# MR16/MR16D

## Ordering method

### Single carriage model

MR16 - [ ] - [ ] - [ ] - [ ] - [ ] - SR1-P - 05 - [ ] - [ ] - [ ]

| Model | Cable carrier entry location | Optional cable carrier for users | Option | Stroke | Cable length | Controller | Driver | Usable for CE | Regenerative unit | I/O selection |
|---|---|---|---|---|---|---|---|---|---|---|
| MR16: Incremental<br>MR16A: Semi-absolute Note 1 | RH: Horizontal, right<br>LH: Horizontal, left<br>RW: Wall mounted, right<br>LW: Wall mounted, left | No entry: None<br>S: S type<br>M: M type | Origin position change: None: Standard, Z: R side<br>Grease type: None: Standard, GC: Clean Note 2 | 50 to 1550 (100mm pitch) | 3L: 3.5m (Standard)<br>5L: 5m<br>10L: 10m | SR1-P | | No entry: Standard<br>E: CE making | No entry: None<br>R: RBR1 (RDP) | N: NPN<br>P: PNP<br>CC: CC-Link<br>DN: DeviceNet<br>PB: Profibus<br>YC: YC-Link Note 5 |

### Double carriage model

MR16D - [ ] - [ ] - [ ] - [ ] - [ ] - RCX221 - [ ] - [ ] - [ ] - [ ]

| Model | Installing direction | Optional cable carrier for users | Option | Stroke | Cable length | Controller | Usable for CE | Regenerative unit | I/O selection 1 | I/O selection 2 |
|---|---|---|---|---|---|---|---|---|---|---|
| MR16D: Incremental<br>MR16AD: Semi-absolute Note 1 | H: Horizontal installation<br>W: Wall mounted installation | No entry: None<br>S: S type<br>M: M type | Grease type: None: Standard, GC: Clean Note 2 | 50 to 1450 (100mm pitch) | 3L: 3.5m (Standard)<br>5L: 5m<br>10L: 10m | RCX221<br>SR1-P (2 units) Note 4 | No entry: Standard<br>E: CE making | No entry: None<br>R: RBR1 (RDP) | N: NPN<br>P: PNP<br>CC: CC-Link<br>DN: DeviceNet<br>PB: Profibus<br>EN: Ethernet<br>YC: YC-Link Note 6 | No entry: None<br>N1: OP.DIO24/16 (NPN)<br>P1: OP.DIO24/17 (PNP)<br>EN: Ethernet |

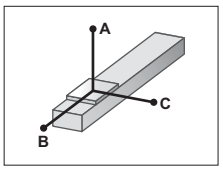
Note 1. Semi-absolute models are supported by the SR1-P and RCX221. For the details of the semi-absolute model, please refer to P.018. RDP has an incremental model only.
Note 2. The clean grease model is made on order. Please consult us separately for it.
Note 3. To find RDP selection options, see the ordering method on P. 365.
Note 4. When using the SR1-P or PDP to control a double-carriage robot, two units are required.
Note 5. Available only for the slave.
Note 6. Available only for the master.
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. 427.

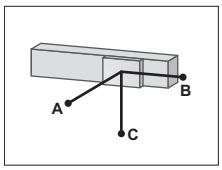
## Specification Note

| Model | MR16 | MR16D |
|---|---|---|
| Driving method / Shaft diameter | Shaft motor / ϕ16 | |
| Repeatability (μm) | +/-5 or less | |
| Scale (μm) | Magnetic type: resolution of 1 | |
| Maximum speed Note 1 (mm/sec) | 2500 | |
| Rated thrust (N) | 27 | |
| Maximum payload Note 2 (kg) | 7 | |
| Stroke (mm) | 50 to 1550 (100mm pitch) | 50 to 1450 (100mm pitch) |
| Linear guide | 2 rows of gothic arch grooves × 1 railseal) | |
| Maximum cross-section outside dimensions (mm) | W80 × H100 (except the cable carrier section) | |
| Total length (mm) | Stroke+288 | Stroke+488 |
| Cable length (m) | Standard: 3.5 / Option: 5,10 | |

Note. A vertical model (with brake) is not available with the PHASER series.
Note. The basic specifications of semi-absolute model are the same as those of the incremental model.
Note 1. Maximum speed may not be obtained depending on operating conditions.
Note 2. Maximum payload per carriage.

