

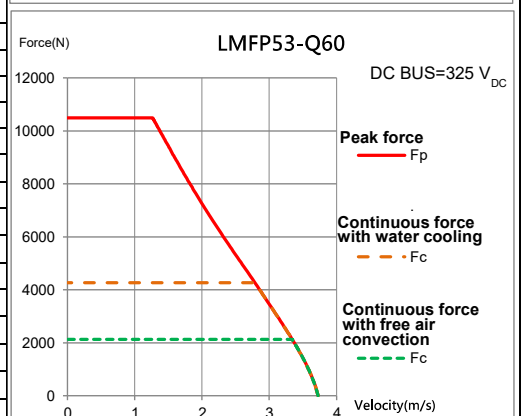
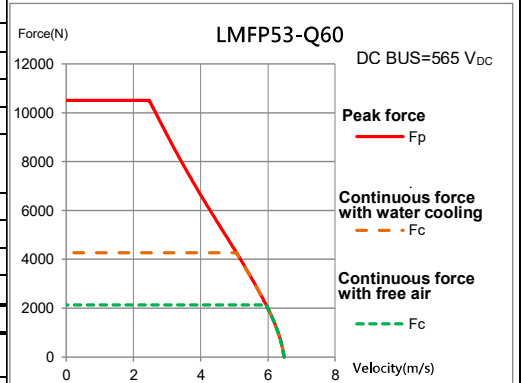
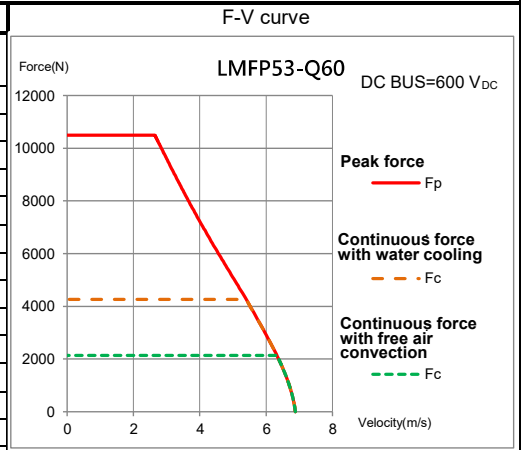
LMFP53-Q60

Linear Motor

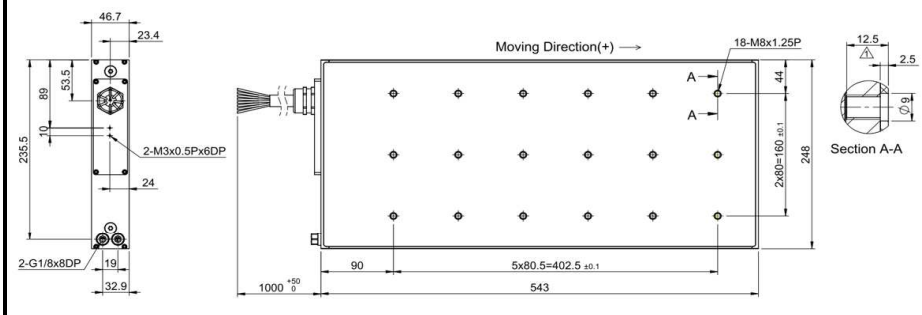
DB100208-V3.00

Electrical specifications				
	Symbol	Unit	Free air convection	Water cooling
Continuous force	F_c	N	2133	4266
Continuous current	I_c	A_{rms}	22.2	44.4
Stall force	F_0	N	-	2988
Stall current	I_0	A_{rms}	-	31.1
Peak force (1s)	F_p	N	10500	
Peak current (1s)	I_p	A_{rms}	139	
Force constant	K_f	N/A_{rms}	96.1	
Attraction force	F_a	N	18700	
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	0.6	
Resistance (line to line · 120 $^{\circ}C$)	R_{120}	Ω	0.8	
Inductance (line to line)	L	mH	7.2	
Pole pair pitch	2τ	mm	46	
Back emf constant(line to line)	K_v	$V_{rms}/(m/s)$	55.5	
Motor constant (25 $^{\circ}C$)	K_m	$N/A_{rms}/W$	101.3	
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	2.7	
Maximum electric power input	$P_{EL,MAX}$	W	-	51535
Maximum dissipated heat output	$Q_{P,H,MAX}$	W	-	2366
Max. DC bus voltage	V_{DC}		750	

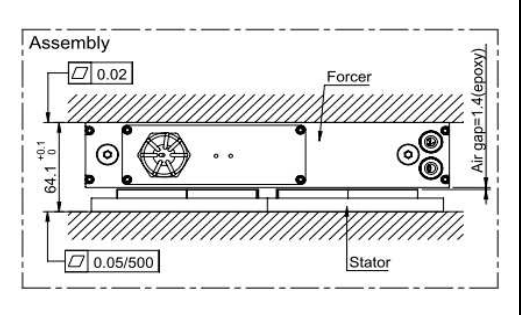
Mechanical specifications				
	Symbol	Unit	Free air convection	Water cooling
Mass of forcer	M_f	kg	33.5	
Unit mass of stator	M_s	kg	25	
Total installation height	H	mm	64.1	
Minimum flow rate		L/min	-	6.8
Temperature of cooling water		$^{\circ}C$	-	20
Pressure drop	ΔP	bar	-	1.77
Water temperature difference	$\Delta\theta_{P,H}$	K	-	5
Forcer precision cooler				
Maximum dissipated thermal output	$Q_{FC,Max}$	W	-	143
Pressure drop	ΔP_{FC}	bar	-	6.15
Stator precision cooler				
Maximum dissipated thermal output	$Q_{SC,Max}$	W	-	428
Pressure drop per meter of cooling pipe	ΔP_s	bar	-	0.07
Pressure drop per combi distributor	ΔP_{sd}	bar	-	0.2
Pressure drop per coupling point	ΔP_{sp}	bar	-	0.09



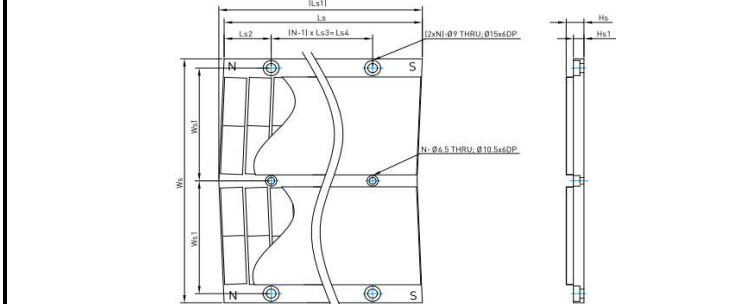
Forcer dimensions



Mounting tolerance



Stator dimensions



Wiring diagram

WIRING DIAGRAM	
Cable	Signal
L1/U	U
L2/V	V
L3/W	W
Yellow/Green	⊥
Shield	⊥
5	T1+
6	T1-
7	T2+
8	T2-

PTC SNM120
Pt1000

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	480	464.89	43.7	92	368	16	9.8	240	111	5

Except dimensions, all the specifications in the table are in ±10% of tolerance

Version: 3.00

This drawing is only for reference, detail dimensions please refer to approval drawing.

Date: 2021/7/27