CLOSED LOOP STEPPING MOTOR
SINGLE-AXIS ROBOTS

TRANSEROVO
SERIES

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## TRANSERVO SPECIFICATION SHEET

### Type

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<th>Lead (mm)</th>
<th>Maximum payload (kg)</th>
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### Type

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<th>Maximum payload (kg)</th>
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### Precautions for use

- **Handling**: Fully understand the contents stated in the "TRANSERVO User’s Manual" and strictly observe the handling precautions during operation.
- **Allowable installation ambient temperature**: (SS type) -5 to 60 °C
  (SR/R04/RD type) -5 to 40 °C

### SR/SRD/STH type Speed vs. payload table

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<th>Lead (mm)</th>
<th>Maximum payload (kg)</th>
<th>Maximum speed (mm/sec)</th>
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<td>90</td>
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### Note

1. The size shows approximate maximum cross sectional size.
2. The maximum speed may vary depending on the operation speed. For details, refer to the page of relevant model.
3. For details, refer to the detailed page of relevant model.
Articulated robots

Compact single-axis robots

TRANSERVO Single-axis robots

FLIP-X Linear motor single-axis robots

XY-X SCARA robots

YK-X Pick & place robots

YP-XCLEANCONTROLLERINFORMATION

Linear conveyor modules

LCM100 SR05/SRD05 bracket plates

[Example]

In the order format for the YAMAHA single-axis robots TRANSERVO series, the notation (letters/numbers) for the mechanical section is:

SR03/SRD03 bracket plates

Flange (1 piece) KCU-M224F-00

Feet (2 plates per set)* KCU-M223F-00

● Note. Comes with 12 mounting nuts for feet.

When greasing the ball screw in the SR03-UB or SRD03-UB (motor installed on top / with brake), use a grease gun with a bent nozzle tube as shown below.

Grease gun nozzle tube (YAMAHA recommended nozzle tube)

This nozzle tube can be attached to a commercially available ordinary grease gun.

This nozzle tube is even usable when there is little space around the grease port.

For example, when the SR04 or SR05 space-saving model is used with the motor facing up, the grease port is positioned on the side of the robot body. This may make it difficult to refill grease depending on the positions of other robots or peripheral units.

To find detailed controller information see the controller page.

TS-S2 [P.492], TS-SH [P.492], TS-SD [P.502]
**SS04 Slider type**

- **CE compliance**
- **Origin on the non-motor side is selectable**

### Ordering method

**Model**
- SS04
  - Lead screw
    - 2M: M type
    - 4M: M type

**Brake**
- With non-brake
  - M type

**Origin position**
- Standard
  - M type
  - Non-motor side

**Grease option**
- Standard grade
  - M type
  - Lead screw grade

**Stroke**
- 250 mm
  - M type
  - 400 mm
  - Linear pitch

**Cable length**
- 50 m
  - M type
  - 100 m
  - 150 m

**Robot positioner**
- SD
  - M type
  - 100 m

### Basic specifications

**Motor**
- 42 : Step motor

**Resolution (Pulse/rotation)**
- 20480

**Deceleration mechanism**
- Ball screw φ8 (Class C10)

**Maximum motor torque (N.m)**
- 0.27

**Ball screw lead (mm)**
- 12 6 2

**Maximum speed (mm/sec)**
- 50 to 400 (50mm pitch)

**Max. pressing force (N)**
- 45 90 150

**Stroke (mm)**
- 50 to 400 (50mm pitch)

**Overall length (mm)**
- 216 216 276

**Maximum outside dimension of body cross-section (mm)**
- W49 × H59

**Cable length (m)**
- Standard: 1 / Option: 3, 6, 10

Note 1. Positioning repeatability in one direction.

### Motor installation (Space-saving model)

- **Type A** Motor installed on left
- **Type B** Motor installed on right

### Allowable overhang

**Horizontal installation (mm)**
- 1kg: 807 218 292
- 2kg: 667 107 152
- 3kg: 556 76 112
- 4kg: 507 64 84
- 5kg: 469 61 92
- 6kg: 403 60 90

**Wall installation (mm)**
- 1kg: 274 204 270
- 2kg: 133 63 111
- 3kg: 92 62 106
- 4kg: 63 43 97
- 5kg: 60 41 86
- 6kg: 39 29 78

**Vertical installation (mm)**
- 1kg: 254 204 250
- 2kg: 122 61 110
- 3kg: 91 62 106
- 4kg: 62 43 97
- 5kg: 61 41 86
- 6kg: 39 29 78

### Static loading moment

**Controller Operation method**
- TS-S2: I/O point trace
- TS-SH: Remote command
- TS-SD: Pulse train control

### SS04 Straight model

- **161+/-2: When origin is on motor side**
- **128+/-1 (Note 1)**

**Effective stroke**
- 50: 128 mm
- 100: 128 mm
- 150: 128 mm
- 200: 128 mm
- 250: 128 mm
- 300: 128 mm
- 350: 128 mm
- 400: 128 mm

**Weight (kg)**
- A: 1.5
- B: 1.6
- C: 1.7
- L: 1.8
- 1: 2.0
- 2: 2.1
- 3: 2.2
- 4: 2.3

**Effective stroke (mm)**
- 50: 128
- 100: 128
- 150: 128
- 200: 128
- 250: 128
- 300: 128
- 350: 128
- 400: 128

**Effective stroke (mm)**
- 50: 128
- 100: 128
- 150: 128
- 200: 128
- 250: 128
- 300: 128
- 350: 128
- 400: 128

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Secure the cable with a tie-band 100mm or less from unit’s end face to prevent the cable from being subjected to excessive loads.
Note 3. The guide service life of 10,000 km (Service life is calculated for 400mm stroke models).
Note 4. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000 km (Service life is calculated for 400mm stroke models).
### Ordering method

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<td><strong>R</strong></td>
</tr>
<tr>
<td><strong>B</strong></td>
<td><strong>B</strong></td>
</tr>
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</table>

- **Motor**: 42 • Step motor
- **Resolution (Pulse/revolution)**: 20000
- **Repeatability (mm)**: ±0.02
- **Deceleration mechanism**: Ball screw 6/7 (Class C-10)
- **Maximum motor torque (N.m)**: 1050 600 300
- **Maximum speed (mm/sec)**: 1050 600 300
- **Maximum payload (kg)**: 4 6 10
- **Max. pressing force (N)**: 27 45 90
- **Strokes (mm)**: 50 to 800 (50mm pitch)
- **Overall length (Horizontal)**: Stroke x 2.5
- **Maximum outside dimension of body cross-section (mm)**: W55 x H66
- **Cable length (m)**: Standard: 1 / Option: 3, 5, 10

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

### Basic specifications

#### Motor installation (Space-saving model)

- **R type**: Motor installed on right
- **B type**: Motor installed on left

#### Allowable overhang

**Horizontal installation**

- **A**: 1kg
- **B**: 2kg
- **C**: 3kg

**Wall installation**

- **A**: 1kg
- **B**: 2kg
- **C**: 3kg

**Vertical installation**

- **A**: 1kg
- **B**: 2kg
- **C**: 3kg

**Note**: Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000 km (Service life is calculated for 600mm stroke models).

### Static loading moment

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<td>TS-SH</td>
<td>Pulse train control</td>
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<td>TS-SD</td>
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### Controller

- **Controller**: TS-S2, TS-SH, TS-SD
- **Operation method**: P0 point trace, Remote command, Pulse train control

### Controller Information

- **Controller**: TS-S2, TS-SH, TS-SD
- **Operation method**: P0 point trace, Remote command, Pulse train control

### Motor Speed

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- **Motor Speed (mm/sec)**

- **Maximum speed for each stroke (mm/sec)**
  - **Lead20**: 1000
  - **Lead12**: 600
  - **Lead6**: 300

- **Speed setting**: – 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8 5.0

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Secure the cable with a tie-band 100mm or less from unit’s end face to prevent the cable from being subjected to excessive loads.
Note 3. The cable’s minimum bend radius is R30. The weights are 0.2kg heavier when equipped with a brake.
Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.
Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.
SS05 Space-saving model

Effective stroke

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<tr>
<th>Weight (kg)</th>
<th>Lead20</th>
<th>Lead12</th>
<th>Lead6</th>
<th>Speed setting</th>
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</tr>
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<td>300</td>
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<td>–</td>
</tr>
<tr>
<td>2.6</td>
<td>1000</td>
<td>600</td>
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<td>2.8</td>
<td>1000</td>
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<td>–</td>
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<tr>
<td>3.6</td>
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<td>3.8</td>
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<td>1000</td>
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</table>

Note 1. Step positions are determined by the mechanical stoppers at both ends.
Note 2. Secure the cable with a tie-band 80mm or less from the unit's end face to prevent the cable from being subjected to excessive loads.
Note 3. The cable's minimum bend radius is 30.5mm.
Note 4. Secure the cable with a tie-band 80mm or less from the unit's end face to prevent the cable from being subjected to excessive loads.
Note 5. The cable's minimum bend radius is 30.5mm.
Note 6. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at left.
Note 7. The belier cover's left and right sides are asymmetrical. Therefore, if the motor mounting orientation is changed, the cover cannot be attached.

