

# Rotary Actuator: Free Mount Type Vane Style

## Series *CRBU2*

Size: 10, 15, 20, 30, 40

### How to Order

Without auto switch

CRBU2 W [ ] 180 S E

With auto switch  
Size: 10, 15

CDRBU2 W [ ] 180 S 90 L [ ]

With auto switch  
Size: 20, 30, 40

CDRBU2 W [ ] 180 S R73 L [ ]

With auto switch  
(With switch unit)

Free mount type

Shaft type

|   |                                                              |
|---|--------------------------------------------------------------|
| W | Double shaft with single flat<br>(size 10 to 30)             |
|   | Long shaft key,<br>Short shaft with single flat<br>(size 40) |

Rotating angle

| Applicable  | Symbol | Rotating angle |
|-------------|--------|----------------|
| Single vane | 90     | 90°            |
|             | 180    | 180°           |
|             | 270    | 270°           |
| Double vane | 90     | 90°            |
|             | 100    | 100°           |

Vane type

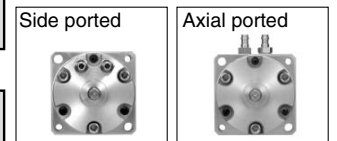
|   |             |
|---|-------------|
| S | Single vane |
| D | Double vane |

Auto switch

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

\* For the applicable auto switch model, refer to the table below.

| Connection port location |              | Size |
|--------------------------|--------------|------|
| Nil                      | Side ported  | 10   |
| E                        | Side ported  | 15   |
|                          | Axial ported | 20   |
|                          |              | 30   |
|                          |              | 40   |



\* Fittings are sold separately.

Number of auto switches

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

\* Right-hand auto switch will be used for actuators with 1 auto switch.

Electrical entry/Lead wire length

|     |                           |
|-----|---------------------------|
| Nil | Grommet/Lead wire: 0.5 m  |
| L   | Grommet/Lead wire: 3 m    |
| C   | Grommet/Lead wire: 0.5 m  |
| CL  | Grommet/Lead wire: 3 m    |
| CN  | Grommet/Without lead wire |

\* Connectors are available only for auto switch types D-R73, D-R80, D-T79.

\*\* Lead wire with connector part nos.

D-LC05: Lead wire 0.5 m

D-LC30: Lead wire 3 m

D-LC50: Lead wire 5 m

### Applicable Auto Switch/Refer to page 11-1-1 for further information on auto switches.

| Applicable size    | Type               | Electrical entry | Indicator light  | Wiring (Output) | Load voltage |                    | Auto switch model    | Lead wire type | Lead wire length (m) * |                 |        |          | Applicable load |            |            |            |     |                 |
|--------------------|--------------------|------------------|------------------|-----------------|--------------|--------------------|----------------------|----------------|------------------------|-----------------|--------|----------|-----------------|------------|------------|------------|-----|-----------------|
|                    |                    |                  |                  |                 | DC           | AC                 |                      |                | 0.5 (Nil)              | 3 (L)           | 5 (Z)  | None (N) |                 |            |            |            |     |                 |
| For 10 and 15      | Reed switch        | Grommet          | No               | 2-wire          | 24 V         | 5 V,12 V           | 5 V,12 V,24 V        | 90             | Parallel cord          | ●               | ●      | ●        | —               | IC circuit | Relay, PLC |            |     |                 |
|                    |                    |                  |                  |                 |              | 5 V,12 V, 100 V    | 5 V,12 V, 24 V,100 V | 90A            | Heavy-duty cord        | ●               | ●      | ●        | —               |            |            |            |     |                 |
|                    | Solid state switch |                  | Yes              |                 |              | —                  | 100 V                | —              | 97                     | Parallel cord   | ●      | ●        | ●               | —          |            | —          |     |                 |
|                    |                    |                  |                  |                 |              |                    |                      |                | T99                    | Heavy-duty cord | ●      | ●        | —               | —          |            |            |     |                 |
|                    |                    |                  |                  |                 |              |                    |                      |                | T99V                   |                 | ●      | ●        | —               | —          |            |            |     |                 |
|                    |                    |                  |                  |                 |              |                    |                      |                | S99                    |                 | ●      | ●        | —               | —          |            |            |     |                 |
|                    |                    |                  |                  |                 |              | S99V               | ●                    |                | ●                      |                 | —      | —        | IC circuit      |            |            |            |     |                 |
|                    |                    |                  |                  |                 |              | S9P                | ●                    |                | ●                      | —               | —      |          |                 |            |            |            |     |                 |
|                    |                    |                  |                  |                 |              | S9PV               | ●                    |                | ●                      | —               | —      |          |                 |            |            |            |     |                 |
|                    |                    |                  |                  |                 |              | For 20, 30, and 40 | Reed switch          |                | Grommet                | Yes             | 2-wire | 24 V     |                 | —          |            | 100 V      | R73 | Heavy-duty cord |
| Connector          | —                  | —                | R73C             | ●               | ●            |                    |                      | ●              | ●                      |                 |        |          |                 |            |            |            |     |                 |
| Grommet            | No                 | 48 V, 100 V      | 24 V,48 V, 100 V | R80             | ●            |                    |                      | ●              | —                      |                 |        |          | —               | IC circuit |            |            |     |                 |
| Connector          |                    | —                | —                | R80C            | ●            |                    |                      | ●              | —                      |                 |        |          | —               |            |            |            |     |                 |
| Solid state switch |                    | Grommet          | Yes              | —               | —            |                    | T79                  | ●              | ●                      | —               |        |          | —               | —          |            |            |     |                 |
|                    |                    | Connector        |                  |                 |              |                    | T79C                 | ●              | ●                      | ●               |        |          | ●               |            |            |            |     |                 |
|                    | Grommet            | 3-wire (NPN)     |                  |                 |              |                    | 5 V,12 V             | S79            | ●                      | ●               |        |          | —               |            | —          | IC circuit |     |                 |
|                    |                    | 3-wire (PNP)     |                  |                 |              |                    |                      | S7P            | ●                      | ●               |        |          | —               |            | —          |            |     |                 |

