Estratto Catalogo Yamaha
Assi lineari economici (Serie Transervo)
CLOSED LOOP STEPPING MOTOR SINGLE-AXIS ROBOTS

Excellent characteristics of both stepping motor and servomotor were combined. Stepping motor single-axis robots "TRANSERVO" series breaking through existing conventions.

Robot positioner TS-S2/TS-SH

This robot positioner is specialized for the I/O point trace input. The positioning or pushing operation can be performed using simple operation, only by specifying a point number from the host control unit and inputting the START signal.

Applicable models: SS, SG, SR, STH, RF, BD

Note. SG07 is only applicable to TS-SH.

Robot driver TS-SD

This robot driver omits the operation with robot languages and is dedicated to the pulse train input. This driver can be made applicable to the open collector method or line driver method using the parameter setting and signal wiring. So, you can match the robot driver to the host unit to be used.

Applicable models: SS, SR, STH, RF, BD

Note. Except for STH vertical specifications and RF sensor specifications.
Newly developed vector control method provides functions and performance similar to servomotors.

### SS type (Slider type)

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Size (mm)</th>
<th>Lead (mm)</th>
<th>Maximum payload (kg)</th>
<th>Maximum speed (mm/sec.)</th>
<th>Stroke (mm)</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Straight model</strong></td>
<td>SS04-S</td>
<td>W49 × H59</td>
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<td>SS04-R (L)</td>
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<tr>
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### SR type (Rod type standard)

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<td>SR03-R (L)</td>
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### SR type (Rod type with support guide)

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<th>Lead (mm)</th>
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<td>SRD04-S</td>
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<td>P.141</td>
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<td>SRD04-U</td>
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<td>W157 × H71</td>
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<td>50 to 300</td>
<td>P.142</td>
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<td>SRD05-U</td>
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<td>6 55 18.5 150</td>
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</tbody>
</table>

Note 1. The size shows approximate maximum cross sectional size.
Note 2. The payload may vary depending on the operation speed. For details, refer to the detailed page of relevant model.
Note 3. The maximum speed may vary depending on the transfer weight or stroke length. For details, refer to the detailed page of relevant model.

- Allowable ambient temperature for robot installation: SS/SR type: 0 to 40 °C
As the slide table type, rotary type, and belt type were added to the product lineup, the design flexibility was extended.

### STH type (Slide table type)

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Size (mm)</th>
<th>Lead (mm)</th>
<th>Maximum payload (kg)</th>
<th>Maximum speed (mm/sec.)</th>
<th>Stroke (mm)</th>
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<tbody>
<tr>
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<td>STRH06</td>
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### RF type (Rotary type)

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<th>Torque type</th>
<th>Rotation torque (N • m)</th>
<th>Maximum pushing torque (N • m)</th>
<th>Maximum speed (mm/sec.)</th>
<th>Rotation range (°)</th>
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<tr>
<td>RF02-N</td>
<td>49 (High rigidity)</td>
<td>42 (Standard)</td>
<td>N: Standard</td>
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<td>RF02-N: P.154</td>
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<td>RF02-S</td>
<td>53 (Standard)</td>
<td>62 (High rigidity)</td>
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<td>0.4</td>
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<td>RF02-S: P.157</td>
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<td>RF04-N</td>
<td>68 (Standard)</td>
<td>78 (High rigidity)</td>
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<td>6.6</td>
<td>3.3</td>
<td>420</td>
<td>320 (RF04-N)</td>
<td>RF04-N: P.155</td>
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<tr>
<td>RF04-S</td>
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<td>82 (High rigidity)</td>
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<td>3.3</td>
<td>420</td>
<td>320 (RF04-S)</td>
<td>RF04-S: P.155</td>
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### BD type (Belt type)

<table>
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<th>Type</th>
<th>Model</th>
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<th>Lead (mm)</th>
<th>Maximum payload (kg)</th>
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<td>BD07: P.168</td>
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</table>

Note 1. The size shows approximate maximum cross sectional size.
Note 2. The payload may vary depending on the operation speed. For details, refer to the detailed page of relevant model.
Note 3. The maximum speed may vary depending on the transfer weight or stroke length. For details, refer to the detailed page of relevant model.
Note 4. STH04-R (L) with 50-stroke and brake is not supported.

■ Allowable ambient temperature for robot installation

STH/RF/BD type: 5 to 40 °C
**Common features of TRANSERVO Series**

**POINT 1**

New control method combining the advantages of both the servomotor and stepping motor

The stepping motor provides features that its price is less expensive and hunting (minute vibration) does not occur during stopping. However, this motor has disadvantages that the positional deviation due to step-out occurs (in the open loop mode), the torque decreases greatly in the high speed area, and the power consumption is large during stopping. As YAMAHA’s TRANSERVO uses the closed loop control, this ensures complete "no step-out". Furthermore, use of a newly developed vector control method ensures less torque decrease in the high speed area, energy saving, and low noise. The function and performance equivalent to the servomotor are achieved at a low cost even using the stepping motor.

**Energy saving**

As the basic control is the same as the servomotor, waste power consumption is suppressed. This greatly contributes to the energy saving and CO₂ reduction.

**No hunting during stopping**

Stop mode without hunting can be set in the same manner as the general stepping motor. So, select this mode as required.

**POINT 2**

Closed loop control using excellent environment resistant resolver

A resolver with excellent reliability is used to detect the motor position in the same manner as YAMAHA’s upper model. The stable position detection can be made even in a poor environment where fine particle dusts or oil mists exist. Additionally, a high resolution of 20480 pulses per revolution is provided.

**POINT 3**

High resolution (4096, 20480 pulse/rev)

Use of a high resolution makes it possible to maintain excellent controllability. Variations in speed are small and settling time during deceleration stop can be shortened.

**POINT 4**

Return-to-origin is not needed to shorten the start-up time.

New type robot positioner TS-SH applicable to the high power was newly developed. This robot positioner is applicable to the absolute position system and does not need any return-to-origin. The work can be started quickly to shorten the start-up time.
SS type (Slider type) Straight model/Space-saving model

POINT

4-row circular arc groove type 2-point contact guide applicable to even large moment load

A newly developed module guide is employed with a 4-row circular arc groove type 2-point contact guide built into a very compact body similar to the conventional model. This guide maintains a satisfactory rolling movement with less ball differential slip due to its structure even if a large moment load is applied or the installation surface precision is poor, and has characteristics that are difficult to malfunction, such as unusual wear.

POINT

Tact is shortened by high-speed movement.

As advantages of the vector control method are utilized at maximum level, the TRANSERVO maintains a constant payload even in a high-speed range. This greatly contributes to shortening of the tact time. Additionally, by combining this feature with high-lead ball screws, the TRANSERVO has achieved a maximum speed of 1 m/sec, which is faster than any single-axis servo motor.

Note. SS05-S/SS05H-S with 20 mm-lead specifications

SG type (Slider type)

POINT

Maximum payload is 46 kg. A maximum payload of 20 kg is supported even with the vertical specifications.

As rigid table slide and 56□ motor are adopted, the payload is increased greatly. A maximum payload of 46 kg is achieved. Up to 20 kg can be transferred even with the vertical specifications.

POINT

Maximum speed is 1200 mm/sec.

The maximum speed is made 1.2 times faster than that of the current model SS05H. The tact-up of the equipment can be achieved.

SR type (Rod type) Standard model/Model with support guide

POINT

Long-term maintenance free is achieved.

A lubricator used in the ball screw and a contact scraper installed at the rod inlet and outlet provide maintenance-free operation.

Maintenance interval is greatly extended.

Normal grease lubrication on the ball screw loses a very small amount of oil as the ball screw moves. The SR type has a lubricator that supplies grease lost over long periods to greatly extend the maintenance interval and ensure near maintenance-free operation.

Note. The maintenance-free period is within the running life of the robot.

Highly reliable resolver is used.

A resolver with excellent environment resistance is used for the position detector. All models can select brake specifications.

Ball screw lubricator

A lubricator with high density fiber net impregnated with grease supplies an adequate amount of oil to appropriate locations.

Laminated type contact scraper

A dual-layer scraper removes fine foreign objects sticking to the rod to prevent them from entering the inside and troubles caused by foreign objects. Rod rattles is suppressed effectively.
**STH type (Slide table type) Straight model/Space-saving model**

**POINT**

Use of a circulation type linear guide achieves the high rigidity and high accuracy.
- Guide rail is integrated with the table.
- Table deflection amount is small.
- Use of a circulation type linear guide achieves the high rigidity and high accuracy.
- STH06 provides an allowable overhang exceeding that of FLIP-X series T9.
- Space-saving model with the motor built-into the body is also added to the product lineup.
- Suitable for precision assembly.

