SINGLE-AXIS ROBOTS

FLIP-X SERIES

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<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Motor output (W)</th>
<th>Repeatability (mm)</th>
<th>Payload (kg)</th>
<th>Stroke (mm) and maximum speed (mm/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4L/</td>
<td>T4LH</td>
<td>30</td>
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**Type & Model**

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<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Motor output (W)</th>
<th>Repeatability (mm)</th>
<th>Speed reduction ratio</th>
<th>Maximum speed (°/sec)</th>
<th>Detailed info page</th>
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<td>P216</td>
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</table>

**Precautions for use**

- **Handling**
  - Fully understand the contents stated in the “FLIP-X Series User’s Manual” and strictly observe the handling precautions during operation.

- **Allowable installation ambient temperature**
  - 5 to 45 °C
### FLIP-X SPECIFICATION SHEET

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Motor</th>
<th>output (W)</th>
<th>Repeat - ability (mm)</th>
<th>Speed reduction ratio</th>
<th>Maximum speed (°/sec)</th>
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</table>

### Compact single-axis robots

- **TRANSERVO**
- **FLIP-X**
- **PHASER**
- **XY-X**
- **SCARA**

### Pick & place robots

- **YP-X**
## Mechanical F8
- **Type** F8 / FBL / FBLH
- **Output** 20mm
- **Nut/Tooth** Yes / Yes
- **Stroke** 500mm
- **Origin Position** Non-Motor Side
- **Cable Length** > 3.5m

## Controller SR1-X
- **Type** SR1-X
- **Output** Not Required
- **Regenerative Unit** Not Required
- **Battery** With Battery

### Ordering Method

**F8-20-BK-Z-500-3L-SR1-X05-N-B**

#### Mechanical Section
- **Model** T6 / T6L
- **Height** 30mm / 30L
- **Cable Entry Location** No Entry / No Entry
- **Option** Standard / Standard
- **Stroke** 6mm / 6L
- **Cable Length** 3m / 3L

#### Controller Section
- **Model** SR1-X
- **Height** 50mm / 5L
- **Cable Entry Location** Standard / Standard
- **Option** Standard / Standard
- **Stroke** 6mm / 6L

---

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

**Example**

- **Mechanical** [F8]
  - Lead: > 20mm
  - Brake: Yes
  - Stroke: > 500mm
  - Origin Position: Non-Motor Side
  - Cable Length: > 3.5m

- **Controller** [SR1-X]
  - Usable for CE: Not Required
  - Regenerative Unit: Not Required
  - Battery: With Battery

**To find detailed controller information see the controller page.**
## Robot ordering method terminology

<table>
<thead>
<tr>
<th><strong>① Model</strong></th>
<th><strong>Enter the robot unit model.</strong></th>
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<tbody>
<tr>
<td><strong>② Model</strong></td>
<td><strong>Straight model only (GF type)</strong></td>
</tr>
<tr>
<td><strong>③ Lead designation</strong></td>
<td><strong>Select the ball screw lead.</strong></td>
</tr>
</tbody>
</table>
| **④ Brake** | **Select Brake or No-brake.**  
**Horizontal specs:** No-brake  
**Vertical specs:** with Brake |
| **⑤ Take out direction** | **Select what direction to install the robot (horizontal / wall mounted).** |
| **⑥ Cable entry location** | **Select what direction to extract the robot cable connecting the robot and controller.** |

| **⑦ Cable carrier entry location** | **Select what direction to install the robot (horizontal / wall mounted) and what direction to extract the robot cable carrier.**  
**RH:** Horizontal, right  
**RW:** Wall, right  
**LH:** Horizontal, left  
**LW:** Wall, left |

| **⑧ Cable carrier specification** | **Select the cable carrier size for the customer wiring.**  
**S type:** Standard cable carrier  
**M type:** Optional cable carrier  
**Note:** Cannot pass more than 3 urethane hoses (φ6 x 4). |

| **⑨ Motor installation direction** | **Select what direction to install the motor.**  
**Type L:** Leftward at horizontal position  
**Type R:** Rightward at horizontal position  
**Type LU:** Leftward at lower position  
**Type RU:** Rightward at lower position |

| **⑩ Option** | **Origin position change:** Origin point position can be changed.  
**Frame:** Hole to secure the frame can be selected. (Spot facing/tapping)  
**Grease type:** Clean grease can be selected. |

| **⑪ Stroke** | **Select the stroke for the robot movement range.** |
| **⑫ Cable length** | **Select the robot cable length to use for connecting the robot to the controller.**  
**3L:** 3.5m (Standard)  
**5L:** 5m  
**10L:** 10m  
**1K:** 1m (You can select a 1m cable only when you use T4L/T5L. Flexible cable)  
**3K:** 3.5m (Flexible cable)  
**5K:** 5m (Flexible cable)  
**10K:** 10m (Flexible cable) |
**T4L**

- **Origin on the non-motor side is selectable**
- **Controller: 24V**

### Ordering method

<table>
<thead>
<tr>
<th>T4L</th>
<th>Load designation</th>
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</thead>
<tbody>
<tr>
<td>T4L</td>
<td>Load designation</td>
</tr>
</tbody>
</table>

#### Specifications

- **AC servo motor output (W):** 30
- **Repeatability** (mm): +0.02
- **Deceleration mechanism:** Ball screw 68
- **Ball screw lead (mm):** 12 8 2
- **Maximum speed (mm/sec):** 720 360 120
- **Maximum payload (kg):** 4.5 6 6
- **Rated thrust (N):** 32 64 153
- **Stoke (mm):** 50 to 400 (50mm pitch)
- **Overall length (mm):** 16384
- **Maximum dimensions of cross section of main unit (mm):** 248 298 348 398 448 498 548 598
- **Linear guide type:** 2 rows of gothic arch grooves × 1 rail

#### Allowable overhang

**Horizontal installation** (unit: mm)  

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<th>B</th>
<th>C</th>
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</thead>
<tbody>
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<td>2kg</td>
<td>433</td>
<td>87 180</td>
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<tr>
<td>4.5kg</td>
<td>223</td>
<td>33 75</td>
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<tr>
<td>5.5kg</td>
<td>519</td>
<td>58 135</td>
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<td>7kg</td>
<td>340</td>
<td>26 62</td>
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<td>1kg</td>
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<td>58 142</td>
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<td>1.2kg</td>
<td>755</td>
<td>27 66</td>
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**Wall installation** (unit: mm)  

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<th>B</th>
<th>C</th>
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</thead>
<tbody>
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<td>149</td>
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<td>4.5kg</td>
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<td>113</td>
<td>24 1180</td>
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<td>1.2kg</td>
<td>32</td>
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<td>1.4kg</td>
<td>7.2kg</td>
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</table>

**Vertical installation** (unit: mm)  

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<th>B</th>
<th>C</th>
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<td>1.2kg</td>
<td>125</td>
<td>125</td>
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<tr>
<td>2.4kg</td>
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<td>57</td>
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#### Static loading moment

- **Controller Operation method:** ERCD
  - **Pulse train control / Programming / CI joint trace / Remote command / Operation using RS-232C communication**

### Controller

- **Model:** ERCD
- **Controller:** 512
- **IO connector specification:**
  - CN1: I/O flat cable 1m (Standard)
  - CN2: Twisted-pair cable 2m (pulse train function)
- **Operation method:**
  - **Controller:** ERCD
  - **Pulse train control / Programming / CI joint trace / Remote command / Operation using RS-232C communication**

### Note

1. The robot cable is flexible and resists bending. See P.596 for details on robot cable.

---

**Specifications**

- **AC servo motor output (W):** 30
- **Repeatability** (mm): ±0.02
- **Deceleration mechanism:** Ball screw 68
- **Ball screw lead (mm):** 12 8 2
- **Maximum speed (mm/sec):** 720 360 120
- **Maximum payload (kg):** 4.5 6 6
- **Rated thrust (N):** 32 64 153
- **Stoke (mm):** 50 to 400 (50mm pitch)
- **Overall length (mm):** 16384
- **Maximum dimensions of cross section of main unit (mm):** 248 298 348 398 448 498 548 598
- **Linear guide type:** 2 rows of gothic arch grooves × 1 rail

**Position detector:** Resolvers

**Resolution (Pulse/rotation):** 16384

**Note:** Positioning repeatability is one direction.

**Note:** Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

---

**T4L**

- **Approx. 250 (Motor cable length):** 125.5±3
- **Effective stroke:** 72.5±3

**Effective stroke**

<table>
<thead>
<tr>
<th>Stroke (mm)</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>A</td>
<td>125.5</td>
<td>175.5</td>
<td>225.5</td>
<td>275.5</td>
<td>325.5</td>
<td>375.5</td>
<td>425.5</td>
<td>475.5</td>
</tr>
<tr>
<td>B</td>
<td>120</td>
<td>150</td>
<td>180</td>
<td>210</td>
<td>240</td>
<td>270</td>
<td>300</td>
<td>330</td>
</tr>
<tr>
<td>C</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
</tr>
<tr>
<td>N</td>
<td>44</td>
<td>44</td>
<td>44</td>
<td>44</td>
<td>44</td>
<td>44</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>E</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>T</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>B/R type</td>
<td>2m</td>
<td>2m</td>
<td>2m</td>
<td>2m</td>
<td>2m</td>
<td>2m</td>
<td>2m</td>
<td>2m</td>
</tr>
<tr>
<td>GF type</td>
<td>2m</td>
<td>2m</td>
<td>2m</td>
<td>2m</td>
<td>2m</td>
<td>2m</td>
<td>2m</td>
<td>2m</td>
</tr>
</tbody>
</table>

**Weight (kg):** 1 1 1 1 1 1 1 1

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

- **Lead 2:** 120
- **Lead 6:** 360
- **Lead 12:** 720

---

**ERCD**

- **Controller:** 512
- **Function:**
  - NC: Hand operation (standard)
  - CN2: Twisted-pair cable 2m (pulse train function)

---

**Controller**

- **Model:** T4L
- **Operation method:**
  - **Controller:** ERCD
  - **Pulse train control / Programming / CI joint trace / Remote command / Operation using RS-232C communication**

---

**Diagram**

- **Grounding terminal (M4):**

---

**Note:**

1. Positioning repeatability is one direction.
2. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.
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

---

Articulated robots

Note 1. The model with a lead of 20mm cannot select specifications with brake (vertical specifications).

Note 2. The robot cable is flexible and resists bending. See P.596 for details on robot cable.

T5L - High lead: Lead 20 Origin on the non-motor side is selectable

Controller: 24V

### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead designation</th>
<th>Stroke (mm)</th>
<th>Origin position change</th>
<th>Grease type</th>
<th>Stroke (mm)</th>
<th>Cable length</th>
</tr>
</thead>
<tbody>
<tr>
<td>T5L</td>
<td>20mm</td>
<td>50 to 800</td>
<td>SK: Brakes provided</td>
<td>AC: Clean</td>
<td>500 to 800</td>
<td>1.5m</td>
</tr>
</tbody>
</table>

### Specifications

- **AC servo motor output (W):** 30
- **Repeatability (%):** 
  - 10.02
- **Deceleration mechanism:** Ball screw ø12
- **Ball screw lead (mm):** 20 12 6
- **Maximum speed (mm/sec):** 400
- **Maximum payload (kg):** 3 5 9
- **Rated thrust (N):** 19 32 64
- **Stroke (mm):** 50 to 800 (50mm pitch)
- **Overall length (mm):** 1076 2140.5
- **Maximum dimensions of cross section of main unit (mm):** 135.5
- **Cable length (m):** Standard 3.5 / Option: 1.5, 10
- **Linear guide type:** 2 rows of gothic arch grooves × 1 rail
- **Position detector:** Resolvers
- **Resolution (Pulse/rotation):** 16384

### Allowable overhang

<table>
<thead>
<tr>
<th>Model</th>
<th>Horizontal installation (Unit: mm)</th>
<th>Vertical installation (Unit: mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
</tbody>
</table>

- **Note:** Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

### Static loading moment

<table>
<thead>
<tr>
<th>Controller</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERCD</td>
<td>Pulse train control / Programming / I/O point trace / Operation using RS-232C communication</td>
</tr>
</tbody>
</table>

### Controller

- **Controller Operation method:**
  - ERCD

---

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.

Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

---

**Ordering method**

**Specifications**

- **AC servo motor output (W):** 30
- **Repeatability (%):** 10.02
- **Deceleration mechanism:** Ball screw ø12
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- **Position detector:** Resolvers
- **Resolution (Pulse/rotation):** 16384

**Allowable overhang**

<table>
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<tr>
<th>Model</th>
<th>Horizontal installation (Unit: mm)</th>
<th>Vertical installation (Unit: mm)</th>
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<tbody>
<tr>
<td>A</td>
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**Static loading moment**

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---

**Controller**

- **Controller Operation method:**
  - ERCD

---

**Ordering method**

**Specifications**

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<td>C</td>
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**Note:** Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

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</table>

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**Controller**

- **Controller Operation method:**
  - ERCD

---

**Ordering method**

**Specifications**

- **AC servo motor output (W):** 30
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- **Position detector:** Resolvers
- **Resolution (Pulse/rotation):** 16384

**Allowable overhang**

<table>
<thead>
<tr>
<th>Model</th>
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<th>Vertical installation (Unit: mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
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<td>C</td>
</tr>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
</tbody>
</table>

**Note:** Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

**Static loading moment**

<table>
<thead>
<tr>
<th>Controller</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

---

**Controller**

- **Controller Operation method:**
  - ERCD
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 CLEANTROLLERINFORMATION Linear conveyor modules

LCM100

Origin position change

Cable length

Usable for CE

Battery

I/O selection

T5LH

Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Note 1. Positioning repeatability is in one direction.

Note 2. When the stroke is longer than 600mm, the carriage guide type, if used, becomes a type 45.5 and the stroke becomes 450mm for the base model. Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Allowable overhang

Note 1. Distances from the center of slider to top of object being carried at a guide service life of 10,000 km.

Note 2. Service life is calculated for 600mm stroke models.

Controller Operation modes

SR1-X-05

RDV-X-205

Programming

I/O point trace

Remote command

Using RS-232 communication

Controller SR1-X

RDV-X-205

Controller Driver: Power-supply voltage

Driver: Power capacity

AC servo motor output (W) 16384

Ball screw lead (mm) 50 to 800 (50mm pitch)

Maximum encoder scale pulse / Rev. (max.) 251.5

Position detector Resolvers

3 rows of gothic arch grooves × 1 rail

Linear guide type

Section of main unit (mm) 55×52 × 4-M4

Note 2. Minimum bend radius of motor cable is R30.

Note 3. Weight of models with no brake. The weight of brake-attached models is 0.2 kg heavier than the models with no brake shown in the table.

Note 4. The under-head length of the hex socket-head bolt (M4×0.7) to be used for the installation work is 7mm or less.

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.
# Ordering method

**T6L**
- **Model**: Lead
- **Deceleration mechanism**: Ball screw
- **Single-axis robots**: TRANSERVO, FLIP-X
- **Linear motor**: Linear conveyor modules

- **Positioner**: SR1-X
- **Controller**: SR1-X05

**Specifications**
- **AC servo motor output (W)**: 60
- **Repeatability (mm)**: ±0.02
- **Maximum dimensions of cross-section of main unit (mm)**: W58xH58
- **Rated torque (N•m)**: 55
- **Position detection**: Incremental

**Allowable overhang**
- **Horizontal installation** (mm): A: 2kg B: 6kg C: 10kg
- **Wall installation** (mm): A: 2kg B: 6kg C: 10kg
- **Vertical installation** (mm): A: 2kg B: 6kg C: 10kg

**Static loading moment**
- **Controller**: SR1-X
- **Maximum bending moment of motor cable (N•m)**: 1.6

---

**FLIP-X**
- **Model**: Lead
- **Deceleration mechanism**: Ball screw
- **Linear motor**: Linear conveyor modules

**Specifications**
- **AC servo motor output (W)**: 30
- **Repeatability (mm)**: ±0.01
- **Maximum dimensions of cross-section of main unit (mm)**: W58xH58
- **Rated torque (N•m)**: 40

**Allowable overhang**
- **Horizontal installation** (mm): A: 2kg B: 6kg C: 10kg
- **Wall installation** (mm): A: 2kg B: 6kg C: 10kg
- **Vertical installation** (mm): A: 2kg B: 6kg C: 10kg

**Static loading moment**
- **Controller**: SR1-X
- **Maximum bending moment of motor cable (N•m)**: 1.6

---

**TRANSERVO**
- **Model**: Lead
- **Deceleration mechanism**: Ball screw
- **Linear motor**: Linear conveyor modules

**Specifications**
- **AC servo motor output (W)**: 40
- **Repeatability (mm)**: ±0.02
- **Maximum dimensions of cross-section of main unit (mm)**: W58xH58
- **Rated torque (N•m)**: 20

**Allowable overhang**
- **Horizontal installation** (mm): A: 2kg B: 6kg C: 10kg
- **Wall installation** (mm): A: 2kg B: 6kg C: 10kg
- **Vertical installation** (mm): A: 2kg B: 6kg C: 10kg

**Static loading moment**
- **Controller**: SR1-X
- **Maximum bending moment of motor cable (N•m)**: 1.6
### Ordering method

#### 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-X CLEAN CONTROLLER INFORMATION
- Linear conveyor modules
  - LCM100

#### Note 1
- The model with a load of 30mm cannot select specifications with brake (vertical specifications).

#### Note 2
- If selecting 5mm load specifications then the origin point cannot be changed to the non-motor side.

#### Note 3
- The motor is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.

#### 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.

### Specifications

<table>
<thead>
<tr>
<th>AC servo motor output (W)</th>
<th>Repeatability (mm)</th>
<th>Deceleration mechanism</th>
<th>Ball screw lead (mm)</th>
<th>Maximum speed (mm/s)</th>
<th>Maximum payload (kg)</th>
<th>Rated thrust (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>0.1%</td>
<td>Cable</td>
<td>30</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>40</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>70</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>80</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>90</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

#### Note 1
- Positioning repeatability in one direction.

#### Note 2
- When the stroke is longer than 700mm, 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.

### Allowable overhang

#### Horizontal installation

<table>
<thead>
<tr>
<th>Stroke (mm)</th>
<th>Weight (kg)</th>
<th>Maximum speed (mm/s)</th>
<th>Static loading moment</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>10kg</td>
<td>15</td>
<td>1400</td>
</tr>
<tr>
<td>600</td>
<td>15kg</td>
<td>20</td>
<td>1800</td>
</tr>
<tr>
<td>700</td>
<td>20kg</td>
<td>25</td>
<td>2400</td>
</tr>
</tbody>
</table>

#### Vertical installation

<table>
<thead>
<tr>
<th>Stroke (mm)</th>
<th>Weight (kg)</th>
<th>Maximum speed (mm/s)</th>
<th>Static loading moment</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>10kg</td>
<td>15</td>
<td>1400</td>
</tr>
<tr>
<td>600</td>
<td>15kg</td>
<td>20</td>
<td>1800</td>
</tr>
<tr>
<td>700</td>
<td>20kg</td>
<td>25</td>
<td>2400</td>
</tr>
</tbody>
</table>

#### Note 1
- When origin is on motor side

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

#### Note 3
- 9.47-5.4 when the high lead specification (Lead 30) is used.

#### Note 4
- 4.5x4.1 when the high lead specification (Lead 30) is used.

#### Note 5
- Position detector is common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

### Static loading moment

#### Note 1
- Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

### Controller

#### Controller Operation method

- SR1-X
- TS-X
- RDV-X

#### Note 1
- When models used vertically with 700mm or larger stroke.

#### Note 2
- When installing the unit, washers, etc., cannot be used in the non-motor side.

#### Note 3
- Regenerative unit is required when the models used vertically with 700mm or larger stroke.
### Ordering method

#### T9H

<table>
<thead>
<tr>
<th>Model</th>
<th>AC servo motor output (W)</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Repeatability (mm)</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Deceleration ratio (mm)</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Stroke (mm)</td>
<td>150 to 1250</td>
</tr>
<tr>
<td></td>
<td>Maximum speed (mm/sec)</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>Maximum payload (kg)</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Rated thrust (N)</td>
<td>90</td>
</tr>
</tbody>
</table>

#### TSX

| Power-supply voltage (V) | 200 |

#### SR1-X

| Controller | Power capacity (kW) | 10 |

#### RDV-X

| Driver | Power capacity (kW) | 10 |

### Specifications

#### T9H

<table>
<thead>
<tr>
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<tbody>
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</tr>
<tr>
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<td>1000</td>
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<td>Maximum payload (kg)</td>
<td>30</td>
</tr>
<tr>
<td>Rated thrust (N)</td>
<td>90</td>
</tr>
</tbody>
</table>

#### Allowable overhang

<table>
<thead>
<tr>
<th>Horizontal installation</th>
<th>Vertical installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke</td>
<td>90 kg</td>
</tr>
<tr>
<td>Payload (kg)</td>
<td>0.3 kg</td>
</tr>
</tbody>
</table>

#### Static loading moment

<table>
<thead>
<tr>
<th>MY</th>
<th>MP</th>
<th>MR</th>
</tr>
</thead>
<tbody>
<tr>
<td>86</td>
<td>133</td>
<td>117</td>
</tr>
</tbody>
</table>

### Static loading moment

<table>
<thead>
<tr>
<th>Controller</th>
<th>Operation method</th>
<th>SR1-X™/X10™/X11™</th>
<th>Remote command / Operation using RS-232C communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDV-X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Strokes longer than 1050mm are special order items. Please consult us for delivery time.
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

I/O selection

Stroke

Regenerative unit

C

Allowable overhang

Static loading moment

Controller

Ordering method

Specifications

Effective stroke

Cross-section E-E

Effective stroke

Cross-section E-E

Note 1. The model with a lead of 20mm cannot select specifications with brake (velocity specifications).

Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.

Note 3. See P.500 for DIN rail mounting bracket.

Note 4. Select this selection when using the gateway function. For details, see P.62.

Note 5. Weight of models with no brake. The weight of brake-attached models (Note 4) is 15kg.

Note 6. When the stroke is longer than 550mm, 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.

Note 7. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Note 8. Stop positions are determined by the mechanical stoppers at both ends.

Note 9. When installing the robot, do not use washers inside the robot body.

Note 10. Minimum bend radius of motor cable is 90mm.

Note 11. When using this knuckle-pin hole to position the robot body, the knuckle-pin must not protrude more than 10mm inside the robot body.

Note 12. When using this knuckle-pin hole to position the robot body, the knuckle-pin must not protrude more than 10mm inside the robot body.

Note 13. Weight of models with no brake. The weight of brake-attached models is 0.3 kg heavier than the models with no brake shown in the table.

