# EC-RR6□W

Dust/ Splash-proof | Coupled Motor | Body width 63 mm | 24v Stepper motor

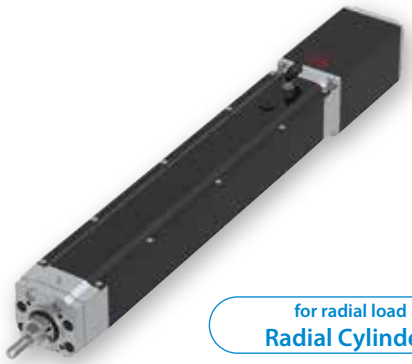
## ■ Model Specification Items

EC — RR6 [ ] W — [ ] — [ ] — [ ]

| Series | Type | Lead | | Specification | | Stroke | | Cable Length | | Options |
|---|---|---|---|---|---|---|---|---|---|---|
| EC | RR6 | S | 20mm | W | Dust/Splash-proof | 65 | 65mm | 0 | With terminal block type connector | Refer to Options below. |
| | | H | 12mm | | | ~ | ~ | 1 | 1m | |
| | | M | 6mm | | | 315 | 315mm (per 50mm) | ~ | ~ | |
| | | L | 3mm | | | | | 8 | 8m | |

CE RoHS

Horizontal | Vertical | Side | Ceiling



for radial load
**Radial Cylinder®**

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but when energy-saving is activated, the specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) The radial cylinder is equipped with a guide. Refer to P111 for details of the radial load applied to the rod.
(3) The horizontal payload assumes the use of an external guide.
(4) When performing a push-motion operation, please refer to the "Correlation diagram between pushing force and current limit value." push force is only a guide.
(5) Depending on the ambient operating temperature, duty control is necessary. Please refer to P115 for cautions.
(6) The interface box is not treated for dust- and splash-proof. Please use it where there is no splash of water.
(7) Special attention needs to be paid to the mounting orientation. Please refer to P33 for details.

## Stroke

| Stroke (mm) | EC-RR6□W | Stroke (mm) | EC-RR6□W |
|---|---|---|---|
| **65** | ○ | **215** | ○ |
| **115** | ○ | **265** | ○ |
| **165** | ○ | **315** | ○ |

## Cable Length

| Cable code | Cable length |
|---|---|
| **0** | No cable (with connector) |
| **1 ~ 3** | 1 ~ 3m |
| **4 ~ 5** | 4 ~ 5m |
| **6 ~ 10** | 6 ~ 10m |

(Note) Please select the actuator cable and power-I/O cable so that their total length is 10m or less.
(Note) Robot cable.

## Option

| Name | Option code | Reference page |
|---|---|---|
| Actuator cable length 5m | **AC5** | See P.101 |
| Actuator cable length 2m (Fluororubber cover specification) (Note 1) | **ACF2** | See P.101 |
| Actuator cable length 5m (Fluororubber cover specification) (Note 1) | **ACF5** | See P.101 |
| Brake | **B** | See P.101 |
| Tip adaptor (flange) | **FFA** | See P.101 |
| Flange (front) | **FL** | See P.102 |
| Foot bracket | **FT** | See P.103 |
| Specified grease applied specification | **G5** | See P.105 |
| Tip adapter (female screw) | **NFA** | See P.106 |
| Non-motor end specification | **NM** | See P.108 |
| PNP specification | **PN** | See P.108 |
| Fluororubber seal specification (Note 1) | **SLF** | See P.109 |
| Split motor and controller power supply specification | **TMD2** | See P.109 |
| Battery-less absolute encoder specification | **WA** | See P.109 |
| Wireless communication specification | **WL** | See P.109 |
| Wireless axis-operation specification | **WL2** | See P.109 |

(Note 1) When selecting the change of the actuator cable length (fluororubber cover specification) (ACF2/ACF5), a fluororubber seal specification (SLF) is also supplied. Therefore, either one is selectable. Therefore, either one is selectable.