## Allowable overhang Note




**Horizontal installation** (Unit: mm)

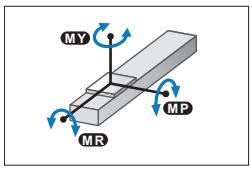
| | A | B | C |
|---|---|---|---|
| 1kg | 600 | 600 | 600 |
| 3kg | 1800 | 1800 | 274 |
| 5kg | 3000 | 1601 | 163 |
| 7kg | 3411 | 1156 | 115 |

**Wall installation** (Unit: mm)

| | A | B | C |
|---|---|---|---|
| 1kg | 600 | 600 | 600 |
| 3kg | 208 | 1800 | 1800 |
| 5kg | 94 | 779 | 2570 |
| 7kg | 45 | 0 | 1525 |

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




(Unit: N·m)

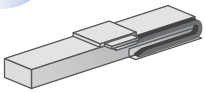
| MY | MP | MR |
|---|---|---|
| 148 | 148 | 113 |

## Controller

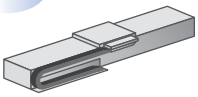
| Controller | Operating method |
|---|---|
| SR1-P-05 | Programming / I/O point trace / (BCD) Remote command / Operation using RS-232C communication |
| RCX221 | |

## Cable carrier entry location

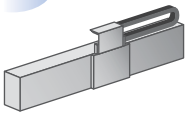
**RH** Horizontal, right



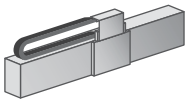
**LH** Horizontal, left



**RW** Wall mounted, right



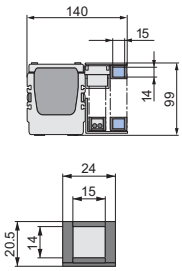
**LW** Wall mounted, left



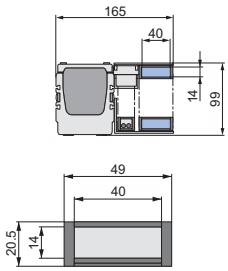
Note. Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any way other than the above standard installation, please consult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

## Optional cable carrier for users

S type



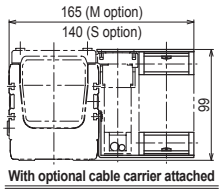

M type

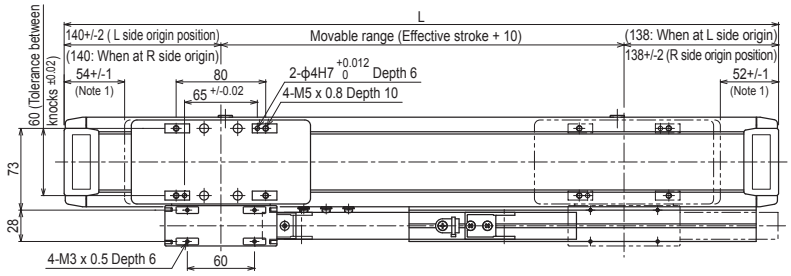


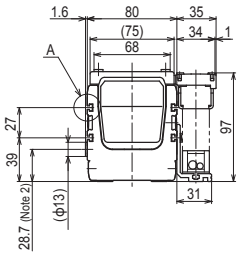

Space for optional cable for users

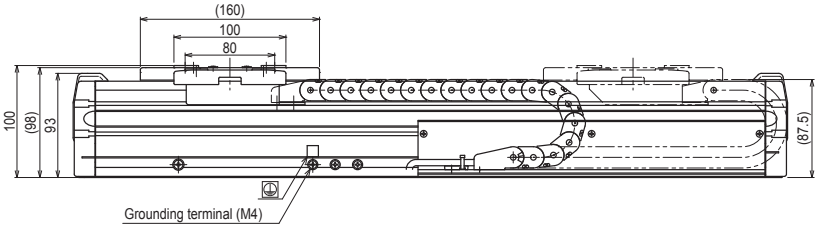
Note. The cable and air hoses should take up less than 30% of the space when storing them inside the cable carrier. Lay out the cables and air hoses in rows inside the cable carrier so they do not cross each other.

