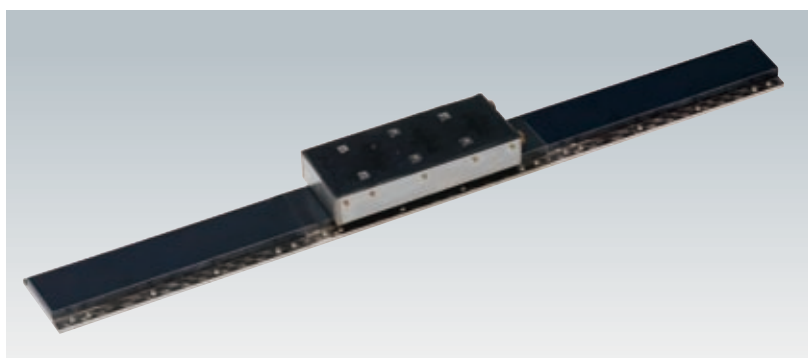


New linear servo motor that meets NC machine tool's requirements; high-speed, high-accuracy and environmental resistance.

A total of 9 types are available.

The continuous thrust force is doubled, when used under liquid-cooling system with an external cooling equipment.



Motor size

9 types of dimensions as standard
(length: from 170mm to 1010mm, width: from 120mm to 240mm)

Maximum thrust

900N (170mm x 120mm)
up to 18000N (1010mm x 240mm)

Power cable direction

Possible to draw out the power cable in parallel to or vertical to the movement direction.

Enhanced maximum thrust

Supports high acceleration/deceleration operation

Optimized magnetic circuit and improved motor material have realized an increase of maximum thrust and downsizing of motor.

Higher accuracy

Reduced cogging torque by 20% from the previous model

Motor's cogging torque, which affects interpolation control accuracy, has been reduced by optimizing magnetic circuit.

Lower heat generation

Reduced energy loss by 37% from the previous model

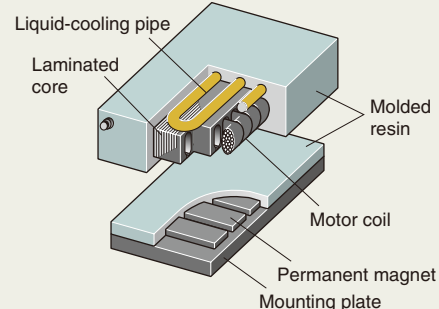
Improved magnet's energy efficiency and the coils with higher density have lowered resistance, which contributes to a realization of lower heat generation (lower loss).

Protective structure

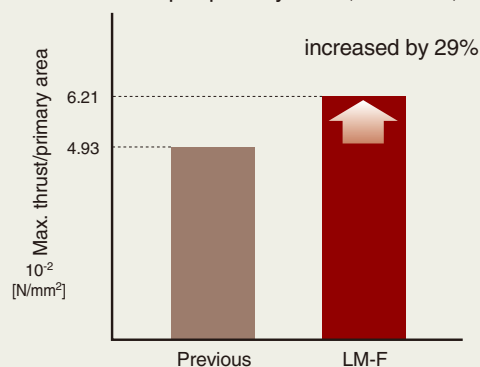
SUS cover adopted

Primary side coil is molded with resin and also protected with metallic cover (SUS).

Structure



Maximum thrust per primary area (3000N class)



Explanation of type

Primary side [coil side] LM-FP①②-③ M-1WW0

① Width

Symbol	Width (nominal)
2	120 mm
4	200 mm
5	240 mm

② Length

Symbol	Length (nominal)
A	170 mm
B	290 mm
D	530 mm
F	770 mm
H	1010 mm

③ Rated thrust

Symbol	Rated thrust
03	300 N
06	600 N
12	1200 N
18	1800 N
24	2400 N
36	3600 N
48	4800 N
60	6000 N

Secondary side [magnet side]

LM-FS①0-②-1WW0

① Width

Symbol	Width (nominal)
2	120 mm
4	200 mm
5	240 mm

② Length

Symbol	Length (nominal)
384	384 mm (*Note 1)
480	480 mm
576	576 mm

(*Note 1) 384mm is available only in LM-F20.

