# MF30/MF30D

**Can be used for wall-mount**

Note. When the weight per carrier exceeds 30 kg, special parameters are applicable.

## Ordering method

### Single carriage model

**MF30** – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

| Model | Cable carrier entry location | Optional cable carrier for users Note 2 | Origin position change | | Grease type | Stroke | Cable length Note 3 |
|---|---|---|---|---|---|---|---|
| MF30: Incremental<br>MF30A: Semi-absolute Note 1 | RH: Horizontal, right<br>LH: Horizontal, left<br>RW: Wall mount, right<br>LW: Wall mount, left | No entry: None<br>S: S type<br>M: M type<br>L: L type | Hori-zontal | No entry: L side (Standard)<br>Z: R side | No entry: Standard<br>GC: Clean | 100 to 4000 (100mm pitch) | 3L: 3.5m<br>5L: 5m<br>10L: 10m<br>3K/5K/10K (Flexible cable) Note 4 |
| | | | Wall | No entry: R side (Standard)<br>Z: L side | | | |

**TSP** – **220** – **R** – [ ] – [ ]

| Positioner Note 5 | Driver: Power-supply voltage / Power capacity | Regenerative unit | LCD monitor | I/O selection |
|---|---|---|---|---|
| TS-P | 220: 200V/400 to 600W | R: With RGT | No entry: None<br>L: With LCD | NP: NPN<br>PN: PNP<br>CC: CC-Link<br>DN: DeviceNet™<br>EP: EtherNet/IP™<br>GW: No I/O board Note 6 |

**SR1-P** – **20** – [ ] – **R** – [ ]

| Controller | Driver: Power capacity | Usable for CE | Regenerative unit | I/O selection |
|---|---|---|---|---|
| | 20: 400 to 600W | No entry: Standard<br>E: CE marking | R: With RG1 | N: NPN<br>P: PNP<br>CC: CC-Link<br>DN: DeviceNet™<br>PB: PROFIBUS |

**RDV-P** – **2** – **20** – **RBR1**

| Driver | Power-supply voltage | Driver: Power capacity | Regenerative unit |
|---|---|---|---|
| | 2: AC200V | 20: 400W or less | |

Note 1. When RDV-P is selected, the semi-absolute specifications cannot be selected.
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.692 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.
Note 5. These controllers can be mounted on DIN rails. See P.600 for details.
Note 6. Select this selection when using the gateway function.
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.703.

### Double carriage model

**MF30D** – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

| Model | Installing direction | Optional cable carrier for users Note 2 | Grease type | Stroke | Cable length | Controller |
|---|---|---|---|---|---|---|
| MF30D: Incremental<br>MF30AD: Semi-absolute Note 1 | H: Horizontal installation<br>W: Wall mount installation | No entry: None<br>S: S type<br>M: M type<br>L: L type | No entry: Standard<br>GC: Clean | 150 to 3750 (100mm pitch) | 3L: 3.5m<br>5L: 5m<br>10L: 10m<br>3K/5K/10K (Flexible cable) Note 4 | RCX320<br>SR1-P (2 units)<br>TS-P (2 units)<br>RDV-P (2 units) |

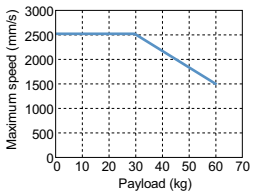
Note. Specify various controller setting items.

## Specifications Note

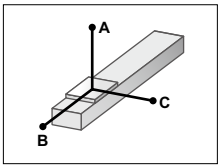
| Model | MF30 | MF30D |
|---|---|---|
| Driving method | Steel cored linear motor with falt magnet | |
| Repeatability (μm) | +/-5 | |
| Scale (μm) | Magnetic type: resolution of 1 | |
| Maximum speed Note 2 (mm/sec) | 2500 | |
| Rated thrust (N) | 125 | |
| Maximum payload Note 1 (kg) | 60 | |
| Stroke (mm) | 100 to 4000 (100mm pitch) | 150 to 3750 (100mm pitch) |
| 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 | |

