

# Mini-Rotary Actuator

## Series *CRJ*

### How to Order

**Rotation angle**

|     |      |
|-----|------|
| 90  | 90°  |
| 100 | 100° |
| 180 | 180° |
| 190 | 190° |

**Basic type** CRJ B 05 — 90 E — F9B S

**With external stopper** CRJ U 05 — 90 E — F9B S

**Size**

|    |
|----|
| 05 |
| 1  |

**Number of auto switches**

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

**Auto switch type**

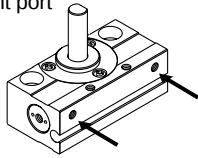
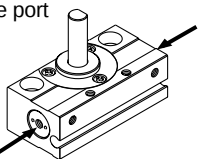
|     |                                       |
|-----|---------------------------------------|
| Nil | Without auto switch (built-in magnet) |
|-----|---------------------------------------|

\* Select applicable auto switches from the table below.

**Rotation angle**

|     |      |
|-----|------|
| 90  | 90°  |
| 180 | 180° |

**Connecting port position**

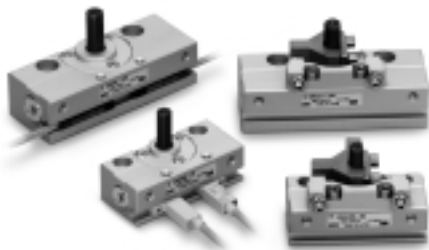
|     |                                                                                                    |
|-----|----------------------------------------------------------------------------------------------------|
| Nil | Front port<br> |
| E   | Side port<br>  |

**Applicable auto switches**/\* Refer to pages 7 through 11 for detailed auto switch specifications.

| Type               | Special function                           | Electrical entry | Indicator light | Wiring (output) | Load voltage |     | Auto switch part no.       |         | Lead wire length (m)* |       |       |   |
|--------------------|--------------------------------------------|------------------|-----------------|-----------------|--------------|-----|----------------------------|---------|-----------------------|-------|-------|---|
|                    |                                            |                  |                 |                 | DC           | AC  | Electrical entry direction |         | 0.5 (Nil)             | 3 (L) | 5 (Z) |   |
|                    |                                            |                  |                 |                 |              |     | Perpendicular              | In-line |                       |       |       |   |
| Solid state switch | —                                          | Grommet          | Yes             | 3-wire (NPN)    | 24V          | 12V | —                          | —       | F9N                   | ●     | ●     | — |
|                    |                                            |                  |                 | F8N             |              |     |                            | —       | ●                     | ●     | ○     |   |
|                    |                                            |                  |                 | —               |              |     |                            | F9P     | ●                     | ●     | —     |   |
|                    |                                            |                  |                 | F8P             |              |     |                            | —       | ●                     | ●     | ○     |   |
|                    | 2-wire                                     |                  |                 | —               |              |     |                            | F9B     | ●                     | ●     | —     |   |
|                    | F8B                                        |                  |                 | —               |              |     |                            | ●       | ●                     | ○     |       |   |
|                    | 3-wire (NPN)                               |                  |                 | —               |              |     |                            | F9NW    | ●                     | ●     | ○     |   |
|                    | 3-wire (PNP)                               |                  |                 | —               |              |     |                            | F9PW    | ●                     | ●     | ○     |   |
|                    | 2-wire                                     | —                | F9BW            | ●               | ●            | ○   |                            |         |                       |       |       |   |
|                    | Diagnostic indication (2-color indication) |                  |                 |                 |              |     |                            |         |                       |       |       |   |

\* Lead wire length symbols: 0.5m ..... Nil (Example) F9N  
 3m ..... L (Example) F9NL  
 5m ..... Z (Example) F9NWZ

\* Auto switches marked "O" are produced upon receipt of order.



## Specifications

| Size/Type                       | 05                                                                                                                                      |                          | 1                                                                                                                                       |                          |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
|                                 | Basic type                                                                                                                              | With external stopper    | Basic type                                                                                                                              | With external stopper    |
| Fluid                           | Air (non-lube)                                                                                                                          |                          |                                                                                                                                         |                          |
| Max. operating pressure         | 0.7MPa                                                                                                                                  |                          |                                                                                                                                         |                          |
| Min. operating pressure         | 0.15MPa                                                                                                                                 |                          |                                                                                                                                         |                          |
| Ambient and fluid temperature   | 0° to 60°C (with no freezing)                                                                                                           |                          |                                                                                                                                         |                          |
| Rotation angle <sup>Note)</sup> | 90 <sup>+8°</sup> <sub>0</sub> , 100 <sup>+10°</sup> <sub>0</sub><br>180 <sup>+8°</sup> <sub>0</sub> , 190 <sup>+10°</sup> <sub>0</sub> | 90, 180                  | 90 <sup>+8°</sup> <sub>0</sub> , 100 <sup>+10°</sup> <sub>0</sub><br>180 <sup>+8°</sup> <sub>0</sub> , 190 <sup>+10°</sup> <sub>0</sub> | 90, 180                  |
| Angle adjustment range          | —                                                                                                                                       | ±5° at each rotation end | —                                                                                                                                       | ±5° at each rotation end |
| Cylinder bore size              | ø6                                                                                                                                      |                          | ø8                                                                                                                                      |                          |
| Port size                       | M3 x 0.5                                                                                                                                |                          |                                                                                                                                         |                          |

Note) If optimum accuracy of the rotation angle is required, select an actuator with external stopper.

## Allowable Kinetic Energy and Rotation Time Adjustment Range

| Size/Type |                       |        | Allowable kinetic energy (mJ) | Rotation time adjustment range for stable operation (s/90°) |
|-----------|-----------------------|--------|-------------------------------|-------------------------------------------------------------|
| 05        | Basic type            | CRJB05 | 0.25                          | 0.1 to 0.5                                                  |
|           | With external stopper | CRJU05 | 1.0                           |                                                             |
| 1         | Basic type            | CRJB 1 | 0.40                          |                                                             |
|           | With external stopper | CRJU 1 | 2.0                           |                                                             |

## Weights

| Type/Size             |    | Model      | Weight (g) <sup>Note)</sup> |
|-----------------------|----|------------|-----------------------------|
| Basic type            | 05 | CRJB05-90  | 32                          |
|                       |    | CRJB05-100 |                             |
|                       |    | CRJB05-180 | 39                          |
|                       |    | CRJB05-190 |                             |
|                       | 1  | CRJB 1-90  | 54                          |
|                       |    | CRJB 1-100 |                             |
|                       |    | CRJB 1-180 | 67                          |
|                       |    | CRJB 1-190 |                             |
| With external stopper | 05 | CRJU05-90  | 47                          |
|                       |    | CRJU05-180 | 53                          |
|                       | 1  | CRJU 1-90  | 70                          |
|                       |    | CRJU 1-180 | 81                          |

Note) Above values do not include auto switch weights.