## Main specifications

| Item | | | Description | | | |
|---|---|---|---|---|---|---|
| Lead | | Ball screw lead (mm) | 20 | 12 | 6 | 3 |
| Horizontal | Payload | Max. payload (kg) (energy-saving disabled) | 6 | 25 | 40 | 60 |
| | | Max. payload (kg) (energy-saving enabled) | 6 | 25 | 40 | 40 |
| | Speed/ Acceleration/ Deceleration | Max. speed (mm/s) | 800 | 700 | 450 | 225 |
| | | Min. speed (mm/s) | 25 | 15 | 8 | 4 |
| | | Rated acceleration/deceleration (G) | 0.3 | 0.3 | 0.3 | 0.3 |
| | | Max. acceleration/deceleration (G) | 1 | 1 | 1 | 1 |
| Vertical | Payload | Max. payload (kg) (energy-saving disabled) | 1.5 | 4 | 10 | 12.5 |
| | | Max. payload (kg) (energy-saving enabled) | 1 | 4 | 10 | 12.5 |
| | Speed/ Acceleration/ Deceleration | Max. speed (mm/s) | 800 | 700 | 450 | 225 |
| | | Min. speed (mm/s) | 25 | 15 | 8 | 4 |
| | | Rated acceleration/deceleration (G) | 0.3 | 0.3 | 0.3 | 0.3 |
| | | Max. acceleration/deceleration (G) | 0.5 | 0.5 | 0.5 | 0.5 |
| Push force | | Max. thrust force when pushing (N)* | 67 | 112 | 224 | 449 |
| | | Max. speed when pushing (mm/s) | 20 | 20 | 20 | 20 |
| Brake | | Brake specification | Non-excitation actuating solenoid brake | | | |
| | | Brake holding force (kgf) | 1.5 | 4 | 10 | 12.5 |
| Stroke | | Min. stroke (mm) | 65 | 65 | 65 | 65 |
| | | Max. stroke (mm) | 315 | 315 | 315 | 315 |
| | | Stroke pitch (mm) | 50 | 50 | 50 | 50 |

| Item | | Description |
|---|---|---|
| Driving system | | Ball screw φ10mm, Rolling C10 |
| Positioning repeatability | | ±0.05mm |
| Lost motion | | - |
| Linear guide | | Linear motion infinite circulating type |
| Main material | Rod | Φ25mm, material: aluminum hard-alumite treated |
| | Frame | Material: Aluminum, Black alumite treated |
| | Dust seal | Rubber (NBR) |
| | Actuator cable | Polyvinyl chloride (PVC) |
| Rod rotational accuracy (Note 2) | | 0 degree |
| Ambient operation temperature/humidity | | 0 to 40°C, RH 85% or less (Non-condensing) |
| Degree of protection | | IP67 |
| Vibration & shock resistance | | 4.9m/s² 100Hz or less |
| Overseas standards | | CE marking, RoHS |
| Motor type | | Stepper motor |
| Encoder type | | Incremental / battery-less absolute |
| Number of encoder pulses | | 800 pulse/rev. |

(Note 2) Displacement angle in the rod rotational direction when no load is applied.

* Speed limitation applies to push motion. See the manual or contact IAI.

## Table of Payload by Speed/Acceleration

■ **Energy-saving disabled** Unit for payload is kg. Operations are not possible in the blank cells.

**Lead 20**

| Orientation | Horizontal | | | | Vertical | |
|---|---|---|---|---|---|---|
| Speed (mm/s) | Acceleration (G) | | | | | |
| | 0.3 | 0.5 | 0.7 | 1 | 0.3 | 0.5 |
| 0 | 6 | 6 | 5 | 5 | 1.5 | 1.5 |
| 160 | 6 | 6 | 5 | 5 | 1.5 | 1.5 |
| 320 | 6 | 6 | 5 | 3 | 1.5 | 1.5 |
| 480 | 6 | 6 | 5 | 3 | 1.5 | 1.5 |
| 640 | 6 | 4 | 3 | 2 | 1.5 | 1.5 |
| 800 | 4 | 3 | | | 1 | 1 |

**Lead 12**

| Orientation | Horizontal | | | | Vertical | |
|---|---|---|---|---|---|---|
| Speed (mm/s) | Acceleration (G) | | | | | |
| | 0.3 | 0.5 | 0.7 | 1 | 0.3 | 0.5 |
| 0 | 25 | 18 | 16 | 12 | 4 | 4 |
| 100 | 25 | 18 | 16 | 12 | 4 | 4 |
| 200 | 25 | 18 | 16 | 10 | 4 | 4 |
| 400 | 20 | 14 | 10 | 6 | 4 | 4 |
| 500 | 15 | 8 | 6 | 4 | 3.5 | 3 |
| 700 | 6 | 2 | | | 2 | 1 |

