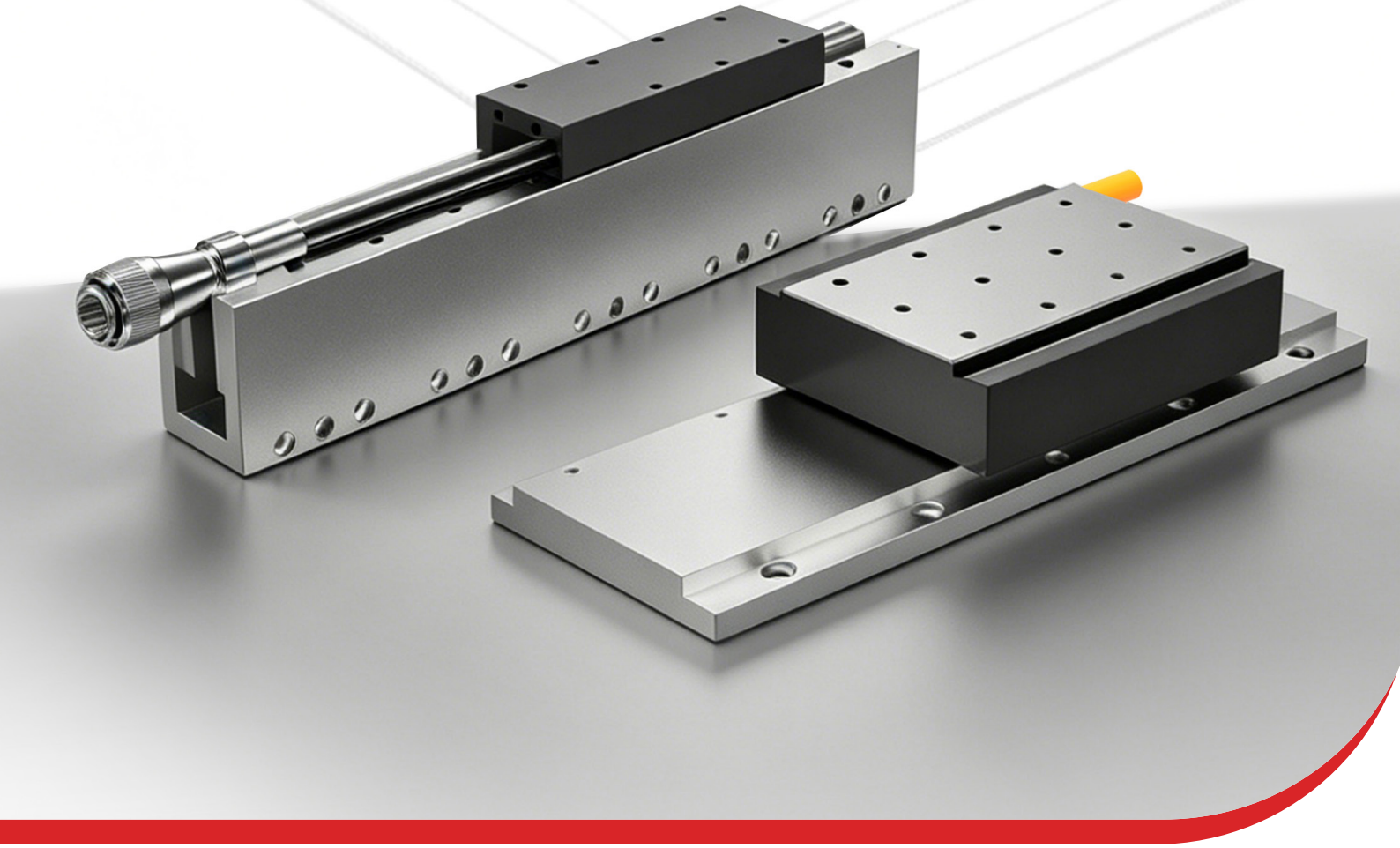
TKOOLLE
MOTION CONTROL

2026
CATALOG
LINEAR MOTORS



TKOOLLE
MOTION CONTROL

SELECTION CRITERIA

Linear Motor

●1.Linear motor selection includes the calculation of peak thrust and continuous thrust requirements.

●2.The peak thrust is determined by the moving load mass and the maximum acceleration.

Thrust = Total Mass × Acceleration + Friction Force + External Load

Example: (Assuming friction and external forces are negligible) When the moving load is 2.5 kg (including the mover) and the required acceleration is 30 m/s², the motor will generate a thrust of 75 N.

●3.In most cases, the actual acceleration requirement is not known. However, given the desired motion stroke and the required motion time, the necessary acceleration can be calculated. Generally, for short strokes, a triangular velocity profile (without a constant velocity phase) is recommended, whereas for long strokes, a trapezoidal velocity profile is more efficient. In the triangular velocity profile, the motor's motion does not include a constant velocity segment.

●4.Triangular Profile:
Acceleration = 4 × Displacement ÷ (Motion Time)²

●5.In a trapezoidal velocity profile, the preset constant velocity can be used to determine the required acceleration:
Acceleration = Constant Velocity ÷ (Motion Time − Displacement ÷ Constant Velocity)

●6.Similarly, the deceleration can be calculated in the same way as acceleration, unless an unbalanced force (such as gravity) acts on the motor.

●7.In order to maintain the cruising phase and the dwelling stage, friction forces and external loads must also be considered.
Note: To maintain a constant velocity, the motor must overcome both friction and external forces. During servo dwelling, the motor primarily counteracts external forces.

●8.Continuous Thrust Calculation Formula:

$$RMSForce=\sqrt{\frac{(Fa^2*Ta+Fc^2*Tc+Fd^2*Td+Fw^2*Tw)}{(Ta+Tc+Td+Tw)}}$$

RMSForce=Continuous Thrust
Fa=Acceleration Force
Fc=Cruising Force
Fd=Deceleration Force
Fw=Dwelling Force
Ta=Acceleration Time
Tc=Cruising Time
Td=Deceleration Time
Tw=Dwelling Time

●9.When selecting a motor based on peak and continuous thrust, the customer should apply a safety factor of 20–30% to account for friction and external forces, effectively treating them as 0.

●10.Example: In an application, the motor is required to move a 4 kg load 0.3 m within 0.2 s using a triangular velocity profile. The motor dwells for 0.15 s before returning along the same stroke. Assume that friction and other unbalanced forces are negligible.

Acceleration = Deceleration=$4x0.3/(0.2)^2=30m^2/s$

Peak Thrust = Acceleration Force = Deceleration Force = Load × Acceleration

$$RMSForce=\sqrt{\frac{(120)^2*(0.1)+(120)^2*(0.1)}{(0.1+0.1+0.15)}}=90.7N$$

Assuming a safety margin of 30%, the selected motor is TPM68-S1.

LINEAR MOTORS SPECIFICA

Series	Model	Forcer Length, L(mm)	Continuous Force(N)	Peak Force(N)	Stator Model	Stator Length(mm)	Page
TPM	TPM38-S1	100	41.3	123.9	TPM38-TL96	96	07-09
					TPM38-TL144	144	
	TPM38-S2	184	86.3	258.9	TPM38-TL288	288	
	TPM48-S1	100	68.8	206.4	TPM48-TL96	96	10-12
	TPM48-S2	184	144.7	434.1	TPM48-TL144	144	
	TPM48-S3	268	218.8	656.4	TPM48-TL288	288	
	TPM68-S1	100	123.2	369.6	TPM68-TL96	96	13-15
	TPM68-S2	184	246	738	TPM68-TL144	144	
	TPM68-S3	268	370.9	1112.7	TPM68-TL288	288	
	TPM88-S1	100	193.4	580.2	TPM88-TL96	96	16-18
	TPM88-S2	184	377	1131	TPM88-TL144	144	
	TPM88-S3	268	567	1701	TPM88-TL288	288	
	TPM108-S1	100	246.7	740.1	TPM108-TL96	96	19-21
	TPM108-S2	184	484	1452	TPM108-TL144	144	
	TPM108-S3	268	710	2130	TPM108-TL288	288	
TJM	TJM50-S2	96	73	219	TJM50-TL80	80	25-27
					TJM50-TL200	200	
	TJM50-S4	176	155	465	TJM50-TL400	400	
	TJM75-S2	96	139	471	TJM75-TL80	80	28-30
					TJM75-TL200	200	
	TJM75-S4	176	270	810	TJM75-TL400	400	
	TJM100-S2	96	197	591	TJM100-TL80	80	31-33
					TJM100-TL200	200	
	TJM100-S4	176	410	1230	TJM100-TL400	400	
	TJM125-S2	96	267	801	TJM125-TL80	80	34-36
					TJM125-TL200	200	
	TJM125-S4	176	505	1515	TJM125-TL400	400	

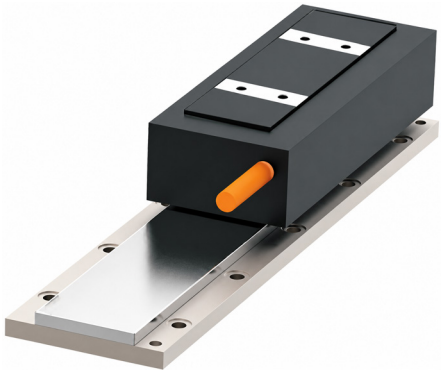
Series	Model	Forcer Length, L(mm)	Continuous Force(N)	Peak Force(N)	Stator Model	Stator Length(mm)	Page
TKM	TKM50-S1	114	131.1	288.4	TKM50-TL168	168	40-42
	TKM50-S2	198	250.8	551.8	TKM50-TL252	252	
	TKM50-S4	366	501.6	1103.5	TKM50-TL420	420	
	TKM75-S1	114	222.3	489.1	TKM75-TL168	168	43-45
	TKM75-S2	198	424.6	934.1	TKM75-TL252	252	
	TKM75-S4	366	829	1823.8	TKM75-TL420	420	
	TKM75-S6	534	1182.5	2601.5			
	TKM125-S1	114	451	992.2	TKM125-TL168	168	46-48
	TKM125-S2	198	842	1852.4	TKM125-TL252	252	
	TKM125-S4	366	1663	3658.6	TKM125-TL420	420	
	TKM125-S6	534	2526	4766			
	TKM175-S4	366	2310	4830	TKM175-TL168	168	49-51
	TKM175-S6	534	3466	7272	TKM175-TL252	252	
	TKM175-S8	702	4621	10166.2	TKM175-TL420	420	
TUM	TUM2-S1	31	9.5	47.5	TUM2-TL120	119.7	55-57
	TUM2-S2	61	19	95			
	TUM2-S3	91	28.5	142.5	TUM2-TL180	179.7	
	TUM2-S4	121	38	190			
	TUM2-S6	181	57	285	TUM2-TL300	299.7	
	TUM2-S8	241	76	380			
	TUM3-S1	61	29.9	152.5	TUM3-TL120	119.7	58-61
	TUM3-S2	121	59.7	304.5			
	TUM3-S3	181	89.5	456.5	TUM3-TL180	179.7	
	TUM3-S4	241	119.3	608.4			

Series	Model	Forcer Length, L(mm)	Continuous Force(N)	Peak Force(N)	Stator Model	Stator Length(mm)	Page
TUM	TUM3-S6	361	179	912.9	TUM3-TL300	299.7	58-61
	TUM4-S1	61	64.7	336.8	TUM4-TL120	119.7	62-65
	TUM4-S2	121	134.7	673.5			
	TUM4-S3	181	202.1	1010.3	TUM4-TL180	179.7	
	TUM4-S4	241	269.4	1347			
	TUM4-S5	301	336.8	1683.8	TUM4-TL300	299.7	
	TUM4-S6	361	404.1	2020.5			
	TUM4-S8	481	538.8	2693.8			
	TUM5-S1	85	116.8	700.5	TUM5-TL168	167.5	66-69
	TUM5-S2	169	233.5	1404			
	TUM5-S3	253	350.3	2101.5	TUM5-TL250	251.5	
	TUM5-S4	337	467	2802			
	TUM5-S5	421	583.8	3502.5	TUM5-TL420	419.5	
	TUM5-S6	505	700.5	4203			
	TUM5-S8	673	934	5604			

TPM SERIES

Motor Overview

The TPM series are cored linear motors, featuring compact size, high force density, and fast response.



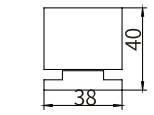
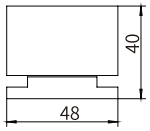
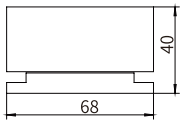
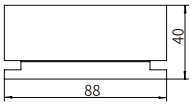
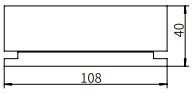
Product Features

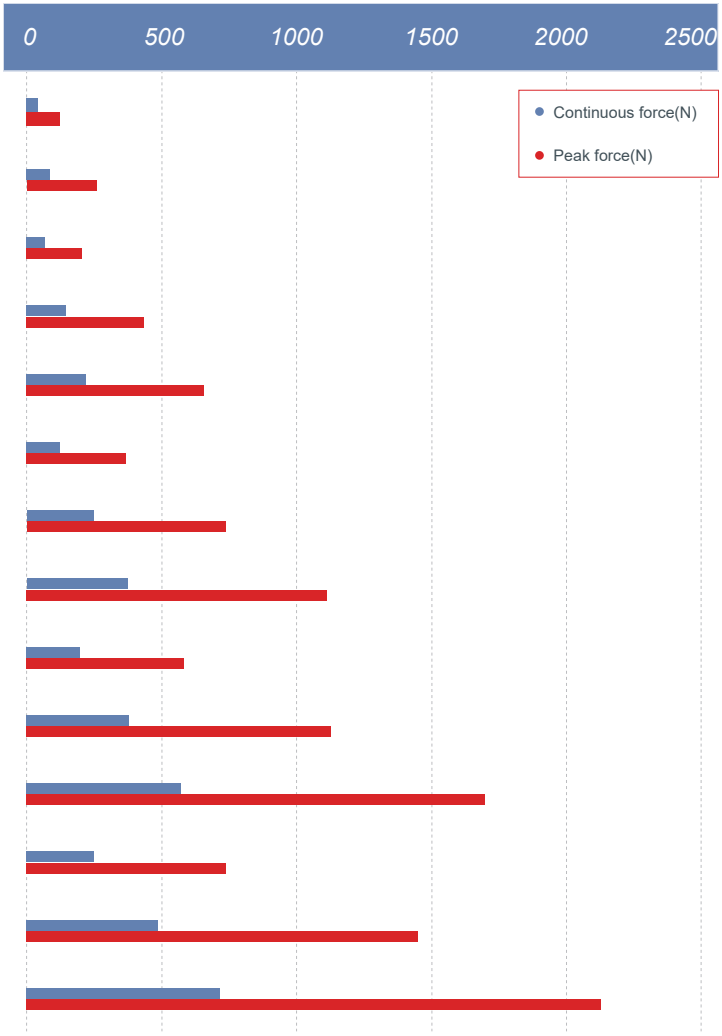
- Cored Technology with Low Cogging Force
- High Continuous and Peak Thrust
- Excellent Value
- High Motor Constant

Operating Conditions

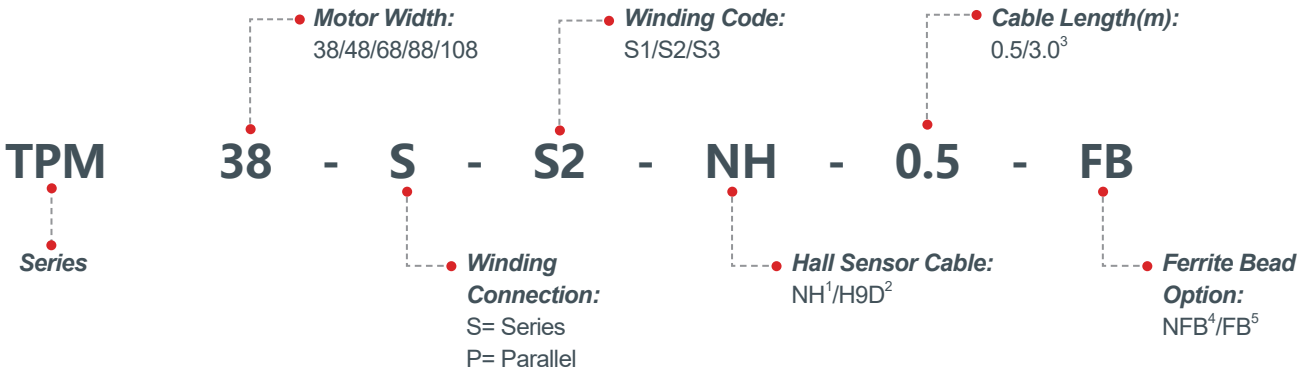
Suitable for point-to-point micrometer-level high-speed positioning, capable of achieving speeds of 5 m/s or higher, with virtually unlimited stroke (up to 100 m or more).

Typical applications include handling and high-speed positioning of semiconductor wafers, photovoltaic cells, and lithium-ion batteries; transport and positioning in glass and LCD panel equipment; as well as industrial printers, laser processing, and other applications requiring high-speed, high-precision motion with stringent trajectory following or speed control.

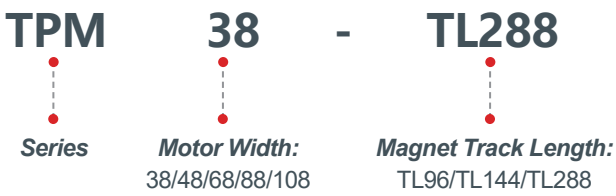
Motor Outline Dimensions	Model	Forcer Length (mm)
	TPM38-S1	100
	TPM38-S2	184
	TPM48-S1	100
	TPM48-S2	184
	TPM48-S3	268
	TPM68-S1	100
	TPM68-S2	184
	TPM68-S3	268
	TPM88-S1	100
	TPM88-S2	184
	TPM88-S3	268
	TPM108-S1	100
	TPM108-S2	184
	TPM108-S3	268



ORDER CODE OF PRIMARY PART (FORCER)



ORDER CODE OF MAGNET TRACK (STATOR)



- 1 NH = No built-in Hall sensor
- 2 H9D = With Hall sensor module; Hall cable terminated with a 9-pin D-Sub connector
- 3 Standard cable lengths: 0.5 m and 3 m. Custom lengths on request.
- 4 NFB = Without ferrite bead
- 5 FB = With ferrite bead
- 6 CE certification by default
- 7 The default magnet track cover type for the TPM series is stainless steel cover
- 8 Standard models are not equipped with Hall sensors by default; optional upon request

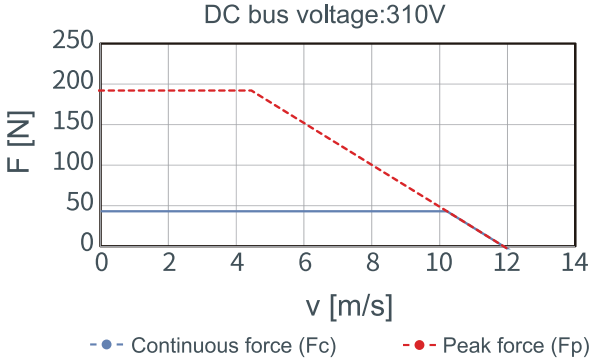
TPM SERIES LINEAR MOTOR SPECIFICATIONS

▶TPM38 linear motor specifications

●Force-velocity curves

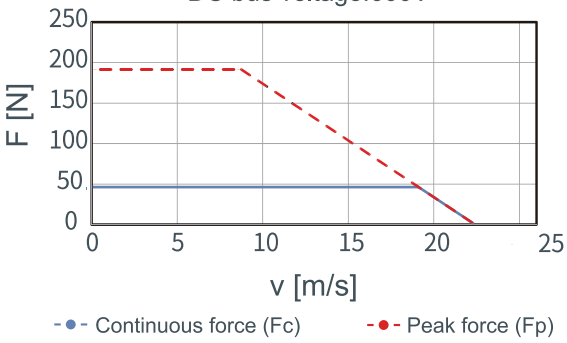
TPM38-S1

DC bus voltage:310V



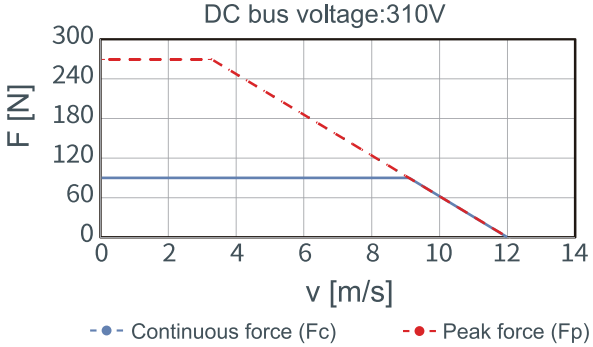
TPM38-S1

DC bus voltage:600V



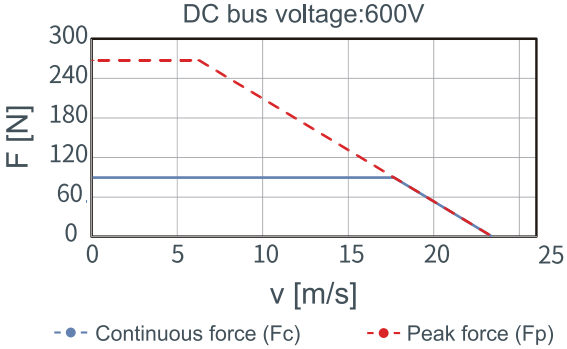
TPM38-S2

DC bus voltage:310V



TPM38-S2

DC bus voltage:600V



Technical data for TPM38

		Unit	TPM38-S1 Series	TPM38-S2 Series
Forces and electrical parameters				
Peak force		N	123.9	258.9
Continuous force		N	41.3	86.3
Motor constant at T_max		N/Sqrt(w)	5.4	7.9
Winding code		-	S1	S2
Peak current		Arms	9	9
Continuous current		Arms	2.3	2.3
Maximum continuous power dissipation		W	59.2	118.5
Resistance		Ω	5.6	11.2
Inductance		mH	21	42
Back EMF constant		Vpeak/(m/s), L-L	14.4	30
Force constant		N/Arms	18	37.5
Electrical time constant		ms	3.8	3.8
Max. DC bus voltage		V	330	330
Attraction force		kN	0.2	0.4
Magnetic period		mm	24	24
Mechanical parameters				
Weight of forcer		kg	0.49	0.92
Length of forcer		mm	100	184
Unit mass of stator		kg/m	2	2
Stator length		mm	96/144/288	
General data				
Insulation class		-	B	
Protection class		-	IP56	
Ambient temperature	Operating temperature	°C	0 to 60	
	Storage temperature	°C	-15 to 70	

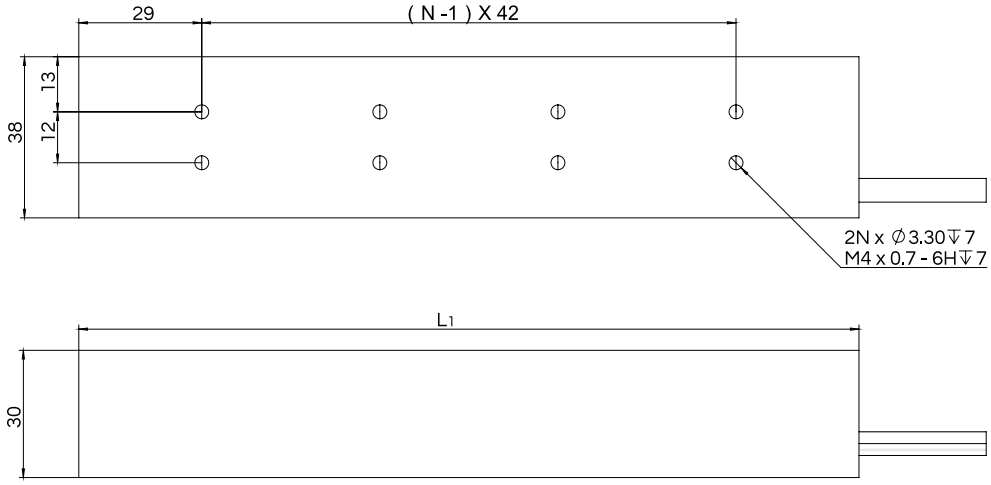
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TPM38

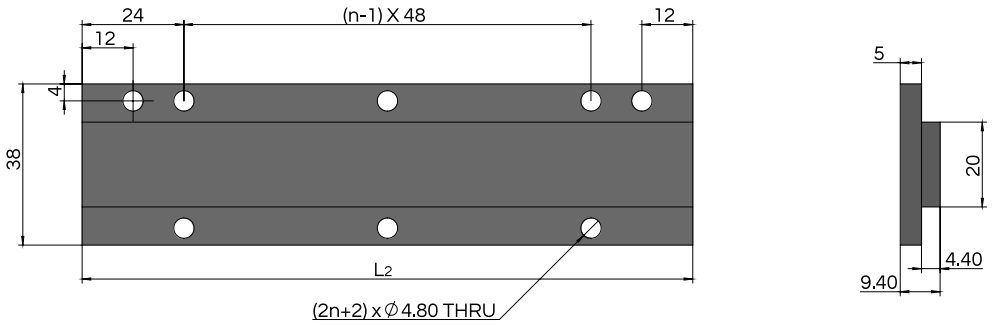
Forcer	Dimensional Variations	
	L_1	N
TPM38-S1	100	2
TPM38-S2	184	4

Stator	Dimensional Variations	
	L_2	n
TPM38-TL96	96	2
TPM38-TL144	144	3
TPM38-TL288	288	6

