

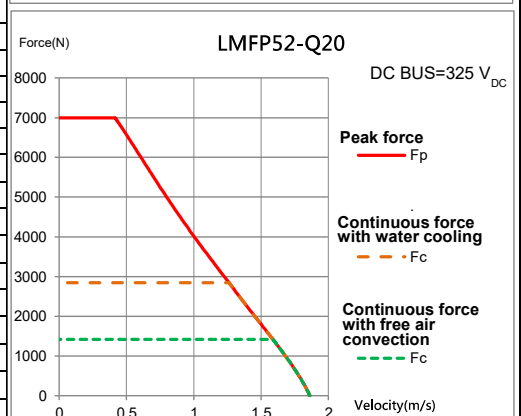
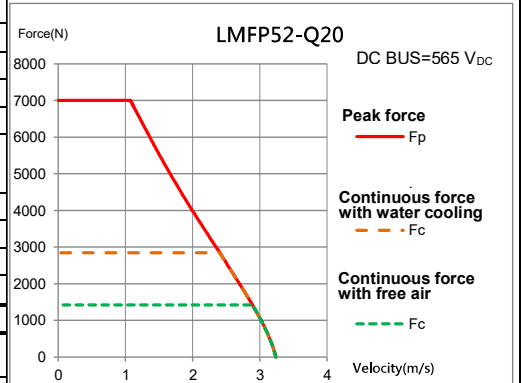
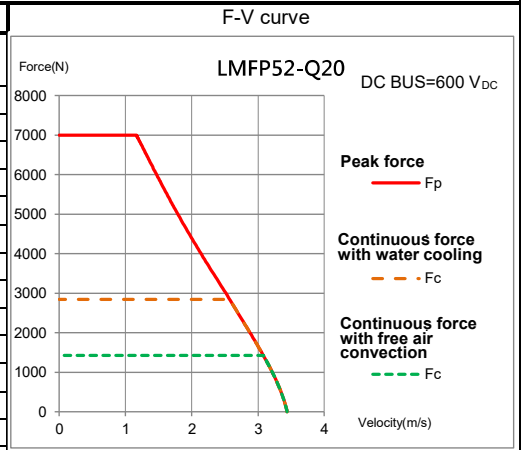
LMFP52-Q20

Linear Motor

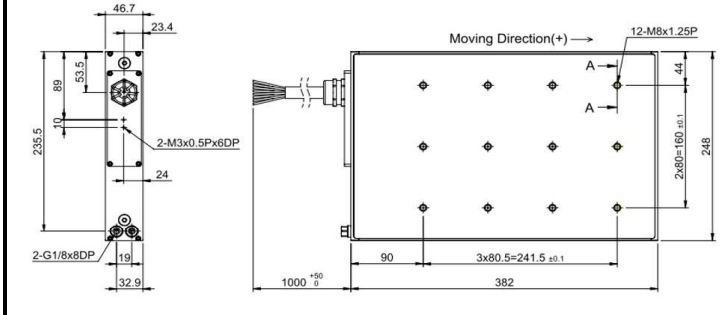
DB100205-V1.00

Electrical specifications				
	Symbol	Unit	Free air convection	Water cooling
Continuous force	F_c	N	1422	2844
Continuous current	I_c	A_{rms}	7.4	14.8
Stall force	F_0	N	-	1998
Stall current	I_0	A_{rms}	-	10.4
Peak force (1s)	F_p	N	7000	
Peak current (1s)	I_p	A_{rms}	46.3	
Force constant	K_f	N/A_{rms}	192.3	
Attraction force	F_a	N	12467	
Max. winding temperature	T_{max}	$^{\circ}C$	120	
Electrical time constant	K_e	ms	12.6	
Resistance (line to line · 25 $^{\circ}C$)	R_{25}	Ω	3.4	
Resistance (line to line · 120 $^{\circ}C$)	R_{120}	Ω	4.7	
Inductance (line to line)	L	mH	42.9	
Pole pair pitch	2τ	mm	46	
Back emf constant(line to line)	K_v	$V_{rms}/(m/s)$	111	
Motor constant (25 $^{\circ}C$)	K_m	$N/A_{rms}/W$	85.1	
Thermal resistance	R_{th}	$^{\circ}C/W$	0.25	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	1.2	
Maximum electric power input	$P_{EL,MAX}$	W	-	23513
Maximum dissipated heat output	$Q_{P,H,MAX}$	W	-	1544
Max. DC bus voltage	V_{DC}		750	

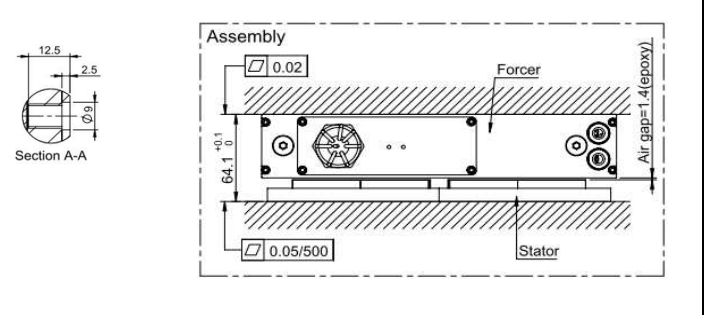
Mechanical specifications				
	Symbol	Unit	Free air convection	Water cooling
Mass of forcer	M_f	kg	24.8	
Unit mass of stator	M_s	kg	25	
Total installation height	H	mm	64.1	
Minimum flow rate		L/min	-	6.3
Temperature of cooling water		$^{\circ}C$	-	20
Pressure drop	ΔP	bar	-	1.77
Water temperature difference	$\Delta\theta_{P,H}$	K	-	3.5
Forcer precision cooler				
Maximum dissipated thermal output	$Q_{FC,Max}$	W	-	132
Pressure drop	ΔP_{FC}	bar	-	5.44
Stator precision cooler				
Maximum dissipated thermal output	$Q_{SC,Max}$	W	-	397
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



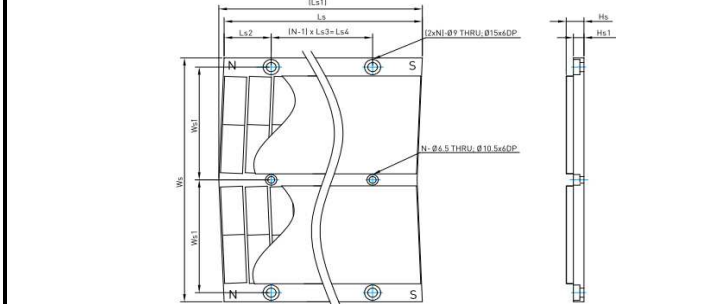
Forcer dimensions



Mounting tolerance



Stator dimensions



Wiring diagram

WIRING DIAGRAM	
Cable	Signal
L1/U	U
L2/V	V
L3/W	W
Yellow/Green	⊥
Shield	
Red	T1+
Yellow	T1-
Black	T2+
White	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	460	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: 1.00

Date: 2021/1/29