

MF30/MF30D

Can be used for wall-mount



Ordering method

Single carriage model

MF30

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

TSP 220 R

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

SR1-P 20 R

| | | | | |
|--|--|---|--|---|
| Controller SR1-P ^{Note 6} | Driver: Power capacity 20: 400 to 600W | Usable for CE No entry: Standard E: CE marking | Regenerative unit R: With RGT1 | I/O selection N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS |
|--|--|---|--|---|

RDV-P 2 20 RBR1

| | | | |
|---------------|--|---|----------------------------------|
| Driver | Power-supply voltage 2: AC200V | Driver: Power capacity 20: 400W or less | Regenerative unit RBR1 |
|---------------|--|---|----------------------------------|

Note 1. For the details of the semi-absolute model, please refer to P.33. 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.594 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 RCX221HP, 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.498 for details.
 Note 6. Select this selection when using the gateway function. For details, see P.60.
 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.602.

Double carriage model

MF30D

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

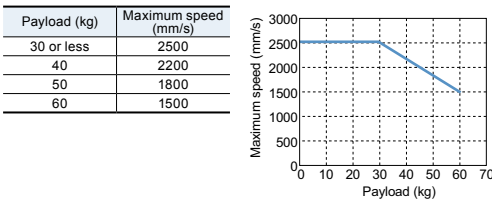
RCX221HP R

| | | | | |
|---|---|---|---|---|
| Controller RCX221HP SR1-P (2 units) TS-P (2 units) RDV-P (2 units) | Usable for CE No entry: Standard E: CE marking | Regenerative unit R: RG2 (RCX221HP) | I/O selection 1 N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS EN: Ethernet | I/O selection 2 No entry: None NP: OPDIO24/16 (NPN) P: OPDIO24/17 (PNP) EN: Ethernet |
|---|---|---|---|---|

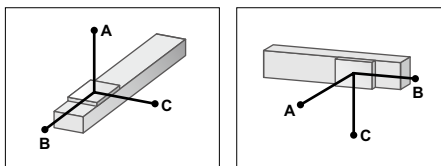
Specifications

| 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 x 2 rail | |
| Maximum cross-section outside dimensions (mm) | W150 x 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 payload exceeds 30kg, please consult our sales office or sales representative.
 Note 2. Table of maximum speed



Allowable overhang



| | Horizontal installation (Unit: mm) | | | Wall installation (Unit: mm) | | |
|------|------------------------------------|------|------|------------------------------|------|------|
| | A | B | C | A | B | C |
| 10kg | 3364 | 2485 | 1284 | 1290 | 1320 | 2730 |
| 20kg | 2298 | 1265 | 694 | 650 | 610 | 1750 |
| 30kg | 2060 | 859 | 507 | 430 | 360 | 1460 |
| 40kg | 1570 | 600 | 310 | 205 | 230 | 610 |
| 50kg | 1265 | 400 | 180 | 145 | 175 | 470 |
| 60kg | 1070 | 350 | 135 | 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

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

(Unit: N·m)

Controller

| Controller | Operating method |
|--------------------------|--|
| SR1-P20-R | Programming / I/O point trace / Remote command / Operation using RS-232C communication |
| RCX221HP-R RCX240/340 | I/O point trace / Remote command |
| TS-P220-R | Pulse train control |
| RDV-P220-RBR1 | |