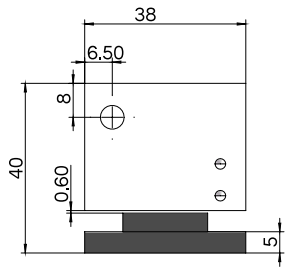
● *Dimensions of forcer*



● *Dimensions of stator*



● *Assembly Side View*

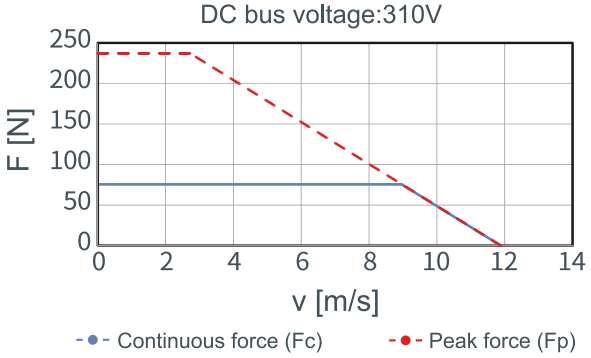


TPM SERIES LINEAR MOTOR SPECIFICATIONS

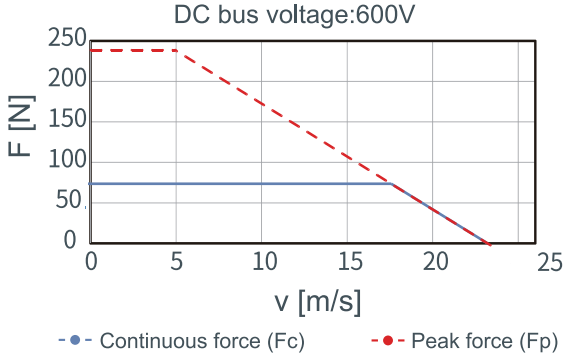
▶TPM48 linear motor specifications

●Force-velocity curves

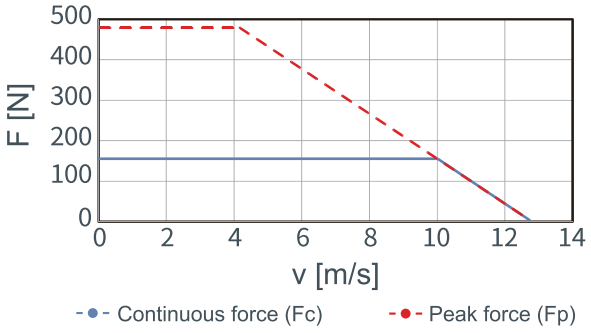
TPM48-S1



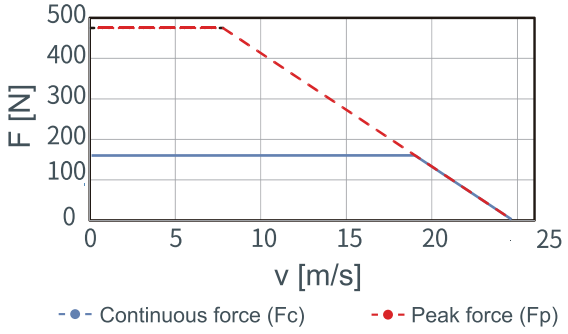
TPM48-S1



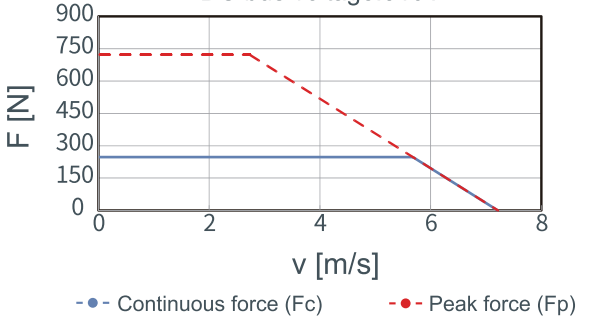
TPM48-S2



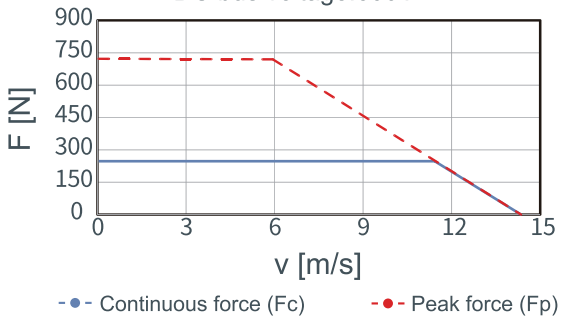
TPM48-S2



TPM48-S3



TPM48-S3



*For TPM68-S1: Parallel speed ≈ 2 × Series speed

Technical data for TPM48

		Unit	TPM48-S1	TPM48-S2	TPM48-S3
			Series	Parallel	Parallel
Forces and electrical parameters					
Peak force		N	206.4	434.1	656.4
Continuous force		N	68.8	144.7	218.8
Motor constant at T_max		N/Sqrt(w)	7.9	11.6	14.5
Winding code		-	S1	S2	S3
Peak current		Arms	9	18	18
Continuous current		Arms	2.3	4.6	4.6
Maximum continuous power dissipation		W	76.2	156.5	228.5
Resistance		Ω	7.2	3.7	5.4
Inductance		mH	30	15	22.9
Back EMF constant		Vpeak/(m/s), L-L	23.9	25.2	38.1
Force constant		N/Arms	29.9	31.5	47.6
Electrical time constant		ms	4.2	4.1	4.2
Max. DC bus voltage		V	330	330	330
Attraction force		kN	0.5	1	1.5
Magnetic period		mm	24	24	24
Mechanical parameters					
Weight of forcer		kg	0.67	1.23	1.82
Length of forcer		mm	100	184	268
Unit mass of stator		kg/m	2	2.7	2.7
Stator length		mm	96/144/288		
General data					
Insulation class		-	B		
Protection class		-	IP56		
Ambient temperature	Operating temperature	°C	0 to 60		
	Storage temperature	°C	-15 to 70		

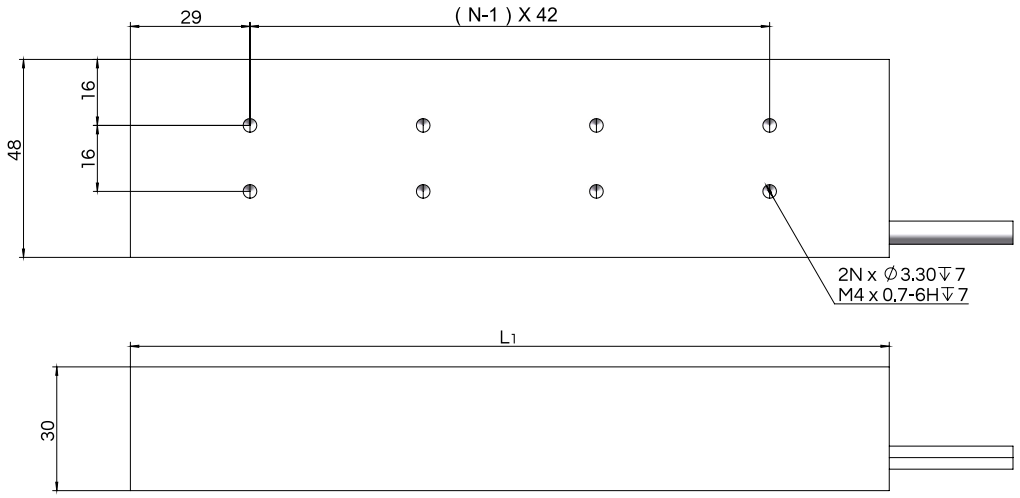
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TPM48

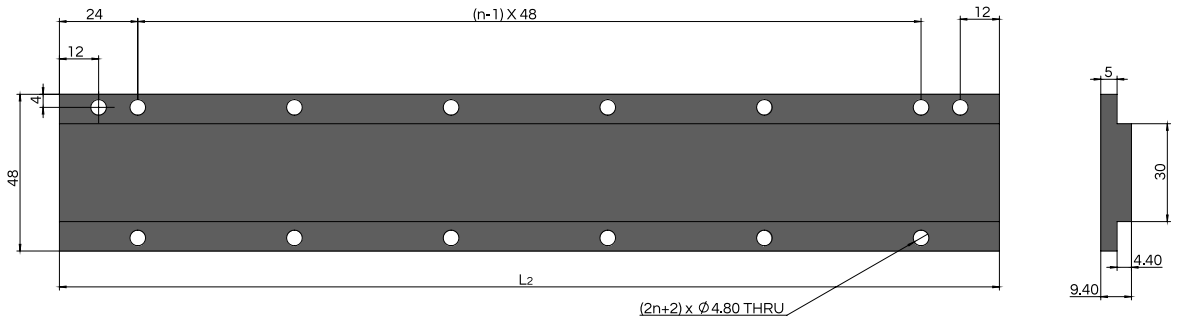
Forcer	Dimensional Variations	
	L_1	N
TPM48-S1	100	2
TPM48-S2	184	4
TPM48-S3	268	6

Stator	Dimensional Variations	
	L_2	n
TPM48-TL96	96	2
TPM48-TL144	144	3
TPM48-TL288	288	6

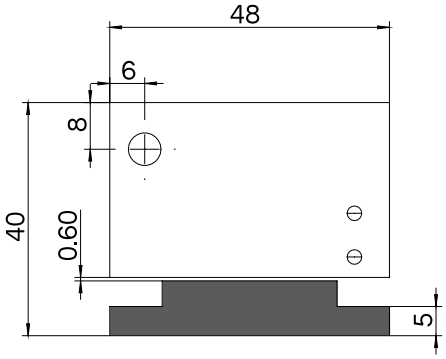
Dimensions of forcer



Dimensions of stator



Assembly Side View



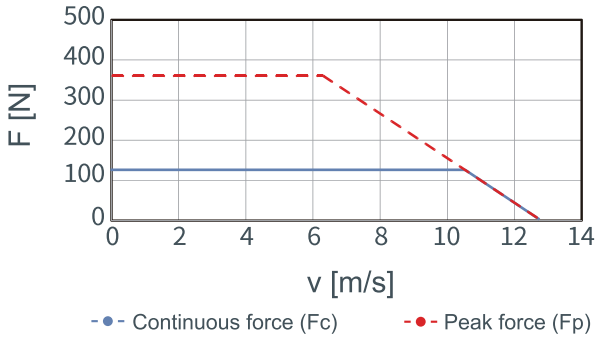
TPM SERIES LINEAR MOTOR SPECIFICATIONS

▶TPM68 linear motor specifications

●Force-velocity curves

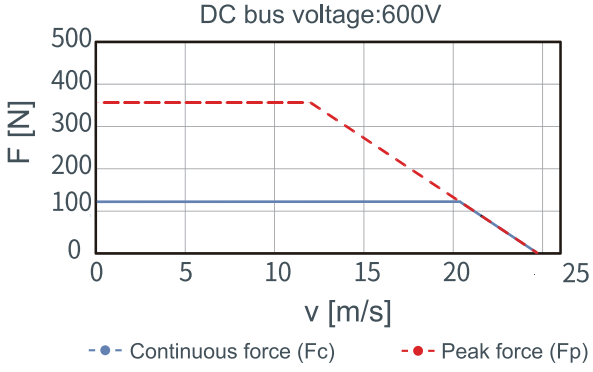
TPM68-S1

DC bus voltage:310V



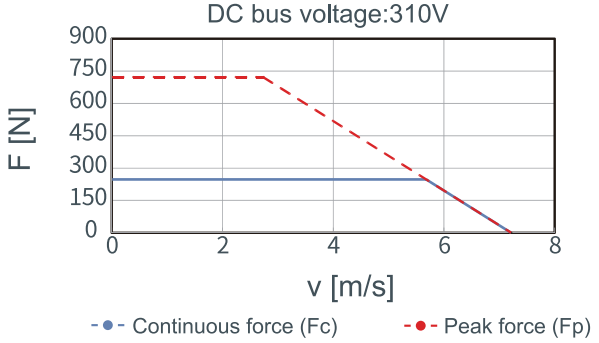
TPM68-S1

DC bus voltage:600V



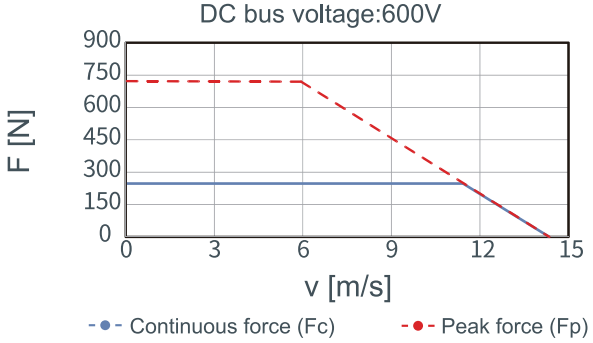
TPM68-S2

DC bus voltage:310V



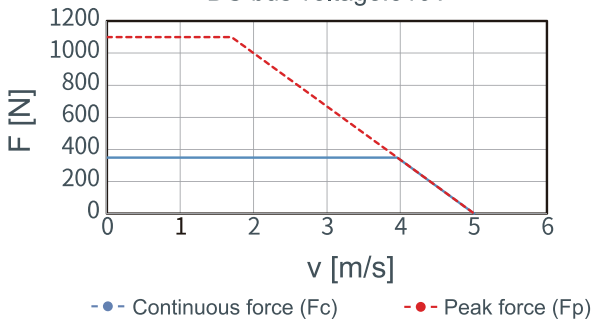
TPM68-S2

DC bus voltage:600V



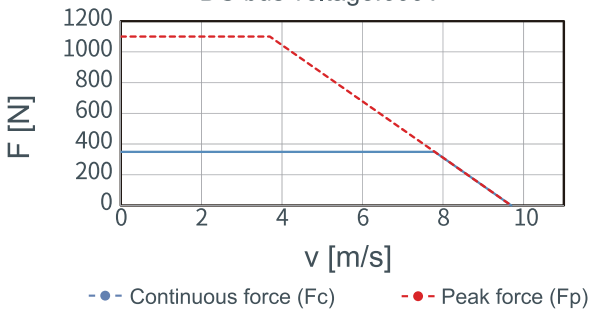
TPM68-S3

DC bus voltage:310V



TPM68-S3

DC bus voltage:600V



*For TPM68-S1: Parallel speed ≈ 2 × Series speed

Technical data for TPM68

		Unit	TPM68-S1		TPM68-S2	TPM68-S3
			Series	Parallel	Parallel	Parallel
Forces and electrical parameters						
Peak force		N	369.6	369.6	738	1112.7
Continuous force		N	123.2	123.2	246	370.9
Motor constant at T_max		N/Sqrt(w)	117	11.7	16.6	19.9
Winding code		-	S1	S1	S2	S3
Peak current		Arms	9	18	18	18
Continuous current		Arms	2.3	4.6	4.6	4.6
Maximum continuous power dissipation		W	111.1	110	220	346.9
Resistance		Ω	10.5	2.6	5.2	8.2
Inductance		mH	45	11.3	22	34
Back EMF constant		Vpeak/(m/s), L-L	42.9	21.4	42.8	64.5
Force constant		N/Arms	53.6	26.8	53.5	80.6
Electrical time constant		ms	4.3	4.3	4.2	4.1
Max. DC bus voltage		V	330	330	330	330
Attraction force		kN	0.7	0.7	1.4	2.1
Magnetic period		mm	24	24	24	24
Mechanical parameters						
Weight of forcer		kg	1	1	1.89	2.78
Length of forcer		mm	100	100	184	268
Unit mass of stator		kg/m	4	4	4	4
Stator length		mm	96/144/288			
General data						
Insulation class		-	B			
Protection class		-	IP56			
Ambient temperature	Operating temperature	°C	0 to 60			
	Storage temperature	°C	-15 to 70			

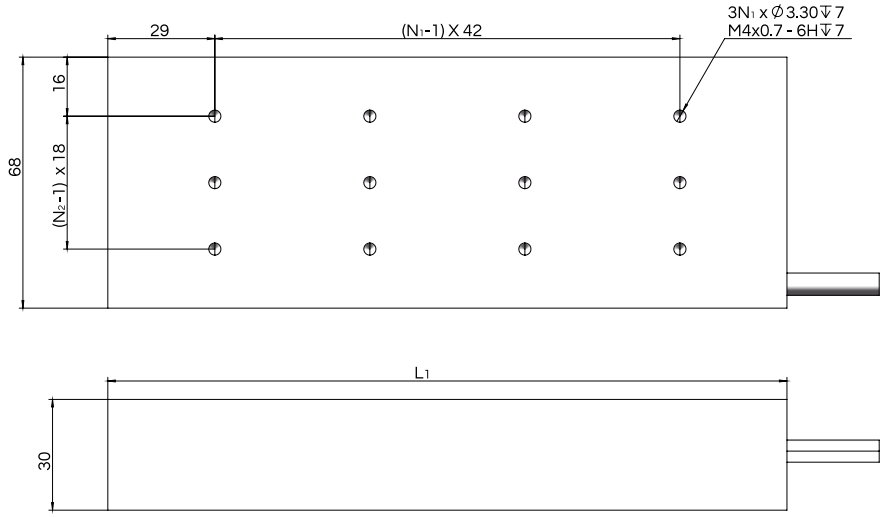
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TPM68

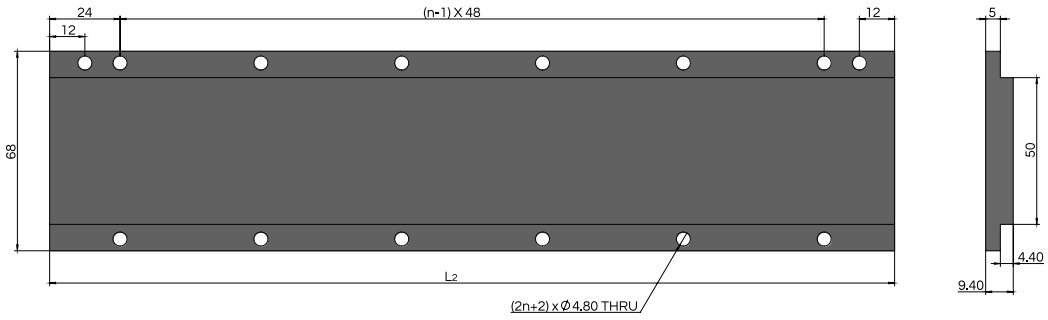
Forcer	Dimensional Variations		
	L_1	N_1	N_2
TPM68-S1	100	2	3
TPM68-S2	184	4	3
TPM68-S3	268	6	3

Stator	Dimensional Variations	
	L_2	n
TPM68-TL96	96	2
TPM68-TL144	144	3
TPM68-TL288	288	6

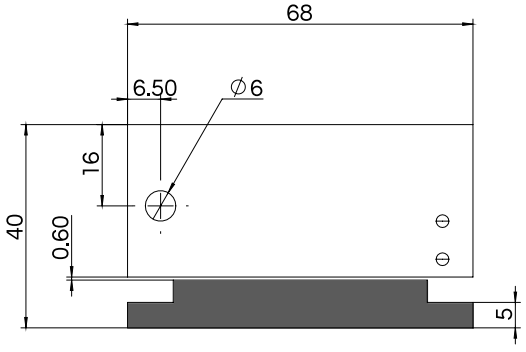
● *Dimensions of forcer*



● *Dimensions of stator*



● *Assembly Side View*



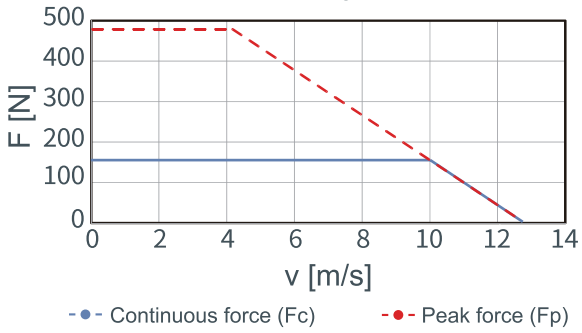
TPM SERIES LINEAR MOTOR SPECIFICATIONS

▶TPM88 linear motor specifications

●Force-velocity curves

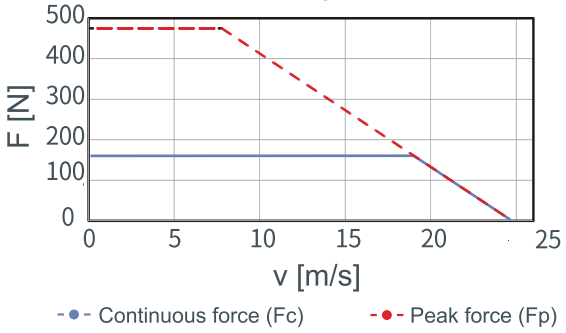
TPM88-S1

DC bus voltage:310V



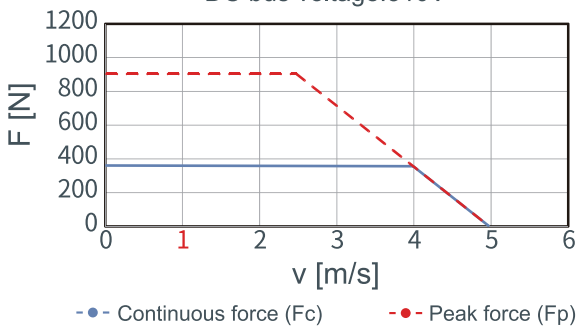
TPM88-S1

DC bus voltage:600V



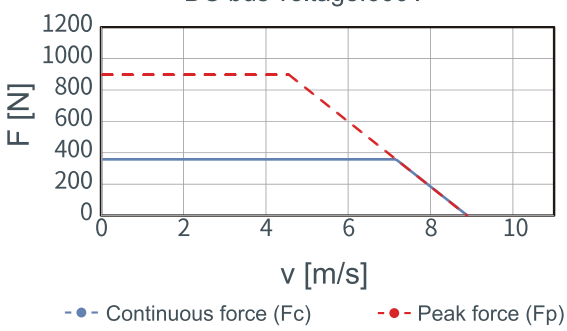
TPM88-S2

DC bus voltage:310V



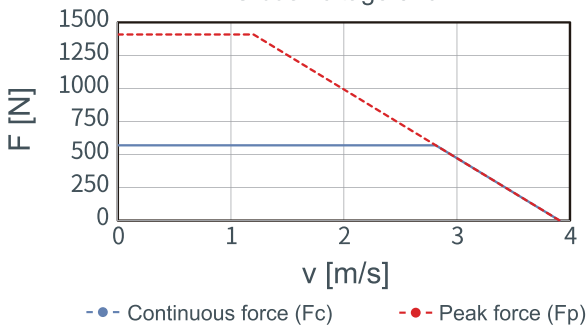
TPM88-S2

DC bus voltage:600V



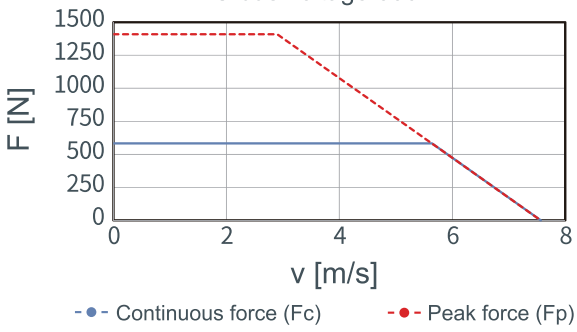
TPM88-S3

DC bus voltage:310V



TPM88-S3

DC bus voltage:600V



*For TPM88-S1: Parallel speed ≈ 2 × Series speed

Technical data for TPM88

		Unit	TPM88-S1		TPM88-S2	TPM88-S3
			Series	Parallel	Parallel	Parallel
Forces and electrical parameters						
Peak force		N	580.2	580.2	1131	1701
Continuous force		N	193.4	193.4	377	567
Motor constant at T_max		N/Sqrt(w)	15.8	15.7	21.3	27
Winding code		-	S1	S1	S2	S3
Peak current		Arms	9	18	18	18
Continuous current		Arms	2.3	4.6	4.6	4.6
Maximum continuous power dissipation		W	150.2	152.3	313.1	440
Resistance		Ω	14.2	3.6	7.4	10.4
Inductance		mH	63	16	31	44
Back EMF constant		Vpeak/(m/s), L-L	67.3	33.6	65.6	98.6
Force constant		N/Arms	84.1	42	82	123.3
Electrical time constant		ms	4.4	4.4	4.2	4.2
Max. DC bus voltage		V	330	330	330	330
Attraction force		kN	0.9	0.9	1.8	2.7
Magnetic period		mm	24	24	24	24
Mechanical parameters						
Weight of forcer		kg	1.36	1.36	2.54	3.77
Length of forcer		mm	100	100	184	268
Unit mass of stator		kg/m	5.3	5.3	5.3	5.3
Stator length		mm	96/144/288			
General data						
Insulation class		-	B			
Protection class		-	IP56			
Ambient temperature	Operating temperature	°C	0 to 60			
	Storage temperature	°C	-15 to 70			

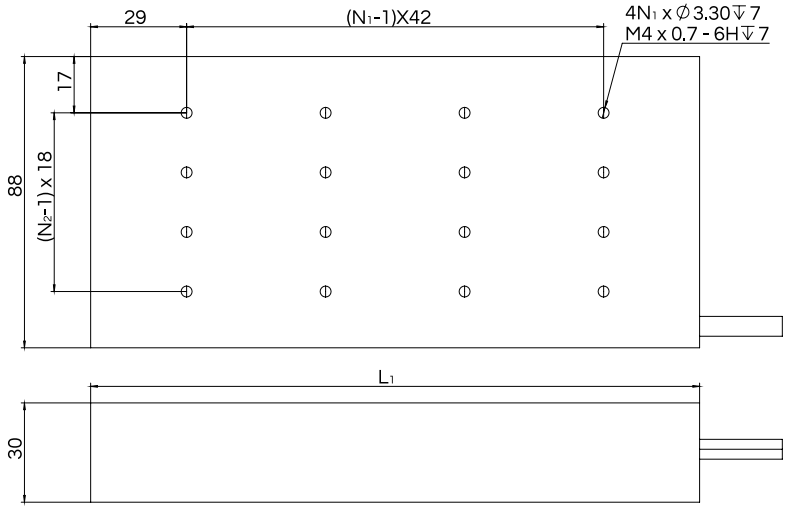
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TPM88

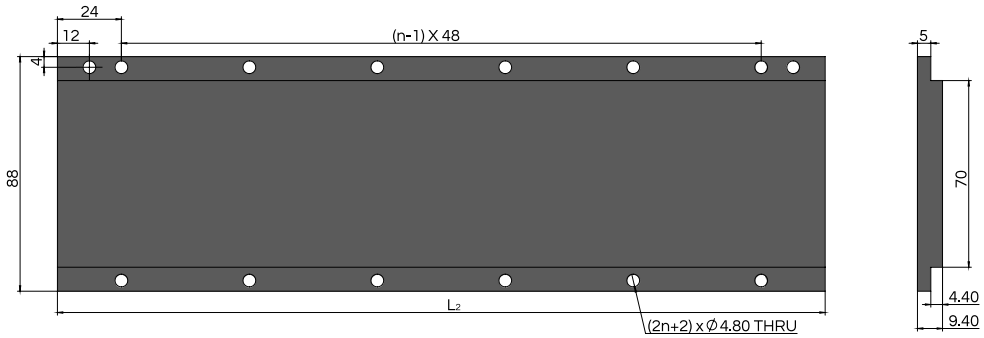
Forcer	Dimensional Variations		
	L_1	N_1	N_2
TPM88-S1	100	2	4
TPM88-S2	184	4	4
TPM88-S3	268	6	4

Stator	Dimensional Variations	
	L_2	n
TPM88-TL96	96	2
TPM88-TL144	144	3
TPM88-TL288	288	6