**Lead 6**

| Orientation | Horizontal | | | | Vertical | |
|---|---|---|---|---|---|---|
| Speed (mm/s) | Acceleration (G) | | | | | |
| | 0.3 | 0.5 | 0.7 | 1 | 0.3 | 0.5 |
| 0 | 40 | 35 | 30 | 25 | 10 | 10 |
| 50 | 40 | 35 | 30 | 25 | 10 | 10 |
| 100 | 40 | 35 | 30 | 25 | 10 | 10 |
| 200 | 40 | 30 | 25 | 20 | 10 | 10 |
| 250 | 40 | 27.5 | 22.5 | 18 | 9 | 8 |
| 350 | 30 | 14 | 12 | 10 | 5 | 5 |
| 400 | 18 | 10 | 6 | 5 | 3 | 3 |
| 450 | 8 | 3 | | | 2 | 1 |

**Lead 3**

| Orientation | Horizontal | | | | Vertical | |
|---|---|---|---|---|---|---|
| Speed (mm/s) | Acceleration (G) | | | | | |
| | 0.3 | 0.5 | 0.7 | 1 | 0.3 | 0.5 |
| 0 | 60 | 50 | 45 | 40 | 12.5 | 12.5 |
| 50 | 60 | 50 | 45 | 40 | 12.5 | 12.5 |
| 100 | 60 | 50 | 45 | 40 | 12.5 | 12.5 |
| 125 | 60 | 50 | 40 | 30 | 10 | 10 |
| 175 | 40 | 35 | 25 | 20 | 6 | 5 |
| 200 | 35 | 30 | 20 | 14 | 5 | 4.5 |
| 225 | 16 | 16 | 10 | 6 | 5 | 4 |

## ■ Energy-saving enabled Unit for payload is kg.

**Lead 20**

| Orientation | Horizontal | | Vertical |
|---|---|---|---|
| Speed (mm/s) | Acceleration (G) | | |
| | 0.3 | 0.7 | 0.3 |
| 0 | 6 | 5 | 1 |
| 160 | 6 | 5 | 1 |
| 320 | 6 | 5 | 1 |
| 480 | 4 | 3 | 1 |
| 640 | 3 | 1 | 0.5 |

**Lead 12**

| Orientation | Horizontal | | Vertical |
|---|---|---|---|
| Speed (mm/s) | Acceleration (G) | | |
| | 0.3 | 0.7 | 0.3 |
| 0 | 25 | 10 | 4 |
| 100 | 25 | 10 | 4 |
| 200 | 25 | 10 | 4 |
| 300 | 20 | 8 | 3 |
| 400 | 10 | 5 | 2 |
| 500 | 5 | 2 | 1 |

**Lead 6**

| Orientation | Horizontal | | Vertical |
|---|---|---|---|
| Speed (mm/s) | Acceleration (G) | | |
| | 0.3 | 0.7 | 0.3 |
| 0 | 40 | 20 | 10 |
| 50 | 40 | 20 | 10 |
| 100 | 40 | 20 | 10 |
| 150 | 40 | 20 | 8 |
| 200 | 35 | 18 | 5 |
| 250 | 10 | 6 | 3 |

**Lead 3**

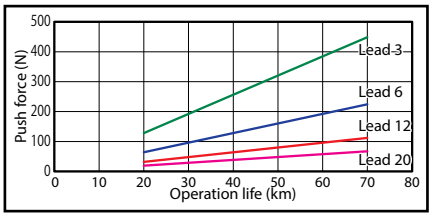
| Orientation | Horizontal | | Vertical |
|---|---|---|---|
| Speed (mm/s) | Acceleration (G) | | |
| | 0.3 | 0.7 | 0.3 |
| 0 | 40 | 25 | 12.5 |
| 50 | 40 | 25 | 12.5 |
| 75 | 40 | 25 | 12 |
| 100 | 40 | 25 | 9 |
| 125 | 40 | 25 | 5 |

## Stroke and Max. Speed

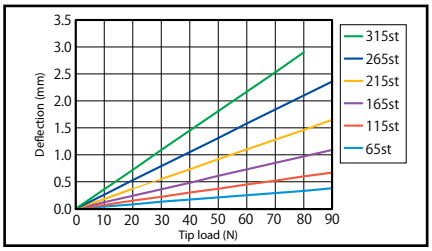
| Lead (mm) | Energy-saving | 65-215 (every 50mm) | 265 (mm) | 315 (mm) |
|---|---|---|---|---|
| 20 | Disabled | 800 | | |
| | Enabled | 640 | | |
| 12 | Disabled | 700 | 660 | 480 |
| | Enabled | 500 | | 480 |
| 6 | Disabled | 450 | 325 | 235 |
| | Enabled | 250 | | 235 |
| 3 | Disabled | 225 | 160 | 115 |
| | Enabled | 125 | | 115 |

(Unit is mm/s)