**RF type (Rotary type) Standard model/High rigidity model**

**POINT**

Rotation axis model, first in TRANSERVO series
- Rotation axis model, first in TRANSERVO series
- Thin and compact
- Can be secured from the top or bottom surface.
- Hollow hole, through which the tool wiring is passed, is prepared.
- Workpiece can be attached easily.
- Motor is built-into the body to achieve the space-saving.
- Standard model or high rigidity model can be selected.

**BD type (Belt type) Straight model**

**POINT**

Belt type applicable to long stroke
- Applicable to up to 2000 mm-stroke.
- High speed movement at a speed of up to 1500 mm/sec. can be made.
- Maximum payload 14 kg
- Main body can be installed without disassembling the robot.
- Shutter is provided as standard equipment. This prevents grease scattering or entry of foreign object.

---

**Environment-friendly lubrication system**

The lubrication system is environment-friendly as it uses a high density fiber net and supplies an adequate amount of oil to appropriate locations to eliminate waste lubrication.

**Prevention of foreign object entry**

The dual-layer scraper is in contact with the front of the rod to ensure excellent fine contaminant particle removal performance. The scraper removes fine contaminant particles sticking to the rod through multi steps to prevent them from entering the inside and troubles caused by foreign objects. Additionally, oleo-synthetic foam rubber with a self-lubricating function ensures low-friction resistance.

---

**Tip nozzle for grease application**

When applying the grease to the ball screw of the SR type space-saving model SR03-UB or SRD03-UB, use a grease gun with the tip bent.

<table>
<thead>
<tr>
<th>Model</th>
<th>KCU-M3661-00</th>
</tr>
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</table>

Note. YAMAHA's recommended product. This tip nozzle can be attached to a generally available grease gun.

---

**Positioning pin hole**

Workpiece installation reproducibility is improved.

**Body installation through hole**

Installation is possible from the top surface.

**Workpiece installation tap**

Guide rail is integrated with the table.

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SINGLE-AXIS ROBOTS

TRANSERVO
SERIES

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<td>SRD05</td>
<td>148</td>
</tr>
<tr>
<td>STH04</td>
<td>150</td>
</tr>
<tr>
<td>STH06</td>
<td>152</td>
</tr>
<tr>
<td>RF02-N</td>
<td>154</td>
</tr>
<tr>
<td>RF02-S</td>
<td>156</td>
</tr>
<tr>
<td>RF03-N</td>
<td>158</td>
</tr>
<tr>
<td>RF03-S</td>
<td>160</td>
</tr>
<tr>
<td>RF04-N</td>
<td>162</td>
</tr>
<tr>
<td>RF04-S</td>
<td>164</td>
</tr>
<tr>
<td>BD04</td>
<td>166</td>
</tr>
<tr>
<td>BD05</td>
<td>167</td>
</tr>
<tr>
<td>BD07</td>
<td>168</td>
</tr>
</tbody>
</table>
# TRANSEVRO SPECIFICATION SHEET

## Type of Robot
- **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**

## Table: Speed vs. Payload Table

### SR type (Sliding type)
- **SS04-S**
- **SS05-S (L)**
- **SS06-S (L)**

### SR type (Rotating type)
- **SR03-U**
- **SR04-U**

### SR type (Rod type with support mechanism)
- **SR05-U**

### SG type (Sliding type)
- **SG07**

### STH type (Sliding table type)
- **STH04-R (L)**
- **STH05-R (L)**

### SRD type (Rolling type with support mechanism)
- **SRD03-U**
- **SRD04-U**
- **SRD05-U**

### BD type (Ball type)
- **BD04**
- **BD05**
- **BD07**

## Precautions for use
- **Handling**
  - Fully understand the contents stated in the "TRANSEVRO User's Manual" and strictly observe the handling precautions during operation.
- **Allowable installation ambient temperature**
  - SS/SR type: 0 to 40°C
  - STH type: 5 to 40°C

## Specifications
- **Type**
- **Model**
- **Size (mm)**
- **Lead (mm)**
- **Maximum payload (kg)**
- **Maximum speed (mm/sec)**
- **Stroke (mm)**
- **Detailed info page**

### Note:
- The size shows approximate maximum cross sectional size. For details, refer to the detailed page of relevant model.
- The maximum speed may vary depending on the operation speed. For details, refer to the page of relevant model.
- Precautions during operation.

---

## Table: Stroke (mm)

### Detailed Info Page
- **P130 - P131**
- **P132 - P133**
- **P134 - P135**
- **P136**
- **P137 - P139**
- **P140 - P143**
- **P144 - P145**
- **P146 - P147**
- **P148 - P149**
- **P150 - P152**
- **P153**
- **P154 - P157**
- **P158 - P161**
- **P162 - P165**
- **P181**
- **P183**
- **P185**

---

## Table: Maximum payload (kg)

### Stroke (mm)

### Speed (mm/sec)

### Torque (Nm)

### Detailed Info Page

---

## Table: Maximum speed (mm/sec)

### Stroke (mm)

### Speed (mm/sec)

### Torque (Nm)

### Detailed Info Page
Robot ordering method description

In the order format for the YAMAHA single-axis robots TRANSERVO series, the notation (letters/numbers) for the mechanical section is shown linked to the controller section notation.

[Example]

- **Mechanical** >> SS05
  - Lead >> 6mm
  - Model >> Straight
  - Brake >> Yes
  - Origin position >> Standard
  - Grease >> Standard
  - Stroke >> 600mm
  - Cable length >> 1m

- **Controller** >> TS-S2
  - Input /Output selection >> NPN

### Ordering Method

**SS05-06SB-NN-600-1K-S2NP**

#### SS type / SG type (Slider type)

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Model</th>
<th>Brake</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR03</td>
<td>6mm</td>
<td>SR03-02SB</td>
<td>With brake</td>
</tr>
<tr>
<td>SR03-UB</td>
<td>6mm</td>
<td>SR03-02SB-UB</td>
<td>Without brake</td>
</tr>
<tr>
<td>SRD03</td>
<td>6mm</td>
<td>SRD03-02SB</td>
<td>With brake</td>
</tr>
<tr>
<td>SRD03-UB</td>
<td>6mm</td>
<td>SRD03-02SB-UB</td>
<td>Without brake</td>
</tr>
</tbody>
</table>

#### SR type (Rod type)

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Model</th>
<th>Brake</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR04</td>
<td>12mm</td>
<td>SR04-02SB</td>
<td>With brake</td>
</tr>
<tr>
<td>SR04-UB</td>
<td>12mm</td>
<td>SR04-02SB-UB</td>
<td>Without brake</td>
</tr>
<tr>
<td>SRD04</td>
<td>12mm</td>
<td>SRD04-02SB</td>
<td>With brake</td>
</tr>
<tr>
<td>SRD04-UB</td>
<td>12mm</td>
<td>SRD04-02SB-UB</td>
<td>Without brake</td>
</tr>
</tbody>
</table>

#### STH Type (Slide table type)

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Model</th>
<th>Brake</th>
</tr>
</thead>
<tbody>
<tr>
<td>STH04</td>
<td>16mm</td>
<td>STH04-02SB</td>
<td>With brake</td>
</tr>
<tr>
<td>STH04-UB</td>
<td>16mm</td>
<td>STH04-02SB-UB</td>
<td>Without brake</td>
</tr>
<tr>
<td>STH05</td>
<td>16mm</td>
<td>STH05-02SB</td>
<td>With brake</td>
</tr>
<tr>
<td>STH05-UB</td>
<td>16mm</td>
<td>STH05-02SB-UB</td>
<td>Without brake</td>
</tr>
</tbody>
</table>

#### RF Type (Rotary type / Limit rotation specification, Rotary type / Sensor specification)

<table>
<thead>
<tr>
<th>Model</th>
<th>Return-to-origin method</th>
<th>Type</th>
<th>Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF02-N</td>
<td>No sensor</td>
<td>No-motor side</td>
<td>8mm</td>
</tr>
<tr>
<td>RF03-N</td>
<td>No sensor</td>
<td>No-motor side</td>
<td>12mm</td>
</tr>
<tr>
<td>RF04-N</td>
<td>Sensor (hard stop)</td>
<td>No-motor side</td>
<td>16mm</td>
</tr>
<tr>
<td>RF05-N</td>
<td>Sensor (hard stop)</td>
<td>No-motor side</td>
<td>20mm</td>
</tr>
</tbody>
</table>

#### BD Type (Belt type)

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD01</td>
<td>No brake</td>
<td>12mm</td>
</tr>
<tr>
<td>BD02</td>
<td>No brake</td>
<td>16mm</td>
</tr>
<tr>
<td>BD03</td>
<td>No brake</td>
<td>20mm</td>
</tr>
</tbody>
</table>

### Rod type: Bracket plates

- **SR03/SRD03 bracket plates**
  - Feet (horizontal mount) Flange (vertical mount)
  - Type Model No.
    - Feet (2 plates per set) KCU-M223F-00
    - Flange (piece) KCU-M224F-00

- **SR04/SRD04 bracket plates**
  - Feet (horizontal mount) Flange (vertical mount)
  - Type Model No.
    - Feet (2 plates per set)* KCV-M223F-00
    - Flange (piece) KCV-M224F-00
  - * Comes with 12 mounting nuts for feet.

