CATALOGUE

MM F3 MAGNET-FREE TRACK LINEAR MOTORS

Motion Control Products Limited

Version 6.0 @ 2023

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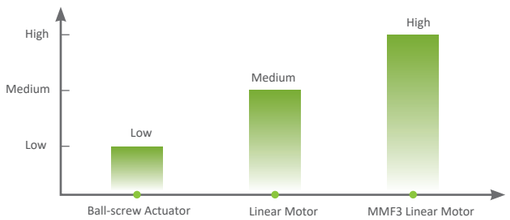
ADVANTAGES OF MMF3 LINEAR MOTORS

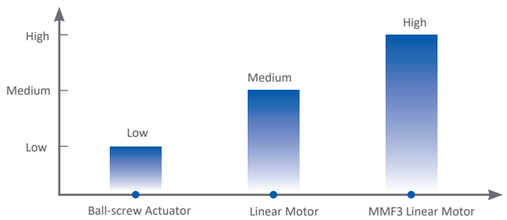
Cost-Effective Ratio



HIGHER COST EFFECTIVE

Due to much less amount of magnets applied compared to conventional linear motors, MMF3 linear motor price is much more cost effective.

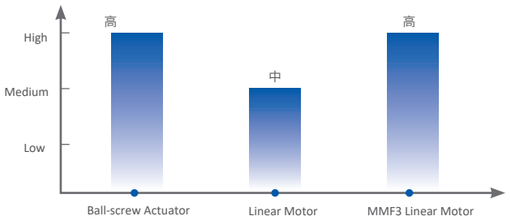
Reliability



HIGHER RELIABILITY

Using non-contact drive,and no magnet on the stator, there is no risk of degumming.

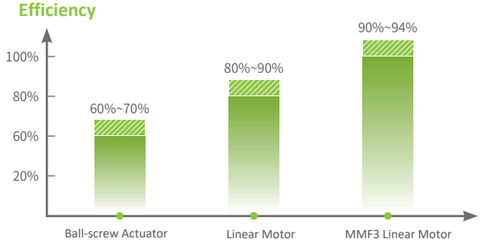
Safety



MORE SAFETY

No magnetic field on the stator, MMF3 linear motor will not affect medical AIDS such as cardiac pacemakers,and the safety during installation process is greatly improved.

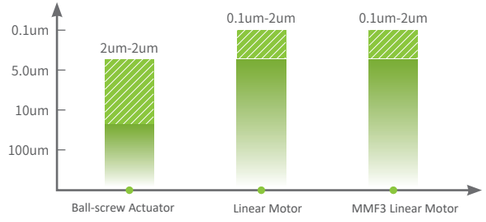
Efficiency



HIGHER EFFICIENCY

Unique patented design, small calorific value, linear motor efficiency is more than 90%.

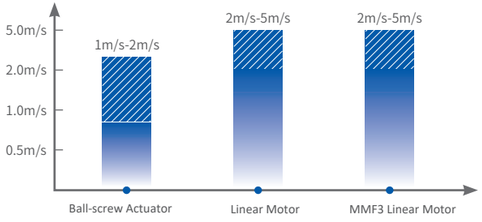
Accuracy



HIGHER PRECISION

Control method is completely same as that of conventional linear motor, and can obtain much higher accuracy than the ball screw.

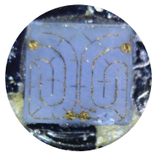
Speed



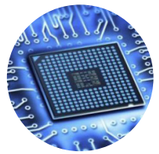
HIGH SPEED

Same as conventional linear motor control, MMF3 linear motor can achieve much higher speed than the ball screw actuator.

The Applications of MMF3 Linear Motors


Ic Package

Testing Of Semiconductor Equipments


Ic Patching

Photovoltaic Panel Manufacture

Lithium Battery Manufacture

Laser Cutting Equipment

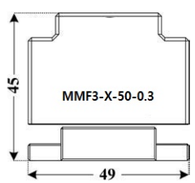
Medical Instruments

Machine Tools

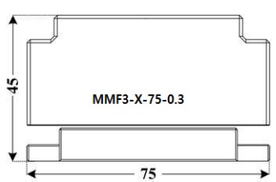
Optical Equipment

Display Panel Manufacture

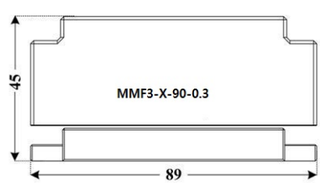
MMF3 MOVER AND STATOR QUICK SELECTION TABLE