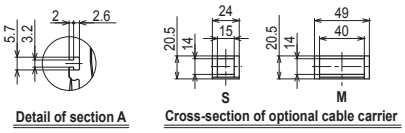
## MR16 single carriage horizontal mount model RH

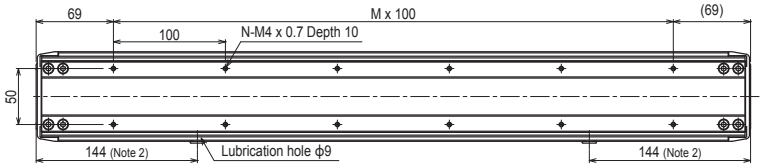


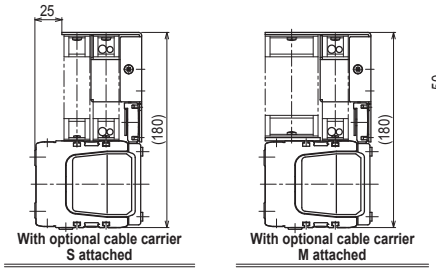



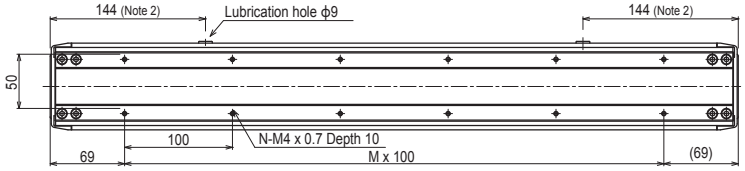



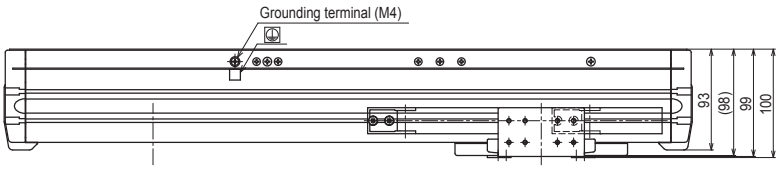

| Effective stroke | 50 | 150 | 250 | 350 | 450 | 550 | 650 | 750 | 850 | 950 | 1050 | 1150 | 1250 | 1350 | 1450 | 1550 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | 338 | 438 | 538 | 638 | 738 | 838 | 938 | 1038 | 1138 | 1238 | 1338 | 1438 | 1538 | 1638 | 1738 | 1838 |
| M | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| N | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 |
| Weight (kg) | 5.8 | 6.7 | 7.6 | 8.6 | 9.5 | 10.4 | 11.4 | 12.3 | 13.2 | 14.2 | 15.1 | 16.0 | 16.9 | 17.9 | 18.8 | 19.8 |

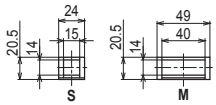
Note 1. Distance from both ends to the mechanical stopper.
Note 2. Position of grease hole.
Note 3. The origin is set on the L side at the time of shipment.
It can be changed to the R side by parameter setting.

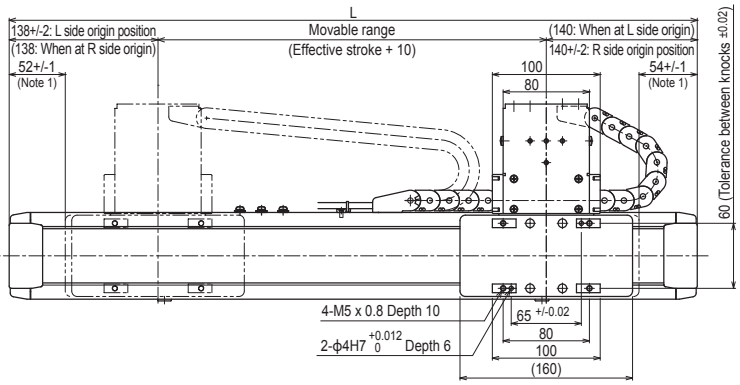
## MR16 single carriage wall mount model RW

