 11  | 10.5 | 11.5 | 11   | 13  | 11.5 | 11.5 | 16.5 | 15   | 14.5 | —   | —    |
| D-A79W                                                               | 13        | 14.5 | 15.5 | 14  | 14   | 15.5 | 14.5 | 17  | 15   | 15.5 | 19.5 | 18   | 17.5 | —   | —    |
| D-F7□(V)<br>D-J79(C)<br>D-F7□W(V)<br>D-F7BA(V)L<br>D-F7NTL<br>D-F79F | 4.5       | 5.5  | 5    | 5   | 5    | 5    | 5    | 6   | 7    | 8    | 7.5  | 7.5  | 7.5  | —   | —    |
| D-P3DW□                                                              | —         | —    | —    | —   | 3    | 4.5  | 4.5  | 6   | 5.5  | 6.5  | —    | —    | —    | —   | —    |

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

\* The applicable auto switches for the CDQ2□R/□V (water resistant) are the D-M9□A(V)L type.

## 4 Auto Switch Mounting Brackets/Part No.

Applicable Cylinder Series: CDQ2, CDQ2W, CDQ2□□□-□S/□T (Single acting), CDQ2, CDQ2W (Large bore size), CDQ2K, CDQ2KW (Non-rotating rod), CDQ2 (Long stroke), CDQ2□S (Anti-lateral load), CDQ2□R/□V (Water resistant)

