



# Controller-Integrated

## ERC2



**ERC2**  
*series*

|             |                     |                     |                     |                      |           |
|-------------|---------------------|---------------------|---------------------|----------------------|-----------|
| Slider type | Straight motor type | 58mm wide ERC2-SA6C | <b>3</b>            |                      |           |
|             |                     | 68mm wide ERC2-SA7C | <b>5</b>            |                      |           |
|             | Rod type            | Standard type       | 58mm wide ERC2-RA6C | <b>7</b>             |           |
|             |                     |                     | 68mm wide ERC2-RA7C | <b>9</b>             |           |
|             |                     | Guide-equipped      | Single guide type   | 58mm wide ERC2-RGS6C | <b>11</b> |
|             |                     |                     |                     | 68mm wide ERC2-RGS7C | <b>13</b> |
|             |                     |                     | Double guide type   | 58mm wide ERC2-RGD6C | <b>15</b> |
|             |                     |                     |                     | 68mm wide ERC2-RGD7C | <b>17</b> |

Controller-Integrated  
Slider Type  
Rod Type  
Table Arm/Flat  
Gripper/Rotary Type  
Cleanroom  
Splash-resistant  
Controller

**C** Coupling

**D** Built-in (Direct)

**R** Reversed-mounted

Pulse Motor  
**20 P**

Pulse Motor  
**28 P**

Pulse Motor  
**35 P**

Pulse Motor  
**42 P**

Pulse Motor  
**56 P**

Pulse Motor  
**86 P**

Servo Motor  
**10 W**

Servo Motor  
**20 W**

Servo Motor  
**30 W**

Servo Motor  
**60 W**

Servo Motor  
**100 W**

Servo Motor  
**150 W**

Servo Motor  
**750 W**

# ERC2-SA6C

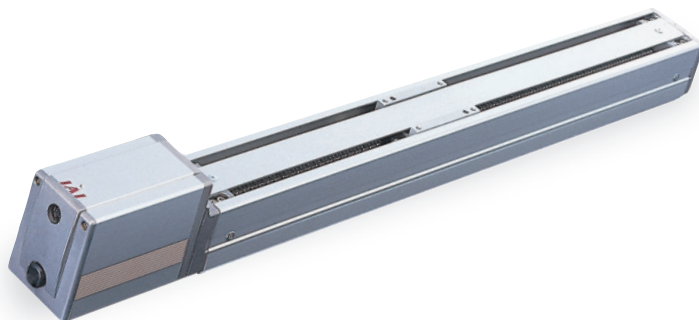
Controller Integrated, Slider Type, Actuator Dimensions 58mm, Pulse Motor, Straight Type

Model Description **ERC2** — **SA6C** — **I** — **PM** — [ ] — [ ] — [ ] — [ ] — [ ]

Series — Type — Encoder type — Motor type — Lead — Stroke — I/O Type — Cable length — Option

I: Incremental specification      PM: Pulse motor      12: 12mm      50:50mm      NP: PIO (NPN) type      N: None      P: 1m      B: Brake  
 6: 6mm      ~      600:600mm      S: 3m      M: 5m      NM: Reversed-home Specification  
 3: 3mm      (set in 50-mm steps)      PN: PIO (PNP) type      XX [ ]: Length designation      W [ ] [ ]: Cable with connectors      R [ ] [ ]: Robot cable  
 SE: SIO type      RW [ ] [ ]: Robot cable with connectors

See preceding section for model descriptions.

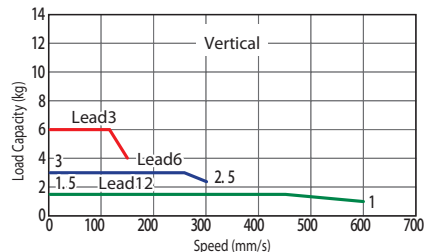
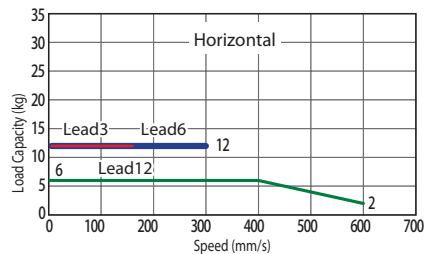


Technical Reference P.451

- POINT** Notes on selection
- As the stroke length increases, the maximum speed decreases due to hazardous ball screw RPMs. Confirm the desirable maximum speed in the Actuator Specification Table below.
  - Since the ERC2 Series uses a pulse motor, the payload decreases at high speeds. Confirm the payload at the desired speed in the speed vs. payload graph at right.
  - The payload is the value when operated at 0.3G acceleration (0.2G acceleration in vertical operation with 3 lead).
- The above values are maximum acceleration.

### Speed vs. Payload Graph

A characteristic of the ERC2 Series pulse motor is that the payload decreases as the speed increases. Use the table below to confirm that there is sufficient speed at the desired payload.



### Actuator Specification Table

#### Leads and Payloads

(Note 1) Please note that the maximum payload decreases as the speed increases.

| Model                     | Lead (mm) | Maximum payload (Note 1) |               | Stroke (mm)            |
|---------------------------|-----------|--------------------------|---------------|------------------------|
|                           |           | Horizontal (kg)          | Vertical (kg) |                        |
| ERC2-SA6C-I-PM-12-①-②-③-④ | 12        | Up to 6                  | Up to 1.5     | 50 to 600 (every 50mm) |
| ERC2-SA6C-I-PM-6-①-②-③-④  | 6         | 12                       | Up to 3       |                        |
| ERC2-SA6C-I-PM-3-①-②-③-④  | 3         | 12                       | Up to 6       |                        |

Legend ① Stroke ② I/O Type ③ Cable Length ④ Options

#### Stroke and Maximum Speed

| Stroke / Lead | 50 to 550 (every 50mm) | 600 (mm) |
|---------------|------------------------|----------|
|               | 12                     | 600      |
| 6             | 300                    | 255      |
| 3             | 150                    | 125      |

(Unit = mm/s)

#### ① Price by Stroke and ② I/O Type

| ① Stroke (mm) | Type code SA6C |    |
|---------------|----------------|----|
|               | ② By I/O Type  |    |
|               | NP/PN          | SE |
| 50            | —              | —  |
| 100           | —              | —  |
| 150           | —              | —  |
| 200           | —              | —  |
| 250           | —              | —  |
| 300           | —              | —  |
| 350           | —              | —  |
| 400           | —              | —  |
| 450           | —              | —  |
| 500           | —              | —  |
| 550           | —              | —  |
| 600           | —              | —  |

#### ③ Cable Length Price List

| Type           | Cable symbol           | Standard price        |
|----------------|------------------------|-----------------------|
| Standard type  | P (1m)                 | —                     |
|                | S (3m)                 | —                     |
|                | M (5m)                 | —                     |
| Special length | X06 (6m) — X10 (10m)   | —                     |
|                | W01 (1m) — W03 (3m)    | —                     |
| Connectors     | W04 (4m) — W05 (5m)    | —                     |
|                | W06 (6m) — W10 (10m)   | —                     |
|                | R01 (1m) — R03 (3m)    | —                     |
| Robot cable    | R04 (4m) — R05 (5m)    | —                     |
|                | R06 (6m) — R10 (10m)   | —                     |
|                | RW01 (1m) — RW03 (3m)  | —                     |
| Connectors     | RW04 (4m) — RW05 (5m)  | —                     |
|                | RW06 (6m) — RW10 (10m) | —                     |
|                | Robot cable            | RW01 (1m) — RW03 (3m) |

See P364 for maintenance cables.

#### ④ Option Price List

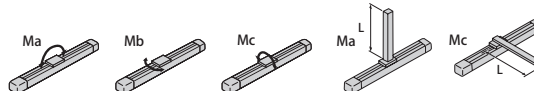
| Title                       | Option code | See page | Standard price |
|-----------------------------|-------------|----------|----------------|
| Brake                       | B           | P437     | —              |
| Reversed-home specification | NM          | P442     | No charge      |

#### Actuator Specification

| Item                                    | Description  |
|---|--|
| Drive System                            | Ball screw φ10mm rolled C10                              |
| Positioning Repeatability               | ±0.05mm  |
| Backlash                                | 0.1mm or less  |
| Allowable load moment                   | Ma: 8.9N·m Mb: 12.7N·m Mc: 18.6N·m                       |
| Overhang load length                    | Ma direction 150mm or less Mb-Mc direction 150mm or less |
| Ambient operating temperature, humidity | 0 to 40°C, 85% RH or less (non-condensing)               |

Direction of allowable load moment

Overhang load length



Dimensional Drawings

CAD drawings can be downloaded from the website.

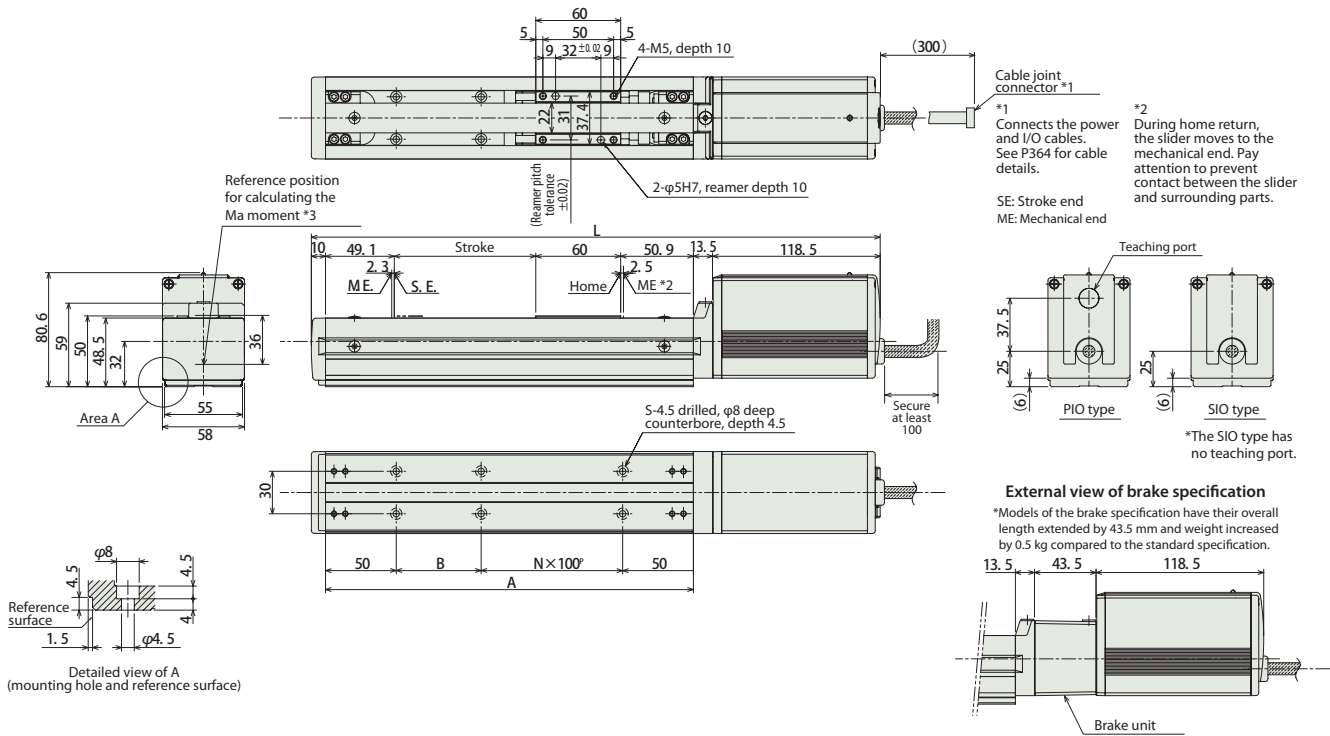
www.intelligentactuator.com



\* With the reversed-home specification, the dimension on the motor side (distance from the ME to the home) and that on the counter-motor side are reversed

