LINEAR MOTOR
SINGLE-AXIS ROBOTS

No limit on critical speed even when using a long stroke of 4 m. "PHASER" series delivers superb performance during long distance transfer.
Critical speed is not restricted and high-speed long-stroke transfer is possible.

**MF type**

High-power and long-stroke using flat motor with core

<table>
<thead>
<tr>
<th>Type</th>
<th>Size (mm)</th>
<th>Model</th>
<th>Carrier</th>
<th>Maximum payload (kg)</th>
<th>Maximum speed (mm/sec.)</th>
<th>Stroke (mm)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>W85 × H80</td>
<td>MF7</td>
<td>Single</td>
<td>10 (7)</td>
<td>100 to 4000</td>
<td>2500</td>
<td>100 to 3800</td>
<td>P.242</td>
</tr>
<tr>
<td></td>
<td>MF7D</td>
<td>Double</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W100 × H80</td>
<td>MF15</td>
<td>Single</td>
<td>30 (15)</td>
<td>100 to 4000</td>
<td>2500</td>
<td>100 to 3800</td>
<td>P.248</td>
</tr>
<tr>
<td></td>
<td>MF15D</td>
<td>Double</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W150 × H80</td>
<td>MF20</td>
<td>Single</td>
<td>40 (20)</td>
<td>150 to 4050</td>
<td>2500</td>
<td>150 to 3850</td>
<td>P.252</td>
</tr>
<tr>
<td></td>
<td>MF20D</td>
<td>Double</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MF30</td>
<td>Single</td>
<td>60 (30)</td>
<td>100 to 4000</td>
<td>2500</td>
<td>150 to 3750</td>
<td>P.255</td>
</tr>
<tr>
<td></td>
<td>MF30D</td>
<td>Double</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W210 × H100</td>
<td>MF75</td>
<td>Single</td>
<td>160 (75)</td>
<td>1000 to 4000</td>
<td>2500</td>
<td>1000 to 3680</td>
<td>P.258</td>
</tr>
<tr>
<td></td>
<td>MF75D</td>
<td>Double</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1. The size shows approximate maximum cross sectional size.

Note 2. When using at the maximum speed, the maximum payload becomes the value in ( ).
**POINT 1**

**Maximum speed 2.5 m/sec. and no critical speed limit**

The linear motor single-axis robot has no restrictions on critical speed like ball screw. The maximum stroke is 4 m. The long-distance transfer reduces the cycle time greatly.

**POINT 2**

**Effective use of stroke**

As the linear motor single-axis robot incorporates a coil that is the drive part inside the table, dead spaces are eliminated to maximize the stroke. Additionally, as the main body is symmetrical, the flexibility of the layout is improved.

**POINT 3**

**Suitable for heavy object transfer. Maximum payload 160 kg**

The maximum payload is 160 kg. The robot can transfer a heavy object, such as large LCD panel at a high speed with high accuracy. (In the payload range of some MF types, the maximum speed may be restricted. For details, refer to the specification page of each model.)

**POINT 4**

**In-house manufacturing of major parts achieves low costs.**

Magnetic scales are developed and manufactured at YAMAHA. In-house manufacturing of other major parts achieves large cost reduction. Nowadays, the linear motor is not a special mechanism. The customer can select the linear motor or ball screw in the similar way according to the customer's needs. In particular, when performing a high-speed and long-distance transfer of a light workpiece, selecting linear motor robots may reduce the cost.

<table>
<thead>
<tr>
<th>Comparison of single-axis robot models</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model name</strong></td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>MF7-1500</td>
</tr>
<tr>
<td>F17-40-1450</td>
</tr>
<tr>
<td>B10-1450</td>
</tr>
</tbody>
</table>

Note 1: The prices are compared with the strokes shown above. Note 2: Cable carriers are not included. Note 3: The payload is 7 kg when the maximum speed is 2500 mm/sec. (10 kg-payload: 2100 mm/sec) Note 4: This value is obtained by considering the critical speed with a stroke of 1450 mm.

**POINT 5**

**Double-carrier available as standard**

Double-carrier specifications that operate two carriers on one robot are available as standard. High effects, such as space saving, cost reduction, and tact improvement are obtained when compared to two single-axis robots. Furthermore, no axis alignment is needed and tools are commonly used to shorten the setup time. (When using the RCX series controller, an anti-collision function can be used.)
The PHASER series also supports "multi-carrier" operation that allows using three or more carriers on one robot. This "multi-carrier" operation drastically extends applications due to its high effect in improving tact time and saving space.

Applicable to dual-drive
As a dual-drive that simultaneously drives two axes, high-speed transfer and heavy object transfer are possible in a wide area. YAMAHA can propose an optimal control method according to the robot linkage rigidity.

All YAMAHA's linear motor robots use a stainless steel shutter. This prevents entry of foreign objects. Additionally, these shutters are made of tough stainless steel with an extremely high fatigue strength to support high-speed and long-stroke operation.

Unlike ball screw type robots, there are few sliding and rotating parts. So, the operation is very quiet. Moreover, as the coil is not in contact with the magnet, they are not worn out and can be used for an extended period of time.

For the MF7, as the main body is made compact, a flat type that the cable carrier becomes flat on the top surface of the table is prepared as standard. Please select this type according to the tool or workpiece shape, or installation method.