LM-F series

Linear servo motor type	Primary side type	LM-FP2A-03M	LM-FP2B-06M	LM-FP2D-12M	LM-FP2F-18M	LM-FP4B-12M
	Secondary side type	LM-FS20	LM-FS20	LM-FS20	LM-FS20	LM-FS40
Compatible drive unit	1-axis type	MDS-D-V1-40	MDS-D-V1-40	MDS-D-V1-80	MDS-D-V1-160	MDS-D-V1-80
	2-axis type	MDS-D-V2-4020 MDS-D-V2-4040 MDS-D-V2-8040	MDS-D-V2-4020 MDS-D-V2-4040 MDS-D-V2-8040	MDS-D-V2-8040 MDS-D-V2-8080 MDS-D-V2-16080	MDS-D-V2-16080 MDS-D-V2-160160	MDS-D-V2-8080 MDS-D-V2-16080
Thrust force						
Rated thrust force		300 [N]	600	1200	1800	1200
Maximum speed (*Note 1)		2.0 [m/s]	2.0	2.0	2.0	2.0
Magnetic attraction force		2500 [N]	4500	9000	13500	9000
Protection level		IP00	IP00	IP00	IP00	IP00
Outline dimension drawings [mm]						
Mass [kg]	Primary side (coil)	5	9	18	27	14
	Secondary side (magnet)	5.8 (384mm) 7.1 (480mm) 9.0 (576mm)	5.8 (384mm) 7.1 (480mm) 9.0 (576mm)	5.8 (384mm) 7.1 (480mm) 9.0 (576mm)	5.8 (384mm) 7.1 (480mm) 9.0 (576mm)	13.5 (480mm) 16.0 (576mm)

Linear servo motor type	Primary side type	LM-FP4D-24M	LM-FP4F-36M	LM-FP4H-48M	LM-FP5H-60M
	Secondary side type	LM-FS40	LM-FS40	LM-FS40	LM-FS50
Compatible drive unit	1-axis type	MDS-D-V1-160	MDS-D-V1-320	MDS-D-V1-320	MDS-DH-V1-200 (*Note 2)
	2-axis type	MDS-D-V2-16080 MDS-D-V2-160160	-	-	-
Thrust force					
Rated thrust force		2400 [N]	3600	4800	6000
Maximum speed (*Note 1)		2.0 [m/s]	2.0	2.0	2.0
Magnetic attraction force		18000 [N]	27000	36000	45000
Protection level		IP00	IP00	IP00	IP00
Outline dimension drawings [mm]					
Mass [kg]	Primary side (coil)	28	42	56	67
	Secondary side (magnet)	13.5 (480mm) 16.0 (576mm)	13.5 (480mm) 16.0 (576mm)	13.5 (480mm) 16.0 (576mm)	20.0 (480mm) 26.0 (576mm)

(*Note 1) The maximum speed in actual use is either the linear scale's maximum speed or this specified value, whichever is smaller.

(*Note 2) 400V specifications

LM-F Series (Dual-axis drive unit)

Linear servo motor type	Primary side type	LM-FP2A-03M	LM-FP2B-06M	LM-FP2D-12M
	Secondary side type	LM-FS20	LM-FS20	LM-FS20
Compatible drive unit	1-axis type	MDS-D-V1-80	MDS-D-V1-80	MDS-D-V1-160
	2-axis type	MDS-D-V2-8040 MDS-D-V2-8080 MDS-D-V2-16080	MDS-D-V2-8040 MDS-D-V2-8080 MDS-D-V2-16080	MDS-D-V2-16080 MDS-D-V2-160160
Thrust force				
Rated thrust force		600 [N]	1200	2400
Maximum speed (*Note 1)		2.0 [m/s]	2.0	2.0
Magnetic attraction force(per motor)		2500 [N]	4500	9000
Protection level		IP00	IP00	IP00
Outline dimension drawings [mm]				
Mass [kg]	Primary side (coil)	5×2	9×2	18×2
	Secondary side (magnet)	5.8 (384mm) 7.1 (480mm) 9.0 (576mm)	5.8 (384mm) 7.1 (480mm) 9.0 (576mm)	5.8 (384mm) 7.1 (480mm) 9.0 (576mm)

Linear servo motor type	Primary side type	LM-FP2F-18M	LM-FP4B-12M	LM-FP4D-24M
	Secondary side type	LM-FS20	LM-FS40	LM-FS40
Compatible drive unit	1-axis type	MDS-D-V1-320	MDS-D-V1-160	MDS-D-V1-320
	2-axis type	-	MDS-D-V2-160160	-
Thrust force				
Rated thrust force		3600 [N]	2400	4800
Maximum speed (*Note 1)		2.0 [m/s]	2.0	2.0
Magnetic attraction force(per motor)		13500 [N]	9000	18000
Protection level		IP00	IP00	IP00
Outline dimension drawings [mm]				
Mass [kg]	Primary side (coil)	27×2	14×2	28×2
	Secondary side (magnet)	5.8 (384mm) 7.1 (480mm) 9.0 (576mm)	13.5 (480mm) 16.0 (576mm)	13.5 (480mm) 16.0 (576mm)

(*Note 1) The maximum speed in actual use is either the linear scale's maximum speed or this specified value, whichever is smaller.