Information on special orders

P.454



■Dimensions and Weight by Stroke

| Stroke      | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L           | 352 | 402 | 452 | 502 | 552 | 602 | 652 | 702 | 752 | 802 | 852 | 902 |
| A           | 210 | 260 | 310 | 360 | 410 | 460 | 510 | 560 | 610 | 660 | 710 | 760 |
| B           | 10  | 60  | 10  | 60  | 10  | 60  | 10  | 60  | 10  | 60  | 10  | 60  |
| N           | 1   | 1   | 2   | 2   | 3   | 3   | 4   | 4   | 5   | 5   | 6   | 6   |
| S           | 6   | 6   | 8   | 8   | 10  | 10  | 12  | 12  | 14  | 14  | 16  | 16  |
| Weight (kg) | 1.9 | 2.0 | 2.1 | 2.3 | 2.4 | 2.6 | 2.7 | 2.8 | 3.0 | 3.1 | 3.3 | 3.4 |

I/O Type (Actuator with Integrated Controller)

I/O Type

The integrated controller in the ERC2 Series can be selected from the following 3 types based on the type of external input and output (I/O). Select the type according to your application

| Title                         | External View | Model                     | Features  | Maximum number of positioning points | Input power | Power-supply capacity | Standard price     | See page |
|-------------------------------|---------------|---------------------------|---|--------------------------------------|-------------|-----------------------|--------------------|----------|
| PIO Type (NPN Specifications) |               | ERC2-SA6C-I-PM-□-□-NP-□-□ | Simple control type with up to 16-point positioning   | 16                                   | DC24V       | Maximum 2A            | (See page at left) | P355     |
| PIO Type (PNP Specifications) |               | ERC2-SA6C-I-PM-□-□-PN-□-□ | This type is compatible with the PNP specification I/O commonly used overseas. This is the PNP specification for the I/O type | 16                                   |             |                       |                    |          |
| SIO Type                      |               | ERC2-SA6C-I-PM-□-□-SE-□-□ | Field Network Connection Serial Type (Gateway unit used)  | 64                                   |             |                       |                    |          |

- Controller-Integrated
- Slider Type
- Rod Type
- Table Arm/Flat
- Gripper/Rotary Type
- Cleanroom
- Splash-resistant
- Controller
- Coupling
- Built-in (Direct)
- Reversed-mounted
- Pulse Motor 20P
- Pulse Motor 28P
- Pulse Motor 35P
- Pulse Motor 42P
- Pulse Motor 56P
- Pulse Motor 86P
- Servo Motor 10W
- Servo Motor 20W
- Servo Motor 30W
- Servo Motor 60W
- Servo Motor 100W
- Servo Motor 150W
- Servo Motor 750W

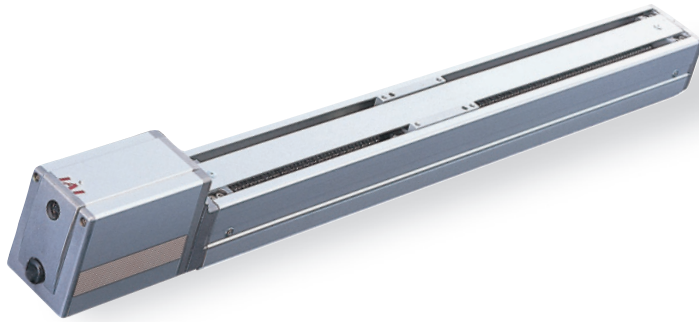
# ERC2-SA7C

Controller-Integrated, Slider Type, Actuator Diameter 68mm, Pulse Motor, Straight Type

Model Description **ERC2 - SA7C - I - PM**

|        |      |                              |                 |                              |   |  |                           |   |
|--------|------|------------------------------|-----------------|------------------------------|---|--|---------------------------|---|
| Series | Type | Encoder type                 | Motor type      | Lead                         | Stroke  | I/O Type   | Cable length              | Option  |
|        |      | I: Incremental specification | PM: Pulse motor | 16: 16mm<br>8: 8mm<br>4: 4mm | 50:50mm<br>~<br>600:600mm<br>(set in 50-mm steps) | NP: PLO (NPN) type<br>PN: PLO (PNP) type<br>SE: SIO type | N: None<br>S: 3m<br>M: 5m | P: 1m<br>M: 5m<br>B: Brake<br>NM: Reversed-home Specification |

See preceding section model descriptions.

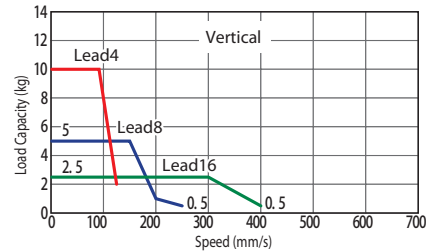
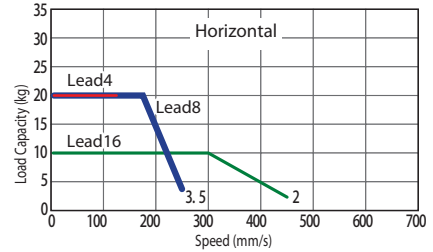


Technical Reference P.451

- POINT**  
Notes on selection
- (1) As the stroke length increases, the maximum speed decreases due to hazardous ball screw RPMs. Confirm the desirable maximum speed in the Actuator Specification Table below.
  - (2) Since the ERC2 Series uses a pulse motor, the payload decreases at high speeds. Confirm the payload at the desired speed in the speed vs. payload graph at right.
  - (3) The payload is the value when operated at 0.3G acceleration (0.2G acceleration in vertical operation with 4 lead).
- The above values are maximum acceleration.

### Speed vs. Payload Graph

A characteristic of the ERC2 Series pulse motor is that the payload decreases as the speed increases. Use the table below to confirm that there is sufficient speed at the desired payload.



### Actuator Specification Table

#### Leads and Payloads

(Note 1) Please note that the maximum payload decreases as the speed increases.

| Model                     | Lead (mm) | Maximum payload (Note 1) |               | Stroke (mm)               |
|---------------------------|-----------|--------------------------|---------------|---------------------------|
|                           |           | Horizontal (kg)          | Vertical (kg) |                           |
| ERC2-SA7C-I-PM-16-①-②-③-④ | 16        | Up to 10                 | Up to 2.5     | 50 to 600<br>(every 50mm) |
| ERC2-SA7C-I-PM-8-①-②-③-④  | 8         | Up to 20                 | Up to 5       |                           |
| ERC2-SA7C-I-PM-4-①-②-③-④  | 4         | 20                       | Up to 10      |                           |

Legend ① Stroke ② I/O Type ③ Cable Length ④ Options

#### Stroke and Maximum Speed

| Stroke / Lead | 50 to 600 (every 50mm) |
|---------------|------------------------|
| 16            | 450 <400>              |
| 8             | 250                    |
| 4             | 125                    |

< > indicate vertical service. (Unit = mm/s)

#### ① Price by Stroke and ② I/O Type

| ① Stroke (mm) | Type code     |    |
|---------------|---------------|----|
|               | SA7C          |    |
|               | ② By I/O Type |    |
|               | NP/PN         | SE |
| 50            | —             | —  |
| 100           | —             | —  |
| 150           | —             | —  |
| 200           | —             | —  |
| 250           | —             | —  |
| 300           | —             | —  |
| 350           | —             | —  |
| 400           | —             | —  |
| 450           | —             | —  |
| 500           | —             | —  |
| 550           | —             | —  |
| 600           | —             | —  |

#### ④ Option Price List

| Title                       | Option code | See page | Standard price |
|-----------------------------|-------------|----------|----------------|
| Brake                       | <b>B</b>    | P437     | —              |
| Reversed-home specification | <b>NM</b>   | P442     | No charge      |

#### ③ Cable Length Price List

| Type           | Cable symbol                         | Standard price |
|----------------|--------------------------------------|----------------|
| Standard type  | <b>P</b> (1m)                        | —              |
|                | <b>S</b> (3m)                        | —              |
|                | <b>M</b> (5m)                        | —              |
| Special length | <b>X06</b> (6m) - <b>X10</b> (10m)   | —              |
|                | <b>W01</b> (1m) - <b>W03</b> (3m)    | —              |
| Connectors     | <b>W04</b> (4m) - <b>W05</b> (5m)    | —              |
|                | <b>W06</b> (6m) - <b>W10</b> (10m)   | —              |
| Robot cable    | <b>R01</b> (1m) - <b>R03</b> (3m)    | —              |
|                | <b>R04</b> (4m) - <b>R05</b> (5m)    | —              |
|                | <b>R06</b> (6m) - <b>R10</b> (10m)   | —              |
| Connectors     | <b>RW01</b> (1m) - <b>RW03</b> (3m)  | —              |
|                | <b>RW04</b> (4m) - <b>RW05</b> (5m)  | —              |
| Robot cable    | <b>RW06</b> (6m) - <b>RW10</b> (10m) | —              |

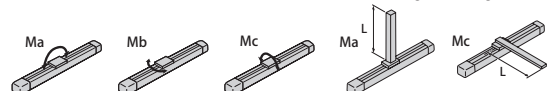
See P364 for maintenance cables.