The current position is obtained by reading the signal recorded in the linear scale. So, it is not necessary to perform a large return-to-origin movement before starting the operation after turning on the power (the slider moves up to 76 mm when reading the signals).

Magnetic signals recorded in the magnetic scale are detected and interpolated to achieve a highly accurate resolution of 1 μm.

A fully-closed control that always feeds back the table position provides high accuracy steadily. Additionally, there are no mechanical backlashes, such as ball screws or timing belts.

YAMAHA originally developed a new linear scale based on its excellent magnetic signal detection technology.

YAMAHA's magnetic scale is resistant to dirt and can be used in an environment where grease or cutting fluid sometimes splashes.

In-house linear scale development and manufacturing achieves large cost reduction.

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In-house linear scale development and manufacturing achieves large cost reduction.
LINEAR MOTOR SINGLE-AXIS ROBOTS

PHASER SERIES

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PHASER SPECIFICATION SHEET

<table>
<thead>
<tr>
<th>Type</th>
<th>Size (mm) Note 1</th>
<th>Model</th>
<th>Carrier</th>
<th>Maximum payload (kg)</th>
<th>Maximum speed (mm/sec.)</th>
<th>Stroke (mm)</th>
<th>Detailed info page</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF type</td>
<td>Flat type with core Linear motor specifications</td>
<td>MF7 × H80</td>
<td>MF7 Single</td>
<td>10 (7) Note 2</td>
<td>2500</td>
<td>100 to 4000 (Horizontal)</td>
<td>P.242</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MF7D Double</td>
<td></td>
<td></td>
<td></td>
<td>100 to 3000 (Horizontal)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MF15 Single</td>
<td></td>
<td></td>
<td></td>
<td>100 to 4000 (Horizontal)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MF15D Double</td>
<td></td>
<td></td>
<td></td>
<td>100 to 2000 (Wall mount)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>W100 × H80</td>
<td>MF20 Single</td>
<td></td>
<td>40 (20) Note 2</td>
<td></td>
<td>150 to 4050</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MF20D Double</td>
<td></td>
<td></td>
<td></td>
<td>150 to 3850</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MF30 Single</td>
<td></td>
<td>60 (30) Note 2</td>
<td></td>
<td>100 to 4000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MF30D Double</td>
<td></td>
<td></td>
<td></td>
<td>150 to 3750</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MF75 Single</td>
<td></td>
<td>160 (75) Note 2</td>
<td></td>
<td>1000 to 4000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MF75D Double</td>
<td></td>
<td></td>
<td></td>
<td>680 to 3680</td>
<td></td>
</tr>
</tbody>
</table>

Note 1: The size shows approximate maximum cross sectional size. Note 2: When using at the maximum speed, the maximum payload becomes the value in ( ).

![Precautions for use]

**Handling**
- Please be sure to read “PHASER Series Instruction Manual” carefully to have full understanding of its contents before using this product and strictly observe each instruction.
- Dropping or hitting this product may cause it to break. Always handle it carefully.
- Never disassemble this product. Entry of foreign object will cause deterioration of accuracy.
- This product uses a magnetic type linear scale. Do not bring anything that generates a strong magnetic field near the robot itself as it may cause damage to the linear scale.

**Installation place and environment**
- When installing this product, avoid the place where any of the following conditions applies.
- The ambient temperature is outside of the 0 °C to 40 °C range.
- Dielectric powder such as iron powder, dust, moist, salt or organic solvent is produced and flies in the air.
- Strong electric field, strong magnetic field, etc. occur.
- Dewing occurs, or corrosive gas or combustible gas is generated.
- The product is exposed to direct sun or radiant heat.
- A noise source exists in the surrounding area.
- Inspection and cleaning cannot be performed.

**Safety precaution**
- A high performance rare earth magnets are used in the motor section of this product. For this reason, bringing a magnetic response type device or a medical device such as a heart pace maker close to the robot may cause it to malfunction. Be careful not to bring such a device close to the robot.

Robot ordering method description

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

[Example]

**Mechanical >> MF20**
- Cable carrier take out direction >> RH
- Optional cable carrier for users >> S
- Origin position >> Change (R side)

**Controller >> SR1-P**
- Grease >> Standard
- Stroke >> 550mm
- I/O selection >> NPN

**Ordering method**

MF20 | RH | S | Z | 550-3L | SR1-P | 10 | R | N

This page describes using the ordering form for mechanical components.

To find detailed controller information see the controller page.

**Mechanical section**

- Single carriage

<table>
<thead>
<tr>
<th>Model</th>
<th>Cable carrier entry location</th>
<th>Optional cable carrier for users</th>
<th>Origin position change</th>
<th>Grease type</th>
<th>Stroke</th>
<th>Cable length</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF7</td>
<td>RH Horizontal, right</td>
<td>No entry</td>
<td>None</td>
<td>GC Clean</td>
<td>3L</td>
<td>3.5m</td>
</tr>
<tr>
<td>MF15</td>
<td>LH Horizontal, left</td>
<td>S S type</td>
<td>Z R side</td>
<td>Standard</td>
<td>5L</td>
<td>5m</td>
</tr>
<tr>
<td>MF20</td>
<td>RW Wall mounted, right</td>
<td>S S type</td>
<td>Z R side</td>
<td>Standard</td>
<td>10L</td>
<td>10m</td>
</tr>
</tbody>
</table>

