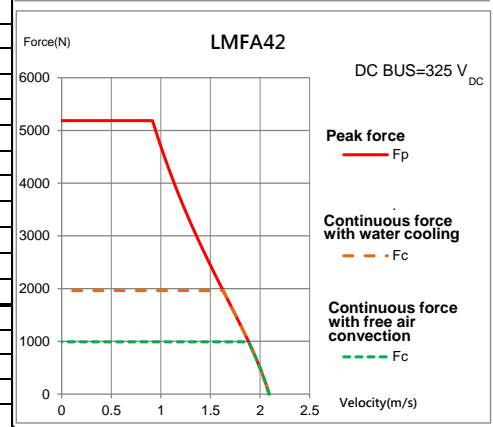
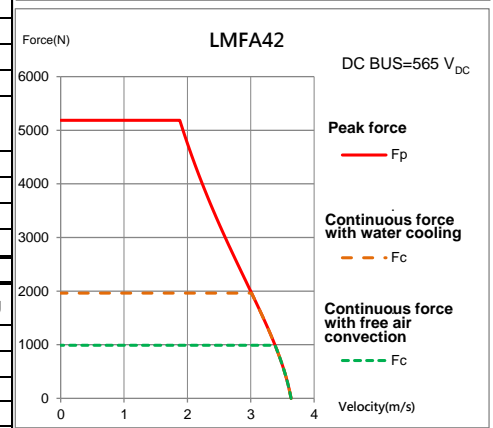
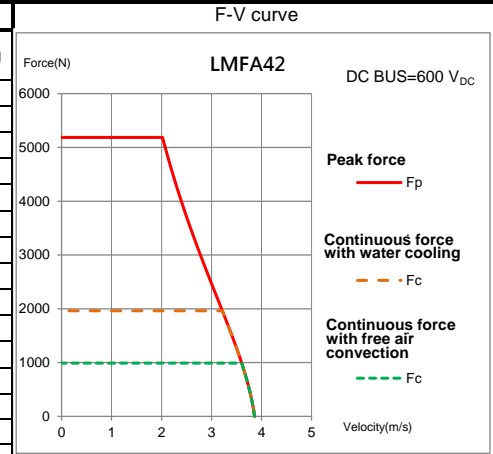


LMFA42 Linear Motor

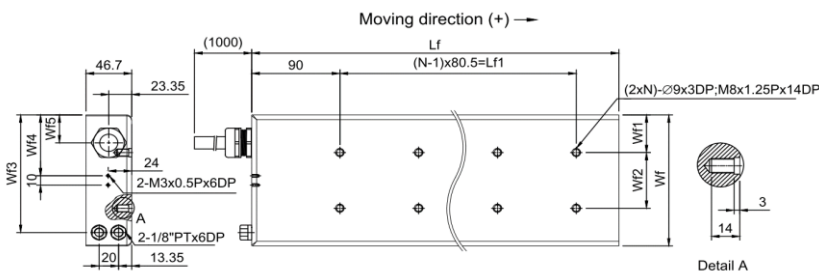
Electrical specifications				
	Symbol	Unit	Free air convection	Water cooling
Continuous force	F_c	N	990	1979
Continuous current	I_c	A_{rms}	5.8	11.5
Stall force	F_0	N	-	1385
Stall current	I_0	A_{rms}	-	8.1
Peak force (1s)	F_p	N	-	5207
Peak current (1s)	I_p	A_{rms}	-	35.8
Force constant	K_f	N/A_{rms}	-	171.4
Attraction force	F_a	N	-	10290
Max. winding temperature	T_{max}	$^{\circ}C$	-	120
Electrical time constant	K_e	ms	-	12
Resistance (line to line · 25 $^{\circ}C$)	R_{25}	Ω	-	3
Resistance (line to line · 120 $^{\circ}C$)	R_{120}	Ω	-	4
Inductance (line to line)	L	mH	-	36
Pole pair pitch	2τ	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}	-	80.8
Thermal resistance	R_{th}	$^{\circ}C/W$	0.48	0.12
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	-	21197
Maximum dissipated heat output	$Q_{P,H,MAX}$	W	-	792
Max. DC bus voltage	V_{DC}	V	-	750

Mechanical specifications				
	Symbol	Unit	Free air convection	Water cooling
Mass offorcer	M_f	kg	-	16.2
Unit mass of stator	M_s	kg	-	22.3
Total installation height	H	mm	-	66.1
Minimum flow rate		L/min	-	5.2
Temperature of cooling water		$^{\circ}C$	-	20
Pressure drop	ΔP	bar	-	1.17
Water temperature difference	$\Delta\theta_{P,H}$	K	-	2.2
Forcer precision cooler				
Maximum dissipated thermal output	$Q_{FC,Max}$	W	-	109
Pressure drop	ΔP_{FC}	bar	-	0.99
Stator precision cooler				
Maximum dissipated thermal output	$Q_{SC,Max}$	W	-	327
Pressure drop per meter of cooling pipe	ΔP_s	bar	-	0.16
Pressure drop per combi distributor	ΔP_{sd}	bar	-	0.85
Pressure drop per coupling point	ΔP_{sp}	bar	-	0.17

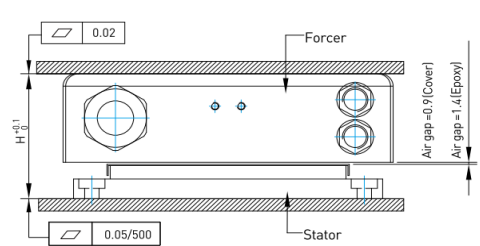
Lf	mm	375	Wf3	mm	173.5
Lf1	mm	241.5	Wf4	mm	89
Wf	mm	188	Wf5	mm	30
Wf1	mm	54	N	mm	4
Wf2	mm	80	n	mm	-



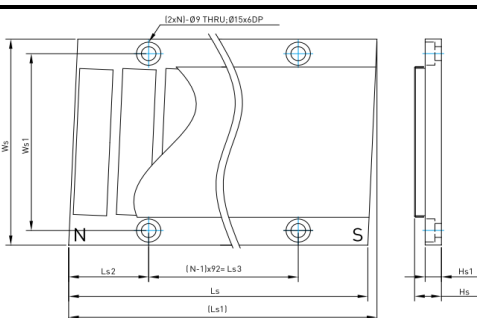
Forcer dimensions



Mounting tolerance



Stator dimensions



Type	Ls	Ls1	Ls2	Ls3	Ls4	Hs	Hs1	Ws	Ws1	N
LMF4S1	184	189.03	48.9	92	18.5	12	180	161	2	
LMF4S1E	184	189.03	48.9	92	18	11.8	180	161	2	
LMF4S2	276	281.03	48.9	184	18.5	12	180	161	3	
LMF4S2E	276	281.03	48.9	184	18	11.8	180	161	3	
LMF4S3	460	465.03	48.9	368	18.5	12	180	161	5	
LMF4S3E	460	465.03	48.9	368	18	11.8	180	161	5	

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

Version: 2.00

Date: 2020/5/8