

MF20/MF20D



Ordering method

Single carriage model

| | | | | | | | | | | |
|---|---|--|--|---|--|--|---------------|--|--|---|
| MF20 | | | | | | SR1-P | 10 | | R | |
| Model MF20: Incremental MF20A: Semi-absolute ^{Note 1} | Cable carrier entry location RH: Horizontal, right LH: Horizontal, left RW: Wall hanging, right LW: Wall hanging, left | Optional cable carrier for users ^{Note 2} No entry: None S: S type M: M type L: L type | Option Origin position: None: Standard change Z: R side Grease type: None: Standard GC: Clean | Stroke 150 to 4050 (100mm pitch) | Cable length 3L: 3.5m (Standard) 5L: 5m 10L: 10m | Controller SR1-P TS-P ^{Note 3} | Driver | Usable for CE No entry: Standard E: CE making | Regenerative unit R: RG1 (SR1-P) RGT (TS-P) | I/O selection N: NPN P: PNP CC: CC-Link DN: DeviceNet PB: Profibus YC: YC-Link ^{Note 5} |

Double carriage model

| | | | | | | | | | | | |
|---|---|--|---|---|--|--|--|--|---|--|--|
| MF20D | | | | | | RCX221 | | | R | | |
| Model MF20D: Incremental MF20AD: Semi-absolute ^{Note 1} | Installing direction H: Horizontal installation W: Wall hanging installation | Optional cable carrier for users ^{Note 2} No entry: None S: S type M: M type L: L type | Option Grease type: None: Standard GC: Clean | Stroke 150 to 3850 (100mm pitch) | Cable length 3L: 3.5m (Standard) 5L: 5m 10L: 10m | Controller RCX221 SR1-P (2 units) ^{Note 4} TS-P (2 units) ^{Note 3, Note 4} | Usable for CE No entry: Standard E: CE making | Regenerative unit R: RG2 (RCX221) RG1 (SR1-P) RGT (TS-P) | I/O selection 1 N: NPN P: PNP CC: CC-Link DN: DeviceNet PB: Profibus EN: Ethernet ^{Note 6} YC: YC-Link ^{Note 6} | I/O selection 2 No entry: None NF: OP.DIO24/16 (NPN) P1: OP.DIO24/17 (PNP) EN: Ethernet | |

Note 1. Semi-absolute models are supported by the SR1-P, TS-P and RCX221. For the details of the semi-absolute model, please refer to P.018. RDP has an incremental model only.

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

Note 3. To find TS-P, RDP selection options, see the ordering method listed on each controller's page (TS-P: P.355, RDP: P.365).

Note 4. When using the SR1-P, TS-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

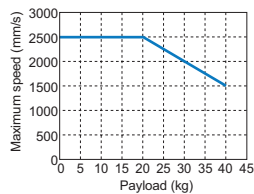
| Model | MF20 | MF20D |
|--|--|------------------------------|
| Driving method / Shaft diameter | Steel cored linear motor with falt magnet | |
| Repeatability (μm) | +/-5 | |
| Scale (μm) | Magnetic type: resolution of 1 | |
| Maximum speed^{Note 2} (mm/sec) | 2500 | |
| Rated thrust (N) | 86 | |
| Maximum payload^{Note 1} (kg) | 40 | |
| Stroke (mm) | 150 to 4050 (100mm pitch) | 150 to 3850 (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+260 | Stroke+460 |
| Cable length (m) | Standard: 3.5 / Option: 5,10 | |

Note. A vertical model (with brake) is not available with the PHASER series. The basic specifications of semi-absolute model are the same as those of the incremental model.

Note 1. Maximum payload per carriage.

Note 2. Table of maximum speed

| Payload (kg) | Maximum speed (mm/s) |
|--------------|----------------------|
| 20 or less | 2500 |
| 25 | 2300 |
| 30 | 2000 |
| 35 | 1800 |
| 40 | 1500 |



Allowable overhang

| | Horizontal installation (Unit: mm) | | | Wall installation (Unit: mm) | | |
|------|------------------------------------|------|------|------------------------------|------|------|
| | A | B | C | A | B | C |
| 10kg | 3156 | 1747 | 1196 | 1220 | 1320 | 2540 |
| 15kg | 2811 | 1176 | 883 | 870 | 850 | 2200 |
| 20kg | 2679 | 890 | 717 | 670 | 610 | 2030 |
| 25kg | 2190 | 720 | 505 | 485 | 400 | 1280 |
| 30kg | 1830 | 605 | 370 | 350 | 325 | 1050 |
| 35kg | 1580 | 525 | 275 | 265 | 270 | 890 |
| 40kg | 1390 | 465 | 225 | 235 | 230 | 765 |