#### Actuator Specification

| Item                                   | Description  |
|--|--|
| Drive System                           | Ball screw $\phi$ 12mm rolled C10                        |
| Positioning Repeatability              | $\pm$ 0.05mm   |
| Backlash                               | 0.1mm or less  |
| Allowable load moment                  | Ma: 13.8N·m Mb:19.7N·m Mc: 29.0N·m                       |
| Overhang load length                   | Ma direction 150mm or less Mb-Mc direction 150mm or less |
| Ambient operating temperature humidity | 0 to 40°C, 85% RH or less (non-condensing)               |

Direction of allowable load moment

Overhang load length



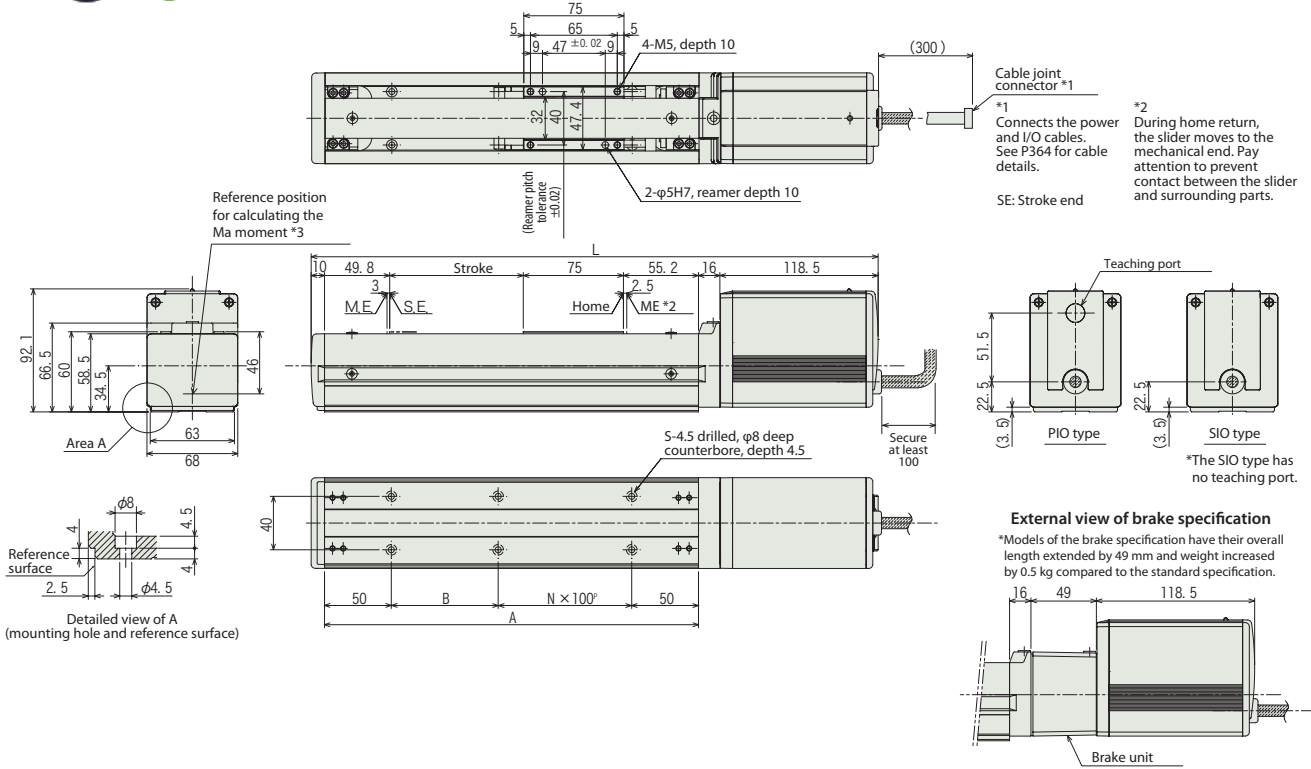
Dimensional Drawings

CAD drawings can be downloaded from the website. [www.intelligentactuator.com](http://www.intelligentactuator.com)



\* With the reversed-home specification, the dimension on the motor side (distance from the ME to the home) and that on the counter-motor side are reversed

Information on special orders P.454



■Dimensions and Weight by Stroke

| Stroke      | 50    | 100   | 150   | 200   | 250   | 300   | 350   | 400   | 450   | 500   | 550   | 600   |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L           | 374.5 | 424.5 | 474.5 | 524.5 | 574.5 | 624.5 | 674.5 | 724.5 | 774.5 | 824.5 | 874.5 | 924.5 |
| A           | 230   | 280   | 330   | 380   | 430   | 480   | 530   | 580   | 630   | 680   | 730   | 780   |
| B           | 30    | 80    | 30    | 80    | 30    | 80    | 30    | 80    | 30    | 80    | 30    | 80    |
| N           | 1     | 1     | 2     | 2     | 3     | 3     | 4     | 4     | 5     | 5     | 6     | 6     |
| S           | 6     | 6     | 8     | 8     | 10    | 10    | 12    | 12    | 14    | 14    | 16    | 16    |
| Weight (kg) | 3.1   | 3.2   | 3.4   | 3.6   | 3.7   | 3.9   | 4.0   | 4.2   | 4.3   | 4.5   | 4.6   | 4.8   |

I/O Type (Integrated Controller)

I/O Type

The integrated controller in the ERC2 Series can be selected from the following 3 types based on the type of external input and output (I/O). Select the type according to your application

| Title                         | External View | Model                     | Features  | Maximum number of positioning points | Input power | Power-supply capacity | Standard price     | See page |
|-------------------------------|---------------|---------------------------|---|--------------------------------------|-------------|-----------------------|--------------------|----------|
| PIO Type (NPN Specifications) |               | ERC2-SA7C-I-PM-□-□-NP-□-□ | Simple control type with up to 16-point positioning   | 16                                   | DC24V       | Maximum 2A            | (See page at left) | P355     |
| PIO Type (PNP Specifications) |               | ERC2-SA7C-I-PM-□-□-PN-□-□ | This type is compatible with the PNP specification I/O commonly used overseas. This is the PNP specification for the I/O type | 16                                   |             |                       |                    |          |
| SIO Type                      |               | ERC2-SA7C-I-PM-□-□-SE-□-□ | Field Network Connection Serial Type (Gateway unit used)  | 64                                   |             |                       |                    |          |

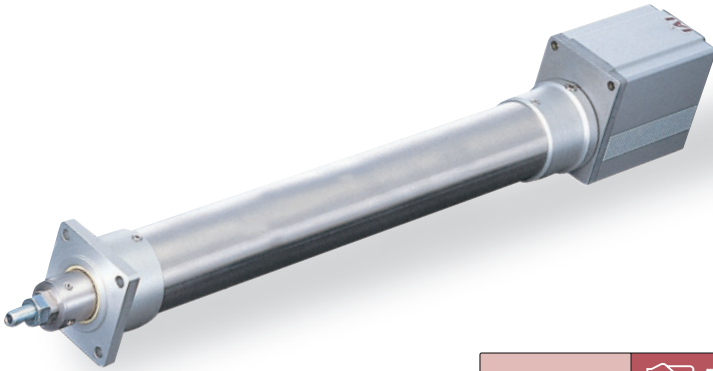
# ERC2-RA6C

Integrated Controller, Rod Type, Actuator Dimensions 58mm, Pulse Motor, Straight Type

Model Description **ERC2 - RA6C - I - PM**

|        |      |                              |                 |                              |  |  |   |   |
|--------|------|------------------------------|-----------------|------------------------------|--|--|---|---|
| Series | Type | Encoder type                 | Motor type      | Lead                         | Stroke   | I/O Type   | Cable length  | Option                                      |
|        |      | I: Incremental specification | PM: Pulse motor | 12: 12mm<br>6: 6mm<br>3: 3mm | 50:50mm<br>~<br>300:300mm (set in 50-mm steps) | NP: PIO (NPN) type<br>PN: PIO (PNP) type<br>SE: SIO type | N: None P: 1m M: 5m<br>X□□: Length designation<br>W□□: Cable with connectors<br>R□□: Robot cable<br>RW□□: Robot cable with connectors | B: Brake<br>NM: Reversed-home Specification |

See preceding section for model descriptions.

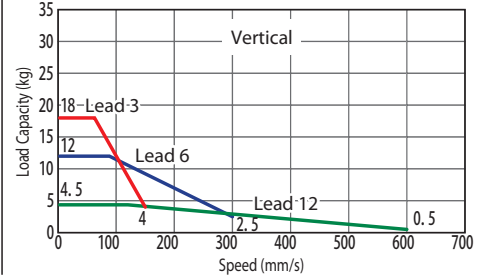
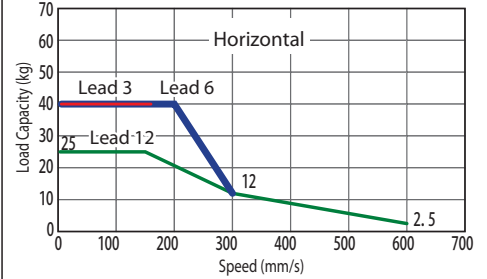


Technical Reference P.451

- POINT**  
Notes on selection
- (1) As the stroke length increases, the maximum speed decreases due to hazardous ball screw RPMs. Confirm the desirable maximum speed in the Actuator Specification Table below.
  - (2) Since the ERC2 Series uses a pulse motor, the payload decreases at high speeds. Confirm the payload at the desired speed in the speed vs. payload graph at right.
  - (3) The payload is the value when operated at 0.3G acceleration (0.2G acceleration in vertical operation with 3 lead). The above values are maximum acceleration.
  - (4) Horizontal payload is the value when external guides are used.

### Speed vs. Payload Graph

A characteristic of the ERC2 Series pulse motor is that the payload decreases as the speed increases. Use the table below to confirm that there is sufficient speed at the desired payload.



### Actuator Specification Table

#### Leads and Payloads

(Note 1) Please note that the maximum payload decreases as the speed increases.

#### Stroke and Maximum Speed

| Model                     | Lead (mm) | Maximum payload (Note 1) |               | Maximum pushing force (N) (Note 2) | Stroke (mm)            |
|---------------------------|-----------|--------------------------|---------------|------------------------------------|------------------------|
|                           |           | Horizontal (kg)          | Vertical (kg) |                                    |                        |
| ERC2-RA6C-I-PM-12-①-②-③-④ | 12        | Up to 25                 | Up to 4.5     | 78                                 | 50 to 300 (every 50mm) |
| ERC2-RA6C-I-PM-6-①-②-③-④  | 6         | Up to 40                 | Up to 12      | 157                                |                        |
| ERC2-RA6C-I-PM-3-①-②-③-④  | 3         | 40                       | Up to 18      | 304                                |                        |

| Stroke / Lead | 50 to 250 (every 50mm) | 300 (mm) |
|---------------|------------------------|----------|
|               | 12                     | 600      |
| 6             | 300                    | 250      |
| 3             | 150                    | 125      |

Legend ① Stroke ② I/O Type ③ Cable Length ④ Options

(Note 2) See pushing force graph on P488.

