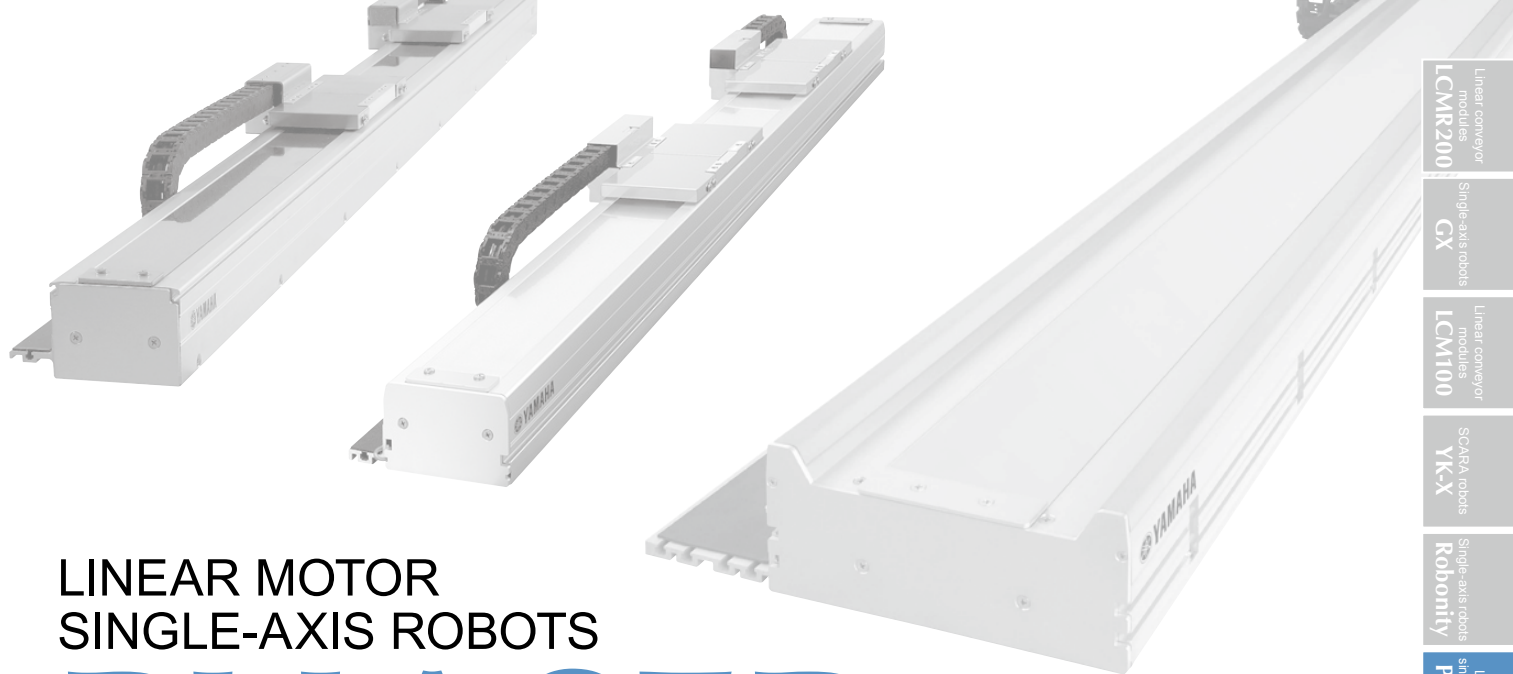




LINEAR MOTOR SINGLE-AXIS ROBOTS

PHASER SERIES

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MF TYPE

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PHASER SPECIFICATION SHEET

Type	Size (mm) ^{Note 1}	Model	Carrier	Maximum payload (kg)	Maximum speed (mm/sec.)	Stroke (mm)	Detailed info page
MF type Flat type with core Linear motor specifications	W85 × H80	MF7	Single	10 (7) ^{Note 2}	2500	100 to 4000 (Horizontal) 100 to 2000 (Wall mount)	P.270
		MF7D	Double			100 to 3800 (Horizontal) 100 to 1800 (Wall mount)	P.270
	W100 × H80	MF15	Single	30 (15) ^{Note 2}		100 to 4000 (Horizontal) 100 to 2000 (Wall mount)	P.276
		MF15D	Double			100 to 3800 (Horizontal) 100 to 1800 (Wall mount)	P.276
	W150 × H80	MF20	Single	40 (20) ^{Note 2}		150 to 4050	P.280
		MF20D	Double			150 to 3850	P.280
		MF30	Single	60 (30) ^{Note 2}		100 to 4000	P.283
		MF30D	Double			150 to 3750	P.283
	W210 × H100	MF75	Single	160 (75) ^{Note 2}		1000 to 4000	P.286
		MF75D	Double			680 to 3680	P.286

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.
- Dropping or hitting this product may cause it to break. Always handle it carefully.
- 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.
- Strong electric field, strong magnetic field, etc. occur.
- The product is affected by vibration or impact.

- Dewing occurs, or corrosive gas or combustible gas is generated.
- The product is exposed to direct sun or radiant heat.
- A noise source exists in the surrounding area.
- Inspection and cleaning cannot be performed.

■ Safety precaution

- A high performance rare earth magnets are used in the motor section of this product. For this reason, bringing 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
- Grease ▷ Standard
- Optional cable carrier for users ▷ S
- Stroke ▷ 550mm
- Origin position ▷ Change (R side)
- Cable length ▷ 3.5m

● Controller ▶ SR1-P

- Regenerative unit ▷ Required
- I/O selection ▷ NPN

● Ordering method

MF20 - RH - S - Z - 550 - 3L - SR1 - P10 - R - N

Mechanical section

Controller section

This page describes using the ordering form for mechanical components.

To find detailed controller information see the controller page.

SR1-P ▶ [P.618](#), TS-P ▶ [P.592](#), RDV-P ▶ [P.606](#)

Mechanical section

● Single carriage

① Model	② Cable carrier entry location	④ Optional cable carrier for users	⑤ Origin position change	⑥ Grease type	⑦ Stroke	⑧ Cable length
MF7 MF7A	RH Horizontal, right	No entry None	No entry L side	No entry Standard		3L 3.5m
MF15 MF15A	LH Horizontal, left	S S type	Z R side	GC Clean		5L 5m
MF20 MF20A	RW Wall mounted, right	M M type				10L 10m
MF30 MF30A	LW Wall mounted, left	L L type				3K 3.5m
MF75 MF75A						5K 5m
						10K 10m

● Double carriage

① Model	③ Installing direction	④ Optional cable carrier for users	⑥ Grease type	⑦ Stroke	⑧ Cable length
MF7D MF7AD	H Horizontal installation	No entry None	No entry Standard		3L 3.5m
MF15D MF15AD		S S type	GC Clean		5L 5m
MF20D MF20AD	W Wall mounted installation	M M type			10L 10m
MF30D MF30AD		L L type			3K 3.5m
MF75D MF75AD					5K 5m
					10K 10m

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. 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.
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. [MF type] (For MF20) S type M type L type Cable and pipe guide S : $\phi 8$ flexible cable x 1, $\phi 4$ air tube x 1 M : $\phi 8$ flexible cable x 2, $\phi 6$ air tube x 2 L : $\phi 8$ flexible cable x 2, $\phi 6$ air tube x 3 Space for optional cable for users
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. 3L : 3.5m (Standard) 5L : 5m 10L : 10m 3K : 3.5m (Flexible cable) 5K : 5m (Flexible cable) 10K : 10m (Flexible cable)

MF7/MF7D

● Flat type available

● Can be used for wall-mount

Note. When the weight per carrier exceeds 7 kg, special parameters are applicable.



Ordering method

Single carriage model

MF7						TSP			
Model MF7: Incremental MF7A: Semi-absolute ^{Note 1}	Cable carrier entry location RH: Horizontal, right LH: Horizontal, left FRH: Horizontal, right (Flat) FLH: Horizontal, left (Flat) 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 ^{Note 3} Horizontal: 100 to 4000 (100mm pitch) 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) ^{Note 5} Wall: 100 to 2000 (100mm pitch)	Cable length ^{Note 4} 3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) ^{Note 5}	Positioner ^{Note 6} TS-P	Driver: Power-supply voltage / Power capacity 110: 100V/200W 210: 200V/200W	LCD monitor No entry: None L: With LCD
						SR1-P Controller	10 Driver: Power capacity 10: 200W	Usable for CE No entry: Standard E: CE marking	I/O selection N: NPN P: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ GW: No I/O board ^{Note 7}
						RDV-P Driver	2 Power-supply voltage 2: AC200V	10 Driver: Power capacity 10: 200W or less	RBR1 Regenerative unit

Note 1. When RDV-P is selected, the semi-absolute specifications cannot be selected.

Note 2. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used. Flat type cannot be selected for L type.

Note 3. Maximum stroke for flat type is 2000mm.

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

Note 6. These controllers can be mounted on DIN rails. See P.600 for details.

Note 7. 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

MF7D					
Model MF7D: Incremental MF7AD: Semi-absolute ^{Note 1}	Installing direction H: Horizontal installation FH: Horizontal installation (Flat) 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 ^{Note 3} Horizontal: 100 to 3800 (100mm pitch) 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) ^{Note 5} Wall: 100 to 1800 (100mm pitch)	Cable length 3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) ^{Note 5}
					Controller RCX320 SR1-P (2 units) TS-P (2 units) TS-P (2 units)

Note. Specify various controller setting items.

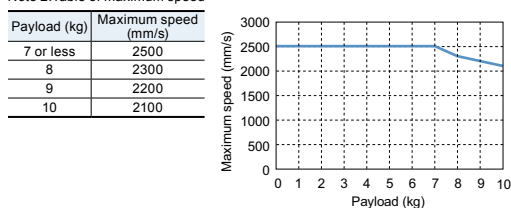
Specifications

Model	MF7	MF7D
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)	37	
Maximum payload (kg)	10 ^{Note 1}	
Stroke (mm)	Horizontal	100 to 4000 (100mm pitch)
	Wall mount	100 to 1800 (100mm pitch)
Linear guide	Horizontal	100 to 3800 (100mm pitch)
	Wall mount	100 to 1800 (100mm pitch)
Maximum cross-section outside dimensions (mm)	W85 × H80 (except the cable carrier section)	
Total length (mm)	Stroke+280	
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 7 kg, special parameters are applicable. 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
1kg	3000	3000	680	1kg	700	3000	3000
3kg	3000	1350	215	3kg	195	1260	3000
5kg	2900	830	125	5kg	90	630	2480
7kg	2400	580	85	7kg	50	360	1680
9kg	2200	460	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.

