

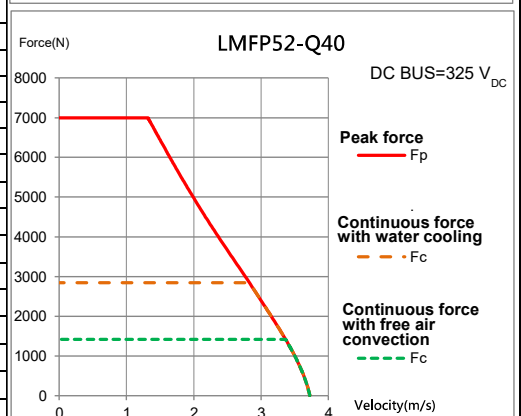
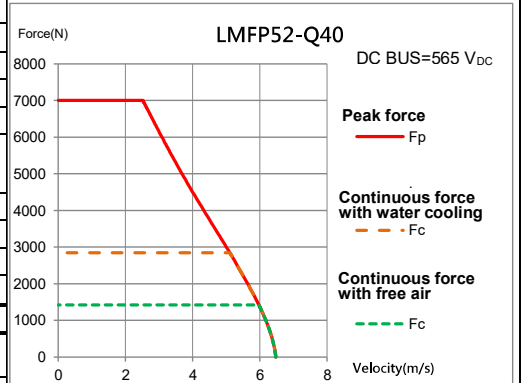
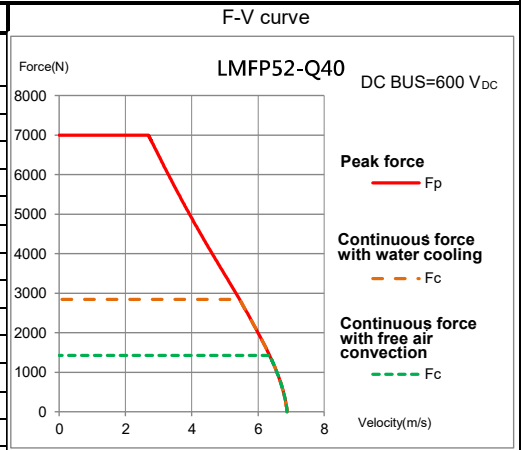
LMFP52-Q40

Linear Motor

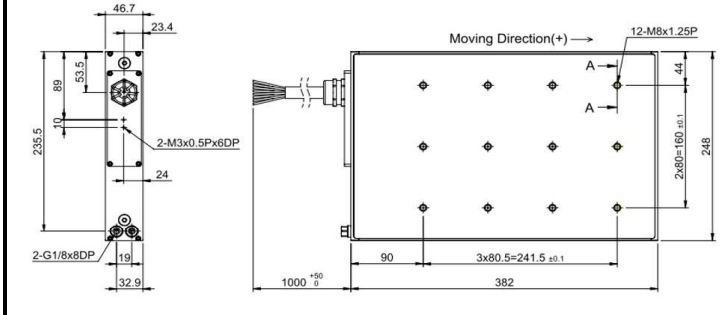
DB100206-V1.00

| Electrical specifications | | | | |
|----------------------------------------------|---------------|-----------------|--------------------------------------------|---------------|
| | Symbol | Unit | Free air convection | Water cooling |
| Continuous force | F_c | N | 1422 | 2844 |
| Continuous current | I_c | A_{rms} | 14.8 | 29.6 |
| Stall force | F_0 | N | - | 1989 |
| Stall current | I_0 | A_{rms} | - | 20.7 |
| Peak force (1s) | F_p | N | 7000 | |
| Peak current (1s) | I_p | A_{rms} | 92.7 | |
| Force constant | K_f | N/A_{rms} | 96.1 | |
| Attraction force | F_a | N | 12467 | |
| Max. winding temperature | T_{max} | $^{\circ}C$ | 120 | |
| Electrical time constant | K_e | ms | 13.4 | |
| Resistance (line to line · 25 $^{\circ}C$) | R_{25} | Ω | 0.8 | |
| Resistance (line to line · 120 $^{\circ}C$) | R_{120} | Ω | 1.1 | |
| Inductance (line to line) | L | mH | 10.7 | |
| 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 | $N/A_{rms}/W$ | 87.7 | |
| Thermal resistance | R_{th} | $^{\circ}C/W$ | 0.26 | 0.07 |
| 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 | - | 33079 |
| Maximum dissipated heat output | $Q_{P,H,MAX}$ | W | - | 1446 |
| Max. DC bus voltage | V_{DC} | | 750 | |

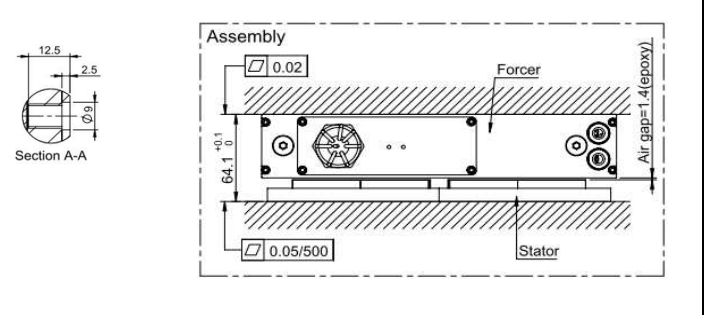
| Mechanical specifications | | | | |
|-----------------------------------------|----------------------|-------------|---------------------|---------------|
| | Symbol | Unit | Free air convection | Water cooling |
| Mass of forcer | M_f | kg | 24.8 | |
| Unit mass of stator | M_s | kg | 25 | |
| Total 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 | - | 3.3 |
| 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 |



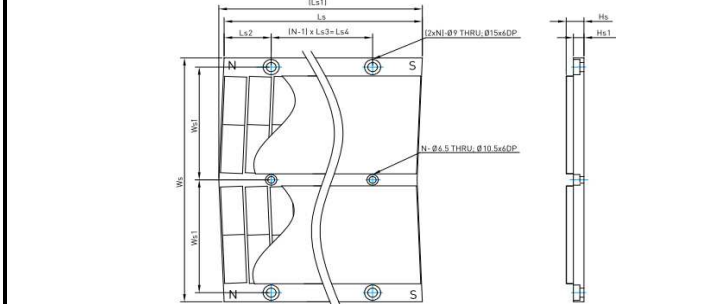
Forcer dimensions



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