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

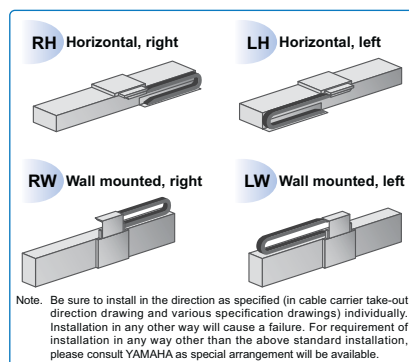
Static loading moment

| (Unit: N-m) | | |
|-------------|-----|-----|
| MY | MP | MR |
| 373 | 373 | 328 |

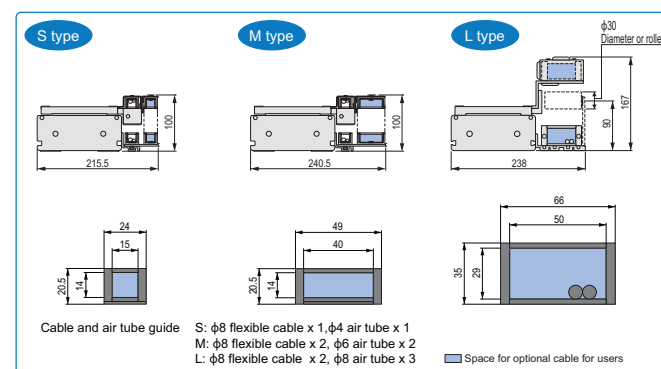
Controller

| Controller | Operating method |
|------------|--|
| SR1-P-10-R | Programming / I/O point trace (BCD) / Remote command / Operation using RS-232C communication |
| RCX221-R | Operation using RS-232C communication |
| TS-P110-R | I/O point trace (BCD) |
| TS-P210-R | I/O point trace (BCD) |