Effective stroke

<table>
<thead>
<tr>
<th>Effective stroke</th>
<th>50</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>350</th>
<th>400</th>
<th>450</th>
<th>500</th>
<th>550</th>
<th>600</th>
<th>650</th>
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<th>800</th>
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<tbody>
<tr>
<td>L</td>
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<td>106.5</td>
<td>106.5</td>
<td>106.5</td>
<td>106.5</td>
<td>106.5</td>
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<td>16</td>
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<td>C</td>
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<td>250</td>
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</tbody>
</table>

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Effective stroke

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<thead>
<tr>
<th>Effective stroke</th>
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<th>100</th>
<th>150</th>
<th>200</th>
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<tr>
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<td>7</td>
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<td>17</td>
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<td>B</td>
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</tbody>
</table>

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Note 7. The belier cover's left and right sides are asymmetrical. Therefore, if the motor mounting orientation is changed, the cover cannot be attached.
SS05H Slider type

- High lead: Lead 20
- CE compliance
- Origin on the non-motor side is selectable

### Ordering method

<table>
<thead>
<tr>
<th>SS05H</th>
<th>Lead Models</th>
<th>Motor (Space-saving model)</th>
<th>Motor installed on right</th>
<th>Motor installed on left</th>
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</thead>
<tbody>
<tr>
<td>Model</td>
<td>42: 42-step motor</td>
<td>Resolution (Pulse/rotation)</td>
<td>20480</td>
<td>32000</td>
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<td></td>
<td>Repeatability (mm)</td>
<td>40/60</td>
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<tr>
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<td>Deceleration mechanism</td>
<td>Ball screw 3g2 (Class C10)</td>
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<tr>
<td></td>
<td>Maximum motor torque (N.m)</td>
<td>0.4</td>
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<tr>
<td></td>
<td>Maximum payload (Kg)</td>
<td>Vertical</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Stroke (mm)</td>
<td>Horizontal</td>
<td>50 to 500 (50mm pitch)</td>
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<tr>
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<td>Maximum outside dimension of body cross-section (mm)</td>
<td>Vertical Stroke</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Cable length (m)</td>
<td>Horizontal Overall length</td>
<td>Stroke+286</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vertical Stroke</td>
<td>Vertical Stroke</td>
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</tbody>
</table>

### Basic specifications

- Motor: 42-step motor
- Resolution: 20480 pulses/rotation
- Repeatability: 40/60 mm
- Deceleration mechanism: Ball screw 3g2 (Class C10)
- Maximum motor torque: 0.4 N.m
- Maximum payload: 6 Kg (vertical), 12 Kg (horizontal)
- Stroke: 50 to 500 mm (horizontal)
- Maximum outside dimension of body cross-section: Vertical Stroke +286 mm
- Cable length: Horizontal Overall length, Vertical Stroke + Vertical Stroke

### Allowable overhang

- Horizontal installation: 
  - A: 10kg
  - B: 9kg
  - C: 7kg

- Wall installation: 
  - A: 12kg
  - B: 10kg
  - C: 8kg

- Vertical installation: 
  - A: 10kg
  - B: 8kg
  - C: 6kg

### Static loading moment

- Load: MY (32), MP (38), MR (34)
- Controller: TS-S2

### Controller information

- Operation method: Remote command
- Pulse train control

### SS05H Straight model

- Approx. 200 (Cable length) 283.5+1-2: When origin is on motor side
- Effective stroke: 175.5+1 (Note 1)

### Controller information

- Motor stop positions are determined by the mechanical stoppers at both ends.
- Secure the cable with a tie-band 100mm or less from unit’s end face to prevent the cable from being subjected to excessive loads.
- The cable’s minimum bend radius is R30.
- These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.
- When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed).
- In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.
### SG07 Slider type

#### Ordering method

<table>
<thead>
<tr>
<th>SG07</th>
<th>Lead 20</th>
<th>Lead 12</th>
<th>Lead 6</th>
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<tr>
<td>Model</td>
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</tr>
<tr>
<td>Brake</td>
<td></td>
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<tr>
<td>Origin position</td>
<td>Straight model</td>
<td>Wider side</td>
<td>Non-motor side</td>
</tr>
<tr>
<td>Grease option</td>
<td>Standard</td>
<td>Standard grease</td>
<td>Standard grease</td>
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<tr>
<td>Stroke</td>
<td>20mm</td>
<td>12mm</td>
<td>6mm</td>
</tr>
<tr>
<td>Cable length (m)</td>
<td>3mm</td>
<td>2mm</td>
<td>1mm</td>
</tr>
<tr>
<td>Robot positioner</td>
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<td>SH-TS-SH</td>
<td>SH-TS-SH</td>
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#### Basic specifications

<table>
<thead>
<tr>
<th>Motor</th>
<th>Single-axis robots</th>
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<tbody>
<tr>
<td>Deceleration mechanism</td>
<td>Ball screw (21/Class C10)</td>
</tr>
<tr>
<td>Maximum payload (kg)</td>
<td>Vertical</td>
</tr>
<tr>
<td>Stroke (mm)</td>
<td>10kg</td>
</tr>
<tr>
<td>Maximum pressing force (N)</td>
<td>Horizontal</td>
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<tr>
<td>Overall length</td>
<td>25kg</td>
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<tr>
<td>Maximum outside dimension of body cross-section (mm)</td>
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<td>Cable length (m)</td>
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#### Allowable overhang

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<th>Wall installation (max)</th>
<th>Vertical installation (max)</th>
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</thead>
<tbody>
<tr>
<td>Position A</td>
<td>Position B</td>
<td>Position C</td>
</tr>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
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<td>Lead 12</td>
<td>Lead 6</td>
</tr>
<tr>
<td>10kg</td>
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<td>30kg</td>
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<tr>
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<td>25kg</td>
<td>35kg</td>
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<td>20kg</td>
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#### Static loading moment

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#### Controller

<table>
<thead>
<tr>
<th>Controller</th>
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<td>TS-SH</td>
<td>I/O point trace</td>
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#### Speed vs. payload

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<thead>
<tr>
<th>Payload (kg)</th>
<th>Lead 20</th>
<th>Lead 12</th>
<th>Lead 6</th>
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<tr>
<td>0</td>
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<td>4000</td>
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</tr>
<tr>
<td>1200</td>
<td>2400</td>
<td>4800</td>
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#### Quick reference

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<thead>
<tr>
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</tr>
<tr>
<td>15kg</td>
<td>25kg</td>
<td>35kg</td>
</tr>
<tr>
<td>20kg</td>
<td>30kg</td>
<td>40kg</td>
</tr>
</tbody>
</table>

#### SG07 Straight model

| Effective stroke | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 |
|------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Weight (kg)      | 2.9 | 3.2 | 3.4 | 3.6 | 3.9 | 4.1 | 4.3 | 4.5 | 4.8 | 5.0 | 5.3 | 5.5 | 5.7 | 5.9 | 6.1 | 6.3 | 6.5 | 6.7 | 7.0 | 7.2 |

<table>
<thead>
<tr>
<th>Maximum speed for each stroke (mm/sec)</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>350</th>
<th>400</th>
<th>450</th>
<th>500</th>
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<th>950</th>
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</thead>
<tbody>
<tr>
<td>Speed setting</td>
<td>85%</td>
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<td>65%</td>
<td>55%</td>
<td>45%</td>
<td>35%</td>
<td>25%</td>
<td>15%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
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<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

### Additional Notes

1. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
2. The robot cable is flexible and resists bending.
3. Select this selection when using the gateway function. For details, see P.62.

Note 1. Positioning repeatability in one direction.
Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.
Note 3. It is necessary to change the maximum speed according to the payload. For details, see the "Speed vs. payload" graph shown below.

### Motor Specifications

- **Motor**: Single-axis robots
- **Motor Model**: Compact single-axis robots
- **Motor Type**: TRANSERVO
- **Motor Speed**: FLIP-X
- **Motor Type**: Linear motor single-axis robots
- **Motor Type**: XY-X
- **Motor Type**: SCARA robots
- **Motor Type**: YK-X
- **Motor Type**: Pick & place robots
- **Motor Type**: YP-X

### Grease Specifications

- **Grease Option**: CLEANCONTROLLERINFORMATION
- **Grease Option**: Linear conveyor modules
- **Grease Option**: LC100

### Battery Specifications

- **Battery**: SG07
- **Battery Type**: Battery
- **Battery Capacity**: Stroke
- **Battery Capacity**: Cable length
- **Battery Capacity**: Note 2
- **Battery Capacity**: Origin position
- **Battery Capacity**: Grease option

### Controller Specifications

- **Controller Model**: XT-SH
- **Controller Model**: I/O point trace
- **Controller Model**: Remote command

### Speed vs. Payload Graph

- **Graph Title**: SG07 Speed vs. Payload
- **Graph X-axis**: Payload (kg)
- **Graph Y-axis**: Speed (mm/sec)
- **Graph Data Points**: Various payloads with corresponding speeds.

### Additional Information

- **Effective Stroke**: M50x3.5 Depth 10
- **Effective Stroke**: M8x1.25 Depth 8
- **Effective Stroke**: M10x1.5 Depth 6
- **Effective Stroke**: M12x1.75 Depth 6
- **Effective Stroke**: M14x2.0 Depth 6

### Important Notes

- **Note 1**: Stop positions are determined by the mechanical stoppers at both ends.
- **Note 2**: Secure the cable with a tie-band 100mm or less from unit's end face to prevent the cable from being subjected to excessive loads.
- **Note 3**: The cable's minimum bend radius is R30.
- **Note 4**: These are the weights without a brake. The weights are 0.5kg heavier when equipped with a brake.
- **Note 5**: The speed at origin is longer than 800mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above.
SR03 Rod type

CE compliance  Origin on the non-motor side is selectable

### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Load capacity</th>
<th>Motor</th>
<th>Resolution (Pulse/rotation)</th>
<th>Deceleration mechanism</th>
<th>Maximum speed (mm/sec)</th>
<th>Motor</th>
<th>Motor installation (Space-saving model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR03-S</td>
<td>42 steps</td>
<td>42 steps</td>
<td>1200</td>
<td>Ball-screw</td>
<td>500</td>
<td>1200</td>
<td>Motor installed on right</td>
</tr>
<tr>
<td>SR03-R</td>
<td>42 steps</td>
<td>42 steps</td>
<td>1200</td>
<td>Ball-screw</td>
<td>500</td>
<td>1200</td>
<td>Motor installed on left</td>
</tr>
</tbody>
</table>

### Basic specifications

- **Motor**: 42 steps (1200 pulses)
- **Resolution (Pulse/rotation)**: 1200 pulses
- **Deceleration mechanism**: Ball-screw (Class C10)
- **Maximum speed (mm/sec)**: 500 mm/sec
- **Maximum payload (kg)**: 10 kg
- **Stoke (mm)**: 100 (50 to 200 (optional))
- **Max. pressing force (N)**: 75 N
- **Cable length (m)**: Standard: 1 (Option: 3, 5, 10)

### Motor installation (Space-saving model)

- **A type**: Motor installed on right
- **L type**: Motor installed on left

### Speed vs. payload

- **Horizontal**: SR03-S SR03-R
- **Vertical**: SR03-S SR03-R

### Running life

5000 km on models other than shown below. Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

### Controller

- **Controller**: TS-S2 (I/O point trace / Remote command)  TS-SH  TS-SD (Pulse train control)

### Effective stroke

- **L1**: 161 211 261 311
- **L**: 249 299 349 399
- **H**: 2 3 4 5
- **K**: 6 8 10 12
- **Weight (kg)**: 1.1 1.3 1.4 1.6

Note 1. It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. The support guide together to maintain the straightness.
Note 4. When running the cables, secure cables so that any load is not applied to them.
Note 5. Remove the M4 hex socket head cap set bolts and use them to secure the cables (Effective screw thread depth 5)
Note 6. The cables’ minimum bend radius is R30.
Note 7. Models with a brake will be 0.2kg heavier.
Note 8. Distance to mechanical stopper.