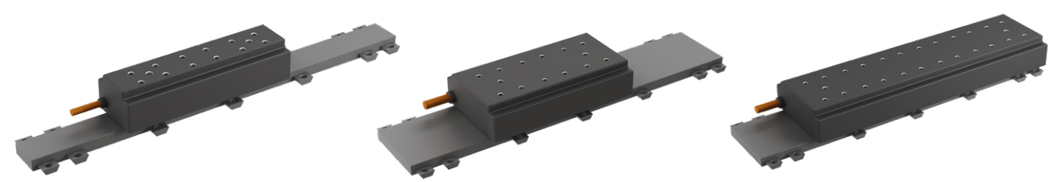
MMF3-50 Series



MMF3-75 Series



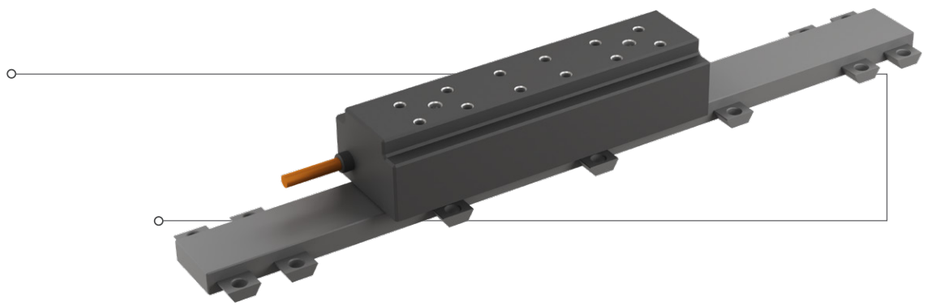
MMF3-90 Series



	MMF3-S1-50-A	MMF3-S1-50-B	MMF3-S1-75-A	MMF3-S1-75-B	MMF3-S1-90-A	MMF3-S1-90-B
Cont. Force N	46.0	60.0	104.0	138.0	124.0	165.0
Peak Force N	165.0	190.0	349.0	414.0	443.0	509.0
Cont. Current Arms	3.0	4.0	3.0	4.0	3.0	4.0
Peak Current Arms	12.0	16.0	12.0	16.0	12.0	16.0
Resistance L-L Ohm	1.6	1.6	1.6	1.6	1.8	1.8
Inductance L-L mH	8.9	8.9	12.4	12.4	14.2	14.2
Force Constant N/A $_{rms}$	15.3	15.3	34.7	34.7	41.3	41.3
Back EMF Sonstant Vpeak/(m/s)	17.0	17.0	32.5	32.5	42.3	42.3
Magnetic Period mm	9.0	9.0	9.0	9.0	9.0	9.0
Attraction Force N	650.0	650.0	1140.0	1140.0	1540.0	1540.0
Maximum Coil Temperature °C	100.0	100.0	100.0	100.0	100.0	100.0
Motor Constant N/sqrt(W)	9.9	9.7	22.4	22.3	25.2	25.1
Electrical Time Constant ms	5.6	5.6	7.7	7.7	7.9	7.9
Heat Dissipation Constant W/°C	0.6	0.6	0.8	0.8	1.2	1.2
Mechanical Air Gap mm	0.8	0.8	0.8	0.8	0.8	0.8
Mover Weight kg	1.2	1.2	1.9	1.9	2.3	2.3

	MMF3-S2-50-A	MMF3-S2-50-B	MMF3-S2-75-A	MMF3-S2-75-B	MMF3-S2-90-A	MMF3-S2-90-B	MMF3-S3-90-A	MMF3-S3-90-B
Cont. Force N	92.0	120.0	208.0	276.0	248.0	330.0	372.0	495.0
Peak Force N	330.0	380.0	698.0	828.0	886.0	1018.0	1329.0	1527.0
Cont. Current Arms	3.0	4.0	6.0	8.0	6.0	8.0	9.0	12.0
Peak Current Arms	12.0	16.0	24.0	32.0	24.0	32.0	36.0	48.0
Resistance L-L Ohm	3.2	3.2	0.8	0.8	0.9	0.9	0.6	0.6
Inductance L-L mH	17.8	17.8	6.2	6.2	7.1	7.1	4.7	4.7
Force Constant N/A $_{rms}$	30.7	30.7	34.5	34.5	41.3	41.3	41.3	41.3
Back EMF Sonstant Vpeak/(m/s)	34.0	34.0	32.5	32.5	42.3	42.3	42.3	42.3
Magnetic Period mm	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Attraction Force N	1300.0	1300.0	2280.0	2280.0	3080.0	3080.0	4620.0	4620.0
Maximum Coil Temperature °C	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Motor Constant N/sqrt(W)	14.0	13.7	31.6	31.5	35.6	35.5	43.6	43.5
Electrical Time Constant ms	5.6	5.6	7.7	7.7	7.9	7.9	7.9	7.9
Heat Dissipation Constant W/°C	1.2	1.2	1.7	1.7	2.3	2.3	2.3	2.3
Mechanical Air Gap mm	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Mover Weight kg	2.3	2.3	3.8	3.8	4.4	4.4	6.6	6.6

MMF3 - S1-50-A(B)



SPECIFICATIONS

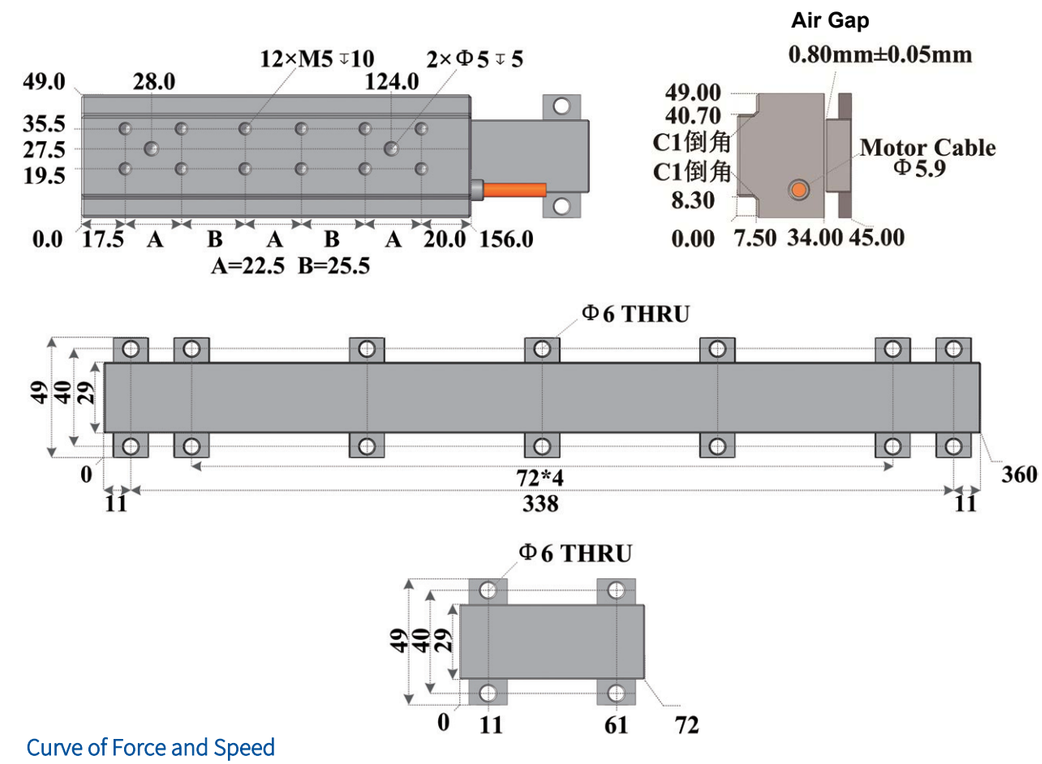
	Unit	MMF3-S1-50-A	MMF3-S1-50-B
Cont. Force	N	46.0	60.0
Peak Force	N	165.0	190.0
Cont. Current (RMS)	A	3.0	4.0
Peak Current (RMS)	A	12.0	16.0
Resistance (25°C) (L-L)	Ohm	1.6	1.6
Inductance (L-L)	mH	8.9	8.9
Force Constant	N/A(RMS)	15.3	15.3
Back EMF Constant	V_{Peak}/(m/s)	17.0	17.0
Magnetic Period	mm	9.0	9.0
Attraction Force	N	650.0	650.0
Maximum Coil Temperature	°C	100.0	100.0
Motor Constant	N/sqrt(W)	9.9	9.7
Electrical Time Constant	ms	5.6	5.6
Heat Dissipation Constant	W/°C	0.6	0.6
Mechanical Air Gap	mm	0.8	0.8
Mover Mass	kg	1.2	1.2