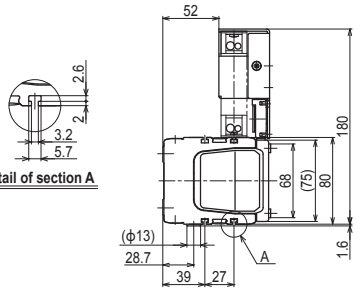


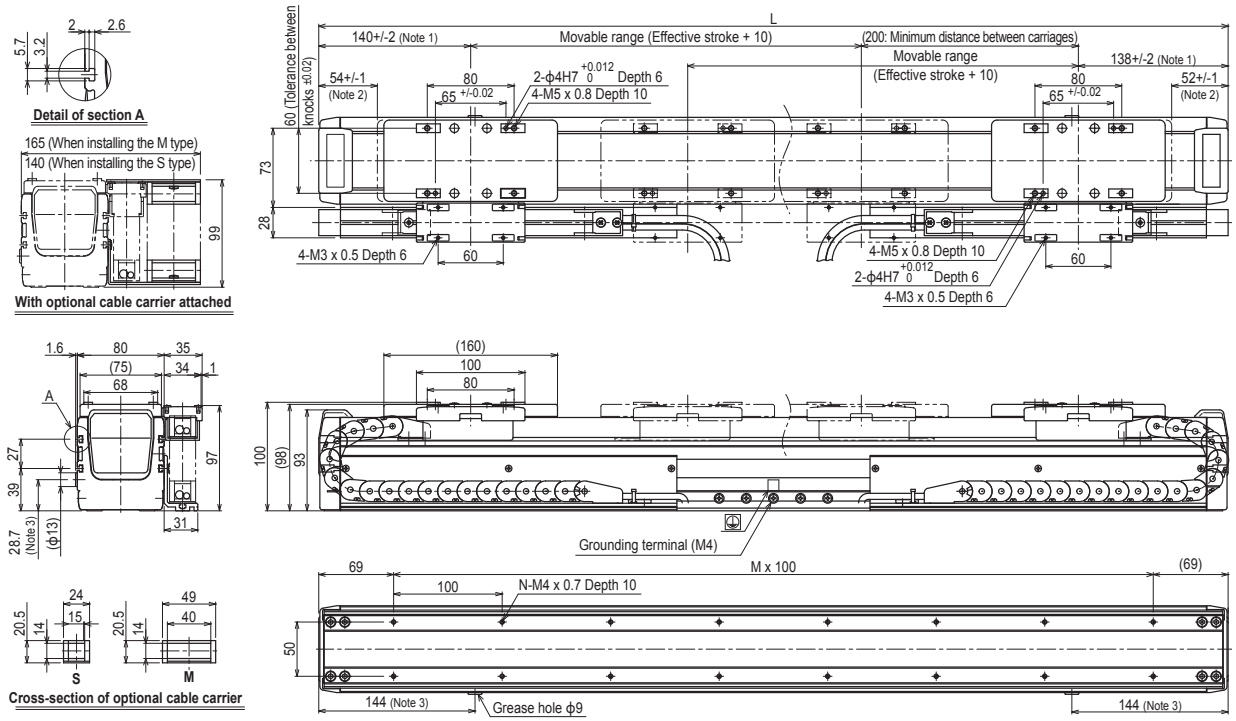




| Effective stroke | 50 | 150 | 250 | 350 | 450 | 550 | 650 | 750 | 850 | 950 | 1050 | 1150 | 1250 | 1350 | 1450 | 1550 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | 338 | 438 | 538 | 638 | 738 | 838 | 938 | 1038 | 1138 | 1238 | 1338 | 1438 | 1538 | 1638 | 1738 | 1838 |
| M | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| N | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 |
| Weight (kg) | 5.8 | 6.7 | 7.6 | 8.6 | 9.5 | 10.4 | 11.4 | 12.3 | 13.2 | 14.2 | 15.1 | 16.0 | 16.9 | 17.9 | 18.8 | 19.8 |

Note 1. Distance from both ends to the mechanical stopper.
Note 2. Position of grease hole.
Note 3. The origin is set on the R side at the time of shipment.
It can be changed to the L side by parameter setting.

