LINEAR MOTOR SINGLE-AXIS ROBOTS

PHASER SERIES

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PHASER SPECIFICATION SHEET

<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>Detailed info page</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF type Flat type with core Linear motor specifications</td>
<td>W85 × H80</td>
<td>MF7</td>
<td>Single</td>
<td>10 (7)</td>
<td>100 to 4000 (Horizontal)</td>
<td>100 to 4000</td>
<td>P.220</td>
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<tr>
<td></td>
<td>W100 × H80</td>
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<td>Double</td>
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<td>100 to 3800 (Horizontal)</td>
<td>100 to 1800</td>
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<tr>
<td></td>
<td>W150 × H80</td>
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<td></td>
<td>W210 × H100</td>
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<td>100 to 1800</td>
<td>P.228</td>
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<tr>
<td>MR type Shaft type Linear motor specifications</td>
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<td>2500</td>
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<td>150 to 3850</td>
<td>100 to 4000</td>
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<td>150 to 3750</td>
<td>100 to 4000</td>
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<td>680 to 3800</td>
<td>50 to 1050</td>
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<td></td>
<td>50 to 1050</td>
<td>50 to 1050</td>
<td>P.238</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.
- Never disassemble this product. Entry of a 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.
  - Dielectric powder such as iron powder, dust, moist, salt or organic solvent is produced and flies in the air.
  - The product is exposed to direct sun or radiant heat.
  - The product is exposed to direct sun or radiant heat.

**Precautions for use**
- A high performance rare earth magnets are used in the motor section of this product. For this reason, bring 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)
  - Grease: Standard
  - Stroke: 550mm
  - Cable length: 3.5m
- **Controller** SR1-P
  - Regenerative unit: Required
  - I/O selection: NPN

**Ordering method**


### Mechanical section

- **Single carriage**
  - Model: MF7
  - Cable carrier location: RH
  - Optional cable carrier for users: No entry
  - Origin position change: None
  - Grease type: No entry
  - Stroke: None
  - Cable length: None

- **Double carriage**
  - Model: MF7D
  - Installing direction: Horizontal installation
  - Optional cable carrier for users: No entry
  - Grease type: Standard
  - Stroke: 550mm
  - Cable length: 3.5m

This page describes using the ordering form for mechanical components. To find detailed controller information see the controller page.
### Robot ordering method terminology

| **① Model** | Enter the robot unit model.
Select from 2 types: incremental specifications and semi-absolute specifications. |
| **② Cable carrier entry location** | Select what direction to install the robot (horizontal / wall mounted) and what direction to extract the robot cable carrier. |
| **③ Installing direction** | Select what direction to install the robot (horizontal / wall mounted). |
| **④ Optional cable carrier for users** | Please specify if a cable carrier is needed for customer wiring. | ![Cable and pipe guide](image) |
| **⑤ Origin position change** | Origin point position can be changed. |
| **⑥ Grease type** | Clean grease can be selected. |
| **⑦ Stroke** | Select the stroke for the robot operating range. |
| **⑧ Cable length** | Select the length of the robot cable connecting the robot to the controller. |

#### Model:
- **YA**
- **Compact single-axis robots**
- **TRANSERVO**
- **Single-axis robots**
- **FLIP-X**
- **Linear motor single-axis robots**
- **PHASER**
- **Cartesian robots**
- **XY-X**
- **SCARA robots**
- **YK-X**
- **Pick & place robots**
- **YP-X**

#### Cable carrier entry location:
- **RH:** Horizontal, right
- **RW:** Wall hanging, right
- **LH:** Horizontal, left
- **LW:** Wall hanging, left

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.

#### Installing direction:
Please specify if a cable carrier is needed for customer wiring.

**[MF type]** (For MF20)

| **S type** | ![Space for optional cable for users](image) |
| **M type** | ![Space for optional cable for users](image) |
| **L type** | ![Space for optional cable for users](image) |

Cable and pipe guide:
- **S:** ϕ8 flexible cable x 1, ϕ4 air tube x 1
- **M:** ϕ8 flexible cable x 2, ϕ6 air tube x 2
- **L:** ϕ8 flexible cable x 2, ϕ8 air tube x 3

**[MR type]**

| **S type** | ![Space for optional cable for users](image) |
| **M type** | ![Space for optional cable for users](image) |

Space for optional cable for users:
- Note: The cable and air hoses should take up less than 30% of the space when storing them inside the cable carrier. Lay out the cables and air hoses in rows inside the cable carrier so they do not cross each other.

#### Origin position change:
Origin point position can be changed.

#### Grease type:
Clean grease can be selected.

#### Stroke:
Select the stroke for the robot operating range.

#### Cable length:
- **3L:** 3.5m (Standard)
- **5L:** 5m
- **10L:** 10m
- **3K:** 3.5m (Flexible cable)
- **5K:** 5m (Flexible cable)
- **10K:** 10m (Flexible cable)
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

RBR1

Allowable overhang

Note

1. For the details of the semi-absolute model, please refer to P.35. RDV-P has an incremental model only.

2. For models with a 2.0mm or longer stroke, optional L type cable carriers can only be used. Flat type cannot be selected for L type.

