

LMFA44

Linear Motor

Electrical specifications

	Symbol	Unit	Free air convection	Water cooling
Continuous force	F_c	N	1979	3958
Continuous current	I_c	A_{rms}	11.5	23.1
Stall force	F_0	N	-	2771
Stall current	I_0	A_{rms}	-	16.2
Peak force (1s)	F_p	N	-	10413
Peak current (1s)	I_p	A_{rms}	-	71.6
Force constant	K_f	N/A_{rms}	-	171.4
Attraction force	F_a	N	-	20580
Max. winding temperature	T_{max}	°C	-	120
Electrical time constant	K_e	ms	-	12
Resistance (line to line · 25°C)	R_{25}	Ω	-	1.5
Resistance (line to line · 120°C)	R_{120}	Ω	-	2
Inductance (line to line)	L	mH	-	18
Pole pair pitch	2τ	mm	-	46
Back emf constant(line to line)	K_v	$V_{rms}/(m/s)$	-	98.9
Motor constant (25°C)	K_m	$N/\sqrt{W}$	-	114.2
Thermal resistance	R_{th}	°C/W	0.24	0.06
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	-	42393
Maximum dissipated heat output	$Q_{P,H,MAX}$	W	-	1583
Max. DC bus voltage		V_{DC}	-	750

Mechanical specifications

	Symbol	Unit	Free air convection	Water cooling
Mass offorcer	M_f	kg	-	29
Unit mass of stator	M_s	kg	-	22.3
Total installation height	H	mm	-	66.1
Minimum flow rate		L/min	-	6.2
Temperature of cooling water		°C	-	20
Pressure drop	ΔP	bar	-	1.8
Water temperture difference	$\Delta\theta_{P,H}$	K	-	3.7

Forcer precision cooler

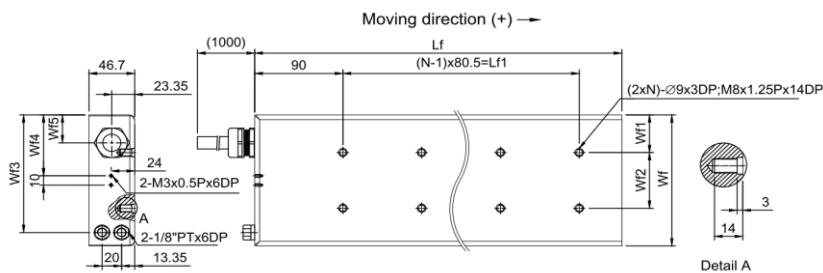
Maximum dissipated thermal output	$Q_{FC,Max}$	W	-	130
Pressure drop	ΔP_{FC}	bar	-	1.58

Stator precision cooler

Maximum dissipated thermal output	$Q_{SC,Max}$	W	-	390
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

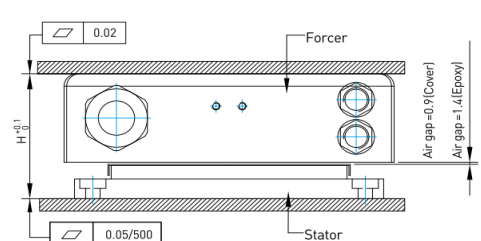
L_f	mm	697	$Wf3$	mm	173.5
L_{f1}	mm	563.5	$Wf4$	mm	89
Wf	mm	188	$Wf5$	mm	30
$Wf1$	mm	54	N	mm	8
$Wf2$	mm	80	n	mm	-

Focer dimensions

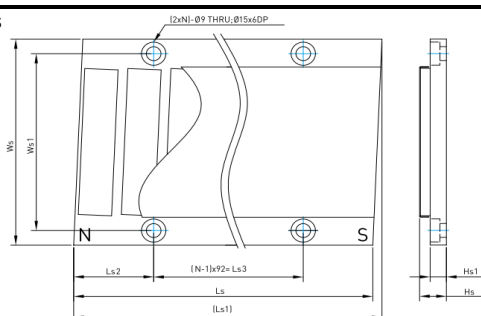


Detail A

Mounting tolerance



Stator dimensions



Type	L_s	L_{s1}	L_{s2}	L_{s3}	L_{s4}	H_s	H_{s1}	W_s	W_{s1}	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

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