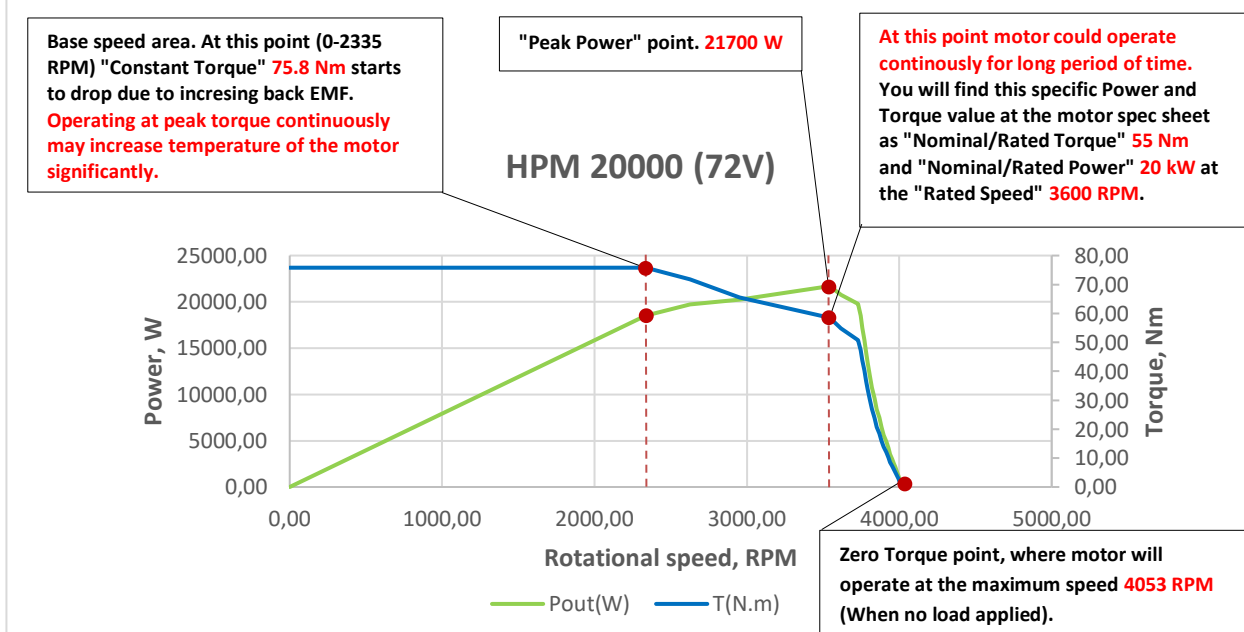


HPM 20000 (72V) Test report

| Power | | 20KW | | | Rated voltage | | 72(V) | |
|-----------|-------|-----------|--------|--------|---------------|---------|-----------|--|
| Test | | 1 | | | Rated current | | 330(A) | |
| Test Date | | 2015-7-22 | | | Rated power | | 20000(W) | |
| | | | | | Rated speed | | 3600(r/m) | |
| No. | U(V) | I(A) | Pin(W) | T(N.m) | N(r/m) | Pout(W) | n(%) | |
| 001 | 72.20 | 24.58 | 1775 | 0.5 | 4053 | 216.5 | 12.2 | |
| 002 | 72.18 | 27.20 | 1963 | 0.3 | 4036 | 185.3 | 9.4 | |
| 003 | 72.16 | 31.18 | 2250 | 0.1 | 4025 | 52.15 | 2.3 | |
| 004 | 72.12 | 33.78 | 2436 | 0.8 | 4015 | 353.2 | 14.5 | |
| 005 | 72.10 | 39.75 | 2866 | 1.7 | 4003 | 725.2 | 25.3 | |
| 006 | 72.05 | 43.02 | 3099 | 2.8 | 3996 | 1184 | 38.2 | |
| 007 | 72.05 | 50.97 | 3673 | 3.9 | 3984 | 1627 | 44.5 | |
| 008 | 72.01 | 62.50 | 4375 | 5.1 | 3973 | 2122 | 48.5 | |
| 009 | 72.00 | 63.00 | 4536 | 6.2 | 3962 | 2572 | 56.7 | |
| 010 | 71.95 | 71.40 | 5138 | 7.3 | 3952 | 3021 | 58.8 | |
| 011 | 71.90 | 78.83 | 5668 | 8.6 | 3940 | 3548 | 62.6 | |
| 012 | 71.88 | 94.13 | 6766 | 10.2 | 3928 | 4195 | 65.0 | |
| 013 | 71.76 | 101.7 | 7295 | 12.0 | 3913 | 4917 | 67.4 | |
| 014 | 71.68 | 113.1 | 8106 | 13.8 | 3898 | 5634 | 69.5 | |
| 015 | 71.53 | 123.3 | 8819 | 15.9 | 3882 | 6464 | 73.3 | |
| 016 | 71.45 | 138.4 | 9887 | 18.5 | 3868 | 7494 | 75.8 | |
| 017 | 71.40 | 149.8 | 10692 | 20.7 | 3852 | 8350 | 78.1 | |
| 018 | 71.35 | 166.5 | 11877 | 23.8 | 3836 | 9561 | 80.5 | |
| 019 | 71.32 | 185.4 | 13220 | 26.9 | 3820 | 10761 | 81.4 | |
| 020 | 71.30 | 206.8 | 14746 | 30.2 | 3805 | 12033 | 81.6 | |
| 021 | 71.27 | 228.8 | 16308 | 33.8 | 3792 | 13422 | 82.3 | |
| 022 | 71.20 | 246.0 | 17513 | 36.8 | 3781 | 14571 | 83.2 | |