3. Maximum stroke for flat type is 2000mm.

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

5. 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.

6. These controllers can be mounted on DIN rails. See P.500 for details.

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

Note: It is possible to provide the model without a cable carrier. To find information on (cable terminals) without a cable carrier see P.604.

Double carriage model

MF7D

Model

Install direction

Optional cable carrier entry location

Grease type

Stroke

Cable length

Controller

Note 1. RH Vertical model (with brake) is not available with the PHASER series.

Note 2. Table of maximum speed

Table of maximum speed

Payload (kg)

Maximum speed (mm/sec)

Horizontal installation (Unit: mm)

Wall installation (Unit: mm)

A B C A B C

1kg 3000 3000 680

3kg 3000 1350 215

5kg 2900 830 125

7kg 2400 580 85

9kg 2200 480 60

10kg 2100 410 55

Note. 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

Operating method

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

RCX221

RCX240/340

TS-P10
I/O point trace / Remote command

RDV-P210-RBR1
Pulse train control

Controller

Ordering method

Single carriage model

MF7

Model

Cable carrier entry location

Grease type

Stroke

Cable length

Controller

Note

1. For the details of the semi-absolute model, please refer to P.35. RDV-P has an incremental model only.

2. For models with a 2.0mm or longer stroke, optional L type cable carriers can only be used. Flat type cannot be selected for L type.

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Controller

Controller

Operating method

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

RCX221

RCX240/340

TS-P10
I/O point trace / Remote command

RDV-P210-RBR1
Pulse train control

Controller

Ordering method

Single carriage model

MF7

Model

Cable carrier entry location

Grease type

Stroke

Cable length

Controller

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1. For the details of the semi-absolute model, please refer to P.35. RDV-P has an incremental model only.

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Note: It is possible to provide the model without a cable carrier. To find information on (cable terminals) without a cable carrier see P.604.
**MF7 single carriage horizontal mount model**

**Optional L-type cable carrier**

**MF7 single carriage horizontal mount model**

**Flat type**

**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). 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 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.

---

**Effective stroke**

<table>
<thead>
<tr>
<th>Effective stroke</th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>400</th>
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<td>1700</td>
<td>1800</td>
<td>1900</td>
<td>2000</td>
<td></td>
</tr>
</tbody>
</table>

**Weight (kg)**

| Weight (kg) | 3.8 | 6.7 | 9.6 | 12.5 | 15.4 | 18.3 | 21.2 | 24.1 | 27.0 | 30.0 | 33.0 | 36.0 | 39.0 | 42.0 | 45.0 | 48.0 | 51.0 | 54.0 | 57.0 |

**Dimensions**

- Effective stroke
- Weight
- Installation surface
- Top box of slider
- B-M4: ø7 Depth 9
- B-M5: ø8 Depth 12
- 2-ø10H7
- Refer to cross-section of E-E.
- Note 1
- Note 2
- Note 3
- Note 4
- Note 5
- Note 6

---

**Controller**

- SR1-P ▶ 518
- RCX221 ▶ 526
- TS-P ▶ 492
- RDV-P ▶ 506
MF7 double carriage horizontal mount model

**Optional cable carrier M type**

**Optional cable carrier S type**

**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.

Effective stroke (200: Minimum distance between carriages)

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.

MF7D double carriage wall mount model

**Cross-section of cable carrier**

**Ground terminal (M4)**

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.

Effective stroke (200: Minimum distance between carriages)

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.
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. For models with a 3.000mm or longer stroke, a roller is installed to prevent the cable carrier from sagging.
Note 4. Protrusion is the distance the cable carrier extends from the edge of the unit.
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.

### MF7D double carriage horizontal mount model

#### Optional L-type cable carrier

**Dimensions**

<table>
<thead>
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<th>Model</th>
<th>Effective stroke</th>
<th>Length L</th>
<th>Width B</th>
<th>Height H</th>
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#### Flat type

**Dimensions**

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<th>Width B</th>
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### Cross-section of cable carrier

**Details**

- **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:** For models with a 3.000mm or longer stroke, a roller is installed to prevent the cable carrier from sagging.
- **Note 4:** Protrusion is the distance the cable carrier extends from the edge of the unit.
- **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.
**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**

**CLEANCONTROLLER**

**INFORMATION**

**Linear conveyor modules**

**LCM100**

Usable for CE

Cable length

ϕ

I/O selection 2

RBR1

I/O selection

Controller

Grease type

Usable for CE

I/O selection

Cable carrier

Optional cable carrier for users

Allowable overhang

Note

For the details of the semi-absolute model, please refer to P.35. RDV-P has an incremental model only.