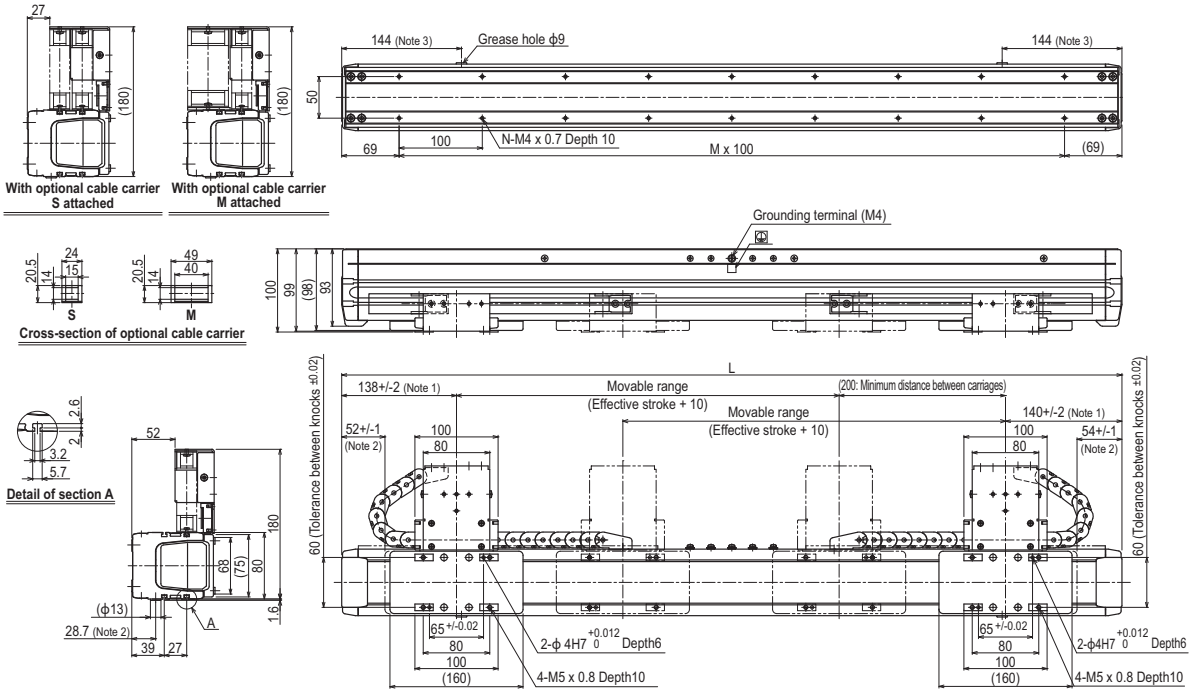
## MR16D double carriage horizontal mount model H




| Effective stroke | 50 | 150 | 250 | 350 | 450 | 550 | 650 | 750 | 850 | 950 | 1050 | 1150 | 1250 | 1350 | 1450 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | 538 | 638 | 738 | 838 | 938 | 1038 | 1138 | 1238 | 1338 | 1438 | 1538 | 1638 | 1738 | 1838 | 1938 |
| M | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| N | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 |
| Weight (kg) | 8.7 | 9.7 | 10.6 | 11.5 | 12.5 | 13.4 | 14.3 | 15.3 | 16.2 | 17.1 | 18.0 | 19.0 | 19.9 | 20.9 | 21.8 |

Position of table carriage when returned to the origin.
Distance from both ends to the mechanical stopper.
Position of grease hole.

## MR16D double carriage wall mount model W




| Effective stroke | 50 | 150 | 250 | 350 | 450 | 550 | 650 | 750 | 850 | 950 | 1050 | 1150 | 1250 | 1350 | 1450 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | 538 | 638 | 738 | 838 | 938 | 1038 | 1138 | 1238 | 1338 | 1438 | 1538 | 1638 | 1738 | 1838 | 1938 |
| M | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| N | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 |
| Weight (kg) | 8.7 | 9.7 | 10.6 | 11.5 | 12.5 | 13.4 | 14.3 | 15.3 | 16.2 | 17.1 | 18.0 | 19.0 | 19.9 | 20.9 | 21.8 |

Position of the table slider when returned to the origin.
Distance from both ends to the mechanical stopper.
Position of grease hole.