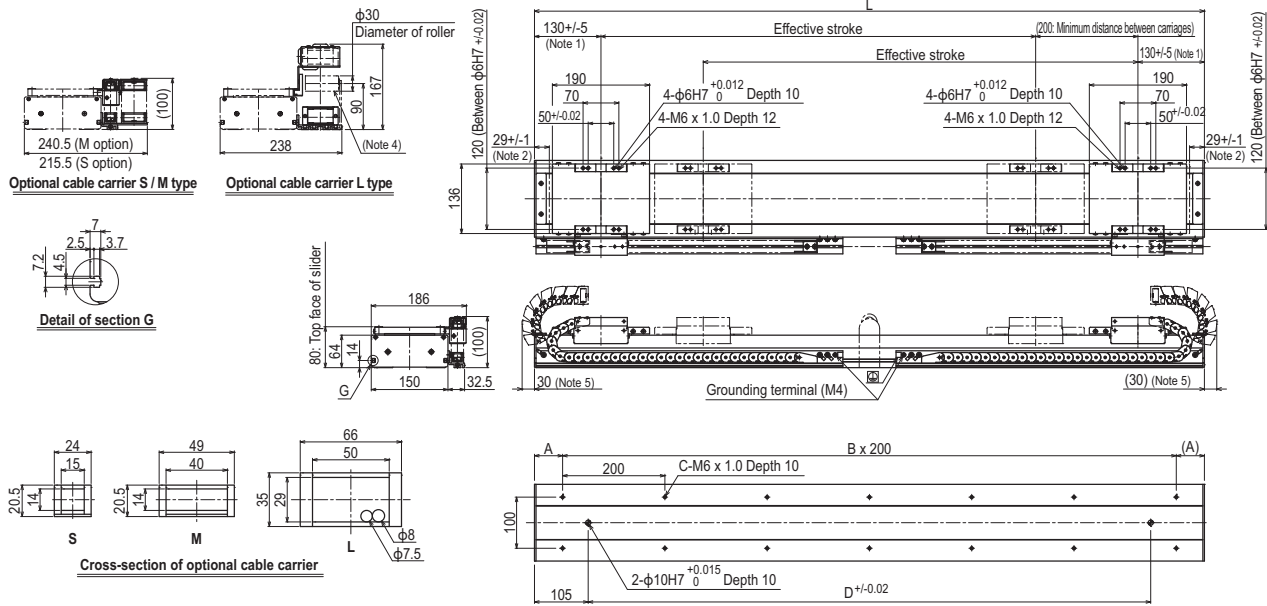
Cable carrier entry location



Optional cable carrier for users



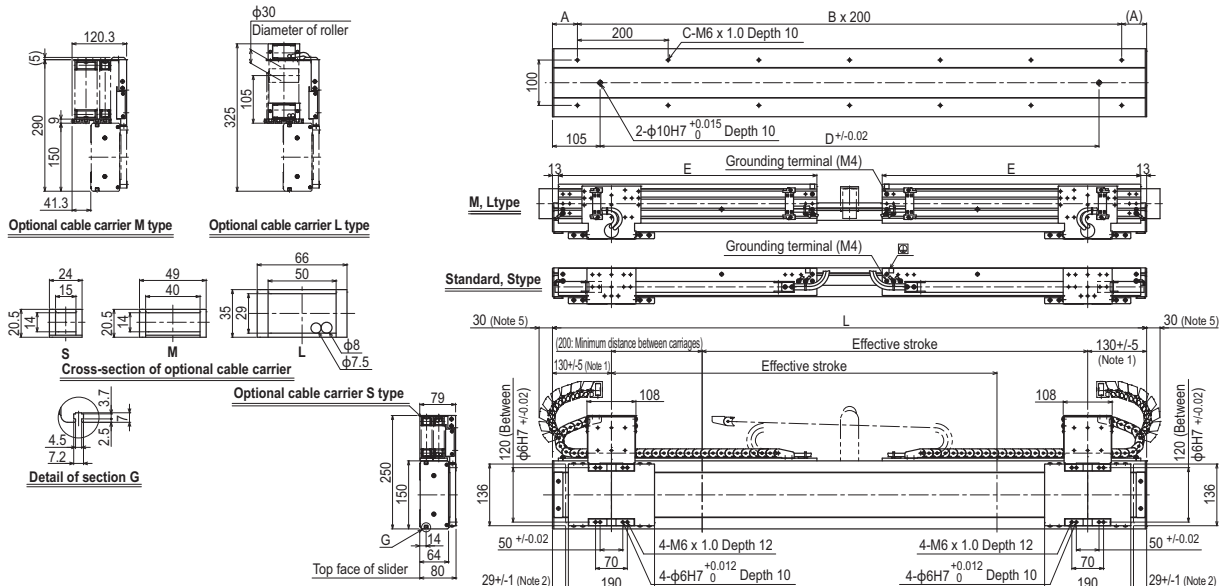
MF20D double carriage horizontal mount model H



Note 1. Position of table carriage when returned to the origin.
 Note 2. Distance from both ends to the mechanical stopper.
 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. Protrusion is the distance the cable carrier extends from the edge of unit when an optional L type cable carrier is used.

| 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 | 3850 | | |
|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|----|
| L | 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 | 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 | 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 | 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) | 14.9 | 16.6 | 18.3 | 20.0 | 21.7 | 23.5 | 25.2 | 26.9 | 28.6 | 30.3 | 32.0 | 33.7 | 35.4 | 37.2 | 38.9 | 40.6 | 42.3 | 44.0 | 45.7 | 47.4 | 49.1 | 50.8 | 52.6 | 54.3 | 56.0 | 57.7 | 59.4 | 61.1 | 62.8 | 64.5 | 66.3 | 68.0 | 69.7 | 71.4 | 73.1 | 74.8 | 76.5 | 78.2 | | |

MF20D double carriage wall mount model W



Note 1. Position of table carriage when returned to the origin.
 Note 2. Distance from both ends to the mechanical stopper.
 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. Protrusion is the distance the cable carrier extends from the edge of unit when an optional L type cable carrier is used.

| 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 | 3850 | | |
|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|----|
| L | 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 | 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 | 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 | 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 | | |
| Weight (kg) | 14.9 | 16.6 | 18.3 | 20.0 | 21.7 | 23.5 | 25.2 | 26.9 | 28.6 | 30.3 | 32.0 | 33.7 | 35.4 | 37.2 | 38.9 | 40.6 | 42.3 | 44.0 | 45.7 | 47.4 | 49.1 | 50.8 | 52.6 | 54.3 | 56.0 | 57.7 | 59.4 | 61.1 | 62.8 | 64.5 | 66.3 | 68.0 | 69.7 | 71.4 | 73.1 | 74.8 | 76.5 | 78.2 | | |