| Applicable auto switch                                   | D-M9□/M9□V<br>D-M9□W/M9□WV<br>D-M9□AL/M9□AVL<br>D-A9□/A9□V                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | D-F7□/F7□V/J79/J79C/F7□W/J79W/F7□WV<br>D-F7BAL/F7BAVL/F79F/F7NTL<br>D-A7□/A80/A7□H/A80H/A73C/A80C/A79W                                                                                                                                                                                                                                                |                                                                                                                                                          | D-P3DW□                                                                                                                                             |              |           |            |          |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------|------------|----------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bore size (mm)                                           | ø12 to ø200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ø12 to ø25                                                                                                                                                                                                                                                                                                                                            | ø32 to ø160                                                                                                                                              | ø32 to ø100                                                                                                                                         |              |           |            |          |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Auto switch mounting bracket part no.                    | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | BQ4-012                                                                                                                                                                                                                                                                                                                                               | BQ5-032                                                                                                                                                  | BQ3-032S                                                                                                                                            |              |           |            |          |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Auto switch mounting bracket fitting parts lineup/Weight | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ① Auto switch mounting screw (M2.5 x 8L)<br>② Auto switch mounting nut<br>Weight: 1.5 g<br><br>When requesting the enclosure of the auto switch mounting brackets (2 pcs.) with the cylinder for shipment, add “-BQ” to the end of the cylinder model number. Standard model no. +BQ Example) CDQ2B32-30DZ-BQ/<br>CDQ2B32-30DZ-BQ-XC4 (Made to Order) | ① Auto switch fixing screw (M2.5 x 10L)<br>② Auto switch mounting screw (M3 x 8L)<br>③ Auto switch spacer<br>④ Auto switch mounting nut<br>Weight: 3.5 g | ① Hexagon socket head cap screw (M2.5 x 6L)<br>② Hexagon socket head cap screw (M2.5 x 9L)<br>③ Auto switch mounting bracket (nut)<br>Weight: 2.5 g |              |           |            |          |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Auto switch mounting surface                             | Surfaces with auto switch mounting slot<br>                                                                                                                                                                                                                                                                                                                                                                                                       | Auto switch mounting rail side only<br>                                                                                                                                                                                                                             | A/B/C side except port side<br>                                       | Surfaces with auto switch mounting slot<br>                     |              |           |            |          |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Mounting of auto switch                                  |  <p>• When tightening the auto switch mounting screw, use a watchmakers' screwdriver with a handle 5 to 6 mm in diameter.</p> <p><b>Tightening torque for auto switch mounting screw (N·m)</b></p> <table><tr><th>Auto switch model</th><th>Tightening torque</th></tr><tr><td>D-M9□(V)</td><td rowspan="3">0.05 to 0.15</td></tr><tr><td>D-M9□W(V)</td></tr><tr><td>D-M9□A(V)L</td></tr><tr><td>D-A9□(V)</td><td>0.10 to 0.20</td></tr></table> | Auto switch model                                                                                                                                                                                                                                                                                                                                     | Tightening torque                                                                                                                                        | D-M9□(V)                                                                                                                                            | 0.05 to 0.15 | D-M9□W(V) | D-M9□A(V)L | D-A9□(V) | 0.10 to 0.20 | <ol style="list-style-type: none"><li>Insert the nut into the auto switch mounting slot on the cylinder tube, and place it in the roughly estimated setting position.</li><li>Engage the ridge on the auto switch mounting arm with the recess in the cylinder tube rail, and slide it to the position of the nut.</li><li>Gently screw the auto switch mounting screw into the thread of the auto switch mounting nut through the mounting hole on the auto switch mounting arm.</li><li>Confirm where the mounting position is, and tighten the auto switch mounting screw to fix the auto switch. The tightening torque of the M2.5 screw must be 0.25 to 0.35 N·m.</li><li>The detection position can be changed under the conditions in step ③.</li></ol>  | <ol style="list-style-type: none"><li>Insert the nut into the auto switch mounting slot on the cylinder tube, and place it in the roughly estimated setting position.</li><li>With the lower tapered part of the auto switch spacer facing the outside of the cylinder tube, line up the M2.5 through hole with the M2.5 female thread of the auto switch mounting nut.</li><li>Gently screw the auto switch mounting nut fixing screw (M2.5) into the thread of the auto switch mounting nut through the mounting hole.</li><li>Engage the ridge on the auto switch mounting arm with the recess in the auto switch spacer.</li><li>Tighten the auto switch mounting screw (M3) to fix the auto switch. The tightening torque of the M3 screw must be 0.35 to 0.45 N·m.</li><li>Confirm where the mounting position is, and tighten the auto switch fixing screw (M2.5) to fix the auto switch mounting nut. The tightening torque of the M2.5 screw must be 0.25 to 0.35 N·m.</li><li>The detection position can be changed under the conditions in step ⑤.</li></ol>  | <ol style="list-style-type: none"><li>Insert the protrusion on the bottom of the auto switch into the mating part of the auto switch mounting bracket and fix the auto switch and the auto switch mounting bracket temporarily by tightening the hexagon socket head cap screw (M2.5 x 9L) 1 to 2 turns.</li><li>Insert the temporarily tightened mounting bracket into the mating groove of the cylinder tube, and slide the auto switch onto the cylinder tube through the groove.</li><li>Check the detecting position of the auto switch and fix the auto switch firmly with the hexagon socket head cap screw (M2.5 x 6L, M2.5 x 9L)*.</li><li>If the detecting position is changed, go back to step ②.</li></ol> <p>* The hexagon socket head cap screw (M2.5 x 6L) is used to fix the mounting bracket and cylinder tube. This enables the replacement of the auto switch without adjusting the auto switch position.</p> <p>Note 1) Ensure that the auto switch is covered with the mating groove to protect the auto switch.</p> <p>Note 2) The tightening torque of the hexagon socket head cap screw (M2.5 x 6L, M2.5 x 9L) must be 0.2 to 0.3 N·m.</p> <p>Note 3) Tighten the hexagon socket head cap screws evenly.</p>  |
| Auto switch model                                        | Tightening torque                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                          |                                                                                                                                                     |              |           |            |          |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| D-M9□(V)                                                 | 0.05 to 0.15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                          |                                                                                                                                                     |              |           |            |          |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| D-M9□W(V)                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                          |                                                                                                                                                     |              |           |            |          |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| D-M9□A(V)L                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                          |                                                                                                                                                     |              |           |            |          |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| D-A9□(V)                                                 | 0.10 to 0.20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                          |                                                                                                                                                     |              |           |            |          |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

Note) Auto switch mounting bracket and auto switch are enclosed with the cylinder for shipment. For an environment that needs the water resistant auto switch, select the D-M9□A(V)L type.

Auto switch mounting bracket for the D-F7BA(V)L type uses BQ4-012 and BQ5-032 normal specifications (metal screw).

\* The auto switches applicable to the CDQ2□R/□V (water resistant) is the D-M9□A(V)L type.