---

**SR03 Straight model S**

See Note 5.  Ball screw greasing port (s6.5)

Approx. 250 (Cable length)

Max. 7 Depth 5
(For securing cable)

Dimensions of attached nut View A

Option: Horizontal installation plate (foot)

- Contents of option: Plate: 2 pcs.

See our robot manuals for additional settings.

Option: Vertical installation plate (flange)

- Hex. socket head cap bolt (M3x0.5). Length under head 14

Note: 1. See P.131 for grease gun nozzles.
Note 2. The maximum speed needs to be changed in the maximum pressing force.
Note 3. See the “Speed vs. payload” graph shown on the right.
Note 4. See P.500 for DIN rail mounting bracket.
Note 5. Select this selection when using the gateway function. For details, see P.62.
SR03 Space-saving model (motor installed on right)

SR03 Space-saving model (motor installed on left)

Option: Horizontal installation plate (foot)

- Contents of option: Plate, 2 pcs.
- See our robot manuals for additional settings.

Hex. socket head cap bolt (M3×0.5), Length under head 10

Two bolts are required for one plate.

2-4.5 drill-through

- See the bottom installation tap position.

Option: Vertical installation plate (Range)

Hex. socket head cap bolt (M3×0.5), Length under head 14

Effective stroke 50 100 150 200

Weight (kg) 6 8 10 12

Note 1. It is possible to apply only the axial load.
- Use the external guide together so that any radial load is not applied to the rod.

Note 2. The orientation of the width across flat part is undefined to the base surface.

Note 3. Use the support guide together to maintain the straightness.
- Note 4. When running the cables, secure cables so that any load is not applied to them.

Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)

Note 6. The cable’s minimum bend radius is R30.

Note 7. Models with a brake will be 0.2kg heavier.

Note 8. Distance to mechanical stopper.

Option: Horizontal installation plate (foot)

- Contents of option: Plate, 2 pcs.
- See our robot manuals for additional settings.

Hex. socket head cap bolt (M3×0.5), Length under head 15

Two bolts are required for one plate.

2-4.5 drill-through

- See the bottom installation tap position.
SR03 Space-saving model (motor installed on top) 

**Option: Horizontal installation plate (foot)**

- Contents of option: Plate, 2 pcs.
- See our robot manuals for additional settings.

- Hex. socket head cap bolt (M3×0.5).
- Length under head 10

**Option: Vertical installation plate (flange)**

- Two bolts are required for one plate.

- Hex. socket head cap bolt (M3×0.5).
- Length under head 14

Note 1. It is possible to apply only the axial load.

Use the external guide together so that any radial load is not applied to the rod.

Note 2. The orientation of the width across flat part is undefined to the base surface.

Note 3. Use the support guide together to maintain the straightness.

Note 4. When running the cables, secure cables so that any load is not applied to them.

Note 5. When running the cables, secure cables so that any load is not applied to them.

Effective screw thread depth 5

Note 6. The cable's minimum bend radius is R30.

Note 7. Models with a brake will be 0.2kg heavier.

Note 8. Distance to mechanical stopper.

Controller

<table>
<thead>
<tr>
<th></th>
<th>TS-S2</th>
<th>TS-SH</th>
<th>TS-SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>161</td>
<td>211</td>
<td>261</td>
</tr>
<tr>
<td>L</td>
<td>204</td>
<td>254</td>
<td>304</td>
</tr>
<tr>
<td>H</td>
<td>6</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>1.3</td>
<td>1.5</td>
<td>1.6</td>
</tr>
</tbody>
</table>

**Dimensions of attached nut**

- M4×0.7 Depth 5 (For securing cable)
- M8×1.25

**Effective stroke**

- 50 100 150 200

**Effective stroke L**

- Approx. 245 (Cable length)

**Origin on motor side**

- 37.5±2

**Origin on non-motor side**

- M8×1.25

**Effective stroke**

- L 161 211 261 311
- L1 204 254 304 354
- H 6 3 4 5
- Weight (kg) 1.3 1.5 1.6 1.8
SRD03 Straight model

**Ordering method**

**SRD03**

- **Model:** SRD03
- **Lead:** Lead 6
- **Model:** SRD03-S
- **Brake:** With brake
- **Origin position:** Non-motor side
- **Bracket plate:** With plate
- **Stroke:** 250 to 200 (mm/step)
- **Cable length:** 3 m

**Basic specifications**

- **Motor:** 42 Step motor
- **Resolution (Pulse/rotation):** 20480
- **Repeatability (mm):** +/-0.5
- **Deceleration mechanism:** Ball screw (Class C10)
- **Ball screw load (N):** 12
- **Maximum speed (mm/sec):** 500
- **Maximum payload (kg):** 10
- **Max. pressing force (N):** 75
- **Stroke (mm):** 50 to 200 (50 pitch)
- **Lost motion:** 0.1mm or less
- **Overall length (mm):**
  - Horizontal: Stroke + 236.5
  - Vertical: Stroke + 276.5
- **Maximum outside dimension of body cross-section (mm):** W48 × H56.5
- **Cable length (m):** Standard: 1 / Option: 3, 5, 10

**Note 1:** The maximum speed needs to be changed in accordance with the payload. See the "Speed vs. payload" graph shown on the right. For details, see P. 130.

**Note 3:** The robot cable is flexible and resists bending. Note 4. See P.500 for DIN rail mounting bracket. Note 5. Select this selection when using the gateway function. For details, see P. 62.

**Note 6:** Distance to mechanical stopper.

**Running life**

5000 km on models other than shown below. Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

- **Controller Operation method:**
  - **Controller:** TS-S2
  - **Operation method:** I/O point trace / Remote command

**Remote command**

- **Robot driver I/O cable:**
  - **Controller:** TS-S2
  - **Operation method:** Pulse train control

**Effective stroke**

<table>
<thead>
<tr>
<th>L</th>
<th>50</th>
<th>100</th>
<th>150</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>K</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>

**Weight (kg)**

<table>
<thead>
<tr>
<th></th>
<th>1.5</th>
<th>1.2</th>
<th>1.0</th>
<th>0.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>1.7</td>
<td>1.7</td>
<td>1.9</td>
<td>2.1</td>
</tr>
<tr>
<td>H</td>
<td>2.3</td>
<td>2.4</td>
<td>2.5</td>
<td>2.6</td>
</tr>
<tr>
<td>K</td>
<td>6.0</td>
<td>8.0</td>
<td>10.0</td>
<td>12.0</td>
</tr>
</tbody>
</table>

**Option:** Horizontal installation plate (foot)

- Contents of option: Plate, 2 pcs.
- See our robot manuals for additional settings.
SRD03 Space-saving model (motor installed on top)

Approx. 245 (Cable length)

Note 1. It is possible to apply only the axial load.
Use the external guide together so that any radial load is not applied to the rod.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. When running the cables, secure cables so that any load is not applied to the rod.
Note 5. Remove the M4 hex. socket head cap set bolts and use it to secure the cables. (Effective screw thread depth 5)
Note 6. The cable’s minimum bend radius is R30.
Note 7. Models with a brake will be 0.2kg heavier.
Note 8. Distance to mechanical stopper.

Option: Horizontal installation plate (foot)

* Contents of option: Plate, 2 pcs. See our robot manuals for additional settings.

Hex socket head cap bolt (M3×0.5), Length under head 10

2-Ø5.5 drill-through

See the bottom installation tap position.

M4×0.7 Depth 5 (For securing cable)

L1 161 211 261 311
L 204 254 304 354
M 2 3 4 5
K 6 8 10 12
Weight (kg) 1.7 1.9 2.1 2.3
SR04

**Rod type**

### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead Type</th>
<th>Motor Type</th>
<th>Brake</th>
<th>Origin Position</th>
<th>Max. Pressing Force (N)</th>
<th>Stroke (mm)</th>
<th>Cable Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Lead 2</td>
<td>42 * Step motor</td>
<td>+6/0.0</td>
<td>Non-motor side</td>
<td>180 to 300 (500 max)</td>
<td>50 to 300 (50 mm pitch)</td>
<td>20480</td>
</tr>
<tr>
<td>R</td>
<td>Lead 6</td>
<td>42 * Step motor</td>
<td>+6/0.0</td>
<td>Motor side 2</td>
<td>180 to 300 (500 max)</td>
<td>50 to 300 (50 mm pitch)</td>
<td>20480</td>
</tr>
</tbody>
</table>

**Note 1.** See P.131 for grease gun nozzles.
**Note 2.** When the "2mm lead" is selected, the origin position cannot be changed (to non-motor side).
**Note 3.** If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.