- **SR05/SRD05 bracket plates**
  - Feet (horizontal mount) Flange (vertical mount)
  - Type Model No.
    - Feet (2 plates per set)* KCV-M223F-00
    - Flange (piece) KCV-M224F-00
  - * Comes with 8 mounting nuts for feet.

### Rod type: Grease gun nozzle tube for space-saving models

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)**

### Rod type: Running life distance to life time conversion example

This is an example of life time converted from the running life distance listed on each model page for the SR type.

- **Model**
  - SR04-02SB, Vertical mount, 25 kg payload

- **Life distance**
  - 100nm back-and-forth movement, shuttle time 16 seconds (duty: 20%)

- **Word conditions**
  - 16 hours per day
  - 240 days per year

Note. Make sure that the rod is not subjected to a radical load.
### SS04 Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead screw type</th>
<th>Model</th>
<th>Lead screw type</th>
<th>Brake</th>
<th>Origin position</th>
<th>Grease option</th>
<th>Stroke</th>
<th>Stroke length (mm)</th>
<th>Robot positioner</th>
<th>Option: 1m</th>
<th>SD</th>
<th>1</th>
<th>Option: 1m</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>42</td>
<td>Straight model</td>
<td>S</td>
<td>42</td>
<td>With brake</td>
<td>Standard</td>
<td>294</td>
<td>460</td>
<td>460</td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>42</td>
<td>Straight model</td>
<td>L</td>
<td>42</td>
<td>With brake</td>
<td>Standard</td>
<td>294</td>
<td>460</td>
<td>460</td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>42</td>
<td>Straight model</td>
<td>S</td>
<td>42</td>
<td>With brake</td>
<td>Standard</td>
<td>294</td>
<td>460</td>
<td>460</td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>42</td>
<td>Straight model</td>
<td>L</td>
<td>42</td>
<td>With brake</td>
<td>Standard</td>
<td>294</td>
<td>460</td>
<td>460</td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1. 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 2. The robot is flexible and resists bending.

Note 3. See P.498 for DIN rail mounting bracket.

Note 4. When using the gateway function. For details, see P.60.

### Basic specifications

- **Motor**: 42 Step motor
- **Resolution (Pulse/rotation)**: 20480
- **Deceleration mechanism**: Ball screw
- **Maximum motor torque (Nm)**: 0.27
- **Max. screw lead (mm)**: 12 6 2
- **Maximum speed (mm/sec)**: 120 60 30
- **Maximum payload (kg)**: 1 2 4
- **Max. pressing force (N)**: 45 90 150
- **Stroke (mm)**: 50 to 400 (50mm pitch)
- **Overall length (mm)**: Stroke+210
- **Maximum outside dimension of body cross-section (mm)**: W49 x H59
- **Cable length (m)**: Standard: 1 / Option: 3, 6, 10

Note 1. Positioning repeatability in one direction.

### Motor installation (Space-saving model)

- **Type**: Motor installed on left
- **Type**: Motor installed on right

### Allowable overhang

- **Horizontal installation**: Note 1
- **Wall installation**: Note 2
- **Vertical installation**: Note 3

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 400mm stroke models).

### Static loading moment

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

### SS04 Straight model S

- **Approx. 200 (Cable length)**
- **161**: When origin is on motor side
- **(161)**: When origin is on non-motor side
- **261**: When origin is on motor side
- **(261)**: When origin is on non-motor side

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 30.

Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.
SS04 Space-saving model

SS04-L Specifications

<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>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>187</td>
<td>237</td>
<td>287</td>
<td>337</td>
<td>387</td>
<td>437</td>
<td>487</td>
<td>537</td>
</tr>
<tr>
<td>A</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>C</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>300</td>
<td>350</td>
<td>400</td>
<td>450</td>
</tr>
</tbody>
</table>

Weight (kg) = 0.2 for 1.2 to 1.9.

Effective stroke: 50 100 150 200 250 300 350 400

Note 1. Effective stroke 50 100 150 200 250 300 350 400

Note 2. Stop positions are determined by the mechanical stoppers at both ends.

Note 3. Secure the cable with a tie-band 80mm or less from unit’s end face to prevent the cable from being subjected to excessive loads.

Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.

Note 5. The belt cover’s left and right sides are asymmetrical. Therefore, if the motor mounting orientation is changed, the cover cannot be attached.
SS05 Slider type

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

## Ordering method

### SS05

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Model</th>
<th>Lead</th>
<th>Model</th>
<th>Lead</th>
<th>Model</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS05-S</td>
<td>20</td>
<td>SS05-R</td>
<td>20</td>
<td>SS05-T</td>
<td>20</td>
<td>SS05-V</td>
<td>20</td>
</tr>
</tbody>
</table>

**Note 1**. Brake-equipped models can be selected only when the lead is 12mm or 6mm.

**Note 2**. 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 3**. The robot cable is flexible and resists bending.

**Note 4**. See P.498 for DIN rail mounting bracket.

**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 below.

### Basic specifications

- **Motor**
  - 42 step motor

- **Resolution (Pulse/rotation)**
  - 10240

- **Deceleration mechanism**
  - Ball screw 6/7 (Class C10)

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

- **Overall length (mm)**
  - 50 to 800 (50mm pitch)

- **Maximum motor torque (N.m)**
  - 4.2

- **Cable length (m)**
  - 3.5

### Motor installation (Space-saving model)

- **R type** Motor installed on right
- **L type** Motor installed on left

### Allowable overhang

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

### Static loading moment

**Controller**

- Operation method
  - TS-S2 / TS-SH
  - Remote command
  - TS-SD

- Pulse train control

### Controller Operation method

- TS-S2 / TS-SH
- I/O point trace
- Remote command
- TS-SD
- Pulse train control

### Controller

- CC: CC-Link
- PN: PNP
- EP: EtherNet/IP
- PT: PROFINET
- DN: DeviceNet
- GW: No I/O board

### Controller Interface

- Controller Operation method
  - TS-S2 / TS-SH
  - Remote command
  - TS-SD

- Pulse train control

### Controller Interface

- Robot positioner I/O
  - A B C A B C A C
  - A B C A B C A C

- Robot driver I/O:
  - SD 1
  - I/O cable

### Cable securing position (Note 2)

- Horizontal installation (Unit: mm)
  - 10kg: 344 24 62

- Vertical installation (Unit: mm)
  - 2kg: 10kg: 47 22 355

### Robot positioner I/O

- A: 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

### Remote command I/O point trace

- A: 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

### Effective stroke

- **Effective stroke**
  - L: 280 330 380 430 480 530 580 630 680 730 780 830 880 930 980 1030
  - A: 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
  - B: 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
  - C: 2 1 2 3 2.5 2.7 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8 5.0

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

- **Speed setting**
  - -

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 0.2kg 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

<table>
<thead>
<tr>
<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>
<th>700</th>
<th>750</th>
<th>800</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>196.5</td>
<td>246.5</td>
<td>296.5</td>
<td>346.5</td>
<td>396.5</td>
<td>446.5</td>
<td>496.5</td>
<td>546.5</td>
<td>596.5</td>
<td>646.5</td>
<td>696.5</td>
<td>746.5</td>
<td>796.5</td>
<td>846.5</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
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<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
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<tr>
<td>C</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>300</td>
<td>350</td>
<td>400</td>
<td>450</td>
<td>500</td>
<td>550</td>
<td>600</td>
<td>650</td>
<td>700</td>
<td>750</td>
<td>800</td>
</tr>
</tbody>
</table>

Weight (kg)

<table>
<thead>
<tr>
<th>Maximum speed for each stroke (mm/sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead20</td>
</tr>
<tr>
<td>Lead12</td>
</tr>
<tr>
<td>Lead6</td>
</tr>
</tbody>
</table>

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Secure the cable with a tie-band 80mm or less long. Secure the cable with a crimping tool when 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 0.2kg 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.
Note 6. The belt 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

**SS05H**

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead 20</th>
<th>Step motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution (Pulse/Rotation)</td>
<td>42400</td>
<td></td>
</tr>
<tr>
<td>Repeatability (mm)</td>
<td>+/-0.02</td>
<td></td>
</tr>
<tr>
<td>Deceleration mechanism</td>
<td>Ball screw</td>
<td></td>
</tr>
<tr>
<td>Maximum motor torque (N.m)</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Ball screw lead (mm)</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Maximum speed (mm/sec)</td>
<td>Vertical</td>
<td>500</td>
</tr>
<tr>
<td>Stroke (mm)</td>
<td>Horizontal Stroke</td>
<td>Vertical Stroke</td>
</tr>
<tr>
<td>Overall length (mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum outside dimension of body cross-section (mm)</td>
<td>W85 x H66</td>
<td></td>
</tr>
</tbody>
</table>