Available detector (linear scale)

Absolute position detector

Manufacturer	Type	Maximum feedrate	Detector resolution
HEIDENHAIN	LC193M LC493M	180m/min	0.1μm/0.05μm/0.01μm
Sony MS	SR77 SR87	200m/min	0.1μm/0.05μm/0.01μm
Mitutoyo	AT343	120m/min	0.05μm
	AT543	150m/min	0.05μm
	AT545S	150m/min	0.005μm
	AT545H	72m/min	0.005μm
	ST743	300m/min	0.1μm

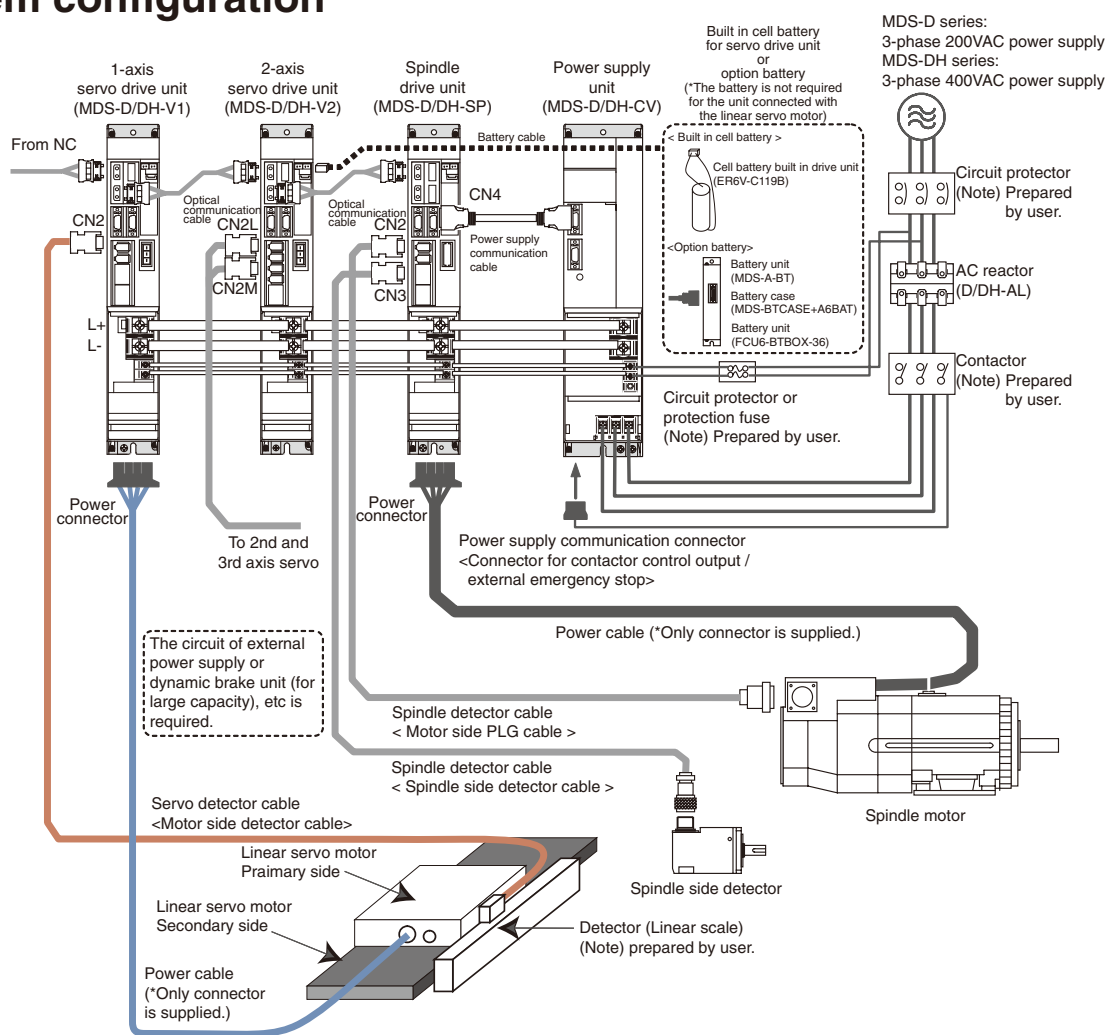
Incremental detector

Manufacturer	Type	Maximum feedrate	Detector resolution
HEIDENHAIN	LS187 LS487	240m/min	0.039μm
	LB382	480m/min	0.078μm
	LF181 LF481	48m/min	0.0078μm
	LIF181 LIF481 LIF581	48m/min	0.0078μm
	LIDA48X LIDA58X	240m/min	0.039μm
	SH12	480m/min	0.078μm
	SR33	480m/min	0.078μm
Sony MS			

CAUTION !

1. The above value does not guarantee the accuracy of the system.
2. The above-mentioned detector should be prepared by user. Be sure to inquire of the relevant manufacturer about specifications of the detector beforehand.
3. The above value will be limited to the maximum speed (120m/min) of the linear servo motor.

System configuration



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