

# TORQUE MOTOR

# TML0450-150

| PERFORMANCE |                                   | Winding codes | 3VDN                | 3VHS                |
|-------------|-----------------------------------|---------------|---------------------|---------------------|
|             |                                   | UNIT          | FREE AIR CONVECTION | FREE AIR CONVECTION |
| Tp          | Peak torque                       | Nm            | 3490                | 3490                |
| Tc          | Continuous torque                 | Nm            | 748                 | 748                 |
| Ts          | Stall torque                      | Nm            | 571                 | 571                 |
| Kt          | Torque constant                   | Nm/Arms       | 38.8                | 19.4                |
| Ku          | Back EMF constant (*)             | Vrms/(rad/s)  | 22.4                | 11.2                |
| Km          | Motor constant                    | Nm/√W         | 26.5                | 26.5                |
| R20         | Electrical resistance at 20°C (*) | Ohm           | 1.43                | 0.357               |
| L1          | Electrical inductance (*)         | mH            | 14.3                | 3.58                |
| Ip          | Peak current                      | Arms          | 184                 | 369                 |
| Ic          | Continuous current                | Arms          | 20.0                | 39.9                |
| Is          | Stall current                     | Arms          | 15.1                | 30.2                |
| Pc          | Max. continuous power dissipation | W             | 1220                | 1220                |

| SPECIFICATIONS |                                      | UNIT              |        |        |
|----------------|--------------------------------------|-------------------|--------|--------|
| Udc            | Nominal input voltage                | VDC               | 600    | 600    |
| τth            | Thermal time constant                | s                 | 2710   | 2710   |
| Rth            | Thermal resistance                   | K/W               | 0.0901 | 0.0901 |
| 2p             | Number of poles                      | -                 | 88     | 88     |
| J              | Rotor inertia                        | kg.m <sup>2</sup> | 0.810  | 0.810  |
| Mr             | Rotor mass                           | kg                | 24.5   | 24.5   |
| Ms             | Stator mass                          | kg                | 47.2   | 47.2   |
| Td             | Max. detent torque (average to peak) | Nm                | 23     | 23     |
| ns             | Stall speed                          | rpm               | 0.0050 | 0.0050 |

Notes: (\*) terminal to terminal. Ambient temperature = 20 °C. Max. coil temperature = 130 °C.  
 Hypothesis and tolerances are in ETEL's Handbook. Stator connected to a total surface of 0.64 m<sup>2</sup> and rotor to a total surface of 0.370 m<sup>2</sup>

Caution: Any use of the motor beyond speed/force 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.