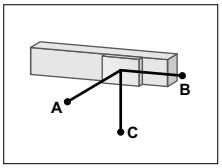
Note. A vertical model (with brake) is not available with the PHASER series.
Note. The basic specifications of semi-absolute model are the same as those of the incremental model.
Note 1. Payload per carrier. When the weight exceeds 30 kg, special parameters are applicable. Please consult our sales office or sales representative.
Note 2. Table of maximum speed

| Payload (kg) | Maximum speed (mm/s) |
|---|---|
| 30 or less | 2500 |
| 40 | 2200 |
| 50 | 1800 |
| 60 | 1500 |




## Allowable overhang Note




**Horizontal installation** (Unit: mm)

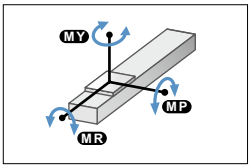
| | A | B | C |
|---|---|---|---|
| 10kg | 3364 | 2485 | 1284 |
| 20kg | 2298 | 1265 | 694 |
| 30kg | 2060 | 859 | 507 |
| 40kg | 1570 | 600 | 310 |
| 50kg | 1265 | 400 | 180 |
| 60kg | 1070 | 350 | 135 |

**Wall installation** (Unit: mm)

| | A | B | C |
|---|---|---|---|
| 10kg | 1290 | 1320 | 2730 |
| 20kg | 650 | 610 | 1750 |
| 30kg | 430 | 360 | 1460 |
| 40kg | 205 | 230 | 610 |
| 50kg | 145 | 175 | 470 |
| 60kg | 105 | 140 | 380 |

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




(Unit: N·m)

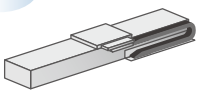
| MY | MP | MR |
|---|---|---|
| 373 | 373 | 328 |

## Controller

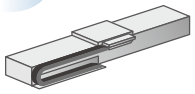
| Controller | Operating method |
|---|---|
| SR1-P20-R | Programming / I/O point trace / Remote command / Operation using RS-232C communication |
| RCX320-R<br>RCX340 | |
| TS-P220-R | I/O point trace / Remote command |
| RDV-P220-RBR1 | Pulse train control |

## Cable carrier entry location

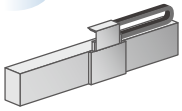
**RH** Horizontal, right



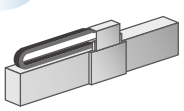
**LH** Horizontal, left



**RW** Wall mounted, right



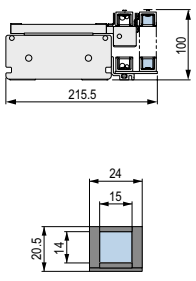
**LW** Wall mounted, left



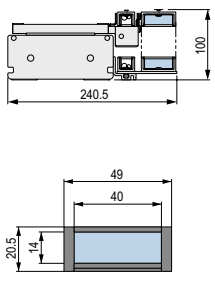
Note. Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any way other than the above standard installation, please consult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