- Double carriage

<table>
<thead>
<tr>
<th>Model</th>
<th>Installing direction</th>
<th>Optional cable carrier for users</th>
<th>Grease type</th>
<th>Stroke</th>
<th>Cable length</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF7D</td>
<td>Horizontal installation</td>
<td>No entry</td>
<td>GC Clean</td>
<td>3L</td>
<td>3.5m</td>
</tr>
<tr>
<td>MF15D</td>
<td>Single</td>
<td>S S type</td>
<td>Standard</td>
<td>5L</td>
<td>5m</td>
</tr>
<tr>
<td>MF20D</td>
<td>Wall mounted installation</td>
<td>M M type</td>
<td>10L</td>
<td>10m</td>
<td></td>
</tr>
<tr>
<td>MF35D</td>
<td>Double</td>
<td>L L type</td>
<td>10L</td>
<td>10m</td>
<td></td>
</tr>
</tbody>
</table>
### Robot ordering method terminology

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Model</td>
<td>Enter the robot unit model. Select from 2 types: incremental specifications and semi-absolute specifications.</td>
</tr>
<tr>
<td>2 Cable carrier entry location</td>
<td>Select what direction to install the robot (horizontal / wall mounted) and what direction to extract the robot cable carrier.</td>
</tr>
<tr>
<td>3 Installing direction</td>
<td>Select what direction to install the robot (horizontal / wall mounted).</td>
</tr>
<tr>
<td>4 Optional cable carrier for users</td>
<td>Please specify if a cable carrier is needed for customer wiring. [MF type] (For MF20)</td>
</tr>
<tr>
<td>5 Origin position change</td>
<td>Origin point position can be changed.</td>
</tr>
<tr>
<td>6 Grease type</td>
<td>Clean grease can be selected.</td>
</tr>
<tr>
<td>7 Stroke</td>
<td>Select the stroke for the robot operating range.</td>
</tr>
<tr>
<td>8 Cable length</td>
<td>Select the length of the robot cable connecting the robot to the controller.</td>
</tr>
</tbody>
</table>

#### Cable carrier entry location

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RH</td>
<td>Horizontal, right</td>
</tr>
<tr>
<td>RW</td>
<td>Wall hanging, right</td>
</tr>
<tr>
<td>LH</td>
<td>Horizontal, left</td>
</tr>
<tr>
<td>LW</td>
<td>Wall hanging, left</td>
</tr>
</tbody>
</table>

Note: Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any way other than the above standard installation, please consult YAMAHA as special arrangement will be available.

#### Optional cable carrier for users

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S type</td>
<td>Flexible cable x 1, air tube x 1</td>
</tr>
<tr>
<td>M type</td>
<td>Flexible cable x 2, air tube x 2</td>
</tr>
<tr>
<td>L type</td>
<td>Flexible cable x 2, air tube x 3</td>
</tr>
</tbody>
</table>

Cable and pipe guide:
- **S**: Flexible cable x 1, air tube x 1
- **M**: Flexible cable x 2, air tube x 2
- **L**: Flexible cable x 2, air tube x 3

Diagram of cable and pipe guide:

### Grease type

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clean grease can be selected.</td>
</tr>
</tbody>
</table>

### Stroke

Select the stroke for the robot operating range.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3L</td>
<td>3.5m (Standard)</td>
</tr>
<tr>
<td>5L</td>
<td>5m</td>
</tr>
<tr>
<td>10L</td>
<td>10m</td>
</tr>
<tr>
<td>3K</td>
<td>3.5m (Flexible cable)</td>
</tr>
<tr>
<td>5K</td>
<td>5m (Flexible cable)</td>
</tr>
<tr>
<td>10K</td>
<td>10m (Flexible cable)</td>
</tr>
</tbody>
</table>
Articulated robots

Linear conveyor modules

Compact single-axis robots

TRANSERVO Motor-less single-axis robots

PHASER Cartesian robots

XY-X SCARA robots

YP-X Pick & place robots

YP-XCLEAN CONTROLLER INFORMATION

Note 1. For the details of the semi-absolute model, please refer to P.39. RDV-P has an incremental model only.

Note 2. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used. Flat type cannot be selected for L type.

Note 3. Maximum stroke for flat type is 2000mm. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.614 for details on robot cable.

Note 4. If a flexible cable is needed for the SR1-P, TS-P, or RDV-P, then select 3K/5K/10K. On the RCX221, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.

Note 5. These controllers can be mounted on DIN-rails. See P.522 for details.

Note 7. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used. Flat type cannot be selected for L type.

Note 8. Table of maximum speed

Note 9. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.