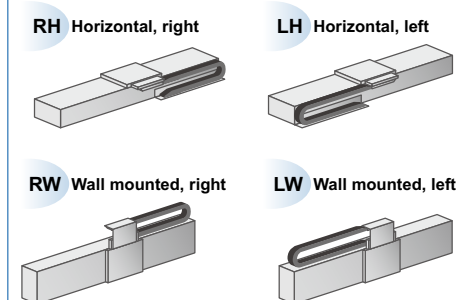
Static loading moment

Static loading moment (Unit: N·m)			
MY	MP	MR	
156	156	194	

Controller

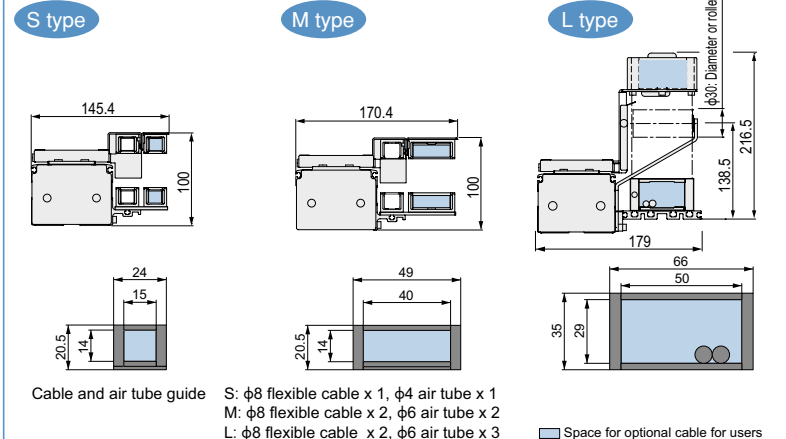
Controller	Operating method
SR1-P10	Programming / I/O point trace / Remote command / Operation using RS-232C communication
RCX320 RCX340	
TS-P110	I/O point trace / Remote command
TS-P210	
RDV-P210-RBR1	Pulse train control

Cable carrier entry location

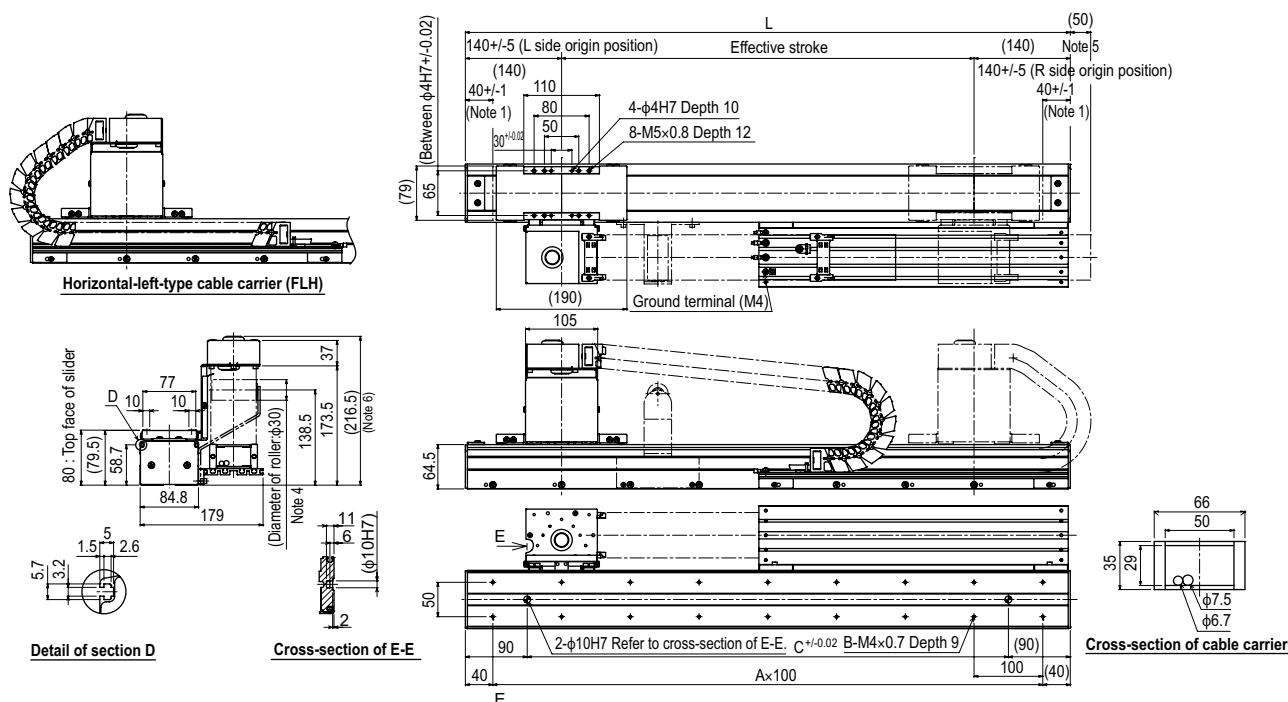


Note. Be sure to install in the direction as specified (in cable carrier take-out direction drawing and various specification drawings) individually. Installation in any other way will cause a failure. For requirement of installation in any way other than the above standard installation, please consult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

Optional cable carrier for users



MF7 single carriage horizontal mount model **RH-L** Optional L-type cable carrier



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).

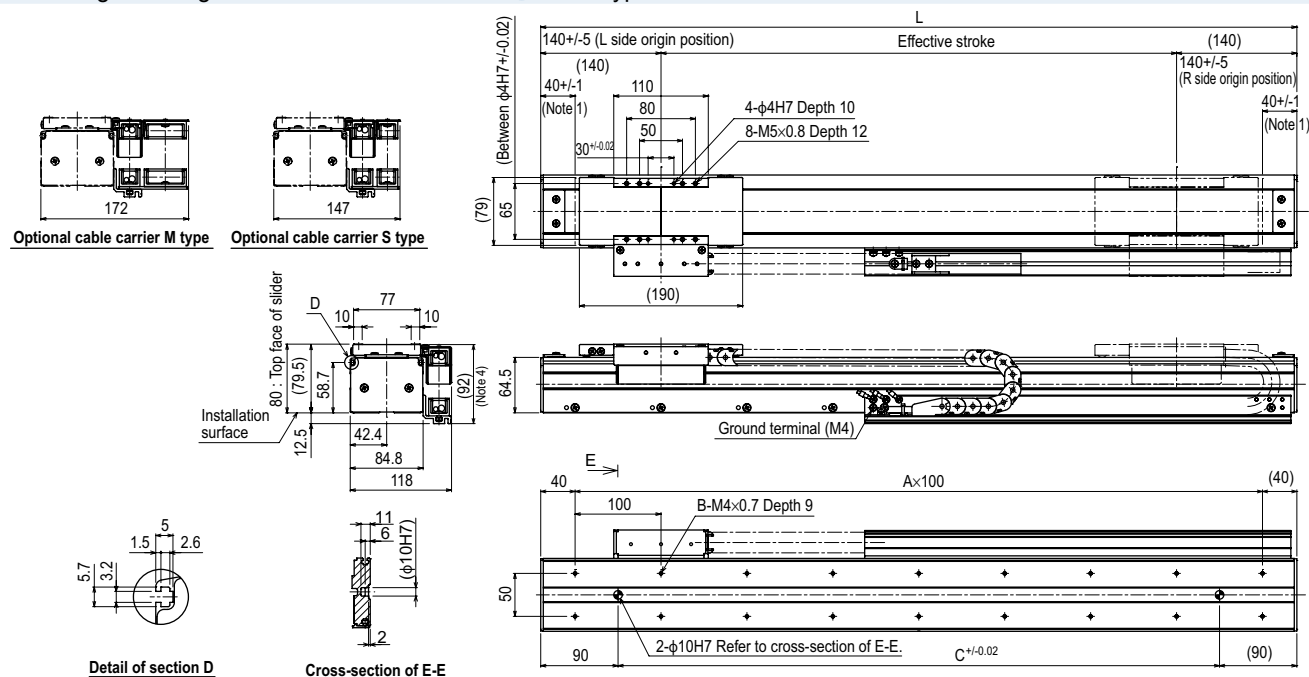
Note 4. For models with a 3,000mm or longer stroke, a roller is installed to prevent the cable carrier from sagging.

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	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	380	480	580	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	3780	3880	3980	4080	4180	4280
A	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
B	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86
C	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)	5.8	6.5	7.3	8.0	8.7	9.4	10.1	10.9	11.6	12.3	13.0	13.7	14.5	15.2	15.9	16.6	17.3	18.1	18.8	19.5	20.2	20.9	21.7	22.4	23.1	23.8	24.5	25.3	26.0	26.7	27.4	28.1	28.9	29.6	30.3	31.0	31.7	32.5	33.2	33.9

MF7 single carriage horizontal mount model **FRH** 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.

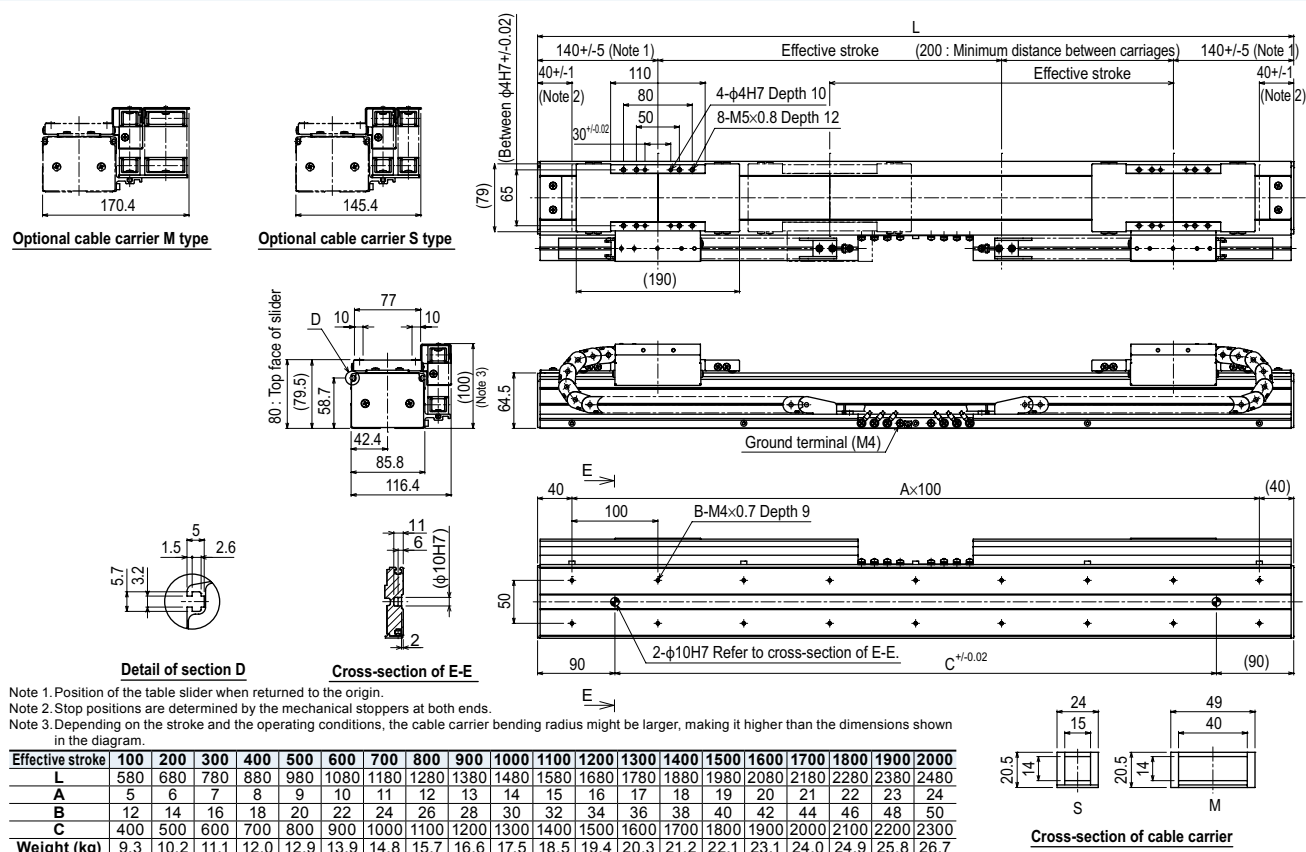
Note 3. The drawings on this page show the unit with horizontal-right-type cable carrier (RH).

