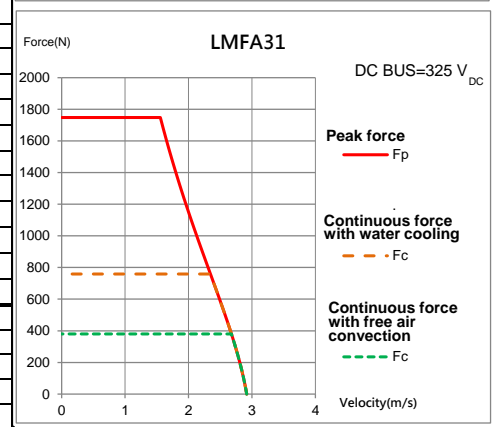
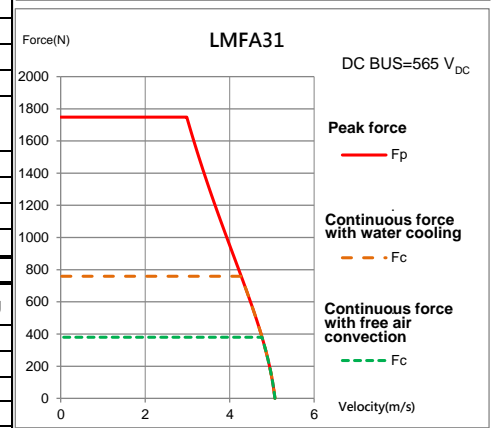
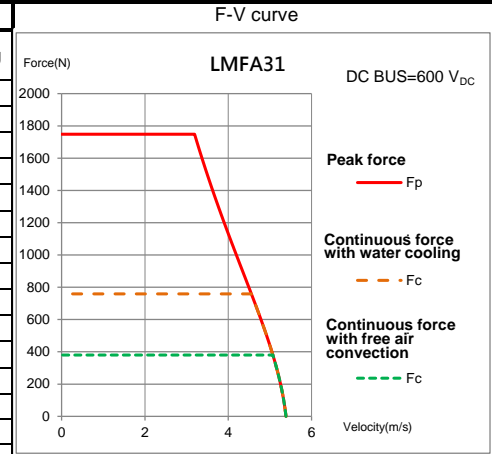


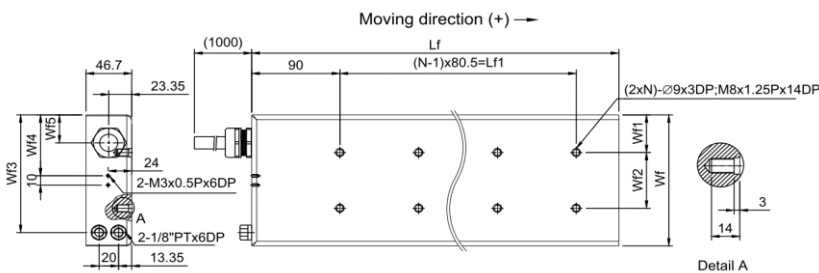
LMFA31 Linear Motor

Electrical specifications				
	Symbol	Unit	Free air convection	Water cooling
Continuous force	F_c	N	380	759
Continuous current	I_c	A_{rms}	3.1	6.2
Stall force	F_0	N	-	531
Stall current	I_0	A_{rms}	-	4.3
Peak force (1s)	F_p	N	-	1750
Peak current (1s)	I_p	A_{rms}	-	19.2
Force constant	K_f	N/A_{rms}	-	122.7
Attraction force	F_a	N	-	3430
Max. winding temperature	T_{max}	$^{\circ}C$	-	120
Electrical time constant	K_e	ms	-	11.3
Resistance (line to line · 25 $^{\circ}C$)	R_{25}	Ω	-	4.3
Resistance (line to line · 120 $^{\circ}C$)	R_{120}	Ω	-	5.6
Inductance (line to line)	L	mH	-	48.3
Pole pair pitch	2τ	mm	-	46
Back emf constant(line to line)	K_v	$V_{rms}/(m/s)$	-	70.9
Motor constant (25 $^{\circ}C$)	K_m	N/\sqrt{W}	-	48.4
Thermal resistance	R_{th}	$^{\circ}C/W$	1.17	0.29
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	-	4.08
Maximum electric power input	$P_{EL,MAX}$	W	-	10255
Maximum dissipated heat output	$Q_{P,H,MAX}$	W	-	324
Max. DC bus voltage	V_{DC}	V	-	750

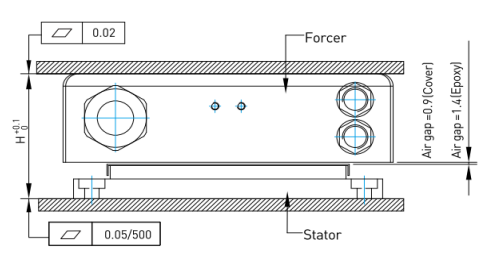
Mechanical specifications				
	Symbol	Unit	Free air convection	Water cooling
Mass offorcer	M_f	kg	-	6.4
Unit mass of stator	M_s	kg	-	16.2
Total installation height	H	mm	-	64.1
Minimum flow rate		L/min	-	4
Temperature of cooling water		$^{\circ}C$	-	20
Pressure drop	ΔP	bar	-	0.57
Water temperature difference	$\Delta\theta_{P,H}$	K	-	1.2
Forcer precision cooler				
Maximum dissipated thermal output	$Q_{FC,Max}$	W	-	84
Pressure drop	ΔP_{FC}	bar	-	1.01
Stator precision cooler				
Maximum dissipated thermal output	$Q_{SC,Max}$	W	-	252
Pressure drop per meter of cooling pipe	ΔP_s	bar	-	0.16
Pressure drop per combi distributor	ΔP_{sd}	bar	-	0.35
Pressure drop per coupling point	ΔP_{sp}	bar	-	0.17
L_f	mm	214	$Wf3$	mm 126.5
L_{f1}	mm	80.5	$Wf4$	mm 65.5
W_f	mm	141	$Wf5$	mm 30
W_{f1}	mm	40.5	N	mm 2
W_{f2}	mm	60	n	mm -



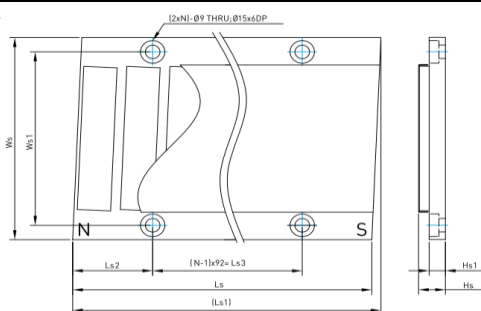
Forcer dimensions



Mounting tolerance



Stator dimensions



Type	L_s	L_{s1}	L_{s2}	L_{s3}	H_s	H_{s1}	W_s	W_{s1}	N
LMF3S1	184	189.62	49.2	92	16.5	10	134	115	2
LMF3S1E	184	189.62	49.2	92	16	9.8	134	115	2
LMF3S2	276	281.62	49.2	184	16.5	10	134	115	3
LMF3S2E	276	281.62	49.2	184	16	9.8	134	115	3
LMF3S3	460	465.62	49.2	368	16.5	10	134	115	5
LMF3S3E	460	465.62	49.2	368	16	9.8	134	115	5

Except dimensions, all the specifications in the table are in $\pm 10\%$ of tolerance

Version: 2.00

Date: 2020/5/8