Note 14. When the stroke is longer than 550mm, 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 1. The model with a lead of 30mm cannot select specifications with brake (vertical specifications).
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

### Ordering method

**F8L**

- **High lead:** Lead 30
- **Origin on the non-motor side is selectable**

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead</th>
<th>Brake</th>
<th>Greasing hole</th>
<th>Motor cable length</th>
<th>Power supply voltage</th>
<th>I/O selection</th>
<th>Battery</th>
</tr>
</thead>
<tbody>
<tr>
<td>F8L</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

### Specifications

- **AC servo motor output (W)**: 100
- **Repeatability ±0.01 (mm)**: 0.01
- **Ball screw lead (mm)**: 10
- **Maximum payload (kg)**: 5
- **Rated thrust (N)**: 30
- **Stroke (mm)**: 1000
- **Overall length (mm)**: 1000
- **Maximum dimensions of cross section of main unit (mm)**: 1000
- **Grease type**: 50
- **Cable length**: 30
- **Motor cable length**: 30
- **Absolute specifications**:
  - **Position detector (resolvers)**: 1000
  - **Linear encoder**:
    - **Resolution (Pulse/revolution)**: 1000

### Allowable overhang

**Horizontal installation**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**Wall installation**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**Vertical installation**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

### Static loading moment

<table>
<thead>
<tr>
<th>MY</th>
<th>MP</th>
<th>MR</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>95</td>
<td>110</td>
</tr>
</tbody>
</table>

### Controller

**SR1-X**

- **Operation method**:
  - Programming: D: DeviceNet™
  - Operation using RS-232C communication: D: DeviceNet™

**TS-X**

- **Operation method**:
  - Programming: D: DeviceNet™
  - Operation using RS-232C communication: D: DeviceNet™

**RDV-X**

- **Operation method**:
  - Programming: D: DeviceNet™
  - Operation using RS-232C communication: D: DeviceNet™

### F8L

- **Effective stroke**:
  - **Maximum speed (mm/sec)**:
    - **Lead 20**: 1200
    - **Lead 30**: 800
  - **Maximum speed setting (mm/sec)**:
    - **Lead 20**: 500
    - **Lead 30**: 300

### Note

- **Note 1.** Positioning repeatability in one direction.
- **Note 2.** When the stroke is longer than 650mm, 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.** Minimum bend radius of motor (between knockpins) +/-0.02
- **Note 4.** When using this model, do not use washers inside the robot body. The weight of brake-attached models is 3.5kg heavier than the models with no brake shown in the table.
F8L  High lead type: Lead 30

Effective stroke  150  200  250  300  350  400  450  500  550  600  650  700  750  800  850  900  950  1000  1050  1100  1150  1200  1250  1300  1350

Maximum speed (mm/sec)  Lead 30  1000

Speed setting  1530  1350  1170  1000  900  810  720  630  540  450  360

Weight (kg)  3.9  4.2  4.5  4.8  5.1  5.4  5.7  6.1  6.4  6.7  7.0  7.3  7.6  8.0  8.3  8.6  8.9  9.2  9.5

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When installing the robot, do not use washers inside the robot body.
Note 3. Minimum bend radius of motor cable is 50.
Note 4. When using this φ10 knock-pin hole to position the robot body, the knock-pin must not protrude more than 10mm inside the robot body.
Note 5. When the stroke is longer than 650mm, 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: Recommended plate nut M4 (C philanthropy 1.6).

Cross-section E-E

Effective stroke  150  200  250  300  350  400  450  500  550  600  650  700  750  800  850  900  950  1000  1050  1100  1150  1200  1250  1300  1350

Weight (kg)  3.9  4.2  4.5  4.8  5.1  5.4  5.7  6.1  6.4  6.7  7.0  7.3  7.6  8.0  8.3  8.6  8.9  9.2  9.5

Maximum speed (mm/sec)  Lead 30  1000

Speed setting  1530  1350  1170  1000  900  810  720

Weight (kg)  3.9  4.2  4.5  4.8  5.1  5.4  5.7  6.1  6.4  6.7  7.0  7.3  7.6  8.0  8.3  8.6  8.9  9.2  9.5

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When installing the robot, do not use washers inside the robot body.
Note 3. Minimum bend radius of motor cable is 50.
Note 4. When using this φ10 knock-pin hole to position the robot body, the knock-pin must not protrude more than 10mm inside the robot body.
Note 5. When the stroke is longer than 650mm, 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: Recommended plate nut M4 (C philanthropy 1.6).

Cross-section E-E

Effective stroke  150  200  250  300  350  400  450  500  550  600  650  700  750  800  850  900  950  1000  1050  1100  1150  1200  1250  1300  1350

Weight (kg)  3.9  4.2  4.5  4.8  5.1  5.4  5.7  6.1  6.4  6.7  7.0  7.3  7.6  8.0  8.3  8.6  8.9  9.2  9.5

Maximum speed (mm/sec)  Lead 30  1000

Speed setting  1530  1350  1170  1000  900  810  720

Weight (kg)  3.9  4.2  4.5  4.8  5.1  5.4  5.7  6.1  6.4  6.7  7.0  7.3  7.6  8.0  8.3  8.6  8.9  9.2  9.5

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When installing the robot, do not use washers inside the robot body.
Note 3. Minimum bend radius of motor cable is 50.
Note 4. When using this φ10 knock-pin hole to position the robot body, the knock-pin must not protrude more than 10mm inside the robot body.
Note 5. When the stroke is longer than 650mm, 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: Recommended plate nut M4 (C philanthropy 1.6).

Cross-section E-E

Effective stroke  150  200  250  300  350  400  450  500  550  600  650  700  750  800  850  900  950  1000  1050  1100  1150  1200  1250  1300  1350

Weight (kg)  3.9  4.2  4.5  4.8  5.1  5.4  5.7  6.1  6.4  6.7  7.0  7.3  7.6  8.0  8.3  8.6  8.9  9.2  9.5

Maximum speed (mm/sec)  Lead 30  1000

Speed setting  1530  1350  1170  1000  900  810  720

Weight (kg)  3.9  4.2  4.5  4.8  5.1  5.4  5.7  6.1  6.4  6.7  7.0  7.3  7.6  8.0  8.3  8.6  8.9  9.2  9.5

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When installing the robot, do not use washers inside the robot body.
Note 3. Minimum bend radius of motor cable is 50.
Note 4. When using this φ10 knock-pin hole to position the robot body, the knock-pin must not protrude more than 10mm inside the robot body.
Note 5. When the stroke is longer than 650mm, 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.
### Ordering method

**F8LH**

<table>
<thead>
<tr>
<th>Model</th>
<th>F8LH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor</td>
<td>(Contact for details)</td>
</tr>
<tr>
<td>Stroke Deceleration mechanism</td>
<td>1 to 500 mm/sec</td>
</tr>
<tr>
<td>Screw type</td>
<td>1200/1600</td>
</tr>
<tr>
<td>Screw lead</td>
<td>30/60/120</td>
</tr>
<tr>
<td>Maximum payload</td>
<td>150/1050 (50mm pitch)</td>
</tr>
<tr>
<td>stroke+368</td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td>150 to 1050 (50mm pitch)</td>
</tr>
<tr>
<td>Overall length</td>
<td>Horizontal Stroke+368</td>
</tr>
<tr>
<td>Horizontal Stroke</td>
<td>150 to 1050 (50mm pitch)</td>
</tr>
<tr>
<td>Position detector</td>
<td>Absolute encoder</td>
</tr>
<tr>
<td>Resolution (Pulse/rotation)</td>
<td>16384</td>
</tr>
<tr>
<td>Controller</td>
<td>1200</td>
</tr>
<tr>
<td>Driver</td>
<td>100</td>
</tr>
<tr>
<td>Power-supply voltage</td>
<td>400</td>
</tr>
<tr>
<td>Power capacity</td>
<td>714</td>
</tr>
<tr>
<td>Regenerative unit</td>
<td>600</td>
</tr>
</tbody>
</table>

### Specifications

- **AC servo motor output (W):** 100
- **Repeatability (mm):** ±0.01
- **Minimum speed:** 1200/1600 (50mm pitch)
- **Maximum payload:** 150/1050 (50mm pitch)
- **Stroke:** 150 to 1050 (50mm pitch)
- **Overall length:** Horizontal Stroke+368
- **Position detector:** Absolute encoder
- **Resolution (Pulse/revolution):** 16384

### Allowable overhang

- **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.

### Static loading moment

- **Unit:** N·m

### Controller

- **SR1-X**
- **TS-X**
- **RDV-X**

### Note

1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
2. See P.56 for details on robot cable.
3. Select this selection when using the gateway function. For details, see P.62.
4. See P.500 for DIN rail mounting bracket.
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 above.
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

Note 1. The model with a lead of 30mm cannot select specifications with brake (vertical specifications).

Note 2. When the stroke is longer than 700mm, 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.

Note 3. Strokes longer than 1050mm are special order items. Please consult us for delivery time.

Note 4. When origin is on non-motor side (Lead 30). (Special order item)

Note 5. When installing the unit, washers, etc., cannot be used in the φ9.5 counter bore hole.

Note 6. When origin is on non-motor side (Lead 30). (Special order item)

Note 7. The distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Note 8. The maximum speeds shown in the table above.

Note 9. When the stroke is longer than 700mm, 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 10. Strokes longer than 1050mm are special order items. Please consult us for delivery time.

### Specifications

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC servo motor output (W)</td>
<td>100</td>
</tr>
<tr>
<td>Repeatability (%</td>
<td>±0.1</td>
</tr>
<tr>
<td>Deceleration mechanism</td>
<td>Ball screw</td>
</tr>
<tr>
<td>Ball screw lead (mm)</td>
<td>30, 20, 10, 5</td>
</tr>
<tr>
<td>Maximum speed (mm/sec)</td>
<td>250, 213, 190, 163</td>
</tr>
<tr>
<td>Maximum payload (kg)</td>
<td>15, 10, 5</td>
</tr>
<tr>
<td>Rated thrust (N)</td>
<td>50, 40, 30</td>
</tr>
<tr>
<td>Stroke (mm)</td>
<td>1200, 1500, 1800</td>
</tr>
<tr>
<td>Overall length (mm)</td>
<td>957, 1200, 1470</td>
</tr>
<tr>
<td>Linear encoder type</td>
<td>Absolute 16384 pulses/revolution</td>
</tr>
<tr>
<td>Position detector</td>
<td>Resolution 0.5µm</td>
</tr>
</tbody>
</table>

### Allowable overhang

- Horizontal installation
- Wall installation
- Vertical installation

### Static loading moment

<table>
<thead>
<tr>
<th>Load (kg)</th>
<th>Y (Unit: N·m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>0.02</td>
</tr>
<tr>
<td>20</td>
<td>0.04</td>
</tr>
<tr>
<td>30</td>
<td>0.06</td>
</tr>
</tbody>
</table>

### Controller

- Operation method
- Controller Driver: Power capacity
- Remote command: RS-232C communication
- I/O point trace: DeviceNet™ (Incremental)
- E: CE marking
- B/R: With brake
- N: None
- A: With brake

### Ordering method

- Model: F10
- Lead: 30
- Type: A, C, B/R, N, B
- Option: Controller Driver: Power capacity
- Remote command: RS-232C communication
- I/O point trace: DeviceNet™ (Incremental)
- E: CE marking
- B/R: With brake
- N: None
- A: With brake

### Static loading moment

<table>
<thead>
<tr>
<th>Load (kg)</th>
<th>Y (Unit: N·m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>0.02</td>
</tr>
<tr>
<td>20</td>
<td>0.04</td>
</tr>
<tr>
<td>30</td>
<td>0.06</td>
</tr>
</tbody>
</table>