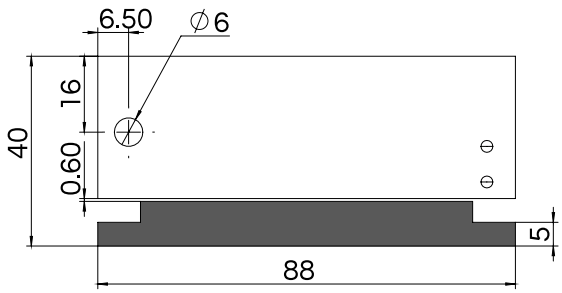
Dimensions of forcer



Dimensions of stator



Assembly Side View



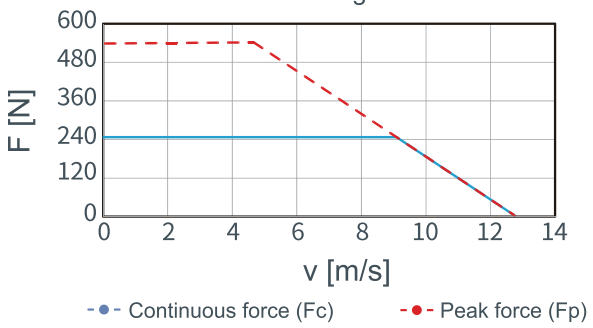
TPM SERIES LINEAR MOTOR SPECIFICATIONS

▶TPM108 linear motor specifications

●Force-velocity curves

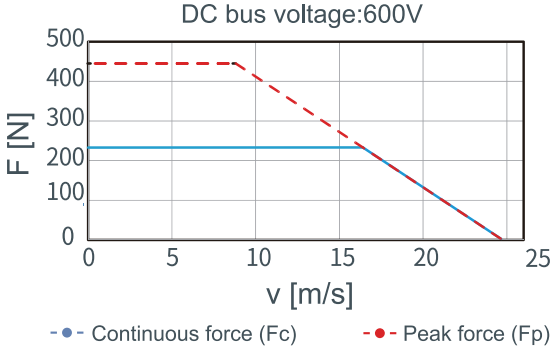
TPM108-S1

DC bus voltage:310V



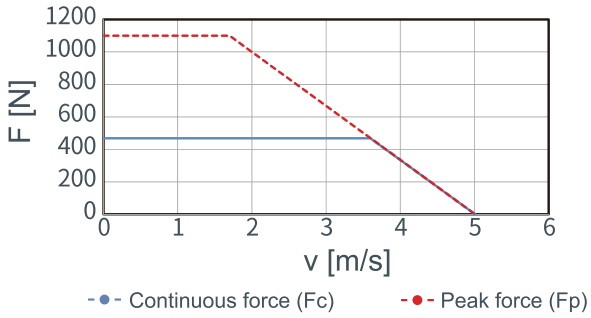
TPM108-S1

DC bus voltage:600V



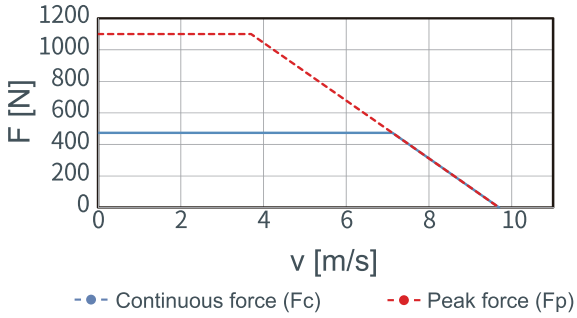
TPM108-S2

DC bus voltage:310V



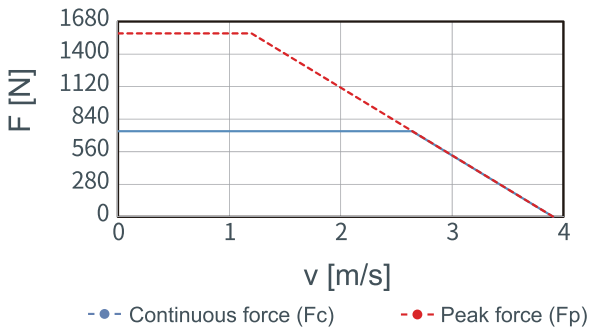
TPM108-S2

DC bus voltage:600V



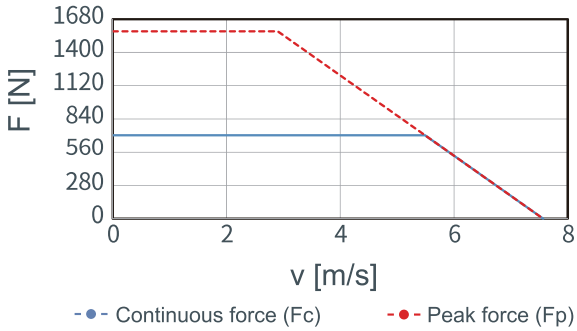
TPM108-S3

DC bus voltage:310V



TPM108-S3

DC bus voltage:600V



*For TPM108-S1: Parallel speed ≈ 2 × Series speed

Technical data for TPM108

		Unit	TPM108-S1		TPM108-S2	TPM108-S3
			Series	Parallel	Parallel	Parallel
Forces and electrical parameters						
Peak force		N	740.1	740.1	1452	2130
Continuous force		N	246.7	246.7	484	710
Motor constant at T_max		N/Sqrt(w)	27.5	27.5	25.1	30
Winding code		-	S1	S1	S2	S3
Peak current		Arms	9	18	18	24
Continuous current		Arms	2.3	4.6	4.6	6.9
Maximum continuous power dissipation		W	80.5	186.2	372.3	561.6
Resistance		Ω	17.5	4.4	8.8	5.9
Inductance		mH	76	19	38	27
Back EMF constant		Vpeak/(m/s), L-L	85.8	42.9	84.2	82.3
Force constant		N/Arms	107.3	53.6	105.2	102.9
Electrical time constant		ms	4.3	4.3	4.3	4.6
Max. DC bus voltage		V	330	330	330	330
Attraction force		kN	1.1	1.18	2.2	3.3
Magnetic period		mm	24	24	24	24
Mechanical parameters						
Weight of forcer		kg	1.69	1.69	3.18	4.75
Length of forcer		mm	100	100	184	268
Unit mass of stator		kg/m	6.6	6.6	6.6	6.6
Stator length		mm	96/144/288			
General data						
Insulation class		-	B			
Protection class		-	IP56			
Ambient temperature	Operating temperature	°C	0 to 60			
	Storage temperature	°C	-15 to 70			

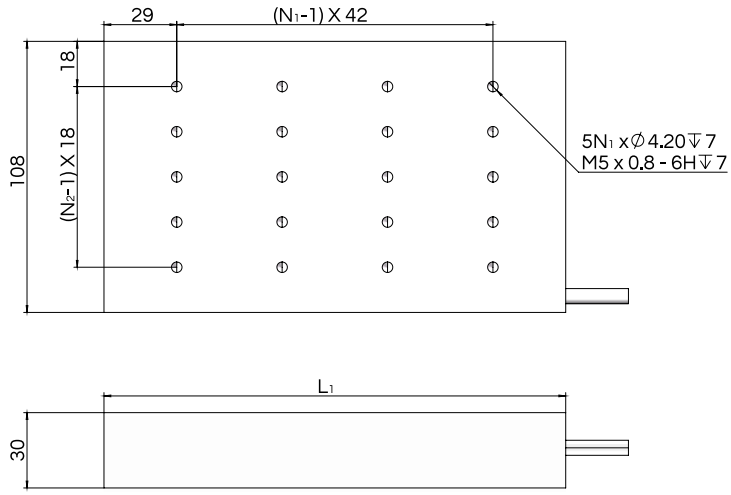
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TPM108

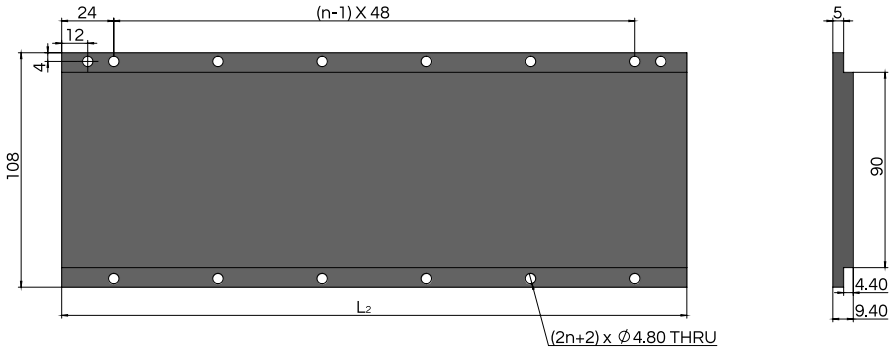
Forcer	Dimensional Variations		
	L_1	N_1	N_2
TPM108-S1	100	2	5
TPM108-S2	184	4	5
TPM108-S3	268	6	5

Stator	Dimensional Variations	
	L_2	n
TPM108-TL96	96	2
TPM108-TL144	144	3
TPM108-TL288	288	6

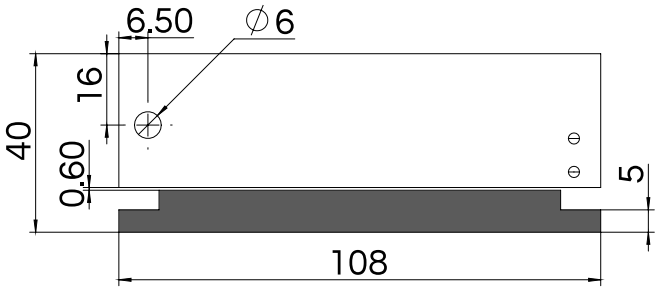
● *Dimensions of forcer*



● *Dimensions of stator*



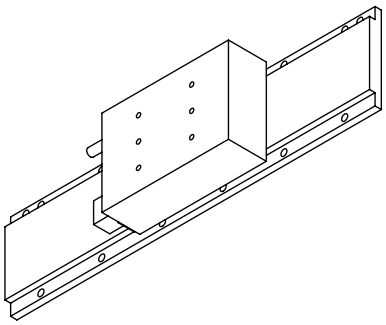
● *Assembly Side View*

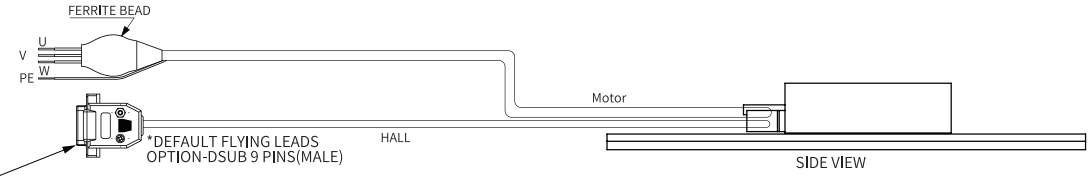


MOTOR WIRING DIAGRAM

MOTOR CABLE

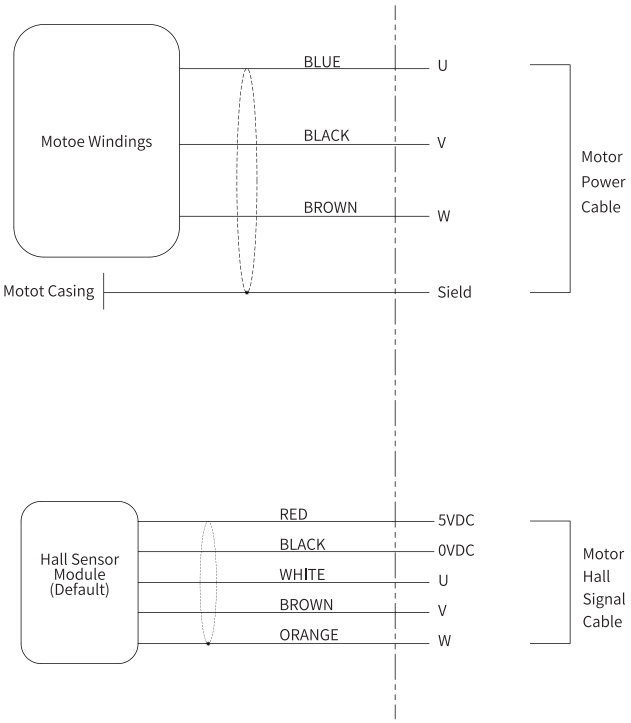
PIN	DESCRIPTION	COLOR
-	U	BLUE
-	V	BLACK
-	W	BROWN
-	PE	YELLOW/GREEN





HALL CABLE

PIN	DESCRIPTION	COLOR
1	5VDC	RED
2	0VDC	BLACK
3	U	WHITE
4	V	BROWN
5	W	ORANGE

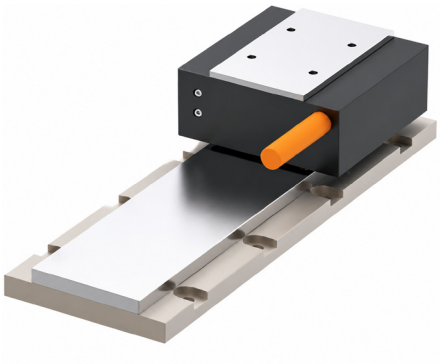


TJM SERIES

Motor Overview

The TJM series are cored linear motors, featuring compact size, high force density, and fast response.

- Continuous Thrust Fcn=73N~505N
- Peak Thrust Fpk=219N~1515N



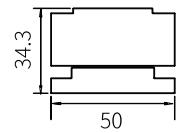
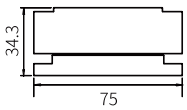
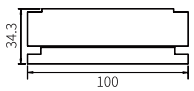
Product Features

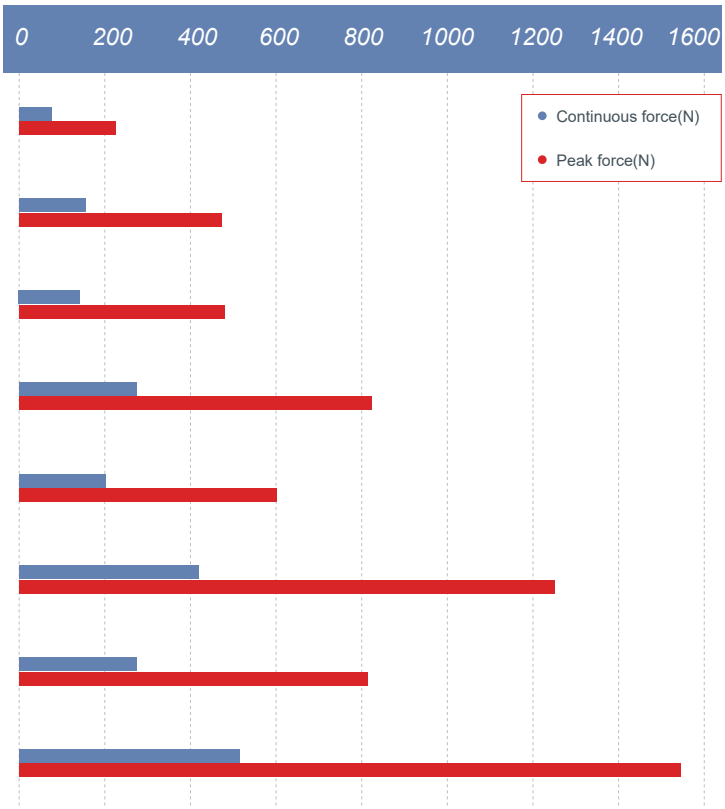
- Cored Technology with Low Cogging Force
- High Continuous and Peak Thrust
- Optional Hall Sensor Module
- High Motor Constant

Operating Conditions

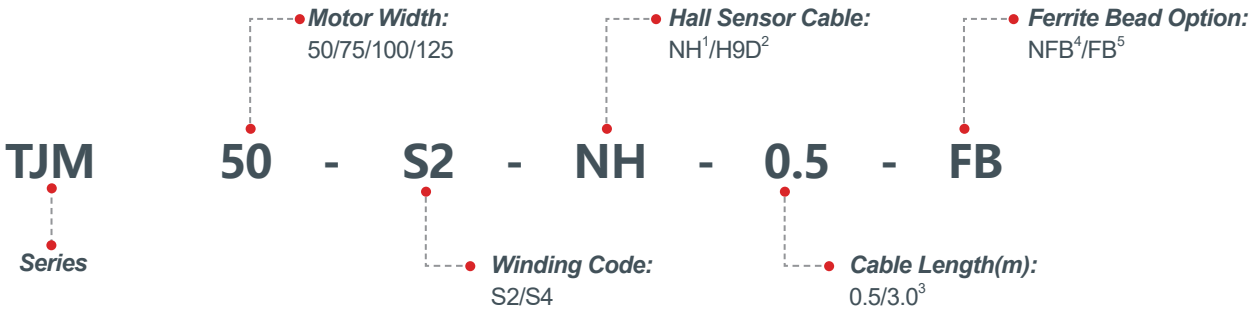
Suitable for point-to-point micrometer-level high-speed positioning, capable of achieving speeds of 5 m/s or higher, with virtually unlimited stroke (up to 100 m or more).

Typical applications include handling and high-speed positioning of semiconductor wafers, photovoltaic cells, and lithium-ion batteries; transport and positioning in glass and LCD panel equipment; as well as industrial printers, laser processing, and other applications requiring high-speed, high-precision motion with stringent trajectory following or speed control.

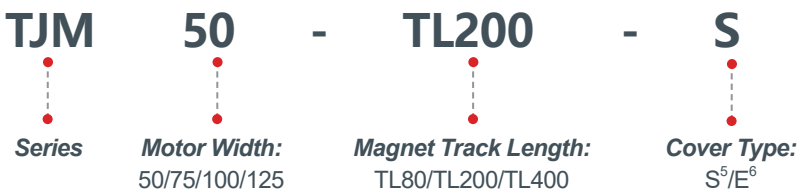
Motor Outline Dimensions	Model	Forcer Length (mm)
	TJM50-S2	96
	TJM50-S4	176
	TJM75-S2	96
	TJM75-S4	176
	TJM100-S2	96
	TJM100-S4	176
	TJM125-S2	96
	TJM125-S4	176



ORDER CODE OF PRIMARY PART (FORCER)



ORDER CODE OF MAGNET TRACK (STATOR)



- 1 NH = No built-in Hall sensor
- 2 H9D = With Hall sensor module; Hall cable terminated with a 9-pin D-Sub connector
- 3 Standard cable lengths: 0.5 m and 3 m. Custom lengths on request.
- 4 NFB = Without ferrite bead
- 5 FB = With ferrite bead
- 6 S = Stainless steel cover
- 7 E = Epoxy resin cover
- 8 CE certification by default
- 9 Standard models are not equipped with Hall sensors by default; optional upon request

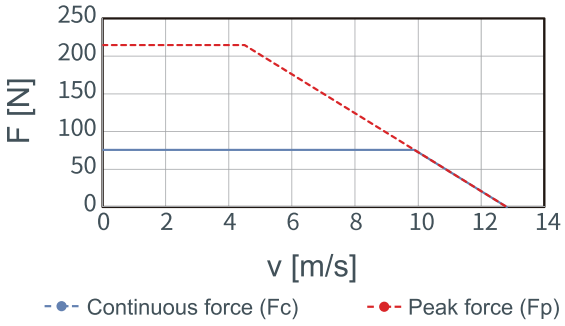
TJM SERIES LINEAR MOTOR SPECIFICATIONS

▶TJM50 linear motor specifications

●Force-velocity curves

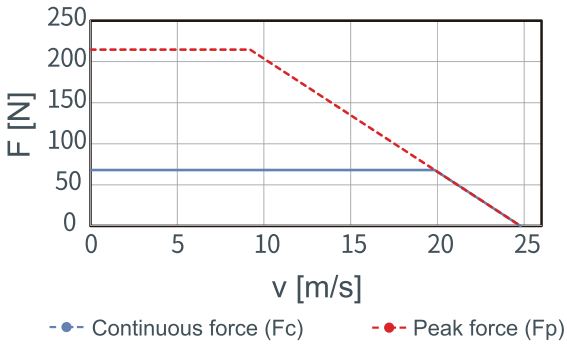
TJM50-S2

DC bus voltage:310V



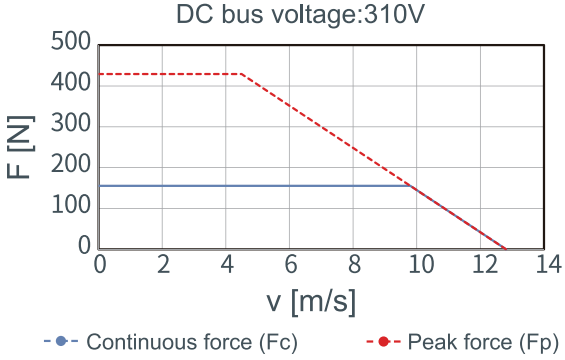
TJM50-S2

DC bus voltage:600V



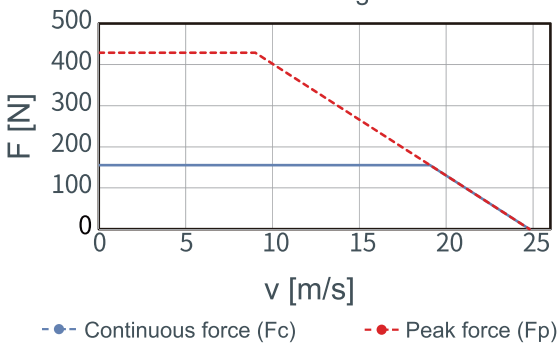
TJM50-S4

DC bus voltage:310V



TJM50-S4

DC bus voltage:600V



Technical data for TJM50

		Unit	TJM50-S2	TJM50-S4
			Series	Parallel
Forces and electrical parameters				
Peak force		N	219	465
Continuous force		N	73	155
Motor constant at T_max		N/Sqrt(w)	8.9	13.4
Winding code		-	S2	S4
Peak current		Arms	9	18
Continuous current		Arms	2.3	4.6
Maximum continuous power dissipation		W	66.6	133.3
Resistance		Ω	6.3	3.2
Inductance		mH	24.8	12.4
Back EMF constant		Vpeak/(m/s), L-L	25.7	27.3
Force constant		N/Arms	31.7	33.7
Electrical time constant		ms	3.9	3.9
Max. DC bus voltage		V	600	600
Attraction force		kN	0.38	0.76
Magnetic period		mm	20	20
Mechanical parameters				
Weight of forcer		kg	0.6	1.1
Length of forcer		mm	96	176
Unit mass of stator		kg/m	3.3	3.3
Stator length		mm	80/200/400	
General data				
Insulation class		-	B	
Protection class		-	IP56	
Ambient temperature	Operating temperature	°C	0 to 60	
	Storage temperature	°C	-15 to 70	

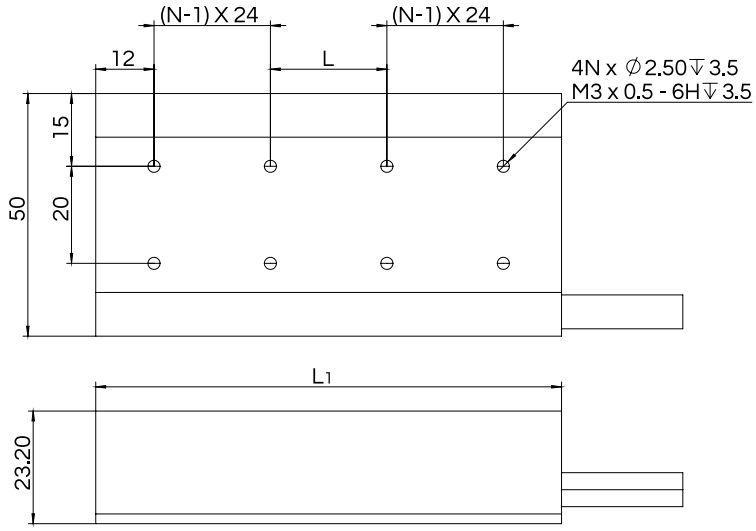
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TJM50

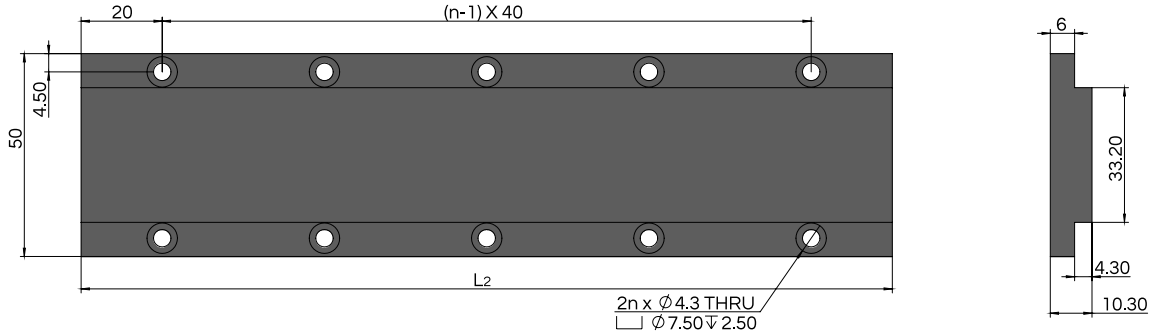
Forcer	Dimensional Variations		
	L	L_1	N
TJM50-S2	24	96	2
TJM50-S4	56	176	3

Stator	Dimensional Variations	
	L_2	n
TJM50-TL80	80	2
TJM50-TL200	200	5
TJM50-TL400	400	10

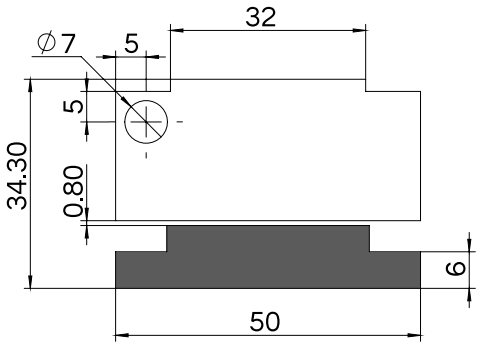
● *Dimensions of forcer*



● *Dimensions of stator*



● *Assembly Side View*



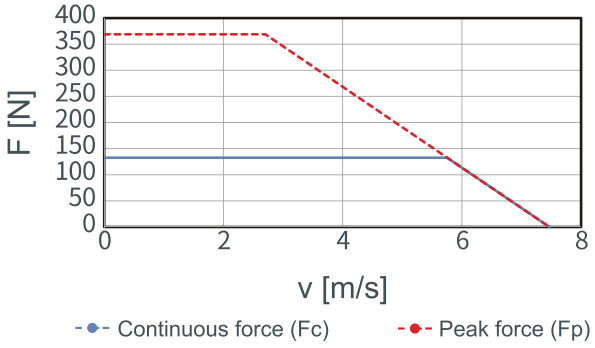
TJM SERIES LINEAR MOTOR SPECIFICATIONS

▶ *TJM75 linear motor specifications*

● *Force-velocity curves*

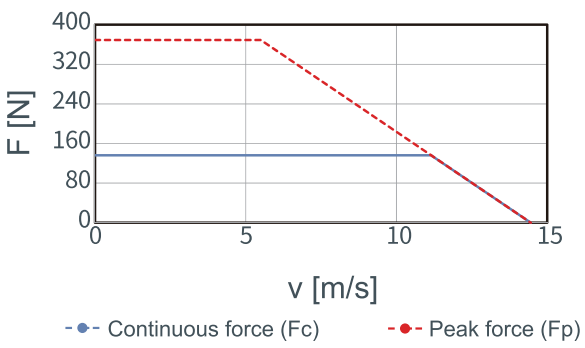
TJM75-S2

DC bus voltage:310V



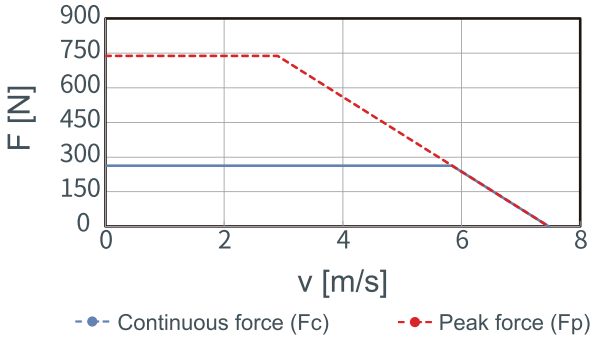
TJM75-S2

DC bus voltage:600V



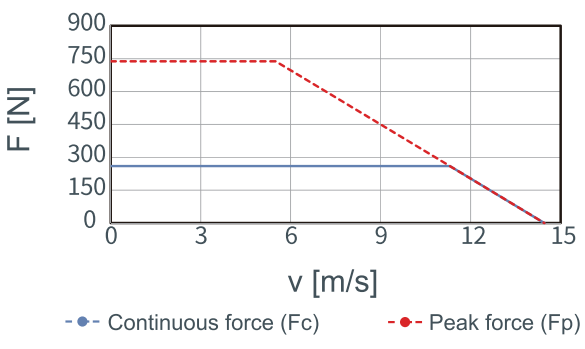
TJM75-S4

DC bus voltage:310V



TJM75-S4

DC bus voltage:600V



Technical data for TJM75

		Unit	TJM75-S2	TJM75-S4
			Series	Parallel
Forces and electrical parameters				
Peak force		N	417	810
Continuous force		N	139	270
Motor constant at T_max		N/Sqrt(w)	13.5	18.6
Winding code		-	S2	S4
Peak current		Arms	9	18
Continuous current		Arms	2.3	4.6
Maximum continuous power dissipation		W	105.8	211.5
Resistance		Ω	10	5
Inductance		mH	39	19.5
Back EMF constant		Vpeak/(m/s), L-L	49	47.5
Force constant		N/Arms	60.4	58.7
Electrical time constant		ms	3.9	3.9
Max. DC bus voltage		V	600	600
Attraction force		kN	0.65	1.3
Magnetic period		mm	20	20
Mechanical parameters				
Weight of forcer		kg	0.9	1.7
Length of forcer		mm	96	176
Unit mass of stator		kg/m	5	5
Stator length		mm	80/200/400	
General data				
Insulation class		-	B	
Protection class		-	IP56	
Ambient temperature	Operating temperature	°C	0 to 60	
	Storage temperature	°C	-15 to 70	