**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.

### Motor installation (Space-saving model)

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

### Basic specifications

- **Cable securing position:** (Note 2)
- **Cable length:** (Note 3)
- **Cable securing position (Note 2)**
- **Effective stroke:**  
  - **L:** 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800
  - **A:** 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18
  - **B:** 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19
  - **C:** 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800

### Allowable overhang

- **Horizontal installation (Unit: mm)**  
  - **A:** 2kg 599, 232, 291  
  - **B:** 4kg 386, 109, 148  
  - **C:** 6kg 503, 118, 179  
- **Vertical installation (Unit: mm)**  
  - **A:** 2kg 486, 109, 148  
  - **B:** 4kg 613, 118, 179  
  - **C:** 6kg 699, 118, 179

### Static loading moment

- **Horizontal installation (Unit: N.m)**  
  - **A:** 2kg 599, 232, 291  
  - **B:** 4kg 386, 109, 148  
  - **C:** 6kg 503, 118, 179  
- **Vertical installation (Unit: N.m)**  
  - **A:** 2kg 486, 109, 148  
  - **B:** 4kg 613, 118, 179  
  - **C:** 6kg 699, 118, 179

### Controller

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

---

**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 robot's minimum bend radius is 30mm.  
**Note 4.** These are the weights without a brake. The weights are 0.3kg 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.
SS05H Space-saving model

### SS05H Specifications

**Effective stroke (mm)**

<table>
<thead>
<tr>
<th>L</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>
<th>700</th>
<th>750</th>
<th>800</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
<td>128.5</td>
</tr>
<tr>
<td>B</td>
<td>50</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>300</td>
<td>350</td>
<td>400</td>
<td>450</td>
<td>500</td>
<td>550</td>
<td>600</td>
<td>650</td>
<td>700</td>
<td>750</td>
<td>800</td>
</tr>
<tr>
<td>Weight (kg)** Note 1**</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

**Maximum speed for each stroke (mm/sec)**

| Lead20 (Horizontal) | 1000 | 933 | 833 | 733 | 633 | 560 | 500 | 440 | 380 |
| Lead12 (Horizontal) | 1000 | 933 | 833 | 733 | 633 | 560 | 500 | 440 | 380 |
| Lead12 (Vertical)   | 500  | 440 | 380 | 500  | 440 | 380 | 500  | 440 | 380 |
| Lead8 (Horizontal)  | 300  | 280 | 250 | 220 | 200 | 220 | 200 | 220 | 200 |
| Lead8 (Vertical)    | 250  | 230 | 200 | 200 | 180 | 200 | 180 | 200 | 180 |
| Speed setting       | 93%  | 83% | 73% | 63% | 53% | 93% | 83% | 73% | 63% |

**Note 1.** Stop positions are determined by the mechanical stoppers at both ends.

**Note 2.** Secure the cable with a tie-band 80mm or less from unit end face to prevent the cable from being subjected to excessive loads.

**Note 3.** The cable's minimum bend radius is R30.

**Note 4.** 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 (critcal speeds). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table above. The belt cover's left and right sides are asymmetrical. Therefore, if the motor mounting orientation is changed, the cover cannot be attached.
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

CLEANCONTROLLERINFORMATION

Linear conveyor modules

LCM100

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. The robot cable is flexible and resists bending.
Note 3. Select this selection when using the gateway function. For details, see P.60.

Note 1 N: Standard grease 50 to 800
SH: TS-SH NP: NPN B: With battery

Controller Operation method

TS-SH I/O point trace / Remote command

SG07 Straight model

Approx. 200 (Cable length)

L=10 (with brake)

150 (with brake)

180 (with brake)

Effective stroke

B1-H1: When on motor side

B1-H1: When on non-motor side

26±1 (Note 1)

26±1 (Note 1)

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Secure the cable with a tie-band 10mm 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 0.7kg heavier when equipped with a brake.
Note 5. When the stroke 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 at the below.
### Ordering method

#### Basic specifications

- **Motor:** 42/1 Step motor
- **Resolution (Pulse/rotation):** 2560
- **Repeatability (mm):** +/-0.02
- **Deceleration mechanism:** Ball screw φ6 (Class C10)
- **Ball screw lead (mm):** 8
- **Maximum speed (mm/see):** 500
- **Maximum output power (W):** 12
- **Max. pressing force (N):** 100
- **Lost motion:** 1.1 mm or less
- **Rotating backlash:** +/-1.0
- **Overall length (Horizontal):** Stroke+236.5
- **Overall length (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. 128.

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

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

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.

#### 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
- **Operation method:** 10 point trace / Remote command
- **Controller:** TS-SH
- **Operation method:** Remote command
- **Controller:** TS-SD
- **Operation method:** Pulse train control

#### Controller information

- **Controller:** TS-S2
- **Controller:** TS-SH
- **Controller:** TS-SD

---

**Note:**
- See P. 129 for grease gun nozzles.
- See the “Speed vs. payload” graph shown on the right.
- See Note 5.
- See Note 6.
- See Note 7.
- See P. 128 for DIN rail mounting bracket.

---

**Specifications:**
- **Model:** SR03
- **Type:** Rod type
- **Weight:** 6.5 kg
- **Motor installation:** Space-saving model

---

**Note:**
- See P. 129 for grease gun nozzles.
- See the “Speed vs. payload” graph shown on the right.
- See Note 5.
- See Note 6.
- See Note 7.
- See P. 128 for DIN rail mounting bracket.

---

**Dimensions:**
- **Width:** 117
- **Length:** 50
- **Height:** 41

**Effective stroke:** 50 100 150 200

---

**Note:**
- See P. 129 for grease gun nozzles.
- See the “Speed vs. payload” graph shown on the right.
- See Note 5.
- See Note 6.
- See Note 7.
- See P. 128 for DIN rail mounting bracket.

---

**Specifications:**
- **Model:** SR03
- **Type:** Rod type
- **Weight:** 6.5 kg
- **Motor installation:** Space-saving model

---

**Note:**
- See P. 129 for grease gun nozzles.
- See the “Speed vs. payload” graph shown on the right.
- See Note 5.
- See Note 6.
- See Note 7.
- See P. 128 for DIN rail mounting bracket.

---

**Dimensions:**
- **Width:** 117
- **Length:** 50
- **Height:** 41

**Effective stroke:** 50 100 150 200

---

**Note:**
- See P. 129 for grease gun nozzles.
- See the “Speed vs. payload” graph shown on the right.
- See Note 5.
- See Note 6.
- See Note 7.
- See P. 128 for DIN rail mounting bracket.
SR03  Space-saving model (motor installed on right)

Option: Horizontal installation plate (foot)

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

Hex. socket cap bolt (M3×0.5), Length under head 15
Two bolts are required for one plate.

2-6.5 drill-through

See the bottom installation tap position.

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 cap bolt (M3×0.5), Length under head 15
Two bolts are required for one plate.

2-6.5 drill-through

See the bottom installation tap position.

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.

Controller
TS-S2 ▶ 490 | TS-SH ▶ 490 | TS-SD ▶ 500
### SRD03

**Rod type (With support guide)**

**Ordering method**

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Model</th>
<th>Brake</th>
<th>Origin position</th>
<th>Bracket plate</th>
<th>Stroke</th>
<th>Cable length (m)</th>
<th>Robot positioner I/O board</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRD03-S</td>
<td>S2</td>
<td>S2</td>
<td>1</td>
<td>6</td>
<td>12</td>
<td>23</td>
<td>500</td>
<td>TS-S2</td>
</tr>
<tr>
<td>SRD03-U</td>
<td>SH</td>
<td>SH</td>
<td>1</td>
<td>6</td>
<td>12</td>
<td>23</td>
<td>500</td>
<td>TS-SH</td>
</tr>
</tbody>
</table>

Note 1. See P.129 for grease gun nozzles.
Note 2. 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)**: 20480
- **Repeatability (mm)**: +/-0.02
- **Deceleration mechanism**: Ball screw (Class C10)
- **Ball screw lead (mm)**: 12 6
- **Maximum speed (mm/sec)**: 500 250
- **Maximum payload (kg)**: Horizontal 10 20 Vertical 3.5 7.5
- **Max. pressing force (N)**: 75 100
- **Stroke (mm)**: 50 to 200 (50pitch)
- **Lost motion**: 0.1mm or less
- **Overall length (Horizontal mm)**: Stroke=236.5
- **Maximum outside dimension of body cross-section (mm)**: W48 x H65.5
- **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. 128.

