



POWERED BY INNOVATION

| P20 Double Parallel Connected Coil Performance Specification | | | | | | |
|--|--------------------------|--------|-------|-------|-------|-------------|
| General and 6 Lead Motor Specifications | UNITS | Dash # | 2 | 4 | 6 | 8 10 |
| Force Constant | lb _f /A | | 2.1 | 4.1 | 6.2 | 8.2 10.3 |
| | N/A | | 9.1 | 18.3 | 27.4 | 36.6 45.7 |
| Max Operating Temperature | °C | | 130 | 130 | 130 | 130 130 |
| Maximum Temp. Rise | °C | | 105 | 105 | 105 | 105 105 |
| Coil Resistance (6 lead @ 25°C) | Ω | | 0.73 | 1.45 | 2.18 | 2.91 3.64 |
| Coil Resistance (6 lead @ Max. °C) | Ω | | 1.03 | 2.06 | 3.09 | 4.11 5.14 |
| Inductance @ 1kHz | mH | | 0.2 | 0.5 | 0.7 | 0.9 1.1 |
| Thermal Resistance (Bracket Top Mount) | °C/W | | 0.64 | 0.32 | 0.21 | 0.16 0.13 |
| Continuous Power Top Mount (Max. °C) | W | | 164 | 327 | 491 | 655 819 |
| Thermal Resistance, side mount (SP23, 1" hole spacing) | °C/W | | 0.90 | 0.45 | 0.30 | 0.23 0.18 |
| Continuous Power using Side Mount (Max. °C) | W | | 117 | 233 | 350 | 467 583 |
| Continuous Power, top mount to plate**(Max. °C) | W | | 70.6 | 118.6 | 164.7 | 210.3 255.7 |
| Motor Constant | lb _f /sqrt(W) | | 2.5 | 3.5 | 4.3 | 5.0 5.6 |
| | N/sqrt(W) | | 11.04 | 15.62 | 19.13 | 22.09 24.69 |
| Peak Power (Max. °C, 10% Duty) | W | | 1637 | 3274 | 4911 | 6548 8185 |
| Back EMF Constant | V/inch/s | | 0.23 | 0.46 | 0.70 | 0.93 1.16 |
| | V/m/s | | 9.1 | 18.3 | 27.4 | 36.6 45.7 |
| Electrical Time Constant (@ 25°C) | ms | | 0.31 | 0.31 | 0.31 | 0.31 0.31 |
| (@ 130°C) | ms | | 0.22 | 0.22 | 0.22 | 0.22 0.22 |
| Maximum Line to Line Voltage | V _{rms} | | 500 | 500 | 500 | 500 500 |
| Coil Weight (HED adds 15g.[.033lb]) | Pounds | | 0.9 | 1.7 | 2.6 | 3.4 4.3 |
| | Kilograms | | 0.39 | 0.78 | 1.16 | 1.55 1.95 |
| Coil length (inside magnet track without HED) | inch | | 4.81 | 9.61 | 14.41 | 19.21 24.01 |
| HED increases coil length by 1.49 inch (37.8mm) | mm | | 122.2 | 244.1 | 366.0 | 487.9 609.9 |
| Coil bracket length (without HED option) | inch | | 5.61 | 10.41 | 15.21 | 20.01 24.81 |
| HED increases bracket length by 1.49inch, (37.8mm) | mm | | 142.5 | 264.4 | 386.3 | 508.3 630.2 |
| Delta Connected Specifications | UNITS | Dash # | 2 | 4 | 6 | 8 10 |
| Force Constant | lb _f /A | | 2.1 | 4.1 | 6.2 | 8.2 10.3 |
| | N/A | | 9.1 | 18.3 | 27.4 | 36.6 45.7 |
| Phase Resistance (Δ @ 25°C) | Ω | | 0.5 | 1.0 | 1.5 | 1.9 2.4 |
| Phase Resistance (Δ @ Max. °C) | Ω | | 0.7 | 1.4 | 2.1 | 2.7 3.4 |
| Inductance @ 1kHz | mH | | 0.2 | 0.3 | 0.5 | 0.6 0.8 |