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

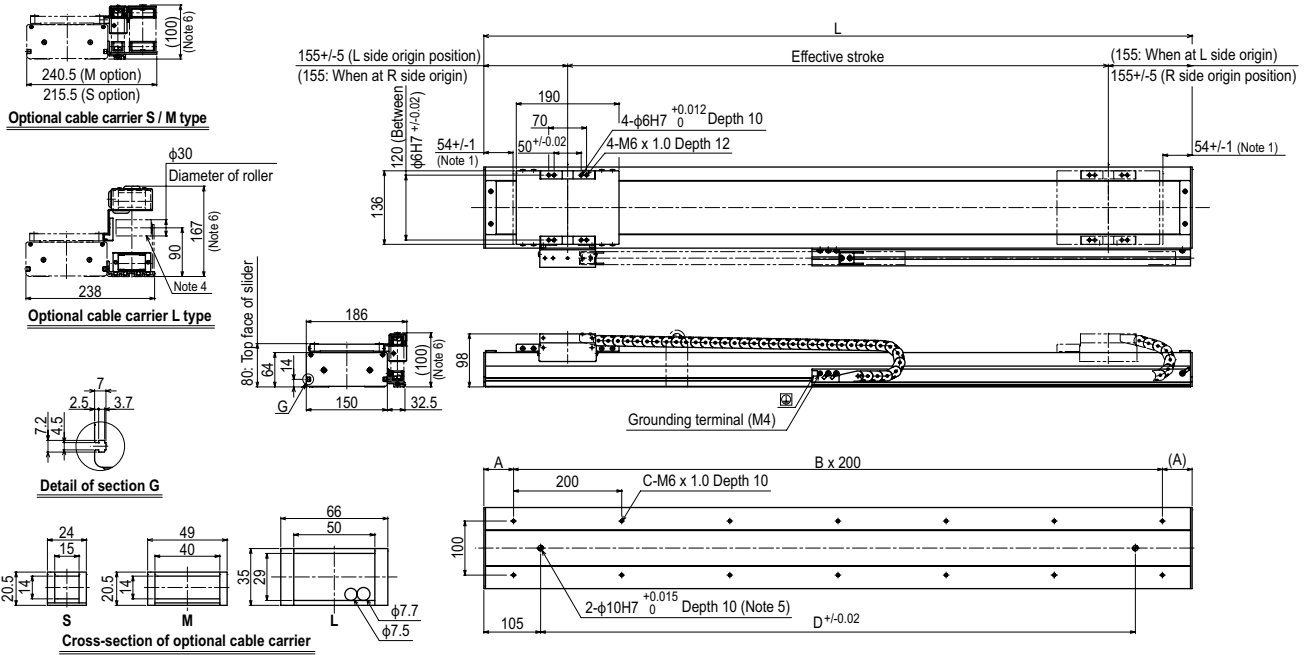
S type **M type** **L type**

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, φ8 air tube x 3

Space for optional cable for users

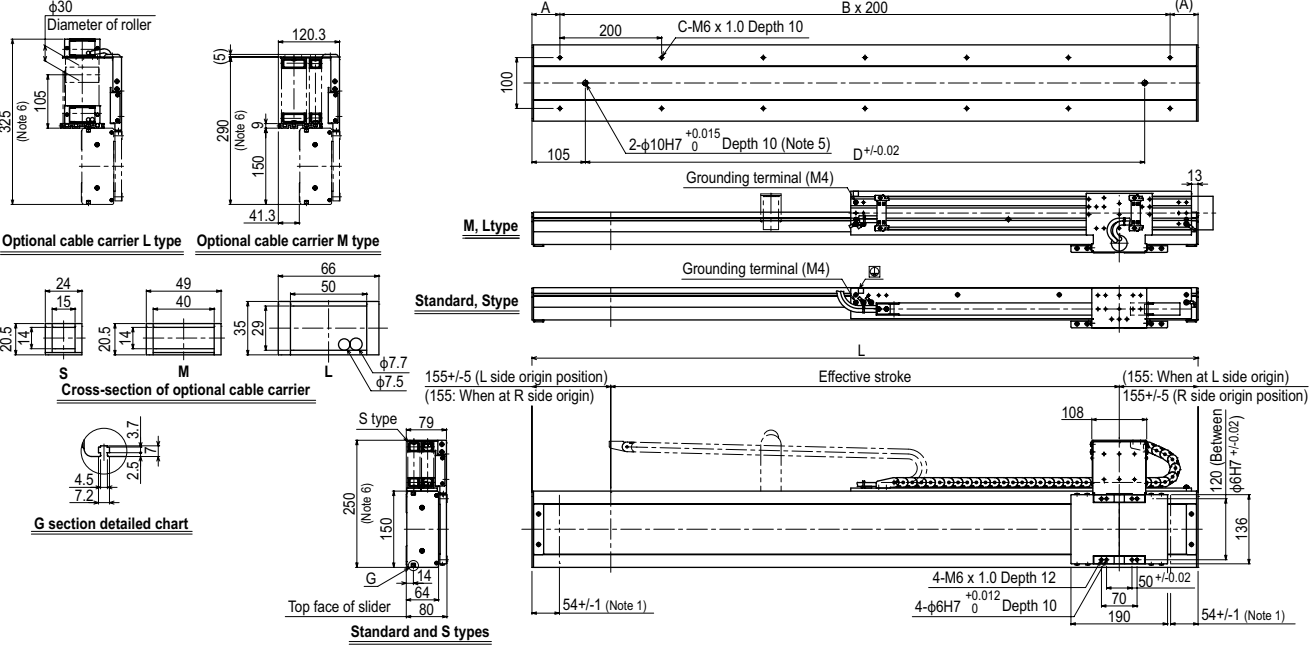
MF30 single carriage horizontal mount model RH



