

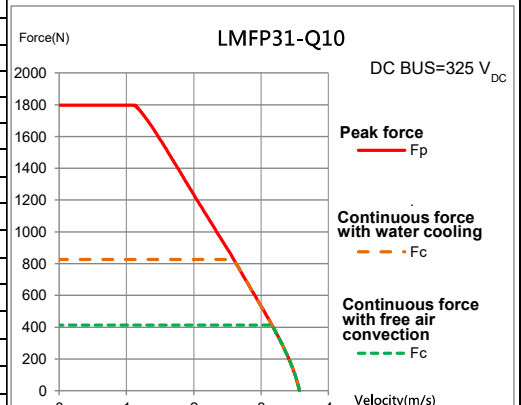
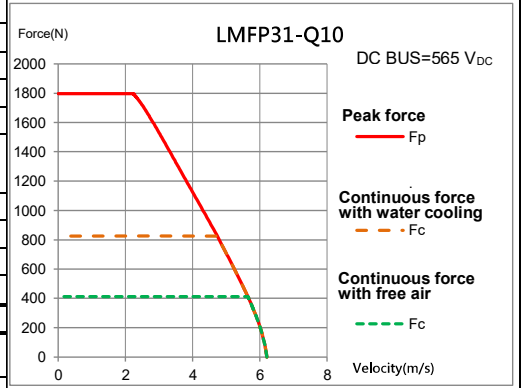
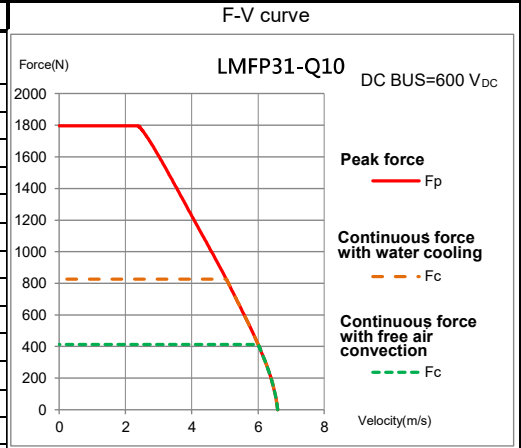
LMFP31-Q10

Linear Motor

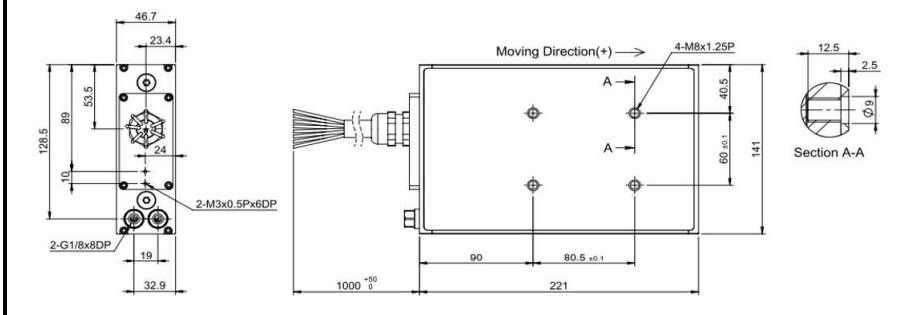
DB100197-V2.00

Electrical specifications				
	Symbol	Unit	Free air convection	Water cooling
Continuous force	F_c	N	413	827
Continuous current	I_c	A_{rms}	4.1	8.2
Stall force	F_0	N	-	574
Stall current	I_0	A_{rms}	-	5.7
Peak force (1s)	F_p	N	1797	
Peak current (1s)	I_p	A_{rms}	25.6	
Force constant	K_f	N/A_{rms}	100.3	
Attraction force	F_a	N	3121	
Max. winding temperature	T_{max}	°C	120	
Electrical time constant	K_e	ms	12	
Resistance (line to line · 25°C)	R_{25}	Ω	3.6	
Resistance (line to line · 120°C)	R_{120}	Ω	4.9	
Inductance (line to line)	L	mH	43.2	
Pole pair pitch	2τ	mm	46	
Back emf constant(line to line)	K_v	$V_{rms}/(m/s)$	57.9	
Motor constant (25°C)	K_m	$N/A_{rms}/W$	43.3	
Thermal resistance	R_{th}	°C/W	0.77	0.19
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	2.4	
Maximum electric power input	$P_{EL,MAX}$	W	-	9130
Maximum dissipated heat output	$Q_{P,H,MAX}$	W	-	494
Max. DC bus voltage	V_{DC}		750	

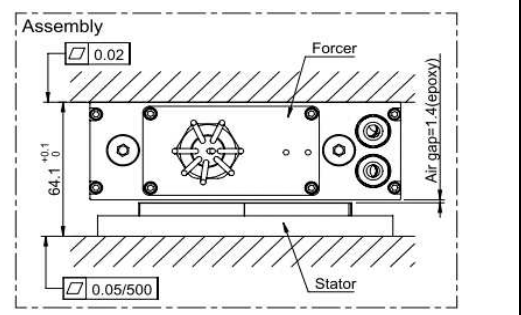
Mechanical specifications				
	Symbol	Unit	Free air convection	Water cooling
Mass of forcer	M_f	kg	6.9	
Unit mass of stator	M_s	kg	16.2	
Total installation height	H	mm	64.1	
Minimum flow rate		L/min	-	4
Temperature of cooling water		°C	-	20
Pressure drop	ΔP	bar	-	0.57
Water temperature difference	$\Delta\theta_{P,H}$	K	-	1.8
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



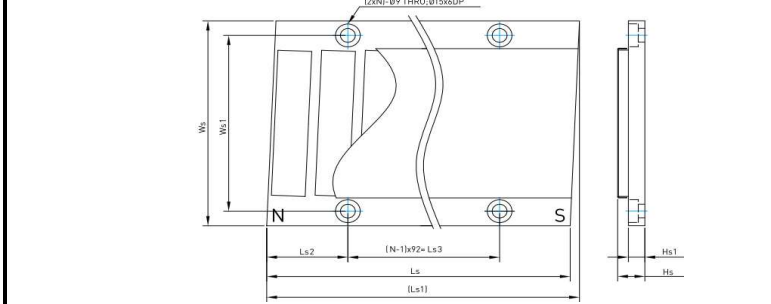
Forcer dimensions



Mounting tolerance



Stator dimensions



Wiring diagram

WIRING DIAGRAM	
Cable	Signal
L1/U	U
L2/V	V
L3/W	W
Yellow/Green	Shield
Red	T1+
Yellow	T1-
Black	T2+
White	T2-

PTC SNM120
Pt1000

Type	Ls	Ls1	Ls2	Ls3	Hs	Hs1	Ws	Ws1	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 ±10% of tolerance

Version: 2.00

Date: 2021/2/9