### Basic specifications

- **Motor:** 42 * Step motor
- **Resolution (Pulse/Rotation):** 22400
- **Deceleration mechanism:** Ball screw 1.5 (Class C10) or 2 (Class C10)
- **Maximum speed (mm/min):** 600 (500 max)
- **Maximum payload (kg):** 40 (40 max)
- **Max. pressing force (N):** 180 (180 max)
- **Stroke (mm):** 50 to 300 (500 max)
- **Rotating backlash (°):** +1/1.0
- **Overall length (mm):** Motor installed on right

**Note 1.** The maximum speed needs to be changed in accordance with the payload. See the "Speed vs. payload" graph shown on the right. For details, see P.130. Additionally, when the stroke is long, the maximum speed is decreased due to the critical speed of the ball screw. See the maximum speed table shown at the lower portion of the drawing.

### Motor installation (Space-saving model)

- **A type:** Motor installed on right
- **B type:** Motor installed on left

### Speed vs. payload

**Horizontal**

- **M40-0.7 Depth 5** (For securing cable)
- **M40-0.7 Depth 5** (For securing cable)

**Vertical**

- **Lead 2**
- **Lead 6**
- **Lead 12**

**Note 4.** The robot cable is flexible and resists bending.
**Note 5.** See P.500 for DIN rail mounting bracket.

### Running life

5000 km on models other than shown below. Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

**Horizontal**

- **Lead 2**
- **Lead 6**
- **Lead 12**

**Vertical**

- **Lead 2**
- **Lead 6**
- **Lead 12**

**Note 6.** Select this selection when using the gateway.
**Note 5.** See P.500 for DIN rail mounting bracket.

### Controller

- **Controller:** TS-S2 or TS-SH, I/O point trace / Remote command
- **Operation method:** Pulse train control
- **Controller:** TS-SD, I/O cable

**Note 1.** See P.131 for running life distance to life time conversion example.

---

**SR04 Straight model S**

### Option: Horizontal installation plate (foot)

- Contents of option: Plate, 2 pcs., Nut, 12 pcs.

**Note:** See our robot manuals for additional settings.

### Option: Vertical installation plate (flange)

- Hex. socket head cap bolt (M4x0.7), Length under head 14

**Note 1.** It is possible to apply only the axial load.
**Note 2.** Use the external guide to make sure that any radial load is not applied to the rod.
**Note 3.** Use the support plate together to maintain the straightness.
**Note 4.** For lead 2mm specifications, the origin on the non-motor side cannot be set.
**Note 5.** When running the cables, secure cables so that any load is not applied to them.
**Note 6.** Select this selection when using the gateway.
**Note 5.** See P.62.
**Note 6.** Select this selection when using the gateway.
**Note 5.** See P.62.
**Note 6.** Select this selection when using the gateway.
**Note 5.** When running the cables, secure cables so that any load is not applied to them.
Articulated robots

Compact single-axis robots

TRANSERVO Single-axis robots

FLIP-X Linear motor single-axis robots

XY-X SCARA robots

YK-X Pick & place robots

YP-X CLEAN CONTROLLER INFORMATION

Linear conveyor modules

LCM100

3.5 Origin position Note 2

Speed vs. payload

22 Bracket plate

30 (22.5) 67.5 Battery

5.8 Lead Model Brake

Note 1. The maximum speed needs to be changed in order for the ball screw to be effective

Maximum outside dimension (mm)

Motor (Pulse/rotation)

22400

Repeatability (mm)

+/-0.02

Deceleration mechanism

Ball screw d1 (Class C10)

Ball screw lead (mm)

12 6 2

Maximum speed (mm/sec)

500 250 80

Maximum payload (kg)

25 40 45 Vertical

Max. pressing force (N)

150 300 600

Lost motion

0.1mm or less

Rotating backlash (°)

+/-0.3

Overall length (Horizontal mm)

Stroke 263

Maximum outside dimension of body cross-section (mm)

W48 × H58

Cable length (m)

Standard: 1 / Option: 3, 5, 10

Note 1. The maximum speed needs to be changed in accordance with the payload

See the “Speed vs. payload” graph shown on the right.

Additionally, when the stroke is long, the maximum speed is decreased due to the critical speed of the ball screw.

See the maximum speed table shown at the lower portion of the drawing.

Running life

5000 km on models other than shown below.

Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

Note 2. For lead 2mm specifications, the origin on the non-motor side cannot be changed (to non-motor side).

Note 3. When running the cables, secure cables so that any load is not applied

Note 4. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. Effective screw thread depth 8

Note 5. The cable’s minimum bend radius is R30.

Note 6. Select this selection when using the gateway

Controller Operation method

TS-S2 Remote command

TS-SH

TS-SD Pulse train control

Note 1. It is possible to apply only the axial load.

Use the external guide together so that any radial load is not applied to the unit.

Note 2. For lead 2mm specifications, the origin on the non-motor side cannot be set.

Note 3. When changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.

Note 4. The robot cable is flexible and resists bending.

Note 5. See P.131 for grease gun nozzles.

Note 6. Models with a brake will be 0.2kg heavier.

Note 7. Distance to mechanical stopper.

Controller Operation method

TS-S2 Remote command

TS-SH

TS-SD Pulse train control

Note 1. See P.131 for running life distance to life time conversion example.
**SRD04** Space-saving model (motor installed on top)  

**Option: Horizontal installation plate (foot)**  

* Contents of option: Plate, 2 pcs., Nut, 12 pcs.  
See our robot manuals for additional settings.

---

### SRD04 Specifications  

<table>
<thead>
<tr>
<th>Effective stroke</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
<th>L6</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>162.5</td>
<td>212.5</td>
<td>262.5</td>
<td>312.5</td>
<td>362.5</td>
<td>412.5</td>
</tr>
<tr>
<td>100</td>
<td>209.5</td>
<td>259.5</td>
<td>309.5</td>
<td>359.5</td>
<td>409.5</td>
<td>459.5</td>
</tr>
<tr>
<td>150</td>
<td>259.5</td>
<td>309.5</td>
<td>359.5</td>
<td>409.5</td>
<td>459.5</td>
<td>509.5</td>
</tr>
<tr>
<td>200</td>
<td>309.5</td>
<td>359.5</td>
<td>409.5</td>
<td>459.5</td>
<td>509.5</td>
<td>559.5</td>
</tr>
<tr>
<td>250</td>
<td>359.5</td>
<td>409.5</td>
<td>459.5</td>
<td>509.5</td>
<td>559.5</td>
<td>609.5</td>
</tr>
<tr>
<td>300</td>
<td>409.5</td>
<td>459.5</td>
<td>509.5</td>
<td>559.5</td>
<td>609.5</td>
<td>659.5</td>
</tr>
</tbody>
</table>

**Note 1.** It is possible to apply only the axial load.

**Use the external guide together so that any radial load is not applied to the rod.**

**Note 2.** The orientation of the width across flat part is undefined to the base surface.

**Note 3.** Use the support guide together to maintain the straightness.

**Note 4.** When running the cables, secure cables so that any load is not applied to them.

**Note 5.** Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)

**Note 6.** The cable’s minimum bend radius is R30.

**Note 7.** Models with a brake will be 0.2kg heavier.

**Note 8.** Distance to mechanical stopper.

**Note 9.** For lead 2mm specifications, the origin on the non-motor side cannot be set.
### Basic specifications

<table>
<thead>
<tr>
<th>Motor</th>
<th>Pulse/rotation</th>
<th>RPM</th>
<th>Resolution (mm)</th>
<th>Accuracy (um)</th>
<th>Acceleration (m/s²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>500</td>
<td>1200</td>
<td>0.125</td>
<td>15</td>
<td>150</td>
</tr>
</tbody>
</table>

Note 1: The maximum speed needs to be changed in accordance with the payload. For details, see P. 130.

### Motor installation (Space-saving model)

- **B type**: Motor installed on right
- **L type**: Motor installed on left

### Speed vs. payload

**Horizontal**

<table>
<thead>
<tr>
<th>Speed (mm/s)</th>
<th>Payload (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-50</td>
<td>0-10</td>
</tr>
<tr>
<td>50-100</td>
<td>10-20</td>
</tr>
<tr>
<td>100-150</td>
<td>20-30</td>
</tr>
<tr>
<td>150-200</td>
<td>30-40</td>
</tr>
<tr>
<td>200-250</td>
<td>40-50</td>
</tr>
<tr>
<td>250-300</td>
<td>50-60</td>
</tr>
</tbody>
</table>

**Vertical**

<table>
<thead>
<tr>
<th>Speed (mm/s)</th>
<th>Payload (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-50</td>
<td>0-10</td>
</tr>
<tr>
<td>50-100</td>
<td>10-20</td>
</tr>
<tr>
<td>100-150</td>
<td>20-30</td>
</tr>
<tr>
<td>150-200</td>
<td>30-40</td>
</tr>
<tr>
<td>200-250</td>
<td>40-50</td>
</tr>
<tr>
<td>250-300</td>
<td>50-60</td>
</tr>
</tbody>
</table>

### Running life

5000 km on models other than shown below. Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

### Controller

<table>
<thead>
<tr>
<th>Controller</th>
<th>Operation method</th>
<th>TS-S2</th>
<th>TS-SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>05</td>
<td>I/O point trace</td>
<td>Remote command</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I/O point trace</td>
<td>Remote command</td>
<td></td>
</tr>
</tbody>
</table>

### Dimensions of attached nut

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Attached nut (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical</td>
<td>16</td>
</tr>
<tr>
<td>Horizontal</td>
<td>45.5</td>
</tr>
<tr>
<td>Overall</td>
<td>58.4</td>
</tr>
</tbody>
</table>