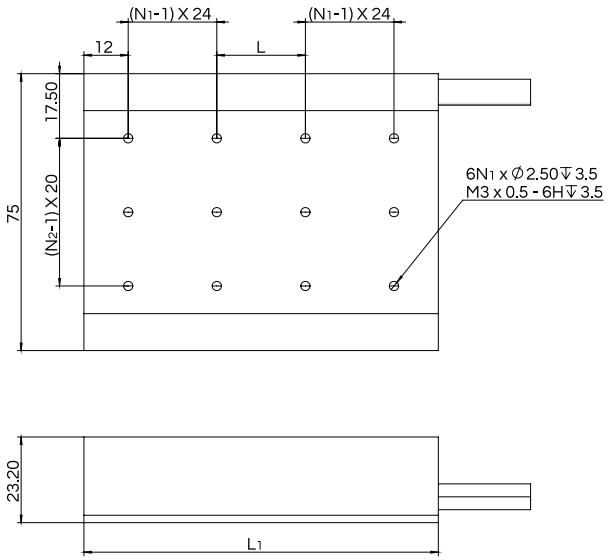
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TJM75

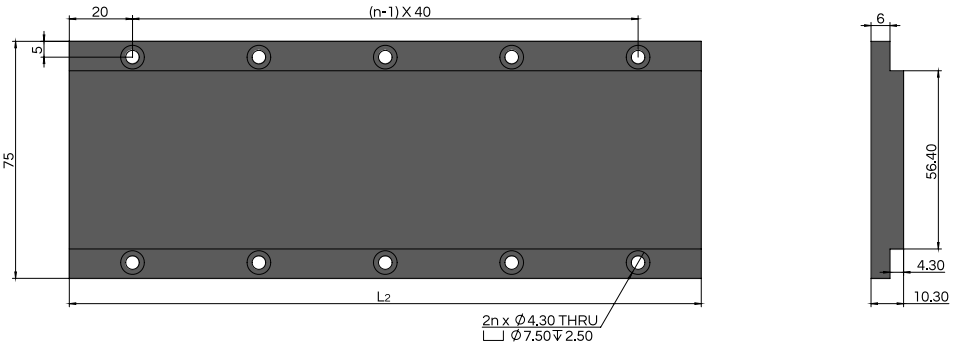
Forcer	Dimensional Variations			
	L	L_1	N_1	N_2
TJM75-S2	24	96	2	3
TJM75-S4	56	176	3	3

Stator	Dimensional Variations	
	L_2	n
TJM75-TL80	80	2
TJM75-TL200	200	5
TJM75-TL400	400	10

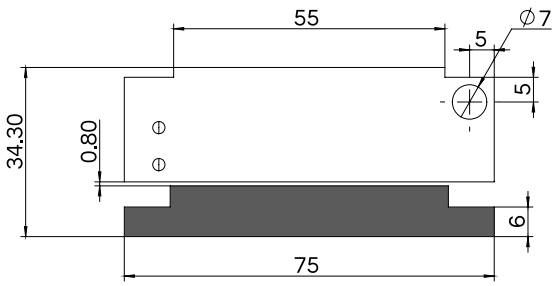
Dimensions of forcer



Dimensions of stator



Assembly Side View



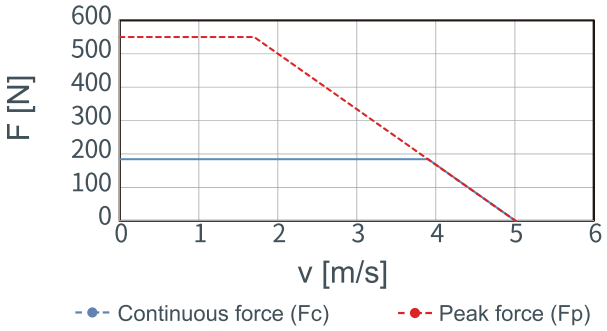
TJM SERIES LINEAR MOTOR SPECIFICATIONS

▶TJM100 linear motor specifications

●Force-velocity curves

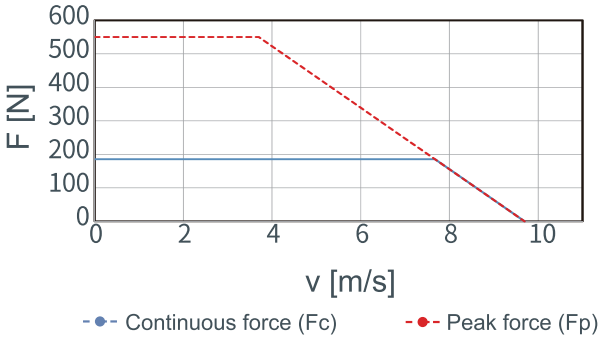
TJM100-S2

DC bus voltage:310V



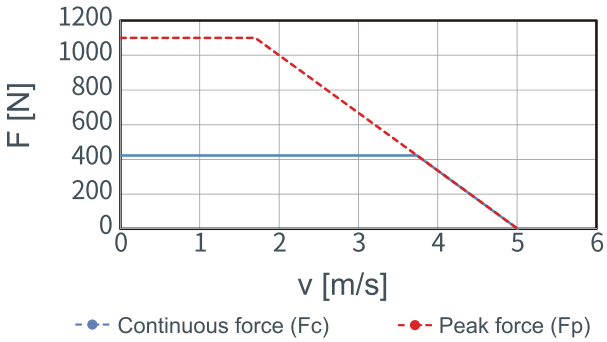
TJM100-S2

DC bus voltage:600V



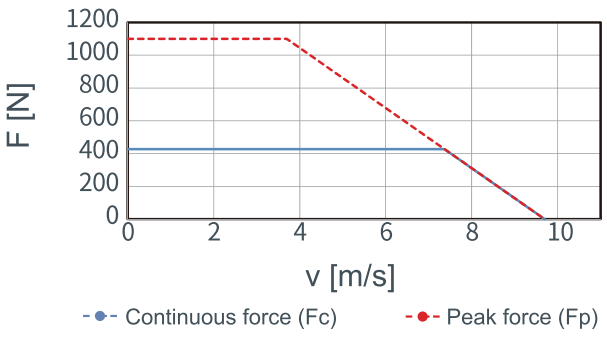
TJM100-S4

DC bus voltage:310V



TJM100-S4

DC bus voltage:600V



Technical data for TJM100

		Unit	TJM100-S2 Series	TJM100-S4 Parallel
Forces and electrical parameters				
Peak force		N	591	1230
Continuous force		N	197	410
Motor constant at T_max		N/Sqrt(w)	16.3	24
Winding code		-	S2	S4
Peak current		Arms	9	18
Continuous current		Arms	2.3	4.6
Maximum continuous power dissipation		W	146	291.9
Resistance		Ω	13.8	6.9
Inductance		mH	57	28
Back EMF constant		Vpeak/(m/s), L-L	69.4	72.2
Force constant		N/Arms	85.7	89.1
Electrical time constant		ms	4.1	4.1
Max. DC bus voltage		V	600	600
Attraction force		kN	0.97	1.94
Magnetic period		mm	20	20
Mechanical parameters				
Weight of forcer		kg	1.2	2.3
Length of forcer		mm	96	176
Unit mass of stator		kg/m	7	7
Stator length		mm	80/200/400	
General data				
Insulation class		-	B	
Protection class		-	IP56	
Ambient temperature	Operating temperature	°C	0 to 60	
	Storage temperature	°C	-15 to 70	

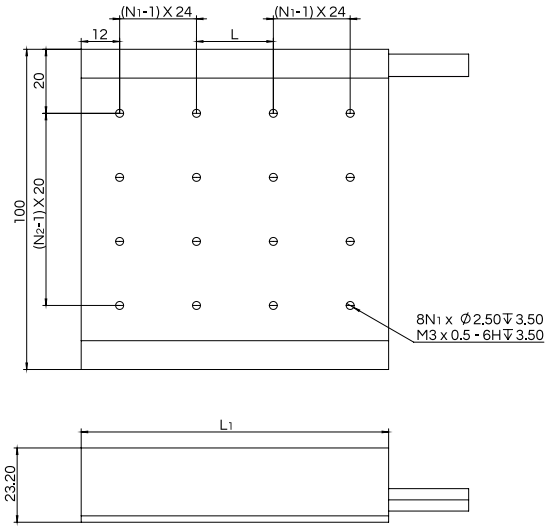
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TJM100

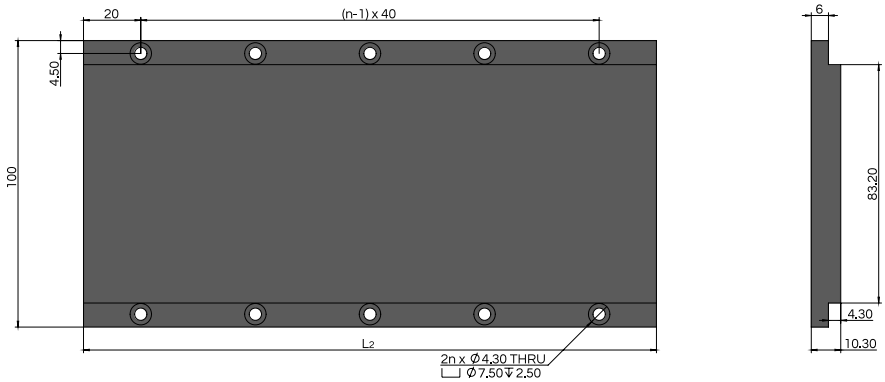
Forcer	Dimensional Variations			
	L	L_1	N_1	N_2
TJM100-S2	24	96	2	4
TJM100-S4	56	176	3	4

Stator	Dimensional Variations	
	L_2	n
TJM100-TL80	80	2
TJM100-TL200	200	5
TJM100-TL400	400	10

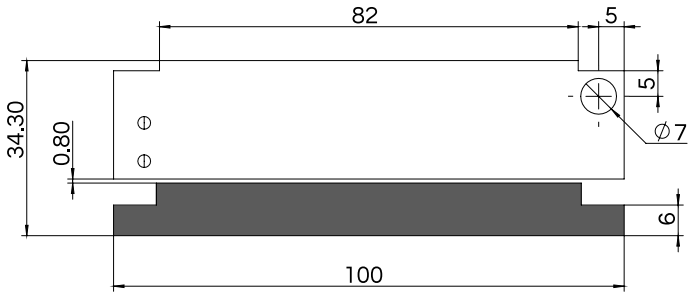
● *Dimensions of forcer*



● *Dimensions of stator*



● *Assembly Side View*



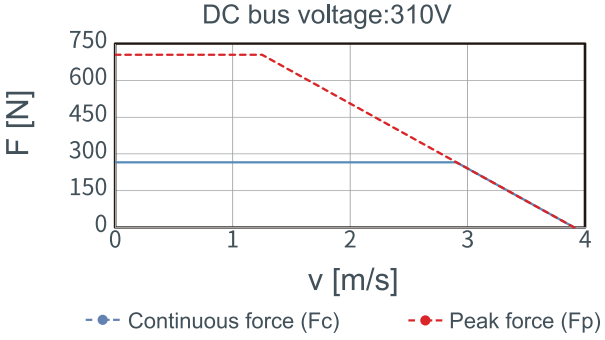
TJM SERIES LINEAR MOTOR SPECIFICATIONS

▶*TJM125 linear motor specifications*

●*Force-velocity curves*

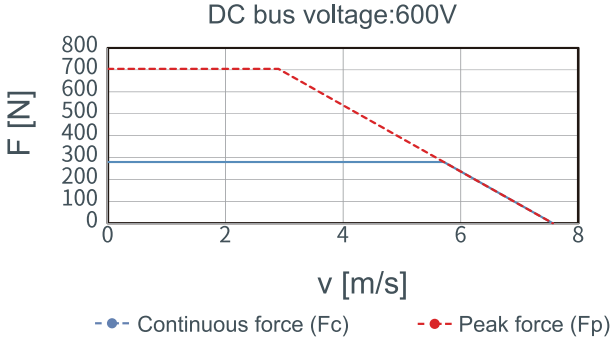
TJM125-S2

DC bus voltage:310V



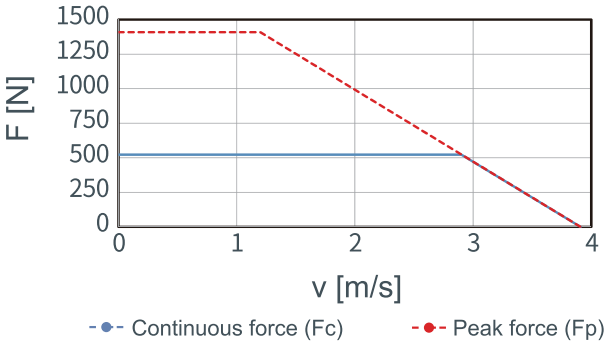
TJM125-S2

DC bus voltage:600V



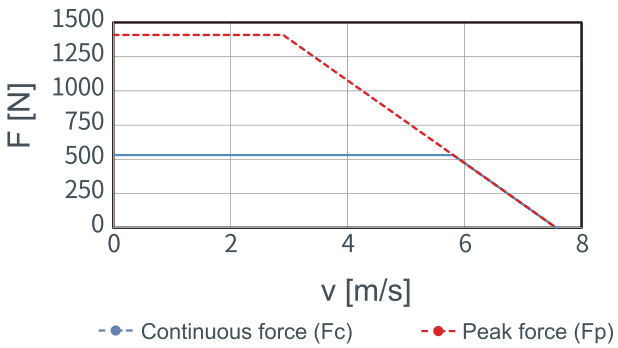
TJM125-S4

DC bus voltage:310V



TJM125-S4

DC bus voltage:600V



Technical data for TJM125

		Unit	TJM125-S2 Series	TJM125-S4 Parallel
Forces and electrical parameters				
Peak force		N	801	1515
Continuous force		N	267	505
Motor constant at T_max		N/Sqrt(w)	19.9	26.6
Winding code		-	S2	S4
Peak current		Arms	9	18
Continuous current		Arms	2.3	4.6
Maximum continuous power dissipation		W	179.8	359.6
Resistance		Ω	17	8.5
Inductance		mH	69	35
Back EMF constant		Vpeak/(m/s), L-L	94	88.9
Force constant		N/Arms	116.1	109.8
Electrical time constant		ms	4.1	4.1
Max. DC bus voltage		V	600	600
Attraction force		kN	1.25	1.94
Magnetic period		mm	20	20
Mechanical parameters				
Weight of forcer		kg	1.5	2.9
Length of forcer		mm	96	176
Unit mass of stator		kg/m	8.8	8.8
Stator length		mm	80/200/400	
General data				
Insulation class		-	B	
Protection class		-	IP56	
Ambient temperature	Operating temperature	°C	0 to 60	
	Storage temperature	°C	-15 to 70	

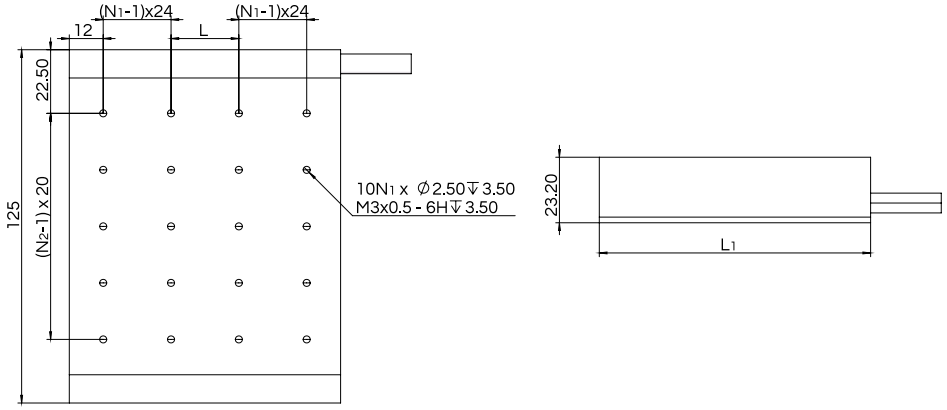
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TJM125

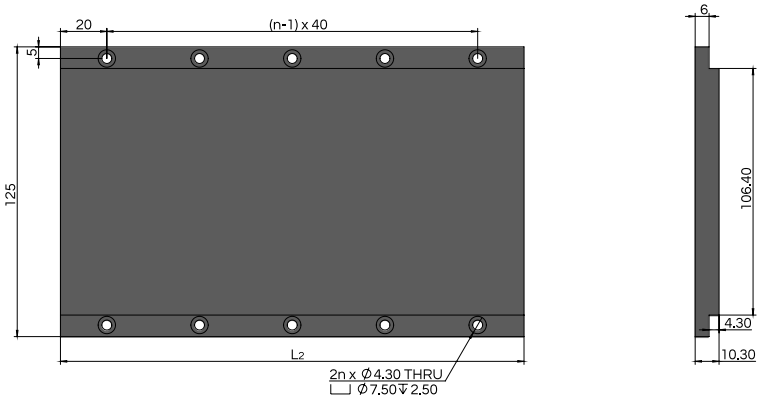
Forcer	Dimensional Variations			
	L	L_1	N_1	N_2
TJM125-S2	24	96	2	5
TJM125-S4	56	176	3	5

Stator	Dimensional Variations	
	L_2	n
TJM125-TL80	80	2
TJM125-TL200	200	5
TJM125-TL400	400	10

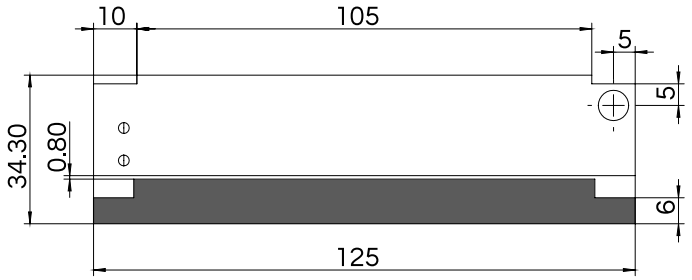
Dimensions of forcer



Dimensions of stator



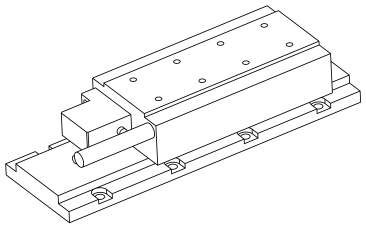
Assembly Side View

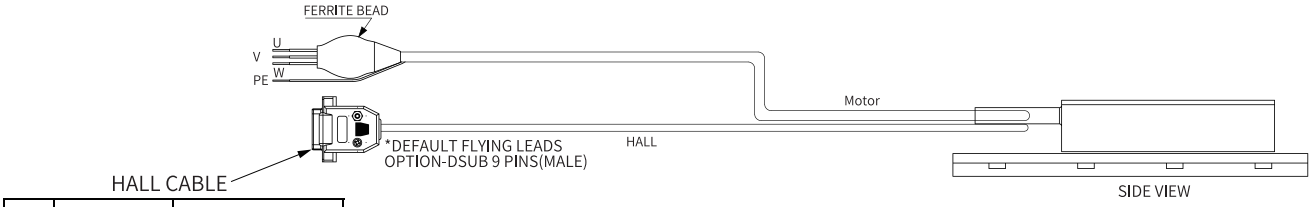


MOTOR WIRING DIAGRAM

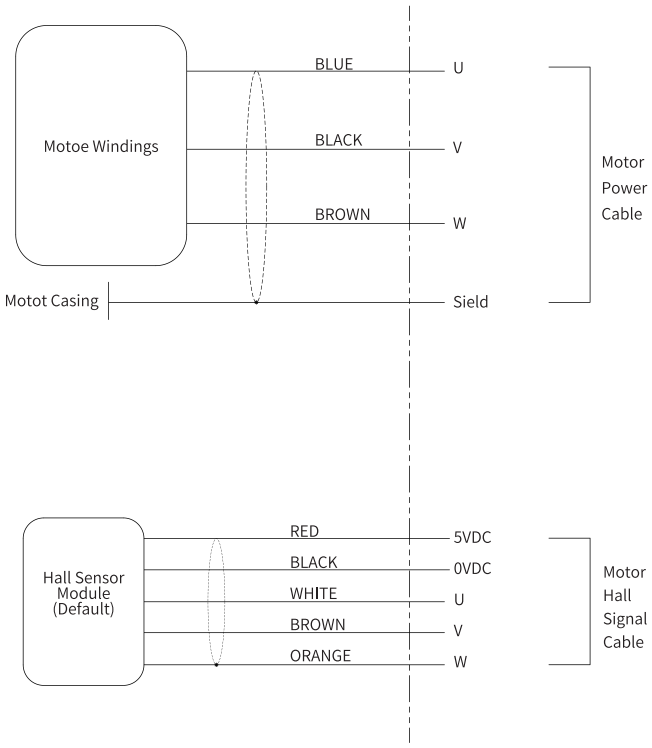
MOTOR CABLE

PIN	DESCRIPTION	COLOR
-	U	BLUE
-	V	BLACK
-	W	BROWN
-	PE	YELLOW/GREEN



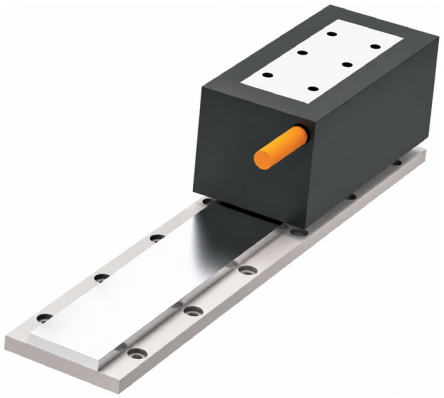


PIN	DESCRIPTION	COLOR
1	5VDC	RED
2	0VDC	BLACK
3	U	WHITE
4	V	BROWN
5	W	ORANGE



TKM SERIES

Motor Overview



The TKM series are cored linear motors with high thrust, wide force range, compact structure, making them especially suitable for high-thrust applications. The lower-thrust models within the TKM series complement the TPM and TJM series, offering a wider variety of available form factors.

- Continuous Thrust Fcn=131.1N~4621N
- Peak Thrust Fpk=288.4N~10166.2N

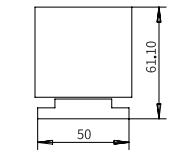
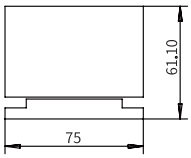
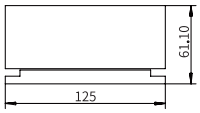
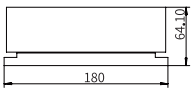
Product Features

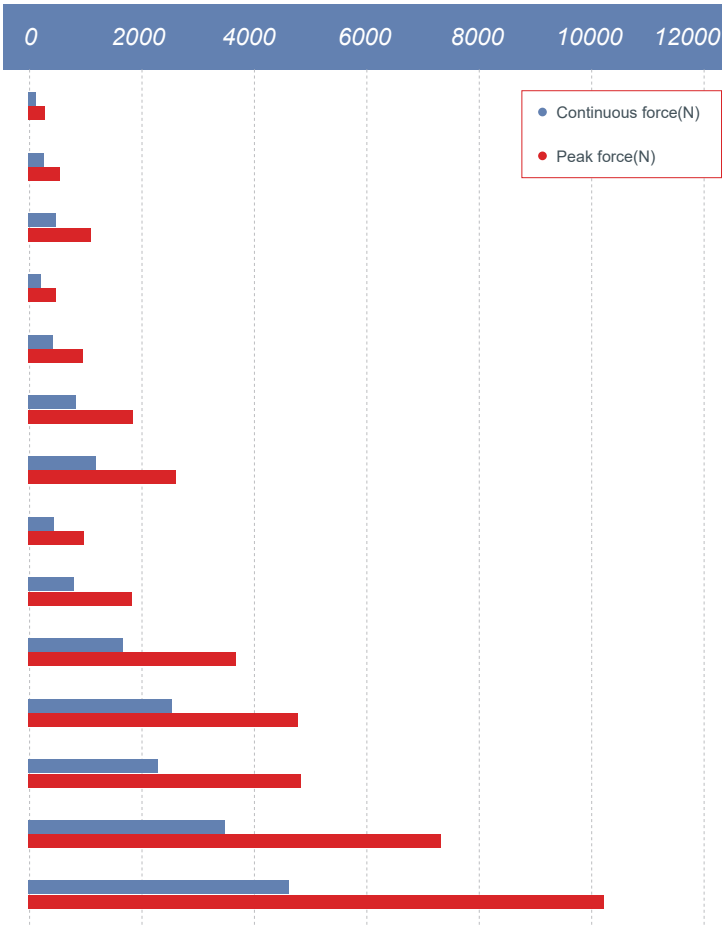
- Featuring iron-core technology with low cogging force.
- High continuous thrust and peak force.
- Optional Hall sensor module available.
- High motor constant.
- Multiple coil lengths available.

Operating Conditions

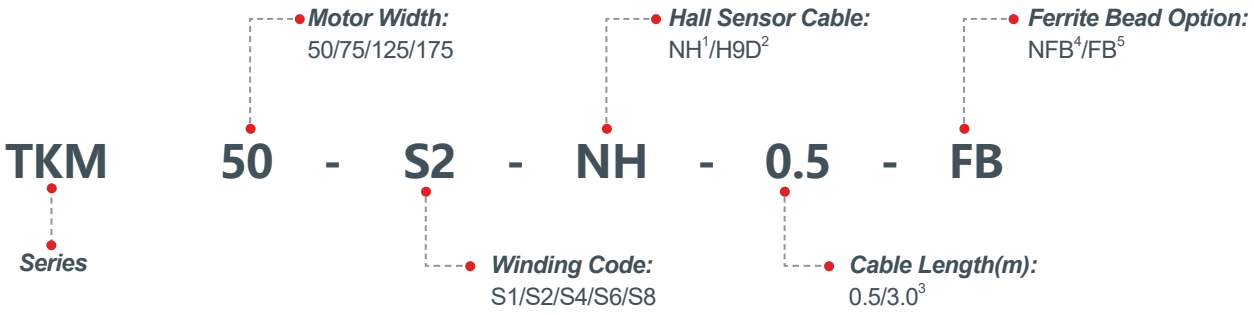
Suitable for point-to-point micrometer-level rapid positioning, capable of speeds up to 5 m/s or higher, with unlimited travel (up to 100 m or more).

Typical applications include high-speed handling and transfer in semiconductor, photovoltaic, and lithium battery production, as well as in glass and LCD panel equipment; precision machining on lathes; industrial printing; laser processing; and other scenarios requiring high-speed, high-precision motion with strict trajectory tracking or speed control.