Specifications

Model MF7 MF7D

Driving method Stepped control linear motor with flat magnet

Repeatability (μm) <1μm

Scale (μm) Magnetic type: resolution of 1

Maximum speed (mm/sec) 2500

Rated Thrust (N) 37

Maximum Payload (kg) 7

Horizontal Stroke (mm) 100 to 4000 (1000mm pitch)

Wall Mount Stroke 100 to 1800 (100mm pitch)

Linear guide 4 rows of circular arc grooves × 1 rail

Maximum cross-section outside dimension (mm) 258 x 188

Total length (mm) Stroke: 280 Brush: 449

Cable length (m) Standard: 3.7 / Option: 6.10

Payload (kg) 1kg 3kg 5kg 7kg 9kg 10kg

7 or less 3000 3000 3000 3000 3000 3000

8 2500 2500 2500 2500 2500 2500

10 2300 2300 2300 2300 2300 2300

Maximum speed (rpm)

Controller SR1-P 10 RDV-P 2 RBR1 10

Remote command TS-P210

I/O point trace RCX300

Programming / Operation using RS-232C communication

Controller (unit: kg)

MY 156 MP 168 MR 194

Controller SR1-P 10 RDV-P 2 RBR1 10

Remote command TS-P210

I/O point trace RCX300

Programming / Operation using RS-232C communication

Operator control method

SR1-P10 Programming / I/O point trace / Remote command / Operation using RS-232C communication

RCX300

RCX221

RCX340

TS-P10 I/O point trace / Remote command

RDV-P210-RBR1 Pulse train control

Controller

Motor Power-supply voltage Driver: Power capacity

MF7: Incremental Hori - 15VDC 80W

MF7D: Semi-absolute Note 1 15VDC 80W

FH: Horizontal installation (Flat)

5L: 5m

GC: Clean

RCX221

Controller SR1-P 10 RDV-P 2 RBR1 10

Remote command TS-P210

I/O point trace RCX300

Programming / Operation using RS-232C communication

Controller SR1-P 10 RDV-P 2 RBR1 10

Remote command TS-P210

I/O point trace RCX300

Programming / Operation using RS-232C communication

Controller SR1-P 10 RDV-P 2 RBR1 10

Remote command TS-P210

I/O point trace RCX300

Programming / Operation using RS-232C communication

Controller SR1-P 10 RDV-P 2 RBR1 10

Remote command TS-P210

I/O point trace RCX300

Programming / Operation using RS-232C communication

Controller SR1-P 10 RDV-P 2 RBR1 10

Remote command TS-P210

I/O point trace RCX300

Programming / Operation using RS-232C communication

Controller SR1-P 10 RDV-P 2 RBR1 10

Remote command TS-P210

I/O point trace RCX300

Programming / Operation using RS-232C communication

Controller SR1-P 10 RDV-P 2 RBR1 10

Remote command TS-P210

I/O point trace RCX300

Programming / Operation using RS-232C communication
**MF7 single carriage horizontal mount model**

![Diagram of MF7 single carriage horizontal mount model](image)

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

**Note 2.** The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.

**Note 3.** The drawings on this page show the unit with horizontal-right-type cable carrier (RH).

**Effective stroke**: 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000

**Weight (kg)**: 5.8 6.5 7.3 8 8.7 9.4 10.1 10.9 11.6 12.3 13 13.7 14.5 15.2 15.9 16.6 17.3 18.1 18.8 19.5

---

**MF7 single carriage wall mount model**

![Diagram of MF7 single carriage wall mount model](image)

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

**Note 2.** The origin is set on the R side at the time of shipment. It can be changed to the L side by parameter setting.

**Note 3.** Cable carrier’s protrusion amount from the mechanical end (For “L” side origin position).

**Effective stroke**: 140±5 (L side origin position)

**Weight (kg)**: 5.8 6.5 7.3 8 8.7 9.4 10.1 10.9 11.6 12.3 13 13.7 14.5 15.2 15.9 16.6 17.3 18.1 18.8 19.5

---

**Controller**:
- SR1-P ▶ 540
- RCX32O ▶ 548
- RCX221 ▶ 558
- TS-P ▶ 514
- RDV-P ▶ 528

---

**Notes**:
- Note 1. Stop positions are determined by the mechanical stoppers at both ends.
- Note 2. The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.
- Note 3. Cable carrier’s protrusion amount from the mechanical end (For “L” side origin position).
- Note 4. 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 1. Stop positions are determined by the mechanical stoppers at both ends.

Note 2. The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.

Note 3. The drawings on this page show the unit with horizontal-right-type cable carrier (RH).

Note 4. For models with a 3,000mm or longer stroke, a roller is installed to prevent the cable carrier from sagging.

Note 5. Protrusion is the distance the cable carrier extends from the edge of the unit.

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.

Note 7. Depth is the distance the side of the slot is from the edge of the unit.
MF7/MF7D

Optional cable carrier M type

Optional cable carrier S type

MF7D double carriage horizontal mount model

Effective stroke 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800

Weight (kg)

MF7D double carriage wall mount model

Cross-section of optional cable carrier

Cross-section of cable carrier

Note 1. Position of the table slider when returned to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. 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.