### Speed vs. payload

#### Horizontal

- Lead 6: 0 to 200 (50pitch)
- Lead 12: 0 to 100

#### Vertical

- Lead 6: 0 to 30
- Lead 12: 0 to 15

### 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
- **Operation method**: TS-SH (I/O point trace / Remote command)

**Ordering method**

<table>
<thead>
<tr>
<th>Controller</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS-S2</td>
<td>TS-SH</td>
</tr>
</tbody>
</table>

**Note**: See P.129 for running life distance to life time conversion example.

---

**SRD03 Straight model**

See Note 3.

- **Effective stroke**: 35.5
- **Ball screw grasing port**: (ø5.4) 68.5
- **M4×0.7 Depth 5**: (For securing cable)
- **L=40 (with brake)**

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

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

**Weight (kg)**

<table>
<thead>
<tr>
<th>Model</th>
<th>1</th>
<th>1.5</th>
<th>1.7</th>
<th>1.9</th>
<th>2.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></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. When running the cables, secure cables so that any load is not applied to them.

Note 3. Remove the M4 hex. socket head cap set bolts and use them to secure the cables.

Note 4. The cable's minimum bend radius is R30.

Note 5. Models with a brake will be 0.2kg heavier.

Note 6. Distance to mechanical stopper.
锶 SR04 Rod type

## Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Brake</th>
<th>Origin position</th>
<th>Max. pressure force (N)</th>
<th>Stroke (mm)</th>
<th>Cable length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR04-R</td>
<td>S</td>
<td>with brake</td>
<td>right</td>
<td>150-300</td>
<td>50 to 300</td>
<td>600</td>
</tr>
<tr>
<td>SR04-S</td>
<td>S</td>
<td>with brake</td>
<td>left</td>
<td>50 to 300</td>
<td>50 to 300</td>
<td>600</td>
</tr>
</tbody>
</table>

### Basic specifications

- **Motor**
  - Type: **42** * Step motor
  - Resolution (Pulse/revolution): **204800**
  - Repeatability (mm): **±0.002**

- **Deceleration mechanism**
  - Ball screw type: **g8** (Class C10)
  - Maximum speed (when unloaded): **500**
  - Maximum load (kg): **10**
  - Stroke (mm): **50 to 300** (diplopch)

- **Load motor**
  - Motor type: TS-S2 / TS-SH
  - Mounting options: R type / L type

- **Max. pressing force (N)**
  - Vertical: **500**
  - Horizontal: **350**

- **Overall length (mm)**
  - Horizontal: **293**
  - Vertical: **320**

- **Stroke (mm)**
  - Vertical: **1000**
  - Horizontal: **2000**

### Speed vs. payload

- **Horizontal**
  - Speed (mm/s) vs. Payload (kg)
  - Lead 2: **0 - 200**
  - Lead 6: **0 - 600**

- **Vertical**
  - Speed (mm/s) vs. Payload (kg)
  - Lead 2: **0 - 200**
  - Lead 6: **0 - 600**

### Motor installation (Space-saving model)

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

### Motor positioner I/O

- **Model**
  - **S2**: Robot positioner I/O board
  - **SH**: Robot positioner I/O board
  - **SD**: Robot positioner I/O board

### Controller

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

### SR04 Straight model

- **Model**: SR04-R
- **Motor**
  - Type: **42** * Step motor
  - Resolution (Pulse/revolution): **204800**
  - Repeatability (mm): **±0.002**

- **Deceleration mechanism**
  - Ball screw type: **g8** (Class C10)
  - Maximum speed (when unloaded): **500**
  - Maximum load (kg): **10**
  - Stroke (mm): **50 to 300** (diplopch)

- **Load motor**
  - Motor type: TS-S2 / TS-SH
  - Mounting options: R type / L type

- **Max. pressing force (N)**
  - Vertical: **500**
  - Horizontal: **350**

- **Overall length (mm)**
  - Horizontal: **293**
  - Vertical: **320**

- **Stroke (mm)**
  - Vertical: **1000**
  - Horizontal: **2000**

### 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

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

### Dimensions of attached nut

- **Effective stroke**
  - **L1**: 50, 100, 150, 200, 250, 300
  - Weight (kg):
    - **L1**: 1.4, 1.7, 1.9, 2.2, 2.4, 2.7

Note 1: It is possible to apply only the axial load to the shaft.
Note 2: Use the external guide together so that any radial load is not applied to the rod.
Note 3: Use the support guide together to maintain the smoothness.
Note 4: For lead 2mm specifications, the origin on the non-motor side cannot be set.
Note 5: 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.
Note 6: Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
Note 7: The cable’s minimum bend radius is R50.
Note 8: Models with a brake will be 0.2kg heavier.
Note 9: Distance to mechanical stopper.
### Ordering method

<table>
<thead>
<tr>
<th>SRD04</th>
<th>Lead</th>
<th>Model</th>
<th>Brake</th>
<th>Origin position</th>
<th>Stroke</th>
<th>Cable length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Straight motor</td>
<td></td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>144</td>
<td>20480</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>42</td>
<td>12000</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>28</td>
<td>8000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1. See P.129 for grease gun nozzles.
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.

### Basic specifications

**Motor**
- 42: Step motor

**Resolution (Rotation)**
- 20480

**Repeatability (mm)**
- +/-0.02

**Deceleration mechanism**
- Ball screw φ1 (Class C10)

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

**Maximum speed (mm/sec)**
- 1000 250 80

**Maximum payload (kg)**
- Vertical 4

**Max. pressing force (N)**
- Vertical 150 300 800

**Stroke (mm)**
- Vertical 100 200 300 400 500 600

**Lost motion**
- Vertical 0.1mm or less

**Rotating backlash (°)**
- Vertical 0.05

**Overall length (mm)**
- Vertical Stroke +20

**Maximum outside dimension of body cross-section (mm)**
- Vertical 48.8 x 58.5

**Cable length (m)**
- Standard: 1 / Option: 3, 5, 10

### Speed vs. payload

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

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

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

---

**SRD04 Straight model S**

Option: Horizontal installation plate (foot)

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

See our robot manuals for additional settings.

**Dimensions of attached square nut for T-slot (8) (mm)**

**Details of T-slot**

**View A**

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

**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.128 for grease gun nozzles.

**Note 6.** Select this selection when using the gateway (incremental).

**Note 7.** Distance to mechanical stopper.
**SRD04** Space-saving model (motor installed on top) U

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

---

<table>
<thead>
<tr>
<th>Option: Horizontal installation plate (foot)</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Six bolts are required for one plate.</td>
</tr>
</tbody>
</table>

---

<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>
</tr>
</thead>
<tbody>
<tr>
<td>L1</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>Weight (kg) Note</td>
<td>2.2</td>
<td>2.6</td>
<td>2.9</td>
<td>3.2</td>
<td>3.5</td>
<td>3.9</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Maximum speed for each stroke (mm/sec)</th>
<th>Lead 12</th>
<th>Lead 6</th>
<th>Lead 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead 1</td>
<td>500</td>
<td>440</td>
<td>320</td>
</tr>
<tr>
<td>Lead 2</td>
<td>250</td>
<td>220</td>
<td>160</td>
</tr>
</tbody>
</table>

---

**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 rod.

**Note 3.** The orientation of the width across flat part is undefined to the base surface.

---

**Controller**

- TS-S2 > 490
- TS-SH > 490
- TS-SD > 500

---

**Specifications**

- Linear conveyor modules
- LCM100

---

**Controller**

- TS-S2
- TS-SH
- TS-SD
### SR05 Rod type

#### CE compliance
- Origin on the non-motor side is selectable: Lead 6, 12

#### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Motor installation (Space-saving model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>6 or 12</td>
<td>Type A: Motor installed on right</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type B: Motor installed on left</td>
</tr>
</tbody>
</table>

#### Basic specifications

**Motor**
- Step motor 55 (Incremental) 25 (Absolute)
- Resolution (Pulse/rotation): 2048
- Deceleration mechanism: Ball screw 12 (Class C10)
- Maximum speed (mm/min): 2000
- Maximum payload (kg): Vertical 10, 20
- Max. pressing force (N): 250, 500, 900
- Speed vs. payload
- Origin position: Note 2
- Cable length Note 1
- Ball screw greasing port: 6
- Motor: 56
- Deceleration mechanism: 2048
- Resolution (Pulse/rotation): 5
- Motor installation (Space-saving model)
- Motor installed on right
- Motor installed on left
- Stroke (mm): 50 - 300
- Effective stroke (mm): 50 - 300
- Travel (mm): 50 - 300
- Overall length (mm): 280.5 - 380.5
- Vertical Stroke: 276
- Maximum outside dimension (mm): 56.4 × 71
- Overall length: 45.5L
- Vertical Stroke:
  - Vertical: 276
  - Lead 2: 600
- Maximum outside dimension:
  - Overall: 56.4
  - Vertical: 71
- Motor installed on right
- Motor installed on left
- Cable length: 50 - 300
- Motor installed on right
- Motor installed on left
- Motor installed on right
- Motor installed on left
- Stroke (mm): 50 - 300
- Overall length (mm): 280.5 - 380.5
- Vertical Stroke: 276
- Maximum outside dimension (mm): 56.4 × 71
- Overall length: 45.5L
- Vertical Stroke:
  - Vertical: 276
  - Lead 2: 600
- Maximum outside dimension:
  - Overall: 56.4
  - Vertical: 71
- Motor installed on right
- Motor installed on left
- Cable length: 50 - 300