\* Lead wire length symbols: 0.5 m ..... Nil (Example) R73C  
3 m ..... L (Example) R73CL  
5 m ..... Z (Example) R73CZ  
None ..... N (Example) R73CN

# Rotary Actuator: Free Mount Type Vane Style **Series CRBU2**



## Single Vane Specifications

| Model (Size)                                    |                           | CRBU2W10-□S                                                 | CRBU2W15-□S | CRBU2W20-□S | CRBU2W30-□S | CRBU2W40-□S                                    |
|-------------------------------------------------|---------------------------|-------------------------------------------------------------|-------------|-------------|-------------|------------------------------------------------|
| Rotating angle                                  |                           | 90°, 180°, 270°                                             |             |             |             |                                                |
| Fluid                                           |                           | Air (Non-lube)                                              |             |             |             |                                                |
| Proof pressure (MPa)                            |                           | 1.05                                                        |             |             | 1.5         |                                                |
| Ambient and fluid temperature                   |                           | 5 to 60°C                                                   |             |             |             |                                                |
| Max. operating pressure (MPa)                   |                           | 0.7                                                         |             |             | 1.0         |                                                |
| Min. operating pressure (MPa)                   |                           | 0.2                                                         | 0.15        |             |             |                                                |
| Speed regulation range (sec/90°) <sup>(1)</sup> |                           | 0.03 to 0.3                                                 |             |             | 0.04 to 0.3 | 0.07 to 0.5                                    |
| Allowable kinetic energy <sup>(2)</sup><br>(J)  |                           | 0.00015                                                     | 0.001       | 0.003       | 0.02        | 0.04                                           |
|                                                 |                           |                                                             | 0.00025     | 0.0004      | 0.015       | 0.033                                          |
| Shaft load                                      | Allowable radial load (N) | 15                                                          |             | 25          | 30          | 60                                             |
|                                                 | Allowable thrust load (N) | 10                                                          |             | 20          | 25          | 40                                             |
| Bearing type                                    |                           | Bearing                                                     |             |             |             |                                                |
| Port location                                   |                           | Side ported or Axial ported                                 |             |             |             |                                                |
| Shaft type                                      |                           | Double shaft (Double shaft with single flat on both shafts) |             |             |             | Double shaft<br>(Long shaft key & Single flat) |
| Angle adjustable <sup>(3)</sup>                 |                           | 0 to 230°                                                   | 0 to 240°   |             |             | 0 to 230°                                      |

Note 3) Adjustment range in the table is for 270°. For 90° and 180°, refer to page 11-3-5.

