

# LMFA64L Linear Motor

## Electrical specifications

	Symbol	Unit	Free air convection	Water cooling
Continuous force	$F_c$	N	3958	7917
Continuous current	$I_c$	$A_{rms}$	23.1	46.2
Stall force	$F_0$	N	-	5542
Stall current	$I_0$	$A_{rms}$	-	32.3
Peak force (1s)	$F_p$	N	-	20827
Peak current (1s)	$I_p$	$A_{rms}$	-	142.6
Force constant	$K_f$	$N/A_{rms}$	-	171.4
Attraction force	$F_a$	N	-	41160
Max. winding temperature	$T_{max}$	$^{\circ}C$	-	120
Electrical time constant	$K_e$	ms	-	12
Resistance (line to line · 25 $^{\circ}C$ )	$R_{25}$	$\Omega$	-	0.8
Resistance (line to line · 120 $^{\circ}C$ )	$R_{120}$	$\Omega$	-	1
Inductance (line to line)	$L$	mH	-	9
Pole pair pitch	$2\tau$	mm	-	46
Back emf constant(line to line)	$K_v$	$V_{rms}/(m/s)$	-	98.9
Motor constant (25 $^{\circ}C$ )	$K_m$	$N/\sqrt{W}$	-	161.6
Thermal resistance	$R_{th}$	$^{\circ}C/W$	0.12	0.03
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	-	2.61
Maximum electric power input	$P_{EL,MAX}$	W	-	84510
Maximum dissipated heat output	$Q_{P,H,MAX}$	W	-	3166
Max. DC bus voltage	$V_{DC}$	V	-	750

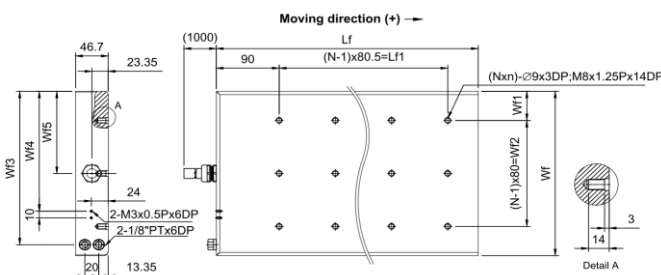
## Mechanical specifications

	Symbol	Unit	Free air convection	Water cooling
Mass offorcer	$M_f$	kg	-	56.2
Unit mass of stator	$M_s$	kg	-	40.1
Total installation height	$H$	mm	-	66.1
Minimum flow rate		L/min	-	7.8
Temperature of cooling water		$^{\circ}C$	-	20
Pressure drop	$\Delta P$	bar	-	3
Water temperature difference	$\Delta\theta_{P,H}$	K	-	5.8
<b>Forcer precision cooler</b>				
Maximum dissipated thermal output	$Q_{FC,Max}$	W	-	164
Pressure drop	$\Delta P_{FC}$	bar	-	6.8
<b>Stator precision cooler</b>				
Maximum dissipated thermal output	$Q_{SC,Max}$	W	-	491
Pressure drop per meter of cooling pipe	$\Delta P_s$	bar	-	0.09
Pressure drop per combi distributor	$\Delta P_{sd}$	bar	-	0.4
Pressure drop per coupling point	$\Delta P_{sp}$	bar	-	0.09

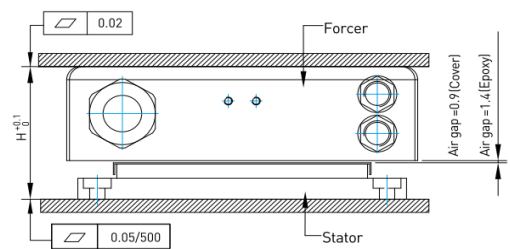
  

Lf	mm	697	Wf3	mm	325.5
Lf1	mm	563.5	Wf4	mm	245
Wf	mm	342	Wf5	mm	171
Wf1	mm	51	N	mm	4
Wf2	mm	240	n	mm	8

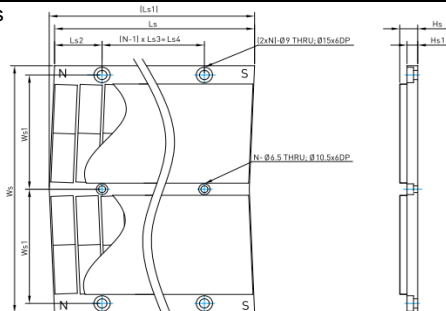
## Forcer dimensions



## Mounting tolerance



## Stator dimensions



Type	Ls	Ls1	Ls2	Ls3	Ls4	Hs	Hs1	Ws	Ws1	N
LMF6S1E	184	188.66	20.97	46	138	18	11.8	334	158	4

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

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