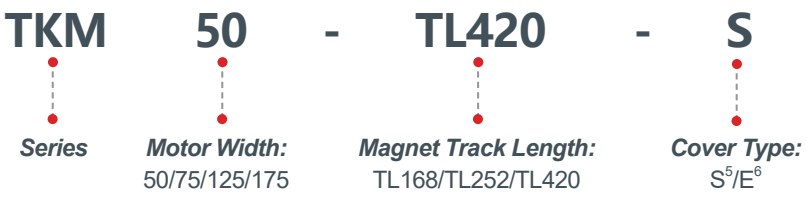
Motor Outline Dimensions	Model	Forcer Length (mm)
	TKM50-S1	114
	TKM50-S2	198
	TKM50-S4	366
	TKM75-S1	114
	TKM75-S2	198
	TKM75-S4	366
	TKM75-S6	534
	TKM125-S1	114
	TKM125-S2	198
	TKM125-S4	366
	TKM125-S6	534
	TKM175-S4	366
	TKM175-S6	534
	TKM175-S8	702



ORDER CODE OF PRIMARY PART (FORCER)



ORDER CODE OF MAGNET TRACK (STATOR)



- 1 NH = No built-in Hall sensor
- 2 H9D = With Hall sensor module; Hall cable terminated with a 9-pin D-Sub connector
- 3 Standard cable lengths: 0.5 m and 3 m. Custom lengths on request.
- 3 NFB = Without ferrite bead
- 4 FB = With ferrite bead
- 5 S = Stainless steel cover
- 6 E = Epoxy resin cover
- 7 CE certification by default
- 8 Standard models are not equipped with Hall sensors by default; optional upon request

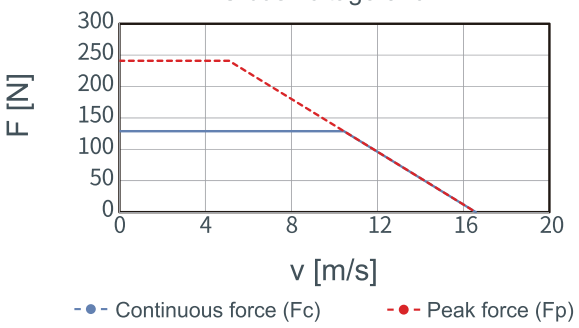
TKM SERIES LINEAR MOTOR SPECIFICATIONS

▶TKM50 linear motor specifications

●Force-velocity curves

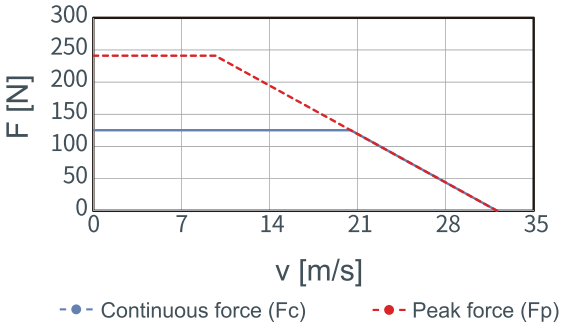
TKM50-S1

DC bus voltage:310V



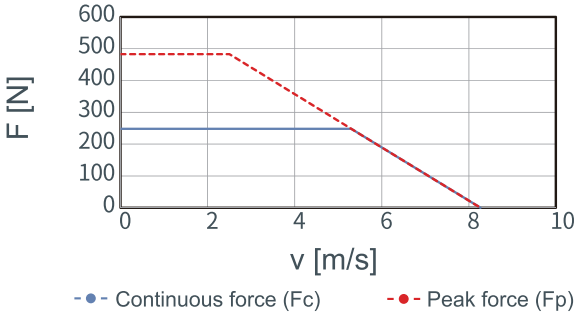
TKM50TKM50-S1

DC bus voltage:600V



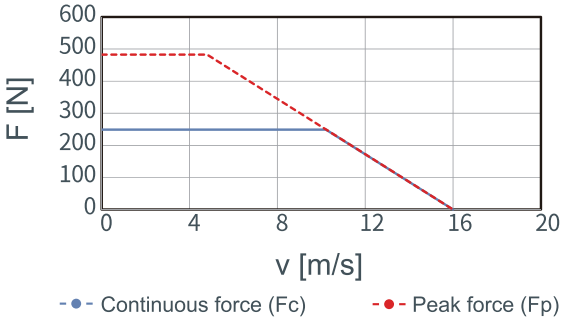
TKM50-S2

DC bus voltage:310V



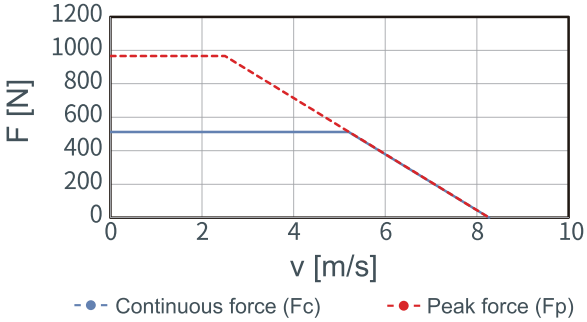
TKM50-S2

DC bus voltage:600V



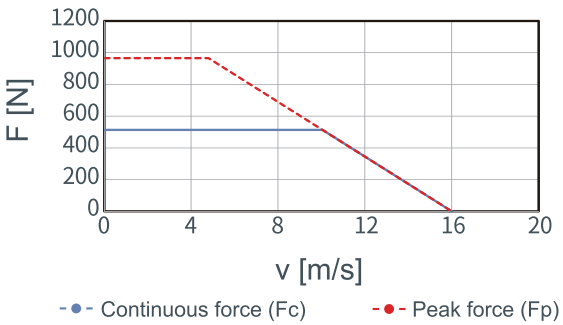
TKM50-S4

DC bus voltage:310V



TKM50-S4

DC bus voltage:600V



Technical data for TKM50

		Unit	TKM50-S1 Series	TKM50-S2 Series	TKM50-S4 Parallel
Forces and electrical parameters					
Peak force		N	288.4	551.8	1103.5
Continuous force		N	131.1	250.8	501.6
Motor constant at T_max		N/Sqrt(w)	14.8	20	28.3
Winding code		-	S1	S2	S4
Peak current		Arms	14.4	14.4	28.8
Continuous current		Arms	4.8	4.8	9.6
Maximum continuous power dissipation		W	78.3	156.6	313.2
Resistance		Ω	1.7	3.4	1.7
Inductance		mH	29	58.3	29
Back EMF constant		Vpeak/(m/s), L-L	22.1	42.3	42.3
Force constant		N/Arms	27.3	52.3	52.3
Electrical time constant		ms	17.1	17.1	17.1
Max. DC bus voltage		V	600	600	600
Attraction force		kN	0.4	0.8	1.6
Magnetic period		mm	42	42	42
Mechanical parameters					
Weight of forcer		kg	1.65	2.75	5
Length of forcer		mm	114	198	366
Unit mass of stator		kg/m	2.6	2.6	2.6
Stator length		mm	168/252/420		
General data					
Insulation class		-	B		
Protection class		-	IP56		
Ambient temperature	Operating temperature	°C	0 to 60		
	Storage temperature	°C	-15 to 70		

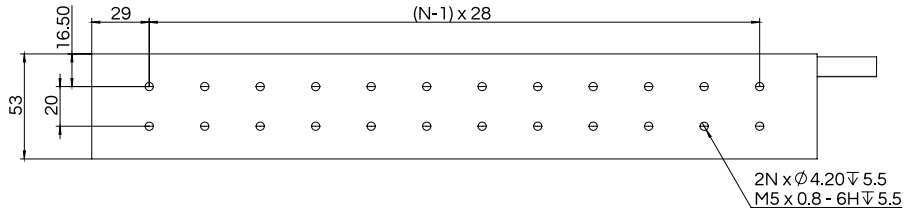
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

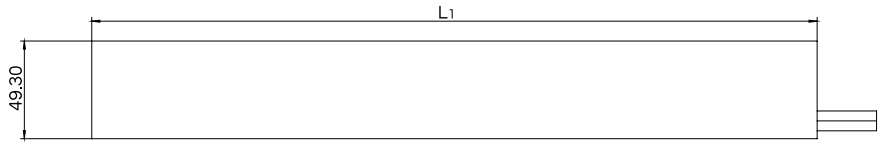
TKM50

Forcer	Dimensional Variations	
	L_1	N
TKM50-S1	114	3
TKM50-S2	198	6
TKM50-S4	366	12

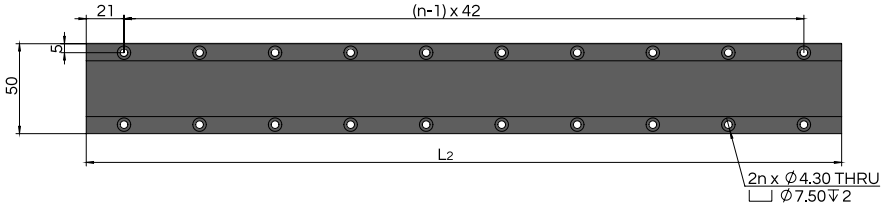
Stator	Dimensional Variations	
	L_2	n
TKM50-TL168	168	4
TKM50-TL252	252	6
TKM50-TL420	420	10

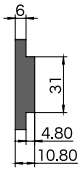
Dimensions of forcer



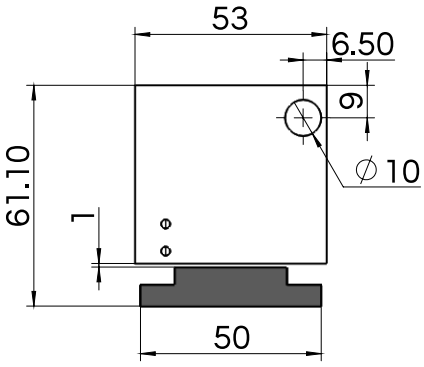


Dimensions of stator





Assembly Side View

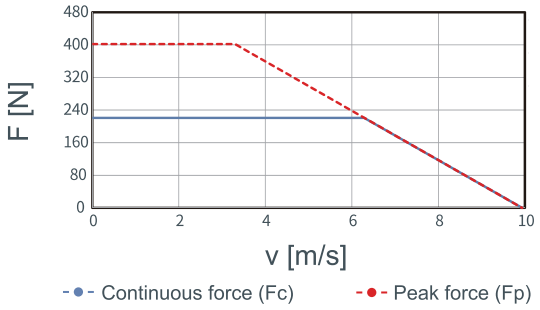


TKM SERIES LINEAR MOTOR SPECIFICATIONS

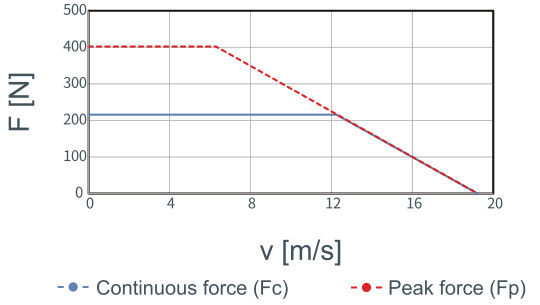
▶TKM75 linear motor specifications

●Force-velocity curves

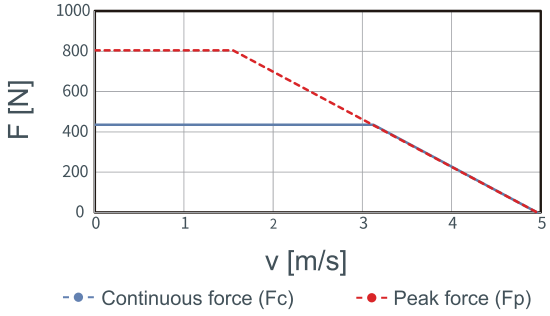
TKM75-S1
DC bus voltage:310V



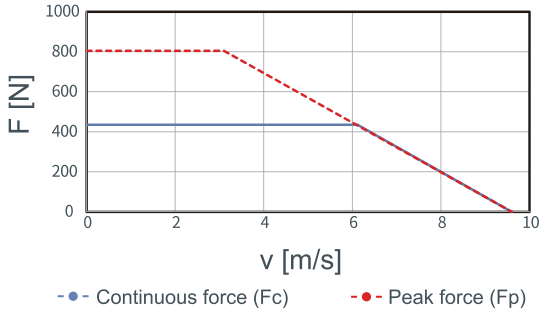
TKM75-S1
DC bus voltage:600V



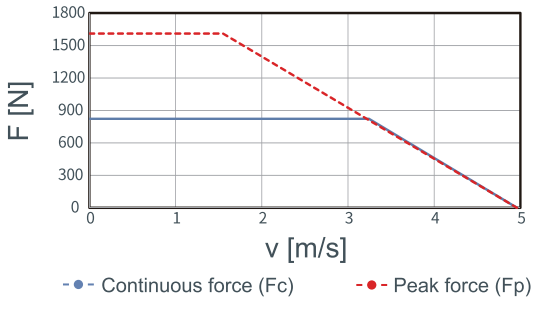
TKM75-S2
DC bus voltage:310V



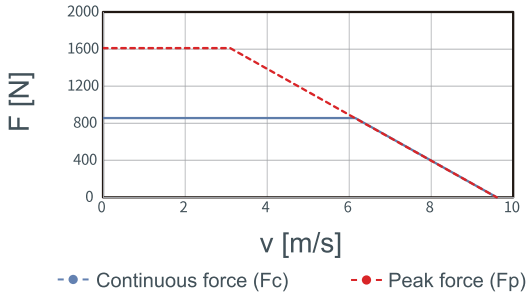
TKM75-S2
DC bus voltage:600V



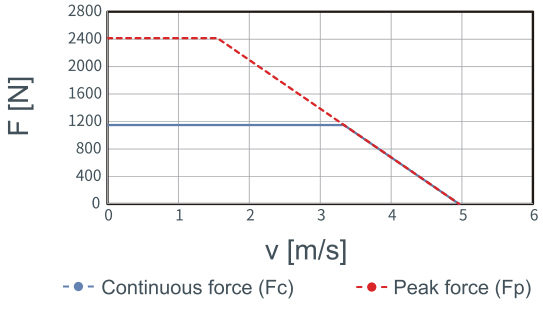
TKM75-S4
DC bus voltage:310V



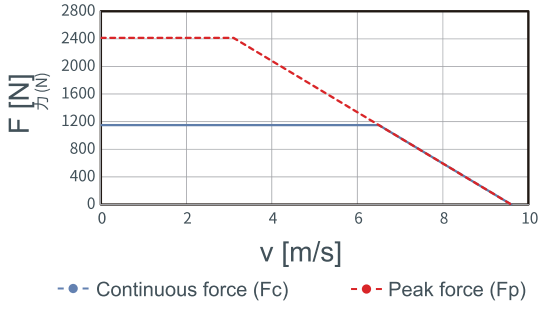
TKM75-S4
DC bus voltage:600V



TKM75-S6
DC bus voltage:310V



TKM75-S6
DC bus voltage:600V



Technical data for TKM75

		Unit	TKM75-S1 Series	TKM75-S2 Series	TKM75-S4 Parallel	TKM75-S6 Parallel
Forces and electrical parameters						
Peak force		N	489.1	934.1	1823.8	2601.5
Continuous force		N	222.3	424.6	829	1182.5
Motor constant at T_max		N/Sqrt(w)	21.1	28.6	39.4	49.8
Winding code		-	S1	S2	S4	S6
Peak current		Arms	14.4	14.4	28.8	43.2
Continuous current		Arms	4.8	4.8	9.6	13.7
Maximum continuous power dissipation		W	110.6	221.1	442.2	562.9
Resistance		Ω	2.4	4.8	2.4	1.5
Inductance		mH	44	88	44	27.7
Back EMF constant		Vpeak/(m/s), L-L	37.5	71.7	69.9	69.9
Force constant		N/Arms	46.3	88.5	86.4	86.3
Electrical time constant		ms	18.3	18.3	18.3	18.5
Max. DC bus voltage		V	600	600	600	600
Attraction force		kN	0.7	1.3	2.7	4.2
Magnetic period		mm	42	42	42	42
Mechanical parameters						
Weight of forcer		kg	2.35	3.95	7.3	11.7
Length of forcer		mm	114	198	366	534
Unit mass of stator		kg/m	4.8	4.8	4.8	4.8
Stator length		mm	168/252/420			
General data						
Insulation class		-	B			
Protection class		-	IP56			
Ambient temperature	Operating temperature	°C	0 to 60			
	Storage temperature	°C	-15 to 70			

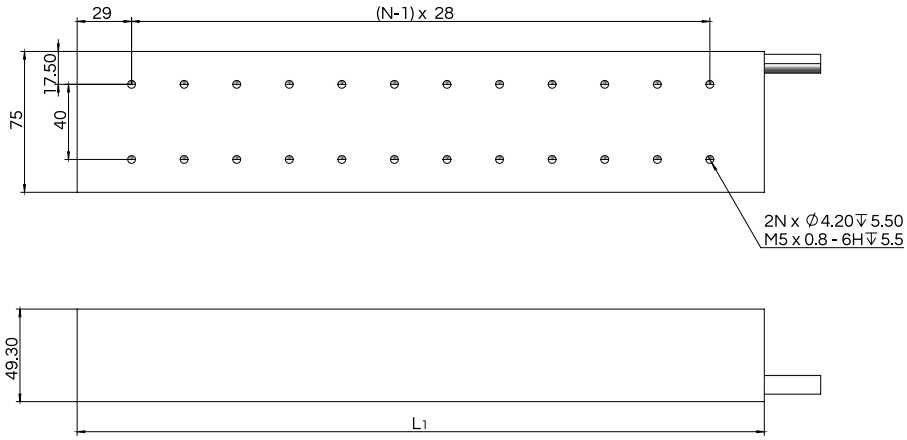
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TKM75

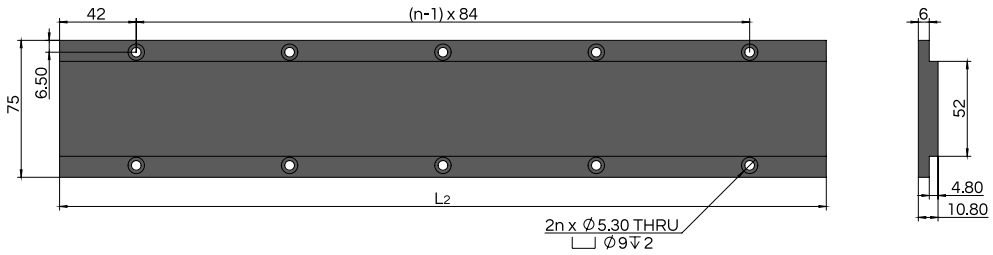
Forcer	Dimensional Variations	
	L_1	N
TKM75-S1	114	3
TKM75-S2	198	6
TKM75-S4	366	12
TKM75-S6	534	18

Stator	Dimensional Variations	
	L_2	n
TKM75-TL168	168	2
TKM75-TL252	252	3
TKM75-TL420	420	5

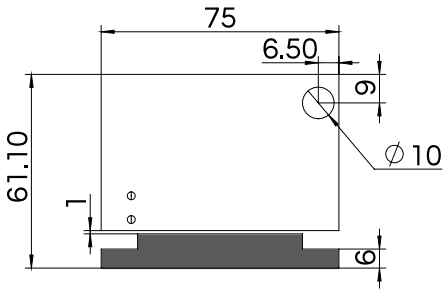
Dimensions of forcer



Dimensions of stator



Assembly Side View

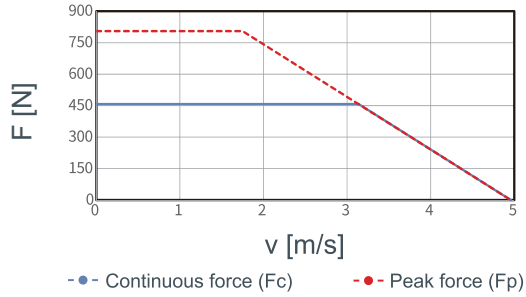


TKM SERIES LINEAR MOTOR SPECIFICATIONS

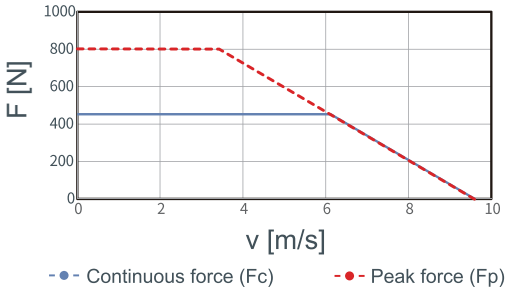
▶TKM125 linear motor specifications

●Force-velocity curves

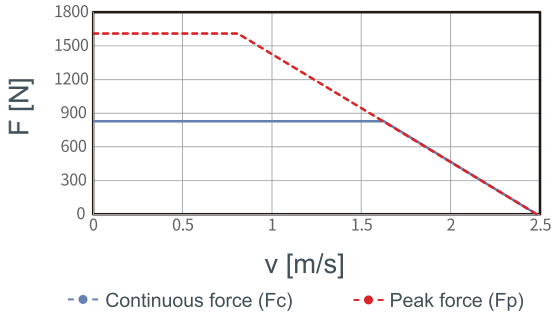
TKM125-S1
DC bus voltage:310V



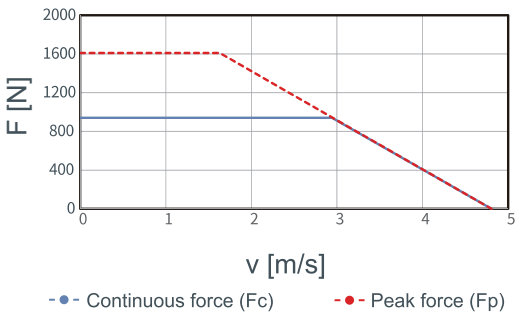
TKM125-S1
DC bus voltage:600V



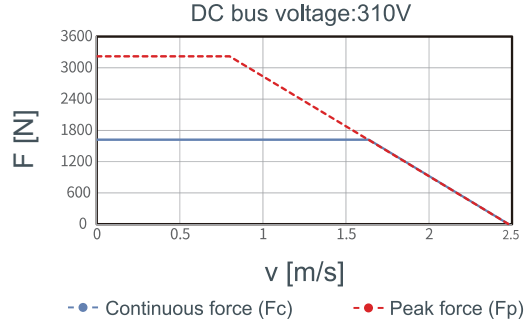
TKM125-S2
DC bus voltage:310V



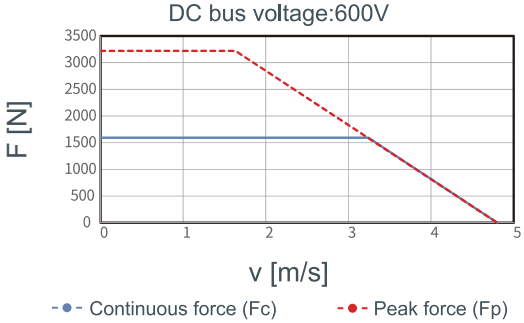
TKM125-S2
DC bus voltage:600V



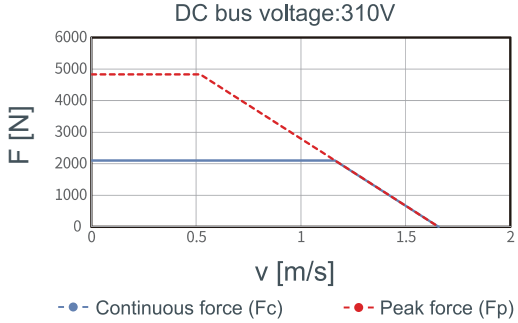
TKM125-S4
DC bus voltage:310V



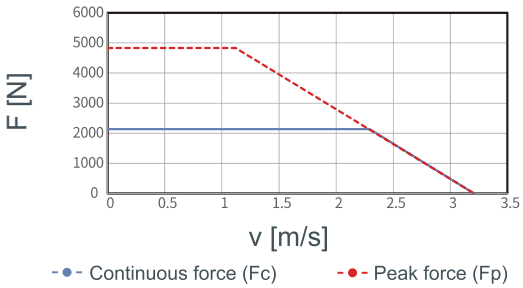
TKM125-S4
DC bus voltage:600V



TKM125-S6
DC bus voltage:310V



TKM125-S6
DC bus voltage:600V



Technical data for TKM125

		Unit	TKM125-S1 Series	TKM125-S2 Series	TKM125-S4 Parallel	TKM125-S6 Parallel
Forces and electrical parameters						
Peak force		N	992.2	1852.4	3658.6	5557.2
Continuous force		N	451	842	1663	2526
Motor constant at T_max		N/Sqrt(w)	33.2	43.9	61.3	80.9
Winding code		-	S1	S2	S4	S6
Peak current		Arms	14.4	14.4	28.8	43.2
Continuous current		Arms	4.8	4.8	9.6	13.7
Maximum continuous power dissipation		W	184.3	368.5	737.1	975.7
Resistance		Ω	4	8	4	2.6
Inductance		mH	79	165	84	50
Back EMF constant		Vpeak/(m/s), L-L	76.1	142.1	140.3	149.3
Force constant		N/Arms	94	175.4	173.2	184.4
Electrical time constant		ms	19.8	20.6	21	19.2
Max. DC bus voltage		V	600	600	600	600
Attraction force		kN	1.3	2.7	5.4	8.1
Magnetic period		mm	42	42	42	42
Mechanical parameters						
Weight of forcer		kg	4	7	12.85	19.5
Length of forcer		mm	114	198	366	534
Unit mass of stator		kg/m	8.6	8.6	8.6	8.6
Stator length		mm	168/252/420			
General data						
Insulation class		-	B			
Protection class		-	IP56			
Ambient temperature	Operating temperature	°C	0 to 60			
	Storage temperature	°C	-15 to 70			

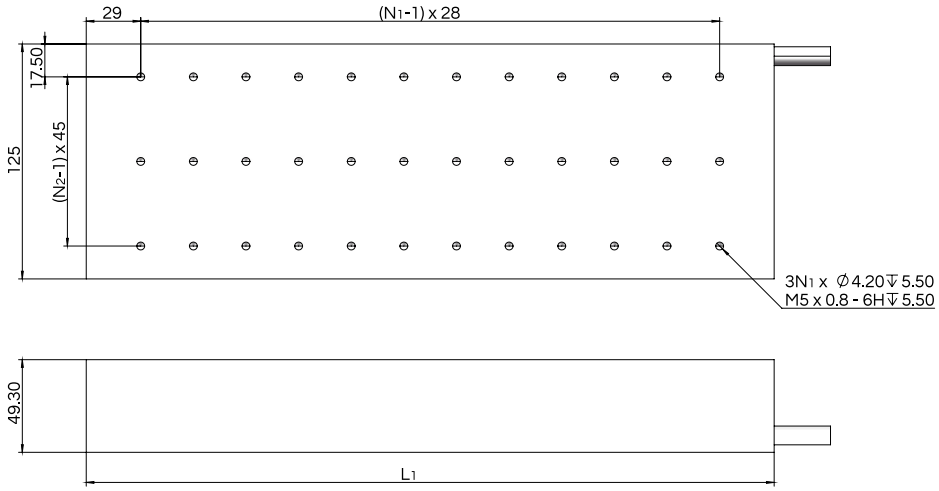
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TKM125