## Double Vane Specifications

| Model (Size)                                    |                           | CRBU2W10-□D                                                 | CRBU2W15-□D | CRBU2W20-□D | CRBU2W30-□D | CRBU2W40-□D |
|-------------------------------------------------|---------------------------|-------------------------------------------------------------|-------------|-------------|-------------|-------------|
| Rotating angle                                  |                           | 90°, 100°                                                   |             |             |             |             |
| Fluid                                           |                           | Air (Non-lube)                                              |             |             |             |             |
| Proof pressure (MPa)                            |                           | 1.05                                                        |             |             | 1.5         |             |
| Ambient and fluid temperature                   |                           | 5 to 60°C                                                   |             |             |             |             |
| Max. operating pressure (MPa)                   |                           | 0.7                                                         |             |             | 1.0         |             |
| Min. operating pressure (MPa)                   |                           | 0.2                                                         | 0.15        |             |             |             |
| Speed regulation range (sec/90°) <sup>(1)</sup> |                           | 0.03 to 0.3                                                 |             |             | 0.04 to 0.3 | 0.07 to 0.5 |
| Allowable kinetic energy (J)                    |                           | 0.0003                                                      | 0.0012      | 0.0033      | 0.02        | 0.04        |
| Shaft load                                      | Allowable radial load (N) | 15                                                          |             | 25          | 30          | 60          |
|                                                 | Allowable thrust load (N) | 10                                                          |             | 20          | 25          | 40          |
| Bearing type                                    |                           | Bearing                                                     |             |             |             |             |
| Port location                                   |                           | Side ported or Axial ported                                 |             |             |             |             |
| Shaft type                                      |                           | Double shaft (Double shaft with single flat on both shafts) |             |             |             |             |
| Angle adjustable <sup>(3)</sup>                 |                           | 0 to 90°                                                    |             |             |             | 0 to 230°   |



Note 1) Make sure to operate within the speed regulation range. Exceeding the maximum speeds can cause the unit to stick or not operate.

Note 2) The upper numbers in this section in the table indicate the energy factor when the rubber bumper is used (at the end of the rotation), and the lower numbers indicate the energy factor when the rubber bumper is not used.

Note 3) Adjustment range in the table is for 100°. For 90°, refer to page 11-3-5.

## Inner Volume and Connection Port

| Vane type   | Model (size)   | CRBU2W10     |          |      | CRBU2W15  |      |      | CRBU2W20  |          |      | CRBU2W30   |      |      | CRBU2W40 |      |      |  |  |
|-------------|----------------|--------------|----------|------|-----------|------|------|-----------|----------|------|------------|------|------|----------|------|------|--|--|
| Single vane | Rotating angle | 90°          | 180°     | 270° | 90°       | 180° | 270° | 90°       | 180°     | 270° | 90°        | 180° | 270° | 90°      | 180° | 270° |  |  |
|             | Volume (cm³)   | 1 (0.6)      | 1.2      | 1.5  | 1.5 (1.0) | 2.9  | 3.7  | 4.8 (3.5) | 6.1      | 7.9  | 11.3 (8.5) | 15   | 20.2 | 25       | 31.5 | 41   |  |  |
|             | Port size      | Side ported  | M5 x 0.8 |      |           |      |      |           |          |      |            |      |      |          |      |      |  |  |
|             |                | Axial ported | M3 x 0.5 |      |           |      |      |           | M5 x 0.8 |      |            |      |      |          |      |      |  |  |
| Double vane | Rotating angle | 90°          | 100°     |      | 90°       | 100° |      | 90°       | 100°     |      | 90°        | 100° |      | 90°      | 100° |      |  |  |
|             | Volume (cm³) * | 1            | 1.1      |      | 2.6       | 2.7  |      | 5.6       | 5.7      |      | 14.4       | 14.5 |      | 33       | 34   |      |  |  |
|             | Port size      | Side ported  | M5 x 0.8 |      |           |      |      |           | M5 x 0.8 |      |            |      |      |          |      |      |  |  |
|             |                | Axial ported | M3 x 0.5 |      |           |      |      |           |          |      |            |      |      |          |      |      |  |  |

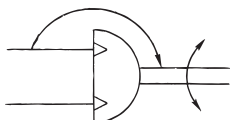
\* Values inside ( ) are volume of the supply side when A port is pressurized.