#### Speed vs. payload

- Vertical Speed vs. Payload
- Horizontal Speed vs. Payload
- Speed (mm/s)
- Payload (kg)
- Lead 2: 60
- Lead 12: 7

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

- Type A: Motor installed on right
- Type B: Motor installed on left
- Cable length: 50 - 300
- Motor installed on right
- Motor installed on left
- Stroke (mm): 50 - 300
- Overall length (mm): 280.5 - 380.5
- Vertical Stroke: 276
- Maximum outside dimension (mm): 56.4 × 71
- Vertical Stroke:
  - Vertical: 276
  - Lead 2: 600
- Maximum outside dimension:
  - Overall: 56.4
  - Vertical: 71
- Motor installed on right
- Motor installed on left
- Cable length: 50 - 300

#### Controller

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

#### Note

- See P.129 for grease gun nozzles.
- The robot is flexible and resists bending.
- See the “Speed vs. Payload” graph shown on the right.
SRD05

**Ordering method**

**SRD05**

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead (mm)</th>
<th>Motor</th>
<th>Resolution (Pulse/rotation)</th>
<th>Repeatability (mm)</th>
<th>Deceleration mechanism</th>
<th>Maximum speed (mm/sec)</th>
<th>Maximum payload (kg)</th>
<th>Max. pressing force (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRD05</td>
<td>20 60 120</td>
<td>56</td>
<td>20480</td>
<td>+/-0.02</td>
<td>Ball screw @12 (Class C10)</td>
<td>300 150 50</td>
<td>50 55 60</td>
<td>25 55 900</td>
</tr>
</tbody>
</table>

**Note:**
- See P.129 for grease gun nozzles.
- See our robot manuals for additional settings.

**Basic specifications**

<table>
<thead>
<tr>
<th>Motor</th>
<th>56 Step motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution (Pulse/rotation)</td>
<td>20480</td>
</tr>
<tr>
<td>Repeatability (mm)</td>
<td>+/-0.02</td>
</tr>
<tr>
<td>Deceleration mechanism</td>
<td>Ball screw @12 (Class C10)</td>
</tr>
<tr>
<td>Maximum speed (mm/sec)</td>
<td>300 150 50</td>
</tr>
<tr>
<td>Maximum payload (kg)</td>
<td>50 55 60</td>
</tr>
<tr>
<td>Max. pressing force (N)</td>
<td>25 55 900</td>
</tr>
</tbody>
</table>

**Motor**

- **SRD05:**
  - Lead: 20 60 120
  - Motor: 56 Step motor
  - Resolution (Pulse/rotation): 20480
  - Repeatability (mm): +/-0.02
  - Deceleration mechanism: Ball screw @12 (Class C10)
  - Maximum speed (mm/sec): 300 150 50
  - Maximum payload (kg): 50 55 60
  - Max. pressing force (N): 25 55 900

**Note:**
- See P.129 for grease gun nozzles.
- See our robot manuals for additional settings.

**Controller**

**Controller**

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

**SRD05 Straight model**

**Effective stroke:**

- **L1:** 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

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

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

- M4x0.7 Depth 5 (For securing cable)

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

**Note:**
- 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.
- Use the external guide together so that any radial load is not applied to the rod.
- Use the external guide together so that any radial load is not applied to the rod.
- Use the external guide together so that any radial load is not applied to the rod.
STH04

Slide table type

Ordering method

STH04

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead screw (mm)</th>
<th>Lead screw (mm)</th>
<th>Brake (mm)</th>
<th>Origin position</th>
<th>Stroke (mm)</th>
<th>Cam length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1. For the space saving models (R and L), the specifications with brake are applicable to only 100mm strokes.

Note 2. 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 3. Space-saving models (R and L) with the plate cannot be selected.

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

Note 5. See P.498 for DIN rail mounting bracket.

Note 6. The minimum bending radius of the motor cable is R30.

Note 7. Select this selection when using the gateway function. For details, see P.60.

Basic specifications

Motor
- 28 mm Step motor
- Resolution (Pulse/rotation): 4096

Repeatability (mm)
- +/-0.05

Drive method
- Straight: Slide screw
- Space-saving: Slide screw + belt

Ball screw lead (mm)
- 5
- 10

Maximum speed (mm/sec)
- 200
- 400

Maximum payload
- Horizontal: 6
- Vertical: 2

Max. pressing force (N)
- 55
- 30

Stroke (mm)
- 50/100

Minimum outside dimension
- Body cross-section (mm): W45 × H46
- Space-saving: W74.5 × H51

Cable length (m)
- Standard: 1 x 8.3 m
- Option: 3, 5, 10

Effective stroke
- MY: 30
- MP: 60
- MR: 100

Weight (kg)
- 4.5
- 7.5
- 11.5

Motor installation (Space-saving model)

E type: Motor installed on right
- Motor installed on right
- Motor installed on left

Motor installation (Space-saving model)

L type: Motor installed on left
- Controller
- Operation method

Controller

TS-S2 | 490 | TS-SH | 490 | TS-SD | 500

Contents of option: Plate, 4 pcs.

* For additional settings, contact your distributor.

Controller I/O point trace / Remote command

Note. The robot with the brake cannot use the TS-SD.

Controller

Effective stroke
- MY: 30
- MP: 60
- MR: 100

Origin on motor side
- Note 1

Effective stroke
- MY: 30
- MP: 60
- MR: 100

Origin on non-motor side
- Note 1

Horizontal vs. payload

Vertical vs. payload

Motor vs. payload

Note. Overhang, all travelling service life of 3000km.

(Service life is calculated for 75mm stroke models.)
STH04 Space-saving model (motor installed on right) R

Cross-sectional drawing A-A
Detailed drawing of installation hole

Effective stroke
Origin on motor side
1+/-0.5
Origin on non-motor side (Note 1)

Effective stroke
Origin on motor side
1+/-0.5
Origin on non-motor side (Note 1)

Effective stroke
Origin on motor side
1+/-0.5
Origin on non-motor side (Note 1)

Effective stroke
Origin on motor side
1+/-0.5
Origin on non-motor side (Note 1)

Effective stroke
Origin on motor side
1+/-0.5
Origin on non-motor side (Note 1)

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 common to those shown above.
Note 6. 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 left) L

Cross-sectional drawing A-A
Detailed drawing of installation hole

Effective stroke
Origin on motor side
1+/-0.5
Origin on non-motor side (Note 1)

Effective stroke
Origin on motor side
1+/-0.5
Origin on non-motor side (Note 1)

Effective stroke
Origin on motor side
1+/-0.5
Origin on non-motor side (Note 1)

Effective stroke
Origin on motor side
1+/-0.5
Origin on non-motor side (Note 1)

Effective stroke
Origin on motor side
1+/-0.5
Origin on non-motor side (Note 1)

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 common to those shown above.
Note 6. The specifications with the brake are applicable to only 100 strokes.
Note 7. Models with a brake will be 0.11kg heavier.
### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead Motor</th>
<th>Brake</th>
<th>Origin Position</th>
<th>Stroke (mm)</th>
<th>Cable Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STH06</td>
<td>Straight Motor</td>
<td>With Brake</td>
<td>Motor on Non-Motor Side</td>
<td>3000</td>
<td>14.3</td>
</tr>
</tbody>
</table>

### Allowable overhang

<table>
<thead>
<tr>
<th>Horizontal Installation</th>
<th>Vertical Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke (mm)</td>
<td>Speed (mm/sec)</td>
</tr>
<tr>
<td>3000</td>
<td>2kg</td>
</tr>
<tr>
<td>1550</td>
<td>1kg</td>
</tr>
<tr>
<td>150mm</td>
<td>0.5kg</td>
</tr>
</tbody>
</table>

### Static loading moment

<table>
<thead>
<tr>
<th>Stroke (mm)</th>
<th>MY</th>
<th>MP</th>
<th>MR</th>
</tr>
</thead>
<tbody>
<tr>
<td>3000</td>
<td>77</td>
<td>77</td>
<td>146</td>
</tr>
<tr>
<td>1500</td>
<td>112</td>
<td>112</td>
<td>177</td>
</tr>
<tr>
<td>50mm</td>
<td>155</td>
<td>155</td>
<td>152</td>
</tr>
</tbody>
</table>

### Motor installation (Space-saving model)

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

### Speed vs. payload

<table>
<thead>
<tr>
<th>Payload (kg)</th>
<th>Horizontal</th>
<th>Vertical</th>
</tr>
</thead>
<tbody>
<tr>
<td>4kg</td>
<td>1571</td>
<td>710</td>
</tr>
<tr>
<td>9kg</td>
<td>2493</td>
<td>1906</td>
</tr>
<tr>
<td>15kg</td>
<td>3815</td>
<td>2443</td>
</tr>
</tbody>
</table>

### Controller

- **Operation method**
  - TS-S2: PO point control / Remote command
  - TS-SD: Pulse train control

- **Contents of option**
  - Plate, 4 pcs.

