HIWIN CONFIDENTIAL
機密文件未經許可，嚴禁複製

LMFA12 Linear Motor

Electrical specifications

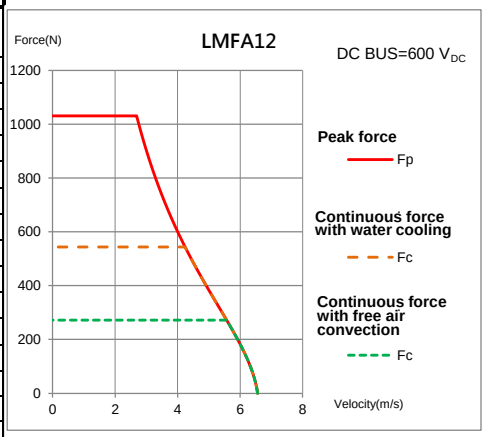
	Symbol	Unit	Free air convection	Water cooling
Continuous force	F_c	N	272	544
Continuous current	I_c	A_{rms}	2.7	5.4
Stall force	F_0	N	-	381
Stall current	I_0	A_{rms}	-	3.8
Peak force (1s)	F_p	N	1032	
Peak current (1s)	I_p	A_{rms}	16.7	
Force constant	K_f	N/A_{rms}	100.8	
Attraction force	F_a	N	1674	
Max. winding tempurature	T_{max}	℃	120	
Electrical time constant	K_e	ms	7.2	
Resistance (line to line ， 25℃)	R_{25}	Ω	8.4	
Resistance (line to line，120℃)	R_{120}	Ω	11.1	
Inductance (line to line)	L	mH	60.9	
Pole pair pitch	2τ	mm	30	
Back emf constant(line to line)	K_v	V_{rms}/(m/s)	58.2	
Motor constant (25℃)	K_m	N/√W	28.3	
Thermal resistance	R_{th}	℃/W	0.78	0.2
Thermal time constant	t_{th}	s	-	150
Thermal switch			1 x Pt1000 + 1 x (3 PTC SNM 120 In Series)	
Maximum velocity at maximum force	$V_{MAX,FP}$	m/s	3.44	
Maximum electric power input	$P_{EL,MAX}$	W	-	8231
Maximum dissipated heat output	$Q_{P,H,MAX}$	W	-	487
Max. DC bus voltage		V_{DC}	750	

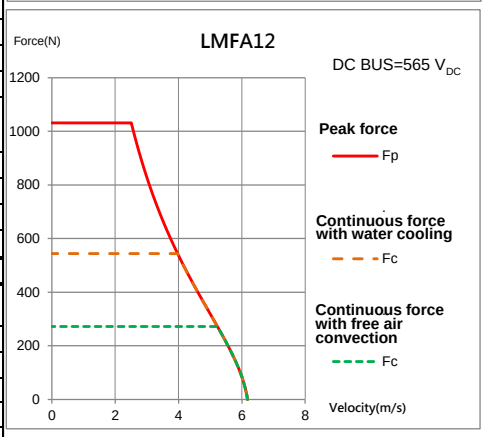
Mechanical specifications

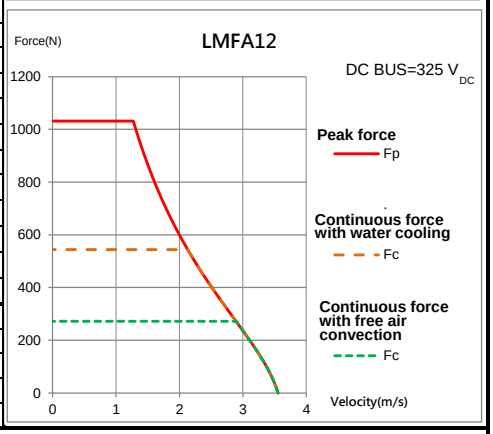
	Symbol	Unit	Free air convection	Water cooling
Mass of forcer	M_f	kg	4	
Unit mass of stator	M_S	kg	5.8	
Total installation height	H	mm	48.5	
Minimum flow rate		L/min	-	3.7
Temperature of cooling water		℃	-	20
Pressure drop	△P	bar	-	1.21
Water temperture difference	$\triangle\theta_{P,H}$	K	-	1.9

Lf	mm	250	Wf3	mm	81.5
Lf1	mm	157.5	Wf4	mm	43
Wf	mm	96	Wf5	mm	20
Wf1	mm	33	N	mm	4
Wf2	mm	30	n	mm	-

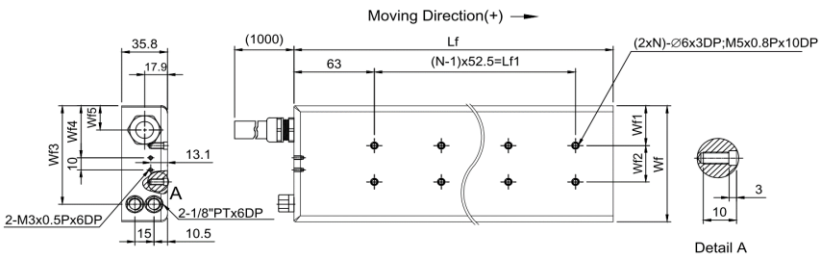
F-V curve



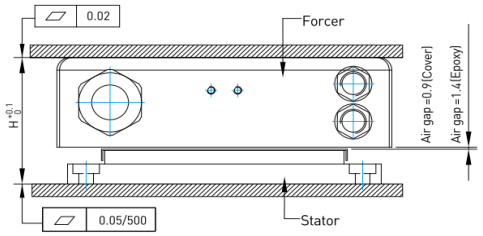




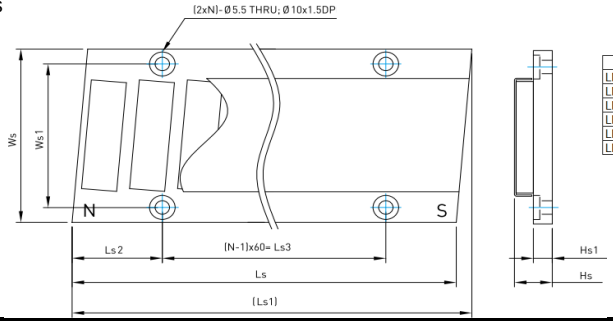
Focer dimensions



Mounting tolerance



Stator dimensions



Type	Ls	Ls1	Ls2	Ls3	Hs	Hs1	Ws	Ws1	N
LMF1S1	120	122.77	30.6	60	11.8	5.9	88	74	2
LMF1S1E	120	122.77	30.6	60	11.3	5.7	88	74	2
LMF1S2	180	182.77	30.6	120	11.8	5.9	88	74	3
LMF1S2E	180	182.77	30.6	120	11.3	5.7	88	74	3
LMF1S3	300	302.77	30.6	240	11.8	5.9	88	74	5
LMF1S3E	300	302.77	30.6	240	11.3	5.7	88	74	5

Except dimensions, all the specifications in the table are in ±10% of tolerance

Version: 2.00

Date: 2020/5/8