Controller

SR1-P ▶ 540 ▶ RCX320 ▶ 548 ▶ RCX221 ▶ 558 ▶ TS-P ▶ 514 ▶ RDV-P ▶ 528
Articulated robots

Linear conveyor modules
LCM100

Compact single-axis robots
TRANSERVO

Motor-less single-axis actuator
Robonity

Single-axis robots
FLIP-X

Linear motor single-axis robots
PHASER

Cartesian robots
XY-X

SCARA robots
YK-X

Pick & place robots
YP-X

CLEAN CONTROLLER INFORMATION
### Ordering method

**Single carriage model**

**MF15**

- **Model**
  - MF15
- **Cable carrier entry location**
  - Wall mount, RH
  - Wall mount, LH
- **Linear guide**
  - 4 rows of circular arc grooves × 2 rail
- **Controller**
  - Controller
- **Driver**
  - Power supply voltage
  - Power capacity
- **Power input**
  - N: NPN
  - E: CE marking

**MF15D**

- **Model**
  - MF15D
- **Cable carrier entry location**
  - Wall mount, RH
  - Wall mount, LH
- **Linear guide**
  - 4 rows of circular arc grooves × 2 rail
- **Controller**
  - Controller
- **Driver**
  - Power supply voltage
  - Power capacity
- **Power input**
  - N: NPN
  - E: CE marking

### Specifications

**Note**

- **Model**
  - MF15
  - MF15D
- **Driving method**
  - Steel core linear motor with flat magnet
- **Repeatability (μm)**
  - ±5
- **Scale (μm)**
  - Magnetic type: resolution of 1
- **Maximum speed (mm/sec)**
  - 2500
- **Rated thrust (N)**
  - 54
- **Maximum payload (kg)**
  - 30

**Stroke (mm)**

- **Horizontal**
  - 100 to 4000 (1000mm pitch)
  - 100 to 3800 (1000mm pitch)
- **Wall mount**
  - 100 to 2000 (1000mm pitch)
  - 100 to 1800 (1000mm pitch)

**Linear guide**

- 4 rows of circular arc grooves × 2 rail

**Maximum cross-section outside dimensions (mm)**

- W100 × H80

**Cable length (m)**

- Standard: 3.5 / Option: 5, 10

**Notes**

- A vertical model (with brake) is not available with the PHASER series.
- The basic specifications of semi-absolute model are the same as those of the incremental model.
- Payload per carriage. When the payload exceeds 15kg, please consult our sales office or sales representative.
- Table 2: Table of maximum speed

### Allowable overhang

**Horizontal installation (Unit: mm)**

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF15</td>
<td>5kg</td>
<td>3000</td>
<td>915</td>
</tr>
<tr>
<td>MF15D</td>
<td>10kg</td>
<td>2604</td>
<td>481</td>
</tr>
</tbody>
</table>

**Wall installation (Unit: mm)**

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF15</td>
<td>5kg</td>
<td>865</td>
<td>1880</td>
</tr>
<tr>
<td>MF15D</td>
<td>10kg</td>
<td>410</td>
<td>905</td>
</tr>
</tbody>
</table>

### Static loading moment

**Controller**

- **Controller**
  - SR1-P
  - RDV-P

**Operating method**

- SR1-P: Programming / I/O point trace / Remote command / Operation using RS-232C communication
- RDV-P: I/O point trace / Remote command

**Note**

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

**Linear conveyor modules**

**LCM100**

**Compact single-axis robots**

**TRANSERVO**

**Motor-less single-axis robots**

**PHASER**

**Cartesian robots**

**XY-X**

**SCARA robots**

**YK-X**

**Pick & place robots**

**YP-X**

**CLEAN CONTROLLER INFORMATION**

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**Note 1.** Position of the table slider when returned to the origin.

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

**Note 3.** Protrusion is the distance the cable carrier extends from the edge of unit when an optional L type cable carrier is used.

**Note 4.** For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.

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**Effective stroke**

| L | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700 | 2800 | 2900 | 3000 |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| A | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
| B | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 |
| C | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 |
| D | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 |

**Weight (kg)**

| L | 10.3 | 11.5 | 12.6 | 13.7 | 14.8 | 16.0 | 17.1 | 18.2 | 19.3 | 20.5 | 21.6 | 22.7 | 23.8 | 25.0 | 26.1 | 27.2 | 28.3 | 29.5 | 30.6 | 31.7 | 32.8 | 34.0 | 35.1 | 36.2 | 37.4 | 38.5 | 39.6 | 41.0 | 42.2 | 43.3 | 44.4 | 45.5 | 46.7 | 47.8 | 48.9 | 50.0 | 51.2 | 52.3 |

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**Effective stroke**

| L | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 | 2500 | 2600 | 2700 | 2800 | 2900 | 3000 |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| A | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
| B | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 |
| C | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 |
| D | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 |

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**MF15/MF15D**

**Controller**

**SR1-P ▶ 540 RCX320 ▶ 548 RCX221 ▶ 558 TS-P ▶ 514 RDV-P ▶ 528**

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**Note 5.** For models with a 3,000mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable from sagging.

**Note 6.** When using #10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.

**Note 7.** 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.
MF15 single carriage wall mount model

Cross-section of optional cable carrier

Optional cable carrier

- L type
- M type
- S type

Top face of slider

Effective stroke

<table>
<thead>
<tr>
<th>Effective stroke</th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>400</th>
<th>500</th>
<th>600</th>
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<td>48</td>
<td>56</td>
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<td>370</td>
<td>380</td>
<td>390</td>
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<td>410</td>
</tr>
</tbody>
</table>

Weight (kg)

- 6.3
- 6.5
- 7.8
- 9.1
- 10.3
- 12.5
- 16.8
- 22.1
- 28.4
- 35.1
- 43.0
- 52.3
- 68.0

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The origin is set on the R side at the time of shipment. It can be changed to the L side by parameter setting.
Note 3. Protrusion is the distance the cable carrier extends from the edge of unit when an optional L type cable carrier is used.
Note 4. When using a 10 M7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 5. 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.
MF15D double carriage wall mount model

Cross-section of optional cable carrier

Detail of section G

Optional cable carrier

Standard and S types

Effective stroke

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

Note 2. Protrusion is the distance the cable carrier extends from the edge of the unit when an optional L type cable carrier is used.