## Optional cable carrier for users

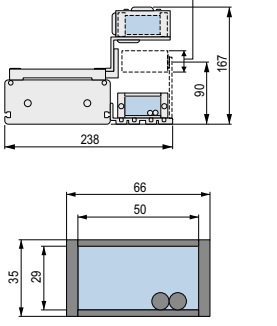
S type




M type




L type



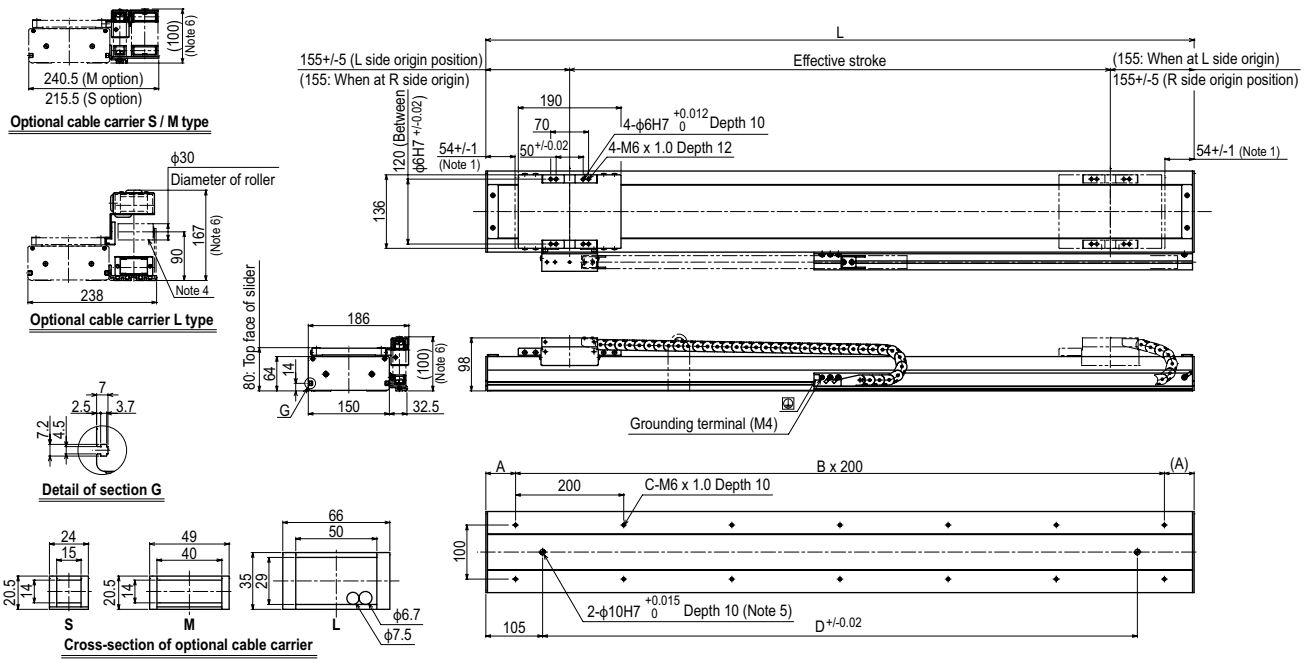

Cable and air tube guide

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, ϕ6 air tube x 3

Space for optional cable for users


Controller SR1-P ▶ 618 | RCX320 ▶ 626 | TS-P ▶ 592 | RDV-P ▶ 606

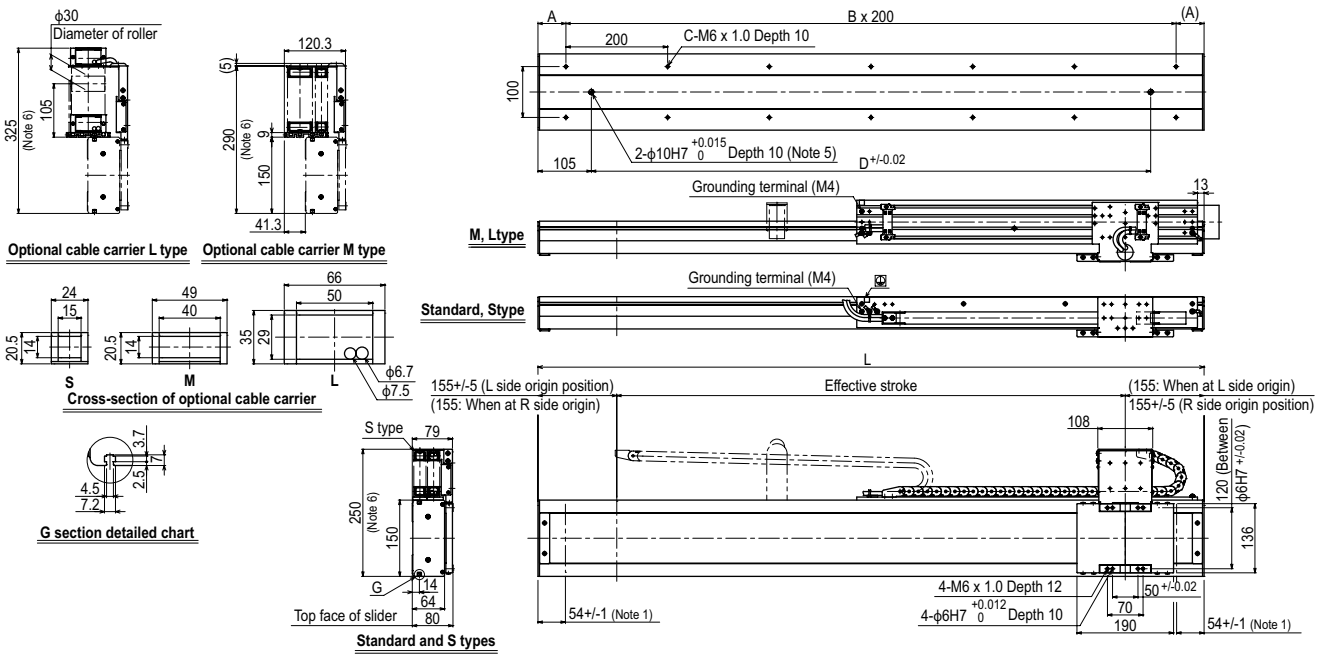
## MF30 single carriage horizontal mount model RH