- Note: The above test data is based on an ambient temperature of 20°C. The continuous current test is based on the mover being installed on an aluminum plate of equal length, twice the width, and 12mm thick.
- Any use of the motor beyond speed/force limit to motor damage and serious injuries. To ensure safe, customers should use the motor in the limited range. Motion Control Products Ltd. cannot be held responsible if the motor is used in an improper way.

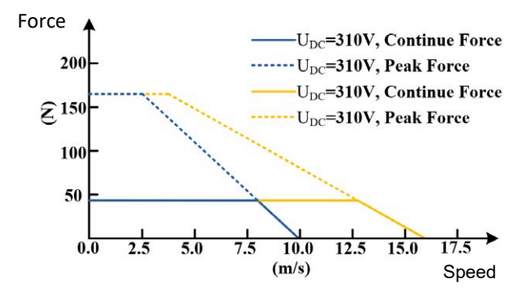
Matched Stators

Model	Length(mm)	Width(mm)	Height(mm)	Mass (kg)
MMF3-T9-50-360	360	49	10.2	0.70
MMF3-T9-50-72	72	49	10.2	0.17

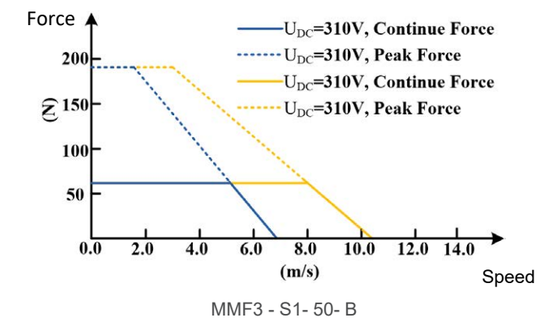
Dimensions



Curve of Force and Speed



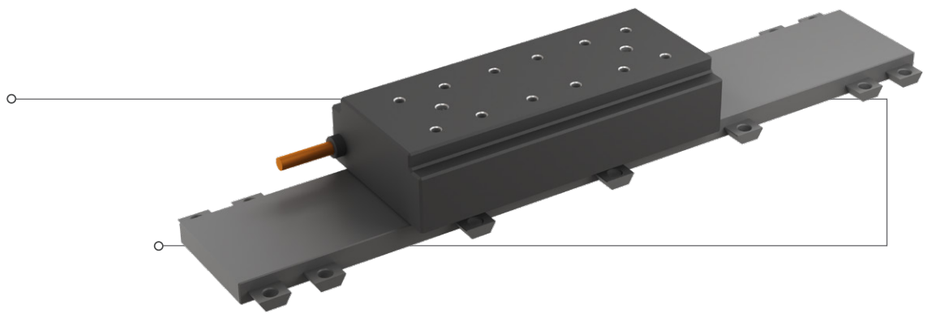
MMF3 - S1- 50- A



MMF3 - S1- 50- B

MMF3-S1 SERIES

MMF3 - S1-75-A(B)



SPECIFICATIONS

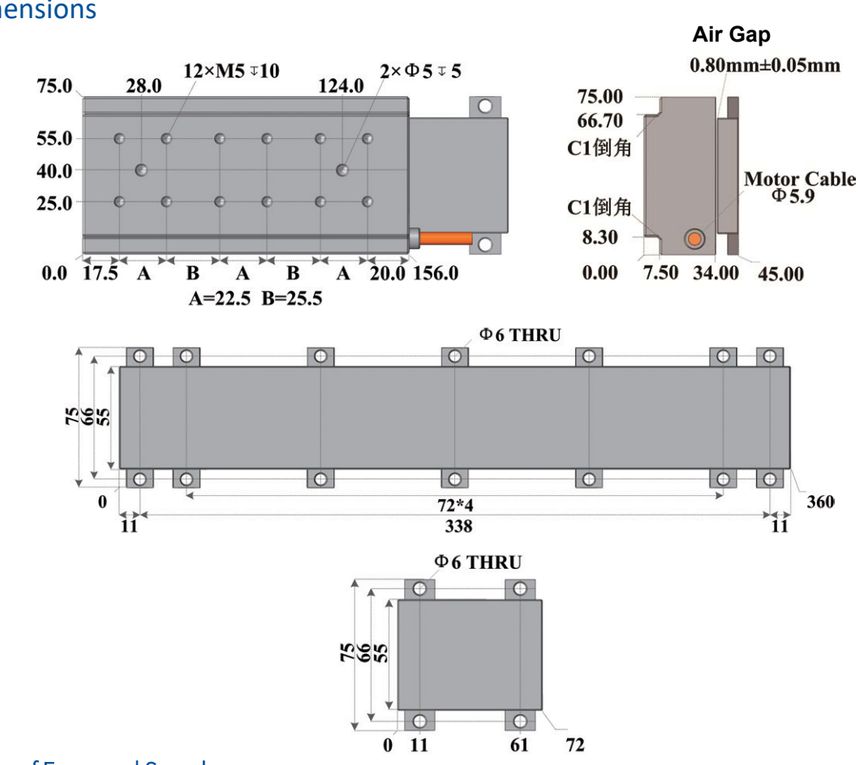
	Unit	MMF3-S1-75-A	MMF3-S1-75-B
Cont. Force	N	104.0	138.0
Peak Force	N	349.0	414.0
Cont. Current (RMS)	A	3.0	4.0
Peak Current (RMS)	A	12.0	16.0
Resistance (25°C) (L-L)	Ohm	1.6	1.6
Inductance (L-L)	mH	12.4	12.4
Force Constant	N/A(RMS)	34.7	34.7
Back EMF Constant	V_{Peak}/(m/s)	32.5	32.5
Magnetic Period	mm	9.0	9.0
Attraction Force	N	1140.0	1140.0
Maximum Coil Temperature	°C	100.0	100.0
Motor Constant	N/sqrt(W)	22.4	22.3
Electrical Time Constant	ms	7.7	7.7
Heat Dissipation Constant	W/°C	0.8	0.8
Mechanical Air Gap	mm	0.8	0.8
Mover Mass	kg	1.9	1.9

- Note: The above test data is based on an ambient temperature of 20°C. The continuous current test is based on the mover being installed on an aluminum plate of equal length, twice the width, and 12mm thick.
- Any use of the motor beyond speed/force limit to motor damage and serious injuries. To ensure safe, customers should use the motor in the limited range. Motion Control Products Ltd. cannot be held responsible if the motor is used in an improper way.