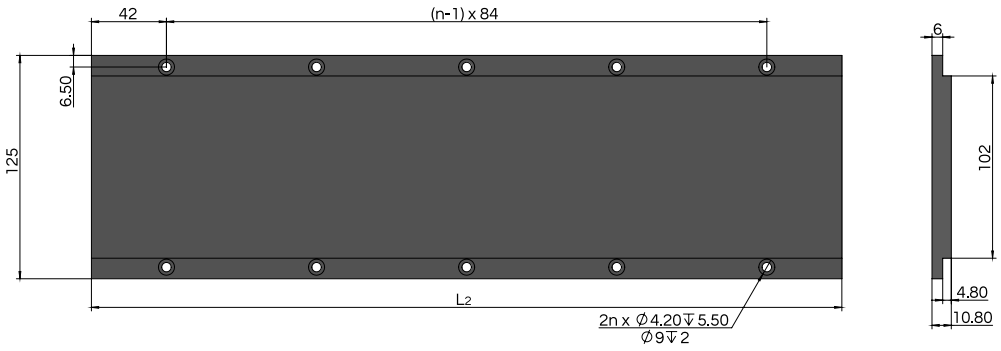
Forcer	Dimensional Variations		
	L_1	N_1	N_2
TKM125-S1	114	3	3
TKM125-S2	198	6	3
TKM125-S4	366	12	3
TKM125-S6	534	18	3

Stator	Dimensional Variations	
	L_2	n
TKM125-TL168	168	2
TKM125-TL252	252	3
TKM125-TL420	420	5

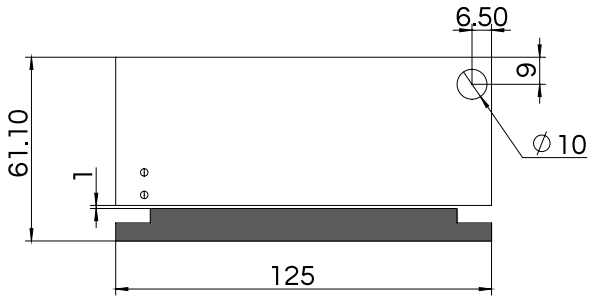
Dimensions of forcer



Dimensions of stator



Assembly Side View



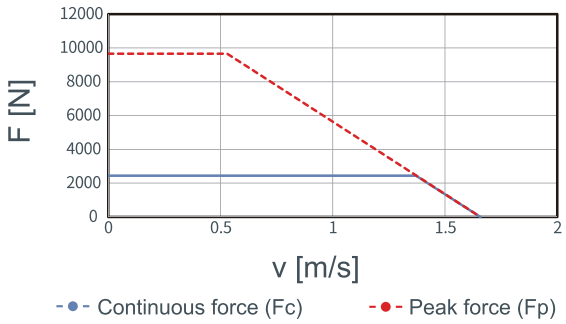
TKM SERIES LINEAR MOTOR SPECIFICATIONS

▶TKM175 linear motor specifications

●Force-velocity curves

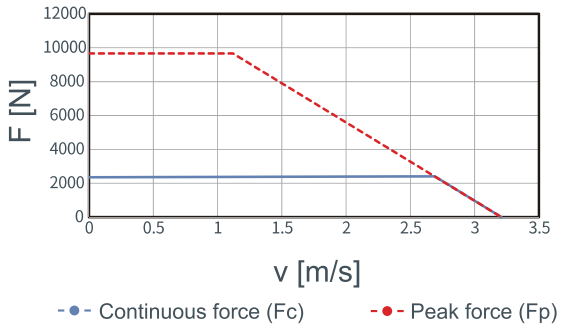
TKM175-S4

DC bus voltage:310V



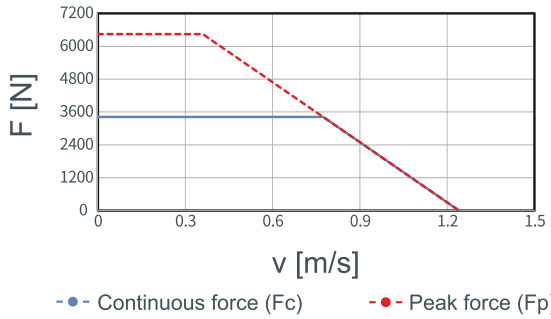
TKM175-S4

DC bus voltage:600V



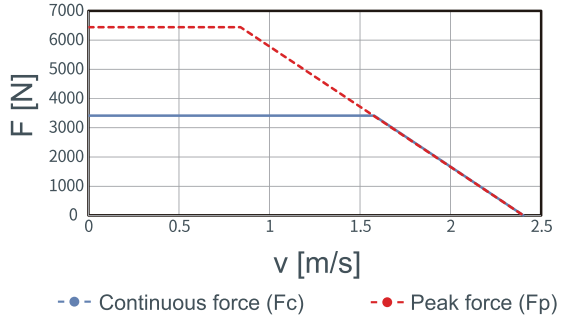
TKM175-S6

DC bus voltage:310V



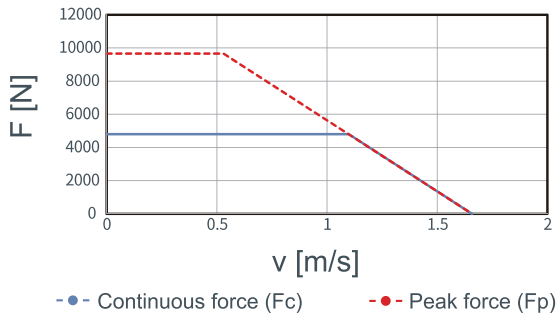
TKM175-S6

DC bus voltage:600V



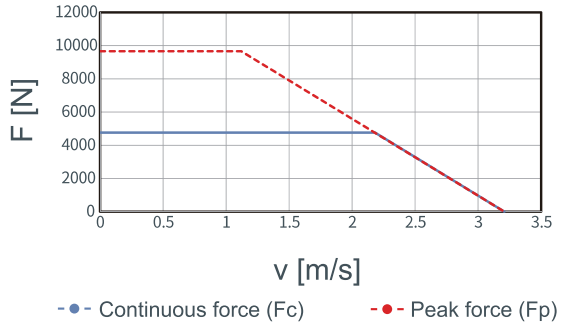
TKM175-S8

DC bus voltage:310V



TKM175-S8

DC bus voltage:600V



Technical data for TKM175

		Unit	TKM75-S1 Series	TKM75-S2 Series	TKM75-S4 Parallel
Forces and electrical parameters					
Peak force		N	5082	7625	10166.2
Continuous force		N	2310	3466	4621
Motor constant at T_max		N/Sqrt(w)	75.4	97	107.7
Winding code		-	S4	S6	S8
Peak current		Arms	28.8	43.2	43.2
Continuous current		Arms	9.6	13.7	19.2
Maximum continuous power dissipation		W	939.7	1275.9	1842.6
Resistance		Ω	5.1	3.4	2.5
Inductance		mH	108	72	53
Back EMF constant		Vpeak/(m/s), L-L	194.9	204.9	194.9
Force constant		N/Arms	240.6	253	240.7
Electrical time constant		ms	21.2	21.2	21.2
Max. DC bus voltage		V	600	600	600
Attraction force		kN	8	12	12
Magnetic period		mm	42	42	42
Mechanical parameters					
Weight of forcer		kg	20.2	28	39.4
Length of forcer		mm	366	534	702
Unit mass of stator		kg/m	15.2	15.2	15.2
Stator length		mm	168/252/420		
General data					
Insulation class		-	B		
Protection class		-	IP56		
Ambient temperature	Operating temperature	°C	0 to 60		
	Storage temperature	°C	-15 to 70		

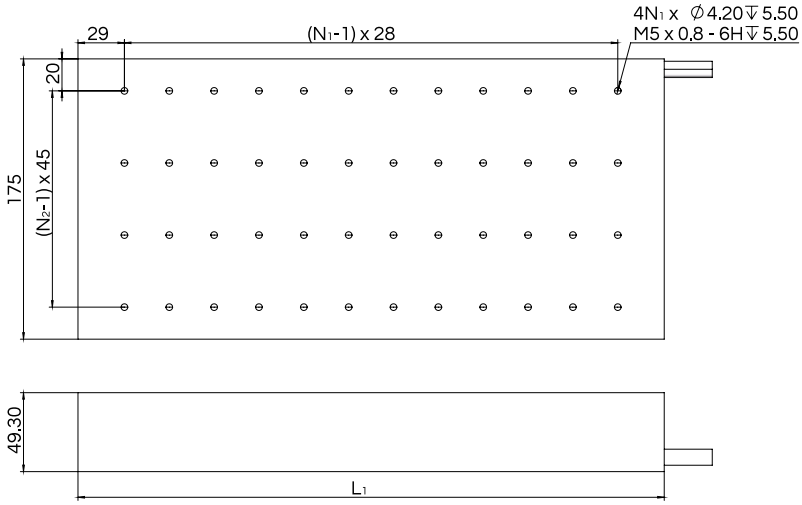
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TKM175

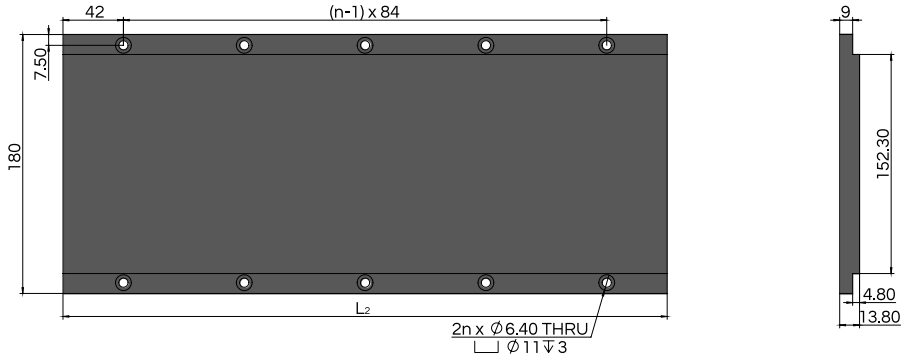
Forcer	Dimensional Variations		
	L_1	N_1	N_2
TKM175-S4	366	12	4
TKM175-S6	534	18	4
TKM175-S8	702	24	4

Stator	Dimensional Variations	
	L_2	n
TKM175-TL168	168	2
TKM175-TL252	252	3
TKM175-TL420	420	5

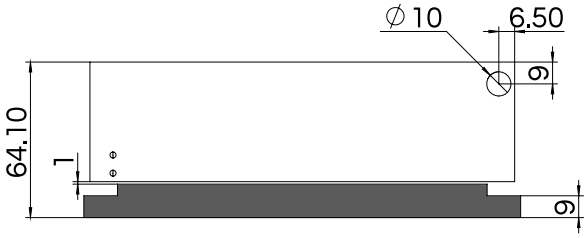
Dimensions of forcer



Dimensions of stator



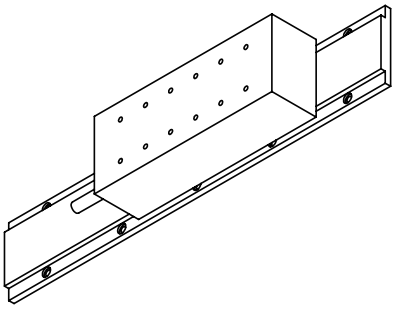
Assembly Side View

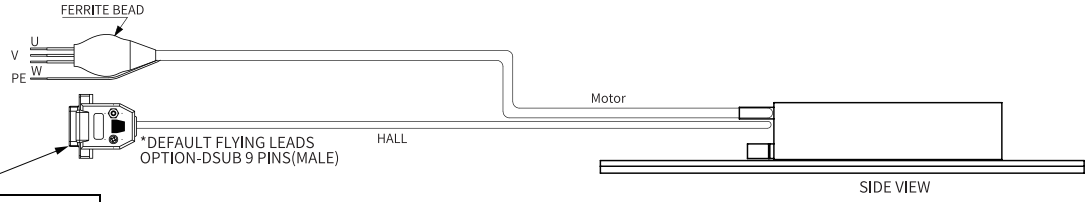


MOTOR WIRING DIAGRAM

MOTOR CABLE

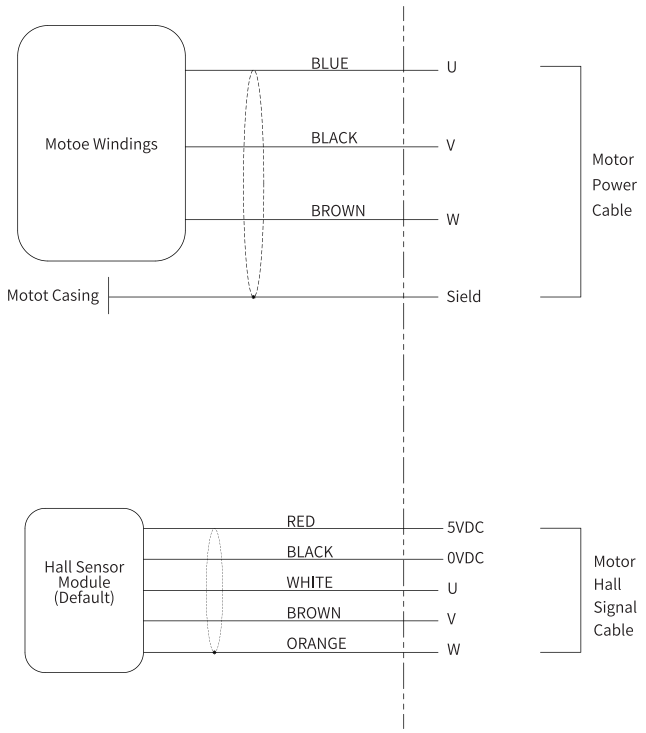
PIN	DESCRIPTION	COLOR
-	U	WHITE
-	V	BLACK
-	W	RED
-	PE	YELLOW/GREEN





HALL CABLE

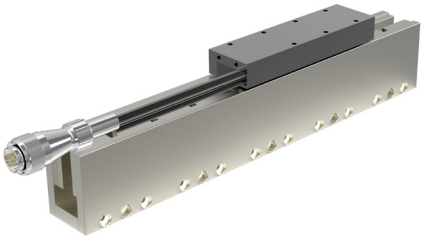
PIN	DESCRIPTION	COLOR
1	5VDC	RED
2	0VDC	BLACK
3	U	WHITE
4	V	BROWN
5	W	ORANGE



TUM SERIES

Motor Overview

The TUM series is a coreless linear motor with zero phase inductance, delivering high continuous thrust in a compact size, along with high peak thrust.



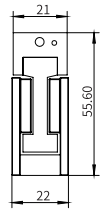
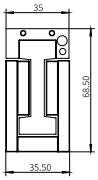
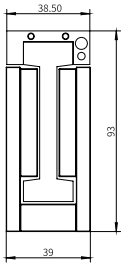
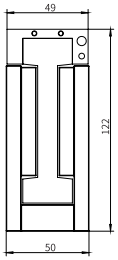
Product Features

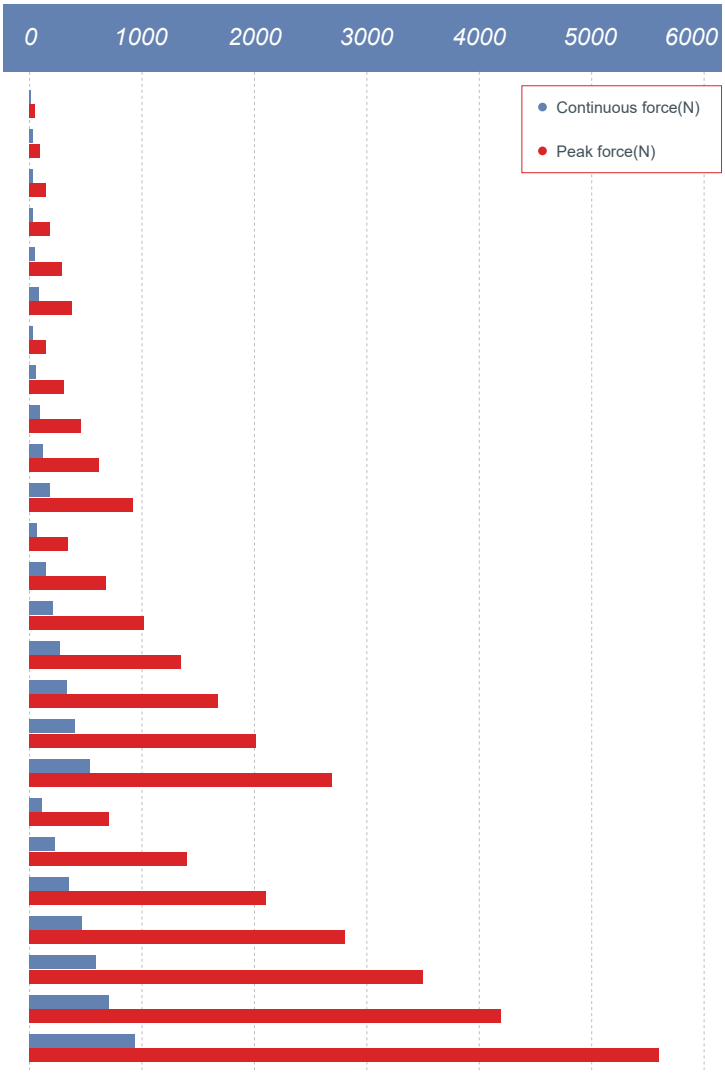
- Coreless technology with zero cogging force.
- High motor constant.
- High continuous thrust and peak force.

Operating Conditions

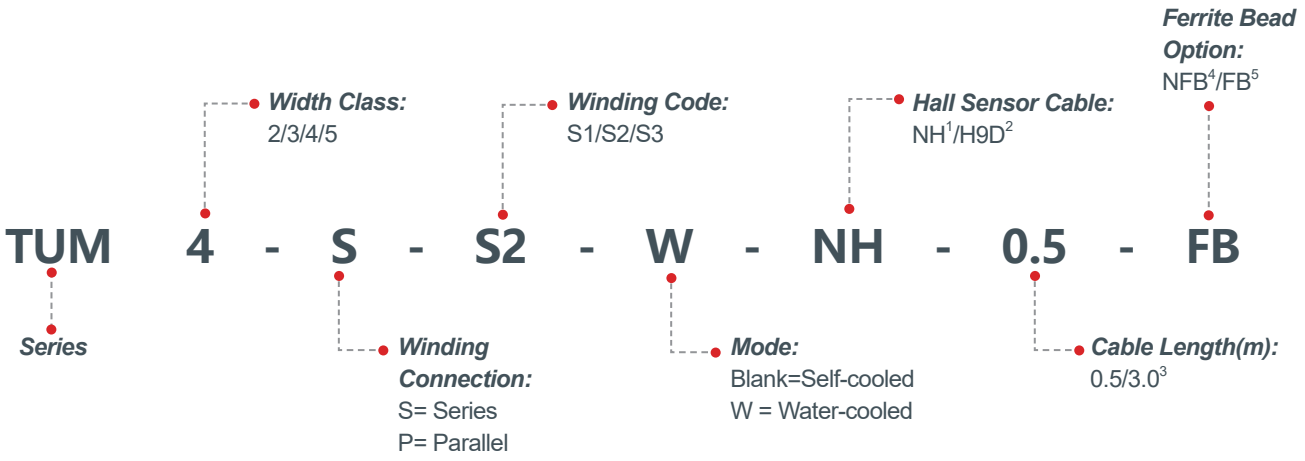
Suitable for micrometer- and nanometer-level point-to-point rapid positioning, ideal for fly-scanning during motion, and for applications requiring extremely smooth velocity profiles. The motor's high peak force enables superior acceleration, making it well-suited for XY differential motion compensation.

Typical industry applications include semiconductor equipment, laser cutting, machine vision and inspection systems, lithium battery manufacturing, and biomedical devices.

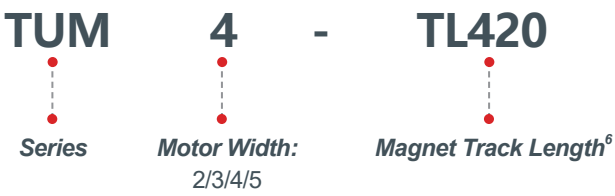
Motor Outline Dimensions	Model	Forcer Length (mm)
	TUM2-S1	31
	TUM2-S2	61
	TUM2-S3	91
	TUM2-S4	121
	TUM2-S6	181
	TUM2-S8	241
	TUM3-S1	61
	TUM3-S2	121
	TUM3-S3	181
	TUM3-S4	241
	TUM3-S6	361
	TUM4-S1	61
	TUM4-S2	121
	TUM4-S3	181
	TUM4-S4	241
	TUM4-S5	301
	TUM4-S6	361
	TUM4-S8	481
	TUM5-S1	85
	TUM5-S2	169
	TUM5-S3	253
	TUM5-S4	337
	TUM5-S5	421
	TUM5-S6	505
	TUM5-S8	673



ORDER CODE OF PRIMARY PART (FORCER)



ORDER CODE OF MAGNET TRACK (STATOR)



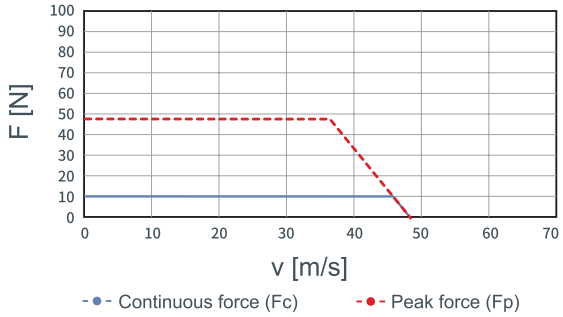
- 1 NH = No built-in Hall sensor
- 2 H9D = With Hall sensor module; Hall cable terminated with a 9-pin D-Sub connector
- 3 Standard cable lengths: 0.5 m and 3 m. Custom lengths on request.
- 4 NFB = Without ferrite bead
- 5 FB = With ferrite bead
- 6 YU2/YU3/YU4 correspond to magnet track lengths TL120/TL180/TL300; YU5 corresponds to magnet tracklengths TL168/TL252/TL420
- 7 CE certification by default
- 8 The default magnet track cover type for the TUM series is stainless steel cover
- 9 Standard models are not equipped with Hall sensors by default; optional upon request

TUM SERIES LINEAR MOTOR SPECIFICATIONS

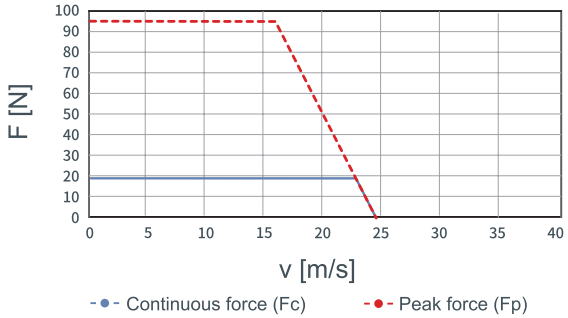
▶ *TUM2 linear motor specifications*

● *Force-velocity curves*

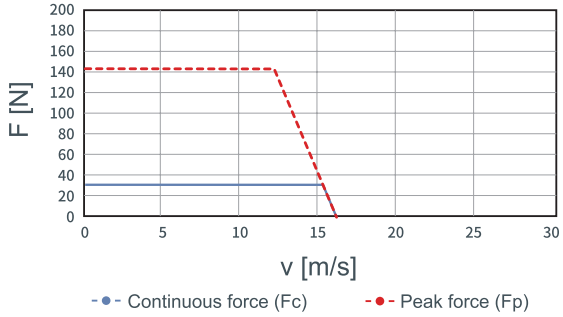
TUM2-S1
DC bus voltage: 310 VDC



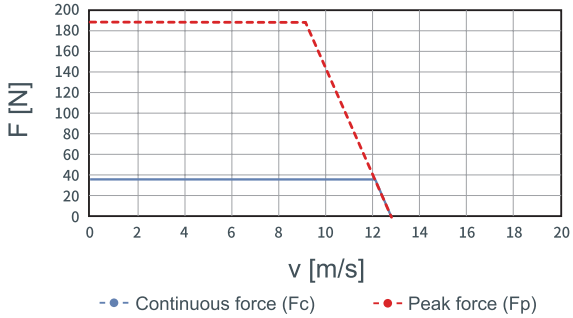
TUM2-S2 (Series)
DC bus voltage: 310 VDC



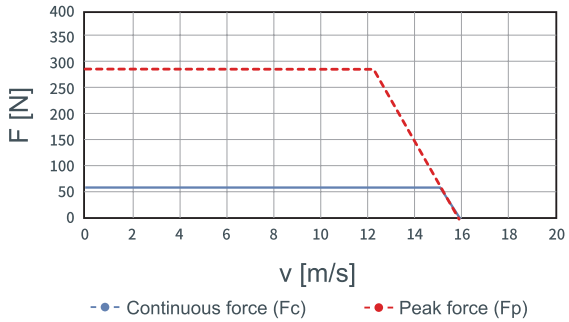
TUM2-S3 (Series)
DC bus voltage: 310 VDC



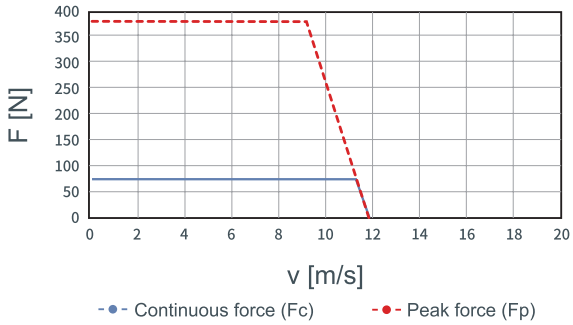
TUM2-S4 (Series)
DC bus voltage: 310 VDC



TUM2-S6
DC bus voltage: 310 VDC



TUM2-S8
DC bus voltage: 310 VDC



*For TUM2-S2, TUM2-S3, and TUM2-S4: Parallel speed ≈ 2 × Series speed

Technical data for TUM2

		Unit	TUM2-S1	TUM2-S2		TUM2-S3		TUM2-S4		TUM2-S6	TUM2-S8
			Series	Series	Parallel	Series	Parallel	Series	Parallel	Parallel	Parallel
Forces and electrical parameters											
Continuous force		N	9.5	19	19	28.5	28.5	38	38	57	76
Peak force		N	47.5	95	95	142.5	142.5	190	190	285	380
Force constant ±10%		N/Arms	5.9	11.9	5.9	17.8	8.9	23.8	11.9	17.8	23.8
Back EMF constant		Vpeak/(m/s)	4.9	9.7	4.9	14.6	7.3	19.5	9.7	14.6	19.5
Motor constant at 25°C		N/Sqrt(w)	2.4	3.4	3.4	4.2	4.2	4.8	4.8	7.1	8.2
Resistance at 25°C		Ω	3	6	1.5	9	2.25	12	3	4.5	6
Inductance ±35%		mH	0.7	1.4	0.35	2.1	0.53	2.8	0.7	1.06	1.4
Electrical time constant		ms	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Continuous current at 100°C		Arms	1.6	1.6	3.2	1.6	3.2	1.6	3.2	3.2	3.2
Peak current		Arms	8	8	16	8	16	8	16	14.9	15.7
Continuous power dissipation at 100°C		W	15.4	30.7	30.7	46.1	46.1	61.4	61.4	65.2	86.9
Max. winding temperature		°C	100	100	100	100	100	100	100	100	100
Thermal dissipation constant		W/°C	0.2	0.4	0.4	0.6	0.6	0.8	0.8	0.9	1.1
Max. DC bus voltage		V	310	310	310	310	310	310	310	310	310
Magnetic period		mm	30	30	30	30	30	30	30	30	30
Attraction force		kN	0	0	0	0	0	0	0	0	0
Mechanical parameters											
Weight of forcer		kg	0.06	0.12	0.12	0.18	0.18	0.24	0.24	0.36	0.48
Length of forcer		mm	31	61	61	91	91	121	121	181	241
Unit mass of stator		kg/m	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93
General data											
Insulation class		-	B								
Protection class		-	IP00								
Ambient temperature	Operating temperature	°C	0 to 45								
	Storage temperature	°C	-15 to 75								
Recommended operating environment			Indoor								
			Free of corrosive and flammable gases, oil mist and dust								