Note 2. Table of maximum speed

Note 5. These controllers can be mounted on DIN rails. See P.500 for details.

Note 6. Select this when using the gateway function. For details, see P.62.

Note. It is possible to provide the model without a cable carrier. To find information on wiring (cable terminals) within the cable carrier see P.604.

**Note**

**Specifications**

**Allowable overhang**

**Static loading moment**

**Controller**

<table>
<thead>
<tr>
<th>Controller</th>
<th>Operating method</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR1-P</td>
<td>Programming / I/O point trace / Remote command / RCX221 RCX240/340 Operation using RS-232C communication</td>
</tr>
<tr>
<td>TS-P10</td>
<td>I/O point trace / Remote command</td>
</tr>
<tr>
<td>TS-P210</td>
<td>I/O point trace / Remote command</td>
</tr>
<tr>
<td>RDB-P</td>
<td>Pulse train control</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Controller</th>
<th>Ordering method</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR1-P</td>
<td>518</td>
</tr>
<tr>
<td>RCX221</td>
<td>526</td>
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<tr>
<td>TS-P</td>
<td>492</td>
</tr>
<tr>
<td>RDB-P</td>
<td>506</td>
</tr>
</tbody>
</table>

**Cable carrier entry location**

**Optional cable carrier for users**

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

**Cable and air tube guide**

**S type**

Φ φ flexible cable x 1, φ4 air tube x 1

**M type**

Φ φ flexible cable x 2, φ4 air tube x 2

**L type**

Φ φ flexible cable x 2, φ4 air tube x 3

Note. Be sure to install in the direction as specified (in cable carrier take-out direction drawings and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any other way than the above standard installation, please consult YAMAHA as special arrangement will be available.
**MF15/MF15D**

### MF15 single carriage horizontal mount model RH

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

---

### MF15D double carriage horizontal mount model H

**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 2,300mm or longer stroke, optional L type cable carriers can only be used.

---

**Controller**

- SR1-P > 518
- RCX221 > 526
- TS-P > 492
- RDV-P > 506
**MF15/MF15D**

MF15 single carriage wall mount model

Cross-section of optional cable carrier

Optional cable carrier

- **L type**: Standard and S types
- **M type**: Standard and S types

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>
<th>700</th>
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<tr>
<td>L</td>
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<td>460</td>
<td>560</td>
<td>660</td>
<td>760</td>
<td>860</td>
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<td>C</td>
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<td>34</td>
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<td>40</td>
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<td>D</td>
<td>200</td>
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<td>320</td>
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<td>970</td>
<td>1020</td>
<td>1070</td>
<td>1120</td>
<td>1170</td>
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<tr>
<td>Weight (kg)</td>
<td>6.3</td>
<td>7.3</td>
<td>8.3</td>
<td>9.3</td>
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<td>11.3</td>
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<td>22.4</td>
<td>23.4</td>
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<td>25.4</td>
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</tbody>
</table>

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 Ø10 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

Optional cable carrier

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 unit when an optional L type cable carrier is used.

Note 3. When using ф10 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.

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

L 560 660 760 860 960 1060 1160 1260 1360 1460 1560 1660 1760 1860 1960 2060 2160 2260

A 80 30 80 30 80 30 80 30 80 30 80 30 80 30 80 30 80 30 80 30

B 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 9 9 10 10 10 10

C 6 8 8 10 10 12 12 14 14 16 16 18 18 20 20 22 22 22 24

D 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100

E 220 270 320 370 420 470 520 570 620 670 720 770 820 870 920 970 1020 1070

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

Controller SR1-P 518 RCX221 526 TS-P 492 RDV-P 506
### Ordering method

#### Single carriage model

**MF20**
- Model: MF20 Incremental
- I/O selection: None
- Dimensions
  - Stroke: 150 to 4050 (1000mm pitch), 150 to 3850 (150mm pitch)
- Linear guide: 4 rows of circular arc grooves + 2 rail
- Total length (mm)
  - Stroke: 260
  - Stroke: 460
- Cable length (m)
  - Standard: 3.5
  - Option: 5, 10

**MF20D**
- Model: MF20D Incremental
- I/O selection: 2
- Dimensions
  - Stroke: 150 to 4050 (1000mm pitch), 150 to 3850 (150mm pitch)
- Linear guide: 4 rows of circular arc grooves + 2 rail
- Total length (mm)
  - Stroke: 260
  - Stroke: 460
- Cable length (m)
  - Standard: 3.5
  - Option: 5, 10

#### Double carriage model

**MF20D**
- Model: MF20D Incremental
- I/O selection: 2
- Dimensions
  - Stroke: 150 to 4050 (1000mm pitch), 150 to 3850 (150mm pitch)
  - Stroke: 460 (1000mm pitch), 460 (150mm pitch)
  - Total length (mm)
  - Stroke: 260
  - Stroke: 460
- Cable length (m)
  - Standard: 3.5
  - Option: 5, 10

**RCX221**
- Dimensions
  - Stroke: L: 330, M: 170, S: 100

#### Specifications

**Note**
- The basic specifications of semi-absolute model are the same as those of the incremental model.
- For the details of the semi-absolute model, please refer to P.35.