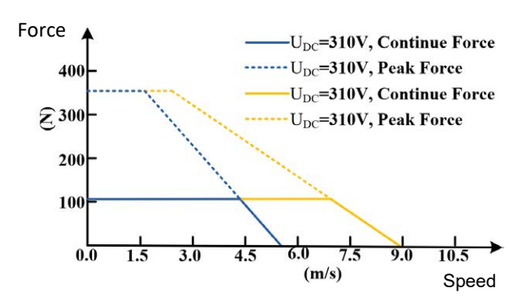
Matched Stators

Model	Length(mm)	Width(mm)	Height(mm)	Mass (kg)
MMF3-T9-75-360	360	75	10.2	1.30
MMF3-T9-75-72	72	75	10.2	0.30

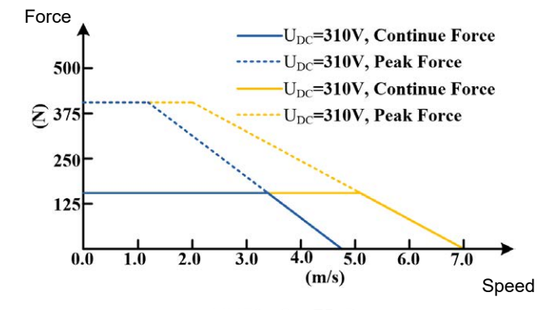
Dimensions



Curve of Force and Speed

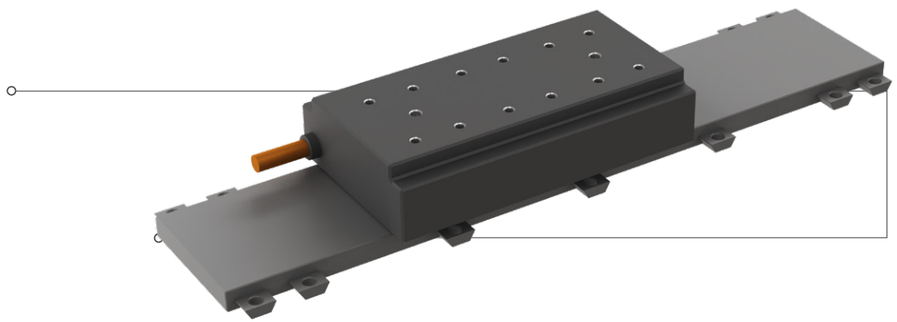


MMF3 - S1- 75- A



MMF3 - S1- 75- B

MMF3 - S1-90-A(B)



SPECIFICATIONS

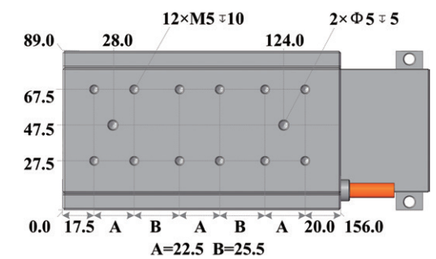
	Unit	MMF3-S1-90-A	MMF3-S1-90-B
Cont. Force	N	124.0	165.0
Peak Force	N	443.0	509.0
Cont. Current (RMS)	A	3.0	4.0
Peak Current (RMS)	A	12.0	16.0
Resistance (25°C) (L-L)	Ohm	1.8	1.8
Inductance (L-L)	mH	14.2	14.2
Force Constant	N/A(RMS)	41.3	41.3
Back EMF Constant	V_{Peak}/(m/s)	42.3	42.3
Magnetic Period	mm	9.0	9.0
Attraction Force	N	1540.0	1540.0
Maximum Coil Temperature	°C	100.0	100.0
Motor Constant	N/sqrt(W)	25.2	25.1
Electrical Time Constant	ms	7.9	7.9
Heat Dissipation Constant	W/°C	1.2	1.2
Mechanical Air Gap	mm	0.8	0.8
Mover Mass	kg	2.3	2.3

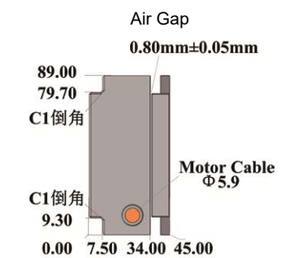
- Note: The above test data is based on an ambient temperature of 20°C. The continuous current test is based on the mover being installed on an aluminum plate of equal length, twice the width, and 12mm thick.
- Any use of the motor beyond speed/force limit to motor damage and serious injuries. To ensure safe, customers should use the motor in the limited range. Motion Control Products Ltd. cannot be held responsible if the motor is used in an improper way.