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	1900	2000
L	380	480	580	680	780	880	980	1080	1180	1280	1380	1480	1580	1680	1780	1880	1980	2080	2180	2280
A	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
B	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46
C	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
Weight (kg)	5.8	6.5	7.3	8	8.7	9.4	10.1	10.9	11.6	12.3	13	13.7	14.5	15.2	15.9	16.6	17.3	18.1	18.8	19.5

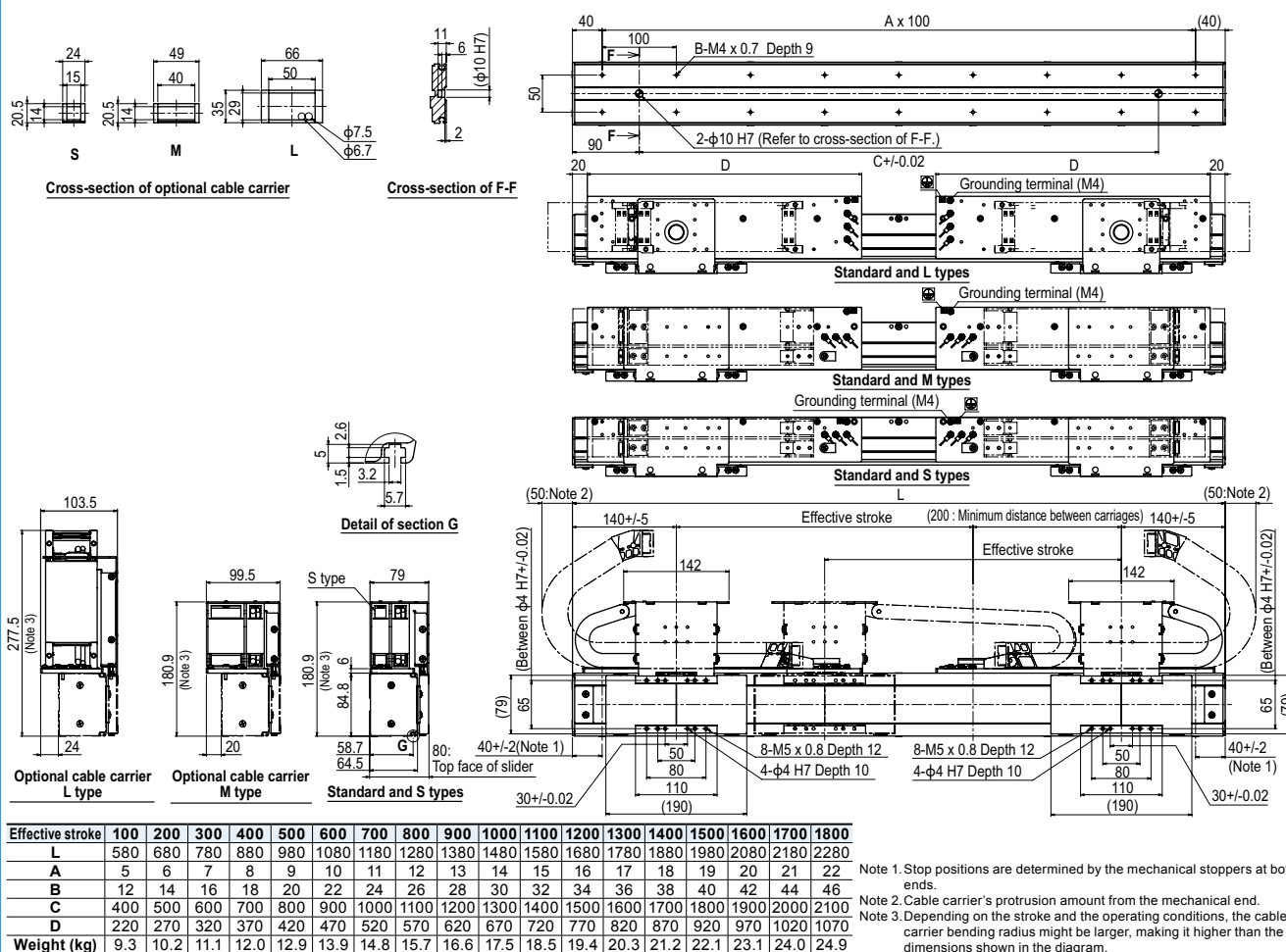
MF7D double carriage horizontal mount model

H



MF7D double carriage wall mount model

W



Linear conveyor modules	LCMR200
Single-axis robots	GX
Linear conveyor modules	LCM100
SCARA robots	YK-X
Single-axis robots	Robonity
Linear motor single-axis robots	PHASER
Single-axis robots	FLIP-X
Compact single-axis robots	TRANSERO
Cartesian robots	XY-X
Pick & place robots	YP-X
	CLEAN
	CONTROLLER
	INFORMATION

MF15/MF15D

Can be used for wall-mount

Note. When the weight per carrier exceeds 15 kg, special parameters are applicable.



Ordering method

Single carriage model

MF15							TSP					
Model	Cable carrier entry location	Optional cable carrier for users ^{Note 2}	Origin position change	Grease type	Stroke	Cable length ^{Note 3}	Positioner ^{Note 5}	Driver: Power-supply voltage / Power capacity	LCD monitor	I/O selection		
MF15: Incremental MF15A: Semi-absolute ^{Note 1}	RH: Horizontal, right LH: Horizontal, left RW: Wall mount, right LW: Wall mount, left	No entry: None S: S type M: M type L: L type	Horizontal No entry: L side (Standard) Z: R side No entry: R side (Standard) Wall Z: L side	No entry: Standard GC: Clean	Horizontal 100 to 4000 (100mm pitch) Wall 100 to 2000 (100mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) ^{Note 4}	TS-P	110: 100V/200W 210: 200V/200W	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ GW: No I/O board ^{Note 6}		
SR1-P							10					
Controller	Driver: Power capacity		Usable for CE		I/O selection							
	10: 200W		No entry: Standard E: CE marking		N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS							
RDV-P							2		10		RBR1	
Driver	Power-supply voltage		Driver: Power capacity		Regenerative unit							
	2: AC200V		10: 200W or less									

Note 1. When RDV-P is selected, the semi-absolute specifications cannot be selected.

Note 2. For models with a 2,100mm or longer stroke, optional L type cable carriers can only 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. The controller can be mounted on DIN rail. See P.690 for details.

Note 1. When RDV-P is selected, the semi-absolute specifications cannot be selected.

Note 2. For models with a 2,100mm or longer stroke, optional L type cable carriers can only 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

MF15D						Controller	
Model	Installing direction	Optional cable carrier for users ^{Note 2}	Grease type	Stroke	Cable length		
MF15D: Incremental MF15AD: Semi-absolute ^{Note 1}	H: Horizontal installation W: Wall mount installation	No entry: None S: S type M: M type L: L type	No entry: Standard GC: Clean	Horizontal: 100 to 3800 (100mm pitch) Wall: 100 to 1800 (100mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) ^{Note 4}	RCX320 SR1-P (2 units) TS-P (2 units) RDV-P (2 units)	

Note. Specify various controller setting items.

Specifications

Model	MF15	MF15D
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)	54	
Maximum payload ^{Note 1} (kg)	30	
Stroke (mm)	Horizontal	100 to 4000 (100mm pitch) 100 to 3800 (100mm pitch)
	Wall mount	100 to 2000 (100mm pitch) 100 to 1800 (100mm pitch)
Linear guide		
Maximum cross-section outside dimensions (mm)		
Total length (mm)		
Cable length (m)		

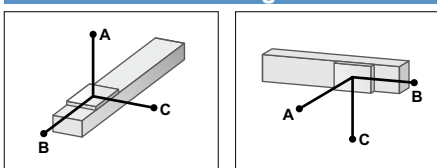
Note. A vertical model (with brake) is not available with the PHASER series. Note. The basic specifications of semi-absolute model are the same as those of the incremental model.

Note 1. Payload per carrier. When the weight exceeds 15 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)
15 or less	2500
20	2200
25	1800
30	1500

Allowable overhang



Horizontal installation (Unit: mm)				Wall installation (Unit: mm)			
	A	B	C		A	B	C
5kg	3000	3000	915	5kg	865	1880	3060
10kg	2604	1542	481	10kg	410	905	2115
15kg	2368	1051	340	15kg	255	575	1910
20kg	1820	600	260	20kg	170	410	1780
25kg	1470	450	175	25kg	120	295	1660
30kg	1250	310	145	30kg	90	215	1440

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

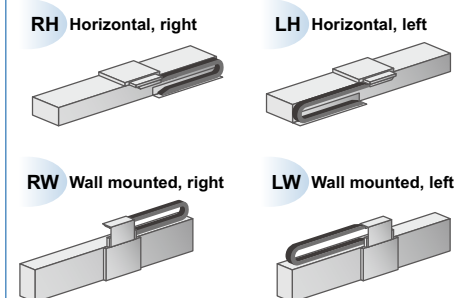
Static loading moment

(Unit: N·m)		
MY	MP	MR
290	291	256

Controller

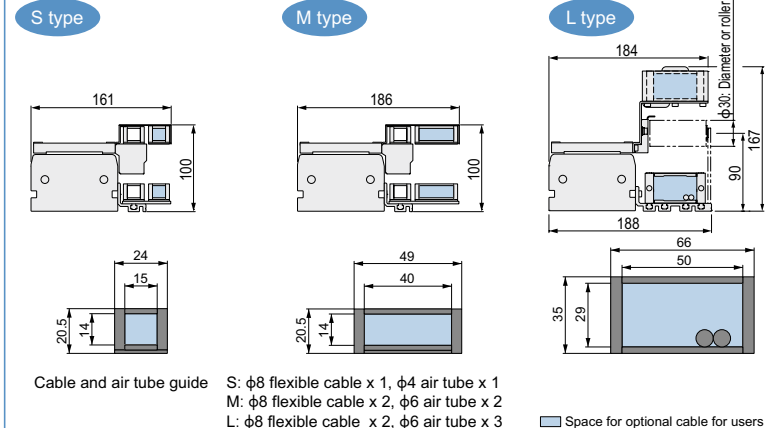
Controller	Operating method
SR1-P10	Programming / I/O point trace / Remote command / Operation using RS-232C communication
RCX320 RCX340	
TS-P110	I/O point trace / Remote command
TS-P210	
RDV-P210-RBR1	Pulse train control

Cable carrier entry location



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

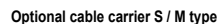


Cable and air tube guide

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

RH



Optional cable carrier L type

Detail of section G

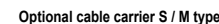
Cross-section of cable carrier

Note 5. 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 6. 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 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.