# Compact Cylinder

## Series **CDQ2**

### With Auto Switch 4

Other than the applicable auto switches listed in “How to Order”, the following auto switches are mountable. Refer to pages 1263 to 1371 in Best Pneumatics No. 2 for detailed specifications.

Applicable Cylinder Series: CDQ2, CDQ2W, CDQ2□□□-□S/-□T (Single acting), CDQ2, CDQ2W (Large bore size), CDQ2K, CDQ2KW (Non-rotating rod), CDQ2 (Long stroke), CDQ2□S (Anti-lateral load)

| Auto switch type | Model              | Electrical entry          | Features                                   | Applicable bore size        |
|------------------|--------------------|---------------------------|--------------------------------------------|-----------------------------|
| Reed             | D-A72              | Grommet (Perpendicular)   | —                                          | ø12 to ø100<br>ø125 to ø160 |
|                  | D-A73              |                           | —                                          |                             |
|                  | D-A80              |                           | Without indicator light                    |                             |
|                  | D-A79W             |                           | Diagnostic indication (2-color indication) |                             |
|                  | D-A73C             | Connector (Perpendicular) | —                                          |                             |
|                  | D-A80C             |                           | Without indicator light                    |                             |
|                  | D-A72H             | Grommet (In-line)         | —                                          |                             |
|                  | D-A73H, A76H       |                           | —                                          |                             |
|                  | D-A80H             |                           | Without indicator light                    |                             |
| Solid state      | D-F7NV, F7PV, F7BV | Grommet (Perpendicular)   | —                                          |                             |
|                  | D-F7NWV, F7BWV     |                           | Diagnostic indication (2-color indication) |                             |
|                  | D-F7BAVL           |                           | Water resistant (2-color indication)       |                             |
|                  | D-J79C             | Connector (Perpendicular) | —                                          |                             |
|                  | D-F79, F7P, J79    | Grommet (In-line)         | —                                          |                             |
|                  | D-F79W, F7PW, J79W |                           | Diagnostic indication (2-color indication) |                             |
|                  | D-F7BAL            |                           | Water resistant (2-color indication)       |                             |
|                  | D-F79F             |                           | Diagnostic indication (2-color indication) |                             |
|                  | D-F7NTL            |                           | With timer                                 |                             |

\* With pre-wired connector is also available for solid state auto switches. For details, refer to pages 1328 and 1329 in Best Pneumatics No. 2.

\* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H) are also available. For details, refer to page 1290 in Best Pneumatics No. 2.

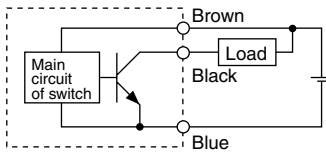
\* Trimmer auto switch (D-F7K) and heat resistant solid state auto switch (D-F7NJL) are not available.

# Prior to Use

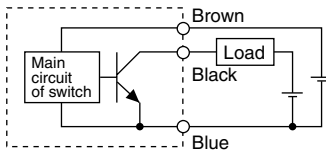
## Auto Switch Connection and Example

### Basic Wiring

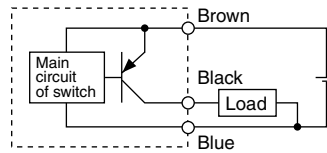
#### Solid state 3-wire, NPN



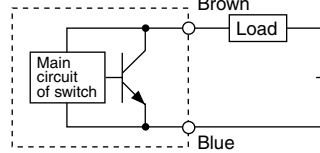
(Power supply for switch and load are separate.)