### Effective stroke

<table>
<thead>
<tr>
<th>Stroke (mm)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>2.2</td>
</tr>
<tr>
<td>100</td>
<td>2.6</td>
</tr>
<tr>
<td>150</td>
<td>3.3</td>
</tr>
<tr>
<td>200</td>
<td>3.3</td>
</tr>
<tr>
<td>250</td>
<td>3.7</td>
</tr>
<tr>
<td>300</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Note 1. It is possible to apply only the axial load.
Note 2. The orientation of the width across flat part is undefined to the base surface.
Note 3. Use the support guide together to maintain the straightness.
Note 4. For vertical stroke specifications, the origin on the non-motor side cannot be set.
Note 5. When the lead is 2mm, this dimension is ±1mm.
Note 6. When the running cables, secure cables so that any load is not applied to them.
Note 7. Remove the S40 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 8. The cable’s minimum bend radius is R30.
Note 9. Take great care as the outer case of the motor projects from the bottom of the main unit.
Note 10. Models with a brake will be 0.2kg heavier.
Note 11. Distance to mechanical stopper.
SRD05 Rod type (With support guide)

Ordering method

**SRD05**

| Model | Lead | Model | Brake | Stroke (mm) | Cable length (m) | CATALOG
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>S</td>
<td>S</td>
<td>S</td>
<td>50 to 300</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>SH</td>
<td>SH</td>
<td>SH</td>
<td>SH</td>
<td>50 to 300</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>SD</td>
<td>SD</td>
<td>SD</td>
<td>SD</td>
<td>50 to 300</td>
<td>50</td>
<td>3</td>
</tr>
</tbody>
</table>

Basic specifications

- **Motor**: 56 [Step motor]
- **Resolution (Pulse/rotation)**: 20480
- **Repeatability (mm)**: +/-0.02
- **Acceleration mechanism**: Ball screw φ12 (Class C10)
- **Ball screw lead (mm)**: 12
- **Maximum speed (mm/sec)**: 300 to 150 to 50
- **Maximum payload (kg)**: 50 to 55 to 60
- **Max. pressing force (N)**: 250 to 550 to 900
- **Stroke (mm)**: 50 to 300 (50pitches)
- **Lost motion**: 0.1mm or less
- **Rotating backlash (°)**: +/-0.05
- **Overall length (mm)**: Stroke=276
- **Vertical**: Stroke=316
- **Maximum outside dimension of body cross-section (mm)**: W56.4 × H71

Note 1. The maximum speed needs to be changed in accordance with the payload. See the "Speed vs. payload" graph shown on the right. For details, see P. 130.

Note 2. When "2mm lead" is selected, the origin position cannot be changed (to non-motor side).

Note 3. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.

Note 4. The robot cable is flexible and resists bending.

Note 5. See P. 500 for DIN rail mounting bracket.

Note 6. The cable's minimum bend radius is R30.

Controller

**Controller Operation method**

- **TS-S2**: 492 (For point trace / Remote command)
- **TS-SH**: 492 (For remote command)
- **TS-SD**: Pulse train control

Running life

5000 km on models other than shown below. Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

Controller

**Controller Operation method**

- **TS-S2**: 492 (For point trace / Remote command)
- **TS-SH**: 492 (For remote command)
- **TS-SD**: Pulse train control

Note. See P.131 for running life distance to life time conversion example.

S2

<table>
<thead>
<tr>
<th>Robot positioner I/O</th>
<th>Robot driver I/O cable</th>
<th>Robot positioner I/O</th>
<th>Robot driver I/O cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>GW: No I/O board</td>
<td>SH</td>
<td>GW: No I/O board</td>
<td>SH</td>
</tr>
</tbody>
</table>

**Ordering method**

**SRD05 S**

- **Approx. 250 (Cable length)**
- **L**: 183 233 283 333 383 433
- **L**: 280.5 330.5 380.5 430.5 480.5 530.5
- **Weight (kg)**: 3.1 3.6 4.1 4.5 5.0 5.5

* Contents of option: Plate, 2 pcs., Nut, 8 pcs.

See our robot manuals for additional settings.

* Four bolts are required for one plate.

Effective stroke=107

- **8.8-M10-1.0 drill through (For main unit installation)**
- **4-M6-1.0 drill through (For user tool installation)**

Dimensions of attached square nut for T-slot (6 pcs.)

**Details of T-slot (2:1)**

- **For securing cable**
- **54.4 × 3.2**

Note 1. It is possible to apply only the axial load.

Note 2. Use the external guide together so that any radial load is not applied to the rot.

Note 3. When the lead is 2mm, this dimension is 27mm.

Note 4. When running the cables, secure cables so that any load is not applied to them.

Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables.

Note 6. The cable's minimum bend radius is R30.

Note 7. Take great care as the outer case of the motor projects from the bottom of the main unit.

Note 8. Models with a brake will be 0.2kg heavier.

Note 9. Distance to mechanical stopper.

**CE compliance**

**Origin on the non-motor side is selectable: Lead 6, 12**

**SD**

- **Robot driver I/O cable**: 1 m
- **Robot positioner I/O**: 5 mm
SRD05 Space-saving model (motor installed on top)

Approx. 245 (Cable length)

M4×0.7 Depth 5
(For securing cable)

M4×0.7 Depth 5
(For securing cable)

Effective stroke +107
(See Note 5)

Origin on motor side (Note 9)

Origin on non-motor side (Note 9)

Ball screw greasing port (6.5)

Dimensions of attached square nut for T-slot (4 pcs.)

2-φ6.5 drill-through

Installed within the T-slot range of the main unit.
(Hex. socket head cap bolt (M4×0.7), Length under head 12)

Four bolts are required for one plate.

* Contents of option: Plate, 2 pcs., Nut, 8 pcs. See our robot manuals for additional settings.

** Contents of option: Plate, 2 pcs., Nut, 8 pcs. See our robot manuals for additional settings.

Effective stroke

<table>
<thead>
<tr>
<th></th>
<th>50</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>183</td>
<td>233</td>
<td>283</td>
<td>333</td>
<td>383</td>
<td>433</td>
</tr>
<tr>
<td>L</td>
<td>227.5</td>
<td>277.5</td>
<td>327.5</td>
<td>377.5</td>
<td>427.5</td>
<td>477.5</td>
</tr>
</tbody>
</table>

Weight (kg)

|      | 3.3 | 3.8 | 4.3 | 4.7 | 5.2 | 5.7 |

Note 1. It is possible to apply only the axial load.

Use the external guide together so that any radial load is not applied to the rod.

Note 2. The orientation of the width across flat part is undefined to the base surface.

Note 3. Use the support guide together to maintain the straightness.

Note 4. When running the cables, secure the cables so that any load is not applied to them.

Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)

Note 6. The cable’s minimum bend radius is R30.

Note 7. Models with a brake will be 0.2kg heavier.

Note 8. Distance to mechanical stopper.

Note 9. For lead 2mm specifications, the origin on the non-motor side cannot be set.

Note 10. Take great care as the outer case of the cover belt projects from the bottom of the main unit.

Note 11. When the lead is 2 mm, this dimension is 27 mm.
### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead model</th>
<th>Lead size</th>
<th>Model</th>
<th>Lead model</th>
<th>Lead size</th>
<th>Model</th>
<th>Lead model</th>
<th>Lead size</th>
<th>Model</th>
<th>Lead model</th>
<th>Lead size</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>S</td>
<td>S</td>
<td>SH</td>
<td>SH</td>
<td>SH</td>
<td>MR</td>
<td>MR</td>
<td>MR</td>
<td>MR</td>
<td>MR</td>
<td>MR</td>
</tr>
</tbody>
</table>

#### Basic specifications

**Motor**: 28 \( \times \) Step motor

**Resolution (Pulse/rotation)**: 4096

**Repeatability \( \pm \) (mm)**: +/-0.05

**Drive method**: Straight or Slide screw

**Ball screw lead (mm)**: 5, 10

**Maximum speed \( \text{mm/sec} \)**: 200, 400

**Maximum payload (kg)**: 6, 4

**Max. pressing force (N)**: 55, 30

**Stroke (mm)**: 50/100

**Stiffness**: W45 × H46

**Cable length (m)**: STH04

#### Allowable overhang

**Horizontal installation (Unit: mm)**

- No brake: A (0), B (0), C (175)
- With brake: A (0), B (100), C (175)

**Wall installation (Unit: mm)**

- No brake: A (0), B (0), C (175)
- With brake: A (0), B (100), C (175)

**Vertical installation (Unit: mm)**

- No brake: A (0), B (0), C (175)
- With brake: A (0), B (100), C (175)

#### Speed vs. payload

**Horizontal**

- Lean to 100: 0.5, 1.2, 1.7
- Lean to 300: 1.2, 1.7, 2.1

**Vertical**

- Lean to 100: 0.5, 1.2, 1.7
- Lean to 300: 1.2, 1.7, 2.1

#### Static loading moment

**Stroke**

- MY: 2000
- M1: 2000

#### Controller

**Controller**: TS-S2, TS-SH

**Operation method**: Remote command

**Note**: The robot with the brake cannot use the TS-SD.
**STH04** Space-saving model (motor installed on left)

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective stroke</td>
<td>50 100</td>
</tr>
<tr>
<td>C</td>
<td>6 8</td>
</tr>
<tr>
<td>D</td>
<td>45 44</td>
</tr>
<tr>
<td>F</td>
<td>2 4</td>
</tr>
<tr>
<td>G</td>
<td>45 88</td>
</tr>
<tr>
<td>L</td>
<td>106 181</td>
</tr>
</tbody>
</table>

**Cross-sectional drawing A-A**

**Detailed drawing of installation hole**

Note 1. Return-to-origin position.
Note 2. Table movable range during return-to-origin operation. The values in [ ] show those when the return-to-origin direction is changed.
Note 3. The minimum bending radius of the motor cable is R30.
Note 4. When installing the mechanical main unit using the back facing holes, push the slider toward the origin position on the motor side and insert the hex socket head cap (M5) bolt.
Note 5. The dimensions of the specifications with the brake are applicable to only 100 strokes.
Note 7. Models with a brake will be 0.11kg heavier.