**Note 1**
- M type: resolution of 1 μm
- S type: resolution of 4 μm
- 86×265×526 (Unit: N·m)

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

**Note 3**
- It is possible to provide the model without a cable carrier. To find information on wiring (cable terminals) within the cable carrier see P.604.

**Note 4**
- Space for optional cable for users

**Note 5**
- For details on robot cable.
- Please consult YAMAHA as special arrangement will be available.

**Note 6**
- Select this selection when using the gateway function. For details, see P.62.

### Static loading moment

- **Horizontal installation** (Unit: mm)
  - A: 10kg
  - B: 15kg
  - C: 20kg
  - Stroke: 260

- **Wall installation** (Unit: mm)
  - A: 10kg
  - B: 15kg
  - C: 20kg
  - Stroke: 460

### Controller

- **SR1-P 10**: Programming / I/O point trace / Remote command / Operating using RS-232C communication
  - ID: 518

- **RCX221-R**: Remote control
  - ID: 526

- **TS-P 492**: Remote control
  - ID: 492

- **RDV-P 506**: Pulse train control
  - ID: 506

### Cable and air tube guide

#### S type
- Flexible cable x 1
- Air tube x 1

#### M type
- Flexible cable x 2
- Air tube x 2

#### L type
- Flexible cable x 3
**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 2,050mm or longer stroke, optional L type cable carrier from sagging.

**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.** Protrusion 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 6H7 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 8.** For models with a stroke greater than 3,050mm, an optional L type cable carrier can only be used.

**Note 9.** For models with a 2,050mm or longer stroke, optional L type cable carriers can only be used.

**Note 10.** 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 11.** 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.

---

**MF20 single carriage horizontal mount model RH**

**MF20 single carriage wall mount model RW**
**Articulated robots**

**YA**

**Compact single-axis robots**

**TRANSERVO**

**Single-axis robots**

**FLIP-X**

Linear motor single-axis...upto 3L/5L/10L when ordering. The robot can be mounted on DIN rails. See P.500 for details. Installation in any other way will cause a failure. For requirement of installation in any other way than the above standard installation, please consult YAMAHA as special arrangement will be available.

**XY-X**

**SCARA robots**

**YK-X**

Pick & Place robots

**YP-X**

CLEAN CONTROLLER INFORMATION

**Linear conveyor modules**

**LCM100**

**Cable length**

**RBR1**

**Cable carrier**

**Usable for CE**

**Stroke**

**RCX221HP, the standard cable is a flexible cable, so enter 3L/5L/10L when ordering.**

**Installing Controller I/O selection 1**

**Scale (μm)**

**Magnetic type: resolution of 1 +/−5**

**Repeatability (μm)**

**Rated thrust (N)**

**125**

**Maximum payload**

**Optional cable carrier for users Note 2**

- **No entry:** None
- **3L:** 3.5m
- **5L:** 5m
- **10L:** 10m

**Grease type**

**Standard**

**MP**

**DN:** DeviceNet

**EN:** Ethernet

**CC:** CC-Link

**EtherNet/IP TM**

**RS-232C**

**Remote command**

**Operation using RS-232C communication**

**I/O point trace / Remote command**

**Controller Driver: Power-supply voltage**

**Driver: Power capacity**

**Regenerative unit**

**Note 1. For the details of the semi-absolute model, please refer to P.35. 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.596 for details on robot cable.**

**Note 4. If a flexible cable is needed for SR1-P, TS-P, or RDV-P, then select 3K/5K/10K. On the other hand, 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.500 for details.**

**Note 6. Select this selection when using the gateway function. For details, see P.62.**

**Specifications**

**Model**

**MF30**

**MF30D**

**Driving method**

Dual carriage model

**Steel cored linear motor with flat magnet**

**Repeatability (μm)**

**+/-5**

**Scale (μm)**

- **Magnetic type:** resolution of 1 +/−5

**Maximum speed (mm/sec)**

**2500**

**Rated thrust (N)**

**125**

**Maximum payload (kg)**

- **30kg**
- **50kg**
- **105kg**

**Linear guide**

- **4 rows of circular arc grooves × 2 rail**

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

- **W150 × H80** (except the cable carrier section)

**Total length (mm)**

- **Stroke+310**
- **Stroke+560**

**Cable length (m)**

- **Standard:** 3,5 / Option: 5,10

**Controller**

- **SR1-P20-R**
- **Programming / I/O point trace / Remote command**
- **Controller Driver:** Power-supply voltage Driver: Power capacity Regenerative unit

