

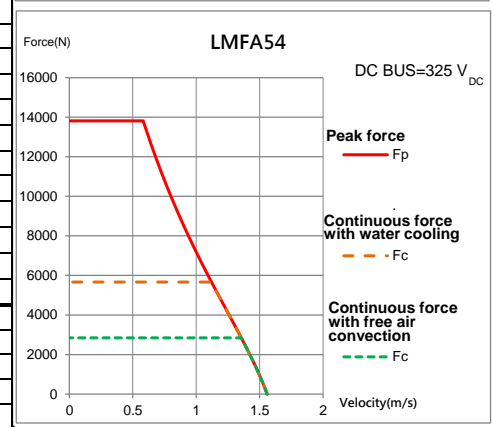
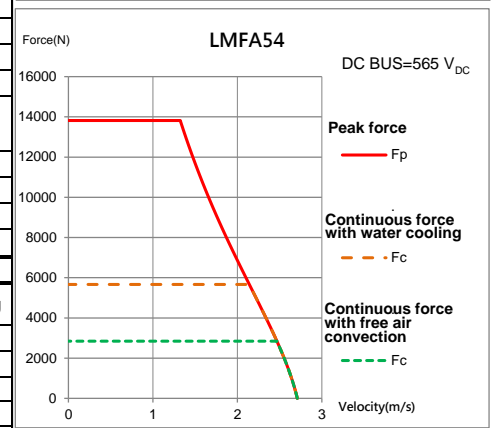
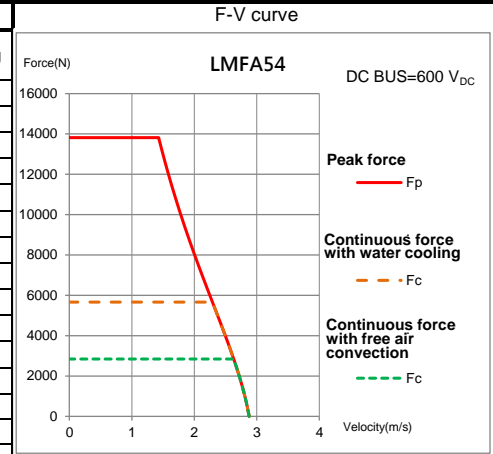
# LMFA54 Linear Motor

Electrical specifications				
	Symbol	Unit	Free air convection	Water cooling
Continuous force	$F_c$	N	2844	5688
Continuous current	$I_c$	$A_{rms}$	12.4	24.7
Stall force	$F_0$	N	-	3982
Stall current	$I_0$	$A_{rms}$	-	17.3
Peak force (1s)	$F_p$	N	-	13850
Peak current (1s)	$I_p$	$A_{rms}$	-	76.7
Force constant	$K_f$	$N/A_{rms}$	229.9	
Attraction force	$F_a$	N	27400	
Max. winding temperature	$T_{max}$	$^{\circ}C$	120	
Electrical time constant	$K_e$	ms	12.2	
Resistance (line to line · 25 $^{\circ}C$ )	$R_{25}$	$\Omega$	2	
Resistance (line to line · 120 $^{\circ}C$ )	$R_{120}$	$\Omega$	2.6	
Inductance (line to line)	$L$	mH	23.9	
Pole pair pitch	$2\tau$	mm	46	
Back emf constant(line to line)	$K_v$	$V_{rms}/(m/s)$	132.7	
Motor constant (25 $^{\circ}C$ )	$K_m$	$N/\sqrt{W}$	134.4	
Thermal resistance	$R_{th}$	$^{\circ}C/W$	0.16	0.04
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	-	1.92
Maximum electric power input	$P_{EL,MAX}$	W	-	49290
Maximum dissipated heat output	$Q_{P,H,MAX}$	W	-	2362
Max. DC bus voltage	$V_{DC}$		-	750

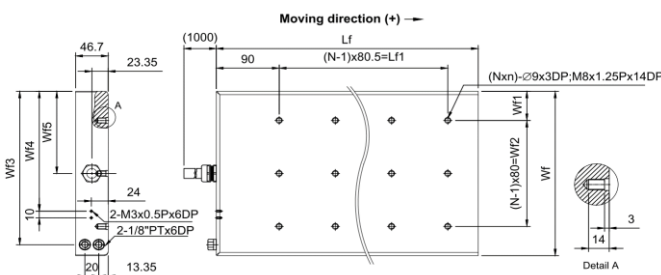
Mechanical specifications				
	Symbol	Unit	Free air convection	Water cooling
Mass of forcer	$M_f$	kg	-	40.8
Unit mass of stator	$M_s$	kg	-	25
Total installation height	$H$	mm	-	64.1
Minimum flow rate		L/min	-	7.3
Temperature of cooling water		$^{\circ}C$	-	20
Pressure drop	$\Delta P$	bar	-	2.3
Water temperature difference	$\Delta\theta_{P,H}$	K	-	4.6
<b>Forcer precision cooler</b>				
Maximum dissipated thermal output	$Q_{FC,Max}$	W	-	153
Pressure drop	$\Delta P_{FC}$	bar	-	6.9
<b>Stator precision cooler</b>				
Maximum dissipated thermal output	$Q_{SC,Max}$	W	-	459
Pressure drop per meter of cooling pipe	$\Delta P_s$	bar	-	0.07
Pressure drop per combi distributor	$\Delta P_{sd}$	bar	-	0.2
Pressure drop per coupling point	$\Delta P_{sp}$	bar	-	0.09

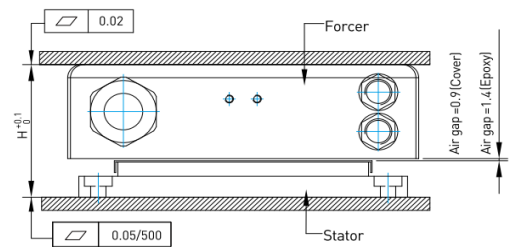
Lf	mm	697	Wf3	mm	231.5
Lf1	mm	563.5	Wf4	mm	181
Wf	mm	248	Wf5	mm	124
Wf1	mm	44	N	mm	3
Wf2	mm	160	n	mm	8



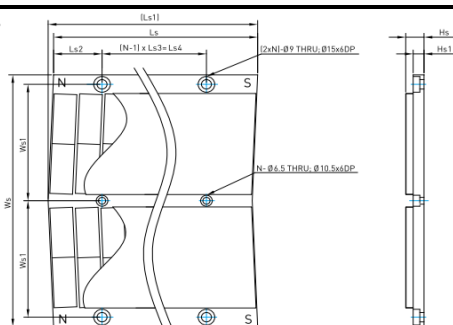
## Forcer dimensions



## Mounting tolerance



## Stator dimensions



Type	Ls	Ls1	Ls2	Ls3	Ls4	Hs	Hs1	Ws	Ws1	N
LMF5S1E	184	188.89	43.7	92	92	16	9.8	240	111	2
LMF5S2E	276	280.89	43.7	92	184	16	9.8	240	111	3
LMF5S3E	460	464.89	43.7	92	368	16	9.8	240	111	5

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

Version: 2.00

Date: 2020/5/8