---

**STH04** Space-saving model (motor installed on right)

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective stroke</td>
<td>50 100</td>
</tr>
<tr>
<td>B</td>
<td>40 44</td>
</tr>
<tr>
<td>C</td>
<td>6 8</td>
</tr>
<tr>
<td>D</td>
<td>45 44</td>
</tr>
<tr>
<td>F</td>
<td>2 4</td>
</tr>
<tr>
<td>G</td>
<td>116.5 191.5</td>
</tr>
<tr>
<td>L</td>
<td>106 181</td>
</tr>
</tbody>
</table>

**Cross-sectional drawing A-A**

**Detailed drawing of installation hole**

Note 1. Return-to-origin position.
Note 2. Table movable range during return-to-origin operation. The values in [ ] show those when the return-to-origin direction is changed.
Note 3. The minimum bending radius of the motor cable is R30.
Note 4. When installing the mechanical main unit using the back facing holes, push the slider toward the origin position on the motor side and insert the hex socket head cap (M5) bolt.
Note 5. The dimensions of the specifications with the brake are applicable to only 100 strokes.
Note 7. Models with a brake will be 0.11kg heavier.
## STH06 Slide table type

### CE compliance
- Origin on the non-motor side is selectable

### Ordering method
- **STH06**
- **Model**
  - Lead type
    - L: Ball screw with brake
    - M: Ball screw without brake
- **Brake**
  - With brake
  - Without brake
- **Robot positioner**
  - I: Drive method
    - Straight
    - Slide screw
  - L: Motor installation (Space-saving model)
    - Motor installed on right
    - Motor installed on left
- **Controller**
  - TS-S2
  - TS-SH
  - TS-SH NP: NPN
  - TS-S2 NP: NPN

### Basic specifications
- **Motor**
  - DC motor
  - 42 II Step motor
- **Resolution (Pulse/rotation)**
  - +/-0.05
- **Repeatability (mm)**
  - 5
- **Ball screw lead (mm)**
  - 8
  - 16
- **Maximum speed (mm/sec)**
  - 150
  - 400
- **Maximum payload (kg)**
  - 9
  - 6
- **Max. pressing force (N)**
  - 180
  - 100
- **Stroke (mm)**
  - 50/100/150
- **Maximum outside dimension of body cross-section (mm)**
  - W76 × H65
  - W108 × H70
- **Cable length (mm)**
  - 42
  - 60

### Allowable overhang
- **Note**
  - Positioning repeatability in one direction.
  - Note 2. The maximum speed needs to be changed in accordance with the payload. Check the "Speed vs. payload" graph shown on the right. For details, see P. 130.

### Speed vs. payload
- **Note**
  - Overhang at travelling service life of 3000km.
  - (Service life is calculated for 100mm stroke models.)

### Static loading moment
- **Note**
  - Maximum payload in accordance with the specifications with the brake are common to those shown above.
  - Models with a brake will be 0.34kg heavier.

### Controller
- **Operation method**
  - TS-S2
  - TS-SH
  - Remote command
  - TS-SH NP: NPN
  - TS-S2 NP: NPN

### Contents of option: Plate, 4 pcs.
- For additional settings, contact your distributor.

---

### Related Notes
- **Note 1.** If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
- **Note 2.** Table movable range during return-to-origin operation.
- **Note 3.** The minimum bending radius of the motor cable is R30.
- **Note 4.** See the "Speed vs. payload" graph shown on the right.
- **Note 5.** The robot with the brake cannot use the TS-SD.
- **Note 6.** The installation hole positions of the main unit with the specifications with the brake are common to those shown above.
- **Note 6.** Models with a brake will be 0.34kg heavier.
STH06 Space-saving model (motor installed on right)
RF02-N  Rotary type / Limit rotation specification

Ordering method

Model  RF02  N
Return-to-origin method  Return-to-origin method
Bearing  Standard
Standard
Torque  Standard/High torque
Standard/High torque
cable entry location  from the bell
from the bell
Rotation direction  CCW
CCW
Cable length  1m
1m

RF02-NN  Limit rotation specification – Standard model

1. Table movable range by return-to-origin operation.
2. Be careful not to interfere with the workpiece or equipment around the table.
3. Note 1. This drawing is output under the conditions below.
4. Note 2. The minimum bending radius of the motor cable is R36.
5. Note 3. The motor cable exit direction is only on the left side.
6. For details, please refer to the TRANSERVO Series User’s Manual.

Controller  TS-S2  492
TS-SH  492
TS-SD  502
RF02-N  Limit rotation specification – High rigidity model

1. Table movable range by return-to-origin operation.
2. Return-to-origin position
3. Values and characters in [] show those when the return-to-origin direction is changed.

Note 1. This drawing is output under the conditions below.
   Bearing: High rigidity
   Torque: Standard/High torque

Note 2. The minimum bending radius of the motor cable is R30.
Note 3. The motor cable exit direction is only the left side.

Cross-sectional drawing A-A
**RF02-S** Rotary type / Sensor specification

### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Motor</th>
<th>Bearing</th>
<th>Torque</th>
<th>Cable entry location</th>
<th>Rotation direction</th>
<th>Cable length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF02</td>
<td>20</td>
<td>Standard</td>
<td>High torque</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note 1.** Positioning repeatability in one direction.

**Note 2.** The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the “Moment of inertia vs. Acceleration/Deceleration” graph and the “Effective torque vs. speed” graph (reference).

**Note 3.** For moment of inertia and effective torque details, please see P.606.

### Basic specifications

- **Motor:** 20 [Step motor]
- **Resolution (Pulse/rotation):** 4096
- **Repeatability:** +/-0.05
- **Drive method:** Special warm gear + belt
- **Torque type:** Standard (High torque)
- **Maximum speed:** 420 *rpm* (sec)
- **Rotating torque:** 0.22 [N•m]
- **Max. pushing torque:** 0.11 [N•m]
- **Backlash:** +/-0.5
- **Max. moment of inertia:** 0.0015 [kg•m²]
- **Cable length (m):** Standard: 1 Option: 3, 5, 10

**Rotation range:** 360°

**Note 1.** This drawing is output under the conditions below.

**Note 2.** The minimum bending radii of the motor cable and sensor cable are R30.

**Note 3.** The motor cable exit direction is only the left side.

### Moment of inertia Acceleration/deceleration

<table>
<thead>
<tr>
<th>Moment of Inertia (kg·m²)</th>
<th>Acceleration (°/s²)</th>
<th>Deceleration (°/s²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>0.0004</td>
<td>0.0011</td>
</tr>
<tr>
<td>300</td>
<td>0.0008</td>
<td>0.0022</td>
</tr>
<tr>
<td>500</td>
<td>0.0012</td>
<td>0.0034</td>
</tr>
</tbody>
</table>

### Effective torque vs. speed

**Effective torque:** T (N•m)

**Note:** When purchasing the product, set the controller acceleration while carefully checking the “Moment of inertia vs. Acceleration/Deceleration” and “Effective torque vs. Speed” graphs.

For details, please refer to the TRANSERVO Series User’s Manual.

---

**RF02-SN** Sensor specification – Standard model

**Controller**

**Controller Operation method**

- TS-S2: 492 [Remote command]
- TS-SHS: 492 [Remote command]

**Controller**

- **Controller**: TS-S2
- **I/O point trace**
- **Remote command**

**Motor cable exit direction:** Exit from left side

**Sensor cable exit direction:** Exit from left side

---

**Weight (kg): 0.51**

**Cross-sectional drawing A-A**

**Note 1.** This drawing is output under the conditions below.

**Note 2.** The minimum bending radii of the motor cable and sensor cable are R30.

**Note 3.** The motor cable exit direction is only the left side.
RF02-S  Sensor specification – High rigidity model

Table movable range by return-to-origin operation. Be careful not to interfere with the workplace or equipment around the table.

The return-to-origin position may differ from that shown in this drawing. To align with the position shown in this drawing, refer to the TS Series User’s Manual and change the origin coordinates.

Note 1. This drawing is output under the conditions below.
Bearing: High rigidity
Torque: Standard/High torque

Note 2. The minimum bending radii of the motor cable and sensor cable are R30.

Note 3. The motor cable exit direction is only the left side.

Weight (kg) 0.55

1 Cross-sectional drawing A-A
2 Manual operation screw (both sides)
3 Sensor specification – High rigidity model

Note 1. This drawing is output under the conditions below.
Bearing: High rigidity
Torque: Standard/High torque

Note 2. The minimum bending radii of the motor cable and sensor cable are R30.

Note 3. The motor cable exit direction is only the left side.
RF03-N  Rotary type / Limit rotation specification

Ordering method

<table>
<thead>
<tr>
<th>RF03- N</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF03N</td>
<td>Return-to-origin method (when in end and 32° rotation)</td>
</tr>
</tbody>
</table>

Basic specifications

- **Motor**: 28H/Step motor
- **Resolution (Pulse/rotation)**: 4096
- **Repeatability(°)**: ±0.05
- **Drive method**: Special warm gear + belt
- **Torque type**: Standard / High torque
- **Maximum speed (°/sec)**: 420 / 280
- **Rotating torque (N-m)**: 0.8 / 1.2
- **Max. pushing torque (N-m)**: 0.4 / 0.6
- **Backlash(°)**: ±0.5
- **Max. moment of inertia (kg-m²)**: 0.012 / 0.027
- **Cable length (m)**: Standard / Option: 1, 3, 5, 10
- **Rotation range (°)**: 320

Moment of inertia/ Acceleration/deceleration

- **Motor cable exit direction**: Exit from left side

Effective torque vs. speed

- **Motor cable**: R30

Allowable load

Note 1. Positioning repeatability in one direction.

- **Maximum speed** may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/Deceleration" graph and the "Effective torque vs. speed" graph (reference).

Note 3. For moment of inertia and effective torque details, see P.606.