Weight (kg)	6.3	7.3	8.3	9.3	10.3	11.3	12.3	13.3	14.3	15.4	16.4	17.4	18.4	19.4	20.4	21.4	22.4	23.4	24.4	25.4	26.4	27.4	28.4	29.4	30.4	31.4	32.4	33.4	34.4	35.8	36.8	37.8	38.8	39.8	40.8	41.8	42.8	43.8	44.8	45.8
-------------	-----	-----	-----	-----	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------



Optional cable carrier L type

G section detailed chart

Section drawing of optional cable carrier

Note 4. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.

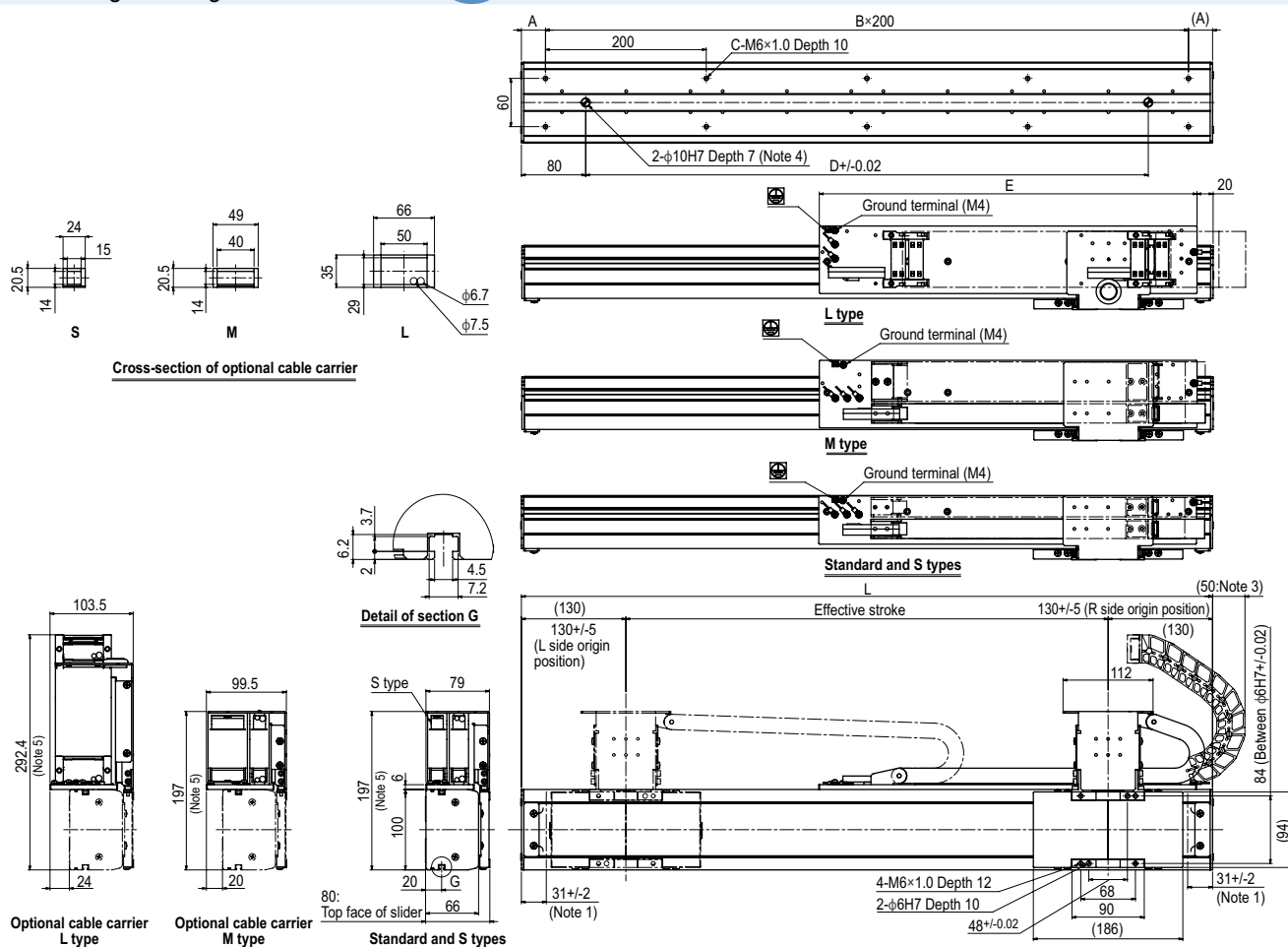
Note 5. For models with a 3,000mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.

Note 6. 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 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.

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	30.6	31.7	32.8	34.0	35.1	36.2	37.4	38.5	39.6	41.0	42.2	43.3	44.4	45.5	46.7	47.8	48.9	50.0	51.2	52.3
--------------------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

MF15/MF15D

MF15 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.

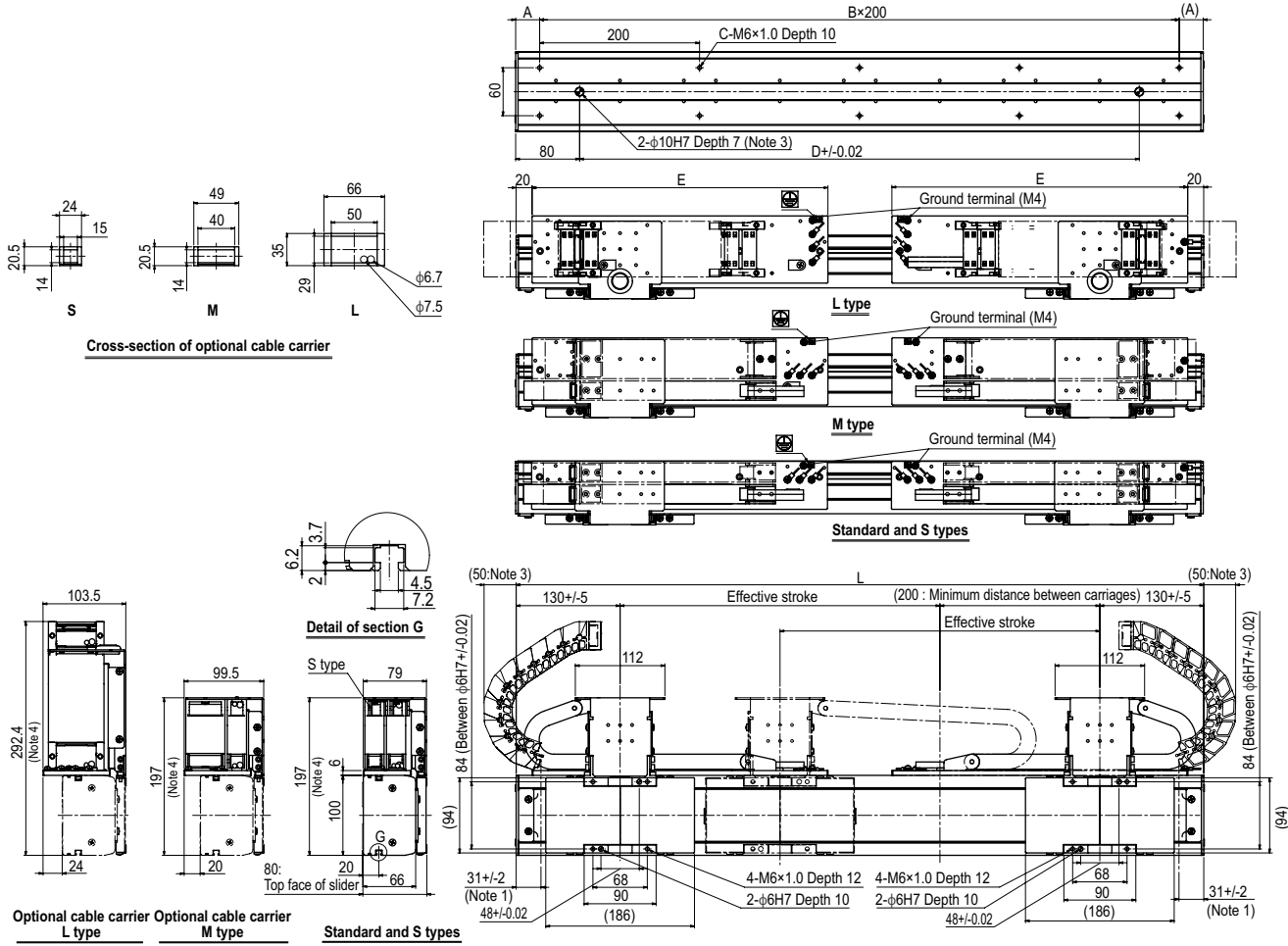
Note 3. Protrusion is the distance the cable carrier extends from the edge of unit when an optional L type cable carrier is used.

Note 4. When using φ10 H7 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.

Effective stroke	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
L	360	460	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	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
C	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24
D	200	300	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	1120	1170
Weight (kg)	6.3	7.3	8.3	9.3	10.3	11.3	12.3	13.3	14.3	15.4	16.4	17.4	18.4	19.4	20.4	21.4	22.4	23.4	24.4	25.4

MF15D double carriage wall mount model **W**



MF20/MF20D

● Can be used for wall-mount

Note. When the weight per carrier exceeds 20 kg, special parameters are applicable.



Ordering method

Single carriage model

MF20							TSP		R		
Model	Cable carrier entry location	Optional cable carrier for users ^{Note 2}	Origin position change	Grease type	Stroke	Cable length ^{Note 3}	Positioner ^{Note 5}	Driver: Power-supply voltage / Power capacity	Regenerative unit	LCD monitor	I/O selection
MF20: Incremental MF20AD: Semi-absolute ^{Note 1}	RH: Horizontal, right LH: Horizontal, left RW: Wall mount, right LW: Wall mount, left	No entry: None S: S type M: M type L: L type	No entry: L side (Standard) Z: R side No entry: R side (Standard) Z: L side	No entry: Standard GC: Clean	150 to 4050 (100mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) ^{Note 4}	TS-P	110: 100V/200W 210: 200V/200W	R: With RGT	No entry: None L: With LCD	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ GW: No I/O board ^{Note 6}
							SR1-P	10	R		
							Controller	Driver: Power capacity	Usable for CE	Regenerative unit	I/O selection
								10: 200W	No entry: Standard E: CE marking	R: With RGT	N: NPN P: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PB: PROFIBUS
							RDV-P	2	10	RBR1	
							Driver	Power-supply voltage	Driver: Power capacity	Regenerative unit	
								2: AC200V	10: 200W or less		

Note 1. When RDV-P is selected, the semi-absolute specifications cannot be selected.

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

MF20D						
Model	Installing direction	Optional cable carrier for users ^{Note 2}	Grease type	Stroke	Cable length	Controller
MF20D: Incremental MF20AD: Semi-absolute ^{Note 1}	H: Horizontal installation W: Wall mount installation	No entry: None S: S type M: M type L: L type	No entry: Standard GC: Clean	150 to 3850 (100mm pitch)	3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) ^{Note 4}	RCX320 SR1-P (2 units) TS-P (2 units) RDV-P (2 units)

Note. Specify various controller setting items.

