YAMAHA
Single-Axis Robots FLIP-X Series

Constant velocity, long stroke, high payload model

GF14XL
GF17XL
NEW

Maximum velocity throughout the full range of stroke with no speed deration.

Ideal for long stroke transfer
Optimal support design to prevent ball screw deflection
1200 mm/sec speed through the full range of motion
GF14XL/GF17XL
New “GF Type” FLIP-X Series is ideal for long transport distances

**POINT 1**
**Multiple “optimal supports”* eliminate speed deration**

**Full range of motion** 1200 mm/sec
Equipped with YAMAHA’s “optimal supports”* at multiple points to ensure optimal ball screw support.

**Effective stroke – Maximum speed comparison**

* Patent pending

**POINT 2**
**Ideal for long stroke applications**

**Maximum stroke** GF14XL : 2000 mm  GF17XL : 2500 mm
Almost doubled stroke length to current ballscrew actuators ideal for long distance transport.

**POINT 3**
**Higher maximum payload**

**Maximum payload**
GF14XL : 45 kg  GF17XL : 90 kg

**Maximum payload comparison**

* Maximum payload increased by 10 kg

**POINT 4**
**Compact and lower profile**
Cross-sectional area is 50 % smaller than that of the long stroke “N series” nut rotation single-axis robot.
**POINT 5**  
High rigidity support guide

**Superior durability extends the robot life**

The GF series shares the same high rigidity guide as the one used on other YAMAHA models. This ensures high durability and lower maintenance costs.

**POINT 6**  
A coupling configuration for easier maintenance

**A coupling configuration allows easy motor removal**

This simplifies maintenance procedures in the field.

**POINT 7**  
Features a resolver format for position detection

**The use of an environment-resistant resolver format enables closed-loop control**

For motor position detection, the same resolver format as that used on YAMAHA’s high-end models is also used here—a format known for its reliability. This resolver format enables stable position detection even in severe environments where dust and oil mist, etc., are present.

**POINT 8**  
Wide variety of controllers to choose from

Choose the most suitable controller for the application.

<table>
<thead>
<tr>
<th>Program</th>
<th>I/O point trace (positioner)</th>
<th>Pulse train control</th>
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</thead>
<tbody>
<tr>
<td>1 axis</td>
<td>1 axis</td>
<td>1 axis</td>
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<tr>
<td>SR1-X</td>
<td>TS-X</td>
<td>RDX</td>
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<tr>
<td>1 to 2 axes</td>
<td>RCX222</td>
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<td>1 to 4 axes</td>
<td>RCX240/RCX240S</td>
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<td>1 to 4 axes</td>
<td>RCX340</td>
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</table>
**Ordering method**

**GF14XL - S H - 20**

**Model**
- Model: Single-axis
- Model: Standard

**Installation direction**
- Recommended installation: Vertical installation

**Lead designations**
- Lead designation: C

**Cross-sectional area**
- Cross-sectional area is 50% smaller than that of the current model.

**Effective stroke**
- Optimal support:

**Table:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Stroke (mm)</th>
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<tbody>
<tr>
<td>GF17XL</td>
<td>1000</td>
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<tr>
<td>NEW</td>
<td>2000</td>
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<td>N15</td>
<td>1000</td>
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**Other brand robot**
- Maximum payload: twice that of the current model

**Graph:**

![Graph showing maximum payload comparison]

**Cautions after purchase**
- Do not install the robot with the horizontal installation specifications in a direction other than the horizontal direction.

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

**Note 2:**
- When changing the return-to-origin direction, the adjustment is needed. (The standard is the origin on the motor side.)

**Note 3:**
- Secure the cable with a tie-band 100mm or less from unit’s end face to prevent the cable from being subjected to excessive loads.

**Ordering method**

**Model Installation**
- RBR1 (B/2-2)x200

**Cable**
- Cable: C

**Controller**
- Controller Driver: Power capacity
- Remote command
- TS-X220 I/O point trace/
- TS-X221/222
- RCX221/222

**Controller Operation method**
- SR1-X10
- RX221/222
- RXC249/340

**Controller Driver**
- Power-supply voltage / monitor
- Communication
- RS-232C

**Specifications**

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

**Repeatability (mm)**
- +0.01

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

**Maximum payload (kg)**
- 100

**Rated thrust (N)**
- 170

**Stroke (mm)**
- 750 to 2000 (50mm pitch)

**Overall length (mm)**
- Stroker: 561

**Cable length (m)**
- Standard: 3.5 / Option: 5.10

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

**Position detector**
- Resolvers

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

**Allowable overhang**

**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**

**Controller**
- Controller Driver: Power capacity
- Remote command
- RXD-20-RBR Pulse train control

**GF14XL**

**Origin at non-motor side**

**Table:**

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<thead>
<tr>
<th>Effective stroke</th>
<th>750</th>
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**Graph:**

![Graph showing effective stroke comparison]

**Note 1:**
- Distance from both ends to the mechanical stopper.

**Note 2:**
- When changing the return-to-origin direction, the adjustment is needed. (The standard is the origin on the motor side.)

**Note 3:**
- Secure the cable with a tie-band 100mm or less from unit’s end face to prevent the cable from being subjected to excessive loads.

