

# TM-2-73-PB0 Torque Motor

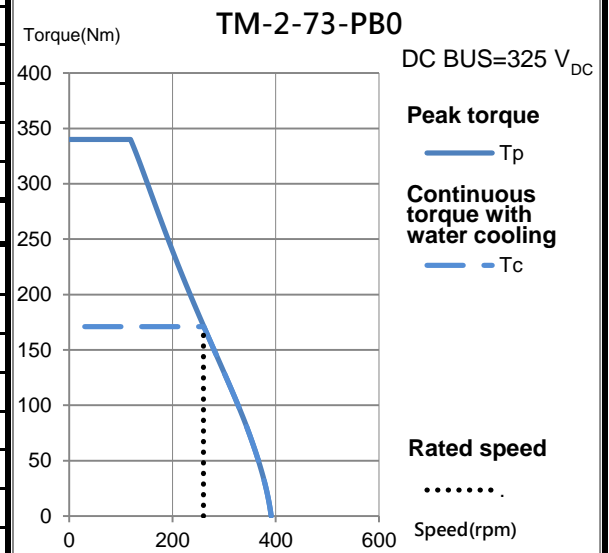
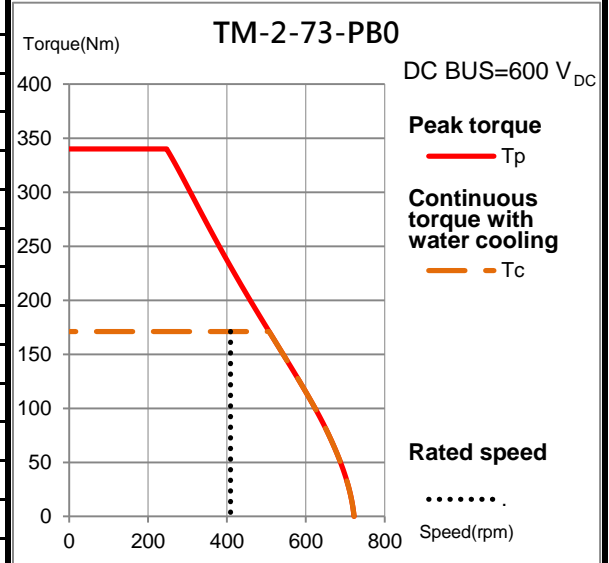
## Electrical specifications

| Winding code : PB0                | Symbol   | Unit           | Water cooling               |
|-----------------------------------|----------|----------------|-----------------------------|
| Continuous torque                 | $T_c$    | Nm             | 171                         |
| Continuous current                | $I_c$    | $A_{rms}$      | 20.5                        |
| Stall torque                      | $T_s$    | Nm             | 141                         |
| Stall current                     | $I_s$    | $A_{rms}$      | 16.4                        |
| Peak torque(for 1sec.)            | $T_p$    | Nm             | 340                         |
| Peak current(for 1sec.)           | $I_p$    | $A_{rms}$      | 56                          |
| Torque constant                   | $K_t$    | Nm/Arms        | 8.83                        |
| Electrical time constant          | $T_e$    | ms             | 6.9                         |
| Resistance (line to line at 25°C) | $R_{25}$ | $\Omega$       | 1.7                         |
| Inductance (line to line)         | L        | mH             | 11.8                        |
| Number of poles                   | 2p       |                | 44                          |
| Back emf constant (line to line)  | $K_v$    | Vrms/rad/s     | 5.1                         |
| Motor constant (at 25°C)          | $K_m$    | Nm/ $\sqrt{W}$ | 5.58                        |
| Thermal resistance                | $R_{th}$ | K/W            | 0.098                       |
| Thermal sensor                    |          |                | PTC<br>SNM100+SNM130+Pt1000 |
| Max. DC BUS                       |          | $V_{DC}$       | 750                         |
| Inertia of rotor                  | J        | $kgm^2$        | 0.025                       |
| Thermal time constant             | $T_{th}$ | s              | 260                         |
| Max. continuous power dissipation | $P_c$    | W              | 1512                        |
| Max. peak power dissipation       | $P_p$    | W              | 11289                       |
| Rated speed(at 600VDC)            |          | rpm            | 409                         |

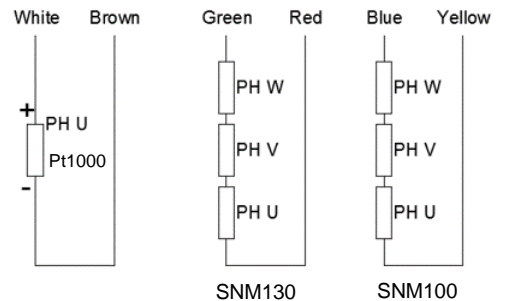
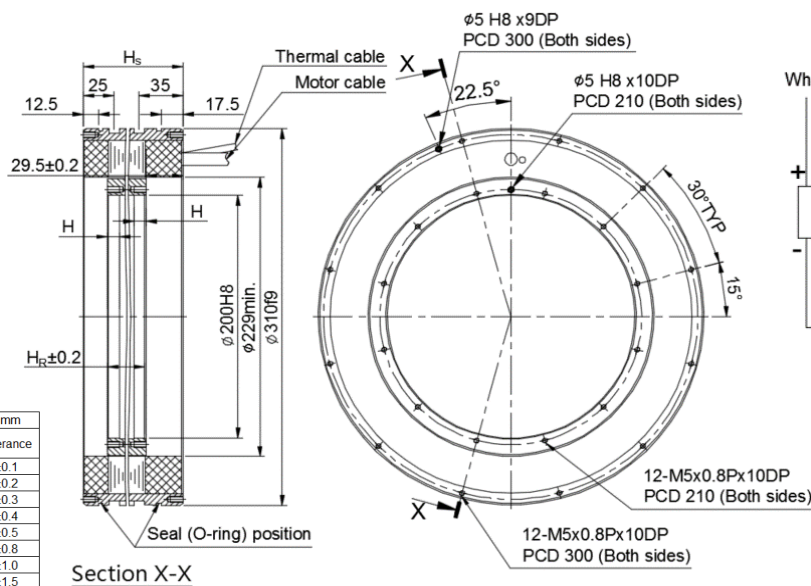
## Mechanical specifications

|  | Symbol         | Unit  | Water cooling |
|--|----------------|-------|---------------|
| Mass of rotor                          | $M_r$          | kg    | 2.2           |
| Mass of stator                         | $M_s$          | kg    | 13.6          |
| Height of stator                       | $H_s$          | mm    | 80            |
| Height of rotor                        | $H_r$          | mm    | 31            |
| Length of rotor centring fit           | H              | mm    | 10            |
| Water temperature difference for $P_c$ | $\Delta\theta$ | K     | 5             |
| Minimum water flow                     | q              | l/min | 4.4           |
| Max. pressure drop                     | $\Delta p$     | bar   | 1             |

## T-N curve



## 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    |

| 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      |

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

This drawing is only for reference, detail dimensions please refer to approval drawing.

Version: 2.00

Date: 2020/10/23