Note 3. When using φ10 H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.

Note 4. 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.

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<table>
<thead>
<tr>
<th>Effective stroke</th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>400</th>
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<th>700</th>
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<td>870</td>
<td>920</td>
<td>970</td>
<td>1020</td>
<td>1070</td>
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</table>

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Weight (kg)

|                | 10.3 | 11.5 | 12.6 | 13.7 | 14.8 | 16.0 | 17.1 | 18.2 | 19.3 | 20.5 | 21.6 | 22.7 | 23.8 | 25.0 | 26.1 | 27.2 | 28.3 | 29.5 |

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Controller

SR1-P 540 548 RCX320 RCX221 TS-P 514 RDV-P 528
MF20/MF20D

Ordering method

Single carriage model

- **MF20**
  - Model
  - Cable carrier entry location
    - L/H: Horizontal installation
    - D/W: Wall Mount Installation
  - Driver
    - Linear motor
    - Motor-less single-axis robots
    - TRANSERVO
  - Stroke
    - Linear motor
    - 100 to 4500mm (Standard)
  - Cable length
    - 150 to 4050mm (Standard)
  - Rated thrust (N)
    - 86
  - Maximum payload (kg)
    - 40

- **MF20D**
  - Model
    - L/H: Horizontal installation
    - D/W: Wall Mount Installation
  - Stroke
    - 55 to 4500mm (Standard)
  - Cable length
    - 150 to 4050mm (Standard)
  - Rated thrust (N)
    - 86
  - Maximum payload (kg)
    - 40

Specifications

- **Model**
  - MF20
  - MF20D
- **Driving method**
  - Gearless linear motor with FAL magnet
- **Repeatability (μm)**
  - +/-5
- **Scale (μm)**
  - Magnetic type: resolution of 1
- **Maximum speed (mm/sec)**
  - 2500
- **Rated thrust (N)**
  - 86
- **Maximum payload (kg)**
  - 40

- **Stroke (mm)**
  - Linear motor
    - 150 to 4500mm (Standard)
  - 100 to 3850mm (Option)
- **Linear guide**
  - 4 rows of circular anti-grooves + 2 rail
- **Maximum cross-section outside dimensions (mm)**
  - (except the cable carrier section)
- **Total length (mm)**
  - Stroke=260
  - Stroke=460
- **Cable length (m)**
  - Standard: 3.5m
  - Option: 5m, 10m
- ** strokes**
  - 10kg: 1516 1747 1989
  - 15kg: 2811 1176 883
  - 20kg: 2679 890 717
  - 25kg: 2900 720 505
  - 30kg: 1830 605 370
  - 35kg: 1960 525 275
  - 40kg: 1390 465 225
  - 45kg: 1220 400 178
- **Positioner**
  - Standard: 3.5m
  - Option: 5m, 10m

Cable carrier entry location

- **RH** Horizontal, right
- **LH** Horizontal, left
- **RW** Wall mounted, right
- **LW** Wall mounted, left

Optional cable carrier for users

- **S type**
  - φ8 flexible cable x 1, φ4 air tube x 1
- **M type**
  - φ8 flexible cable x 2, φ4 air tube x 2
- **L type**
  - φ8 flexible cable x 2, φ4 air tube x 3

Controller

- **SR1-P**
  - Operating method
  - Programming / I/O point trace / Remote command / Operation using RS-232C communication
  - Controller: SR1-P
  - Operating method: SR1-P10-R

- **RCX320**
  - Controller: RCX320-R
  - Operating method: RCX320-R10-R

- **RCX221**
  - Controller: RCX221-R
  - Operating method: RCX221-R10-R

- **RCX340**
  - Controller: RCX340-R
  - Operating method: RCX340-R10-R

- **TS-P110-R**
  - Controller: TS-P110-R
  - Operating method: TS-P110-R

- **TS-P215-R**
  - Controller: TS-P215-R
  - Operating method: TS-P215-R

- **RDV-P210-R**
  - Controller: RDV-P210-R
  - Operating method: RDV-P210-R

Consult YAMAHA for special arrangements.

Note 1.
For details of the semi-absolute model, please refer to P.39. RDV-P has an incremental model only.

Note 2.
For models with a 2,050mm or longer stroke, optional L type cable carriers can only be used.

Note 3.
The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.614 for details on robot cable.

Note 4.
If a flexible cable is needed, the SR1-P, TS-P, or RDV-P, then select 3K/5K/10K. On the RCX221, the standard flexible cable, so enter 3L/5L/10L when ordering.

Note 5.
These controllers can be mounted on DIN rails. See P.522 for details.

Note 6.
These controllers can be mounted on DIN rails. See P.522 for details.

Note 7.
These controllers can be mounted on DIN rails. See P.522 for details.

Note 8.
These controllers can be mounted on DIN rails. See P.522 for details.

Note 9.
These controllers can be mounted on DIN rails. See P.522 for details.