### Note

1. Stop positions are determined by the mechanical stoppers at both ends.
2. When the stroke is longer than 700mm, 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.
3. When origin is on non-motor side (Lead 30). (Special order item)
4. When installing the unit, washers, etc., cannot be used in the φ9.5 counter bore hole.
5. When origin is on non-motor side (Lead 30). (Special order item)
6. When origin is on non-motor side (Lead 30). (Special order item)
7. The distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
8. The maximum speeds shown in the table above.
9. When the stroke is longer than 700mm, 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.
10. Strokes longer than 1050mm are special order items. Please consult us for delivery time.
### Specifications

**AC servo motor output (W)** 200

**Repeatability** (mm) 0.07

**Deceleration (m/s²)** 100

**Ball screw lead (mm)** 30 20 10 5

**Maximum speed (mm/min)** 1500 1200 650 200

**Maximum payload (kg)** 80 20 10 5

**Rated thrust (N)** 113 119 121 161

**Stoke (mm)** 150 100

**Overall length (mm)** 755 592 395 385

**Linear guide type** 200 380 250 100

**Position detector (Resolver)**

**Resolution (µm/revolution)** 1024

**Lead** 30 20 10 5

**Resolution (Pulse/revolution)**

**AC servo motor output (W)** 200

**Repeatability** (mm) 0.07

**Deceleration (m/s²)** 100

**Ball screw lead (mm)** 30 20 10 5

**Maximum speed (mm/min)** 1500 1200 650 200

**Maximum payload (kg)** 80 20 10 5

**Rated thrust (N)** 113 119 121 161

**Stoke (mm)** 150 100

**Overall length (mm)** 755 592 395 385

**Linear guide type** 200 380 250 100

**Position detector (Resolver)**

**Resolution (µm/revolution)** 1024

**Lead** 30 20 10 5

**Repeatability** (mm) 0.07

**Deceleration (m/s²)** 100

**Ball screw lead (mm)** 30 20 10 5

**Maximum speed (mm/min)** 1500 1200 650 200

**Maximum payload (kg)** 80 20 10 5

**Rated thrust (N)** 113 119 121 161

**Stoke (mm)** 150 100

**Overall length (mm)** 755 592 395 385

**Linear guide type** 200 380 250 100

**Position detector (Resolver)**

**Resolution (µm/revolution)** 1024

**Lead** 30 20 10 5

**Effective stroke (mm)**

### Ordering method

**F10H**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Accessories</th>
<th>Lead (mm)</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>YA</td>
<td>Articulated robots</td>
<td>Cable entry G10-F30 (10)</td>
<td>30, 20, 10, 5</td>
<td>Single-axis robots</td>
</tr>
<tr>
<td>TRANSERVO</td>
<td>Single-axis robots</td>
<td>Cable entry GF 55 (1)</td>
<td>30, 20, 10, 5</td>
<td>Single-axis robots</td>
</tr>
<tr>
<td>FLIP-X</td>
<td>Linear motor</td>
<td>Cable entry GF 55 (1)</td>
<td>30, 20, 10, 5</td>
<td>Single-axis robots</td>
</tr>
<tr>
<td>XT-X</td>
<td>SCARA robots</td>
<td>Cable entry GF 55 (1)</td>
<td>30, 20, 10, 5</td>
<td>Single-axis robots</td>
</tr>
<tr>
<td>YK-X</td>
<td>Pick &amp; place robots</td>
<td>Cable entry GF 55 (1)</td>
<td>30, 20, 10, 5</td>
<td>Single-axis robots</td>
</tr>
<tr>
<td>YP-XCLEANCONTROLLERINFORMATION</td>
<td>Linear conveyor modules</td>
<td>Cable entry GF 55 (1)</td>
<td>30, 20, 10, 5</td>
<td>Single-axis robots</td>
</tr>
</tbody>
</table>

### Allowable overhang

<table>
<thead>
<tr>
<th>Horizontal installation (mm)</th>
<th>Wall installation (mm)</th>
<th>Vertical installation (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>80</td>
<td>150</td>
<td>200</td>
</tr>
</tbody>
</table>

### Static loading moment

**Controller**

<table>
<thead>
<tr>
<th>SR1-X</th>
<th>TS-X</th>
<th>RDV-X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver: Power capacity</td>
<td>Driver: Power capacity</td>
<td>Regenerative unit</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

### Note

1. The model with a load of 30mm cannot select specifications with brake (vertical specifications).
2. When selecting 3mm lead specifications then the origin point cannot be changed to the non-motor-side.
3. The robot is cable standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
4. Please see P.500 for DIN rail mounting bracket.
5. Select this selection when using the gateway function. For details, see P.62.
6. Position detectors (resolvers) are common to incremental and absolute specifications.
7. If selecting 5mm lead specifications then the origin point cannot be changed to the non-motor-side.
8. Service life is calculated for 600mm stroke models.
**F10H**  
High lead type: Lead 30

**Effective stroke**
- L: 505, 555, 605, 655, 705, 755, 805, 855, 905, 955, 1005
- M: 0, 1, 1, 1, 1, 2, 2, 2, 3, 3, 3, 3, 4, 4, 4, 5
- N: 6, 8, 8, 8, 8, 8, 8, 8, 10, 10, 10, 10, 12, 12, 12, 14, 14, 14, 16
- K: 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000

**Weight (kg)**
- 6.9, 7.3, 7.7, 8.1, 8.4, 8.8, 9.2, 9.6, 10.0, 10.3, 10.7, 11.1, 11.5, 11.9, 12.3, 12.7, 13.1, 13.4

**Maximum speed**
- Lead 30: 1520, 1440, 1296, 1100, 900, 720, 630
- Lead 20: 1200, 1100, 960, 840, 720, 600, 480
- Lead 10: 600, 600, 480, 420, 360, 300, 240, 210
- Lead 5: 300, 300, 240, 210, 180, 150, 120, 105

**Speed setting**
- 80%, 70%, 60%, 50%, 40%, 35%

---

**Notes:**
1. Stop positions are determined by the mechanical stoppers at both ends.
2. When installing the unit, washers, etc., cannot be used in the ϕ 9.5 counter bore hole.
3. Minimum bend radius of motor cable is R50.
4. When using this ϕ 10 knock-pin hole to position the robot body, the knockpin must not protrude more than 10mm inside the robot body.
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 above.
### Ordering method

**F14**

<table>
<thead>
<tr>
<th>Model</th>
<th>Lead (mm)</th>
<th>Deceleration (m/s²)</th>
<th>Stroke</th>
<th>Motor B</th>
<th>Motor C</th>
<th>Rated thrust (N)</th>
<th>Maximum speed (mm/sec)</th>
<th>Acceleration time (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR1-X</td>
<td>30/40/50/60</td>
<td>6.2/5.5/5.2/5.0</td>
<td>10+20</td>
<td>2100/1900/1700/1500</td>
<td>1000/900/800/700</td>
<td>450/400/350/300</td>
<td>200/190/180/170</td>
<td>6.2/5.5/5.2/5.0</td>
</tr>
</tbody>
</table>

Note 1. The model with a lead of 30mm cannot select specifications with brake (vertical specifications).

Note 2. 85±3+/-4 when the high lead specification (Lead 30) is used.

Note 3. 172.5±1 when the high lead specification (Lead 30) is used.

### Specifications

- **AC servo motor output (W)**: 100
- **Repeatability** (mm): ±0.01
- **Ball screw diameter (mm)**: 63
- **Maximum stroke (mm)**: 1500
- **Maximum load (kg)**: 4
- **Rated thrust (N)**: 516
- **Origin position change** (mm): ±0.01
- **Position detector** (resolvers): common to incremental and absolute specifications.

### Allowable overhang

#### Horizontal installation (unit: mm)

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>5kg</td>
<td>1756</td>
<td>1364</td>
</tr>
<tr>
<td>15kg</td>
<td>1288</td>
<td>467</td>
</tr>
<tr>
<td>30kg</td>
<td>1193</td>
<td>450</td>
</tr>
<tr>
<td>50kg</td>
<td>1266</td>
<td>250</td>
</tr>
<tr>
<td>80kg</td>
<td>1132</td>
<td>350</td>
</tr>
<tr>
<td>100kg</td>
<td>832</td>
<td>190</td>
</tr>
<tr>
<td>150kg</td>
<td>586</td>
<td>100</td>
</tr>
<tr>
<td>200kg</td>
<td>445</td>
<td></td>
</tr>
</tbody>
</table>

#### Vertical installation (unit: mm)

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>5kg</td>
<td>368</td>
<td>1170</td>
</tr>
<tr>
<td>15kg</td>
<td>760</td>
<td>1550</td>
</tr>
<tr>
<td>30kg</td>
<td>1132</td>
<td>350</td>
</tr>
<tr>
<td>50kg</td>
<td>1266</td>
<td>250</td>
</tr>
<tr>
<td>80kg</td>
<td>1132</td>
<td>350</td>
</tr>
<tr>
<td>100kg</td>
<td>832</td>
<td></td>
</tr>
<tr>
<td>150kg</td>
<td>586</td>
<td></td>
</tr>
<tr>
<td>200kg</td>
<td>445</td>
<td></td>
</tr>
</tbody>
</table>

### Static loading moment

- **Controller**: SR1-X
- **Controller**: TS-X
- **Controller**: RDV-X

### Driver

- **Power-supply voltage**: DC48V
- **Power-supply voltage**: AC250V

### Remote command

- **Type**: TS-X
- **Type**: RDV-X

### Note

- **Note 1**: Positioning repeatability is in one direction.
- **Note 2**: When the stroke is less than 700mm, the resistance of the ball screw may occur depending on the operation conditions (critical speed).
- **Note 3**: Strokes longer than 1050mm are special order items. Please consult us for delivery time.
- **Note 4**: When the stroke is longer than 700mm, 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 5**: Minimum bend radius of motor cable is 50mm.
- **Note 6**: Weight of models with no brake. The weight of brake-attached models is 0.7 kg heavier than the models with no brake shown in the table.
- **Note 7**: When the stroke is longer than 700mm, 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 8**: Strokes longer than 1050mm are special order items. Please consult us for delivery time.

---

**Image**: Diagram of a robot with various components labeled, including axes, linear guides, and motors. The diagram illustrates the structure and specifications of the robot.
F14H

High lead: Lead 30
Origin on the non-motor side is selectable: Lead 10-20-30

Note: Strokes longer than 1050mm are special order items. Please consult us for delivery time.

### Ordering method

<table>
<thead>
<tr>
<th>F14H</th>
<th>Lead</th>
<th>Model</th>
<th>Motor type</th>
<th>Cable entry</th>
<th>Specifics</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Specifications

AC servo motor output (W)
Repeatability (mm)
Deceleration (mm/s²)
Ball screw lead (mm)
Maximum speed (mm/sec)
Maximum stroke (mm)
Rated load (kg)
Rated speed (r/min)

### Allowable overhang

#### Horizontal installation

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>10kg</td>
<td>2152</td>
<td>1673</td>
<td>934</td>
</tr>
<tr>
<td>25kg</td>
<td>1847</td>
<td>691</td>
<td>533</td>
</tr>
<tr>
<td>50kg</td>
<td>1255</td>
<td>683</td>
<td>485</td>
</tr>
<tr>
<td>80kg</td>
<td>1072</td>
<td>246</td>
<td>238</td>
</tr>
<tr>
<td>100kg</td>
<td>800</td>
<td>214</td>
<td>210</td>
</tr>
</tbody>
</table>

#### Vertical installation

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>10kg</td>
<td>975</td>
<td>1219</td>
<td>1625</td>
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<tr>
<td>25kg</td>
<td>482</td>
<td>426</td>
<td>1257</td>
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<tr>
<td>50kg</td>
<td>1995</td>
<td>1200</td>
<td>1711</td>
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<tr>
<td>80kg</td>
<td>515</td>
<td>558</td>
<td>987</td>
</tr>
<tr>
<td>100kg</td>
<td>263</td>
<td>227</td>
<td>633</td>
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</table>

### Static loading moment

<table>
<thead>
<tr>
<th>MY</th>
<th>MP</th>
<th>MR</th>
</tr>
</thead>
<tbody>
<tr>
<td>551</td>
<td>552</td>
<td>485</td>
</tr>
</tbody>
</table>

### Controller

#### Controller type

<table>
<thead>
<tr>
<th>SR1-X</th>
<th>TS-X</th>
<th>RDV-X</th>
</tr>
</thead>
<tbody>
<tr>
<td>110</td>
<td>906</td>
<td>515</td>
</tr>
<tr>
<td>135</td>
<td>909</td>
<td>515</td>
</tr>
<tr>
<td>210</td>
<td>675</td>
<td>494</td>
</tr>
<tr>
<td>300</td>
<td>503</td>
<td>497</td>
</tr>
</tbody>
</table>

### General information

- High lead: Lead 30
- Origin on the non-motor side is selectable: Lead 10-20-30
- Strokes longer than 1050mm are special order items. Please consult us for delivery time.