**Controller Driver Power-supply voltage**

- **1400W or less**

**Controller Driver: Power capacity**

- **20: 400 to 600W**

**Regenerative unit**

- **R:** With RG1
- **N:** NPN

**I/O selection**

- **E:** CE marking
- **P:** PNP

**I/O selection 2**

- **R:** With RG2
- **N:** NPN

**Ordering method**

Single carriage model

**MF30**

**Cable carrier entry location**

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

**Note 1.** 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**

- **S type**
- **M type**
- **L type**

**Cable and air tube guide**

**Space for optional cable for users**

---

**MF30**

**MF30D**

**RCX221HP**

**TSP 220**

**SR1-P 20**

**RDV-P 20**

**RBR1**
**MF30/MF30D**

**MF30 single carriage horizontal mount model**

**RH**

**Optional cable carrier S / M type**

| Diameter of roller | 13 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | 100 | 105 | 110 | 115 | 120 | 125 |
|--------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 240.5 (M option)   | 215.5 (S option) |

**Cross-section of optional cable carrier**

**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 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.

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

**Note 5.** When using a 10H7 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.

---

**MF30 single carriage wall mount model**

**RW**

**Optional cable carrier L type**

**Optional cable carrier M type**

**Cross-section of optional cable carrier**

**G section detailed chart**

**Top face of slider**

**Standard and S types**

<table>
<thead>
<tr>
<th>Effective stroke</th>
<th>155+/-5 (L side origin position)</th>
<th>155: When at R side origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>155: When at L side origin</td>
<td>155+/-5 (R side origin position)</td>
<td></td>
</tr>
</tbody>
</table>

**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.

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

**Note 5.** When using a 10H7 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.
MF30D double carriage horizontal mount model

Optional cable carrier S / M type

3D Diameter of roller

Optional cable carrier L type

Cross-section of optional cable carrier

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 2,050mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.
Note 5. When using ø10 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.

Effective stroke

| Effective stroke | 150 | 250 | 350 | 450 | 550 | 650 | 750 | 850 | 950 | 1050 | 1150 | 1250 | 1350 | 1450 | 1550 | 1650 | 1750 | 1850 | 1950 | 2050 | 2150 | 2250 | 2350 | 2450 | 2550 | 2650 | 2750 | 2850 | 2950 | 3050 |
|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Weight (kg)      | 17.6| 20.5| 23.5| 26.5| 29.5| 32.5| 35.5| 38.5| 41.5| 44.5 | 47.5 | 50.5 | 53.5 | 56.5 | 59.5 | 62.5 | 65.5 | 68.5 | 71.5 | 74.5 | 77.5 | 80.5 | 83.5 | 86.5 | 89.5 | 92.5 | 95.5 | 98.5 | 101.5| 104.5| 107.5| 110.5| 113.5|

MF30D double carriage wall mount model

Optional cable carrier L type

Optional cable carrier M type

Cross-section of optional cable carrier

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 2,050mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.
Note 5. When using ø10 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.

Effective stroke

| Effective stroke | 150 | 250 | 350 | 450 | 550 | 650 | 750 | 850 | 950 | 1050 | 1150 | 1250 | 1350 | 1450 | 1550 | 1650 | 1750 | 1850 | 1950 | 2050 | 2150 | 2250 | 2350 | 2450 | 2550 | 2650 | 2750 | 2850 | 2950 | 3050 |
|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Weight (kg)      | 17.6| 19.3| 21.0| 22.8| 24.5| 26.2| 27.9| 29.6| 31.3| 33.0 | 34.7 | 36.5 | 38.2 | 39.9 | 41.6 | 43.3 | 45.0 | 46.7 | 48.4 | 50.2 | 51.9 | 53.6 | 55.3 | 57.0 | 58.7 | 60.4 | 62.1 | 63.9 | 65.6 | 67.3 | 69.0 | 70.7 | 72.4 | 74.1 | 75.8 | 77.5 | 79.3 |
### Ordering method