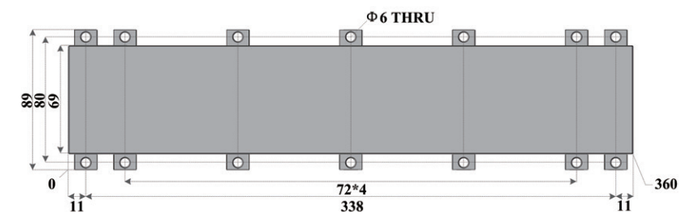
Matched Stators

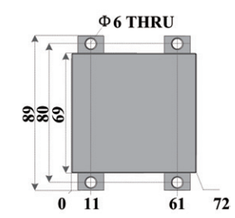
Model	Length(mm)	Width(mm)	Height(mm)	Mass (kg)
MMF3-T9-90-360	360	89	10.2	1.60
MMF3-T9-90-72	72	89	10.2	0.38

Dimensions

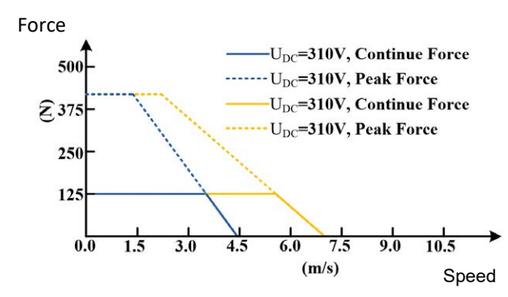




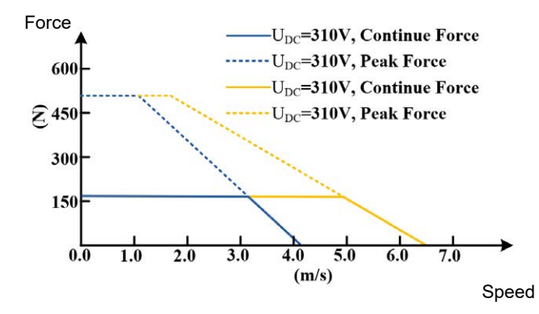




Curve of Force and Speed

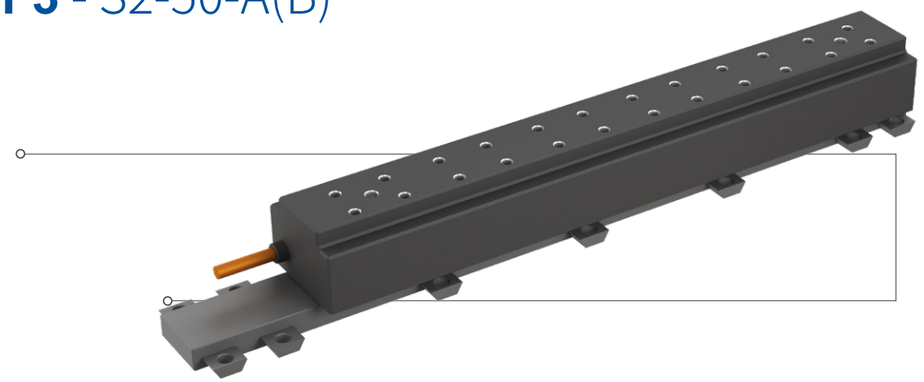


MMF3 - S1- 90- A



MMF3 - S1- 90- B

MMF3 - S2-50-A(B)



SPECIFICATIONS

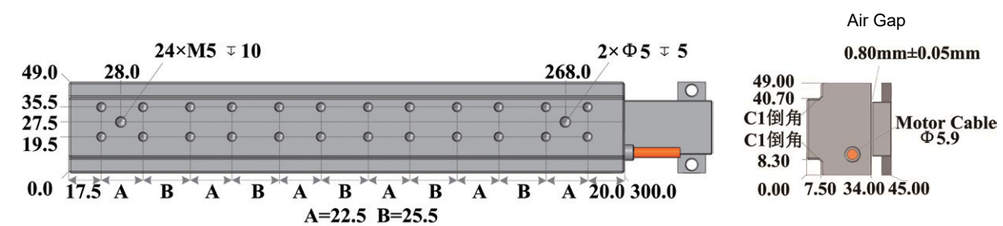
	Unit	MMF3-S2-50-A	MMF3-S2-50-B
Cont. Force	N	92.0	120.0
Peak Force	N	330.0	380.0
Cont. Current (RMS)	A	3.0	4.0
Peak Current (RMS)	A	12.0	16.0
Resistance (25°C) (L-L)	Ohm	3.2	3.2
Inductance (L-L)	mH	17.8	17.8
Force Constant	N/A(RMS)	30.7	30.7
Back EMF Constant	V_{Peak}/(m/s)	34.0	34.0
Magnetic Period	mm	9.0	9.0
Attraction Force	N	1300.0	1300.0
Maximum Coil Temperature	°C	100.0	100.0
Motor Constant	N/sqrt(W)	14.0	13.7
Electrical Time Constant	ms	5.6	5.6
Heat Dissipation Constant	W/°C	1.2	1.2
Mechanical Air Gap	mm	0.8	0.8
Mover Mass	kg	2.3	2.3

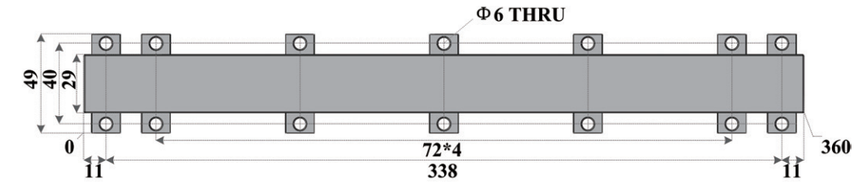
- Note: The above test data is based on an ambient temperature of 20°C. The continuous current test is based on the mover being installed on an aluminum plate of equal length, twice the width, and 12mm thick.
- Any use of the motor beyond speed/force limit to motor damage and serious injuries. To ensure safe, customers should use the motor in the limited range. Motion Control Products Ltd. cannot be held responsible if the motor is used in an improper way.

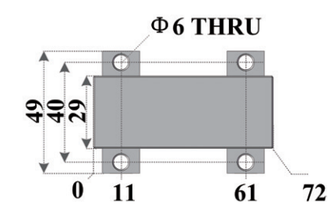
Matched Stators

Model	Length(mm)	Width(mm)	Height(mm)	Mass (kg)
MMF3-T9-50-360	360	49	10.2	0.70
MMF3-T9-50-72	72	49	10.2	0.17