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.
Note 5. When using ϕ10 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 | 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 | 3100 | 3200 | 3300 | 3400 | 3500 | 3600 | 3700 | 3800 | 3900 | 4000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | 410 | 510 | 610 | 710 | 810 | 910 | 1010 | 1110 | 1210 | 1310 | 1410 | 1510 | 1610 | 1710 | 1810 | 1910 | 2010 | 2110 | 2210 | 2310 | 2410 | 2510 | 2610 | 2710 | 2810 | 2910 | 3010 | 3110 | 3210 | 3310 | 3410 | 3510 | 3610 | 3710 | 3810 | 3910 | 4010 | 4110 | 4210 | 4310 |
| A | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 |
| B | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 11 | 12 | 12 | 13 | 13 | 14 | 14 | 15 | 15 | 16 | 16 | 17 | 17 | 18 | 18 | 19 | 19 | 20 | 20 | 21 |
| C | 4 | 6 | 6 | 8 | 8 | 10 | 10 | 12 | 12 | 14 | 14 | 16 | 16 | 18 | 18 | 20 | 20 | 22 | 22 | 24 | 24 | 26 | 26 | 28 | 28 | 30 | 30 | 32 | 32 | 34 | 34 | 36 | 36 | 38 | 38 | 40 | 40 | 42 | 42 | 44 |
| D | 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 | 3100 | 3200 | 3300 | 3400 | 3500 | 3600 | 3700 | 3800 | 3900 | 4000 | 4100 |
| Weight (kg) | 9.0 | 10.7 | 12.3 | 13.9 | 15.6 | 17.2 | 18.8 | 20.4 | 22.1 | 23.7 | 25.3 | 27.0 | 28.6 | 30.2 | 31.9 | 33.5 | 35.1 | 36.7 | 38.4 | 40.0 | 41.6 | 43.3 | 44.9 | 46.5 | 48.2 | 49.8 | 51.4 | 53.0 | 54.7 | 56.3 | 57.9 | 59.6 | 61.2 | 62.8 | 64.5 | 66.1 | 67.7 | 69.3 | 71.0 | 72.6 |