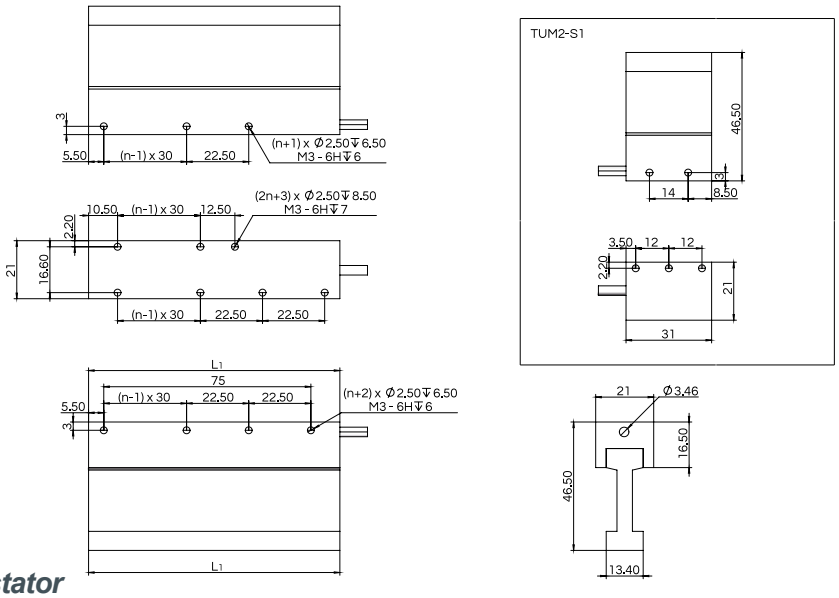
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TUM2

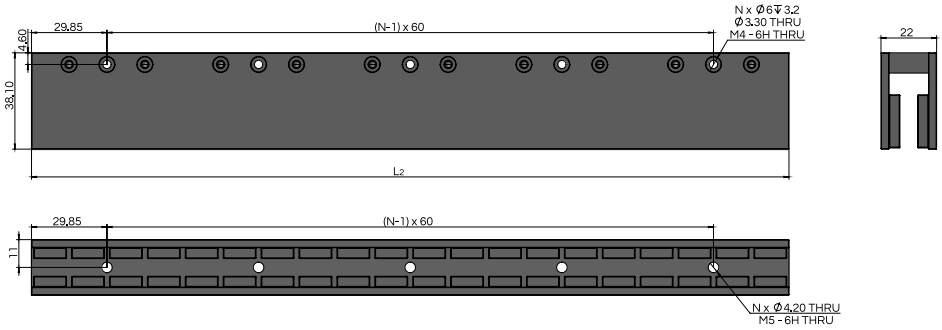
Forcer	Dimensional Variations	
	L_1	n
TUM2-S2	61	1
TUM2-S3	91	2
TUM2-S4	121	3
TUM2-S6	181	5
TUM2-S8	241	7

Stator	Dimensional Variations	
	L_2	N
TUM2-TL120	119.7	2
TUM2-TL180	179.7	3
TUM2-TL300	299.7	5

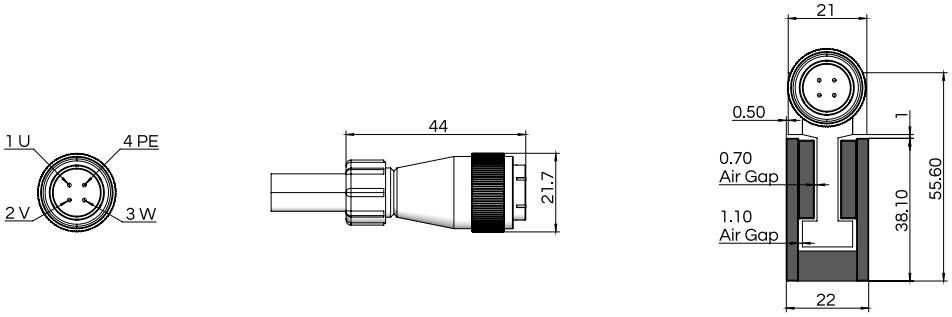
Dimensions of forcer



Dimensions of stator



Assembly Side View

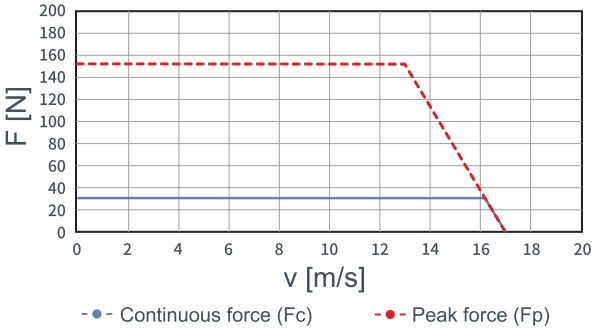


TUM SERIES LINEAR MOTOR SPECIFICATIONS

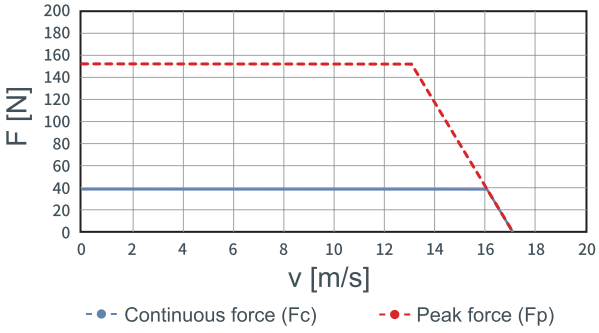
▶ *TUM3 linear motor specifications*

● *Force-velocity curves*

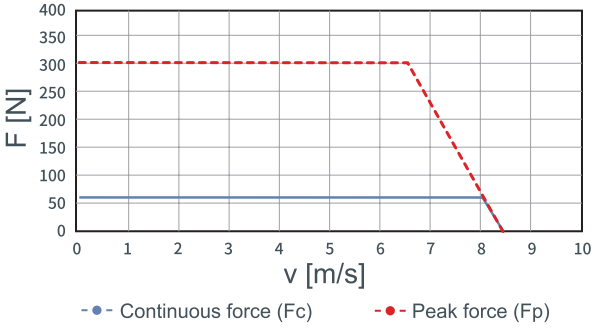
TUM3-S1
DC bus voltage: 310 VDC



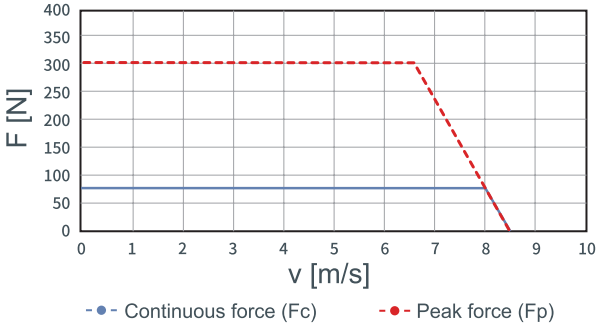
TUM3-S1 (Water-cooled)
DC bus voltage: 310 VDC



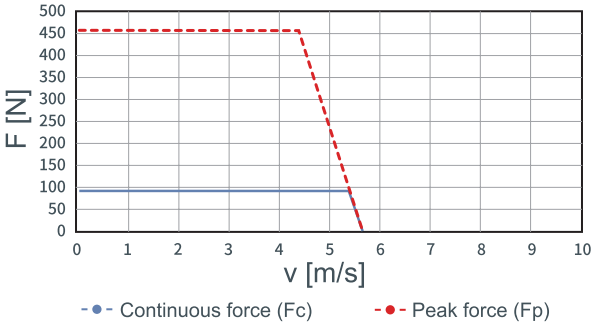
TUM3-S2
DC bus voltage: 310 VDC



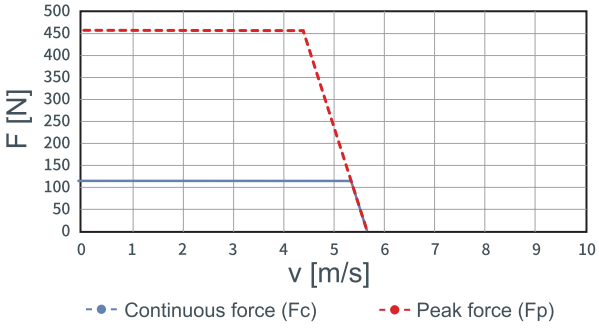
TUM3-S2 (Water-cooled)
DC bus voltage: 310 VDC



TUM3-S3
DC bus voltage: 310 VDC



TUM3-S3 (Water-cooled)
DC bus voltage: 310 VDC



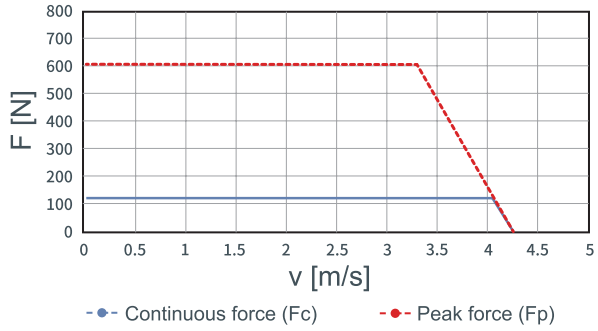
*For TUM3-S6: Parallel speed ≈ 2 × Series speed

TUM SERIES LINEAR MOTOR SPECIFICATIONS

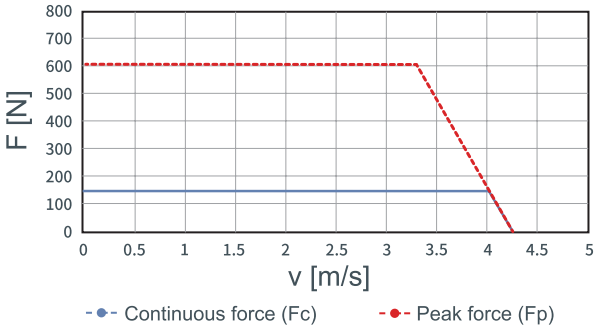
▶ *TUM3 linear motor specifications*

● *Force-velocity curves*

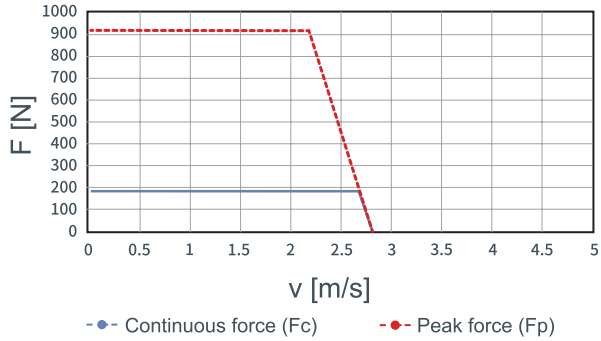
TUM3-S4
DC bus voltage: 310 VDC



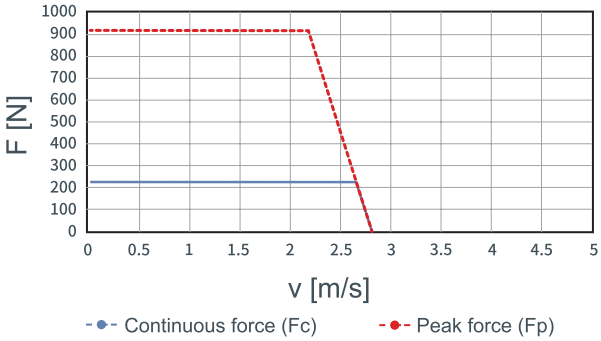
TUM3-S4 (Water-cooled)
DC bus voltage: 310 VDC



TUM3-S6 (Series)
DC bus voltage: 310 VDC



TUM3-S6 (Series, water-cooled)
DC bus voltage: 310 VDC



*For TUM3-S6: Parallel speed ≈ 2 × Series speed

Technical data for TUM3

		Unit	TUM3-S1	TUM3-S2	TUM3-S3	TUM3-S4	TUM3-S6	
			Series	Series	Series	Series	Series	Parallel
Forces and electrical parameters								
Continuous force		N	29.9	59.7	89.5	119.3	179	179
Continuous force (Water-cooled)		N	38.2	76.3	114.4	152.4	228.7	228.7
Peak force		N	152.5	304.5	456.5	608.4	912.9	912.9
Force constant ±10%		N/Arms	16.6	33.2	49.7	66.3	99.4	49.7
Back EMF constant		Vpeak/(m/s)	13.6	27.2	40.8	54.3	81.5	40.8
Motor constant at 25°C		N/Sqrt(w)	5.5	8	9.8	11.3	14	14
Resistance at 25°C		Ω	4.6	8.7	12.9	17.1	25.2	6.3
Inductance ±35%		mH	3.2	6.2	9.2	12.4	18.3	4.6
Electrical time constant		ms	0.7	0.7	0.7	0.7	0.7	0.7
Continuous current		Arms	1.8	1.8	1.8	1.8	1.8	3.6
Continuous current (Water-cooled)		Arms	2.3	2.3	2.3	2.3	2.3	4.6
Peak current		Arms	9.4	9.4	9.4	9.4	9.4	18.8
Continuous power dissipation at 100°C		W	29.5	56.2	83.4	111	163.3	163.3
Max. winding temperature		°C	100	100	100	100	100	100
Thermal dissipation constant		W/°C	0.4	0.7	1.1	1.5	2.1	2.1
Max. DC bus voltage		V	310	310	310	310	310	310
Magnetic period		mm	60	60	60	60	60	60
Attraction force		kN	0	0	0	0	0	0
Magnetic parameters								
Weight of forcer		kg	0.24	0.45	0.66	0.87	1.29	1.29
Length of forcer		mm	61	121	181	241	361	361
Unit mass of stator		kg/m	8.9	8.9	8.9	8.9	8.9	8.9
General data								
Insulation class		-	B					
Protection class		-	IP00					
Ambient temperature	Operating temperature	°C	0 to 45					
	Storage temperature	°C	-15 to 75					
Recommended operating environment			Indoor					
			Free of corrosive and flammable gases, oil mist and dust					

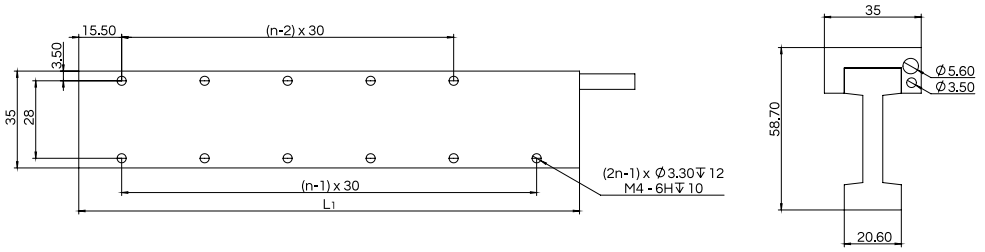
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TUM3

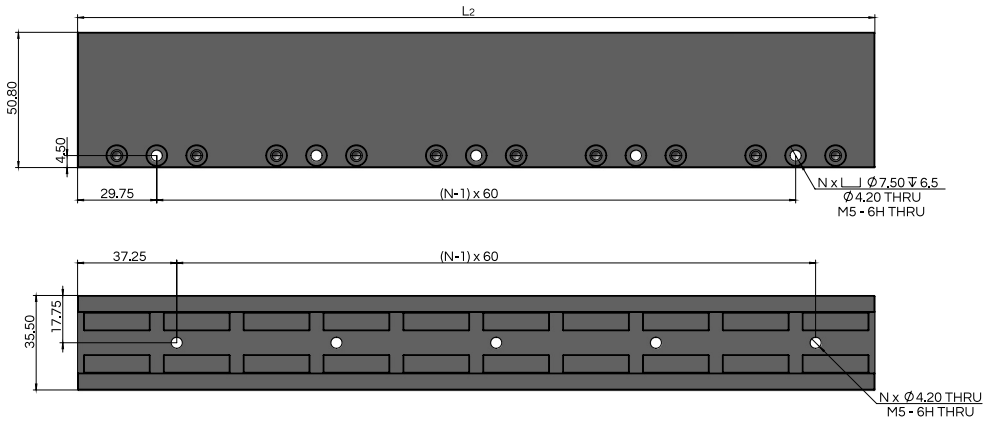
Forcer	Dimensional Variations	
	L_1	n
TUM3-S1	61	2
TUM3-S2	121	4
TUM3-S3	181	6
TUM3-S4	241	8
TUM3-S6	361	12

Stator	Dimensional Variations	
	L_2	N
TUM3-TL120	119.7	2
TUM3-TL180	179.7	3
TUM3-TL300	299.7	5

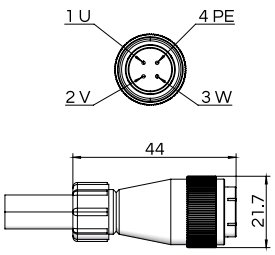
Dimensions of forcer



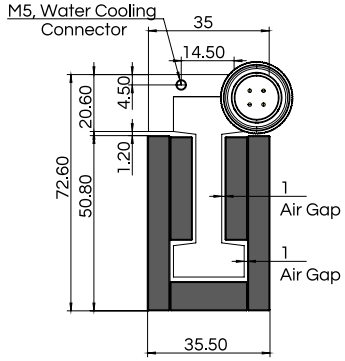
Dimensions of stator



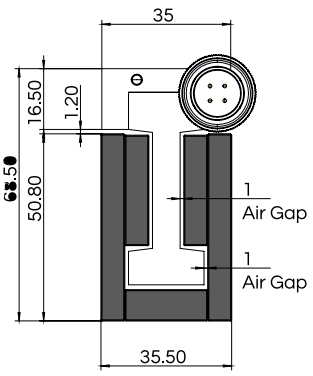
Assembly Side View



Dimensions of Standard Motor



Dimensions of Water-Cooled Motor

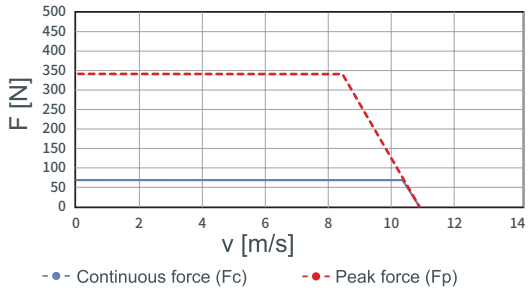


TUM SERIES LINEAR MOTOR SPECIFICATIONS

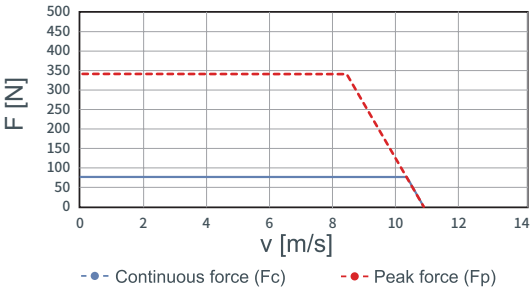
▶ *TUM4 linear motor specifications*

● *Force-velocity curves*

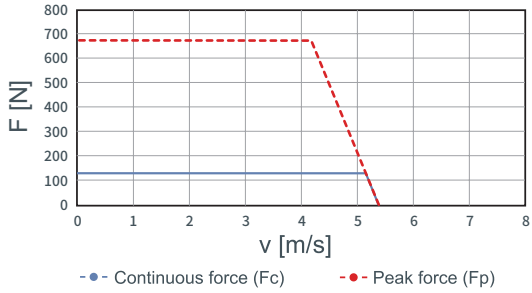
TUM4-S1
DC bus voltage: 310 VDC



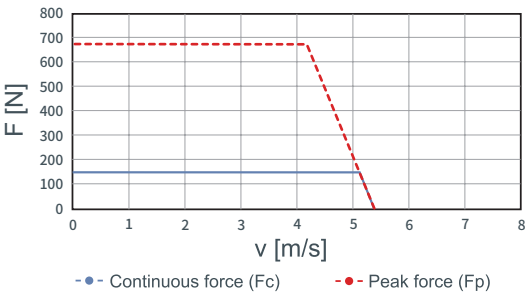
TUM4-S1 (Water-cooled)
DC bus voltage: 310 VDC



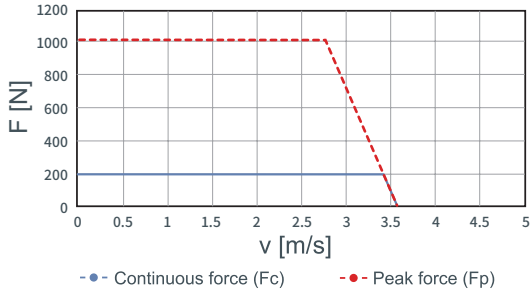
TUM4-S2
DC bus voltage: 310 VDC



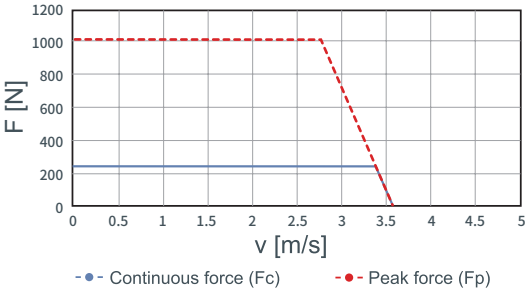
TUM4-S2 (Water-cooled)
DC bus voltage: 310 VDC



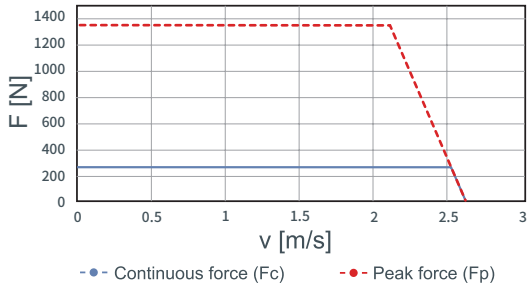
TUM4-S3
DC bus voltage: 310 VDC



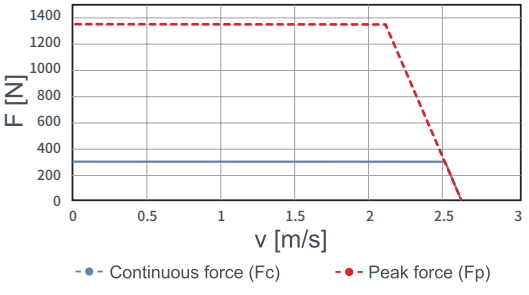
TUM4-S4 (Series, water-cooled)
DC bus voltage: 310 VDC



TUM4-S4 (Series)
DC bus voltage: 310 VDC



TUM4-S3 (Water-cooled)
DC bus voltage: 310 VDC



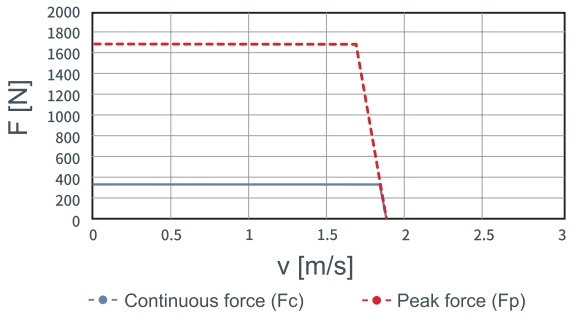
*For TUM4-S4 and TUM4-S5: Parallel speed ≈ 2 × Series speed

TUM SERIES LINEAR MOTOR SPECIFICATIONS

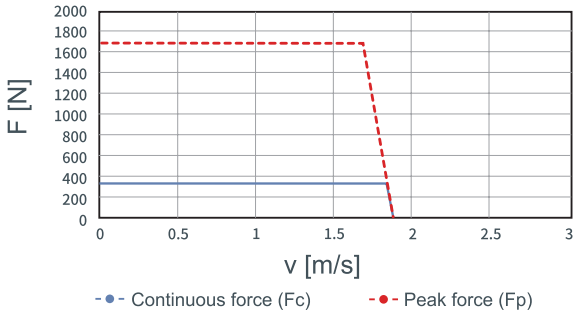
▶ *TUM4 linear motor specifications*

● *Force-velocity curves*

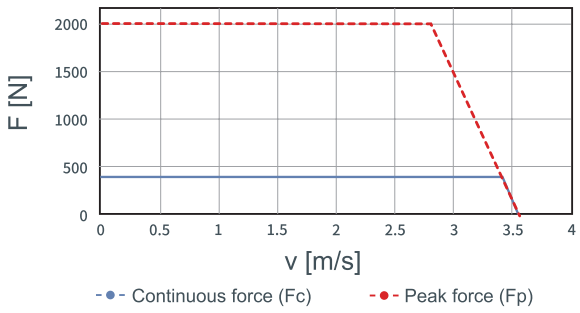
TUM4-S5 (Series)
DC bus voltage: 310 VDC



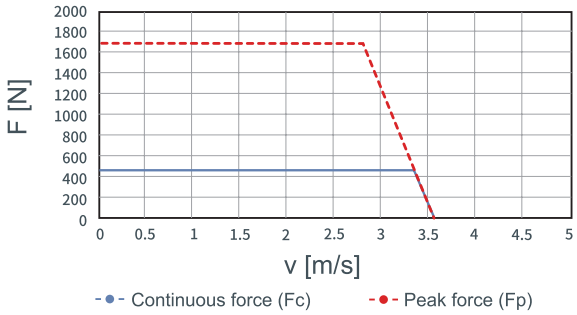
TUM4-S5 (Series, water-cooled)
DC bus voltage: 310 VDC



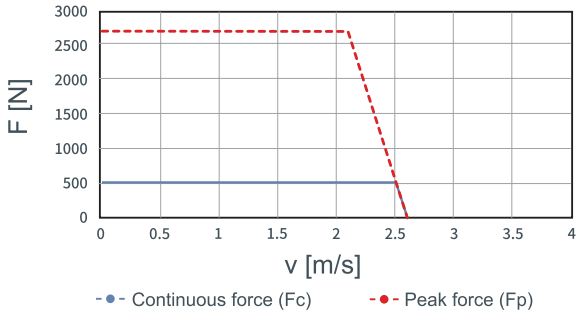
TUM4-S6
DC bus voltage: 310 VDC



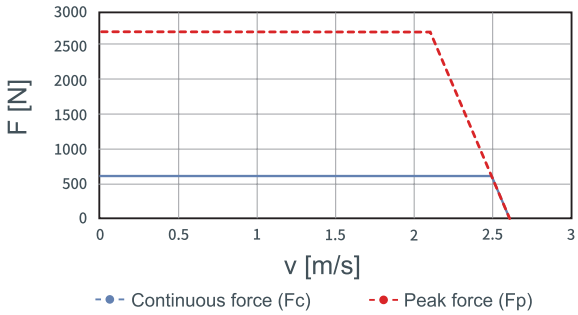
TUM4-S6 (Water-cooled)
DC bus voltage: 310 VDC