Note 10.
These controllers can be mounted on DIN rails. See P.522 for details.
Note 1. Position of table carriage when returned to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. For models with a 2,050mm or longer stroke, optional L type cable carriers can only be used.
Note 4. For models with a 3,050mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.
Note 5. Profilux is the distance the cable carrier extends from the edge of unit when an optional L type cable carrier is used.
Note 6. When using M10 HT hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.
Note 7. 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 1. For the details of the semi-absolute model, please refer to P.39. RDV-P has an incremental model only.

Note 2. For models with a stroke of 2100 or longer (2050 or longer for double carriage models), only the optional L type cable carriers can be used.

Note 3. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.614 for details on robot cable.

Note 4. If a flexible cable is needed for the SR1-P, TS-P, or RDV-P, then select 3K/5K/10K. On the RCX320HP, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.

Note 5. These controllers can be mounted on DIN rails. See P.922 for details.

Note 6. Select this selection when using the gateway function. For details, see P.66.

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.

Note. Specify various controller setting items.
**MF30/MF30D**

### MF30 single carriage horizontal mount model

**RH**

- **Effective stroke**
  - L: 155 ±5 (L side origin position)
  - R: 155 ±5 (R side origin position)

- **Dimensions**
  - **Diameter of roller:** Ø30
  - **Top face of slider:** G

- **Note 1.** Stop positions are determined by the mechanical stoppers at both ends.
- **Note 2.** The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.
- **Note 3.** For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.

### MF30 single carriage wall mount model

**RW**

- **Effective stroke**
  - L: 155 ±5 (L side origin position)
  - R: 155 ±5 (R side origin position)

- **Dimensions**
  - **Diameter of roller:** Ø30

- **Note 1.** Stop positions are determined by the mechanical stoppers at both ends.
- **Note 2.** The origin is set on the R side at the time of shipment. It can be changed to the L side by parameter setting.
- **Note 3.** For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.
### MF75/MF75D

#### Ordering method

**Single carriage model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Cable carrier entry location</th>
<th>Stroke</th>
<th>Maximum payload (kg)</th>
<th>Linear guide</th>
<th>Total length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF75</td>
<td>No entry: L side (Standard)</td>
<td>1000 to 4000 (100mm pitch)</td>
<td>160</td>
<td>4 rows of circular arc grooves x 2 rail</td>
<td>2300/1100</td>
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<tr>
<td>MF75D</td>
<td>No entry: Standard: C: Clean</td>
<td>680 to 3680 (100mm pitch)</td>
<td>150</td>
<td>Total length (mm)</td>
<td>2300/1100</td>
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</tbody>
</table>

**Double carriage model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Installing direction</th>
<th>Stroke</th>
<th>Controller</th>
<th>Linear guide</th>
<th>Total length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF75D</td>
<td>- H</td>
<td>1300 to 2300 (100mm pitch)</td>
<td>RCX320</td>
<td>4 rows of circular arc grooves x 2 rail</td>
<td>2300/1100</td>
</tr>
</tbody>
</table>

#### Specifications

**Note**

- **Model**
  - MF75
  - MF75D
- **Driving method**
  - DC cable drive motor for field magnet
- **Repeatability (μm)**
  - ±5
- **Scale (μm)**
  - Magnetic type: resolution of 1
- **Maximum speed (mm/sec)**
  - 2500
- **Rated thrust (N)**
  - 260
- **Maximum payload (kg)**
  - 160
- **Stroke (mm)**
  - 1000 to 4000 (100mm pitch)
  - 680 to 3680 (100mm pitch)
- **Linear guide**
  - 4 rows of circular arc grooves x 2 rail
- **Maximum cross-section outside dimensions (mm)**
  - W210×H100
- **Total length (mm)**
  - Stroke=360
  - Stroke=680
- **Cable length (m)**
  - Standard: 3.5m
  - Option: 5,10
- **Cable carrier entry location**
  - No entry: Standard: C: Clean
- **Total length (mm)**
  - Stroke+360
  - Stroke+680

#### Allowable overhang

**Note**

- **Horizontal installation**
  - A: 20kg
  - B: 40kg
  - C: 60kg
  - D: 100kg
  - E: 125kg
  - F: 140kg
- **Vertical installation**
  - A: 20kg
  - B: 40kg
  - C: 60kg
- **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**

- **Controller**
  - SR1-P20-R
  - RCX320-R
  - RCX221HP-R
  - RCX420
- **Operating method**
  - Programming
  - I/O point trace
  - Remote command
  - Operation using RS-232C communication
- **RDV-P225-RBR2**
  - Pulse train control

#### Controller

**Controller**

<table>
<thead>
<tr>
<th>Controller</th>
<th>Operating method</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR1-P20-R</td>
<td>Programming / I/O point trace / Remote command</td>
</tr>
<tr>
<td>RCX320-R</td>
<td>Operation using RS-232C communication</td>
</tr>
<tr>
<td>RCX221HP-R</td>
<td>TS-P225-R</td>
</tr>
<tr>
<td>RCX420</td>
<td>RDV-P225-RBR2</td>
</tr>
</tbody>
</table>

### Articulated robots

- Linear conveyor modules
- Compact single-axis robots
- TRANSERVO Motor-less single-axis robots
- PHASER Cartesian robots
- XY-X, SCARA robots
- YK-X, Pick & place robots