## Weight

(g)

| Vane type   | Model (size)                  | CRBU2W10      | CRBU2W15      | CRBU2W20      | CRBU2W30      | CRBU2W40      |
|-------------|-------------------------------|---------------|---------------|---------------|---------------|---------------|
| Single vane | Rotating angle                | 90° 180° 270° | 90° 180° 270° | 90° 180° 270° | 90° 180° 270° | 90° 180° 270° |
|             | Body of rotary actuator       | 47.5 47.1 47  | 73 72 72      | 143 142 140   | 263 258 255   | 491 480 469   |
|             | Auto switch unit + 2 switches | 30            | 30            | 50            | 60            | 46.5          |
|             | Angle adjuster                | 30            | 47            | 90            | 150           | 203           |
| Double vane | Rotating angle                | — 90° 100°    | — 90° 100°    | — 90° 100°    | — 90° 100°    | — 90° 100°    |
|             | Body of rotary actuator       | — 62.2 63.2   | — 77 81       | — 151 158     | — 289 308     | — 504 550     |
|             | Auto switch unit + 2 switches | 30            | 30            | 50            | 60            | 46.5          |
|             | Angle adjuster                | 30            | 47            | 90            | 150           | 203           |

JIS Symbol



## Caution

Be sure to read before handling. Refer to pages 11-13-3 to 4 for Safety Instructions and Common Precautions on the products mentioned in this catalog, and refer to pages 11-1-4 to 6 for Precautions on every series.

# Rotary Actuator: Free Mount Type Vane Style **Series CRBU2**

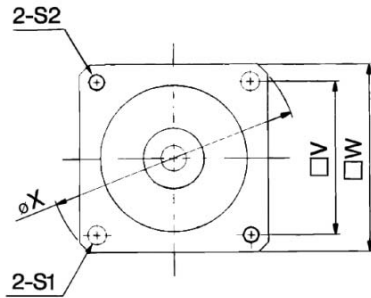
## Dimensions: 10, 15, 20, 30

### Single vane type

● Following illustrations show actuators for 90° and 180° when B port is pressurized.

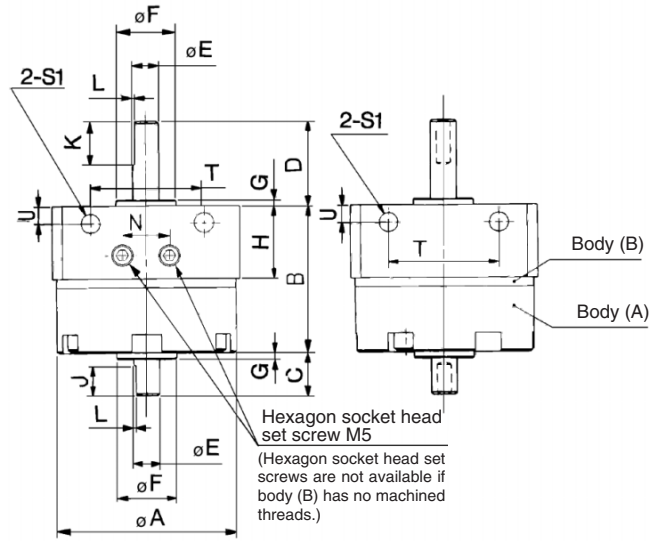
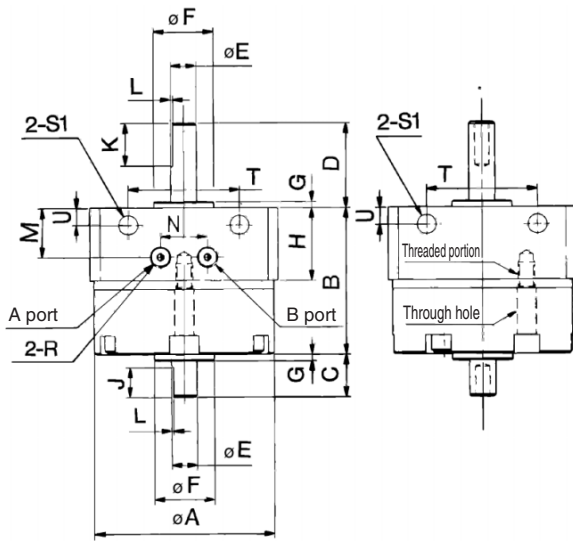
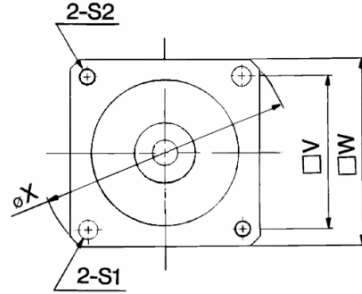
#### CRBU2W□-□S