Note 1: The model with a lead of 30mm cannot select specifications with brake (vertical specifications).
Note 2: If selecting 5mm lead specifications then the origin point cannot be changed to the non-motor side.
Note 3: The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
Note 4: See P.596 for details on robot cable.
Note 5: Select this selection when using the gateway function. For details, see P.62.

---

**Specifications**

- AC servo motor output (W)
- Repeatability (mm)
- Deceleration (mm/s²)
- Ball screw lead (mm)
- Maximum speed (mm/sec)
- Maximum stroke (mm)
- Rated load (kg)
- Rated speed (r/min)

**Allowable overhang**

- Horizontal installation
- Vertical installation

**Static loading moment**

- MY
- MP
- MR

**Controller**

- SR1-X
- TS-X
- RDV-X

---

**Notes**

- Note 1: Stop positions are determined by the mechanical stoppers at both ends.
- Note 2: 5mm lead specifications then the origin point cannot be changed to the non-motor side.
- Note 3: The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
- Note 4: See P.596 for details on robot cable.
- Note 5: Select this selection when using the gateway function. For details, see P.62.
### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
<th>Installation direction</th>
<th>Lead direction</th>
<th>Cable entry location</th>
<th>Stroke</th>
<th>Stroke type</th>
<th>Stroke length(mm)</th>
<th>Stroke type</th>
<th>Flexible label</th>
<th>Positioner label</th>
</tr>
</thead>
<tbody>
<tr>
<td>GF14XL-S</td>
<td>S</td>
<td>H-20</td>
<td>-</td>
<td>No Entry</td>
<td>20</td>
<td>Standard</td>
<td>350</td>
<td>Standard</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1. Positioning repeatability in one direction.

Note 2. See P.500 for details on robot cable.

### Specifications

- **AC servo motor output (W):** 200
- **Repeatability (mm):** +/-0.01
- **Deceleration mechanism:** Ball screw ø15
- **Ball screw lead (mm):** 20
- **Maximum speed (mm/sec):** 1200
- **Maximum payload (kg):** 45
- **Rated thrust (N):** 150
- **Stroke (mm):** 750 to 2000 (50mm pitch)
- **Overall length (mm):** Stroke=551
- **Maximum dimensions of cross section of main unit (mm):** W140×H91.5
- **Linear guide type:** Standard 3.5 / Option: 5, 10
- **Position detector:** Resolvers
- **Resolution (Pulse/rotation):** 20840

Note 1. Positioning repeatability in one direction.

Note 2. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

### Allowable overhang

#### Horizontal installation

<table>
<thead>
<tr>
<th>Stroke (mm)</th>
<th>Positioner label</th>
</tr>
</thead>
<tbody>
<tr>
<td>10kg</td>
<td>551</td>
</tr>
<tr>
<td>20kg</td>
<td>552</td>
</tr>
</tbody>
</table>

Note: Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

### Static loading moment

<table>
<thead>
<tr>
<th>Controller</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR1-X110</td>
<td>Programming / RDC-X221/222</td>
</tr>
<tr>
<td>TSX-210</td>
<td>Remote command</td>
</tr>
<tr>
<td>RDV-X20-RR</td>
<td>Pulse train control</td>
</tr>
</tbody>
</table>

### Controller

- **Patient sequence:**
  - SR1-X110
  - RDC-X221/222
  - TDZ-210

### GF14XL

- **Direction of robot cable extraction:**
  - 90° to 120°

- **Cable entry location:**
  - No Entry

- **Stroke:**
  - 350mm

- **Stroke type:**
  - Standard

- **Flexible label:**
  - No Entry

- **Positioner label:**
  - No Entry

- **Cable entry location:**
  - No Entry

- **Stroke:**
  - 350mm

- **Stroke type:**
  - Standard

- **Flexible label:**
  - No Entry

- **Positioner label:**
  - No Entry

- **Cable entry location:**
  - No Entry

- **Stroke:**
  - 350mm

- **Stroke type:**
  - Standard

- **Flexible label:**
  - No Entry

- **Positioner label:**
  - No Entry

- **Cable entry location:**
  - No Entry

- **Stroke:**
  - 350mm

- **Stroke type:**
  - Standard

- **Flexible label:**
  - No Entry

- **Positioner label:**
  - No Entry

### Note

1. Stop positions are determined by the mechanical stoppers at both ends.
2. When changing the return-to-origin direction, the adjustment is needed. (The standard is on the origin side.)
3. The length under head of the hexagon socket head bolts (M6 x 1.0) that are used to install the main body with the spot facing hole installation specifications is 20mm or more.
4. It is recommended that the length under head of the hexagon socket head bolts (M6 x 1.0) that are used to install the main body with the tapping hole installation specifications is the thickness of the installation base + 10mm or less.
5. The cable’s minimum bend radius is R30.

### Dimensions

- **Controller:**
  - Width: 140mm
  - Depth: 110mm

- **Cross-section A-A:**
  - Width: 140mm
  - Depth: 110mm

- **Details of B:**
  - Width: 15mm
  - Depth: 11mm

- **Details of D:**
  - Width: 15mm
  - Depth: 11mm

### Notes

- **Model Installation:**
  - Battery
  - (B/2-2)x200
  - Grease
  - Cable
  - GF

- **YP-X CLEAN CONTROLLER INFORMATION:**
  - Linear conveyor modules
  - LCM100
Note 1. The model with a lead of 40mm cannot select specifications with brake (vertical specifications).
Note 2. Upper robot cable (U) on models equipped with brake is a special order item.
Note 3. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
Note 2. Upper robot cable (U) on models equipped with brake is a special-order item.
Note 3. Minimum bend radius of motor cable is R50.
Note 4. Weight of models with no brake. The weight of brake-attached models is 1.2 kg heavier than the models with no brake shown in the table.
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 above.

**Ordering method**

Note. Upper robot cable (U) on models with brakes is a special order item, so please consult our sales office or sales representative for assistance. (External dimensions: overall length + 20 mm)

**Specifications**

- AC servo motor output (W) 400
- Repeatability (mm) ±0.01
- Deceleration mechanism Brake screw
- Ball screw lead (mm) 40 20 10
- Maximum speed (mm/sec) 2000 1650 1200
- Maximum payload (kg) Horizontal 40 80 120 Vertical 15 35
- Rated thrust (N) 169 339 678
- Stroke (mm) 200 to 1000 (1mm pitch)
- Overall length 16384
- Linear guide type 4 rows of circular arc grooves × 2 rail
- Repeatability (mm) 0.25
- Linear encoder resolution 1024 lines/rotation

**Allowable overhang**

- Horizontal Installation (unit:mm) 10kg 20kg 40kg
- Vertical Installation (unit:mm) 5kg 10kg 20kg

**Static loading moment**

- Position detection
- Note 1. Repeatability for single selection.
- Note 2. When the stroke exceeds 800mm, although depending on the moving range, the ball screw may resonate (critical speed).
- Note 3. In that case, make adjustment to lower the speed on the program according to the resonance frequency calculated.
- Note 4. To operate the unit at a speed exceeding 1,000mm/sec. (Max. speed), a regeneration unit RG1 is required.
- Note 5. The robot with the high lead specifications (lead 40) needs a regenerative unit.
- Note 6. 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 above.
- Note 7. To operate the unit at a speed exceeding 1,000/sec. horizontally, (Max. speed), a regeneration unit RG1 is required.

**Controller**

- Ordering method
  - Programming / I/O point trace / Remote command / RS-232C/422/485/Power grip / Power up
  - Note. The following arrangements require a regeneration unit:
    - • High lead (40) horizontally.
    - • CH3 in the upright position.
    - • To move at a speed exceeding 1,000 mm/sec horizontally.
    - • High lead (40) horizontally.

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. When installing the robot, do not use washers inside the robot body.
Note 3. Minimum bend radius of motor cable is R50.
Note 4. Weight of models with no brake. The weight of brake-attached models is 1.2 kg heavier than the models with no brake shown in the table.
Note 5. Make a separate consultation with us regarding robot cable (brake specifications) (extrusion). (External dimensions: overall length + 20 mm)
Note 6. 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 above.

- Note 1. Stop positions are determined by the mechanical stoppers at both ends.
- Note 2. When installing the robot, do not use washers inside the robot body.
- Note 3. Minimum bend radius of motor cable is R50.
- Note 4. Weight of models with no brake. The weight of brake-attached models is 1.2 kg heavier than the models with no brake shown in the table.
- Note 5. Make a separate consultation with us regarding robot cable (brake specifications) (extrusion). (External dimensions: overall length + 20 mm)
- Note 6. 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 above.

- Note. 1. Stop positions are determined by the mechanical stoppers at both ends.
- Note 2. When installing the robot, do not use washers inside the robot body.
- Note 3. Minimum bend radius of motor cable is R50.
- Note 4. Weight of models with no brake. The weight of brake-attached models is 1.2 kg heavier than the models with no brake shown in the table.
- Note 5. Make a separate consultation with us regarding robot cable (brake specifications) (extrusion). (External dimensions: overall length + 20 mm)
- Note 6. 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 above.

**Controller Specifications**

- Ordering method
  - Programming / I/O point trace / Remote command / RS-232C/422/485/Power grip / Power up
  - Note. The following arrangements require a regeneration unit:
    - • High lead (40) horizontally.
    - • CH3 in the upright position.
    - • To move at a speed exceeding 1,000 mm/sec horizontally.
    - • High lead (40) horizontally.

**Controller**

- Ordering method
  - Programming / I/O point trace / Remote command / RS-232C/422/485/Power grip / Power up
  - Note. The following arrangements require a regeneration unit:
    - • High lead (40) horizontally.
    - • CH3 in the upright position.
    - • To move at a speed exceeding 1,000 mm/sec horizontally.
    - • High lead (40) horizontally.

**Controller**

- Ordering method
  - Programming / I/O point trace / Remote command / RS-232C/422/485/Power grip / Power up
  - Note. The following arrangements require a regeneration unit:
    - • High lead (40) horizontally.
    - • CH3 in the upright position.
    - • To move at a speed exceeding 1,000 mm/sec horizontally.
    - • High lead (40) horizontally.

**Controller**

- Ordering method
  - Programming / I/O point trace / Remote command / RS-232C/422/485/Power grip / Power up
  - Note. The following arrangements require a regeneration unit:
    - • High lead (40) horizontally.
    - • CH3 in the upright position.
    - • To move at a speed exceeding 1,000 mm/sec horizontally.
    - • High lead (40) horizontally.