**Note 4:**
- When changing the origin position, contact us since the adjustment is needed.

**Note 5:**
- The length under head of the hexagonal 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. It is recommended that the length under head of the hexagonal 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.

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![Graph showing effective stroke comparison]

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**Graph:**

![Graph showing effective stroke comparison]
**GF17XL**

**Ordering method**

GF17XL - S H - 20

- **Model**
- **Model Strength model**
- **Installation method**
- **Regeneration unit**
- **Battery**
- **TSX 220**
- **RDX - 20**
- **RBR1**

**Specifications**

- **AC servo motor output (W)**: 400
- ** repeatability (mm)**: ±0.01
- **Deceleration mechanism**: Ball screw φ20 (Class CT)
- **Ball screw lead (mm)**: 20
- **Maximum speed (mm/sec)**: 1200 [Note 1]
- **Maximum payload (kg)**: 90
- **Stroke (mm)**: 850 to 2500 (50mm pitch)
- **Overall length (mm)**: Stroke + 686
- **Maximum dimensions of cross section of main unit (mm)**: W168×H105.5
- **Cable length (m)**: Standard: 3.5 / Option: 5.10
- **Linear guide type**: 4 rows of circular arc grooves × 2 rail
- **Position detector**: Resolvers
- **Resolution (Pulse/revolution)**: 20480

**Allowable overhang**

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**

Note: To operate the unit at a speed exceeding 750 mm/sec; a regenerative unit is required.

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**GF17XL**

- **Direction of robot cable extraction**
- **Positioning repeatability in one direction**
- **Positioning repeatability in one direction**
- **Positioning repeatability in one direction**
- **Positioning repeatability in one direction**

**Note 1.** The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.

**Note 2.** See P.518 for details on robot cable.

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

**Note 4.** The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable.

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**Controller**

- **SR1-X20**
- **RCX217/222**
- **RCX249/340**
- **TS-X229**

**Operation method**

- **Mechanizing / I/O point trace / Remote command**
- **Remote command / Operation using RS-232C communication**

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**Effective stroke**

- **A**: 1250, 1350, 1400, 1450, 1500, 1550, 1600, 1650, 1700, 1750, 1800, 1850, 1900, 1950, 2000, 2050, 2100, 2150, 2200, 2250, 2300, 2350, 2400, 2450, 2500
- **B**: 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36
- **C**: 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900

**Weight (kg)**

- **B**: 16.0, 16.1, 16.2, 16.3, 16.4, 16.5, 16.6, 16.7, 16.8, 16.9, 17.0, 17.1, 17.2, 17.3, 17.4, 17.5, 17.6, 17.7, 17.8, 17.9, 18.0, 18.1
- **C**: 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900

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**Note 1.** Distance from both ends to the mechanical stopper.

**Note 2.** When changing the rotation direction, the adjustment is needed. (The standard is the origin on the motor side)

**Note 3.** Secure the cable with a tie-band 100mm or less from unit’s end face to prevent the cable from being subjected to excessive loads.

**Note 4.** The length under head of the hexagonal socket head bolts (M8 x 1.25) that are used to install the main body with the tapping hole installation specifications is 45 mm or more.

It is recommended that the length under head of the hexagonal socket head bolts (M8 x 1.25) that are used to install the main body with the tapping hole installation specifications is the thickness of the installation base + 15 mm or more.

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**GF17XL - Origin at non-motor side**

Note. If you need an installation posture other than the horizontal installation, please contact us.
NEW
GF14XL
GF17XL

YAMAHA
Single-Axis Robots FLIP-X Series
Constant velocity, long stroke, high payload model

Maximum velocity throughout the full range of stroke with no speed deration.
Ideal for long stroke transfer
Optimal support design to prevent ball screw deflection

1200 mm/sec speed through the full range of motion
High rigidity support guide
Superior durability extends the robot life

5 POINT
- Wide variety of controllers to choose from
- The GF series shares the same high rigidity guide as the one used on other YAMAHA models. This ensures high durability and lower maintenance costs.

SR1-X
RCX222
Program
8 I/O point trace
(positioner)
Pulse train
control
RDX
TS-X
RCX340
RCX240/RCX240S
Lower maintenance costs
Higher durability means lower costs
Other brand robot
YAMAHA robot
Product life
1 axis 1 to 2 axes
1 axis
1 axis
1 to 4 axes
1 to 4 axes
Choose the most suitable controller for the application.

Features a resolver format for position detection
A coupling configuration allows easy motor removal
For motor position detection, the same resolver format as that used on YAMAHA's high-end models is also used here—a format known for its reliability. This resolver format enables stable position detection even in severe environments where dust and oil mist, etc., are present.

- Optical type
- Complex construction due to the presence of electrical components
- Prone to electrical component failure and problems with condensation and oil, etc., on the disc
- Magnetic type
- Features a simple steel core and winding construction which minimizes the components which could potentially fail
- Highly resistant to impact shocks and electrical noise

Optical type encoder
Resolver
High reliability
High risk of detection problems

A coupling configuration for easier maintenance
This simplifies maintenance procedures in the field.
The use of an environment-resistant resolver format enables closed-loop control

Specifications and appearance are subject to change without prior notice.

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