#### Single carriage model

**Model**
- **MF75**
- **MF75D**

**Driving method**
Seal core linear motor with flat magnet

**Repeatability (μm)**
±/5

**Scale (μm)**
Magnetic type: resolution of 1

**Maximum speed (mm/sec)**
2500

**Rated thrust (N)**
260

**Maximum payload (kg)**
75 or less

**Stroke (mm)**
1000 to 4000 (100mm pitch)
680 to 3680 (100mm pitch)

**Linear guide**
4 rows of circular arc grooves × 2 rail

**Maximum cross-section outside dimensions (mm)**
W210×H100 (except the cable carrier section)

**Total length (mm)**
Stroke=360 Stroke=680

**Cable length (m)**
Standard: 3.5m, Optional: 5.1m

**Cable carrier entry (mm)**
No entry: Standard

**Cable and air tube guide**
ϕ 6 flexible cable x 2, ϕ 6 air tube x 3

#### Double carriage model

**Model**
- **MF75D - H**
- **RCX221HP**

**Cable length (m)**
Standard: 3.5m, Optional: 5.1m

**Stroke (mm)**
4 rows of circular arc grooves × 2 rail

**Total length (mm)**
Stroke=360 Stroke=680

**Cable length (m)**
Standard: 3.5m, Optional: 5.1m

**Controller**
- **Driver**
  - Power capacity: 200 to 300W
  - Power-supply voltage: 200 to 600V

**Regenerative unit**
- Type: NPN
- Type: PNP

### Specifications

#### Note

1. For the details of the semi-absolute model, please refer to P.35. RDV-P has an incremental model only.
2. The robot cable is standard cable (3L/5L/10L), but can be changed to flexible cable. See P.506 for details.
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.
4. These controllers can be mounted on DIN rails. See P.500 for details.
5. Select this selection when using the gateway function. For details, see P.62.
6. It is possible to provide the model without a cable carrier. To find information on wiring (cable terminals) within the cable carrier see P.604.

### Allowable overhang

<table>
<thead>
<tr>
<th>Payload (kg)</th>
<th>Maximum speed (mm/sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20kg</td>
<td>2841 1840</td>
</tr>
<tr>
<td>40kg</td>
<td>1389 964</td>
</tr>
<tr>
<td>60kg</td>
<td>530 450</td>
</tr>
<tr>
<td>80kg</td>
<td>175 150</td>
</tr>
<tr>
<td>100kg</td>
<td>110</td>
</tr>
<tr>
<td>120kg</td>
<td>80</td>
</tr>
<tr>
<td>140kg</td>
<td>60</td>
</tr>
</tbody>
</table>

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

### Static loading moment

<table>
<thead>
<tr>
<th>Payload (kg)</th>
<th>Static loading moment (N·m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20kg</td>
<td>10</td>
</tr>
<tr>
<td>40kg</td>
<td>20</td>
</tr>
<tr>
<td>60kg</td>
<td>30</td>
</tr>
<tr>
<td>80kg</td>
<td>40</td>
</tr>
<tr>
<td>100kg</td>
<td>50</td>
</tr>
<tr>
<td>120kg</td>
<td>60</td>
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<tr>
<td>140kg</td>
<td>70</td>
</tr>
<tr>
<td>160kg</td>
<td>80</td>
</tr>
</tbody>
</table>

### Controller

**Operating method**
- **SR1-P-20-R**
  - Programming / I/O point trace
  - Remote command / Operation using RS-232C communication
- **RCX221HP-R (RG2)**
- **RCX240/340**
- **TS-P-220-R** (RGU-2)
- **RDV-P-225-RBR2**
  - Remote control
  - Pulse train control

**MR**
- 730

### Cable carrier entry location

**RH** Horizontal, right

**LH** Horizontal, left

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

### Cable carrier

**Cable and air tube guide**
ϕ 6 flexible cable x 2, ϕ 6 air tube x 3

**Spaces for optional cable for users**
Note 1. Stop positions are determined by the mechanical stoppers at both ends.

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

Effective stroke

| Length (mm) | 680 | 780 | 880 | 980 | 1080 | 1180 | 1280 | 1380 | 1480 | 1580 | 1680 | 1780 | 1880 | 1980 | 2080 | 2180 | 2280 | 2380 | 2480 | 2580 | 2680 | 2780 | 2880 | 2980 | 3080 | 3180 | 3280 | 3380 | 3480 | 3580 | 3680 |
|------------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Weight (kg)| 46  | 49  | 51  | 54  | 56   | 59   | 61   | 64   | 66   | 69   | 71   | 74   | 76   | 79   | 81   | 84   | 86   | 89   | 91   | 94   | 96   | 99   | 101  | 104  | 107  | 109  | 112  | 114  | 117  | 120  | 122  | 125  | 127  | 130  | 133  | 135  |
MR12/MR12D

Can be used for wall-mount

Ordering method

Single carriage model

MR12

<table>
<thead>
<tr>
<th>Model</th>
<th>MR12D</th>
<th>MR12D</th>
<th>MR12D</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1: Incremental</td>
<td>No. 1: Incremental</td>
<td>No. 1: Incremental</td>
<td></td>
</tr>
<tr>
<td>No. 2: Incremental</td>
<td>No. 2: Incremental</td>
<td>No. 2: Incremental</td>
<td></td>
</tr>
<tr>
<td>No. 3: Incremental</td>
<td>No. 3: Incremental</td>
<td>No. 3: Incremental</td>
<td></td>
</tr>
<tr>
<td>No. 4: Incremental</td>
<td>No. 4: Incremental</td>
<td>No. 4: Incremental</td>
<td></td>
</tr>
</tbody>
</table>