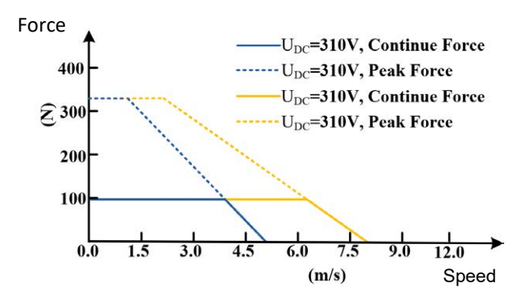
Dimensions



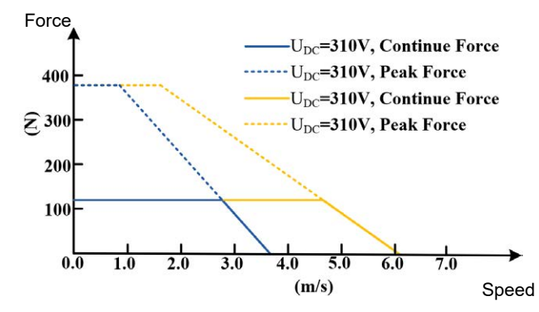




Curve of Force and Speed



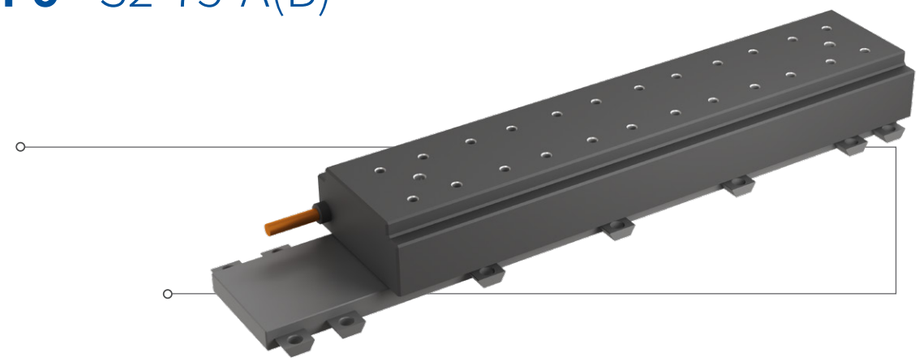
MMF3 - S2- 50- A



MMF3 - S2- 50- B

MMF3-S2 SERIES

MMF3 - S2-75-A(B)



SPECIFICATIONS

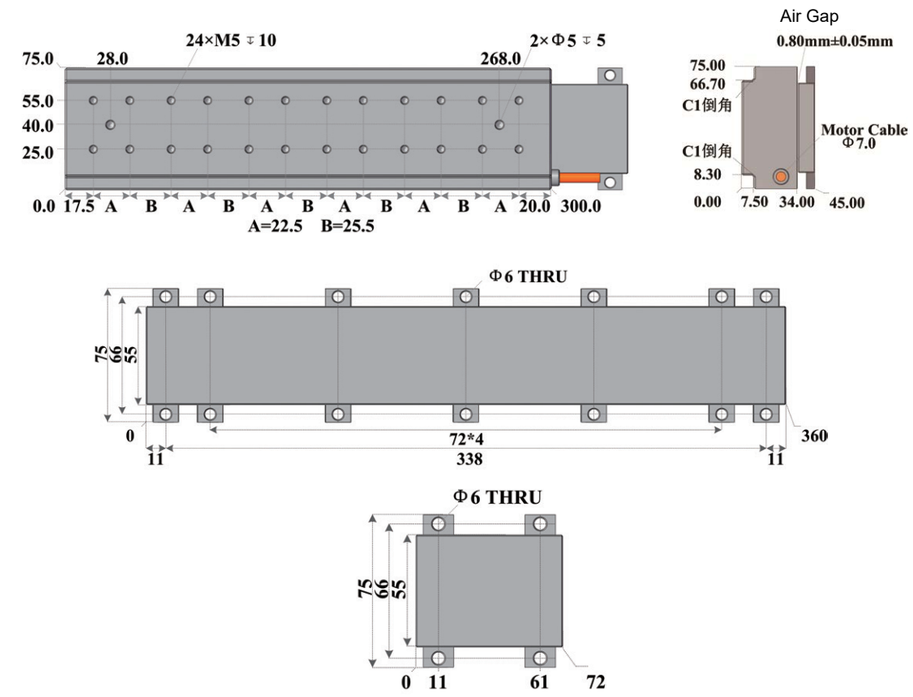
	Unit	MMF3-S2-75-A	MMF3-S2-75-B
Cont. Force	N	208.0	276.0
Peak Force	N	698.0	828.0
Cont. Current (RMS)	A	6.0	8.0
Peak Current (RMS)	A	24.0	32.0
Resistance (25°C) (L-L)	Ohm	0.8	0.8
Inductance (L-L)	mH	6.2	6.2
Force Constant	N/A(RMS)	34.5	34.5
Back EMF Constant	V_{Peak}/(m/s)	32.5	32.5
Magnetic Period	mm	9.0	9.0
Attraction Force	N	2280.0	2280.0
Maximum Coil Temperature	°C	100.0	100.0
Motor Constant	N/sqrt(W)	31.6	31.5
Electrical Time Constant	ms	7.7	7.7
Heat Dissipation Constant	W/°C	1.7	1.7
Mechanical Air Gap	mm	0.8	0.8
Mover Mass	kg	3.8	3.8

- Note: The above test data is based on an ambient temperature of 20°C. The continuous current test is based on the mover being installed on an aluminum plate of equal length, twice the width, and 12mm thick.
- Any use of the motor beyond speed/force limit to motor damage and serious injuries. To ensure safe, customers should use the motor in the limited range. Motion Control Products Ltd. cannot be held responsible if the motor is used in an improper way.

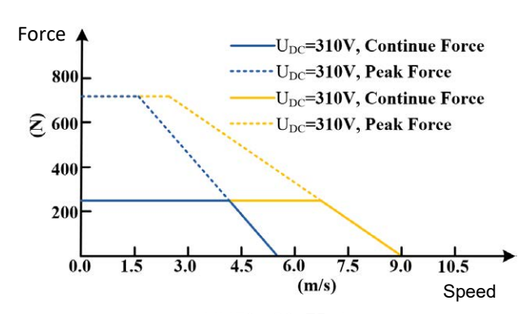
Matched Stators

Model	Length(mm)	Width(mm)	Height(mm)	Mass (kg)
MMF3-T9-75-360	360	75	10.2	1.30
MMF3-T9-75-72	72	75	10.2	0.30