(Unit = mm/s)

#### ① Price by Stroke and ② I/O Type

| ① Stroke (mm) | Type code     |    |
|---------------|---------------|----|
|               | RA6C          |    |
|               | ② By I/O Type |    |
|               | NP/PN         | SE |
| 50            | —             | —  |
| 100           | —             | —  |
| 150           | —             | —  |
| 200           | —             | —  |
| 250           | —             | —  |
| 300           | —             | —  |

#### ③ Cable Length Price List

| Type                      | Cable symbol           | Standard price |
|---------------------------|------------------------|----------------|
| Standard type             | P (1m)                 | —              |
|                           | S (3m)                 | —              |
|                           | M (5m)                 | —              |
| Special length            | X06 (6m) - X10 (10m)   | —              |
|                           | W01 (1m) - W03 (3m)    | —              |
| Connectors                | W04 (4m) - W05 (5m)    | —              |
|                           | W06 (6m) - W10 (10m)   | —              |
|                           | R01 (1m) - R03 (3m)    | —              |
| Robot cable               | R04 (4m) - R05 (5m)    | —              |
|                           | R06 (6m) - R10 (10m)   | —              |
|                           | RW01 (1m) - RW03 (3m)  | —              |
| Connectors<br>Robot cable | RW04 (4m) - RW05 (5m)  | —              |
|                           | RW06 (6m) - RW10 (10m) | —              |

See P364 for maintenance cables.

#### ④ Option Price List

| Title                       | Option code | See page | Standard price |
|-----------------------------|-------------|----------|----------------|
| Brake                       | B           | P437     | —              |
| Foot bracket                | FT          | P440     | —              |
| Reversed-home specification | NM          | P442     | —              |

#### Actuator Specification

| Item                                    | Description                                |
|---|--|
| Drive System                            | Ball screw φ 10mm rolled C10               |
| Positioning Repeatability               | ±0.05mm                                    |
| Backlash                                | 0.1mm or less                              |
| Rod Diameter                            | φ 22mm special SUS pipe                    |
| Non-rotary Rod Precision                | ±1.5 degree                                |
| Ambient operating temperature, humidity | 0 to 40°C, 85% RH or less (non-condensing) |

Dimensional Drawings

CAD drawings can be downloaded from the website.

www.intelligentactuator.com

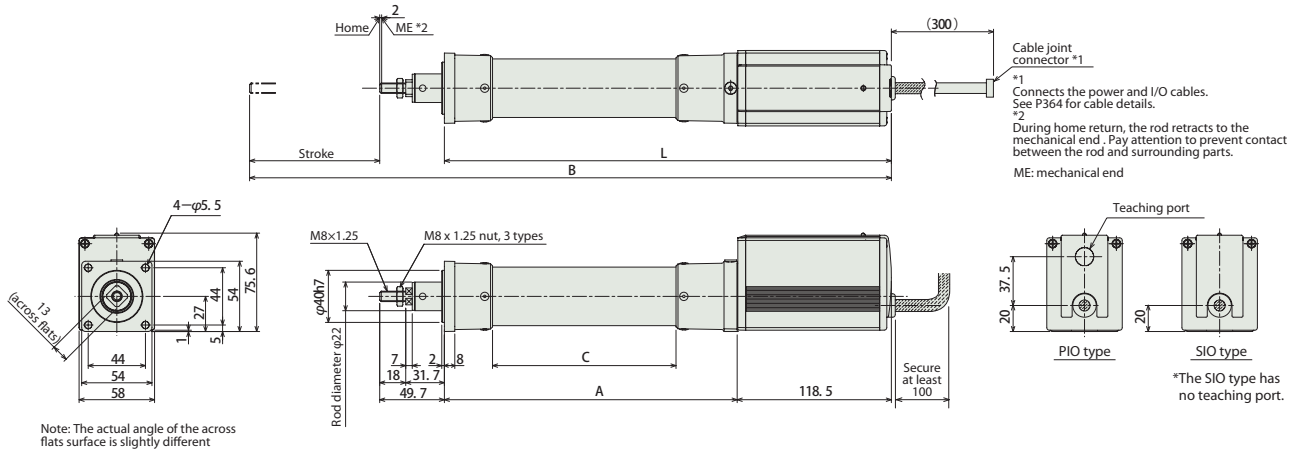


Caution

Do not apply an external force on the rod in any direction other than the moving direction of the rod.  
If the rod receives an external force from the right-angle direction or rotating direction, the detent may be damaged.

Information on special orders

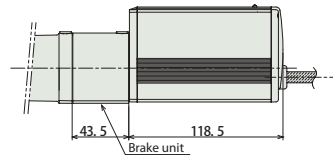
P.454



Note: The actual angle of the across flats surface is slightly different

External view of brake specification

\*Models of the brake specification have their overall length extended by 43.5 mm and weight increased by 0.5 kg compared to the standard specification.



Dimensions and Weight by Stroke

| Stroke      | 50    | 100   | 150   | 200   | 250   | 300   |
|-------------|-------|-------|-------|-------|-------|-------|
| L           | 293.5 | 343.5 | 393.5 | 443.5 | 493.5 | 543.5 |
| A           | 175   | 225   | 275   | 325   | 375   | 425   |
| B           | 393.2 | 493.2 | 593.2 | 693.2 | 793.2 | 893.2 |
| C           | 91    | 141   | 191   | 241   | 291   | 341   |
| Weight (kg) | 1.6   | 1.7   | 1.8   | 2.0   | 2.1   | 2.2   |

I/O Type (Integrated Controller)

I/O Type

The integrated controller in the ERC2 Series can be selected from the following 3 types based on the type of external input and output (I/O). Select the type according to your application

| Title                         | External View | Model                     | Features  | Maximum number of positioning points | Input power | Power-supply capacity | Standard price     | See page |
|-------------------------------|---------------|---------------------------|---|--------------------------------------|-------------|-----------------------|--------------------|----------|
| PIO Type (NPN Specifications) |               | ERC2-RA6C-I-PM-□-□-NP-□-□ | Simple control type with up to 16-point positioning   | 16                                   | DC24V       | Maximum 2A            | (See page at left) | P355     |
| PIO Type (PNP Specifications) |               | ERC2-RA6C-I-PM-□-□-PN-□-□ | This type is compatible with the PNP specification I/O commonly used overseas. This is the PNP specification for the I/O type | 16                                   |             |                       |                    |          |
| SIO Type                      |               | ERC2-RA6C-I-PM-□-□-SE-□-□ | Field Network Connection Serial Type (Gateway unit used)  | 64                                   |             |                       |                    |          |



# ERC2-RA7C

Integrated Controller, Rod Type, Actuator Dimensions 68mm, Pulse Motor, Straight Type

Model Description **ERC2 - RA7C - I - PM**

|        |      |                              |                 |                              |   |  |  |  |
|--------|------|------------------------------|-----------------|------------------------------|---|--|--|--|
| Series | Type | Encoder type                 | Motor type      | Lead                         | Stroke  | I/O Type   | Cable length   | Option   |
|        |      | I: Incremental specification | PM: Pulse motor | 16: 16mm<br>8: 8mm<br>4: 4mm | 50:50mm<br>~<br>300:300mm<br>(set in 50-mm steps) | NP: PIO (NPN) type<br>PN: PIO (PNP) type<br>SE: SIO type | N: None P: 1m<br>S: 3m M: 5m<br>X□□: Length designation<br>W□□: Cable with connectors<br>R□□: Robot cable<br>RW□□: Robot cable with connectors | B : Brake<br>FT : Foot Bracket<br>NM : Reversed-home Specification |

See preceding section for model descriptions.

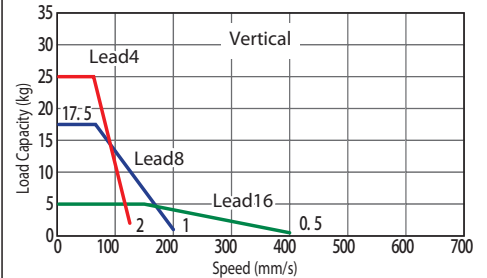
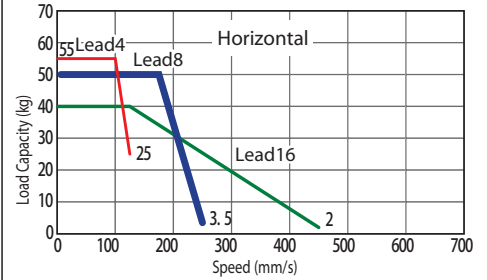


Technical Reference P.451

- POINT** Notes on selection
- As the stroke length increases, the maximum speed decreases due to hazardous ball screw RPMs. Confirm the desirable maximum speed in the Actuator Specification Table below.
  - Since the ERC2 Series uses a pulse motor, the payload decreases at high speeds. Confirm the payload at the desired speed in the speed vs. payload graph at right.
  - The payload is the value when operated at 0.3G acceleration (0.2G acceleration in vertical operation with 4 lead). The above values are maximum acceleration.
  - Horizontal payload is the value when external guides are used.

### Speed vs. Payload Graph

A characteristic of the ERC2 Series pulse motor is that the payload decreases as the speed increases. Use the table below to confirm that there is sufficient speed at the desired payload.



| Actuator Specification Table  |           |                          |                          |                                    |                        |
|---|-----------|--------------------------|--------------------------|------------------------------------|------------------------|
| (Note 1) Please note that the maximum payload decreases as the speed increases. |           |                          |                          |                                    |                        |
| Leads and Payloads  |           |                          | Stroke and Maximum Speed |                                    |                        |
| Model   | Lead (mm) | Maximum payload (Note 1) |                          | Maximum pushing force (N) (Note 2) | Stroke (mm)            |
|   |           | Horizontal (kg)          | Vertical (kg)            |                                    |                        |
| ERC2-RA7C-I-PM-16-①-②-③-④   | 16        | Up to 40                 | Up to 5                  | 220                                | 50 to 300 (every 50mm) |
| ERC2-RA7C-I-PM-8-①-②-③-④  | 8         | Up to 50                 | Up to 17.5               | 441                                |                        |
| ERC2-RA7C-I-PM-4-①-②-③-④  | 4         | Up to 55                 | Up to 25                 | 873                                |                        |

Legend ① Stroke ② I/O Type ③ Cable Length ④ Options (Note 2) See pushing force graph on P488. \* < > indicate vertical service. (Unit = mm/s)

### ① Price by Stroke and ② I/O Type

| ① Stroke (mm) | Type code     |    |
|---------------|---------------|----|
|               | RA7C          |    |
|               | ② By I/O Type |    |
|               | NP/PN         | SE |
| 50            | —             | —  |
| 100           | —             | —  |
| 150           | —             | —  |
| 200           | —             | —  |
| 250           | —             | —  |
| 300           | —             | —  |

### ③ Cable Length Price List

| Type                   | Cable symbol           | Standard price |
|------------------------|------------------------|----------------|
| Standard type          | P (1m)                 | —              |
|                        | S (3m)                 | —              |
|                        | M (5m)                 | —              |
| Special length         | X06 (6m) - X10 (10m)   | —              |
| Connectors             | W01 (1m) - W03 (3m)    | —              |
|                        | W04 (4m) - W05 (5m)    | —              |
|                        | W06 (6m) - W10 (10m)   | —              |
| Robot cable            | R01 (1m) - R03 (3m)    | —              |
|                        | R04 (4m) - R05 (5m)    | —              |
|                        | R06 (6m) - R10 (10m)   | —              |
| Connectors Robot cable | RW01 (1m) - RW03 (3m)  | —              |
|                        | RW04 (4m) - RW05 (5m)  | —              |
|                        | RW06 (6m) - RW10 (10m) | —              |

See P364 for maintenance cables.