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>MR12</th>
<th>MR12D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driving method / Shaft diameter</td>
<td>Shaft motor</td>
<td>Shaft motor</td>
</tr>
<tr>
<td>Repeatability (μm)</td>
<td>4+2 μ less</td>
<td>4+2 μ less</td>
</tr>
<tr>
<td>Scale (μm)</td>
<td>Magnetic type: resolution of 1</td>
<td>Magnetic type: resolution of 1</td>
</tr>
<tr>
<td>Maximum speed (mm/sec)</td>
<td>2500</td>
<td>2500</td>
</tr>
<tr>
<td>Rated thrust (N)</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Maximum payload (kg)</td>
<td>L: With LCD</td>
<td>L: With LCD</td>
</tr>
<tr>
<td>Stroke (mm)</td>
<td>50 to 1050 (50mm pitch)</td>
<td>50 to 1050 (50mm pitch)</td>
</tr>
<tr>
<td>Linear guide</td>
<td>4 rows of circular arc grooves × 2 rail</td>
<td>4 rows of circular arc grooves × 2 rail</td>
</tr>
<tr>
<td>Maximum cross-section outside dimensions (mm)</td>
<td>W60 × H90 (except the cable carrier section)</td>
<td>W60 × H90 (except the cable carrier section)</td>
</tr>
<tr>
<td>Total length (mm)</td>
<td>Stroke=255 Stroke=+255</td>
<td>Stroke=255 Stroke=+255</td>
</tr>
<tr>
<td>Cable length (m)</td>
<td>Standard: 3.5 / Option: 5,10</td>
<td>Standard: 3.5 / Option: 5,10</td>
</tr>
</tbody>
</table>

Note: A vertical model (with brake) is not available with the PHASER series.

Allowable overhang

<table>
<thead>
<tr>
<th>Model</th>
<th>MR12</th>
<th>MR12D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controller</td>
<td>MR12</td>
<td>MR12D</td>
</tr>
<tr>
<td>Usable for CE</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>I/O selection 1</td>
<td>MR-D or SR-D</td>
<td>MR-D or SR-D</td>
</tr>
<tr>
<td>I/O selection 2</td>
<td>MR-D or SR-D</td>
<td>MR-D or SR-D</td>
</tr>
</tbody>
</table>

Static loading moment

<table>
<thead>
<tr>
<th>Model</th>
<th>MR12</th>
<th>MR12D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controller</td>
<td>SR-P</td>
<td>TS-P</td>
</tr>
<tr>
<td>Operating method</td>
<td>Programming / I/O point trace / Remote command</td>
<td>Operation using RS-232C communication</td>
</tr>
</tbody>
</table>

Controller

<table>
<thead>
<tr>
<th>Model</th>
<th>SR-P</th>
<th>RCX221</th>
<th>TS-P</th>
<th>TS-P</th>
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<tbody>
<tr>
<td>Operating method</td>
<td>Programming / I/O point trace / Remote command</td>
<td>Operation using RS-232C communication</td>
<td>Programming / I/O point trace / Remote command</td>
<td>Programming / I/O point trace / Remote command</td>
</tr>
<tr>
<td>TDV-P</td>
<td>65</td>
<td>100</td>
<td>100</td>
<td>100</td>
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</tbody>
</table>

Cable carrier entry location

<table>
<thead>
<tr>
<th>Model</th>
<th>RH: Horizontal, right</th>
<th>LH: Horizontal, left</th>
</tr>
</thead>
<tbody>
<tr>
<td>RW: Wall mounted, right</td>
<td>LW: Wall mounted, left</td>
<td></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>Model</th>
<th>S type</th>
<th>M type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity for users</td>
<td>120</td>
<td>145</td>
</tr>
<tr>
<td>Cable length (mm)</td>
<td>120</td>
<td>145</td>
</tr>
</tbody>
</table>

Note: The cable and air hoses should take up less than 30% of the space when storing them inside the cable carrier. Lay out the cables and air hoses in rows inside the cable carrier so they do not cross each other.
MR12/MR12D

**Articulated robots**

**YA**

**Compact single-axis robots**

**TRANSERVO**

**Single-axis robots**

**FLIP-X**

**Linear motor single-axis robots**

**PHASER**

**Cartesian robots**

**XY-X**

**SCARA robots**

**YK-X**

**Pick & place robots**

**YP-X**

**CLEANCONTROLLERINFORMATION**

**Linear conveyor modules**

**LCM100**

---

**MR12 single carriage horizontal mount model RH**

![Diagram of MR12 single carriage horizontal mount model RH]

**Effective stroke** 50 150 250 350 450 550 650 750 850 950 1050

<table>
<thead>
<tr>
<th>L</th>
<th>338</th>
<th>438</th>
<th>538</th>
<th>638</th>
<th>738</th>
<th>838</th>
<th>938</th>
<th>1038</th>
<th>1138</th>
<th>1238</th>
<th>1338</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
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<td>16</td>
<td>18</td>
<td>20</td>
<td>22</td>
<td>24</td>
<td>26</td>
</tr>
</tbody>
</table>

**Weight (kg)**

<table>
<thead>
<tr>
<th>L</th>
<th>3.9</th>
<th>4.4</th>
<th>5.0</th>
<th>5.6</th>
<th>6.1</th>
<th>6.7</th>
<th>7.3</th>
<th>7.9</th>
<th>8.4</th>
<th>9.0</th>
<th>9.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>N</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. 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. The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.