**Controller**

- Ordering method
  - Programming / I/O point trace / Remote command / RS-232C/422/485/Power grip / Power up
  - Note. The following arrangements require a regeneration unit:
    - • High lead (40) horizontally.
    - • CH3 in the upright position.
    - • To move at a speed exceeding 1,000 mm/sec horizontally.
    - • High lead (40) horizontally.
### F17 High lead type: Lead 40

**Effective stroke**
- 200: 575+5
- 250: 625+5
- 300: 675+5
- 350: 725+5
- 400: 775+5
- 450: 825+5
- 500: 875+5
- 550: 925+5
- 600: 975+5
- 650: 1025+5
- 700: 1075+5
- 750: 1125+5
- 800: 1175+5
- 850: 1225+5
- 900: 1275+5
- 950: 1325+5
- 1000: 1375+5
- 1050: 1425+5
- 1100: 1475+5
- 1150: 1525+5
- 1200: 1575+5
- 1250: 1625+5
- 1300: 1675+5
- 1350: 1725+5
- 1400: 1775+5
- 1450: 1825+5

**Maximum speed**
- 200: 172
- 250: 1680
- 300: 1440
- 350: 1200
- 400: 960
- 450: 840
- 500: 720

**Weight**
- 200: 14.7
- 250: 16.4
- 300: 17.2
- 350: 18.6
- 400: 18.8
- 450: 19.7
- 500: 20.5
- Note 3: Minimum bend radius of motor cable is 50mm.

**Controller**
- SR1-X: 518
- TS-X: 492
- RDV-X: 506

---

**Cross-section D-D**

- See cross-section D-D.

**Direction of robot cable extraction**

- Use M6 x 1.25 hex socket head bolt with length head of 40mm or more.

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

**Note 2:** When installing the robot, do not use washers inside the robot body.

**Note 3:** 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 above.

**Cross-section D-D**

- See cross-section D-D.

**Effective Stroke**

- 121+5: When origin is on non-motor side
- 130: When origin is on motor side
**Ordering method**

**F17L - 50**

<table>
<thead>
<tr>
<th>Model</th>
<th>Load capacity (kg)</th>
<th>Controller</th>
<th>Linear conveyor modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>YA</td>
<td>10</td>
<td>SR1-X</td>
<td>LCM100</td>
</tr>
<tr>
<td>TRANSERVO</td>
<td>20</td>
<td>TSX</td>
<td></td>
</tr>
<tr>
<td>FLIP-X</td>
<td>20</td>
<td>RDV-X</td>
<td></td>
</tr>
</tbody>
</table>

**Note 1.** Upper robot cable (U) on models equipped with brake is a special-order item. See P.596 for details on robot cable.

**Note 3.** See P.500 for DIN rail mounting bracket.

**Note 5.** When the stroke exceeds 1200mm, although depending on the moving range, the ball screw may resonate (critical speed). In that case, make adjustment to lower the speed on the program using the maximum speed given in the above table as a guide.

**Specifications**

- **AC servo motor output (W):** 600
- **Repeatability (mm):** +/-0.02
- **Deceleration mechanism:** Ball screw
- **Ball screw load (mm):** 50
- **Maximum speed (mm/sec):** 2000
- **Maximum payload (kg):** 50
- **Stroke (mm):** 1100 to 3500
- **Horizontal**
  - **Overall length:** 1100 to 2050 (50mm pitch)
  - **Linear guide type:** 3045
  - **Position detector:** 1675
- **Vertical**
  - **Overall length:** 1100 to 2050 (50mm pitch)
  - **Linear guide type:** 3045
  - **Position detector:** 1675

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

**Note 2.** When the stroke is longer than 1200mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program referring to the maximum speeds shown in the table below.

**Note 3.** Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function it will be absolute specifications.

**Note 3.** This is the weight of the model without a brake. The weight of the model equipped with a brake is 1.2kg heavier than this value.

**Note 4.** A separate consultation is made regarding robot cable (brake specifications) to U extraction. (External dimensions: overall length + 20 mm)

**Controller**

- **SR1-X-518**
- **TSX-492**
- **RDV-X-506**

---

**F17L**

**Ordering method**

**Model** | **Load capacity (kg)** | **Controller** | **Linear conveyor modules** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YA</td>
<td>10</td>
<td>SR1-X</td>
<td>LCM100</td>
</tr>
<tr>
<td>TRANSERVO</td>
<td>20</td>
<td>TSX</td>
<td></td>
</tr>
<tr>
<td>FLIP-X</td>
<td>20</td>
<td>RDV-X</td>
<td></td>
</tr>
</tbody>
</table>

**Specifications**

- **AC servo motor output (W):** 600
- **Repeatability (mm):** +/-0.02
- **Deceleration mechanism:** Ball screw
- **Ball screw load (mm):** 50
- **Maximum speed (mm/sec):** 2000
- **Maximum payload (kg):** 50
- **Stroke (mm):** 1100 to 3500
- **Horizontal**
  - **Overall length:** 1100 to 2050 (50mm pitch)
  - **Linear guide type:** 3045
  - **Position detector:** 1675
- **Vertical**
  - **Overall length:** 1100 to 2050 (50mm pitch)
  - **Linear guide type:** 3045
  - **Position detector:** 1675

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

**Note 2.** When the stroke is longer than 1200mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program referring to the maximum speeds shown in the table below.

**Note 3.** Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function it will be absolute specifications.

**Note 3.** This is the weight of the model without a brake. The weight of the model equipped with a brake is 1.2kg heavier than this value.

**Note 4.** A separate consultation is made regarding robot cable (brake specifications) to U extraction. (External dimensions: overall length + 20 mm)

---

**Controller**

- **SR1-X-518**
- **TSX-492**
- **RDV-X-506**

---

**F17L**

**Ordering method**

**Model** | **Load capacity (kg)** | **Controller** | **Linear conveyor modules** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YA</td>
<td>10</td>
<td>SR1-X</td>
<td>LCM100</td>
</tr>
<tr>
<td>TRANSERVO</td>
<td>20</td>
<td>TSX</td>
<td></td>
</tr>
<tr>
<td>FLIP-X</td>
<td>20</td>
<td>RDV-X</td>
<td></td>
</tr>
</tbody>
</table>

**Specifications**

- **AC servo motor output (W):** 600
- **Repeatability (mm):** +/-0.02
- **Deceleration mechanism:** Ball screw
- **Ball screw load (mm):** 50
- **Maximum speed (mm/sec):** 2000
- **Maximum payload (kg):** 50
- **Stroke (mm):** 1100 to 3500
- **Horizontal**
  - **Overall length:** 1100 to 2050 (50mm pitch)
  - **Linear guide type:** 3045
  - **Position detector:** 1675
- **Vertical**
  - **Overall length:** 1100 to 2050 (50mm pitch)
  - **Linear guide type:** 3045
  - **Position detector:** 1675

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

**Note 2.** When the stroke is longer than 1200mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program referring to the maximum speeds shown in the table below.

**Note 3.** Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function it will be absolute specifications.

**Note 3.** This is the weight of the model without a brake. The weight of the model equipped with a brake is 1.2kg heavier than this value.

**Note 4.** A separate consultation is made regarding robot cable (brake specifications) to U extraction. (External dimensions: overall length + 20 mm)
### Ordering method

**GF17XL- S H - 20**

<table>
<thead>
<tr>
<th>Model</th>
<th>Controller</th>
<th>Motor</th>
<th>Power</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSX</td>
<td>220</td>
<td>20</td>
<td>600W</td>
<td>RBR1</td>
</tr>
</tbody>
</table>

### Specifications

**AC servo motor output (W)**: 400

**Repeatability** +/−0.01 mm/sec

**Deceleration mechanism**: Ball screw 620

**Ball screw load (mm)**: 20

**Maximum speed (mm/sec)**: 1200

**Maximum payload (kg)**: 90

**Rated thrust (N)**: 339

**Stroke (mm)**: 850 to 2500 (50mm pitch)

**Overall length (mm)**: Stroke + 630

**Maximum dimensions of cross section of main unit (mm)**: W168 x H105.5

**Cable length (m)**: Standard: 3.5 (2.5 + /− 0.5 m), Option: 5.10 m

**Linear guide type**: 4 rows of circular arc grooves + 2 rail

**Position detector**: Resolvers

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

### Allowable overhang

**Vertical installation**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>30kg</td>
<td>40kg</td>
<td>50kg</td>
</tr>
<tr>
<td>40kg</td>
<td>50kg</td>
<td>60kg</td>
</tr>
</tbody>
</table>

**Note**: Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

**Note**: Service life is calculated for 1000mm stroke models.

### Static loading moment

**Controller**

- **Operation method**: SR1-X20
- **RCX221-222**
- **Remote command**: TS-X220
- **Operation using RS-232C communication**: TS-X223-RBR1

**Driver**

- **Power-supply voltage**: 200V to 600V
- **Power capacity**: 600W or less

### GF17XL

**Approx. 250 (Motor cable length)**

<table>
<thead>
<tr>
<th>Motor</th>
<th>420.5±0.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>When origin is on motor side</td>
<td>Effective stroke (265.5: When origin is on motor side)</td>
</tr>
</tbody>
</table>

**Note**: Service life is calculated for 1000mm stroke models.
Note 1. The model with a lead of 10mm cannot select specifications without brake (horizontal specifications).

Note 2. Upper robot cable (U) on models equipped with brake is a special-order item.

Note 3. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.

Note 4. Longer than 1250mm stroke can be handled by the high lead specifications (Lead 40) only.

Note 5. Specifications of controller are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Note 6. To operate the unit at a speed exceeding 1,000mm/sec. a regeneration unit RG1 is required.

Note 7. Select this selection when using the gateway function. For details, see P.62.
**F20 High lead type: Lead 40**

Approx. 250 (Motor cable length) 270+5: When origin is on motor side
Effective stroke 151+5: When origin is on non-motor side
150: When origin is on motor side

| Effective stroke | L  | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1050 | 1100 | 1150 | 1200 | 1250 | 1300 | 1350 | 1400 | 1450 |
|------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L                | 627| 677 | 727 | 777 | 827 | 877 | 927 | 977 | 1027| 1077| 1127| 1177| 1227| 1277| 1327| 1377| 1427| 1477| 1527| 1577| 1627| 1677| 1727| 1777| 1827| 1877 |
| A                | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 1000| 1050| 1100| 1150| 1200| 1250| 1300| 1350| 1400| 1450|
| M                | 8  | 8   | 8   | 8   | 10  | 10  | 10  | 10  | 10  | 12  | 12  | 12  | 12  | 14  | 14  | 14  | 14  | 16  | 16  | 16  | 16  | 16  | 18  | 18  | 18  | 18  | 18  | 18  | 20  | 20  |
| K                | 240| 255 | 270 | 285 | 300 | 315 | 330 | 345 | 360 | 375 | 390 | 405 | 420 | 435 | 450 | 465 | 480 | 495 | 510 | 525 | 540 | 555 | 570 | 585 | 600 | 615 | 630 | 645 |

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

**Note 2.** When installing the robot, do not use washers inside the robot body.

| Weight (kg) | 21.2 | 22.2 | 23.1 | 24.0 | 25.0 | 25.9 | 26.8 | 27.7 | 28.6 | 30.5 | 31.4 | 32.3 | 33.2 | 34.2 | 35.1 | 36.0 | 36.9 | 37.8 | 38.7 | 39.6 | 40.5 | 41.4 | 42.3 | 43.2 | 44.2 |

**Note 3.** Minimum bend radius of motor cable is R50.

**Note 4.** When the stroke is longer than 850mm, 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 5.** Longer than 1250mm stroke can be handled by the high lead specification (Lead 40) only.
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
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.