## Correlation between push force and current limit value




## Rod deflection

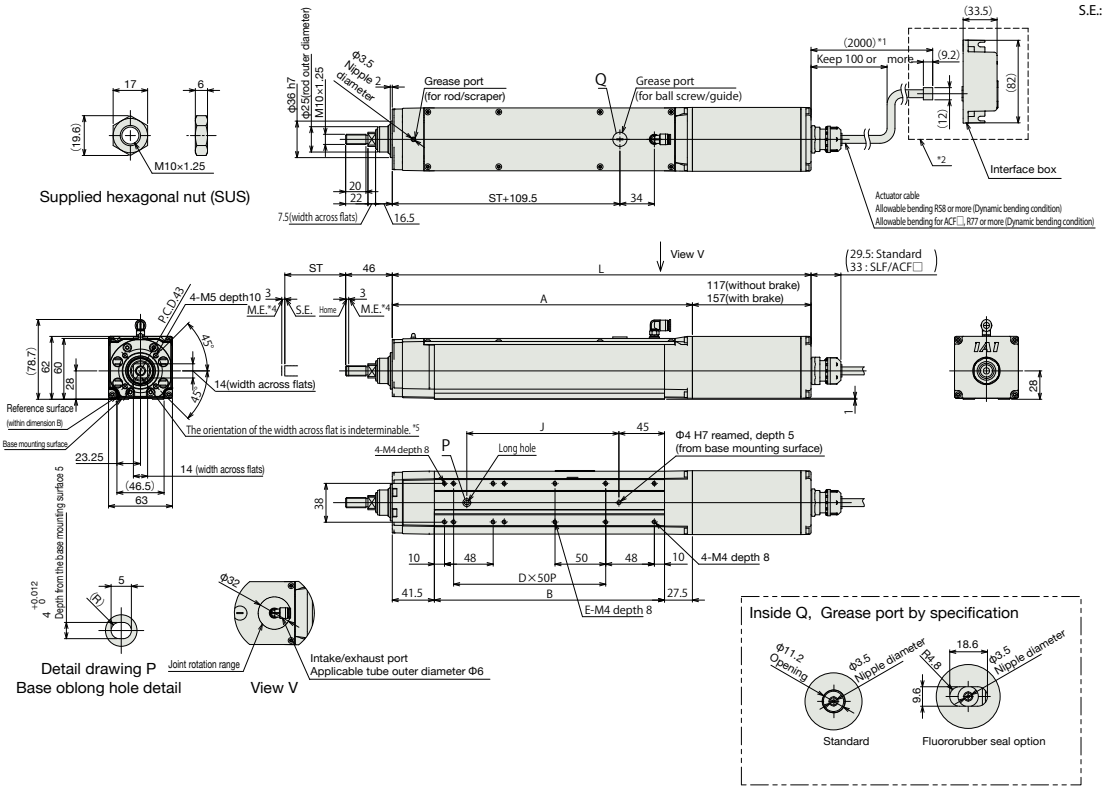



## Dimensions

*1 A pigtail length of 5m is selectable as an option.
*2 The connecting part of the interface box shown inside the broken line is not dust- and splash-proof treated.
*3 Please select the actuator cable and power-I/O cable so that their total length is 10m or less.
*4 When the rod is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
*5 The direction of width across flats various depending on the product. This flat cannot be used for reference plane.

CAD drawings can be downloaded from our website.
www.intelligentactuator.com
2D CAD 3D CAD

ST: Stroke
M.E.: Mechanical end
S.E.: Stroke end




## ■ Dimensions by stroke

| Stroke | | 65 | 115 | 165 | 215 | 265 | 315 |
|---|---|---|---|---|---|---|---|
| L | Without brake | 363 | 413 | 463 | 513 | 563 | 613 |
| | With brake | 403 | 453 | 503 | 553 | 603 | 653 |
| A | | 246 | 296 | 346 | 396 | 446 | 496 |
| B | | 177 | 227 | 277 | 327 | 377 | 427 |
| D | | 2 | 3 | 4 | 5 | 6 | 7 |
| E | | 4 | 6 | 8 | 10 | 12 | 14 |
| J | | 100 | 150 | 200 | 250 | 300 | 350 |

## ■ Weight by Stroke

| Stroke | | 65 | 115 | 165 | 215 | 265 | 315 |
|---|---|---|---|---|---|---|---|
| Weight (kg) | Without brake | 2.4 | 2.7 | 3.1 | 3.4 | 3.7 | 4.1 |
| | With brake | 2.7 | 3 | 3.3 | 3.7 | 4 | 4.3 |

## Applicable controller

(Note) The EC series is equipped with a built-in controller. Please refer to P117 for details.