Controller

- **Controller Operation method**
  - TS-S2: I/O point trace / Remote command
  - TS-SH: Pulse train control
  - TS-SD: Pulse train control

Note: When purchasing the product, set the controller acceleration while carefully checking the “Moment of inertia vs. Acceleration/Deceleration” and “Effective torque vs. speed” graphs. For details, please refer to the TRANSERVO Series User’s Manual.
RF03-S  Rotary type / Sensor specification

- CE compliance
- Limitless rotation

Ordering method

<table>
<thead>
<tr>
<th>RF03</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Return-to-origin method</td>
</tr>
<tr>
<td>Bearing</td>
<td>High rigidity</td>
</tr>
<tr>
<td>Torque</td>
<td>Standard</td>
</tr>
<tr>
<td>Cable entry location</td>
<td>From the left</td>
</tr>
<tr>
<td>Rotation direction</td>
<td>CW</td>
</tr>
<tr>
<td>Cable length (m)</td>
<td>2</td>
</tr>
</tbody>
</table>

Moment of inertia vs. speed

<table>
<thead>
<tr>
<th>Speed (°/sec)</th>
<th>0.000</th>
<th>0.005</th>
<th>0.010</th>
<th>0.015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective torque (N•m)</td>
<td>0.000</td>
<td>0.005</td>
<td>0.010</td>
<td>0.015</td>
</tr>
</tbody>
</table>

Effective torque vs. speed

<table>
<thead>
<tr>
<th>Speed (°/sec)</th>
<th>0.000</th>
<th>0.005</th>
<th>0.010</th>
<th>0.015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective torque (N•m)</td>
<td>0.000</td>
<td>0.005</td>
<td>0.010</td>
<td>0.015</td>
</tr>
</tbody>
</table>

Allowable load

- Allowable radial load (N)
- Allowable thrust load (N)
- Allowable moment (Nm)

Controller

- TS-S2
- TS-SH

Note 1. The robot cable is flexible and resists bending. For details, see P.62.

Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/Deceleration" graph and the "Effective torque vs. Speed" graph (reference).

Note 3. Select this selection when using the gateway function. For details, see P.62.

Note 1. Positioning repeatability in one direction.

Note 2. The robot cable is flexible and resists bending. For details, see P.62.

Note 3. Select this selection when using the gateway function. For details, see P.62.

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Note 3. Select this selection when using the gateway function. For details, see P.62.

Note 1. Positioning repeatability in one direction.

Note 2. The robot cable is flexible and resists bending. For details, see P.62.

Note 3. Select this selection when using the gateway function. For details, see P.62.
RF03-SH  Sensor specification – High rigidity model

1 Table movable range by return-to-origin operation. Be careful not to interfere with the workplace or equipment around the table.
2 The return-to-origin position may differ from that shown in this drawing. To align with the position shown in this drawing, refer to the TS Series User’s Manual and change the origin coordinates.

Manual operation screw (both sides)

Cross-sectional drawing A-A

Weight (kg) 1.3

Note 1. This drawing is output under the conditions below.
Bearing High rigidity
Torque Standard/High torque

Note 2. The minimum bending radii of the motor cable and sensor cable are R30.
RF04-N  Rotary type / Limit rotation specification

Ordering method

RF04-N

Model  RF04
- Return-to-origin method
  - Standard (Low rigidity)
- Torque type
  - Standard (High torque)
  - Special warm gear + belt
  - Standard (High torque)
- Cable entry location
  - From the right
  - From the left
- Rotation direction
  - CW
  - CCW
- Cable length (m)
- 3.2
- Controller
  - TS-S2: Pulse train control

Basic specifications

Motor  42 [ ] Step motor
Resolution (Pulse/rotation)  20480
Repeatability (°)  +/-0.05
Drive method
  - Special warm gear + belt
  - Standard (High torque)
Max. speed (°/sec)  420 280
Rotating torque (N•m)  6.6 10
Max. pushing torque (N•m)  3.3 5
Backlash (°)  +/-0.5
Max. moment of inertia (kg•m²)  0.04 0.1
Cable length (m)  Standard 1 / Option 3, 5, 10
Rotation range (°)  320

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/Deceleration" graph and the "Effective torque vs. Speed" graph (reference).
Note 3. For moment of inertia and effective torque details, see P.606.

Moment of inertia Acceleration/deceleration

Effective torque vs. speed

Allowable load

Allowable load (N)

Controller

Controller Operation method

TS-S2: Pulse train control
TS-SH: Remote command
TS-SD: Pulse train control

Note 1. This drawing is output under the conditions below.
  - Standard: High torque
  - High rigidity: High rigidity
  - Standard: Standard
  - High rigidity: High rigidity
  - Standard: Standard
  - High rigidity: High rigidity

RF04-NN Limit rotation specification – Standard model

Weight (kg)  2.2

Note 1. This drawing is output under the conditions below.
  - Standard: Standard
  - High rigidity: High rigidity
  - Standard: Standard
  - High rigidity: High rigidity
  - Standard: Standard
  - High rigidity: High rigidity

Note 2. The minimum bending radius of the motor cable is R30.

Note 3. Select this selection when using the gateway function. For details, see P.62.

Note 2. See P.500 for DIN rail mounting bracket.
Note 1. This drawing is output under the conditions below.
  - Standard: Standard
  - High rigidity: High rigidity
  - Standard: Standard
  - High rigidity: High rigidity
  - Standard: Standard
  - High rigidity: High rigidity

Torque type

Motor

Repeatability

Drive method

Max. speed (°/sec)

Rotating torque (N•m)

Max. pushing torque (N•m)

Backlash (°)

Max. moment of inertia (kg•m²)

Cable length (m)

Rotation range (°)

Model

Motor

Resolution (Pulse/rotation)

Repeatability (°)

Drive method

Max. speed (°/sec)

Rotating torque (N•m)

Max. pushing torque (N•m)

Backlash (°)

Max. moment of inertia (kg•m²)

Cable length (m)

Rotation range (°)
RF04-NH  Limit rotation specification – High rigidity model

1. Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.
2. Return-to-origin position
3. Values and characters in [ ] show those when the return-to-origin direction is changed.

Note 1. This drawing is output under the conditions below.
- Bearing: High rigidity
- Torque: Standard/High torque

Note 2. The minimum bending radius of the motor cable is R30.
**RF04-S** Rotary type / Sensor specification

### Ordering method

**RF04-S**

<table>
<thead>
<tr>
<th>Model</th>
<th>S</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor</td>
<td>42</td>
<td>88</td>
</tr>
<tr>
<td>Resolution (Pulse/rotation)</td>
<td>20480</td>
<td>40960</td>
</tr>
<tr>
<td>Repeatability (** °**)</td>
<td>+/-0.05</td>
<td>+/-0.05</td>
</tr>
<tr>
<td>Drive method</td>
<td>Special warm gear + belt</td>
<td>Special warm gear + belt</td>
</tr>
<tr>
<td>Maximum speed (<strong>°/sec</strong>)</td>
<td>420</td>
<td>840</td>
</tr>
<tr>
<td>Rotating torque (N-m)</td>
<td>280</td>
<td>560</td>
</tr>
<tr>
<td>Max. pushing torque (N-m)</td>
<td>3.3</td>
<td>4.2</td>
</tr>
<tr>
<td>Backlash (<strong>°</strong>)</td>
<td>+/-0.05</td>
<td>+/-0.05</td>
</tr>
<tr>
<td>Max. moment of inertia (<strong>kg•m²</strong>)</td>
<td>0.04</td>
<td>0.1</td>
</tr>
<tr>
<td>Cable length (m)</td>
<td>Standard</td>
<td>1/3 Option</td>
</tr>
<tr>
<td>Rotation range (<strong>°</strong>)</td>
<td>360</td>
<td>360</td>
</tr>
</tbody>
</table>

Note 1. The robot cable is flexible and resists bending. Note 2. See P.500 for DIN rail mounting bracket. Note 3. Select this selection when using the gateway function. For details, see P.62.

### Basic specifications

**Motor**

- Resolution (Pulse/rotation): 20480
- Repeatability (°): +/-0.05

**Drive method**

- Special warm gear + belt

**Maximum speed (°/sec):**

- S: 420
- N: 840

**Rotating torque (N•m):**

- S: 280
- N: 560

**Max. pushing torque (N•m):**

- S: 3.3
- N: 4.2

**Backlash (°):**

- S: +/-0.05
- N: +/-0.05

**Max. moment of inertia (kg•m²):**

- S: 0.04
- N: 0.1

**Cable length (m):**

- Standard: 1
- Option: 3, 5, 10

**Rotation range (°):**

- 360

Note 1. Positioning repeatability in one direction.

Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the “Moment of inertia vs. Acceleration/Deceleration” graph and the “Effective torque vs. speed” graph (reference).

Note 3. For moment of inertia and effective torque details, see P.606.

### Moment of inertia Acceleration/deceleration

**Effective torque vs. speed**

**Allowable load**

- **Allowable radial load (N):**
  - Standard model: 314
  - High rigidity model: 378
- **Allowable thrust load (N):**
  - Standard model: 296
  - High rigidity model: 398
- **Allowable moment (N•m):**
  - Standard model: 9.7
  - High rigidity model: 12.0

Note: When purchasing the product, set the controller acceleration while carefully checking the “Moment of inertia vs. Acceleration/Deceleration” and “Effective torque vs. Speed” graphs.

For details, please refer to the TRANSERVO Series User's Manual.