## MF30 single carriage wall mount model RW



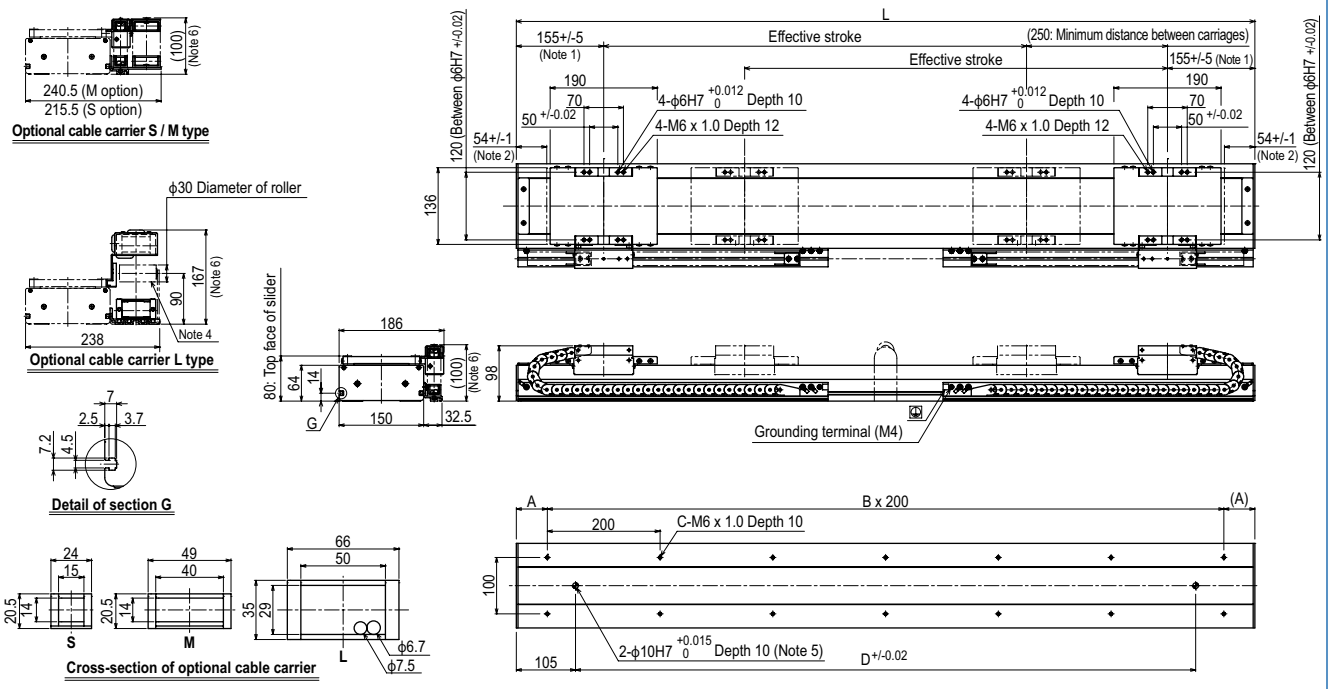

Note 1. Stop positions are determined by the mechanical stoppers at both ends.
Note 2. The origin is set on the R side at the time of shipment. It can be changed to the L side by parameter setting.
Note 3. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.
Note 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 ϕ10 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 | 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 | 3100 | 3200 | 3300 | 3400 | 3500 | 3600 | 3700 | 3800 | 3900 | 4000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | 410 | 510 | 610 | 710 | 810 | 910 | 1010 | 1110 | 1210 | 1310 | 1410 | 1510 | 1610 | 1710 | 1810 | 1910 | 2010 | 2110 | 2210 | 2310 | 2410 | 2510 | 2610 | 2710 | 2810 | 2910 | 3010 | 3110 | 3210 | 3310 | 3410 | 3510 | 3610 | 3710 | 3810 | 3910 | 4010 | 4110 | 4210 | 4310 |
| A | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 |
| B | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 11 | 12 | 12 | 13 | 13 | 14 | 14 | 15 | 15 | 16 | 16 | 17 | 17 | 18 | 18 | 19 | 19 | 20 | 20 | 21 |