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 $\phi 10$ 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 | 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 | 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 | 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 | 22.2 | 23.7 | 25.3 | 27.0 | 28.6 | 30.3 | 32.1 | 33.9 | 35.3 | 36.8 | 38.4 | 40.0 | 41.6 | 43.3 | 44.9 | 46.6 | 48.2 | 49.9 | 51.5 | 53.2 | 54.9 | 56.6 | 58.3 | 60.0 | 61.7 | 63.4 | 65.1 | 66.8 | 68.5 | 70.2 | 71.9 | 73.6 | 75.3 | |

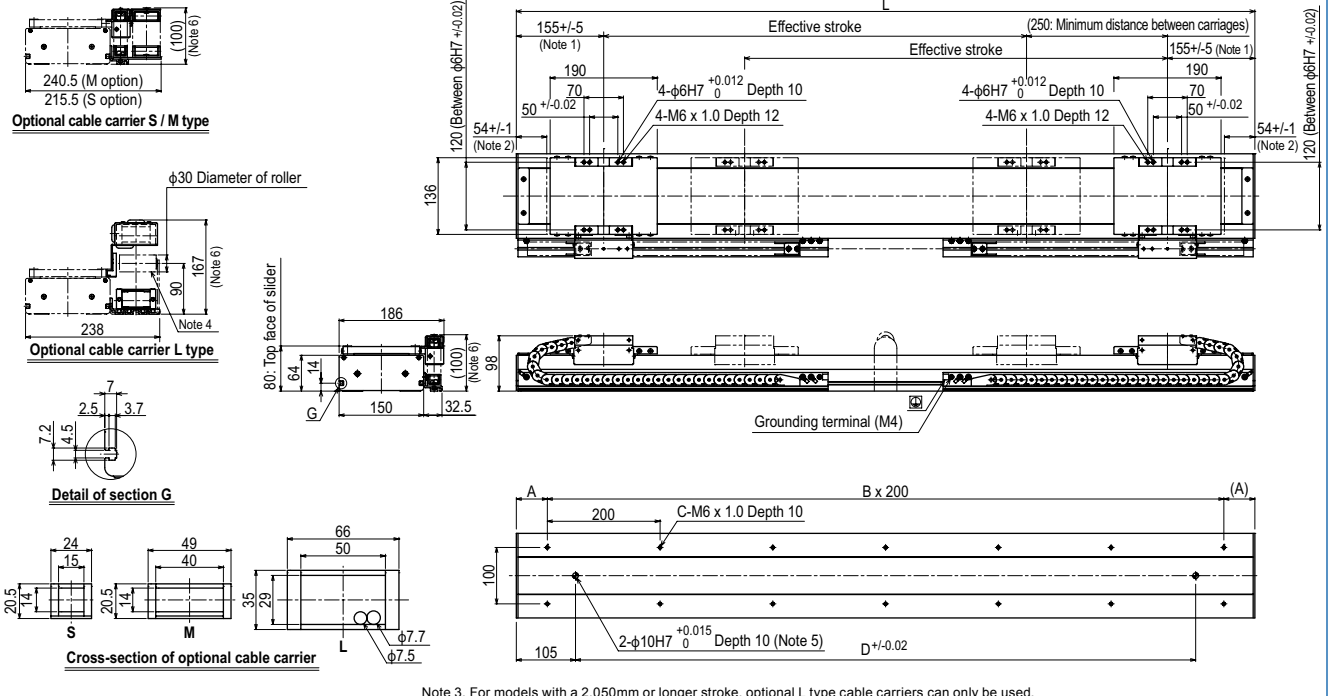
MF30 single carriage wall mount model RW