### Controller

**Controller**

- TS-S2S
- TS-SHS

**Operation method**

- TS-S2S: I/O point trace / Remote command

**Remote command**

- EP: EtherNet/IP™
- PT: PROFINET
- DN: DeviceNet™
- CC: CC-Link
- PN: PNP
- NC: None

**I/O point trace**

- RF04-SN: Sensor specification – Standard model

**Sensor specification**

- Sensor type: Standard
- Sensor specification: – Standard model

**Note 1.** This drawing is output under the conditions below.
- Torque
  - Standard: Standard
  - High torque: High torque
- Cross-sectional drawing A-A
- Manual operation screw (both sides)

**Cross-sectional drawing A-A**

- Motor cable exit direction: Exit from left side
- Sensor cable exit direction: Exit from right side

Approx. 160

- 2-M10x1.5 Depth 20
- 6-M6x1.0 Depth 8.5
- 2-5H10 (3) (2-M10x1.5 Depth 20)
- 2-4H6 (3) (10x1.5 Depth 8.5)
- 2-6H8 (10x1.5 Depth 8.5)
- 8-M6x1.0 Depth 10
- P.C.D.55 (60° equally divided.)
- 2-M6x1.0 Depth 8.5
- 70° 5° 8°

**Note 2.** The minimum bending radii of the motor cable and sensor cable are R30.

**Weight (kg):**

- S: 2.3
- N: 4.6
RF04-S Sensor specification – High rigidity model

1. Table movable range by return-to-origin operation. Be careful not to interfere with the workplace or equipment around the table.
2. The return-to-origin position may differ from that shown in this drawing. To align with the position shown in this drawing, refer to the TS Series User’s Manual and change the origin coordinates.

Manual operation screw (both sides)

Cross-sectional drawing A-A

Weight (kg)  2.5

Note 1. This drawing is output under the conditions below.
Bearing: High rigidity
Torque: Standard/High torque

Note 2. The minimum bending radii of the motor cable and sensor cable are R30.

Controller TS-S2  492 TS-SH  492
Articulated robots
YA
Compact single-axis robots
TRANSERVO
Single-axis robots
FLIP-X
Linear motor single-axis robots
PHASER
Cartesian robots
XY-X
SCARA robots
YK-X
Pick & place robots
YP-X
CLEAN CONTROLLER INFORMATION
Linear conveyor modules
LCM100

Controller
TS-S2 $492$
TS-SH $492$
TS-SD $502$

### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead Brake</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD04</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
</tbody>
</table>

#### Allowable overhang Note

- Horizontal installation
- Wall installation

#### Static loading moment

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead Brake</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>N</td>
</tr>
<tr>
<td>SH</td>
<td>N</td>
</tr>
<tr>
<td>SD</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Basic specifications

- **Motor**: 28 Step motor
- **Resolution (Pulse/rotation)**: 4096
- **Repeatability (mm)**: +/-0.1
- **Drive method**: Belt
- **Equivalent lead (mm)**: 48
- **Maximum speed (mm/sec)**: 1100
- **Maximum payload (kg)**: 1
- **Stroke (mm)**: 300/500/600/700/800/900/1000
- **Overall length (Horizontal installation)**: Stroke + 198.5
- **Maximum outside dimension of body cross-section (mm)**: W40 x H101.9

Note 1. Positioning repeatability in one direction. Note 2. The maximum speed needs to be changed in accordance with the payload.

#### Speed vs. payload

- **Payload (kg)**: 0.5, 1
- **Speed (mm/sec)**: 8036, 1614

Note 1. Positioning repeatability in one direction.

#### Controller

- **Controller Operation method**: TS-S2 Remote command
- **TS-SH Vertical installation**
- **TS-SD Pulse train control**

Note 1. The robot cable is flexible and resists bending.

Note 2. When installing using the main unit installation reference surface, make the mating or positioning height 2mm or more higher than the reference surface since the R-chamfering is provided on the main unit.

Note 3. Select this selection when using the gateway function. For details, see P.62.
BD05 Belt type

CE compliance

Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Brake</th>
<th>Origin position</th>
<th>Stroke</th>
<th>Cable length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD05</td>
<td>48</td>
<td>N</td>
<td>N</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

Note 1. The robot cable is flexible and resists bending.
Note 2. See P.500 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function. For details, see P.62.

Basic specifications

<table>
<thead>
<tr>
<th>Motor</th>
<th>42 [ ] Step motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution (pulse/rotation)</td>
<td>20480</td>
</tr>
<tr>
<td>Repeatability (mm)</td>
<td>+/-0.1</td>
</tr>
<tr>
<td>Drive method</td>
<td>Belt</td>
</tr>
<tr>
<td>Equivalent load (kgf)</td>
<td>48</td>
</tr>
<tr>
<td>Maximum payload (kgf)</td>
<td>5</td>
</tr>
<tr>
<td>Stroke (mm)</td>
<td>300/500/600/700/800/900/1000/1200/1500/1800/2000</td>
</tr>
<tr>
<td>Overall length (mm) (Horizontal installation)</td>
<td>Stroke + 241.8</td>
</tr>
<tr>
<td>Maximum outside dimension of body cross-section (mm)</td>
<td>W58 × H123</td>
</tr>
<tr>
<td>Cable length (m)</td>
<td>Standard: 1 / Option: 3, 5, 10</td>
</tr>
</tbody>
</table>

Note 1. Positioning repeatability in one direction. See the “Speed vs. Payload” graph shown on the right.
Note 2. The maximum speed needs to be changed in accordance with the payload. See the “Speed vs. Payload” graph shown on the right.
Note 3. The minimum bending radius of the motor cable is R30.

Allowable overhang Note

<table>
<thead>
<tr>
<th>Payload (kgf)</th>
<th>Speed (mm/sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>550</td>
</tr>
<tr>
<td>3</td>
<td>700</td>
</tr>
<tr>
<td>1</td>
<td>1000</td>
</tr>
<tr>
<td>0</td>
<td>1400</td>
</tr>
</tbody>
</table>

Static loading moment

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>50V</td>
<td>5A</td>
<td>10Ω</td>
</tr>
</tbody>
</table>

Controller

<table>
<thead>
<tr>
<th>Controller</th>
<th>Operation method</th>
<th>I/O point trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS-S2</td>
<td>Remote command</td>
<td></td>
</tr>
<tr>
<td>TS-SH</td>
<td>TS-SD</td>
<td>Pulse train control</td>
</tr>
</tbody>
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Controller Information

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<td>TS-SD</td>
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</table>

Motor specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Brake</th>
<th>Origin position</th>
<th>Stroke</th>
<th>Cable length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD05</td>
<td>48</td>
<td>N</td>
<td>N</td>
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</table>

Pick & Place robots

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Brake</th>
<th>Origin position</th>
<th>Stroke</th>
<th>Cable length (mm)</th>
</tr>
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<tbody>
<tr>
<td>BD05</td>
<td>48</td>
<td>N</td>
<td>N</td>
<td>C</td>
<td></td>
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</tbody>
</table>

Linear conveyor modules

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Brake</th>
<th>Origin position</th>
<th>Stroke</th>
<th>Cable length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD05</td>
<td>48</td>
<td>N</td>
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<td>C</td>
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Controller Information

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<th>I/O point trace</th>
</tr>
</thead>
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<td></td>
</tr>
<tr>
<td>TS-SH</td>
<td>TS-SD</td>
<td>Pulse train control</td>
</tr>
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Motor specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Brake</th>
<th>Origin position</th>
<th>Stroke</th>
<th>Cable length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD05</td>
<td>48</td>
<td>N</td>
<td>N</td>
<td>C</td>
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Pick & Place robots

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Brake</th>
<th>Origin position</th>
<th>Stroke</th>
<th>Cable length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD05</td>
<td>48</td>
<td>N</td>
<td>N</td>
<td>C</td>
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Linear conveyor modules

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Brake</th>
<th>Origin position</th>
<th>Stroke</th>
<th>Cable length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD05</td>
<td>48</td>
<td>N</td>
<td>N</td>
<td>C</td>
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Controller Information

<table>
<thead>
<tr>
<th>Controller</th>
<th>Operation method</th>
<th>I/O point trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS-S2</td>
<td>Remote command</td>
<td></td>
</tr>
<tr>
<td>TS-SH</td>
<td>TS-SD</td>
<td>Pulse train control</td>
</tr>
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## Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Brake</th>
<th>Origin position</th>
<th>Stroke</th>
<th>Cable length</th>
<th>Robot positioner</th>
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<tbody>
<tr>
<td>BD07</td>
<td>48</td>
<td>N</td>
<td>N</td>
<td>1500</td>
<td>N</td>
<td>S2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Basic specifications

- **Motor**: 56() Step motor
- **Resolution (Pulse/rotation)**: 20480
- **Repeatability** (mm): +/-0.1
- **Drive method**: Belt
- **Equivalent lead (mm)**: 48
- **Maximum speed** (mm/sec): 1500
- **Maximum payload (kg)**: 14
- **Stroke (mm)**: 300/500/600/700/800/900/1000/1200/1500/1800/2000
- **Overall length (mm)**: Stroke + 285.6
- **Maximum outside dimension of body cross-section (mm)**: W70 × H147.5

### Allowable overhang Note

- **Horizontal installation** (Unit: mm)
  - 3kg: 5767
  - 8kg: 1839
  - 14kg: 829
- **Wall installation** (Unit: mm)
  - 3kg: 1324
  - 8kg: 254
  - 14kg: 151

### Speed vs. payload

![Speed vs. payload graph](image)

#### Quick reference

<table>
<thead>
<tr>
<th>Payload (kg)</th>
<th>Speed (mm/sec)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>525</td>
<td>35</td>
</tr>
<tr>
<td>4</td>
<td>1000</td>
<td>66</td>
</tr>
<tr>
<td>0.5</td>
<td>1500</td>
<td>100</td>
</tr>
</tbody>
</table>

### Static loading moment

![Static loading moment graph](image)

### Controller

- **Controller Operation method**
  - TS-S2: I/O point trace / Remote command
  - TS-SH: Remote command
  - TS-SD: Pulse train control

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**Note 1.** Positioning repeatability in one direction. Note 2. The maximum speed needs to be changed in accordance with the payload. See the “Speed vs. payload” graph shown on the right.

**Note 2.** When installing using the main unit installation reference surface, make the mating or positioning height 2mm or more higher than the reference surface since the R-chamfering provided on the main unit. (Recommended height: 5mm)

**Note 3.** The minimum bending radius of the motor cable is R30.