| C | 4 | 6 | 6 | 8 | 8 | 10 | 10 | 12 | 12 | 14 | 14 | 16 | 16 | 18 | 18 | 20 | 20 | 22 | 22 | 24 | 24 | 26 | 26 | 28 | 28 | 30 | 30 | 32 | 32 | 34 | 34 | 36 | 36 | 38 | 38 | 40 | 40 | 42 | 42 | 44 |
| D | 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 | 3100 | 3200 | 3300 | 3400 | 3500 | 3600 | 3700 | 3800 | 3900 | 4000 | 4100 |
| E | 220 | 270 | 320 | 370 | 420 | 470 | 520 | 570 | 620 | 670 | 720 | 770 | 820 | 870 | 920 | 970 | 1020 | 1070 | 1120 | 1170 | 1220 | 1270 | 1320 | 1370 | 1420 | 1470 | 1520 | 1570 | 1620 | 1670 | 1720 | 1770 | 1820 | 1870 | 1920 | 1970 | 2020 | 2070 | 2120 | 2170 |
| Weight (kg) | 9.0 | 10.7 | 12.3 | 13.9 | 15.6 | 17.2 | 18.8 | 20.4 | 22.1 | 23.7 | 25.3 | 27.0 | 28.6 | 30.2 | 31.9 | 33.5 | 35.1 | 36.7 | 38.4 | 40.0 | 41.6 | 43.3 | 44.9 | 46.5 | 48.2 | 49.8 | 51.4 | 53.0 | 54.7 | 56.3 | 57.9 | 59.6 | 61.2 | 62.8 | 64.5 | 66.1 | 67.7 | 69.3 | 71.0 | 72.6 |



Controller SR1-P ▶ 618 | RCX320 ▶ 626 | TS-P ▶ 592 | RDV-P ▶ 606

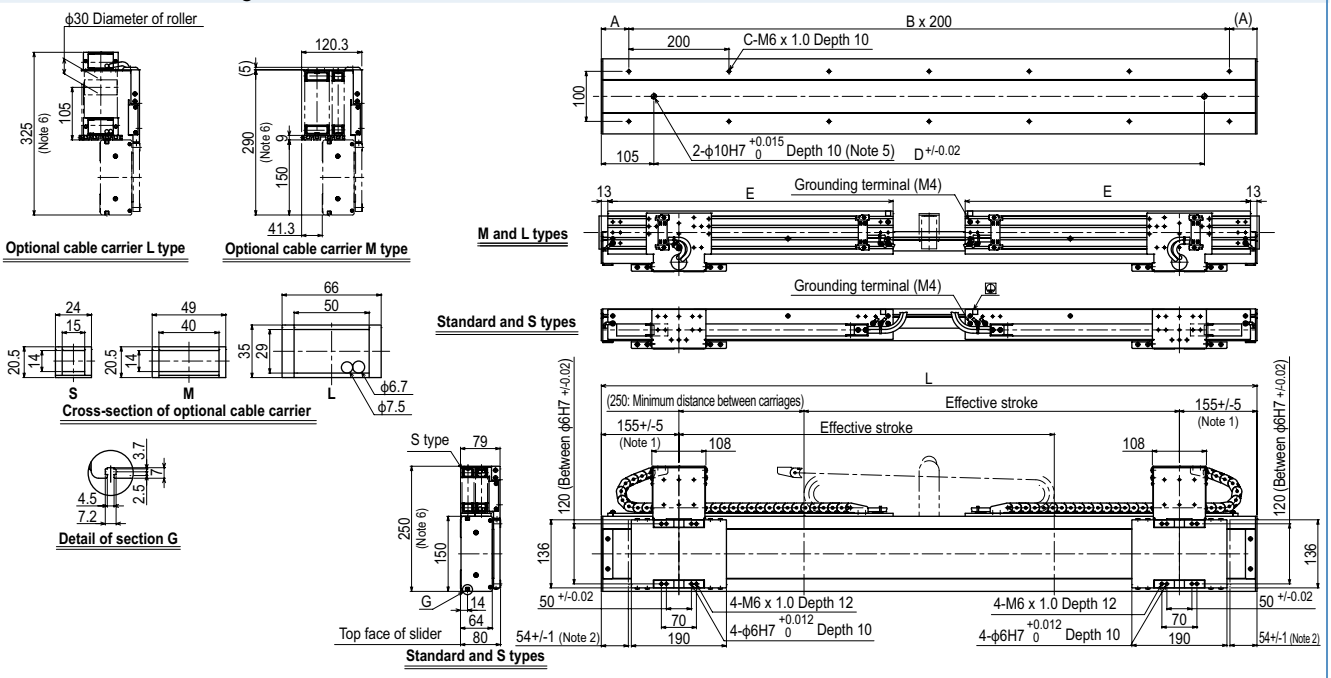
## MF30D double carriage horizontal mount model H