Specifications

Model	MF20	MF20D
Driving method	Steel cored linear motor with fail 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 W150 x H80	
Maximum cross-section outside dimensions (mm)	(except the cable carrier section)	
Total length (mm)	Stroke+260	Stroke+460
Cable length (m)	Standard: 3.5 / Option: 5.10	

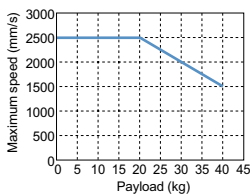
Note. A vertical model (with brake) is not available with the PHASER series.

Note. The basic specifications of semi-absolute model are the same as those of the incremental model.

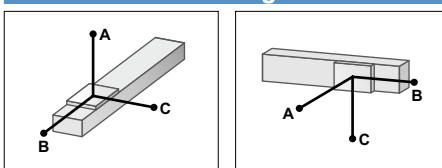
Note 1. Payload per carrier. When the weight exceeds 20 kg, special parameters are applicable. Please consult our sales office or sales representative.

Note 2. Table of maximum speed

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



Allowable overhang



Horizontal installation (Unit: mm)

	A	B	C
10kg	3156	1747	1196
15kg	2811	1176	883
20kg	2679	890	717
25kg	2190	720	505
30kg	1830	605	370
35kg	1580	525	275
40kg	1390	465	225

Wall installation (Unit: mm)

	A	B	C
10kg	1220	1320	2540
15kg	870	850	2200
20kg	670	610	2030
25kg	485	400	1280
30kg	350	325	1050
35kg	265	270	890
40kg	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.

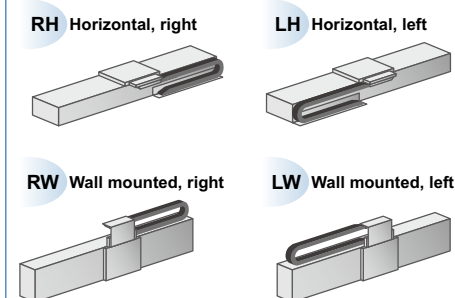
Static loading moment

			(Unit: N·m)
MY	MP	MR	
373	373	328	

Controller

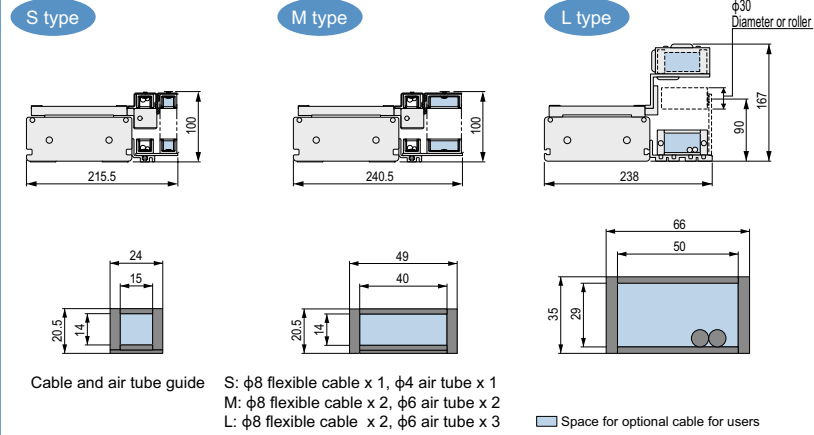
Controller	Operating method
SR1-P10-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication
RCX320-R RCX340	
TS-P110-R	I/O point trace / Remote command
TS-P210-R	
RDV-P210-RBR1	Pulse train control

Cable carrier entry location



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

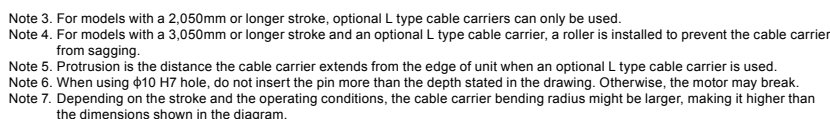


Cable and air tube guide

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

RH

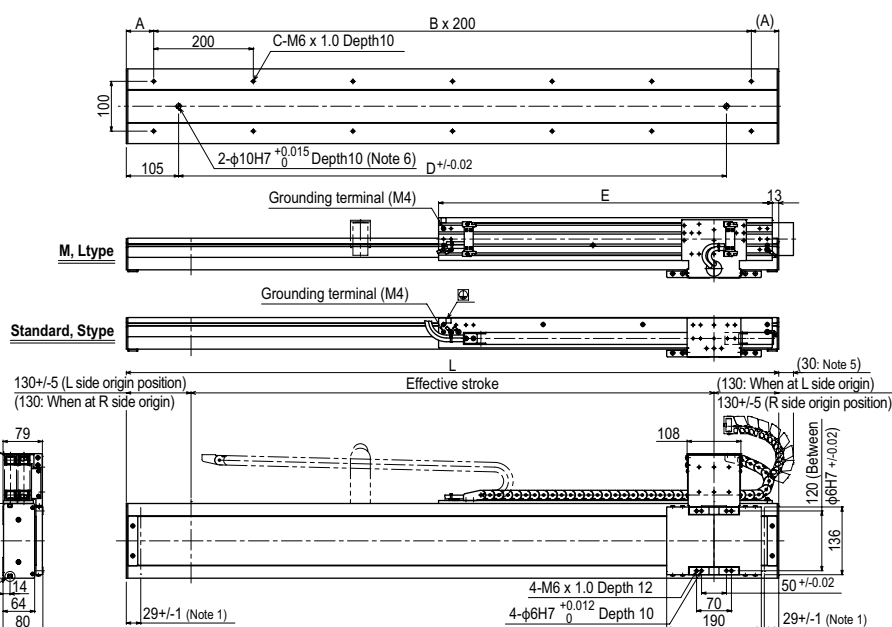


Note 2. The origin is set on the L side at the time of shipment. It can be changed to the R side by parameter setting.

Note 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.

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	3950	4050		
L	410	510	610	710	810	910	1010	1100	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	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	4200	
Weight (kg)	8.4	10.1	11.7	13.5	15.0	16.6	18.1	19.8	21.5	23.1	24.7	26.4	28.2	29.6	31.3	33.2	34.9	36.7	38.3	39.4	41.2	42.7	44.5	46.3	48.2	50.2	52.4	54.5	56.7	58.9	60.6	62.6	64.3	66.3	68.1	69.7	71.7	73.7	75.7	77.7		

RW



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. Protusion 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 $\phi 10$ H7 hole, do not insert the pin more than the depth stated in the drawing. Otherwise, the motor may break.

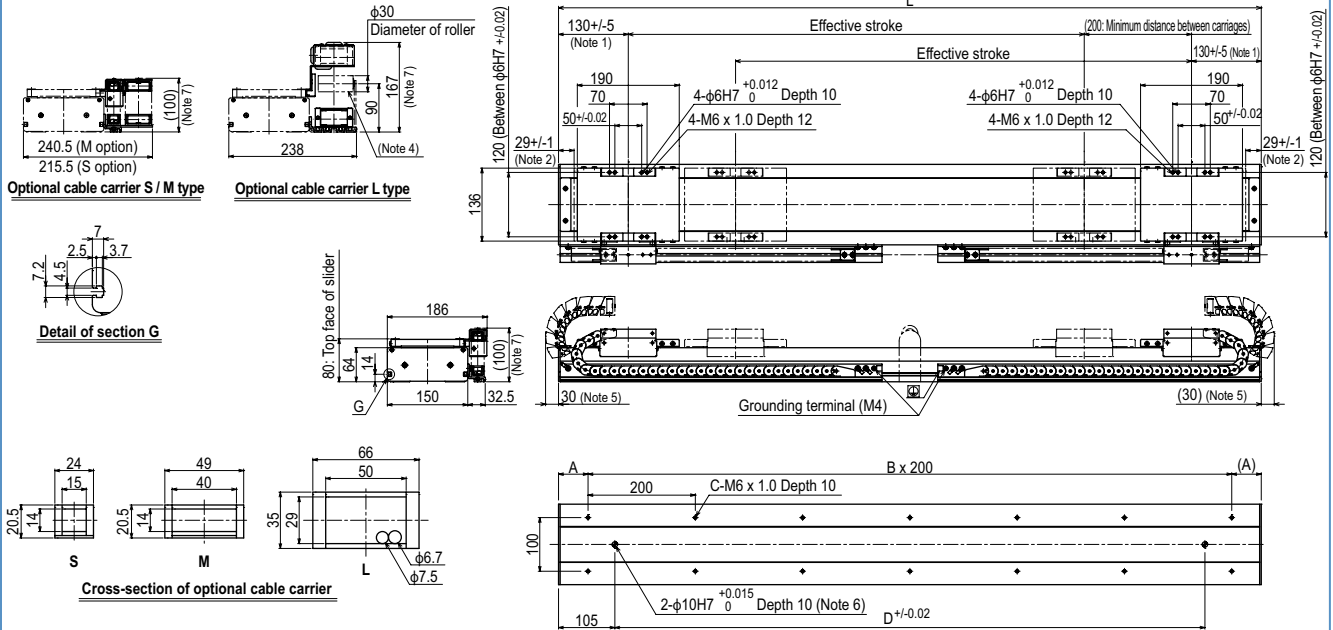
Note 7. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

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	3950	4050						
A	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45				
B	10	55	105	155	205	255	305	355	405	455	505	555	605	655	705	755	805	855	905	955	1005	1055	1105	1155	1205	1255	1305	1355	1405	1455	1505	1555	1605	1655	1705	1755	1805	1855	1905	1955	2005	2055	2105	2155	2205	
C	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45		
D	4	6	6	8	8	8	10	10	12	12	14	14	16	16	18	18	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	46	46	48	48	50
E	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	4200	4300	4400	4500		
F	200	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	2220	2270	2320	2370	2420	2470	
Weight (kg)	8.4	10.1	11.7	13.4	15.0	16.6	18.2	19.8	21.2	22.3	23.4	24.6	26.2	28.2	29.6	31.2	33.2	34.9	36.3	37.8	39.4	41.2	42.7	44.4	46.2	48.2	50.2	52.4	54.5	56.5	58.6	60.7	62.8	64.9	67.1	69.2	71.4	73.5	75.6	77.7	79.8	81.9	84.0			