- **Installation holed positions**
  - The installation hole positions of the main unit with the specifications with the brake are common to those shown above.
STH06 Space-saving model (motor installed on right)

STH06 Space-saving model (motor installed on left)

Effective stroke  50 100 150
B  75 48 65
C  4 8 8
D  80 44 66
E  2 4 4
F  80 88 132
G  143 207 285
L  132 196 274

Weight (kg)  2.5 3.3 4.26

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 (M6) bolt.
Note 5. The dimensions of the specifications with the brake are common to those shown above.
Note 6. Models with a brake will be 0.34kg heavier.

Effective stroke  50 100 150
B  75 48 65
C  4 8 8
D  80 44 66
E  2 4 4
F  80 88 132
G  143 207 285
L  132 196 274

Weight (kg)  2.5 3.3 4.26

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 (M6) bolt.
Note 5. The dimensions of the specifications with the brake are common to those shown above.
Note 6. Models with a brake will be 0.34kg heavier.
RF02-N Rotary type / Limit rotation specification

Ordering method

<table>
<thead>
<tr>
<th>Basic specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor</td>
</tr>
<tr>
<td>Resolution (Pulse/rotation)</td>
</tr>
<tr>
<td>Repeatability (°)</td>
</tr>
<tr>
<td>Drive method</td>
</tr>
<tr>
<td>Torque type</td>
</tr>
<tr>
<td>Maximum speed (°/sec)</td>
</tr>
<tr>
<td>Rotating torque (N·m)</td>
</tr>
<tr>
<td>Max. pushing torque (N·m)</td>
</tr>
<tr>
<td>Backlash (°)</td>
</tr>
<tr>
<td>Max. moment of inertia (kg·m)</td>
</tr>
<tr>
<td>Rotation range (°)</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, see P.604.

Moment of inertia Acceleration/deceleration

Effective torque vs. speed

Allowable load

Controller

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-NN Limit rotation specification – Standard 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: Standard
   Torque: Standard/High torque
Note 2. The minimum bending radius of the motor cable is R36.
Note 3. The motor cable exit direction is only the left side.

Manual operation screw (both sides)

Cross-sectional drawing A-A
RF02-N

Limit rotation 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 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>RF02</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td></td>
</tr>
</tbody>
</table>

Basic specifications

<table>
<thead>
<tr>
<th>Motor</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution (Pulse/rotation)</td>
<td>4096</td>
</tr>
<tr>
<td>Repeatability (%)</td>
<td>+/-0.05</td>
</tr>
<tr>
<td>Drive method</td>
<td>Special gear + belt</td>
</tr>
<tr>
<td>Torque type</td>
<td>Standard</td>
</tr>
<tr>
<td>Maximum speed (m/sec)</td>
<td>420</td>
</tr>
<tr>
<td>Rotating torque (N-m)</td>
<td>0.22</td>
</tr>
<tr>
<td>Max. pushing torque (N-m)</td>
<td>0.11</td>
</tr>
<tr>
<td>Backlash (%)</td>
<td>+/-0.5</td>
</tr>
<tr>
<td>Max. moment of inertia (kg-m²)</td>
<td>0.0015</td>
</tr>
<tr>
<td>Cable length (m)</td>
<td>Standard: 1</td>
</tr>
</tbody>
</table>

Note 1. Positioning repeatability in one direction.
Note 2. 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.604.

Moment of inertia Acceleration/deceleration

<table>
<thead>
<tr>
<th>Acceleration/deceleration: w (°/s²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
</tr>
<tr>
<td>0.0000</td>
</tr>
<tr>
<td>0.0010</td>
</tr>
<tr>
<td>0.0020</td>
</tr>
<tr>
<td>0.0030</td>
</tr>
<tr>
<td>0.0040</td>
</tr>
</tbody>
</table>

Effective torque vs. speed

<table>
<thead>
<tr>
<th>Acceleration/deceleration: w (°/s²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
</tr>
<tr>
<td>0.0000</td>
</tr>
<tr>
<td>0.0010</td>
</tr>
<tr>
<td>0.0020</td>
</tr>
<tr>
<td>0.0030</td>
</tr>
<tr>
<td>0.0040</td>
</tr>
</tbody>
</table>

Allowable load

<table>
<thead>
<tr>
<th>Allowable radial load (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard model</td>
</tr>
<tr>
<td>78</td>
</tr>
</tbody>
</table>

Controller

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

RF02-SN Sensor specification – Standard model

Note 1. This drawing is output under the conditions below.
- Bearing: Standard
- 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.
RF02-S  Sensor 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. 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) 0.55

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 30 mm.

Controller TS-S2 ▶ 490 TS-SH ▶ 490
**RF03-N**

**Ordering method**

<table>
<thead>
<tr>
<th>RF03</th>
<th>Return-to-origin method</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>N</td>
<td>Return-to-origin (before and after rotation)</td>
<td>Standard</td>
<td>High torque</td>
<td>From the left</td>
<td>Right</td>
<td></td>
</tr>
</tbody>
</table>

**Basic specifications**

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

**Moment of inertia Acceleration/deceleration**

- **Acceleration/deceleration:** 0 - 1000 (°/s²)
- **Maximum speed (°/s):** 100
- **Max. moment of inertia (kg•m²):** 0.027
- **Cable length (m):** Standard / Option: 1, 3, 5, 10
- **Rotation range (°):** 320

**Effective torque vs. speed**

- **Effective torque (N•m):** 0 - 1000
- **Max. torque (N•m):** 1000
- **Max. speed (°/s):** 1000

**Allowable load**

- **Allowable radial load (N):** 100
- **Allowable thrust load (N):** 100
- **Allowable moment (N•m):** 100

**Controller**

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

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

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 Page 60.
RF03-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.
RF03-S Rotary type / Sensor specification

- CE compliance
- Limitless rotation

### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>RF03-S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return-to-origin method</td>
<td>S: Limitless rotation</td>
</tr>
<tr>
<td>Bearing</td>
<td>Standard</td>
</tr>
<tr>
<td>Torque</td>
<td>High torque</td>
</tr>
<tr>
<td>Cable entry location</td>
<td>From the right</td>
</tr>
<tr>
<td>Rotation direction</td>
<td>CCW</td>
</tr>
<tr>
<td>Cable length (m)</td>
<td>360</td>
</tr>
<tr>
<td>Robot positioner I/O</td>
<td>S2</td>
</tr>
<tr>
<td>Robot positioner communication</td>
<td>PT: PROFINET</td>
</tr>
</tbody>
</table>

### Basic specifications

**Motor**
- 280 Step motor

**Resolution (Pulse/revolution)**
- 4096

**Repeatability**
- ±0.05°

**Drive method**
- Special warm gear + belt

**Torque type**
- Standard / High torque

**Maximum speed**
- 420 (sec⁻¹)
- 2.06 (sec⁻¹)

**Rotating torque (N·m) | Max. pushing torque (N·m)**
- 0.8 | 0.4
- 1.2 | 0.6

**Backlash**
- ±0.05°

**Max. moment of inertia**
- 0.012 kg·m² | 0.027 kg·m²

**Cable length (m)**
- Standard / 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.604.

### Moment of inertia Acceleration/deceleration

Effective torque vs. speed

### Allowable load

- **Allowable radial load (N)**

<table>
<thead>
<tr>
<th>Standard model</th>
<th>High rigidity model</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>320</td>
</tr>
<tr>
<td>233</td>
<td>466</td>
</tr>
</tbody>
</table>

- **Allowable thrust load (N)**

<table>
<thead>
<tr>
<th>Standard model</th>
<th>High rigidity model</th>
</tr>
</thead>
<tbody>
<tr>
<td>197</td>
<td>394</td>
</tr>
<tr>
<td>363</td>
<td>726</td>
</tr>
</tbody>
</table>

- **Allowable moment (N·m)**

<table>
<thead>
<tr>
<th>Standard model</th>
<th>High rigidity model</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.3</td>
<td>10.6</td>
</tr>
</tbody>
</table>

### Controller

**Controller**
- TS-S2S
- TS-SHS

**Operation method**
- TS-S2S: I/O point trace / Remote command
- TS-SHS: 10m (remote command)

**Robot positioner I/O**
- TN: NO I/O Standard
- PN: PNP
- B: With battery

**Robot positioner communication**
- PT: PROFINET
- DN: DeviceNet™

**Controller Operation method**
- TS-S2S: Remote command
- TS-SHS: Remote command

**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-SN Sensor specification – Standard model**

- **Weight (kg)**

<table>
<thead>
<tr>
<th>Standard model</th>
<th>High rigidity model</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2</td>
<td>2.3</td>
</tr>
</tbody>
</table>

- **Cross-sectional drawing A-A**

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

---

**Manual operation screw**
- (both sides)

**Controller**
- TS-S2: 490
- TS-SHS: 490
RF03-S  Sensor specification – High rigidity model

1. Manual operation screw (both sides)
2. 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.

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.

