# HIGH SPEED TORQUE MOTOR

# TMK0360-050

| MOTOR PERFORMANCE | | Winding codes | 3UBN | 3UDS | | |
|---|---|---|---|---|---|---|
| | | UNIT | WATER COOLING | WATER COOLING | | |
| **Tp** | Peak torque | Nm | 756 | 756 | | |
| **Ti** | Intermittent torque | Nm | 678 | 674 | | |
| **Tc** | Continuous torque | Nm | 516 | 512 | | |
| **Ts** | Standstill torque | Nm | 421 | 417 | | |
| **Ip** | Peak current | Arms | 47.4 | 94.9 | | |
| **Ii** | Intermittent current | Arms | 42.5 | 84.0 | | |
| **Ic** | Continuous current | Arms | 26.9 | 53.1 | | |
| **Is** | Standstill current | Arms | 20.3 | 40.2 | | |
| **ns** | Rated low speed | rpm | 0.14 | 0.14 | | |
| **nm** | Maximum speed without flux weakening | rpm | 288 | 577 | | |
| **nm,FW** | Maximum speed with flux weakening | rpm | 1050 | 1820 | | |
| **τon,p** | Maximum ON time for peak cycle | s | 37 | 39 | | |
| **τon,i** | Maximum ON time for intermittent cycle | s | 2.9 | 2.9 | | |
| **Pp** | Power dissipation @ Ip | W | 9210 | 9440 | | |
| **Pi** | Power dissipation @ Ii | W | 9990 | 9990 | | |
| **Pc** | Power dissipation @ Ic | W | 4000 | 4000 | | |
| **Td** | Max. detent torque (average to peak) | Nm | 3.0 | 3.0 | | |

| MOTOR SETTING | | UNIT | | | | |
|---|---|---|---|---|---|---|
| **Kt** | Torque constant | Nm/Arms | 23.8 | 11.9 | | |
| **Ku** | Back EMF constant (*) | Vrms/(rad/s) | 13.8 | 6.89 | | |
| **Km** | Motor constant | Nm/√W | 12.1 | 11.9 | | |
| **R20** | Electrical resistance at 20°C (*) | Ohm | 2.58 | 0.660 | | |
| **Ld/Lq** | Electrical inductance (*) | mH | 22.6 / 17.5 | 5.65 / 4.39 | | |
| **Isc** | Maximum short-circuit current | Arms | 21.3 | 42.6 | | |
| **nb** | Base speed | rpm | 183 | 407 | | |
| **nb,i** | Base speed at intermittent duty cycle | rpm | 137 | 317 | | |
| **nb,p** | Base speed at peak duty cycle | rpm | 136 | 301 | | |
| **nn** | Rated speed | rpm | 161 | 361 | | |
| **Tn** | Rated torque | Nm | 513 | 497 | | |
| **In** | Rated current | Arms | 26.6 | 51.2 | | |
| **τth** | Thermal time constant | s | 127 | 127 | | |
| **Rth** | Thermal resistance | K/W | 0.0269 | 0.0269 | | |
| **2p** | Number of poles | - | 66 | 66 | | |
| **J** | Rotor inertia | kg·m² | 0.265 | 0.265 | | |
| **mr** | Rotor mass | kg | 16.2 | 16.2 | | |
| **ms** | Stator mass | kg | 26.3 | 26.3 | | |

| MOTOR ENVIRONMENT | | UNIT | | | | |
|---|---|---|---|---|---|---|
| **Udc** | Nominal DC bus voltage | VDC | 600 | 600 | | |
| **Di** | Intermittent duty cycle | % | 40 | 40 | | |
| **Dp** | Peak duty cycle | % | 5.0 | 5.0 | | |
| **Sr** | Rotor exchange surface | m² | 0.087 | 0.087 | | |
| **θamb** | Ambient temperature | °C | 20 | 20 | | |
| **θmax** | Maximum coil temperature | °C | 130 | 130 | | |
| **θw** | Inlet water temperature | °C | 20 | 20 | | |
| **Δθw** | Water temperature difference for Pc | K | 5.0 | 5.0 | | |
| **qw** | Minimum water flow for Δθw | l/min | 11 | 11 | | |
| **Δpw** | Max. pressure drop at qw | bar | 0.4 | 0.4 | | |

**Notes:** (*) terminal to terminal.
Hypotheses and tolerances are in ETEL Integration Manual.

**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.





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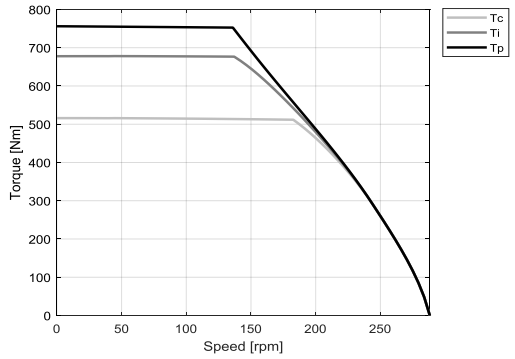
## 3UBN - WATER COOLING

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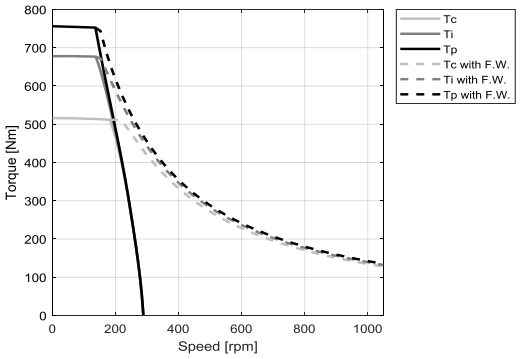


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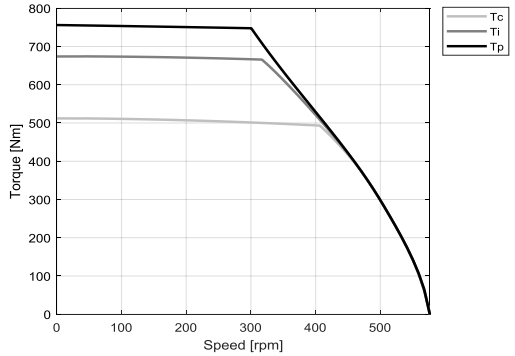


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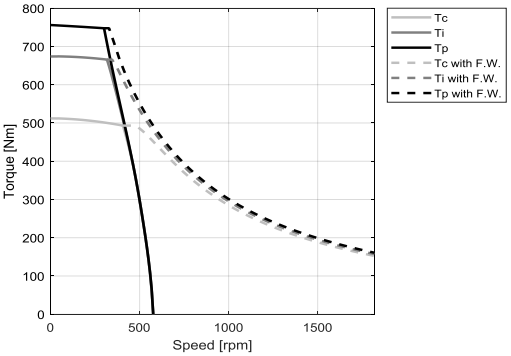






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