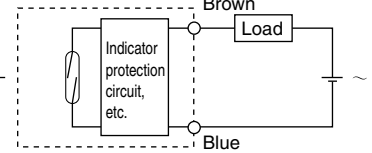
#### Solid state 3-wire, PNP



#### 2-wire (Solid state)

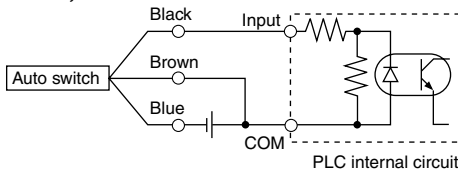


#### 2-wire (Reed)

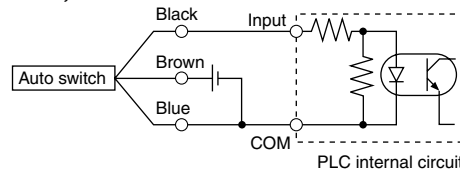


### Example of Connection with PLC (Programmable Logic Controller)

#### • Sink input specifications 3-wire, NPN

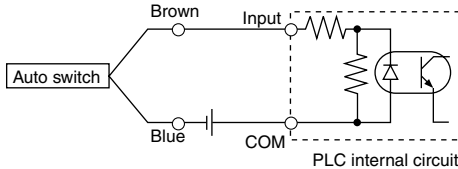


#### • Source input specifications 3-wire, PNP

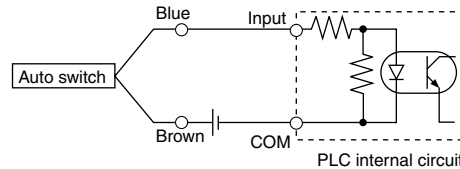


Connect according to the applicable PLC input specifications, as the connection method will vary depending on the PLC input specifications.

#### 2-wire



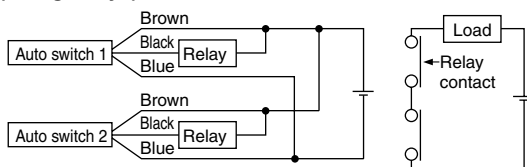
#### 2-wire



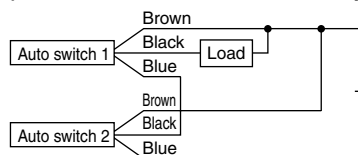
### Example of AND (Series) and OR (Parallel) Connection

#### • 3-wire

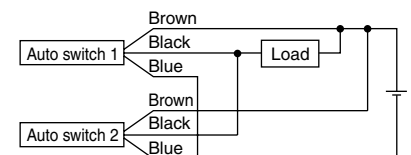
##### AND connection for NPN output (Using relays)



##### AND connection for NPN output (Performed with auto switches only)



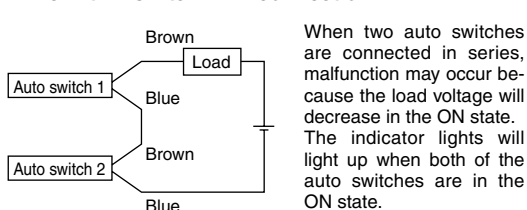
##### OR connection for NPN output



The indicator lights will light up when both of the auto switches are in the ON state.

#### • 2-wire

##### 2-wire with 2-switch AND connection

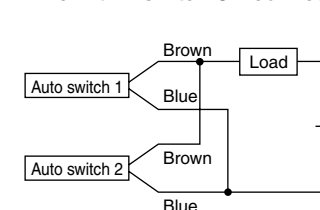


When two auto switches are connected in series, malfunction may occur because the load voltage will decrease in the ON state. The indicator lights will light up when both of the auto switches are in the ON state.

$$\begin{aligned} \text{Load voltage at ON} &= \text{Power supply voltage} - \text{Residual voltage} \times 2 \text{ pcs.} \\ &= 24 \text{ V} - 4 \text{ V} \times 2 \text{ pcs.} \\ &= 16 \text{ V} \end{aligned}$$

Example: Power supply voltage 24 VDC  
Auto switch internal voltage drop 4 V

##### 2-wire with 2-switch OR connection



##### (Solid state)

When two auto switches are connected in parallel, malfunction may occur because the load voltage will increase in the OFF state.

$$\begin{aligned} \text{Load voltage at OFF} &= \text{Leakage current} \times 2 \text{ pcs.} \times \text{Load impedance} \\ &= 1 \text{ mA} \times 2 \text{ pcs.} \times 3 \text{ k}\Omega \\ &= 6 \text{ V} \end{aligned}$$

Example: Load impedance 3 kΩ  
Auto switch leakage current 1 mA

##### (Reed)

Because there is no leakage current, the load voltage will not increase in the OFF state. However, depending on the number of auto switches in the ON state, the indicator lights may sometimes grow dim or not light up, due to the dispersion and reduction of the current flowing to the auto switches.