MF20/MF20D

MF20D double carriage horizontal mount model

H

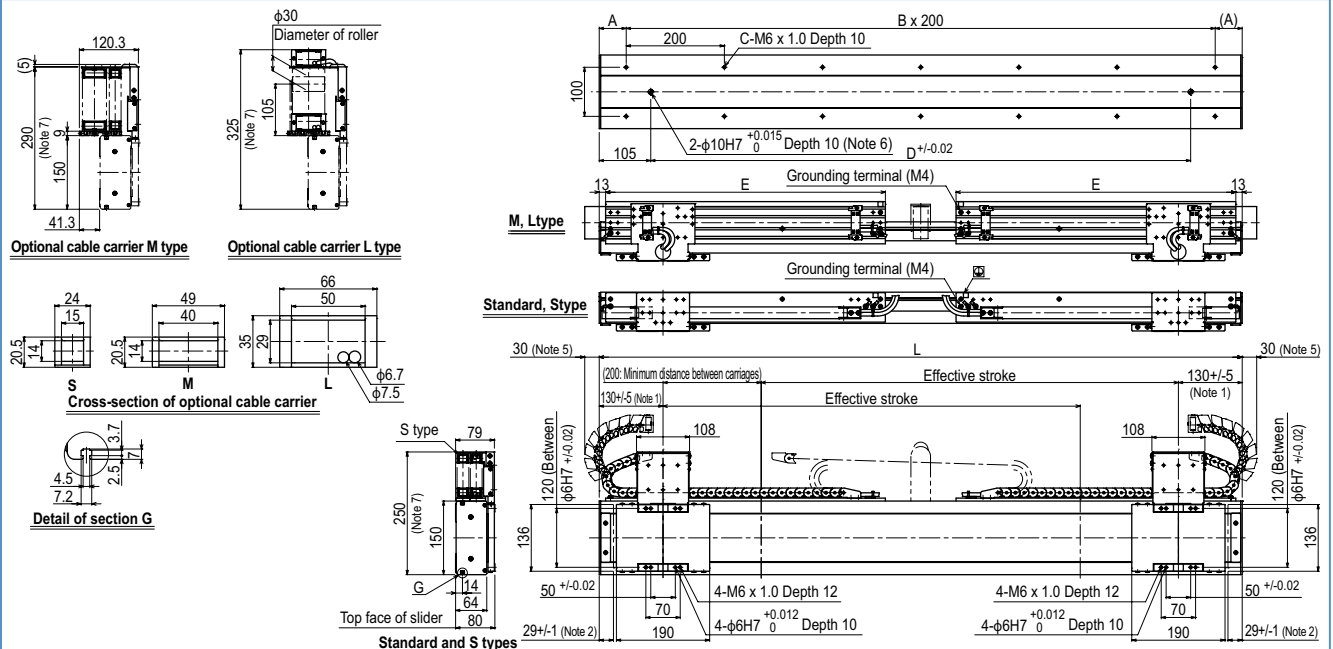


- Note 1. Position of table carriage when returned to the origin.
Note 2. Stop positions are determined by the mechanical stoppers at both ends.
Note 3. For models with a 2,050mm or longer stroke, optional L type cable carriers can only be used.
Note 4. For models with a 3,050mm or longer stroke and an optional L type cable carrier, a roller is installed to prevent the cable carrier from sagging.
Note 5. 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 $\phi 10$ H7 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.

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
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
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
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	37.1	38.8	40.5	42.2	43.9	45.6	47.3	49.0	50.7	52.4	54.1	55.8	57.5	59.2	60.9	62.6	64.3	66.0	67.7	69.4	71.1	72.8	74.5	76.2	77.9

MF20D 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. 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 $\phi 10$ H7 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.

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
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
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
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	37.1	38.8	40.5	42.2	43.9	45.6	47.3	49.0	50.7	52.4	54.1	55.8	57.5	59.2	60.9	62.6	64.3	66.0	67.7	69.4	71.1	72.8	74.5	76.2	77.9

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		TSP		220		R					
Model MF30: Incremental MF30AD: 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 Horizontal No entry: L side (Standard) Z: R side Wall No entry: R side (Standard) Z: L side	Grease type No entry: Standard GC: Clean	Stroke 100 to 4000 (100mm pitch)	Cable length^{Note 3} 3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) ^{Note 4}	Positioner^{Note 5} TS-P	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^{Note 5}		Driver: Power capacity 20: 400 to 600W		Usable for CE No entry: Standard E: CE marking		Regenerative unit R: With RGT		I/O selection N: NPN P: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PB: PROFIBUS	
		RDV-P		2		20		RBR1			
		Driver		Power-supply voltage 2: AC200V		Driver: Power capacity 20: 400W or less		Regenerative unit			

- 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

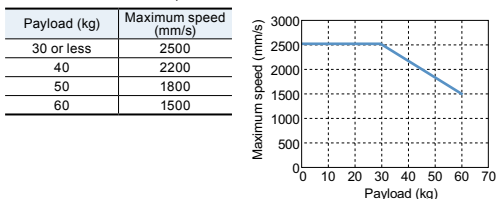
MF30D		Installing direction IH: Horizontal installation IW: Wall mount installation		Optional cable carrier for users^{Note 2} No entry: None S: S type M: M type L: L type		Grease type No entry: Standard GC: Clean		Stroke 150 to 3750 (100mm pitch)		Cable length 3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable) ^{Note 4}		Controller RCX320 SR1-P (2 units) TS-P (2 units) RDV-P (2 units)	
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Note. Specify various controller setting items.

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 × 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



Allowable overhang

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.

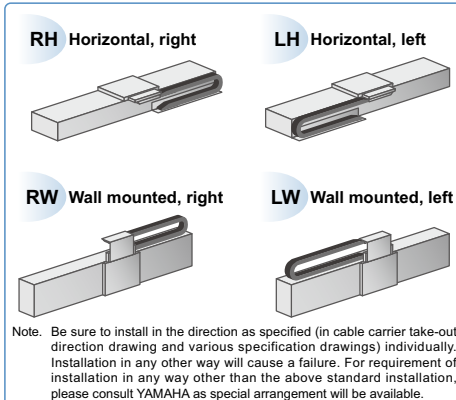
Static loading moment

(Unit: N·m)			
	MY	MP	MR
	373	373	328

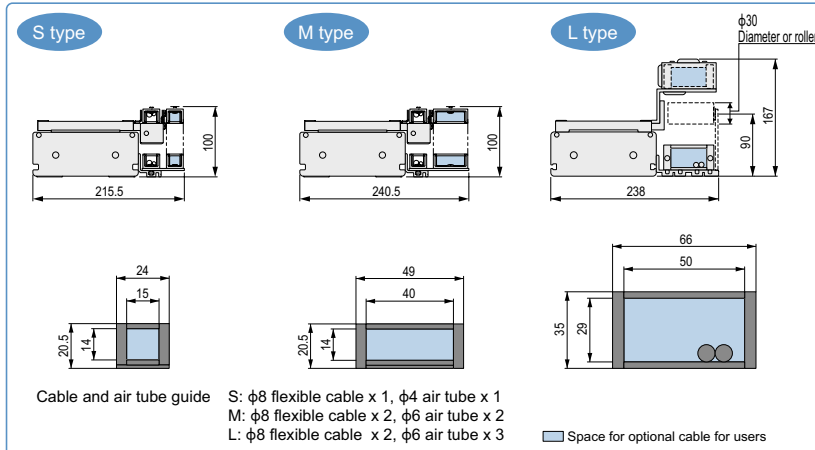
Controller

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

Cable carrier entry location



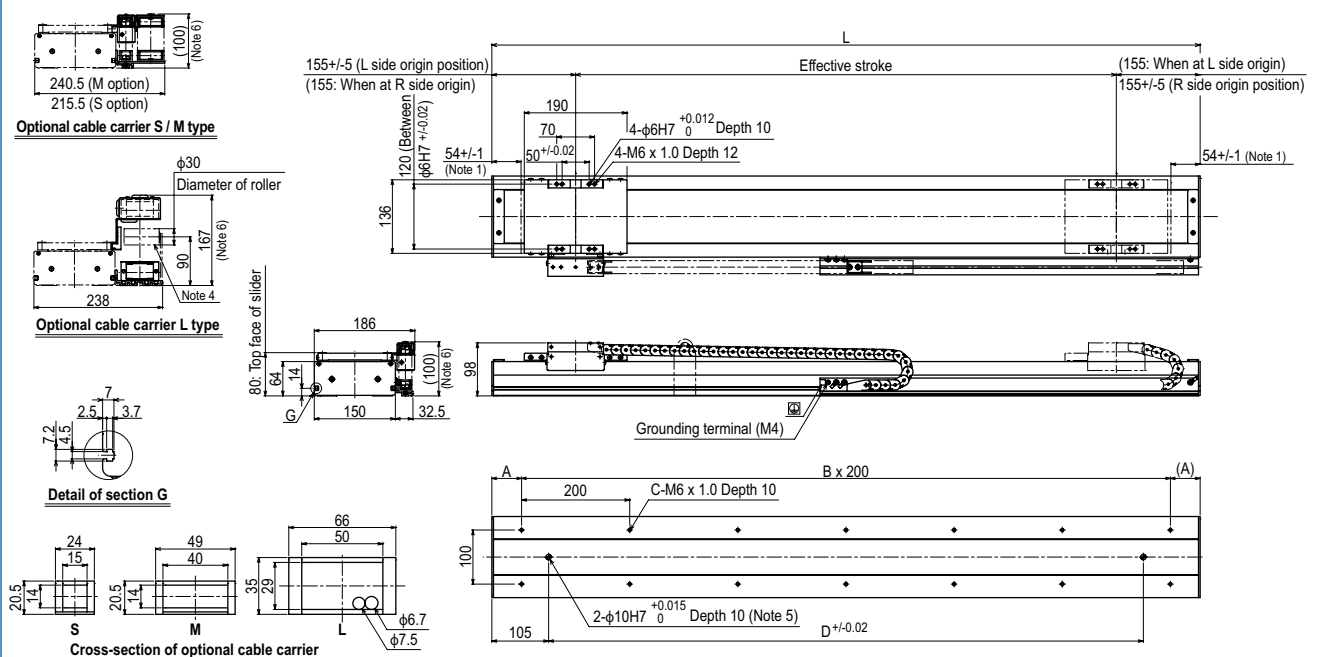
Optional cable carrier for users



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.

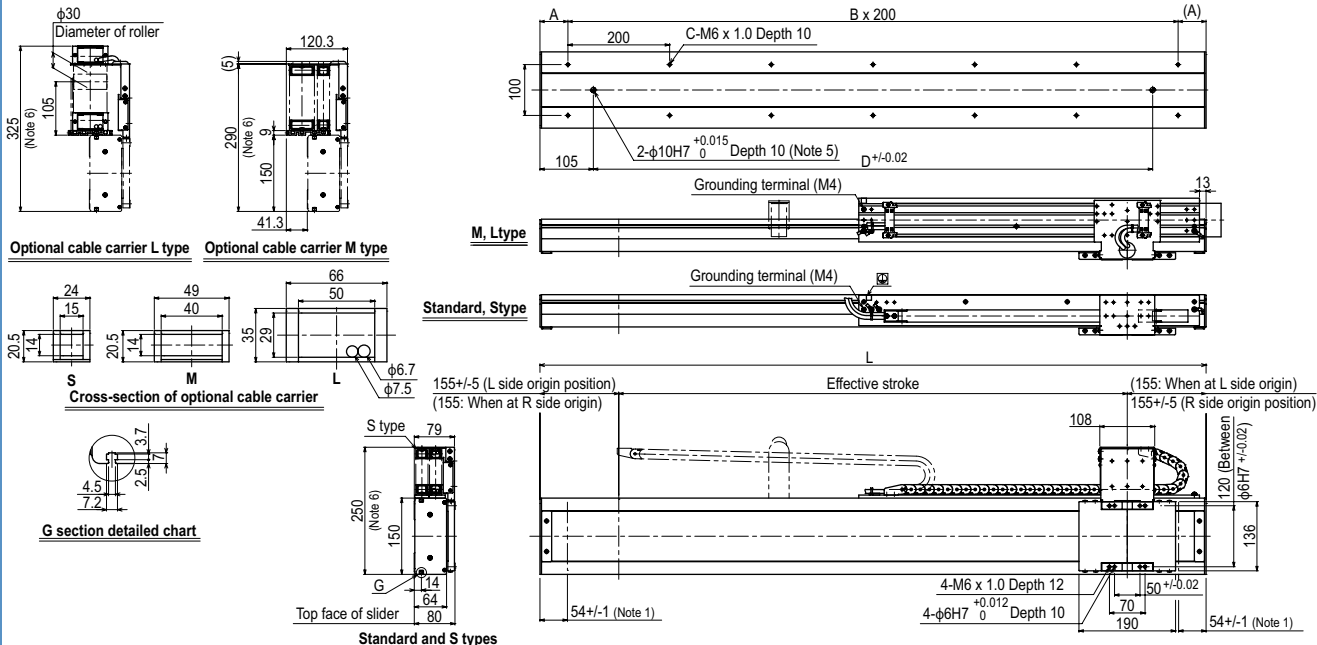
Note 3. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.