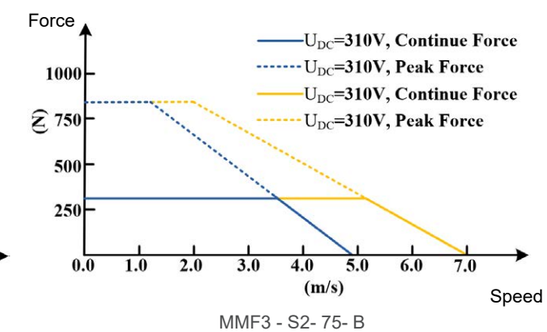
Dimensions



Curve of Force and Speed

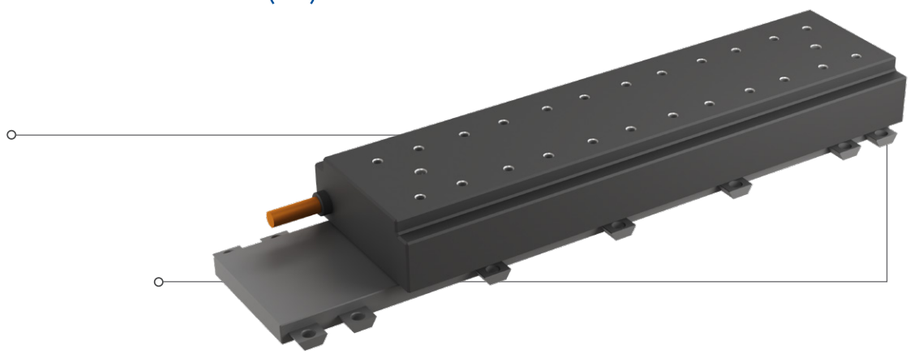


MMF3 - S2- 75- A



MMF3 - S2- 75- B

MMF3 - S2-90-A(B)



SPECIFICATIONS

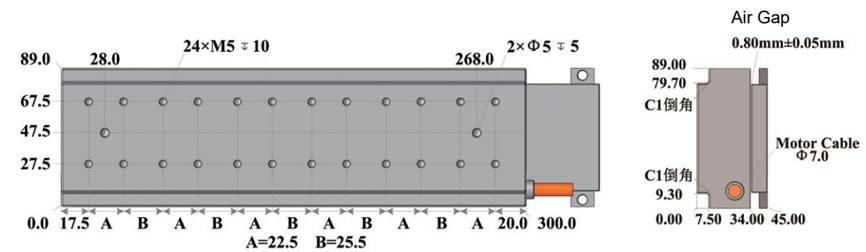
	Unit	MMF3-S2-90-A	MMF3-S2-90-B
Cont. Force	N	248.0	330.0
Peak Force	N	886.0	1018.0
Cont. Current (RMS)	A	6.0	8.0
Peak Current (RMS)	A	24.0	32.0
Resistance (25°C) (L-L)	Ohm	0.9	0.9
Inductance (L-L)	mH	7.1	7.1
Force Constant	N/A(RMS)	41.3	41.3
Back EMF Constant	V_{Peak}/(m/s)	42.3	42.3
Magnetic Period	mm	9.0	9.0
Attraction Force	N	3080.0	3080.0
Maximum Coil Temperature	°C	100.0	100.0
Motor Constant	N/sqrt(W)	35.6	35.5
Electrical Time Constant	ms	7.9	7.9
Heat Dissipation Constant	W/°C	2.3	2.3
Mechanical Air Gap	mm	0.8	0.8
Mover Mass	kg	4.4	4.4

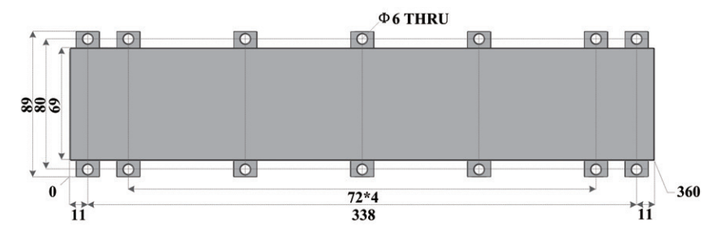
- Note: The above test data is based on an ambient temperature of 20°C. The continuous current test is based on the mover being installed on an aluminum plate of equal length, twice the width, and 12mm thick.
- Any use of the motor beyond speed/force limit to motor damage and serious injuries. To ensure safe, customers should use the motor in the limited range. Motion Control Products Ltd. cannot be held responsible if the motor is used in an improper way.

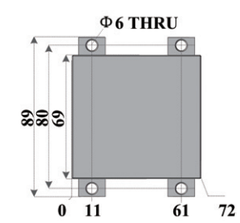
Matched Stators

Model	Length(mm)	Width(mm)	Height(mm)	Mass (kg)
MMF3-T9-90-360	360	89	10.2	1.60
MMF3-T9-90-72	72	89	10.2	0.38

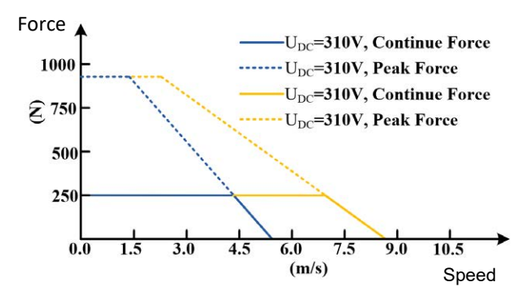
Dimensions



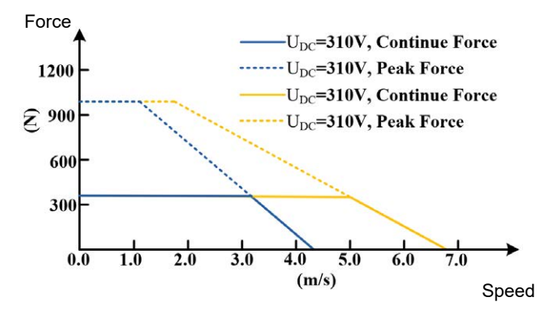




Curve of Force and Speed



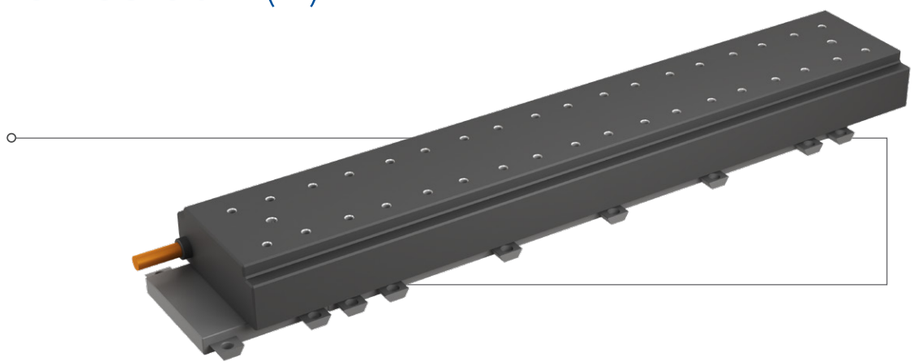
MMF3 - S2- 90- A



MMF3 - S2- 90- B

MMF3-S2 SERIES

MMF3 - S3-90-A(B)