### ④ Option Price List

| Title                       | Option code | See page | Standard price |
|-----------------------------|-------------|----------|----------------|
| Brake                       | B           | P437     | —              |
| Foot bracket                | FT          | P440     | —              |
| Reversed-home specification | NM          | P442     | No charge      |

### Actuator Specification

| Item                                    | Description                                |
|---|--|
| Drive System                            | Ball screw φ 12mm rolled C10               |
| Positioning Repeatability               | ±0.05mm                                    |
| Backlash                                | 0.1mm or less                              |
| Rod Diameter                            | φ 30mm special SUS type                    |
| Non-rotary Rod Precision                | ±1.5 degree                                |
| Ambient operating temperature, humidity | 0 to 40°C, 85% RH or less (non-condensing) |

Dimensional Drawings

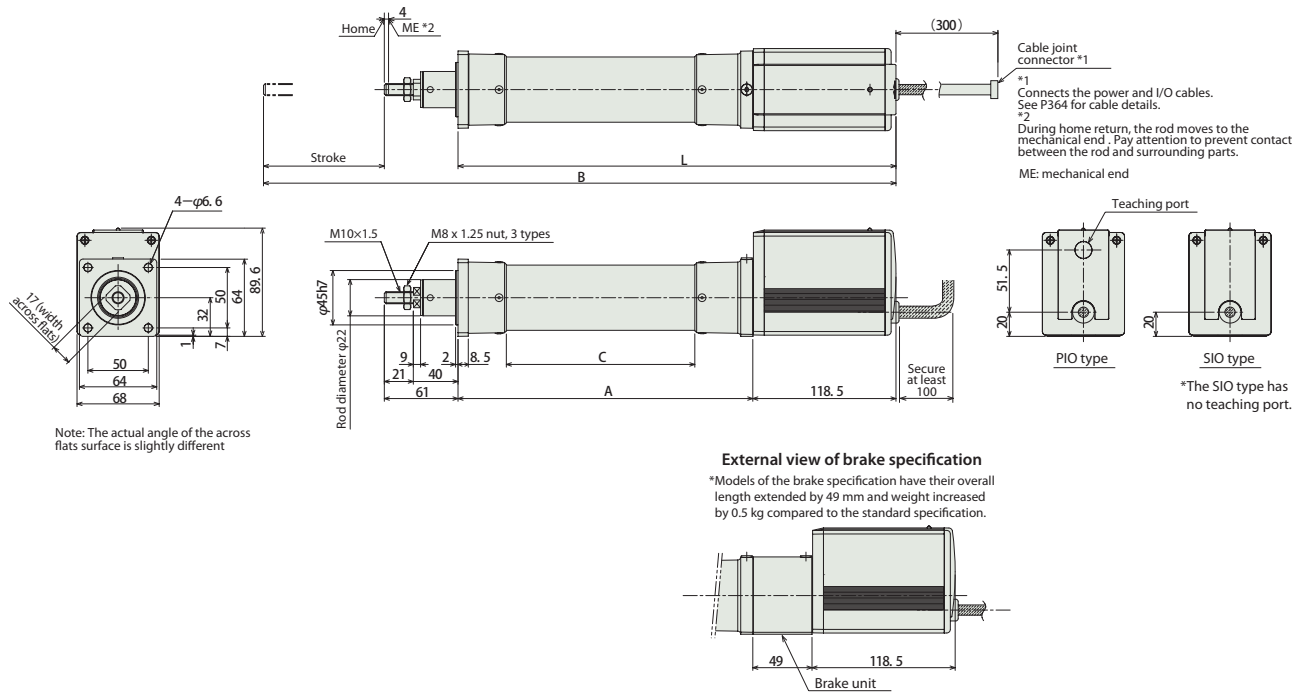
CAD drawings can be downloaded from the website. [www.intelligentactuator.com](http://www.intelligentactuator.com)



Caution

Do not apply external force on the rod in any direction other than the moving direction of the rod. If the rod receives external force from the right-angle direction or rotating direction, the detent may be damaged.

Information on special orders P.454



■ Dimensions and Weight by Stroke

| Stroke      | 50    | 100   | 150   | 200   | 250   | 300   |
|-------------|-------|-------|-------|-------|-------|-------|
| L           | 312.5 | 362.5 | 412.5 | 462.5 | 512.5 | 562.5 |
| A           | 194   | 244   | 294   | 344   | 394   | 444   |
| B           | 423.5 | 523.5 | 623.5 | 723.5 | 823.5 | 923.5 |
| C           | 106   | 156   | 206   | 256   | 306   | 356   |
| Weight (kg) | 2.7   | 2.9   | 3.0   | 3.2   | 3.3   | 3.5   |

I/O Type (Integrated Controller)

I/O Type

The integrated controller in the ERC2 Series can be selected from the following 3 types based on the type of external input and output (I/O). Select the type according to your application

| Title                         | External View | Model                     | Features  | Maximum number of positioning points | Input power | Power-supply capacity | Standard price     | See page |
|-------------------------------|---------------|---------------------------|---|--------------------------------------|-------------|-----------------------|--------------------|----------|
| PIO Type (NPN Specifications) |               | ERC2-RA7C-I-PM-□-□-NP-□-□ | Simple control type capable of positioning to a maximum of 16 points.   | 16                                   |             |                       |                    |          |
| PIO Type (PNP Specifications) |               | ERC2-RA7C-I-PM-□-□-PN-□-□ | This type is compatible with the PNP specification I/O commonly used overseas. This is the PNP specification for the I/O type | 16                                   | DC24V       | Maximum 2A            | (See page at left) | P355     |
| SIO Type                      |               | ERC2-RA7C-I-PM-□-□-SE-□-□ | Field Network Connection Serial Type (Gateway unit used)  | 64                                   |             |                       |                    |          |

Controller-Integrated  
Slider Type  
Rod Type  
Table Arm/Flat Type  
Gripper/Rotary Type  
Cleanroom  
Splash-resistant  
Controller  
Coupling  
Built-in (Direct)  
Reversed-mounted  
Pulse Motor 20P  
Pulse Motor 28P  
Pulse Motor 35P  
Pulse Motor 42P  
Pulse Motor 56P  
Pulse Motor 86P  
Servo Motor 10W  
Servo Motor 20W  
Servo Motor 30W  
Servo Motor 60W  
Servo Motor 100W  
Servo Motor 150W  
Servo Motor 750W



Dimensional Drawings

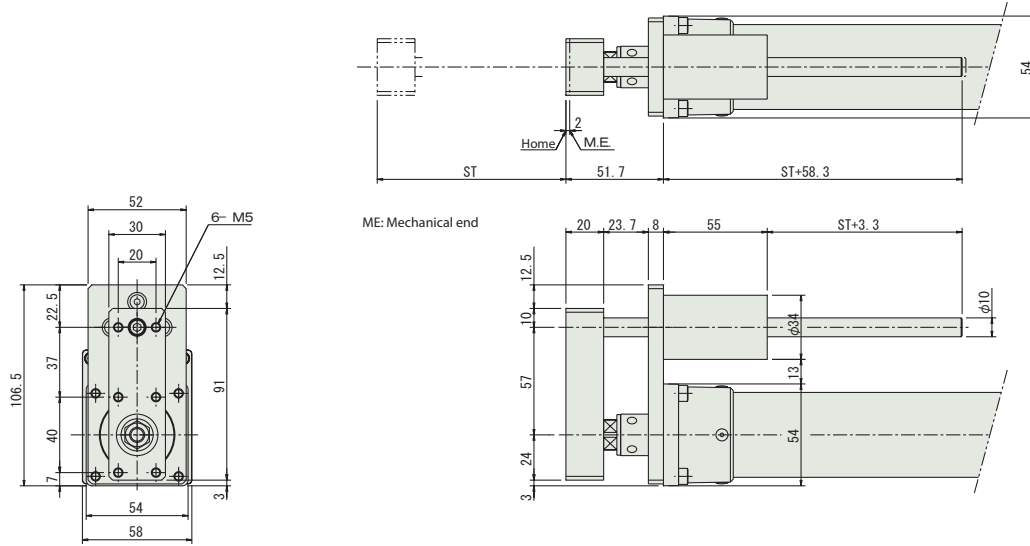
CAD drawings can be downloaded from the website.

www.intelligentactuator.com



Information on special orders

P.454



■ Dimensions and Weight by Stroke

| Stroke                       | 50  | 100 | 150 | 200 | 250 | 300 |
|------------------------------|-----|-----|-----|-----|-----|-----|
| Guide weight (kg)            | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 |
| Guide + actuator weight (kg) | 1.8 | 1.9 | 2.1 | 2.3 | 2.4 | 2.6 |

I/O Type (Integrated Controller)

I/O Type

The integrated controller in the ERC2 Series can be selected from the following 3 types based on the type of external input and output (I/O). Select the type according to your application

| Title                         | External View | Model                      | Features  | Maximum number of positioning points | Input power | Power-supply capacity | Standard price     | See page |
|-------------------------------|---------------|----------------------------|---|--------------------------------------|-------------|-----------------------|--------------------|----------|
| PIO Type (NPN Specifications) |               | ERC2-RGS6C-I-PM-□-□-NP-□-□ | Simple control type with up to 16-point positioning   | 16                                   | DC24V       | Maximum 2A            | (See page at left) | P355     |
| PIO Type (PNP Specifications) |               | ERC2-RGS6C-I-PM-□-□-PN-□-□ | This type is compatible with the PNP specification I/O commonly used overseas. This is the PNP specification for the I/O type | 16                                   |             |                       |                    |          |
| SIO Type                      |               | ERC2-RGS6C-I-PM-□-□-SE-□-□ | Field Network Connection Serial Type (Gateway unit used)  | 64                                   |             |                       |                    |          |

Controller-Integrated

Slider Type

Rod Type

Table Arm/Flat

Gripper/Rotary Type

Cleanroom

Splash-resistant

Controller

Coupling

Built-in (Direct)

Reversed-mounted

Pulse Motor 20 P

Pulse Motor 28 P

Pulse Motor 35 P

Pulse Motor 42 P

Pulse Motor 56 P

Pulse Motor 86 P

Servo Motor 10 w

Servo Motor 20 w

Servo Motor 30 w

Servo Motor 60 w

Servo Motor 100 w

Servo Motor 150 w

Servo Motor 750 w

# ERC2-RGS7C

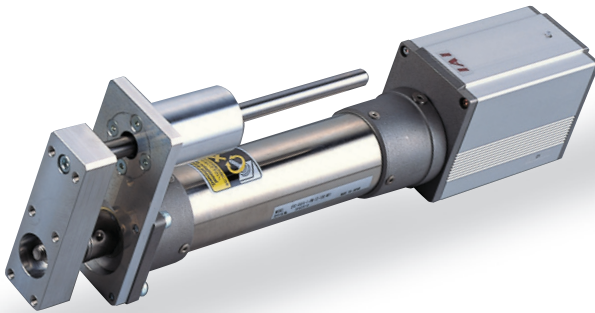
Integrated Controller, Rod Type, Actuator Diameter 68mm, Pulse Motor, Straight Type

Model Description **ERC2** — **RGS7C** — **I** — **PM** — [ ] — [ ] — [ ] — [ ] — [ ]

Series — Type — Encoder type — Motor type — Lead — Stroke — I/O Type — Cable length — Option

I: Incremental specification      PM: Pulse motor      16: 16mm      50:50mm      NP: PIO      N: None      P: 1m      B : Brake  
 8: 8mm      ~      (NPN) type      S: 3m      M: 5m      FT : Foot Bracket  
 4: 4mm      300:300mm (set in 50-mm steps)      PN: PIO      X□□: Length designation      W□□: Cable with connectors      R□□: Robot cable      RW□□: Robot cable with connectors

See preceding section for model descriptions.