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 $\phi 10$ 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 | 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 | 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 | 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 | 22.2 | 23.7 | 25.3 | 27.0 | 28.6 | 30.3 | 32.1 | 33.9 | 35.3 | 36.8 | 38.4 | 40.0 | 41.6 | 43.3 | 44.9 | 46.6 | 48.2 | 49.9 | 51.5 | 53.2 | 54.9 | 56.6 | 58.3 | 60.0 | 61.7 | 63.4 | 65.1 | 66.8 | 68.5 | 70.2 | 71.9 | 73.6 | 75.3 | |

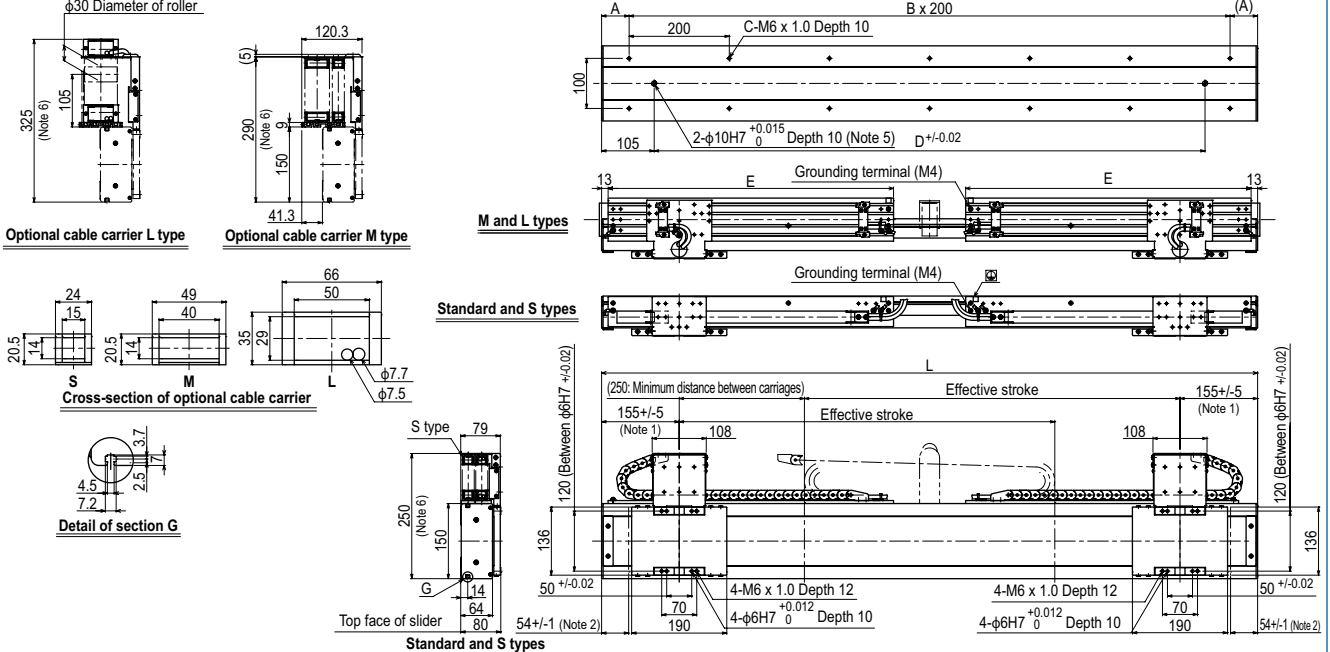
MF30D double carriage horizontal mount model **H**



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 | 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 | 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 | 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 | 4200 | |
| Weight (kg) | 17.6 | 19.3 | 21.0 | 22.2 | 24.2 | 25.2 | 27.7 | 29.9 | 29.6 | 31.3 | 33.3 | 33.4 | 35.6 | 33.8 | 23.9 | 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 | 3.93 |

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 | 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 | 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 | 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 | 4200 | |
| 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 | 22.2 | 24.2 | 25.2 | 27.7 | 29.9 | 29.6 | 31.3 | 33.3 | 33.4 | 35.6 | 33.8 | 23.9 | 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 | 3.93 |