SPECIFICATIONS

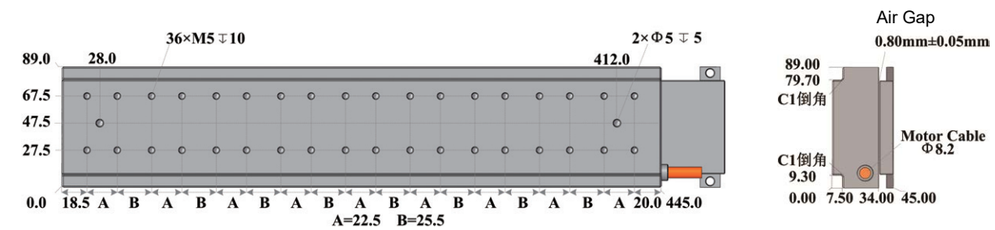
	Unit	MMF3-S3-90-A	MMF3-S3-90-B
Cont. Force	N	372.0	495.0
Peak Force	N	1329.0	1527.0
Cont. Current (RMS)	A	9.0	12.0
Peak Current (RMS)	A	36.0	48.0
Resistance (25°C) (L-L)	Ohm	0.6	0.6
Inductance (L-L)	mH	4.7	4.7
Force Constant	N/A(RMS)	41.3	41.3
Back EMF Constant	V_{Peak}/(m/s)	42.3	42.3
Magnetic Period	mm	9.0	9.0
Attraction Force	N	4620.0	4620.0
Maximum Coil Temperature	°C	100.0	100.0
Motor Constant	N/sqrt(W)	43.6	43.5
Electrical Time Constant	ms	7.9	7.9
Heat Dissipation Constant	W/°C	2.3	2.3
Mechanical Air Gap	mm	0.8	0.8
Mover Mass	kg	6.6	6.6

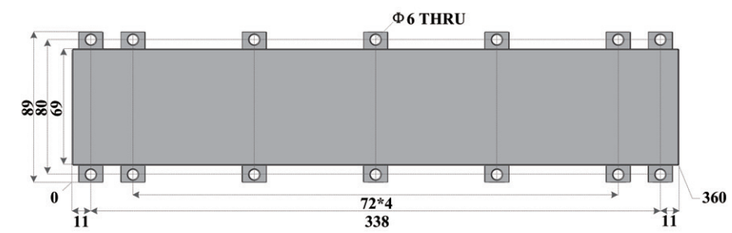
- Note: The above test data is based on an ambient temperature of 20°C. The continuous current test is based on the mover being installed on an aluminum plate of equal length, twice the width, and 12mm thick.
- Any use of the motor beyond speed/force limit to motor damage and serious injuries. To ensure safe, customers should use the motor in the limited range. Motion Control Products Ltd. cannot be held responsible if the motor is used in an improper way.

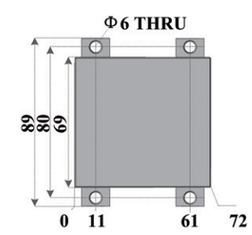
Matched Stators

Model	Length(mm)	Width(mm)	Height(mm)	Mass (kg)
MMF3-T9-90-360	360	89	10.2	1.60
MMF3-T9-90-72	72	89	10.2	0.38

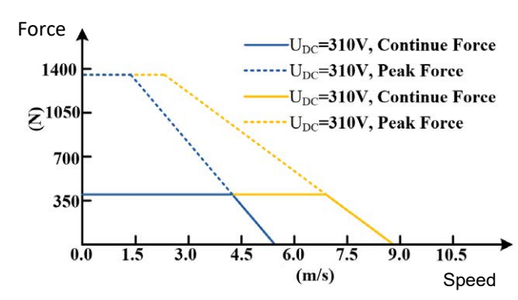
Dimensions



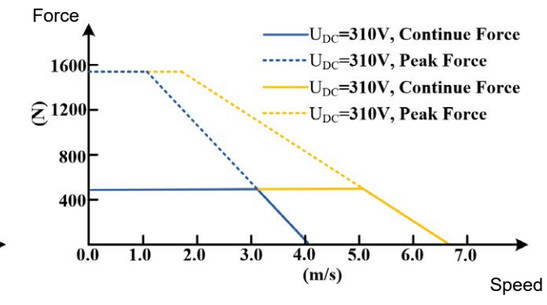




Curve of Force and Speed



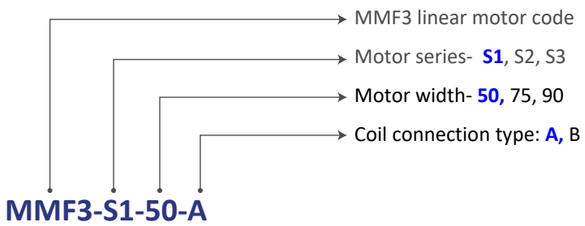
MMF3 - S3- 90- A



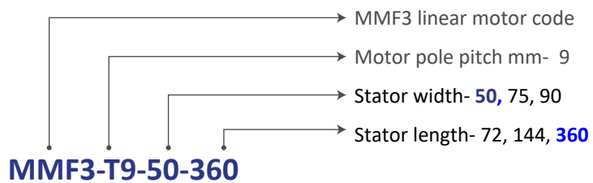
MMF3 - S3- 90- B

CODING OF MMF3 LINEAR MOTORS AND THE MODULES (MMD)

MMF3 LINEAR MOTOR MOVER



MMF3 LINEAR MOTOR STATOR



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