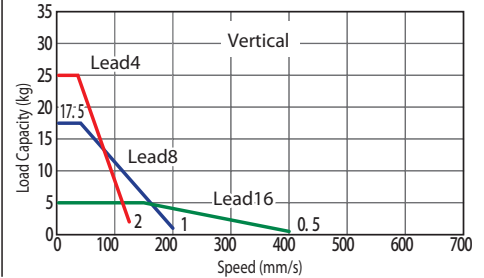
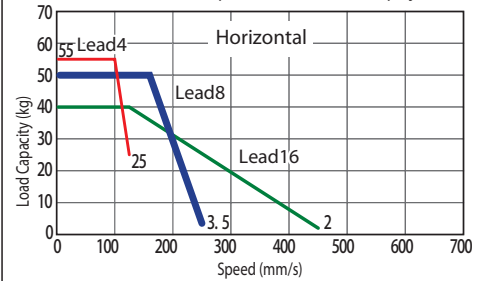


Technical Reference P.451

- POINT** Notes on selection
- (1) As the stroke length increases, the maximum speed decreases due to hazardous ball screw RPMs. Confirm the desirable maximum speed in the Actuator Specification Table below.
  - (2) Since the ERC2 Series uses a pulse motor, the payload decreases at high speeds. Confirm the payload at the desired speed in the speed vs. payload graph at right. In addition, use the value minus the guide weight (see page at right) as the payload.
  - (3) The payload is the value when operated at 0.3G acceleration (0.2G acceleration in vertical operation with 4 lead). The above values are maximum acceleration.
  - (4) Horizontal payload is the value when external guides are used.

### Speed vs. Payload Graph

A characteristic of the ERC2 Series pulse motor is that the payload decreases as the speed increases. Use the table below to confirm that there is sufficient speed at the desired payload.



### Actuator Specification Table

#### Leads and Payloads

(Note 1) Please note that the maximum payload decreases as the speed increases.

| Model                      | Lead (mm) | Maximum payload (Note 1) |               | Maximum pushing force (N) (Note 2) | Stroke (mm)            |
|----------------------------|-----------|--------------------------|---------------|------------------------------------|------------------------|
|                            |           | Horizontal (kg)          | Vertical (kg) |                                    |                        |
| ERC2-RGS7C-I-PM-16-①-②-③-④ | 16        | Up to 40                 | Up to 5       | 220                                | 50 to 300 (every 50mm) |
| ERC2-RGS7C-I-PM-8-①-②-③-④  | 8         | Up to 50                 | Up to 17.5    | 441                                |                        |
| ERC2-RGS7C-I-PM-4-①-②-③-④  | 4         | Up to 55                 | Up to 25      | 873                                |                        |

Legend ① Stroke ② I/O Type ③ Cable Length ④ Options

(Note 2) See pushing force graph on P488.

#### Stroke and Maximum Speed

| Stroke | 50 to 300 (every 50mm) |
|--------|------------------------|
| 16     | 450 <400>              |
| 8      | 250 <200>              |
| 4      | 125                    |

\* < > indicate vertical service. (Unit = mm/s)

#### ① Price by Stroke and ② I/O Type

| ① Stroke (mm) | Type code     |    |
|---------------|---------------|----|
|               | RGS7C         |    |
|               | ② By I/O Type |    |
|               | NP/PN         | SE |
| 50            | —             | —  |
| 100           | —             | —  |
| 150           | —             | —  |
| 200           | —             | —  |
| 250           | —             | —  |
| 300           | —             | —  |

#### ③ Cable Length Price List

| Type                      | Cable symbol           | Standard price |
|---------------------------|------------------------|----------------|
| Standard type             | P (1m)                 | —              |
|                           | S (3m)                 | —              |
|                           | M (5m)                 | —              |
| Special length            | X06 (6m) — X10 (10m)   | —              |
| Connectors                | W01 (1m) — W03 (3m)    | —              |
|                           | W04 (4m) — W05 (5m)    | —              |
|                           | W06 (6m) — W10 (10m)   | —              |
| Robot cable               | R01 (1m) — R03 (3m)    | —              |
|                           | R04 (4m) — R05 (5m)    | —              |
|                           | R06 (6m) — R10 (10m)   | —              |
| Connectors<br>Robot cable | RW01 (1m) — RW03 (3m)  | —              |
|                           | RW04 (4m) — RW05 (5m)  | —              |
|                           | RW06 (6m) — RW10 (10m) | —              |

See P364 for maintenance cables.

#### ④ Option Price List

| Title                       | Option code | See page | Standard price |
|-----------------------------|-------------|----------|----------------|
| Brake                       | B           | P437     | —              |
| Foot bracket                | FT          | P440     | —              |
| Reversed-home specification | NM          | P442     | No charge      |

#### Actuator Specification

| Item                                    | Description                                |
|---|--|
| Drive System                            | Ball screw $\phi$ 12mm rolled C10          |
| Positioning Repeatability               | $\pm$ 0.05mm                               |
| Backlash                                | 0.1mm or less                              |
| Rod Diameter                            | $\phi$ 30mm special SUS type               |
| Non-rotary Rod Precision                | $\pm$ 0.05 degrees                         |
| Ambient operating temperature, humidity | 0 to 40°C, 85% RH or less (non-condensing) |

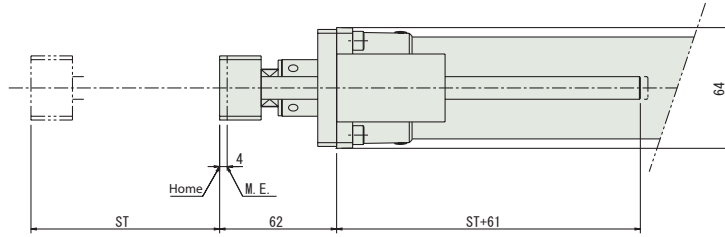
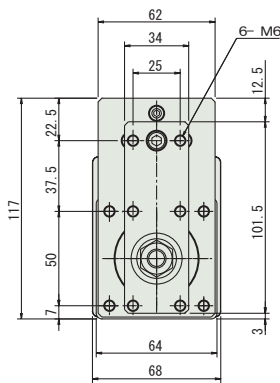
Dimensional Drawings

CAD drawings can be downloaded from the website. [www.intelligentactuator.com](http://www.intelligentactuator.com)

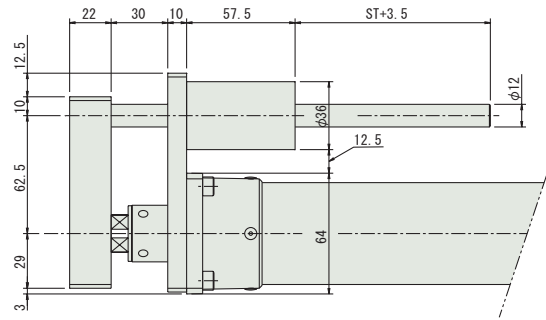
2D CAD

3D CAD

Information on special orders P.454



ME: Mechanical end



See actuator dimensions on P10.

■ Dimensions and Weight by Stroke

| Stroke                       | 50  | 100 | 150 | 200 | 250 | 300 |
|------------------------------|-----|-----|-----|-----|-----|-----|
| Guide weight (kg)            | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 |
| Guide + actuator weight (kg) | 3.0 | 3.2 | 3.4 | 3.6 | 3.8 | 4.0 |

I/O Type (Integrated Controller)

I/O Type

The integrated controller in the ERC2 Series can be selected from the following 3 types based on the type of external input and output (I/O). Select the type according to your application

| Title                         | External View | Model                      | Features  | Maximum number of positioning points | Input power | Power-supply capacity | Standard price     | See page |
|-------------------------------|---------------|----------------------------|---|--------------------------------------|-------------|-----------------------|--------------------|----------|
| PIO Type (NPN Specifications) |               | ERC2-RGS7C-I-PM-□-□-NP-□-□ | Simple control type with up to 16-point positioning   | 16                                   | DC24V       | Maximum 2A            | (See page at left) | P355     |
| PIO Type (PNP Specifications) |               | ERC2-RGS7C-I-PM-□-□-PN-□-□ | This type is compatible with the PNP specification I/O commonly used overseas. This is the PNP specification for the I/O type | 16                                   |             |                       |                    |          |
| SIO Type                      |               | ERC2-RGS7C-I-PM-□-□-SE-□-□ | Field Network Connection Serial Type (Gateway unit used)  | 64                                   |             |                       |                    |          |

- Control-Integrated
- Slider Type
- Rod Type
- Table Arm/Flat
- Gripper/Rotary Type
- Cleanroom
- Splash-resistant
- Controller
- Coupling
- Built-in (Direct)
- Reversed-mounted
- Pulse Motor 20P
- Pulse Motor 28P
- Pulse Motor 35P
- Pulse Motor 42P
- Pulse Motor 56P
- Pulse Motor 86P
- Servo Motor 10w
- Servo Motor 20w
- Servo Motor 30w
- Servo Motor 60w
- Servo Motor 100w
- Servo Motor 150w
- Servo Motor 750w

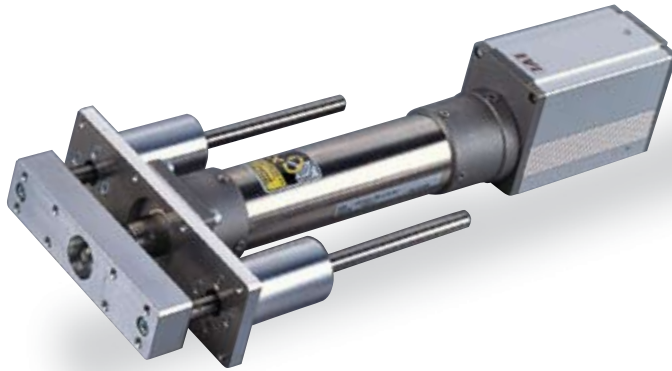
# ERC2-RGD6C

Integrated Controller, Double-guide Rod Type,  
Actuator Diameter 58mm, Pulse Motor, Straight Type