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 2,050mm 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. When using ϕ10 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 | 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 | 3150 | 3250 | 3350 | 3450 | 3550 | 3650 | 3750 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | 710 | 810 | 910 | 1010 | 1110 | 1210 | 1310 | 1410 | 1510 | 1610 | 1710 | 1810 | 1910 | 2010 | 2110 | 2210 | 2310 | 2410 | 2510 | 2610 | 2710 | 2810 | 2910 | 3010 | 3110 | 3210 | 3310 | 3410 | 3510 | 3610 | 3710 | 3810 | 3910 | 4010 | 4110 | 4210 | 4310 |
| A | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 |
| B | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 11 | 12 | 12 | 13 | 13 | 14 | 14 | 15 | 15 | 16 | 16 | 17 | 17 | 18 | 18 | 19 | 19 | 20 | 20 | 21 |
| C | 8 | 8 | 10 | 10 | 12 | 12 | 14 | 14 | 16 | 16 | 18 | 18 | 20 | 20 | 22 | 22 | 24 | 24 | 26 | 26 | 28 | 28 | 30 | 30 | 32 | 32 | 34 | 34 | 36 | 36 | 38 | 38 | 40 | 40 | 42 | 42 | 44 |
| D | 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 | 3100 | 3200 | 3300 | 3400 | 3500 | 3600 | 3700 | 3800 | 3900 | 4000 | 4100 |
| 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 |

## MF30D double carriage wall mount model W




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. When using ϕ10 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 | 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 | 3150 | 3250 | 3350 | 3450 | 3550 | 3650 | 3750 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | 710 | 810 | 910 | 1010 | 1110 | 1210 | 1310 | 1410 | 1510 | 1610 | 1710 | 1810 | 1910 | 2010 | 2110 | 2210 | 2310 | 2410 | 2510 | 2610 | 2710 | 2810 | 2910 | 3010 | 3110 | 3210 | 3310 | 3410 | 3510 | 3610 | 3710 | 3810 | 3910 | 4010 | 4110 | 4210 | 4310 |
| A | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 | 105 | 55 |
| B | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 11 | 12 | 12 | 13 | 13 | 14 | 14 | 15 | 15 | 16 | 16 | 17 | 17 | 18 | 18 | 19 | 19 | 20 | 20 | 21 |
| C | 8 | 8 | 10 | 10 | 12 | 12 | 14 | 14 | 16 | 16 | 18 | 18 | 20 | 20 | 22 | 22 | 24 | 24 | 26 | 26 | 28 | 28 | 30 | 30 | 32 | 32 | 34 | 34 | 36 | 36 | 38 | 38 | 40 | 40 | 42 | 42 | 44 |
| D | 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 | 3100 | 3200 | 3300 | 3400 | 3500 | 3600 | 3700 | 3800 | 3900 | 4000 | 4100 |
| E | 220 | 270 | 320 | 370 | 420 | 470 | 520 | 570 | 620 | 670 | 720 | 770 | 820 | 870 | 920 | 970 | 1020 | 1070 | 1120 | 1170 | 1220 | 1270 | 1320 | 1370 | 1420 | 1470 | 1520 | 1570 | 1620 | 1670 | 1720 | 1770 | 1820 | 1870 | 1920 | 1970 | 2020 |
| 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 |