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 $\phi 10$ 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	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
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	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420
Weight (kg)	9.0	17.0	12.3	19.5	16.7	17.2	18.8	20.2	123.7	25.3	32.7	28.6	30.2	31.9	33.5	35.6	37.8	44.0	41.6	43.4	44.6	45.8	47.1	48.5	49.8	51.1	52.4	53.7	55.0	56.3	57.6	58.9	60.2	61.5	62.8	64.1	65.4	66.7	68.0	69.3	70.6

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.

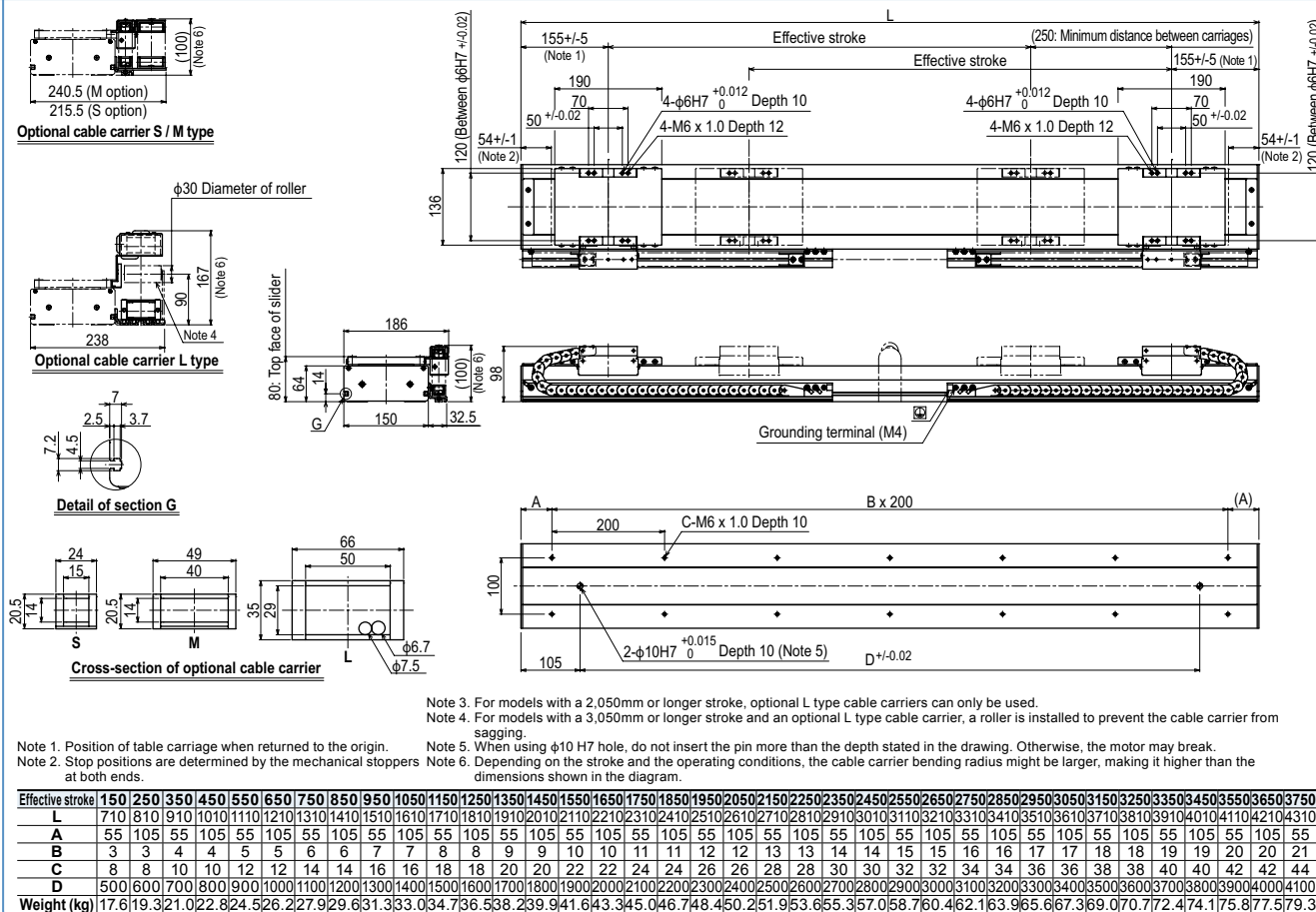
Note 3. For models with a 2,100mm or longer stroke, optional L type cable carriers can only be used.

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 $\phi 10$ 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		
A	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					
B	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		
C	4	2	3	4	3	4	5	6	5	6	7	8	9	8	9	10	11	11	12	13	14	15	16	17	18	19	20	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
D	4	6	6	8	8	10	12	12	14	14	16	16	18	18	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	46	46	
E	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			
F	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	20.2	21.7	23.2	24.7	26.3	27.8	29.3	31.3	33.3	35.3	37.3	39.3	41.3	43.3	45.3	47.3	49.3	51.3	53.3	55.3	57.3	59.3	61.3	63.3	65.3	67.3	69.3	71.3	73.3	75.3	77.3	79.3	81.3	83.3	85.3

MF30D double carriage horizontal mount model **H**

Note 1. Position of table carriage when returned to the origin.

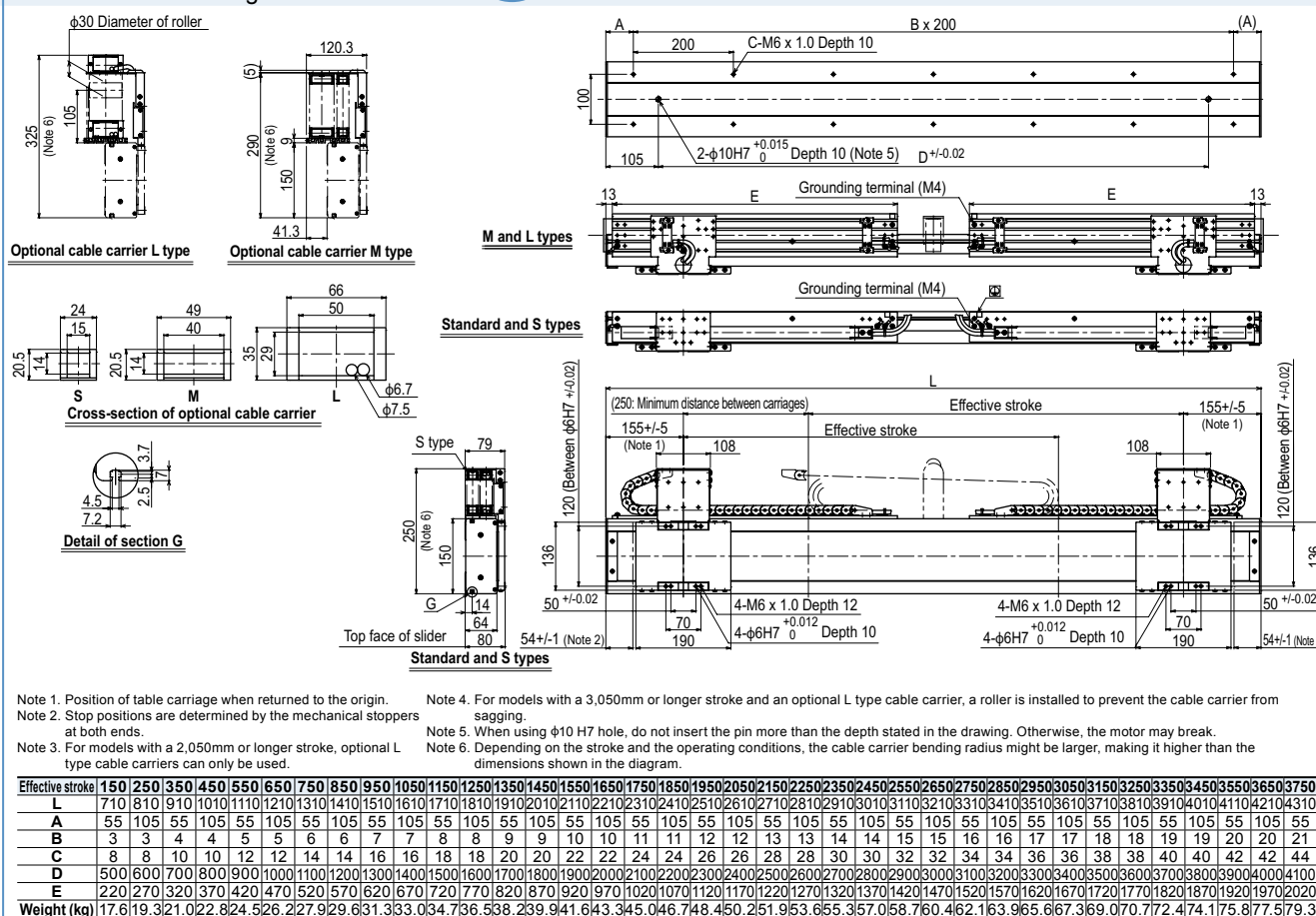
Note 2. Stop positions are determined by the mechanical stoppers at both ends.

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.

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.

MF75/MF75D

Note. When the weight per carrier exceeds 75 kg, special parameters are applicable.



Ordering method

Single carriage model

MF75						TSP					220				R		LCD monitor		I/O selection	
Model						Positioner					Driver: Power-supply voltage / Power capacity				Regenerative unit		No entry: None L: With LCD		NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ GW: No I/O board	
MF75A: Semi-absolute						TS-P					220: 200V/400 to 600W				R: With RGU-2					
Cable carrier entry location						SR1-P					20				Usable for CE		Regenerative unit		I/O selection	
RH: Horizontal, right LH: Horizontal, left						Controller					Driver: Power capacity				No entry: Standard E: CE marking		R: With RGU-2		N: NPN P: PNP CC: CC-Link DN: DeviceNet™ PB: PROFIBUS	
Origin position change						RDV-P					2									
No entry: L side (Standard)						Driver					Power-supply voltage									
No entry: Standard GC: Clean											2: AC200V									
Stroke											25									
1000 to 4000 (100mm pitch)											Driver: Power capacity									
Cable length											25: 750W or less									
3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)																				

Note 1. When RDV-P is selected, the semi-absolute specifications cannot be selected.
 Note 2. 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 3. If a flexible cable is needed for the SR1-P, TS-P, or RDV-P, then select 3K/5K/10K.
 Note 4. These controllers can be mounted on DIN rails. See P.600 for details.
 Note 5. 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

MF75D		H									
Model		Installing direction		Grease type		Stroke		Cable length		Controller	
MF75D: Incremental MF75AD: Semi-absolute		H: Horizontal installation		No entry: Standard GC: Clean		680 to 3680 (100mm pitch)		3L: 3.5m 5L: 5m 10L: 10m 3K/5K/10K (Flexible cable)		RCX320 SR1-P (2 units) TS-P (2 units) RDV-P (2 units)	

Note. Specify various controller setting items.

