

TM-5-DF-WA6

Torque Motor

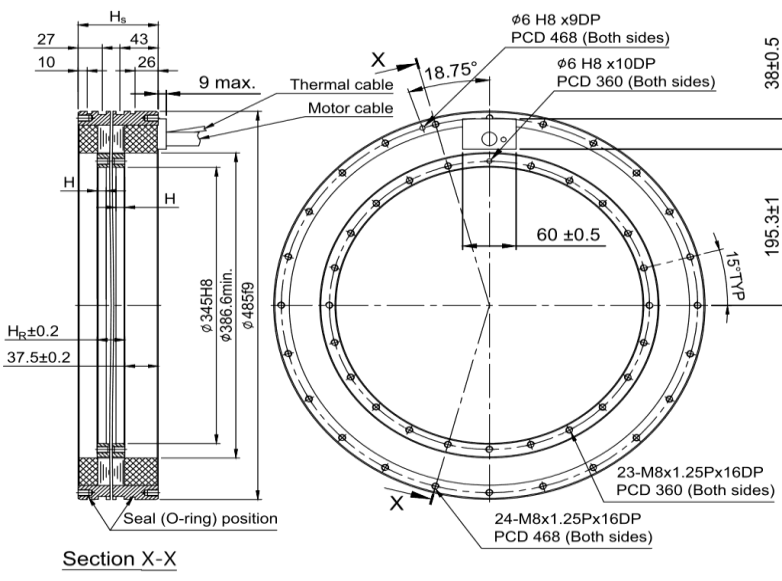
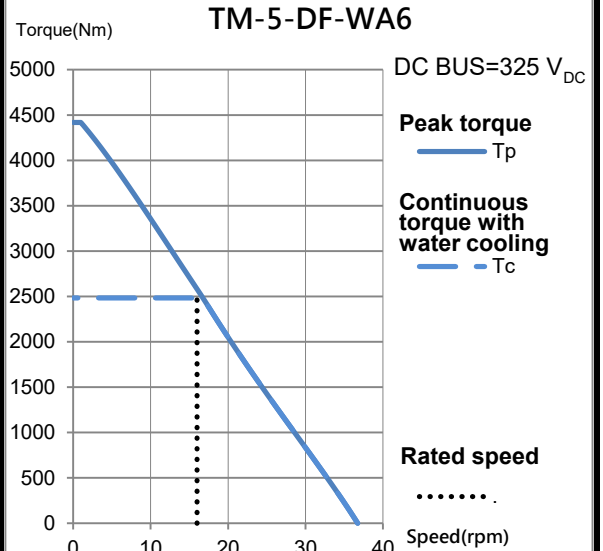
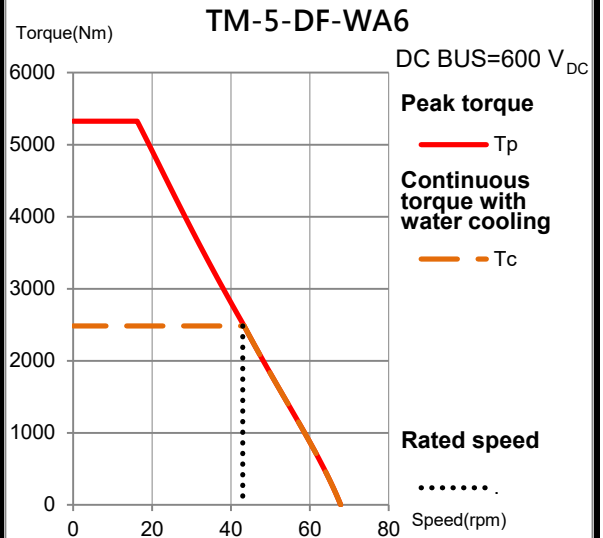
Electrical specifications

| Winding code : WA6 | Symbol | Unit | Water cooling |
|-----------------------------------|----------|------------------|---|
| Continuous torque | T_c | Nm | 2483 |
| Continuous current | I_c | A_{rms} | 27 |
| Stall torque | T_s | Nm | 1986 |
| Stall current | I_s | A_{rms} | 21.6 |
| Peak torque(for 1sec.) | T_p | Nm | 5325 |
| Peak current(for 1sec.) | I_p | A_{rms} | 68 |
| Torque constant | K_t | Nm/Arms | 94.05 |
| Electrical time constant | T_e | ms | 10.3 |
| Resistance (line to line at 25°C) | R_{25} | Ω | 4.9 |
| Inductance (line to line) | L | mH | 50.4 |
| Number of poles | 2p | | 60 |
| Back emf constant (line to line) | K_v | Vrms/rad/s | 54.3 |
| Motor constant (at 25°C) | K_m | Nm/ \sqrt{W} | 33.9 |
| Thermal resistance | R_{th} | K/W | 0.02 |
| Thermal sensor | | | PTC 100+PTC 130+Pt1000 |
| Max. DC BUS | | V_{DC} | 600/ 750 refer to manual for details |
| Inertia of rotor | J | kgm ² | 0.874 |
| Thermal time constant | T_{th} | s | 100 |
| Max. continuous power dissipation | P_c | W | 7665 |
| Max. peak power dissipation | P_p | W | 48621 |
| Rated speed(at 600VDC) | | rpm | 43 |

Mechanical specifications

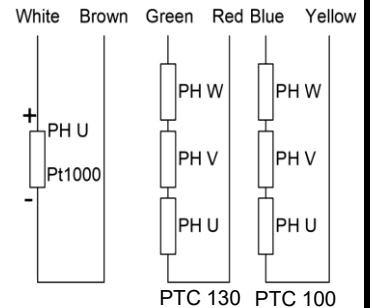
| | Symbol | Unit | Water cooling |
|--|----------------|-------|---------------|
| Mass of rotor | M_r | kg | 26.1 |
| Mass of stator | M_s | kg | 83.7 |
| Height of stator | H_s | mm | 210 |
| Height of rotor | H_r | mm | 151 |
| Length of rotor centring fit | H | mm | 15 |
| Water temperature difference for P_c | $\Delta\theta$ | K | 5 |
| Minimum water flow | q | l/min | 22 |
| Max. pressure drop | Δp | bar | 1.3 |

T-N curve



| General tolerance mm | |
|----------------------|-----------|
| Nominal dimension | Tolerance |
| ~ 6 | ±0.1 |
| > 6 ~ 30 | ±0.2 |
| > 30 ~ 120 | ±0.3 |
| > 120 ~ 300 | ±0.4 |
| > 300 ~ 600 | ±0.5 |
| > 600 ~ 1200 | ±0.8 |
| > 1200 ~ 2400 | ±1.0 |
| > 2400 | ±1.5 |

Thermal sensor



| Motor wire table | |
|-------------------|--------|
| Color or wire no. | Signal |
| U/L1 | PH U |
| V/L2 | PH V |
| W/L3 | PH W |
| Green/Yellow | GND |

Except dimensions, all the specifications in the table are in ±10% of tolerance

The drawing and values are only for reference.

Version: 2.10

Date: 2025/9/3