### Cable carrier

- 4 flexible cable x 2
- 6 air tube x 3

### Specifications

- **Ordering method**
  - **Single carriage model**
  - **Double carriage model**
- **Allowable overhang**
  - **Static loading moment**
- **Controller**

### Note

- **Note 1.** For the details of the semi-absolute model, please refer to P.39. RDV-P has an incremental model only.
- **Note 2.** The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.614 for details on robot cable.
- **Note 3.** If a flexible cable is needed for the SR1-P, TS-P, or RDV-P, then select 3K/5K/10K. On the RCX221HP, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.
- **Note 4.** These controllers can be mounted on DIN rails. See P.522 for details.
- **Note 5.** Select this selection when using the gateway function. For details, see P.66.

### Cable carrier entry location

- **RH Horizontal, right**
- **LH Horizontal, left**

### Cable carrier

- **Note**
  - Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any way other than the above standard arrangement, please consult YAMANO as special arrangement will be available.
**MF75/MF75D**

### MF75 single carriage horizontal model RH

Remove two top caps.

**Tool mounting hole**

- Insert bolt from lateral side of axis.

Remove cap from each tool hole.

**Effective stroke**

- 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2100, 2200, 2300, 2400, 2500, 2600, 2700, 2800, 2900, 3000, 3100, 3200, 3300, 3400, 3500, 3600, 3700, 3800, 3900, 4000

**Weight (kg)**

| A | 185 | 230 | 260 | 290 | 320 | 350 | 380 | 410 | 440 | 470 | 500 | 530 | 560 | 590 | 620 | 650 | 680 | 710 | 740 | 770 | 800 | 830 | 860 | 890 | 920 | 950 |
| B | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 | 210 | 220 | 230 | 240 | 250 | 260 | 270 | 280 | 290 | 300 | 310 | 320 | 330 | 340 | 350 | 360 | 370 |
| C | 120 | 140 | 160 | 180 | 200 | 220 | 240 | 260 | 280 | 300 | 320 | 340 | 360 | 380 | 400 | 420 | 440 | 460 | 480 | 500 | 520 | 540 | 560 | 580 | 600 | 620 |
| D | 80 | 100 | 120 | 140 | 160 | 180 | 200 | 220 | 240 | 260 | 280 | 300 | 320 | 340 | 360 | 380 | 400 | 420 | 440 | 460 | 480 | 500 | 520 | 540 | 560 | 580 | 600 |
| E | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 | 210 | 220 | 230 | 240 | 250 | 260 | 270 | 280 | 290 | 300 | 310 | 320 | 330 | 340 | 350 | 360 | 370 |
| F | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 | 46 | 48 | 50 | 52 | 54 | 56 | 58 | 60 | 62 | 64 | 66 | 68 | 70 | 72 | 74 | 76 | 78 |

### MF75D double carriage mount model H

Remove two top caps.

**Tool mounting hole**

- Insert bolt from lateral side of axis.

Remove cap from each tool hole.

**Effective stroke**


**Weight (kg)**

| L | 150 | 154 | 158 | 162 | 166 | 170 | 174 | 178 | 182 | 186 | 190 | 194 | 198 | 202 | 206 | 210 | 214 | 218 | 222 | 226 | 230 | 234 | 238 | 242 | 246 | 250 | 254 | 258 |
| A | 334 | 399 | 465 | 530 | 594 | 659 | 724 | 789 | 854 | 919 | 984 | 1049 | 1114 | 1179 | 1244 | 1309 | 1374 | 1439 | 1504 | 1569 | 1634 | 1719 | 1794 | 1869 | 1934 | 2009 | 2084 |
| B | 180 | 200 | 220 | 240 | 260 | 280 | 300 | 320 | 340 | 360 | 380 | 400 | 420 | 440 | 460 | 480 | 500 | 520 | 540 | 560 | 580 | 600 | 620 | 640 | 660 | 680 | 700 | 720 |
| C | 180 | 200 | 220 | 240 | 260 | 280 | 300 | 320 | 340 | 360 | 380 | 400 | 420 | 440 | 460 | 480 | 500 | 520 | 540 | 560 | 580 | 600 | 620 | 640 | 660 | 680 | 700 | 720 |
| D | 120 | 140 | 160 | 180 | 200 | 220 | 240 | 260 | 280 | 300 | 320 | 340 | 360 | 380 | 400 | 420 | 440 | 460 | 480 | 500 | 520 | 540 | 560 | 580 | 600 | 620 | 640 | 660 |
| E | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 | 210 | 220 | 230 | 240 | 250 | 260 | 270 | 280 | 290 | 300 | 310 | 320 | 330 | 340 | 350 | 360 | 370 | 380 |
| F | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 | 46 | 48 | 50 | 52 | 54 | 56 | 58 | 60 | 62 | 64 | 66 | 68 | 70 | 72 | 74 | 76 | 78 |

Note 1. Position of table carriage when returned to the origin.

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

Note 3. The length under head of M8 hex socket head bolts for installing the robot body must not be longer than 30mm.

Note 4. For models with a 3,000mm or longer stroke, a roller is installed to prevent the cable carrier from sagging.

Note 5. When using a 410-H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.

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.