<Port location: Side ported>



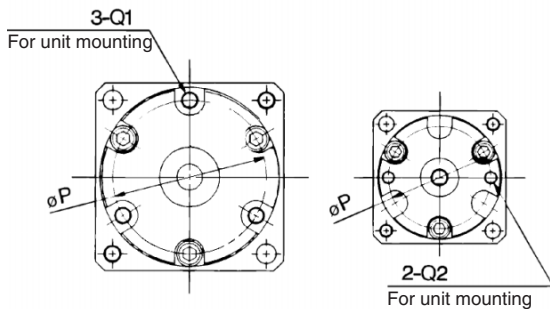
#### CRBU2W□-□SE

<Port location: Axial ported>



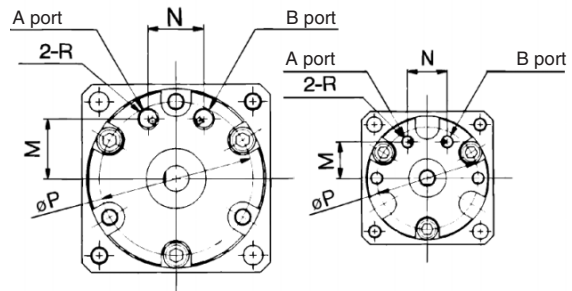
#### CRBU2W10□-□S

<Port location: Side ported>



#### CRBU2W10□-□SE

<Port location: Axial ported>



| Model        | A  | B    | C  | D  | E (g6)                                | F (h9)                            | G   | H    | J | K  | L   | M    | N    | P  | Q1       | (Depth)<br>Q2 | R        | S1  | S2       | T  | U   | V  | W  | X  |
|--------------|----|------|----|----|---------------------------------------|-----------------------------------|-----|------|---|----|-----|------|------|----|----------|---------------|----------|-----|----------|----|-----|----|----|----|
| CRBU2W10-□S  | 29 | 22   | 8  | 14 | 4 <sup>-0.004</sup> <sub>-0.012</sub> | 9 <sup>0</sup> <sub>-0.036</sub>  | 1   | 15.5 | 5 | 9  | 0.5 | 10.5 | 10.5 | 24 | —        | M3            | M5 x 0.8 | 3.5 | M3 x 0.5 | 17 | 3   | 25 | 31 | 41 |
| CRBU2W10-□SE |    |      |    |    |                                       |                                   |     |      |   |    |     | 8.5  | 9.5  |    |          | (4)           | M3 x 0.5 |     |          |    |     |    |    |    |
| CRBU2W15-□S  | 34 | 25   | 9  | 18 | 5 <sup>-0.004</sup> <sub>-0.012</sub> | 12 <sup>0</sup> <sub>-0.043</sub> | 1.5 | 15.5 | 6 | 10 | 0.5 | 10.5 | 10.5 | 29 | M3 x 0.5 | —             | M5 x 0.8 | 3.5 | M3 x 0.5 | 21 | 3   | 29 | 36 | 48 |
| CRBU2W15-□SE |    |      |    |    |                                       |                                   |     |      |   |    |     | 11   | 10   |    |          |               | M3 x 0.5 |     |          |    |     |    |    |    |
| CRBU2W20-□S  | 42 | 34.5 | 10 | 20 | 6 <sup>-0.004</sup> <sub>-0.012</sub> | 14 <sup>0</sup> <sub>-0.043</sub> | 1.5 | 17   | 7 | 10 | 0.5 | 11.5 | 11   | 36 | M4 x 0.7 | —             | M5 x 0.8 | 4.5 | M4 x 0.7 | 26 | 4   | 36 | 44 | 59 |
| CRBU2W20-□SE |    |      |    |    |                                       |                                   |     |      |   |    |     | 14   | 13   |    |          |               |          |     |          |    |     |    |    |    |
| CRBU2W30-□S  | 50 | 47.5 | 13 | 22 | 8 <sup>-0.005</sup> <sub>-0.014</sub> | 16 <sup>0</sup> <sub>-0.043</sub> | 2   | 17.5 | 8 | 12 | 1   | 12   | 13   | 43 | M5 x 0.8 | —             | M5 x 0.8 | 5.5 | M5 x 0.8 | 29 | 4.5 | 42 | 52 | 69 |
| CRBU2W30-□SE |    |      |    |    |                                       |                                   |     |      |   |    |     | 15.5 | 14   |    |          |               |          |     |          |    |     |    |    |    |