Controller TS-S2 490 TS-SH 490
RF04-N

Rotary type / Limit rotation specification

Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>RF04</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return-to-origin method</td>
<td>Return to the left side (no return)</td>
<td></td>
</tr>
<tr>
<td>Bearing</td>
<td>a: Standard</td>
<td>b: High rigidity</td>
</tr>
<tr>
<td>Torque</td>
<td>a: Standard torque</td>
<td>b: High torque</td>
</tr>
<tr>
<td>Cable entry location</td>
<td>a: From the right</td>
<td>b: From the left</td>
</tr>
<tr>
<td>Rotation direction</td>
<td>a: CW</td>
<td>b: CCW</td>
</tr>
<tr>
<td>Cable length</td>
<td>1000 mm</td>
<td></td>
</tr>
</tbody>
</table>

Basic specifications

- **Motor**: 42 [Step motor]
- **Resolution (Pulse/rotation)**: 20480
- **Repeatability (°)**: ±0.05
- **Special warm gear + belt drive method**
- **Torque type**: Standard / High torque
- **Maximum 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" and the "Effective torque vs. Speed" graph (reference).
Note 3. For moment of inertia and effective torque details, see P.604.

Moment of inertia

<table>
<thead>
<tr>
<th>Acceleration/deceleration: ω (°/s²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
</tr>
<tr>
<td>0.12</td>
</tr>
</tbody>
</table>

Effective torque vs. speed

- **Controller**
  - **Operation method**: Remote command
  - **Controller**: TS-S2
  - **Robot driver I/O cable**: SD, TS-SH
  - **Robot positioner I/O cable**: SD, TS-SH
  - **Robot driver**: SD
  - **Robot positioner**: SD
  - **iO**: Error End stop
  - **Robot positioner**: TS-S2
  - **Robot driver**: TS-SH
  - **Robot positioner**: TS-SD
  - **Controller**: TS-S2
  - **Robot positioner**: TS-S2
  - **Robot driver**: TS-SH
  - **Robot positioner**: TS-SD
  - **Controller**: TS-S2
  - **Robot positioner**: TS-S2
  - **Robot driver**: TS-SH
  - **Robot positioner**: TS-SD
  - **Controller**: TS-S2
  - **Robot positioner**: TS-S2
  - **Robot driver**: TS-SH
  - **Robot positioner**: TS-SD

RF04-NN

Limit rotation specification – Standard model

- **Origin mark (Standard)**
- **Origin mark (High rigidity)**
- **Operation screw (both sides)**
- **Cross-sectional drawing A-A**
- **P.C.D. 55**
- **6-M6x1.0 Depth 10**
- **60° equally divided.**
- **5.5 drill-through**
- **76h8 (0 -0.046)**
- **74h8 ( 0 -0.046)**
- **26H8 (+0.033 0 )**
- **35h8 (+0.039 0 )**
- **26 (Through-hole)**
- **45° 70° 110° 145° 180° 215° 250° 285° 320°**
- **Origin position in CCW direction**
- **Origin position in CW direction**
- **Origin mark**
- **Manual operation screw (both sides)**
- **Approx. 160 (Motor cable exit direction: Exit from left side)**
- **Approx. 170 (Motor cable exit direction: Exit from right side)**
- **2-M10x1.5 Depth 20**
- **2-M10x1.5 Depth 20**
- **Phase mark**
- **Cross-sectional drawing A-A**
- **Weight (kg)**: 2.2

Note 1. This drawing is output under the conditions below.
Note 2. The minimum bending radius of the motor cable is R30.
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  
Model Return-to-origin method Bearing Torque Cable entry location Cable length*2 Robot positioner S2  
S2 Bearing: Standard Torque: High torque from the right from the right  
Robot positioner: AT TS-S'H

Basic specifications
Motor 42 [ ] Step motor  
Resolution (Pulse/rotation) 20480  
Repeatability*3 (°) +/-0.05  
Drive method Special warm gear + belt  
Torque type Standard High torque  
Maximum 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 (°) 360

Moment of inertia Acceleration/deceleration

Effective torque vs. speed

Allowable load

Controller

RF04-SN Sensor specification – Standard model

Note 1. The robot cable is flexible and resists bending.  
Note 2. See P.498 for DIN rail mounting bracket.  
Note 3. Select this selection when using the gateway function. For details, see P.60.

Controller

TS-S2  
Location method TS-SHS  
Point trace / Remote command

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” and the “Effective torque vs. Speed” graphs (reference).  
Note 3. For moment of inertia and effective torque details, see P.604.

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.
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.
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

Linear conveyor modules
LCM100

Controller
TS-S2
TS-SH
TS-SD

Motor
Step motor

Resolution (Pulse/rotation)
4096

Repeatability (mm)
+/-0.1

Drive method
Belt

Equivalent lead (mm)
40

Maximum speed (mm/sec)
1100

Maximum payload (kg)
1

Stroke (mm)
300/500/600/700/800/900/1000

Overall length (mm)
Stroke + 195.5

Maximum outside dimension of body cross-section (mm)
W40 × H101.9

Cable length (m)
Standard: 1 / Option: 3, 5, 10

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.

Controller Operation method
TS-S2 Pulse train control
TS-SH Remote command
TS-SD I/O point trace
**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>
<th>Robot position (Unit: mm)</th>
<th>I/O</th>
<th>Controller (Unit: mm)</th>
<th>I/O cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD05</td>
<td>48</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
<td>S2</td>
<td>I/O</td>
<td>TS-S2</td>
<td>1m</td>
</tr>
</tbody>
</table>

### Basic specifications

- **Motor**: 42 [Step motor]
- **Resolution (Pulse/rotation)**: 20480
- **Repeatability (%) (mm)**: +/- 0.1
- **Drive method**: Belt
- **Maximum Equivalent lead (mm/sec)**: 1400
- **Maximum payload (kg)**: 5
- **Stroke (mm)**: 300/500/600/700/800/900/1000/1200/1500/1800/2000
- **Overall length (mm)**: Stroke + 241.8
- **Maximum outside dimension of body cross-section (mm)**: W58 × H123
- **Cable length (m)**: Standard: 1 / Option: 3, 5, 10

### Allowable overhang

- **Horizontal installation (Unit: mm)**
  - 5kg: 1689, 385, 325
  - 3kg: 2982, 702, 553
  - 1kg: 9445, 2274, 1681
- **Wall installation (Unit: mm)**
  - 5kg: 331, 429, 1789
  - 3kg: 573, 743, 382
  - 1kg: 1784, 2312, 9545

### Static loading moment

- **MY**: 27
- **MP**: 27
- **MR**: 52

### Controller

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

### Quick reference

<table>
<thead>
<tr>
<th>Payload (kg)</th>
<th>Speed (mm/sec)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>550</td>
<td>39</td>
</tr>
<tr>
<td>3</td>
<td>700</td>
<td>50</td>
</tr>
<tr>
<td>1</td>
<td>1000</td>
<td>71</td>
</tr>
<tr>
<td>0</td>
<td>1400</td>
<td>100</td>
</tr>
</tbody>
</table>

### Speed vs. payload

- **Effective stroke**: 300, 500, 600, 700, 800, 900, 1000, 1500, 2000

### Controller Information

- **Controller**: TS-S2 > 490, TS-SH > 490, TS-SD > 500

---

**Note 1.** Position from both ends to the mechanical stopper. (Movable range during return-to-origin)

**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. (Recommended height, 5mm)

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

- **Motor**: 56(2) 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)** (Horizontal installation): Stroke + 285.6
- **Overall length (mm)** (Vertical installation): Stroke + 285.6
- **Maximum outside dimension of body cross-section (mm)**: W70 × H147.5
- **Cable length (m)**: Standard: 1 / Option: 3, 5, 10

### Allowable overhang

- **Horizontal installation (Unit: mm)**
  - 3kg: 5767
  - 8kg: 1839
  - 14kg: 629
- **Wall installation (Unit: mm)**
  - 3kg: 1353
  - 8kg: 395
  - 14kg: 154

### Speed vs. payload

- **Payload (kg)**: 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 4.0, 5.0, 6.0, 8.0, 10.0, 12.0, 14.0, 16.0
- **Speed (mm/sec)**: 0, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000

### Controller

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

### Note

1. The robot cable is flexible and resists bending.
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.
3. The minimum bending radius of the motor cable is R30.