TUM4-S8
DC bus voltage: 310 VDC



TUM4-S8 (Water-cooled)
DC bus voltage: 310 VDC



*For TUM4-S4 and TUM4-S5: Parallel speed ≈ 2 × Series speed

Technical data for TUM4

		Unit	TUM4-S1	TUM4-S2	TUM4-S3	TUM4-S4		TUM4-S5		TUM4-S6	TUM4-S8
			Series	Series	Series	Series	Parallel	Series	Parallel	Parallel	Parallel
Forces and electrical parameters											
Continuous force		N	67.4	134.7	202.1	269.4	269.4	336.8	336.8	404.1	538.8
Continuous force (Water-cooled)		N	77.7	155.4	233.1	310.8	310.8	388.6	388.6	466.3	621.6
Peak force		N	336.8	673.5	1010.3	1347	1347	1683.8	1683.8	2020.5	2693.8
Force constant ±10%		N/Arms	25.9	51.8	77.7	103.6	51.8	129.5	64.8	77.7	103.6
Back EMF constant		Vpeak/(m/s)	21.2	42.5	63.7	85	42.5	106.2	53.1	63.7	85
Motor constant at 25°C		N/Sqrt(w)	9.3	13.3	16.4	19	19	41.5	24.7	22.8	26.4
Resistance at 25°C		Ω	3.9	7.6	11.3	14.9	3.7	4.9	4.9	5.8	7.7
Inductance ±35%		mH	3.5	6.8	10	13.1	3.3	4	4	4.9	6.5
Electrical time constant		ms	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8
Continuous current		Arms	2.6	2.6	2.6	2.6	5.2	2.6	5.2	5.2	5.2
Continuous current (Water-cooled)		Arms	3	3	3	3	6	3	6	6	6
Peak current		Arms	13	13	13	13	26	26	26	26	26
Continuous power dissipation at 100°C		W	52.7	102.6	152.2	201.4	200.1	65.7	185.8	313.7	416.4
Max. winding temperature		°C	100	100	100	100	100	100	100	100	100
Thermal dissipation constant		W/°C	0.6	1.2	1.8	2.4	2.4	0.8	2.2	3.7	4.9
Max. DC bus voltage		V	310	310	310	310	310	310	310	310	310
Magnetic period		mm	60	60	60	60	60	60	60	60	60
Attraction force		kN	0	0	0	0	0	0	0	0	0
Mechanical parameters											
Weight of forcer		kg	0.3	0.6	0.9	1.15	1.15	1.45	1.45	1.72	2.3
Length of forcer		mm	61	121	181	241	241	301	301	361	481
Unit mass of stator		kg/m	15	15	15	15	15	15	15	15	15
General data											
Insulation class		-	B								
Protection class		-	IP00								
Ambient temperature	Operating temperature	°C	0 to 45								
	Storage temperature	°C	-15 to 75								
Recommended operating environment			Indoor								
			Free of corrosive and flammable gases, oil mist and dust								

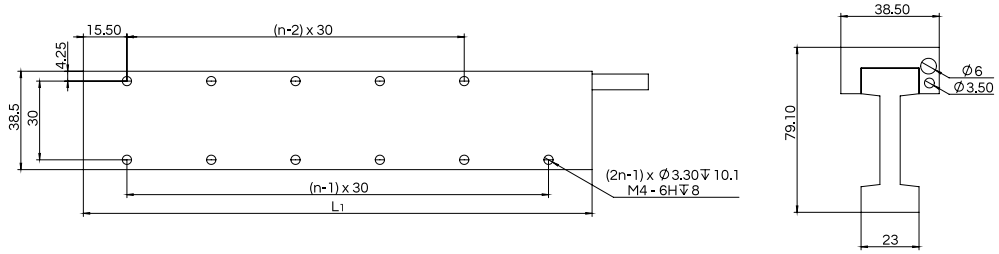
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TUM4

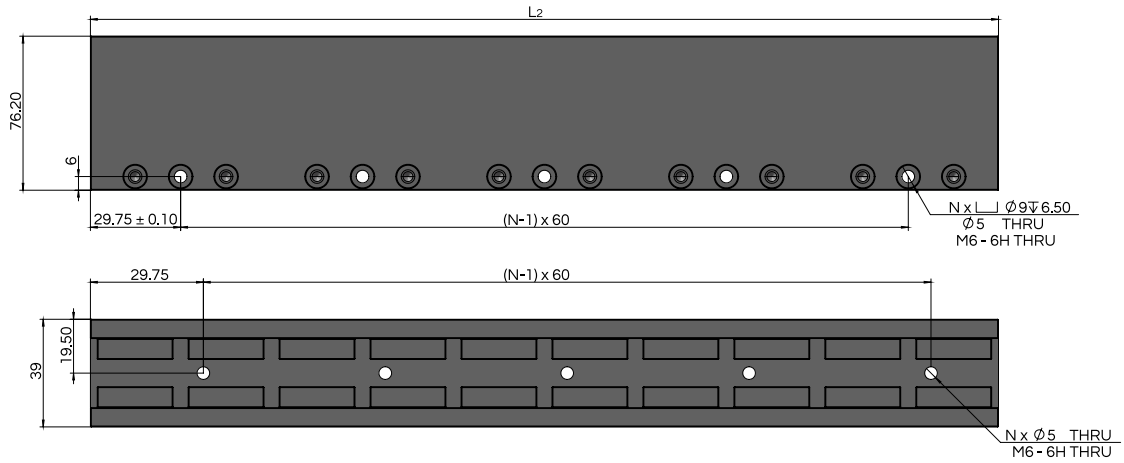
Forcer	Dimensional Variations	
	L_1	n
TUM4-S1	61	2
TUM4-S2	121	4
TUM4-S3	181	6
TUM4-S4	241	8
TUM4-S5	301	10
TUM4-S6	361	12
TUM4-S8	481	16

Stator	Dimensional Variations	
	L_2	N
TUM4-TL120	119.7	2
TUM4-TL180	179.7	3
TUM4-TL300	299.7	5

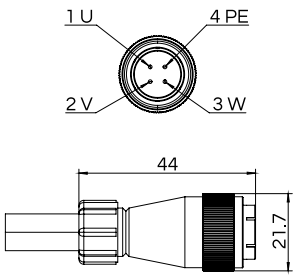
Dimensions of forcer



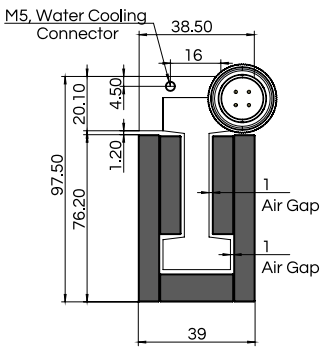
Dimensions of stator



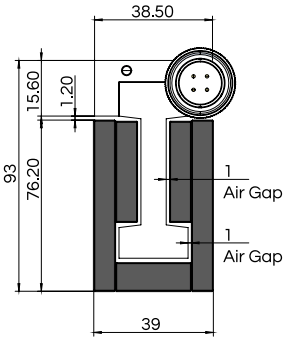
Assembly Side View



Dimensions of Standard Motor



Dimensions of Water-Cooled Motor

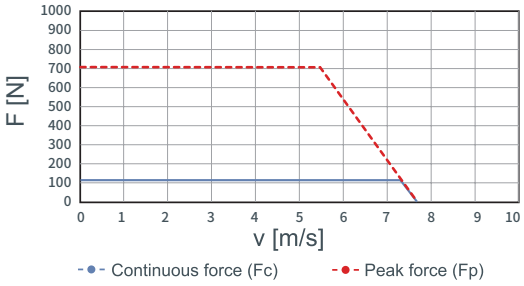


TUM SERIES LINEAR MOTOR SPECIFICATIONS

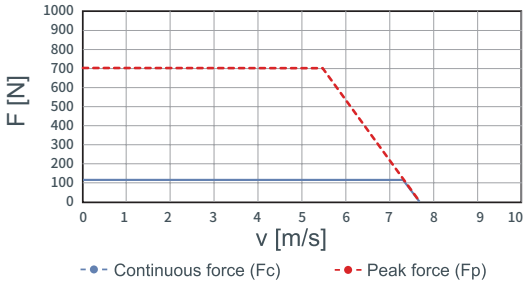
▶ *TUM5 linear motor specifications*

● *Force-velocity curves*

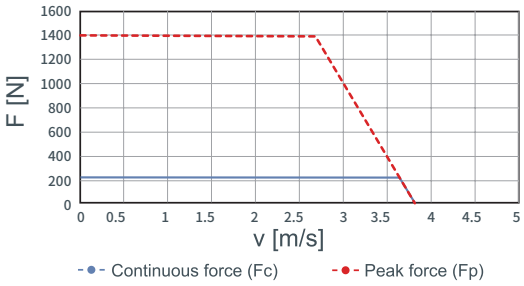
TUM5-S1
DC bus voltage: 310 VDC



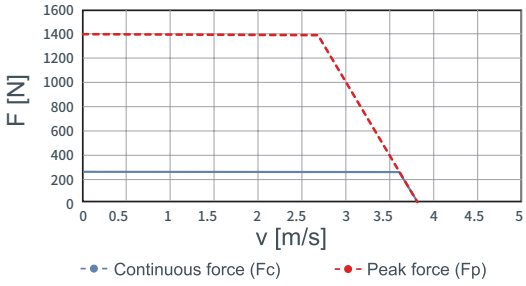
TUM5-S1 (Water-cooled)
DC bus voltage: 310 VDC



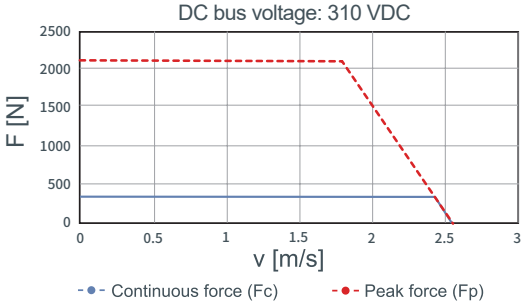
TUM5-S2
DC bus voltage: 310 VDC



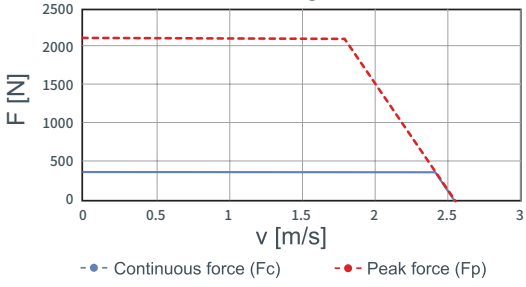
TUM5-S2 (Water-cooled)
DC bus voltage: 310 VDC



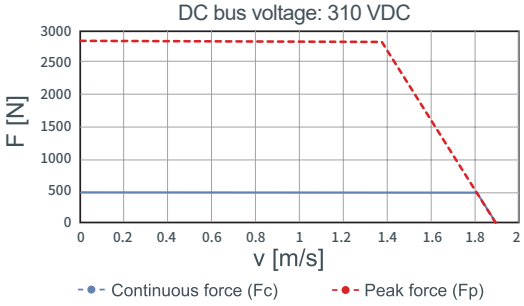
TUM5-S3 (Series)
DC bus voltage: 310 VDC



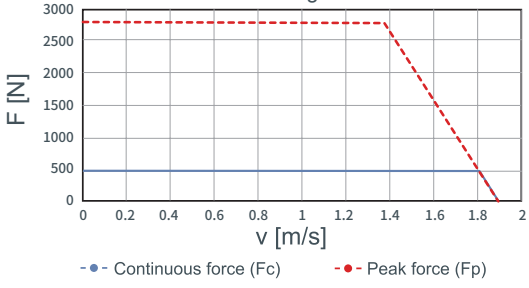
TUM5-S3 (Series, water-cooled)
DC bus voltage: 310 VDC



TUM5-S4 (Series)
DC bus voltage: 310 VDC



TUM5-S4 (Series, water-cooled)
DC bus voltage: 310 VDC



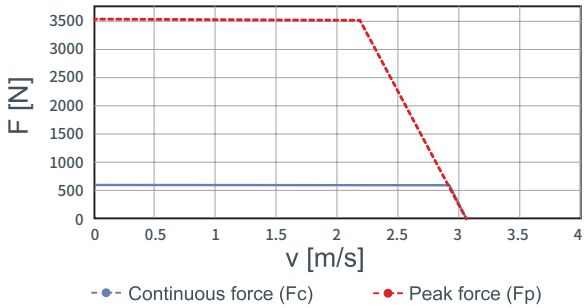
*For TUM5-S3 and TUM5-S4: Parallel speed ≈ 2 × Series speed

TUM SERIES LINEAR MOTOR SPECIFICATIONS

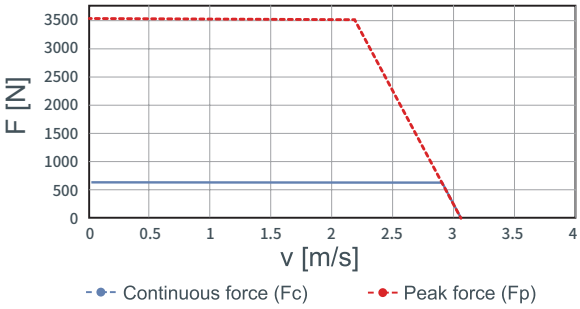
▶ *TUM5 linear motor specifications*

● *Force-velocity curves*

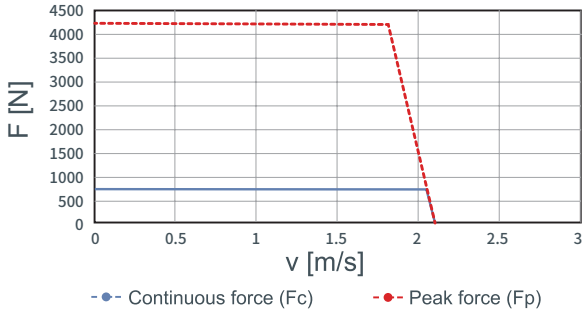
TUM5-S5
DC bus voltage: 310 VDC



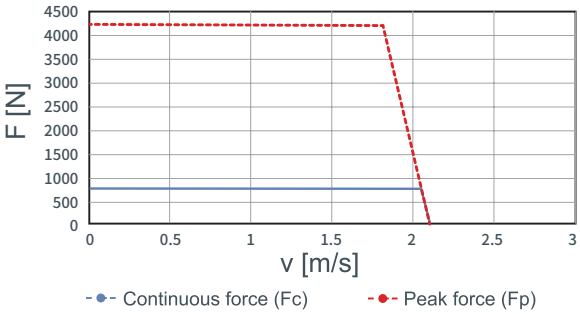
TUM5-S5 (Water-cooled)
DC bus voltage: 310 VDC



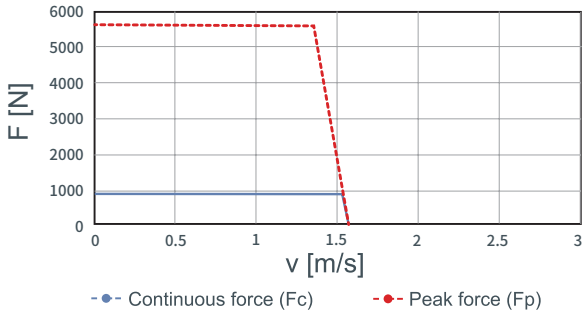
TUM5-S6
DC bus voltage: 310 VDC



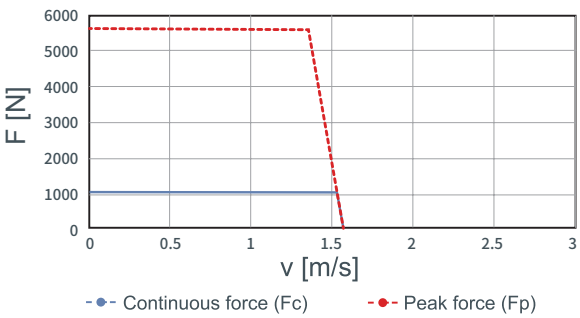
TUM5-S6 (Water-cooled)
DC bus voltage: 310 VDC



TUM5-S8
DC bus voltage: 310 VDC



TUM5-S8 (Water-cooled)
DC bus voltage: 310 VDC



*For TUM5-S3 and TUM5-S4: Parallel speed ≈ 2 × Series speed

Technical data for TUM5

		Unit	TUM5-S1	TUM5-S2	TUM5-S3		TUM5-S4		TUM5-S5	TUM5-S6	TUM5-S8
			Series	Series	Series	Parallel	Series	Parallel	Parallel	Parallel	Parallel
Forces and electrical parameters											
Continuous force		N	116.8	233.5	350.3	350.3	467	467	583.8	700.5	934
Continuous force (Water-cooled)		N	128.4	256.9	385.3	385.3	513.7	513.7	642.1	770.6	1027.4
Peak force		N	700.5	1401	2101.5	2101.5	2802	2802	3502.5	4203	5604
Force constant ±10%		N/Arms	38.9	77.8	116.8	58.4	155.7	77.8	97.3	116.8	155.7
Back EMF constant		Vpeak/(m/s)	32.7	65.4	98.1	49	130.8	65.4	81.7	98.1	130.8
Motor constant at 25°C		N/Sqrt(w)	13.4	19.2	23.6	23.8	27.3	27.3	30.8	33.7	46.3
Resistance at 25°C		Ω	4.2	8.2	12.2	3	16.2	4.1	5	6	8
Inductance ±35%		mH	7	14	21	5.3	27.8	7	8.7	4.9	6.5
Electrical time constant		ms	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Continuous current		Arms	3	3	3	6	3	6	6	6	6
Continuous current (Water-cooled)		Arms	3.3	3.3	3.3	6.6	3.3	6.6	6.6	6.6	6.6
Peak current		Arms	18	18	18	36	18	36	36	36	36
Continuous power dissipation at 100°C		W	75.6	147.6	219.6	216	291.6	291.6	360	432	407.3
Max. winding temperature		°C	100	100	100	100	100	100	100	100	100
Thermal dissipation constant		W/°C	0.6	1.2	1.8	1.8	2.4	2.4	3	3.6	3.4
Max. DC bus voltage		V	310	310	310	310	310	310	310	310	310
Magnetic period		mm	84	84	84	84	84	84	84	84	84
Attraction force		kN	0	0	0	0	0	0	0	0	0
Mechanical parameters											
Weight of forcer		kg	0.7	1.5	2.2	2.2	2.9	2.9	3.6	4.4	5.9
Length of forcer		mm	85	169	253	253	337	337	421	505	672
Unit mass of stator		kg/m	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9
General data											
Insulation class		-	B								
Protection class		-	IP00								
Ambient temperature	Operating temperature	°C	0 to 45								
	Storage temperature	°C	-15 to 75								
Recommended operating environment			Indoor Free of corrosive and flammable gases, oil mist and dust								

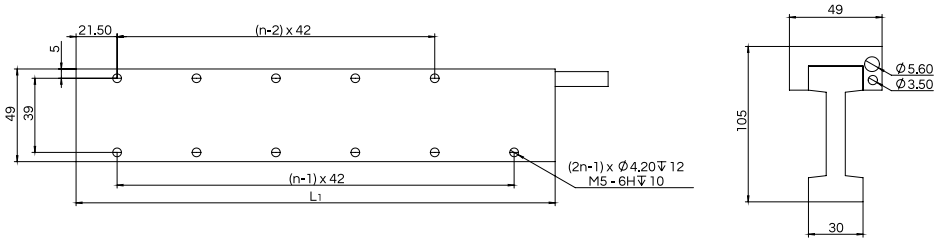
Note:
1.Specifications are measured at an ambient temperature of 25°C and depend on the heat dissipation conditions.
2.Resistance is measured with DC current and includes a standard cable length of 0.5 m.
3.Inductance is measured at a frequency of 1 kHz.
4.Specifications are subject to change without prior notice.

TUM5

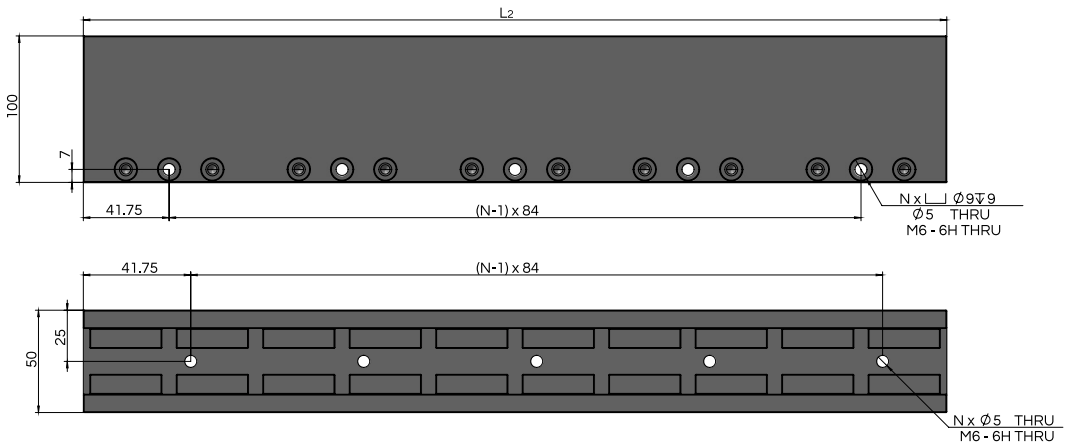
Forcer	Dimensional Variations	
	L_1	n
TUM5-S1	85	2
TUM5-S2	169	4
TUM5-S3	253	6
TUM5-S4	337	8
TUM5-S5	421	10
TUM5-S6	505	12
TUM5-S8	673	16

Stator	Dimensional Variations	
	L_2	N
TUM5-TL168	167.5	2
TUM5-TL250	251.5	3
TUM5-TL420	419.5	5

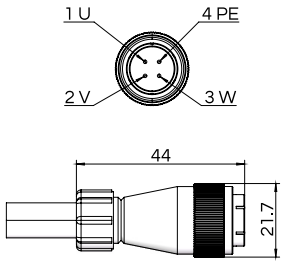
Dimensions of forcer



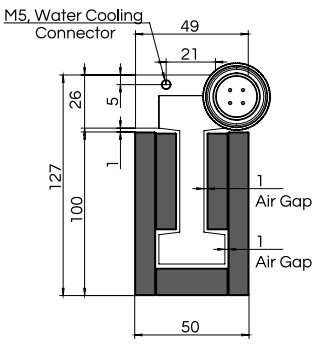
Dimensions of stator



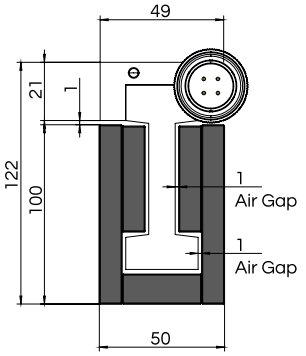
Assembly Side View



Dimensions of Standard Motor



Dimensions of Water-Cooled Motor



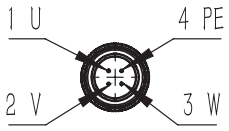
MOTOR WIRING DIAGRAM

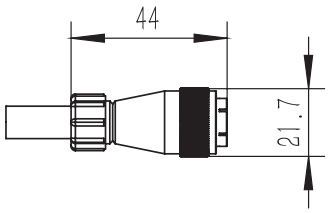
Motor Cable

Motor Connector (Male Circular Connector): WS16

Max. Length: 44 mm Max. Diameter: ∅21.7 mm

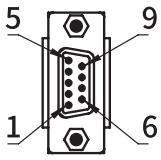
PIN	DESCRIPTION
1	U
2	V
3	W
4	PE

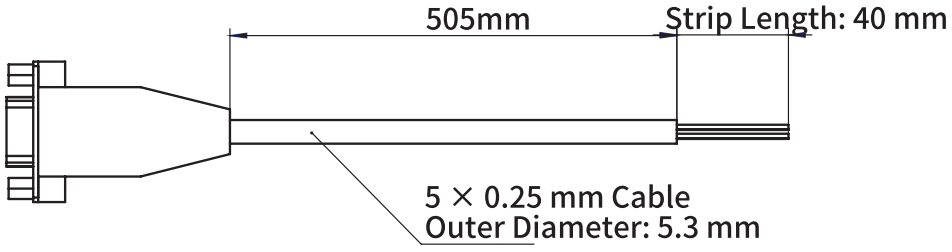


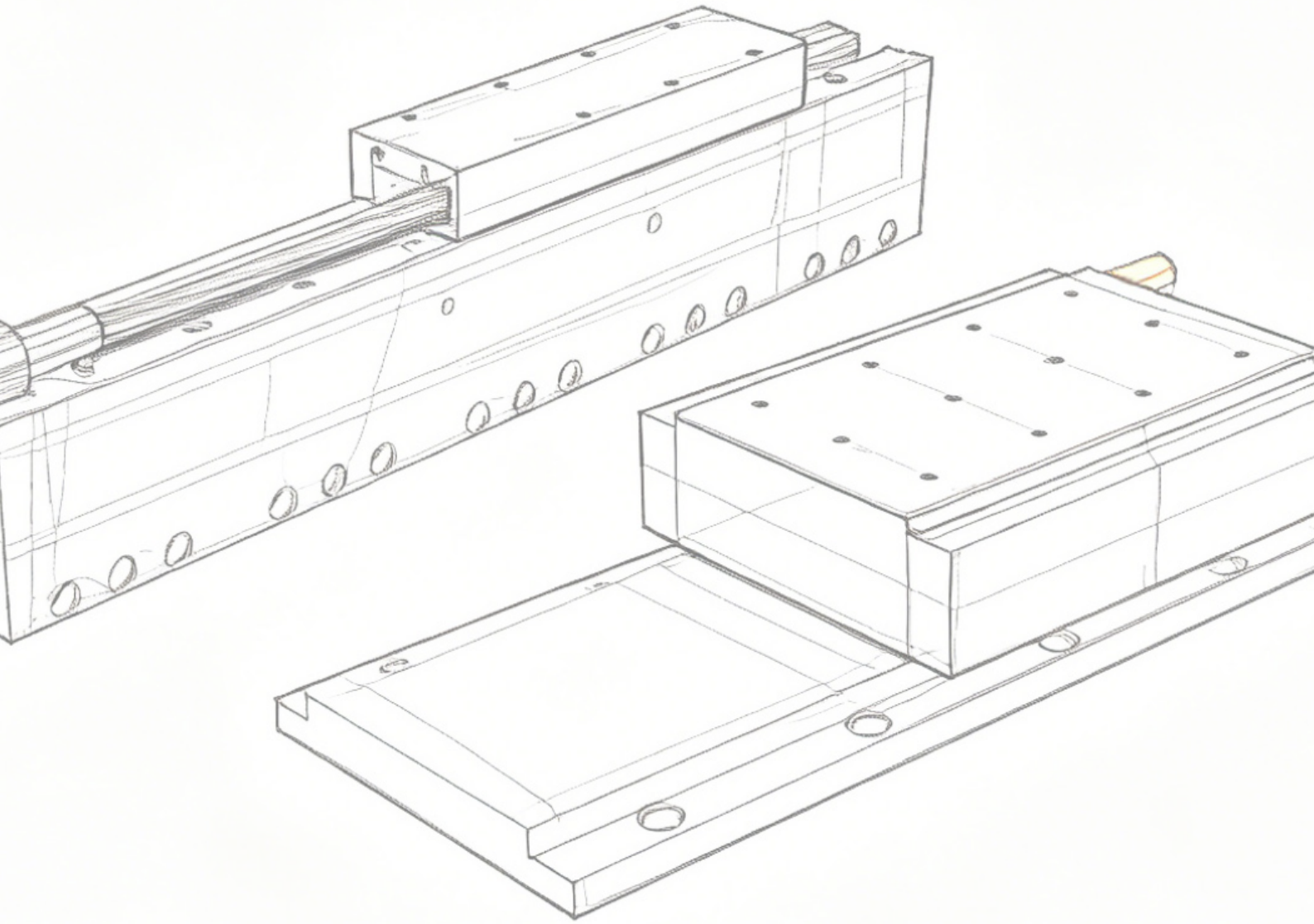


Hall Cable

PIN	DESCRIPTION	COLOR
1	HA	GREEN
2	HB	YELLOW
3	HC	GREY
4	5VDC	BROWN
5	OVDC	WHITE







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Phone Number | +86 139 2946 8187

Email | 8224959@qq.com