Model Description **ERC2 - RGD6C - I - PM**

|        |      |                              |                 |                              |  |  |  |  |
|--------|------|------------------------------|-----------------|------------------------------|--|--|--|--|
| Series | Type | Encoder type                 | Motor type      | Lead                         | Stroke   | I/O Type   | Cable length   | Option   |
|        |      | I: Incremental specification | PM: Pulse motor | 12: 12mm<br>6: 6mm<br>3: 3mm | 50:50mm<br>~<br>300:300mm (set in 50-mm steps) | NP: PIO (NPN) type<br>PN: PIO (PNP) type<br>SE: SIO type | N: None P: 1m<br>S: 3m M: 5m<br>X□□: Length designation<br>W□□: Cable with connectors<br>R□□: Robot cable<br>RW□□: Robot cable with connectors | B : Brake<br>FT : Foot Bracket<br>NM : Reversed-home Specification |

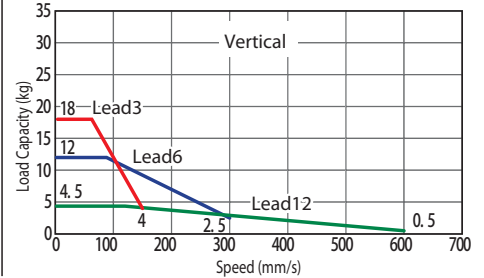
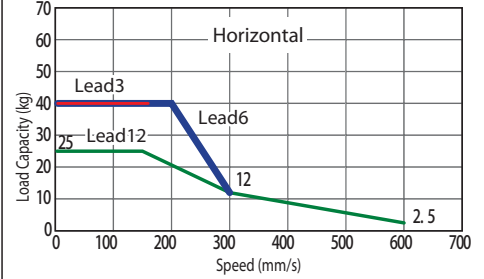
See preceding section for model descriptions.



Technical Reference P.451

- POINT** Notes on selection
- As the stroke length increases, the maximum speed decreases due to hazardous ball screw RPMs. Confirm the desirable maximum speed in the Actuator Specification Table below.
  - Since the ERC2 Series uses a pulse motor, the payload decreases at high speeds. Confirm the payload at the desired speed in the speed vs. payload graph at right. In addition, use the value minus the guide weight (see page at right) as the payload.
  - The payload is the value when operated at 0.3G acceleration (0.2G acceleration in vertical operation with 3 lead). The above values are maximum acceleration.
  - Horizontal payload is the value when external guides are used.

**Speed vs. Payload Graph**  
A characteristic of the ERC2 Series pulse motor is that the payload decreases as the speed increases. Use the table below to confirm that there is sufficient speed at the desired payload.



## Actuator Specification Table

### Leads and Payloads

(Note 1) Please note that the maximum payload decreases as the speed increases.

### Stroke and Maximum Speed

| Model                      | Lead (mm) | Maximum payload (Note 1) |               | Maximum pushing force (N) (Note 2) | Stroke (mm)            |
|----------------------------|-----------|--------------------------|---------------|------------------------------------|------------------------|
|                            |           | Horizontal (kg)          | Vertical (kg) |                                    |                        |
| ERC2-RGD6C-I-PM-12-①-②-③-④ | 12        | Up to 25                 | Up to 4.5     | 78                                 | 50 to 300 (every 50mm) |
| ERC2-RGD6C-I-PM-6-①-②-③-④  | 6         | Up to 40                 | Up to 12      | 157                                |                        |
| ERC2-RGD6C-I-PM-3-①-②-③-④  | 3         | 40                       | Up to 18      | 304                                |                        |

| Lead | Stroke                 |          |
|------|------------------------|----------|
|      | 50 to 250 (every 50mm) | 300 (mm) |
| 12   | 600                    | 500      |
| 6    | 300                    | 250      |
| 3    | 150                    | 125      |

Legend ① Stroke ② I/O Type ③ Cable Length ④ Options

(Note 2) See pushing force graph on P488.

(Unit = mm/s)

### ① Price by Stroke and ② I/O Type

| ① Stroke (mm) | Type code     |    |
|---------------|---------------|----|
|               | RGD6C         |    |
|               | ② By I/O Type |    |
|               | NP/PN         | SE |
| 50            | —             | —  |
| 100           | —             | —  |
| 150           | —             | —  |
| 200           | —             | —  |
| 250           | —             | —  |
| 300           | —             | —  |

### ③ Cable Length Price List

| Type                      | Cable symbol           | Standard price |
|---------------------------|------------------------|----------------|
| Standard type             | P (1m)                 | —              |
|                           | S (3m)                 | —              |
|                           | M (5m)                 | —              |
| Special length            | X06 (6m) - X10 (10m)   | —              |
|                           | W01 (1m) - W03 (3m)    | —              |
| Connectors                | W04 (4m) - W05 (5m)    | —              |
|                           | W06 (6m) - W10 (10m)   | —              |
|                           | R01 (1m) - R03 (3m)    | —              |
| Robot cable               | R04 (4m) - R05 (5m)    | —              |
|                           | R06 (6m) - R10 (10m)   | —              |
|                           | RW01 (1m) - RW03 (3m)  | —              |
| Connectors<br>Robot cable | RW04 (4m) - RW05 (5m)  | —              |
|                           | RW06 (6m) - RW10 (10m) | —              |
|                           |                        |                |

See P364 for maintenance cables.

### ④ Option Price List

| Title                       | Option code | See page | Standard price |
|-----------------------------|-------------|----------|----------------|
| Brake                       | B           | P437     | —              |
| Foot bracket                | FT          | P440     | —              |
| Reversed-home specification | NM          | P442     | No charge      |

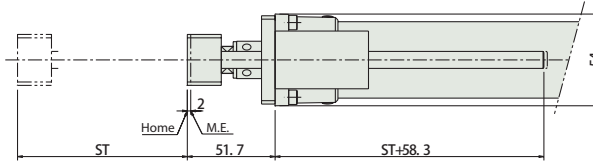
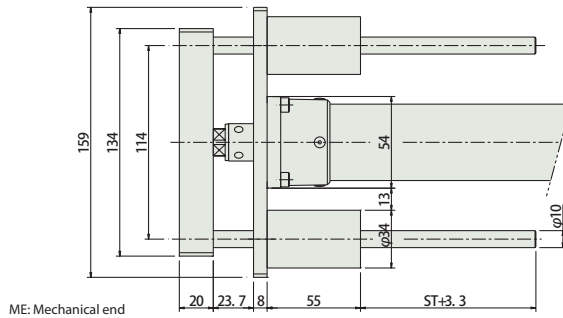
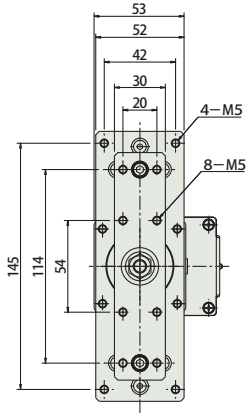
### Actuator Specification

| Item                                    | Description                                |
|---|--|
| Drive System                            | Ball screw φ 10mm rolled C10               |
| Positioning Repeatability               | ±0.05mm                                    |
| Backlash                                | 0.1mm or less                              |
| Rod Diameter                            | φ 22mm special SUS pipe                    |
| Non-rotary Rod Precision                | ±0.05 degrees                              |
| Ambient operating temperature, humidity | 0 to 40°C, 85% RH or less (non-condensing) |

Dimensional Drawings

CAD drawings can be downloaded from the website. [www.intelligentactuator.com](http://www.intelligentactuator.com)

Information on special orders P.454



See P8 for actuator dimensions.

■ Dimensions and Weight by Stroke

| Stroke                       | 50  | 100 | 150 | 200 | 250 | 300 |
|------------------------------|-----|-----|-----|-----|-----|-----|
| Guide weight (kg)            | 0.4 | 0.4 | 0.5 | 0.6 | 0.6 | 0.7 |
| Guide + actuator weight (kg) | 2.0 | 2.1 | 2.3 | 2.6 | 2.7 | 2.9 |

I/O Type (Integrated Controller)

I/O Type

The integrated controller in the ERC2 Series can be selected from the following 3 types based on the type of external input and output (I/O). Select the type according to your application

| Title                         | External View | Model                      | Features  | Maximum number of positioning points | Input power | Power-supply capacity | Standard price     | See page |
|-------------------------------|---------------|----------------------------|---|--------------------------------------|-------------|-----------------------|--------------------|----------|
| PIO Type (NPN Specifications) |               | ERC2-RGD6C-I-PM-□-□-NP-□-□ | Simple control type capable of positioning to a maximum of 16 points  | 16                                   | DC24V       | Maximum 2A            | (See page at left) | P355     |
| PIO Type (PNP Specifications) |               | ERC2-RGD6C-I-PM-□-□-PN-□-□ | This type is compatible with the PNP specification I/O commonly used overseas. This is the PNP specification for the I/O type | 16                                   |             |                       |                    |          |
| SIO Type                      |               | ERC2-RGD6C-I-PM-□-□-SE-□-□ | Field Network Connection Serial Type (Gateway unit used)  | 64                                   |             |                       |                    |          |

Controller-Integrated  
Slider Type  
Rod Type  
Table Arm/Flat Type  
Gripper/Rotary Type  
Cleanroom  
Splash-resistant  
Controller  
Coupling  
Built-in (Direct)  
Reversed-mounted  
Pulse Motor 20 P  
Pulse Motor 28 P  
Pulse Motor 35 P  
Pulse Motor 42 P  
Pulse Motor 56 P  
Pulse Motor 86 P  
Servo Motor 10 w  
Servo Motor 20 w  
Servo Motor 30 w  
Servo Motor 60 w  
Servo Motor 100 w  
Servo Motor 150 w  
Servo Motor 750 w