---

**MR12 single carriage wall mount model RW**

![Diagram of MR12 single carriage wall mount model RW]

**Effective stroke** 50 150 250 350 450 550 650 750 850 950 1050

<table>
<thead>
<tr>
<th>L</th>
<th>338</th>
<th>438</th>
<th>538</th>
<th>638</th>
<th>738</th>
<th>838</th>
<th>938</th>
<th>1038</th>
<th>1138</th>
<th>1238</th>
<th>1338</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
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<td>11</td>
<td>12</td>
</tr>
<tr>
<td>N</td>
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<td>8</td>
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<td>16</td>
<td>18</td>
<td>20</td>
<td>22</td>
<td>24</td>
<td>26</td>
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</table>

**Weight (kg)**

<table>
<thead>
<tr>
<th>L</th>
<th>3.9</th>
<th>4.4</th>
<th>5.0</th>
<th>5.6</th>
<th>6.1</th>
<th>6.7</th>
<th>7.3</th>
<th>7.9</th>
<th>8.4</th>
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<tbody>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. 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. The origin is set on the R side at the time of shipment. It can be changed to the L side by parameter setting.
### MR12/MR12D

#### MR12D double carriage horizontal mount model

**Effective stroke:**
- **50:** 538 638 738 838 938 1038 1138 1238 1338 1438 1538
- **150:** 638 738 838 938 1038 1138 1238 1338 1438 1538
- **250:** 938 1038 1138 1238 1338 1438 1538
- **350:** 1038 1138 1238 1338 1438
- **450:** 1138 1238 1338 1438
- **550:** 1238 1338 1438
- **650:** 1338 1438
- **750:** 1438
- **850:**
- **950:**
- **1050:**

**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.

<table>
<thead>
<tr>
<th>Effective stroke</th>
<th>50</th>
<th>150</th>
<th>250</th>
<th>350</th>
<th>450</th>
<th>550</th>
<th>650</th>
<th>750</th>
<th>850</th>
<th>950</th>
<th>1050</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>L</strong></td>
<td>538</td>
<td>638</td>
<td>738</td>
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<td>1438</td>
<td>1538</td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>10</td>
<td>12</td>
<td>14</td>
<td>16</td>
<td>18</td>
<td>20</td>
<td>22</td>
<td>24</td>
<td>26</td>
<td>28</td>
<td>30</td>
</tr>
<tr>
<td><strong>Weight (kg)</strong></td>
<td>5.7</td>
<td>6.3</td>
<td>6.8</td>
<td>7.3</td>
<td>8.0</td>
<td>8.6</td>
<td>9.1</td>
<td>9.7</td>
<td>10.2</td>
<td>10.8</td>
<td>11.3</td>
</tr>
</tbody>
</table>

#### MR12D double carriage wall mount model

**Effective stroke:**
- **50:** 538 638 738 838 938 1038 1138 1238 1338 1438 1538
- **150:** 638 738 838 938 1038 1138 1238 1338 1438 1538
- **250:** 938 1038 1138 1238 1338 1438 1538
- **350:** 1038 1138 1238 1338 1438
- **450:** 1138 1238 1338 1438
- **550:** 1238 1338 1438
- **650:** 1338 1438
- **750:** 1438
- **850:**
- **950:**
- **1050:**

**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.

<table>
<thead>
<tr>
<th>Effective stroke</th>
<th>50</th>
<th>150</th>
<th>250</th>
<th>350</th>
<th>450</th>
<th>550</th>
<th>650</th>
<th>750</th>
<th>850</th>
<th>950</th>
<th>1050</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>L</strong></td>
<td>538</td>
<td>638</td>
<td>738</td>
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<td>1438</td>
<td>1538</td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>4</td>
<td>5</td>
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<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>10</td>
<td>12</td>
<td>14</td>
<td>16</td>
<td>18</td>
<td>20</td>
<td>22</td>
<td>24</td>
<td>26</td>
<td>28</td>
<td>30</td>
</tr>
<tr>
<td><strong>Weight (kg)</strong></td>
<td>5.7</td>
<td>6.3</td>
<td>6.8</td>
<td>7.3</td>
<td>8.0</td>
<td>8.6</td>
<td>9.1</td>
<td>9.7</td>
<td>10.2</td>
<td>10.8</td>
<td>11.3</td>
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