| 023 | 71.15 | 266.0 | 18973 | 40.2 | 3772 | 15880 | 83.7 | |
| 024 | 71.10 | 286.3 | 20352 | 43.7 | 3758 | 17198 | 84.5 | |
| 025 | 71.10 | 303.4 | 21575 | 47.2 | 3745 | 18511 | 85.8 | |
| 026 | 71.08 | 321.7 | 22868 | 50.7 | 3730 | 19804 | 86.6 | |
| 027 | 71.05 | 330.0 | 23448 | 54.8 | 3616 | 20752 | 88.5 | |
| 028 | 71.05 | 345.5 | 24548 | 58.5 | 3542 | 21700 | 88.4 | |
| 029 | 71.02 | 329.5 | 23401 | 65.5 | 2952 | 20249 | 86.5 | |
| 030 | 70.98 | 322.1 | 22861 | 71.7 | 2627 | 19729 | 86.3 | |
| 031 | 70.93 | 303.2 | 21502 | 75.8 | 2335 | 18535 | 86.2 | |



Regarding Motor Supply Voltage / RPM and Power.

For example if motor is with windings 48V, this motor can also be run at lower (or Higher) voltages, such as 36V (or 72V). The difference is that you wouldn't get as much power output since a lower voltage is associated a lower max attainable rpm. As power (W or Nm/s) is the product of angular speed (1/seconds) and torque (nm), with the same amount of torque and a lower rpm, you would have a lower power output.

You can achieve the same amount of torque at any voltage as torque is directly dependent on current. You may see something called a torque constant, such as Nm/A or ft-lbs/A. Simply multiply by the current, and you'll get the torque output before accounting for mechanical and electrical losses.

The main limiting factor on the amount of current you can pump into a motor is heat, which can melt the insulating varnish if too high.

At respectively currents **the motor torque at any supply voltage (36V or 48V or 72V) will be the same.**

Duration of max Power / Torque is defined by motor (& controller) overheating.

Therefore, if motor (& controller) cooling is very good duration time of max Power / Torque can last for longer.