Note 1. Positioning repeatability is one direction.
Note 2. A regenerative unit is needed if using the SR1-X, TS-X at maximum speeds exceeding 1000mm/sec. If using the RDV-X, then the regenerative unit RBR1 is required regardless of the installation conditions.
Note 3. Position detectors/resolvers are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
N15

Ordering method

N15-20

Specifications

- AC servo motor output (W): 400
- Repeatability (mm): +/−0.01
- Deceleration mechanism: Ball screw Ø15
- Ball screw lead (mm): 20
- Maximum speed (mm/sec): 1200
- Maximum payload (kg): 50
- Rated thrust (N): 339
- Stroke (mm): 500 to 2000 (1000mm pitch)
- Overall length (mm): 1491
- Maximum dimensions of cross section of main unit (mm): W145 × H120
- Cable length (mm): Standard 3.5 / Option: 5.10
- Linear guide type: 4 rows of circular arc grooves × 2 rail
- Position detector: Resolvers
- Resolution (Pulse/rotation): 16384
- Position detector: 4 rows of circular arc grooves × 2 rail
- Resolution (Pulse/rotation): 16384

Allowable overhang

Horizontal installation

Wall installation

Cable carrier for users

Standard cable carrier

Optional cable carrier

Space for optional cable users: 73

Static loading moment

Controller

Note 1. To find information on cable carrier extraction directions see P.175.
Note 2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

Specifications of N15-20

- Effective stroke: 500 to 2000
- Horizontal installation (Unit: mm)
  - L: 165+4 L-side origin position (165: When origin is on R-side)
  - A: 15
  - B: 4
  - C: 10
  - D: 115
  - E: 115
  - F: 8
  - G: 820
- Weight (kg)
  - 19
  - 20
  - 22
  - 24
  - 26
  - 27
  - 29
  - 30
  - 32
  - 33
  - 35
  - 38
  - 39
  - 40

N15: Horizontal installation / Standard Cable carrier specification

Note 1. Positioning repeatability in one direction.
Note 2. The maximum speed may not be reached when the moving distance is short.
Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Note 4. If the model is a standard cable carrier specification, it is not possible to pass 3 or more Ø6 = 4 urethane air hoses.

Note 5. When using a φ10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
Note 6. Contact us for vertical installation.
Note 7. Weight of models with no brake. The weight of brake-attached models is 1 kg heavier than the models with no brake shown in the table.
Note 8. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

Note 9. The maximum speed may not be reached when the moving distance is short.
Note 10. Positioning repeatability in one direction.
Note 11. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Note 12. The maximum speed may not be reached when the moving distance is short.
Note 13. Positioning repeatability in one direction.
Note 14. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Note 15. The maximum speed may not be reached when the moving distance is short.
Note 16. Positioning repeatability in one direction.
Note 17. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Note 18. The maximum speed may not be reached when the moving distance is short.
Note 19. Positioning repeatability in one direction.
Note 20. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Note 21. The maximum speed may not be reached when the moving distance is short.
Note 22. Positioning repeatability in one direction.
Note 23. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

Note 24. The maximum speed may not be reached when the moving distance is short.
Note 25. Positioning repeatability in one direction.
Note 26. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.
## Specifications

### AC servo motor output (W)
400

### Repeatability (mm)
+/-0.01

### Deceleration mechanism
Ball screw Ø15

### Ball screw lead (mm)
20

### Maximum speed (mm/sec)
1200

### Maximum payload (kg)
50

### Rated thrust (N)
339

### Stroke (mm)
250 to 1750 (100mm pitch)

### Maximum dimensions of cross section of main unit (mm)
W145 x H120

### Linear guide type
Standard: 3.5 / Option: 5,10

### Position detector
Resolvers

### Controller
RCX222HP

### Controller information
- Regenerative unit: CB428 (for 10K)
- Standard cable: Optional cable carrier
- Cable carrier for users: Optional cable carrier

### Controller order points
- MR: 150
- MP: 150
- MY: 691
- EP: 692
- CE: 608

### Controller operation
- Programmed control
- Remote control
- Operation using RS-232C
- Remote command

### I/O point trace
- Remote I/O point trace

### I/O selection
- EN: Ethernet
- CC: CC-Link
- PB: DeviceNet
- AB: MH 485

### I/O selection 2
- DN: DeviceNet
- RDV-X20

### Cable length (m)
- SR1-X: 2 units
- TS-X: 2 units
- RDV-X: 2 units

### Controller use
- For CE: 86
- For CE: E x 200
- For CE: 61
- For CE: R0.3

### Table carriage
- Position of table carriage when searched to the origin.
- Note 1. Positioning repeatability in one direction.
- Note 2. The maximum speed may not be reached when the moving distance is short.
- Note 3. Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

### Cable carrier for users
- Standard cable carrier
- Optional cable carrier

### Maximum stroke
- 250 to 1750 (100mm pitch)

### Table carriage
- 4 holes for installation, do not use a washer, spring washer, etc. in the main unit.

### Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

### Specified stroke
- 10kg 3048 2322 1259
- 30kg 1469 841 500
- 50kg 1279 544 244

### Controller regulation
- Standard for CE marking

### Note
- Note 1. If a flexible cable is needed for the SR1-X, TS-X, or RDV-X, then select 3K/5K/10K. On the RCX222HP, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.
- Note 4. Only when you have selected CC, DN or PB for Input/Output selection 1, you can select EN for Input/Output selection 2.
- Note 3. NPN and Ethernet cannot be selected when using CE marking.
N15D: Horizontal installation / Optional Cable carrier specification

N15D: Wall installation / Standard Cable carrier specification

N15D: Wall installation / Optional Cable carrier specification
N18 Ordering method

Note 1. To find information on cable carrier extraction directions see P.175.
Note 2. The robot cable is standard cable (3L/SLU/10L), but can be changed to flexible cable. See P.596 for details on robot cable.
Note 3. See P.500 for DIN rail mounting bracket.
Note 4. Select this selection when using the gateway function. For details, see P.62.

<table>
<thead>
<tr>
<th>Model</th>
<th>Ordering method</th>
</tr>
</thead>
<tbody>
<tr>
<td>N18-20</td>
<td>Use for developed products of the specified controller.</td>
</tr>
</tbody>
</table>

Note 2. Repeatability ±0.01 (mm) for single oscillation.
Note 3. Position detectors (warning) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

### Specifications

- **AC servo motor output (W)**: 400
- **Repeatability (mm)**: ±0.01
- **Deceleration mechanism**: Ball screw Ø20
- **Ball screw lead (mm)**: 20
- **Maximum speed (mm/sec)**: 1200
- **Maximum payload (kg)**: 80
- **Rated thrust (N)**: 3.39
- **Stroke**: 500 to 2500 (150mm pitch)
- **Overall length (mm)**: Stroke+362
- **Maximum dimensions of cross section of main unit (mm)**: W180 × H115
- **Cable length (m)**: Standard: 3.5 / Option: 5.10
- **Linear guide type**: 4 rows of circular arc grooves + 2 rails
- **Position detector**: Resolvers 638
- **Resolution (Pulse/rotation)**: 16384

Note 1. Repeatability for single oscillation.
Note 2. The maximum speed may not be reached when the moving distance is short.
Note 3. Position detectors (warning) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

### Allowable overhang

- **Horizontal installation**: 30kg 1812 1902 3045 3405 20kg 2002 961 1150 2193 2795 586 716
- **Wall installation**: 30kg 1928 1563 3045 20kg 1577 885 2602 707 509 2193

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

### Cable carrier for users

**S type**

- **Standard cable carrier**
  - Note. Cannot pass more than 3 urethane hoses (Ø6 x 4).
  - 2: AC200V
  - 4: 200V/400 to 600W

**M type**

- **Optional cable carrier**
  - Note. For cable carrier for users

### Static loading moment

<table>
<thead>
<tr>
<th>Controller</th>
<th>Operation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR1-X20-R</td>
<td>Programming / I/O point trace / Remote command / Operation</td>
</tr>
<tr>
<td>RCX221/222</td>
<td>Using RS-232C communication</td>
</tr>
<tr>
<td>RCX240/340</td>
<td></td>
</tr>
<tr>
<td>TS-X220-R</td>
<td>I/O point trace / Remote command</td>
</tr>
<tr>
<td>RDV-X20-RB</td>
<td>Pulse train control</td>
</tr>
</tbody>
</table>

### Controller Driver: Power capacity

- **MY MP MR**: For the robot with more than 2,100 stroke, a roller is installed to prevent the cable carrier hanging.
- **Note 4. Contact us for vertical installation.**
- **Note 5. When using a cable carrier installation, ensure that the pin does not go into deeper than as shown in the drawing.**
- **Note 6. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.**
N18: Horizontal installation / Optional Cable carrier specification

N18: Wall installation / Standard Cable carrier specification

N18: Wall installation / Optional Cable carrier specification
### Specifications

- **AC servo motor output (W)**: 400
- **Repeatability at 2σ (mm)**: +/-0.01
- **Deceleration mechanism Ball screw ø20**: 339
- **Maximum speed (mm/sec)**: 1200
- **Maximum payload (kg)**: 80
- **Rated thrust (N)**: 206
- **Stroke (mm)**: 250 to 2250 (100 pitch)
- **Overall length (mm)**: Stroke+362
- **Maximum dimensions of cross section of main unit (mm)**: W180 × H115
- **Cable length (m)**: Standard: 3.5 / Option: 5,10
- **Linear guide type**: 4 rows of circular arc grooves × 2 rail
- **Linear guide width (mm)**: 339
- **Rated thrust (N)**: 1200
- **Maximum payload (kg)**: 50
- **Maximum dimensions (mm)**: 1200 × 850 × 2400
- **Effective stroke (mm)**: 250 to 2250
- **Weight (kg)**: 55

### Allowable overhang

**Note**: Allowable overhang

- D +/-0.02
- GF

### Controller

- **Controller Note 1**: Regenerative unit
- **RCX222**: 7.2
- **Controller Note 2**: Space for optional cables for users
- **Controller Note 3**: Standard cable carrier
- **Controller Note 4**: Positioning repeatability in one direction
- **Controller Note 5**: The maximum speed may not be reached when the moving distance is short
- **Controller Note 6**: Position detectors (resolvers) are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.

### Static loading moment

- **Controller**: Operation method
- **RCX222HP**: Programm / I/O point trace / Remote command / Remote command using RS-232C communication
- **SR1-X20**: Programm / I/O point trace
- **TB-X20**: Programm / I/O point trace
- **RDV-X20**: Programm / I/O point trace / Remote command
- **RDV-X20**: Programm / I/O point trace / Remote command

### N18D: Horizontal installation / Standard Cable carrier specification

- **Horizontal installation**
- **Wall installation**

### Note

1. To find controller selection options for other than the RCX222HP, see the ordering method on each controller page.
2. If a flexible cable is needed for the SR1-X, TS-X, or RDV-X, then select 3K/5K/10K. On the RCX222HP, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.
3. If the model is a standard cable carrier specification, it is not possible to pass 3 or more hoses (Ø 4 x 4).
4. When using a Ø10H7 hole, make sure that the pin does not go into deeper than as shown in the drawing.
5. Weight of models with no brake. The weight of brake-attached models is 1 kg heavier than the models with no brake shown in the table.
6. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it longer than the dimensions shown in the diagram.
Note 1. The robot cable is standard cable (3L/5L/10L) but can be changed to flexible cable. See P.596 for details on robot cable. 
Note 2. See P.500 for DIN rail mounting bracket. 
Note 3. Select this setting when using the gateway function. For details, see P.62.
B10  RU type (Motor rightward, upper position)

B10  RD type (Motor rightward, lower position)

B10  LU type (Motor leftward, upper position)
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
See P.596 for details on robot cable.
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.