| Continuous Force | lb _f | | 31.8 | 63.5 | 95.3 | 127.1 158.8 |
| | N | | 141.3 | 282.6 | 423.9 | 565.2 706.5 |
| Continuous Current | A | | 15.5 | 15.5 | 15.5 | 15.5 15.5 |
| Peak Force* | lb _f | | 100 | 201 | 301 | 402 502 |
| | N | | 447 | 894 | 1340 | 1787 2234 |
| Peak Current* | A | | 48.9 | 48.9 | 48.9 | 48.9 48.9 |
| Continuous Force, aluminum plate heat sink** (see below) | lb _f | | 20.9 | 38.2 | 55.2 | 72.0 88.8 |
| | N | | 92.8 | 170.1 | 245.5 | 320.3 394.8 |
| Back EMF Constant | V/inch/s | | 0.2 | 0.5 | 0.7 | 0.9 1.2 |
| | V/m/s | | 9.1 | 18.3 | 27.4 | 36.6 45.7 |
| WYE connected Specifications | UNITS | Dash # | 2 | 4 | 6 | 8 10 |
| Force Constant | lb _f /A | | 3.6 | 7.1 | 10.7 | 14.2 17.8 |
| | N/A | | 15.8 | 31.7 | 47.5 | 63.3 79.2 |
| Phase Resistance (Ψ @ 25°C) | Ω | | 1.5 | 2.9 | 4.4 | 5.8 7.3 |
| Phase Resistance (Ψ @ Max. °C) | Ω | | 2.1 | 4.1 | 6.2 | 8.2 10.3 |
| Inductance @ 1kHz | mH | | 0.5 | 0.9 | 1.4 | 1.8 2.3 |
| Continuous Force | lb _f | | 31.8 | 63.5 | 95.3 | 127.1 158.8 |
| | N | | 141.3 | 282.6 | 423.9 | 565.2 706.5 |
| Continuous Current* | A | | 8.92 | 8.92 | 8.92 | 8.92 8.92 |
| Peak Force* | lb _f | | 100 | 201 | 301 | 402 502 |
| | N | | 447 | 894 | 1340 | 1787 2234 |
| Peak Current* | A | | 28.21 | 28.21 | 28.21 | 28.21 28.21 |
| Continuous Force, aluminum plate heat sink** (see below) | lb _f | | 20.9 | 38.2 | 55.2 | 72.0 88.8 |
| | N | | 92.8 | 170.1 | 245.5 | 320.3 394.8 |
| Back EMF Constant | V/inch/s | | 0.4 | 0.8 | 1.2 | 1.6 2.0 |
| | V/m/s | | 15.8 | 31.7 | 47.5 | 63.3 79.2 |
| * Notes: | | | | | | |
| Specifications based on heat sink maintained within 10°C of ambient temperature at motor bracket interface. | | | | | | |
| Dash 6 and larger coils may be constructed in multiple segments. Contact factory for availability. | | | | | | |
| On time of "Peak Power" (duration) less than 10 seconds. | | | | | | |
| Back EMF plus IR drop must not exceed "Maximum Terminal Voltage" listed. | | | | | | |
| Electrical cycle length is 2.4 inch (61mm). | | | | | | |
| Resistance Specifications do not include the cable resistance. | | | | | | |
| Custom cable required for peak current exceeding 17 ampere. | | | | | | |
| Cable adds 0.22Ω/m to 6-lead resistance, 0.146Ω/m to Delta resistance and 0.44Ω/m to WYE resistance. | | | | | | |
| ** Heat Sink is a 12" wide, 1/2" thick aluminum plate, extending 2" beyond each end of the coil bracket, in 258C free air. | | | | | | |
| Shaded columns are "Special" models. | | | | | | |
| Magnet Track weight is 13kg/m (9.0 pounds/foot). | | | | | | |