Specifications

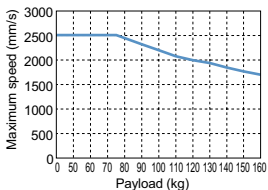
Model	MF75	MF75D
Driving method	Steel cored linear motor with falt magnet	
Repeatability (μm)	+/- 5	
Scale (μm)	Magnetic type: resolution of 1	
Maximum speed ^{Note 2} (mm/sec)	2500	
Rated thrust (N)	260	
Maximum payload ^{Note 1} (kg)	160	
Stroke (mm)	1000 to 4000 (100mm pitch)	680 to 3680 (100mm pitch)
Linear guide	4 rows of circular arc grooves x 2 rail W210xH100 (except the cable carrier section)	
Maximum cross-section outside dimensions (mm)		
Total length (mm)	Stroke+360	Stroke+680
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.

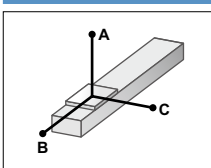
Note 1. Payload per carrier. When the weight exceeds 75 kg, special parameters are applicable. Please consult our sales office or sales representative.

Note 2. Table of maximum speed

Payload (kg)	Maximum speed (mm/s)
75 or less	2500
90	2310
100	2200
110	2090
120	2000
130	1920
140	1840
150	1770
160	1700



Allowable overhang

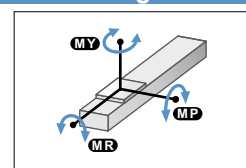


Horizontal installation (Unit: mm)

	A	B	C
20kg	3397	2841	1840
40kg	2795	1389	964
60kg	2200	530	450
80kg	1800	175	150
100kg	1500	130	110
120kg	1250	100	80
140kg	1100	80	65
160kg	950	60	50

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)

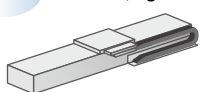
MY	MP	MR
830	831	730

Controller

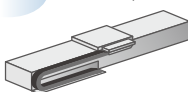
Controller	Operating method
SR1-P20-R	Programming / I/O point trace / Remote command / Operation using RS-232C communication
RCX320-R RCX340	I/O point trace / Remote command
TS-P220-R	Pulse train control
RDV-P225-RBR2	

Cable carrier entry location

RH Horizontal, right

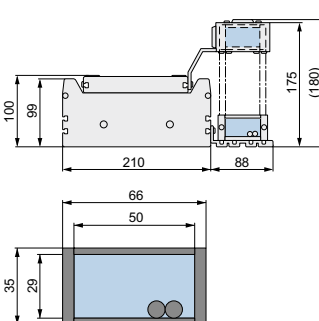


LH Horizontal, left



Note. Be sure to install in the direction as specified (in cable carrier take-out 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.

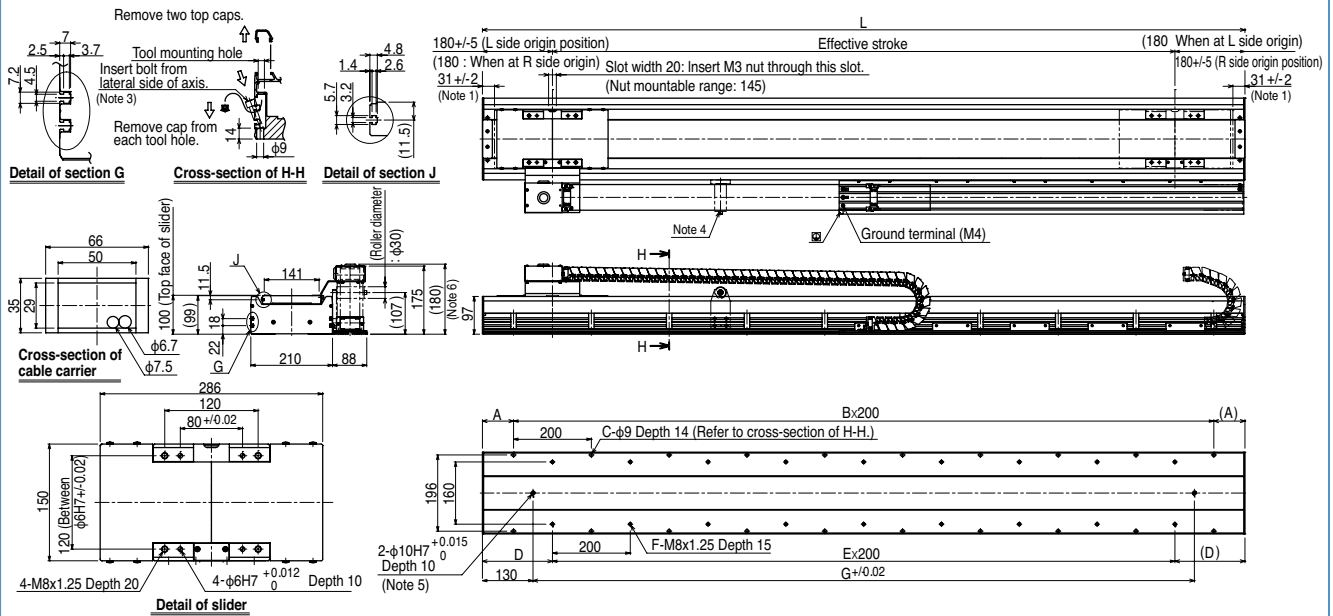
Cable carrier



Cable and air tube guide φ8 flexible cable x 2, φ6 air tube x 3

Space for optional cable for users

MF75 single carriage horizontal mount model (RH)



Note 3. The length under head of M8 hex socket head bolts for installing the robot body must not be longer than 30mm.

Note 4. For models with a 3,000mm or longer stroke, 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.

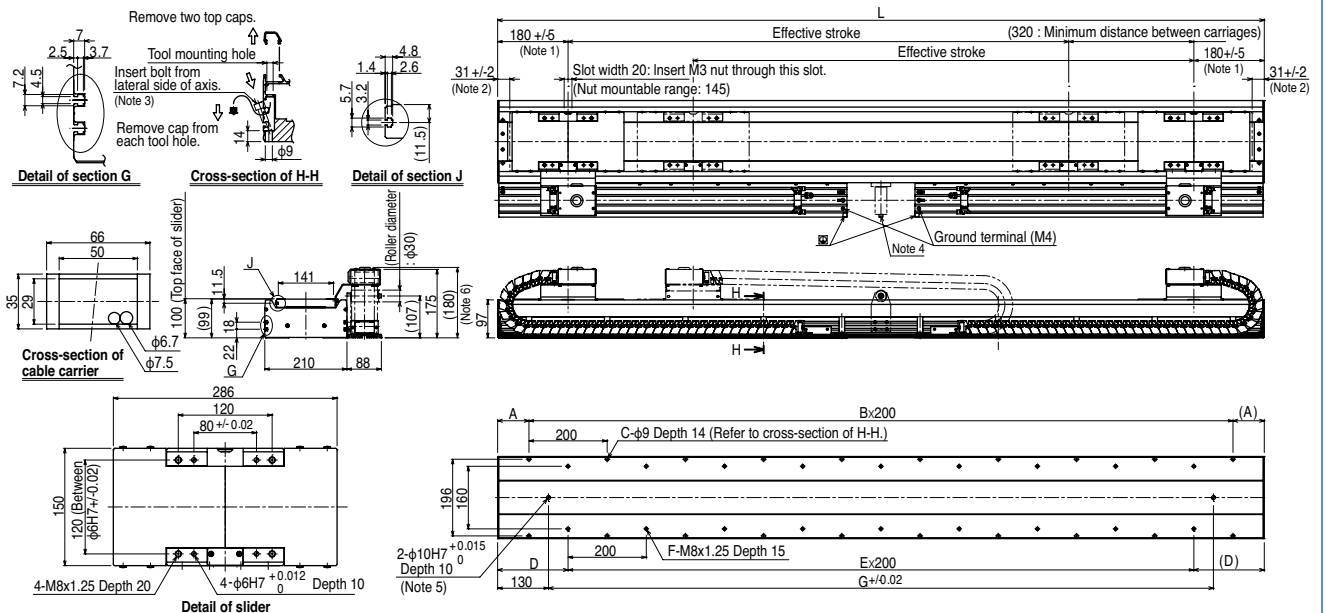
Note 6. Depending on the stroke and the operating conditions, the cable carrier bending radius might be larger, making it higher than the dimensions shown in the diagram.

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	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	1360	1460	1560	1660	1760	1860	1960	2060	2160	2260	2360	2460	2560	2660	2760	2860	2960	3060	3160	3260	3360	3460	3560	3660	3760	3860	3960	4060	4160	4260	4360
A	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80
B	5	5	7	7	7	7	9	9	9	11	11	11	11	11	13	13	13	13	15	15	15	15	17	17	17	17	19	19	19	19	21
C	12	12	16	16	16	16	20	20	20	24	24	24	24	24	28	28	28	28	32	32	32	32	36	36	36	36	40	40	40	40	44
D	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180
E	6	6	6	6	8	8	8	8	10	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
F	14	14	14	14	18	18	18	18	22	22	22	22	22	26	26	26	26	30	30	30	30	34	34	34	34	38	38	38	38	42	42
G	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)	46	49	51	54	56	59	61	64	66	69	71	74	76	79	81	84	86	89	91	94	96	99	101	104	106	109	111	114	116	119	121

MF75D double carriage mount model (H)



Note 3. The length under head of M8 hex socket head bolts for installing the robot body must not be longer than 30mm.

Note 4. For models with a 3,080mm or longer stroke, 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	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
L	1360	1460	1560	1660	1760	1860	1960	2060	2160	2260	2360	2460	2560	2660	2760	2860	2960	3060	3160	3260	3360	3460	3560	3660	3760	3860	3960	4060	4160	4260	4360
A	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80
B	5	5	7	7	7	7	9	9	9	11	11	11	11	11	13	13	13	13	15	15	15	15	17	17	17	17	19	19	19	19	21
C	12	12	16	16	16	16	20	20	20	24	24	24	24	24	28	28	28	28	32	32	32	32	36	36	36	36	40	40	40	40	44
D	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180
E	6	6	6	6	8	8	8	8	10	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20
F	14	14	14	14	18	18	18	18	22	22	22	22	22	26	26	26	26	30	30	30	30	34	34	34	34	38	38	38	38	42	42
G	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)	57	60	62	65	67	70	73	75	78	81	83	86	88	91	94	96	99	101	104	107	109	112	114	117	120	122	125	127	130	133	135