### Ordering method

**B14**

<table>
<thead>
<tr>
<th>Model</th>
<th>Motor installation direction</th>
<th>Option</th>
<th>Stroke</th>
<th>Less weight</th>
<th>Pos. name</th>
<th>Driver</th>
<th>Power-supply voltage</th>
<th>Power capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Specifications**

- **AC servo motor output (W):** 100
- **Repeatability (mm):** +0.04
- **Motor installation direction:** L/R type: Stroke+425.5
- **Overall length (mm):** 150 + 350 (100mm pitch)
- **Maximum dimensions of cross section of main unit (mm):** W146 × H94
- **Cable length (m):** Standard: 3.5 / Option: 5,10
- **Linear guide type:** 4 rows of circular arc grooves + 2 rows
- **Position detector (Pulse/rotation):** Resolvers
- **Resolution (Pulse/rotation):** 16384

**Motor installation**

The line-up consisting of six models of deferent motor installation position as follows.

- **L type:** Leftward at horizontal position
- **R type:** Rightward at horizontal position
- **UL type:** Leftward at upper position
- **RU type:** Rightward at upper position
- **LD type:** Leftward at lower position
- **RD type:** Rightward at lower position

**Allowable overhang**

- **Horizontal installation (unit: mm):** A: 70, B: 105, C: 240
- **Wall installation (unit: mm):** A: 240, B: 348

**Static loading moment**

- **Controller:** SR1-X, TS-X, RDV-X
- **Operation method:** Programming / I/O point trace / Remote command / Operation using RS-232C communication

**B14 R type (Motor rightward, horizontal position)**

- **Effective stroke:** 1.5
- **Effective stroke (mm):** 150, 200, 250, 300, 350, 400, 500, 650, 750, 800, 900, 1000, 1100, 1200, 1500, 1550, 1600

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the forward direction.)

Details of section G
B14 RU type (Motor rightward, upper position)

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the downward direction.)

B14 RD type (Motor rightward, lower position)

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the upward direction.)

B14 LU type (Motor leftward, upper position)

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the downward direction.)
Note 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.
See P.596 for details on robot cable.
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.

### Specifications

**AC servo motor output (W)**
- 200

**Repeatability ±0.04** (mm)
- ±0.04

**Motor installation direction**
- R: Motor rightward, horizontal position
- L: Motor leftward, upper position
- C: Motor rightward, upper position
- N: Motor leftward, lower position
- F: Motor leftward, lower position
- T: Motor rightward, upper position

**Motor installation position**
- R: Motor rightward, horizontal position
- L: Motor leftward, upper position
- C: Motor leftward, upper position
- N: Motor leftward, lower position
- F: Motor rightward, lower position
- T: Motor rightward, upper position

**Effective stroke**
- 2.425

**Motor installation**
- The line-up consisting of six models of different motor installation position as follows.

#### Controller

**Controller Operation method**
- SR1-X05: I/O point trace / Remote command / Operation using RS-232C communication
- TS-X05: I/O point trace / Remote command

**Driver Power-supply voltage**
- 100V / 100W or less

**I/O point trace**
- DP: PROFINET
- PT: PROFINET
- CC: CC-Link
- E: CE marking
- P: PNP
- NPN

**Remote command**
- CPU: CANopen
- SMB: CANopen
- RA: CANopen
- PB: PROFIBUS

**Programming**
- PLC: PLCopen

**Motor installation**
- The line-up consisting of six models of different motor installation position as follows.

#### Static loading moment

**Effective stroke**
- 240 (Note 1)

**Position detector**
- Resolution (Pulse/rotation)
- 6388

**Position detector**
- Resolution (Pulse/rotation)
- 16334

**Effective stroke**
- 2.425

**Motor installation**
- The line-up consisting of six models of different motor installation position as follows.

#### Ordering method

**B14H**

**Motor installation direction**
- R: Motor rightward, horizontal position
- L: Motor leftward, upper position
- C: Motor leftward, upper position
- N: Motor leftward, lower position
- F: Motor leftward, lower position
- T: Motor rightward, upper position

**Option**
- Standard
- 100 to 300 (Optional position)
- 100 to 300 (Optional position)

**Drive**
- 2

**Controller**
- SR1-X 05

**Note**
- Distance from center of slider to center of gravity of object being carried at a guide service life of 10,000 km.

**Note 1.** Positioning repeatability in one direction.
**Note 2.** A regenerative unit is needed if using the SR1-X, TS-X at maximum speeds exceeding 1250mm/sec. If using the RDV-X, then the regenerative unit RBR1 is required regardless of the installation conditions.
**Note 3.** Position detectors/resolvers are common to incremental and absolute specifications. If the controller has a backup function then it will be absolute specifications.
**B14H RU type (Motor rightward, upper position)**

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the downward direction.)

**B14H RD type (Motor rightward, lower position)**

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the upward direction.)

**B14H LU type (Motor leftward, upper position)**

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. Cables can be extracted in upward, downward, forward or rearward directions. (This figure shows the downward direction.)
### R5

#### Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Cable entry location</th>
<th>Cable length (mm)</th>
<th>Payload parameters W (kg)</th>
<th>Maximum allowable moment inertia J (kgf cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R5</td>
<td>From the side</td>
<td></td>
<td>1</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>0.96</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>1.08</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>1.20</td>
</tr>
</tbody>
</table>

Note: 1. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.596 for details on robot cable.

#### Specifications

- **AC servo motor output (W):** 50
- **Repeatability (°):** +/-0.0083
- **Maximum speed (°/sec):** 360
- **Maximum allowable moment inertia (kgf cm²):** 0.12 (1.2)
- **Rated torque (Nm/kgf):** 5.29 (0.54)
- **Speed reduction ratio:** 150
- **Rotation range (°):** 360
- **Cable length (m):** Standard: 3.5 / Option: 5, 10
- **Speed reducer type:** Harmonic drive
- **Position detector:** Resolvers
- **Resolution (Pulse/rotation):** 16384

#### Maximum allowable moment inertia

<table>
<thead>
<tr>
<th>Payload parameters W (kg)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum allowable moment inertia J (kgf cm²)</td>
<td>0.12</td>
<td>0.24</td>
<td>0.48</td>
<td>0.60</td>
<td>0.72</td>
<td>0.84</td>
<td>0.96</td>
<td>1.08</td>
<td>1.20</td>
<td></td>
</tr>
</tbody>
</table>

Note: 1. When the weight of a tool or workpiece attached to the shaft R5 is W (kg), its moment of inertia (J) must be smaller than the values shown in the table above. (For example, enter 4kg if W is 3kg and J is 0.48kgf cm sec².) Enter the above mass parameter value for the controller, and optimum acceleration is automatically set based on this value.

Note: 2. See P.500 for DIN rail mounting bracket.

#### Controller

- **SR1-X**
  - Driver: Power-supply voltage
  - Power capacity
  - Operation method: Programming / Remote command
- **TS-X**
  - Driver: Power-supply voltage
  - Power capacity
  - Operation method: Remote command / Operation using RS-232C communication
- **STD**
  - Driver: Power-supply voltage
  - Power capacity
  - Operation method: Pulse train control

Note: 1. The cable extraction port can be changed.

![Diagram of R5 robot]

- **Weight (kg):** 3.0
- **Cable take out direction:**

---

Note: For calculation (equation) of the inertia moment, please refer to P.613.
## Ordering method

<table>
<thead>
<tr>
<th>Model</th>
<th>Cable entry location</th>
<th>Cable length (m)</th>
<th>Cable length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R10</td>
<td>Cable entry location</td>
<td>3.5</td>
<td>5.0</td>
</tr>
</tbody>
</table>

### Specifications

- **AC servo motor output (W)**: 100
- **Repeatability (°)**: ±0.0083
- **Maximum speed (°/sec)**: 360
- **Maximum allowable moment inertia (kgm²/kgfcm²)**: 0.36 [3.71]
- **Rated torque (Nm/kgfcm)**: 10.78 [1.10]
- **Speed reduction ratio**: 1/50
- **Rotation range (°)**: 360
- **Cable length (m)**: Standard: 3.5 / Option: 5.10
- **Cable length (m)**: Standard: 3.5 / Option: 10.10
- **Position detector**: Harmonic drive
- **Resolution (Pulse/rotation)**: 16384

### Maximum allowable moment inertia

<table>
<thead>
<tr>
<th>Payload parameters W (kg)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum allowable moment inertia J (kgfcm²)</td>
<td>0.25</td>
<td>0.49</td>
<td>0.74</td>
<td>0.99</td>
<td>1.24</td>
<td>1.48</td>
<td>1.73</td>
<td>1.98</td>
<td>2.23</td>
<td>2.47</td>
</tr>
</tbody>
</table>

### Controller

- **Controller**: SR1-X05
- **Driver**: Power capacity
  - Usable for CE: 100W or less
  - With battery: 100V or less
- **Positioner Note 2**
  - Driver: Power-supply voltage
    - Absolute: 100V/100W or less
    - Incremental: DeviceNet, DeviceNet, DeviceNet
  - LCD monitor
  - I/O selection
  - Battery
  - N: None
  - P: PNP
  - NP: NPN
  - NC: PNP
  - CC: CC-Link
  - E: CE marking

### Weight (kg)

- **3.5**

Note 1: The cable extraction port can be changed.
R20

Ordering method

Model: R20

Cable entry location: From the side
Cable length: 3L (3m), 5L (5m), 10L (10m)
Note 1. The robot cable is standard cable (3L, 5L, 10L), but can be changed to a flexible cable. See page 596 for details on robot cable.
Note 2. See page 500 for DIN rail mounting bracket.

Specifications

- AC servo motor output (W): 200
- Repeatability (*): +/-0.0083
- Maximum speed (°/sec): 360
- Maximum allowable moment inertia (kgf cm²): 1.83 (18.7)
- Rated torque (Nm): 21.49 (2.19)
- Speed reduction ratio: 1/50
- Rotation range (°): 360
- Cable length (m): Standard: 3.5 / Option: 5, 10
- Speed reducer type: Harmonic drive
- Position detector: Harmonic drive
- Resolution (Pulse/rotation): 16384

Maximum allowable moment inertia

Payload parameters W (kg): 1 2 3 4 5 6 7 8 9 10
- Maximum allowable moment inertia J (kgf cm²): 0.93 1.8 2.8 3.7 4.6 5.6 6.5 7.4 8.4 9.3

Payload parameters W (kg): 11 12 13 14 15 16 17 18 19 20
- Maximum allowable moment inertia J (kgf cm²): 10.2 11.2 12.1 13.1 14 14.9 15.9 16.8 17.7 18.7

Note. When the weight of a tool or workpiece attached to the shaft R20 is W (kg), its moment of inertia (J) must be smaller than the values shown in the table above. (For example, enter 4kg if W is 3kg and J is 3.7kgf cm sec².) Enter the above mass parameter value for the controller, and optimum acceleration is automatically set based on this value.

Specifications

- AC servo motor output (W): 200
- Repeatability (*): +/-0.0083
- Maximum speed (°/sec): 360
- Maximum allowable moment inertia (kgf cm²): 1.83 (18.7)
- Rated torque (Nm): 21.49 (2.19)
- Speed reduction ratio: 1/50
- Rotation range (°): 360
- Cable length (m): Standard: 3.5 / Option: 5, 10
- Speed reducer type: Harmonic drive
- Position detector: Harmonic drive
- Resolution (Pulse/rotation): 16384

Weight (kg): 5.5

Note 1. The cable extraction port can be changed.