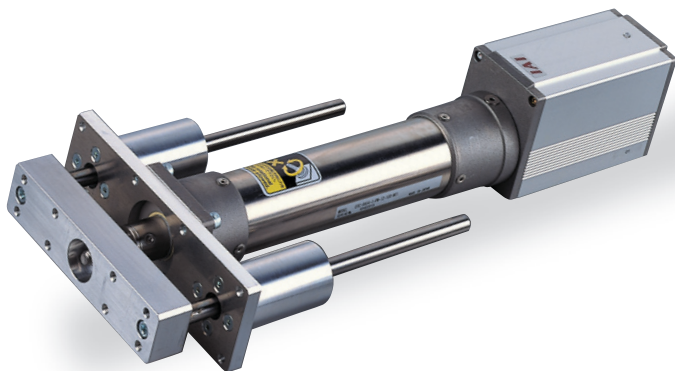


# ERC2-RGD7C

Integrated Controller, Rod Type, Actuator Dimensions 68 mm, Pulse Motor, Straight Type

|                   |             |                              |                 |                              |   |  |  |   |   |           |          |
|-------------------|-------------|------------------------------|-----------------|------------------------------|---|--|--|---|---|-----------|----------|
| Model Description | <b>ERC2</b> | <b>-RGD7C</b>                | <b>I</b>        | <b>-PM</b>                   | <b>16</b>   | <b>50:300</b>  | <b>NP</b>  | <b>3</b>  | <b>None</b>   | <b>1m</b> | <b>B</b> |
| Series            | Type        | Encoder type                 | Motor type      | Lead                         | Stroke  | I/O Type   | Cable length   | Option  |   |           |          |
|                   |             | I: Incremental specification | PM: Pulse motor | 16: 16mm<br>8: 8mm<br>4: 4mm | 50:50mm<br>~<br>300:300mm<br>(set in 50-mm steps) | NP: PIO (NPN) type<br>PN: PIO (PNP) type<br>SE: SIO type | N: None<br>S: 3m<br>X□: Length designation<br>W□: Cable with connectors<br>R□: Robot cable<br>RW□: Robot cable with connectors | P: 1m<br>M: 5m<br>Length designation<br>Cable with connectors<br>Robot cable<br>Robot cable with connectors | B: Brake<br>FT: Foot Bracket<br>NM: Reversed-home Specification |           |          |

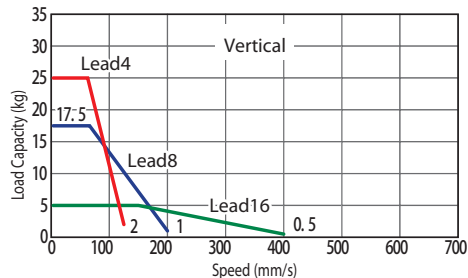
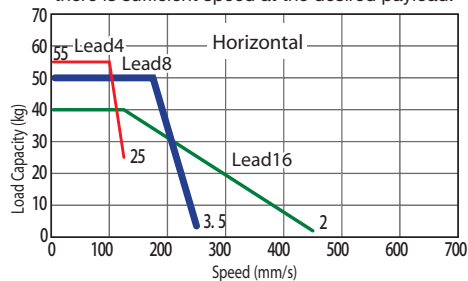
See preceding section for model descriptions.



Technical Reference P.451

- POINT**  
Notes on selection
- As the stroke length increases, the maximum speed decreases due to hazardous ball screw RPMs. Confirm the desirable maximum speed in the Actuator Specification Table below.
  - Since the ERC2 Series uses a pulse motor, the payload decreases at high speeds. Confirm the payload at the desired speed in the speed vs. payload graph at right. In addition, use the value minus the guide weight (see page at right) as the payload.
  - The payload is the value when operated at 0.3G acceleration (0.2G acceleration in vertical operation with 4 lead). The above values are maximum acceleration.
  - Horizontal payload is the value when external guides are used.

**Speed vs. Payload Graph**  
A characteristic of the ERC2 Series pulse motor is that the payload decreases as the speed increases. Use the table below to confirm that there is sufficient speed at the desired payload.



## Actuator Specification Table

### Leads and Payloads

(Note 1) Please note that the maximum payload decreases as the speed increases.

| Model                      | Lead (mm) | Maximum payload (Note 1) |               | Maximum pushing force (N) (Note 2) | Stroke (mm)            |
|----------------------------|-----------|--------------------------|---------------|------------------------------------|------------------------|
|                            |           | Horizontal (kg)          | Vertical (kg) |                                    |                        |
| ERC2-RGD7C-I-PM-16-①-②-③-④ | 16        | Up to 40                 | Up to 5       | 220                                | 50 to 300 (every 50mm) |
| ERC2-RGD7C-I-PM-8-①-②-③-④  | 8         | Up to 50                 | Up to 17.5    | 441                                |                        |
| ERC2-RGD7C-I-PM-4-①-②-③-④  | 4         | Up to 55                 | Up to 25      | 873                                |                        |

Legend ① Stroke ② I/O Type ③ Cable Length ④ Options

(Note 2) See pushing force graph on P488.

### Stroke and Maximum Speed

| Lead | Stroke (mm)            |                        |
|------|------------------------|------------------------|
|      | 50 to 300 (every 50mm) | 50 to 300 (every 50mm) |
| 16   | 450                    | <400>                  |
| 8    | 250                    | <200>                  |
| 4    | 125                    |                        |

\* < > indicate vertical service.

(Unit = mm/s)

### ① Price by Stroke and ② I/O Type

| ① Stroke (mm) | Type code     |    |
|---------------|---------------|----|
|               | RGD7C         |    |
|               | ② By I/O Type |    |
|               | NP/PN         | SE |
| 50            | —             | —  |
| 100           | —             | —  |
| 150           | —             | —  |
| 200           | —             | —  |
| 250           | —             | —  |
| 300           | —             | —  |

### ③ Cable Length Price List

| Type                      | Cable symbol           | Standard price |
|---------------------------|------------------------|----------------|
| Standard type             | P (1m)                 | —              |
|                           | S (3m)                 | —              |
|                           | M (5m)                 | —              |
| Special length            | X06 (6m) - X10 (10m)   | —              |
|                           | W01 (1m) - W03 (3m)    | —              |
| Connectors                | W04 (4m) - W05 (5m)    | —              |
|                           | W06 (6m) - W10 (10m)   | —              |
|                           | R01 (1m) - R03 (3m)    | —              |
| Robot cable               | R04 (4m) - R05 (5m)    | —              |
|                           | R06 (6m) - R10 (10m)   | —              |
|                           | RW01 (1m) - RW03 (3m)  | —              |
| Connectors<br>Robot cable | RW04 (4m) - RW05 (5m)  | —              |
|                           | RW06 (6m) - RW10 (10m) | —              |

See P364 for maintenance cables.

### ④ Option Price List

| Title                       | Option code | See page | Standard price |
|-----------------------------|-------------|----------|----------------|
| Brake                       | B           | P437     | —              |
| Foot bracket                | FT          | P440     | —              |
| Reversed-home specification | NM          | P442     | No charge      |

### Actuator Specification

| Item                                    | Description                                |
|---|--|
| Drive System                            | Ball screw $\phi$ 12mm rolled C10          |
| Positioning Repeatability               | $\pm$ 0.05mm                               |
| Backlash                                | 0.1mm or less                              |
| Rod Diameter                            | $\phi$ 30mm special SUS type               |
| Non-rotary Rod Precision                | $\pm$ 0.05 degrees                         |
| Ambient operating temperature, humidity | 0 to 40°C, 85% RH or less (non-condensing) |

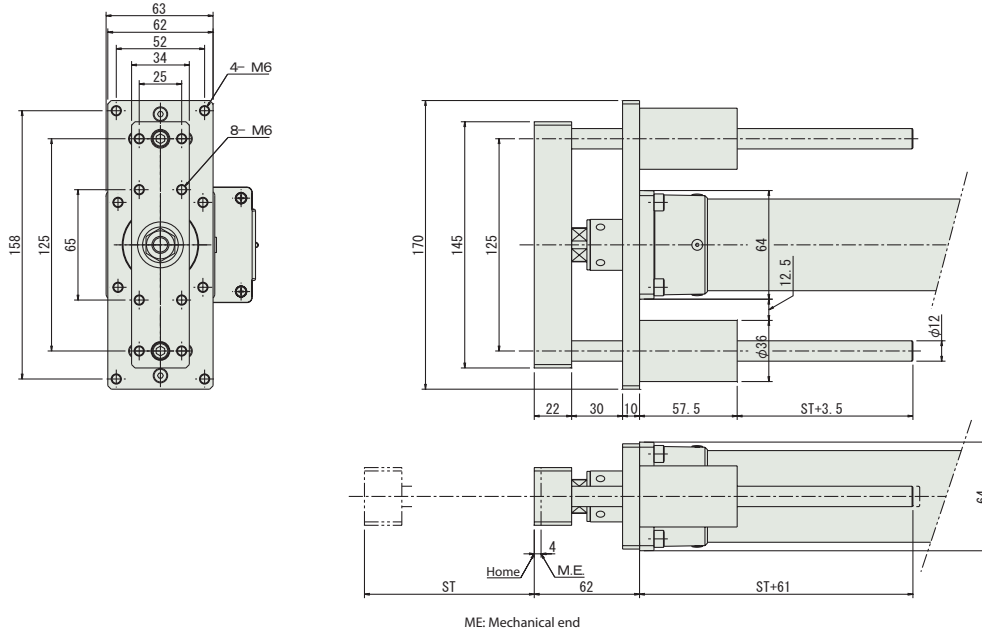
Dimensional Drawings

CAD drawings can be downloaded from the website. [www.intelligentactuator.com](http://www.intelligentactuator.com)

2D CAD

3D CAD

Information on special orders P.454



See actuator dimensions on P10.

■ Dimensions and Weight by Stroke

| Stroke                       | 50  | 100 | 150 | 200 | 250 | 300 |
|------------------------------|-----|-----|-----|-----|-----|-----|
| Guide weight (kg)            | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 |
| Guide + actuator weight (kg) | 3.2 | 3.5 | 3.7 | 4.0 | 4.2 | 4.5 |

I/O Type (Integrated Controller)

I/O Type

The integrated controller in the ERC2 Series can be selected from the following 3 types based on the type of external input and output (I/O). Select the type according to your application

| Title                         | External View | Model                      | Features  | Maximum number of positioning points | Input power | Power-supply capacity | Standard price     | See page |
|-------------------------------|---------------|----------------------------|---|--------------------------------------|-------------|-----------------------|--------------------|----------|
| PIO Type (NPN Specifications) |               | ERC2-RGD7C-I-PM-□-□-NP-□-□ | Simple control type with up to 16-point positioning   | 16                                   | DC24V       | Maximum 2A            | (See page at left) | P355     |
| PIO Type (PNP Specifications) |               | ERC2-RGD7C-I-PM-□-□-PN-□-□ | This type is compatible with the PNP specification I/O commonly used overseas. This is the PNP specification for the I/O type | 16                                   |             |                       |                    |          |
| SIO Type                      |               | ERC2-RGD7C-I-PM-□-□-SE-□-□ | Field Network Connection Serial Type (Gateway unit used)  | 64                                   |             |                       |                    |          |

Controller-Integrated  
Slider Type  
Rod Type  
Table Arm/Flat Type  
Gripper/Rotary Type  
Cleanroom  
Splash-resistant  
Controller  
Coupling  
Built-in (Direct)  
Reversed-mounted  
Pulse Motor 20P  
Pulse Motor 28P  
Pulse Motor 35P  
Pulse Motor 42P  
Pulse Motor 56P  
Pulse Motor 86P  
Servo Motor 10W  
Servo Motor 20W  
Servo Motor 30W  
Servo Motor 60W  
Servo Motor 100W  
Servo Motor 150W  
Servo Motor 750W