

# TMRW4F Torque Motor

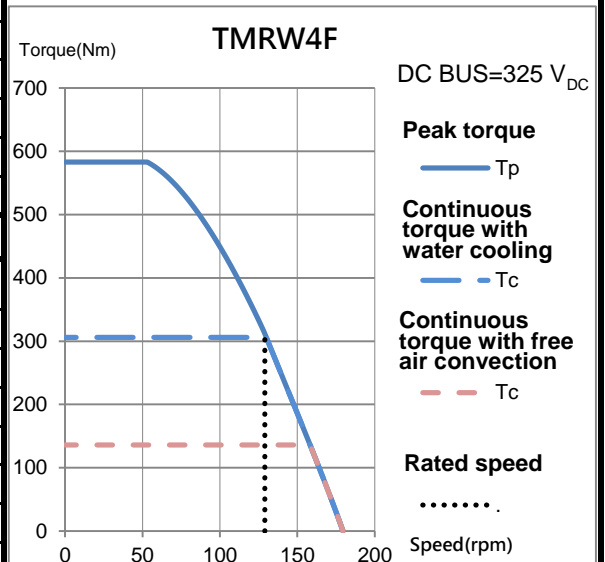
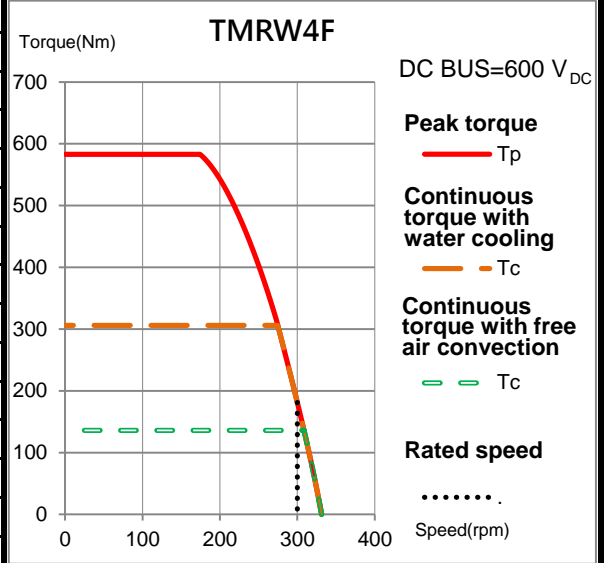
## Electrical specifications

Winding code : PB	Symbol	Unit	Free air convection	Water cooling
Continuous torque	$T_c$	Nm	136	307
Continuous current	$I_c$	$A_{rms}$	8	18
Stall torque	$T_s$	Nm	95	215
Stall current	$I_s$	$A_{rms}$	5.6	12.6
Peak torque(for 1sec.)	$T_p$	Nm	390.5	583
Peak current(for 1sec.)	$I_p$	$A_{rms}$	24	48.6
Torque constant	$K_t$	Nm/Arms	17.65	
Electrical time constant	$T_e$	ms	5.2	
Resistance (line to line at 25°C)	$R_{25}$	$\Omega$	3.66	
Inductance (line to line)	$L$	mH	19.13	
Number of poles	$2p$		22	
Back emf constant (line to line)	$K_v$	Vrms/rad/s	10.19	
Motor constant (at 25°C)	$K_m$	Nm/ $\sqrt{W}$	7.26	
Thermal resistance	$R_{th}$	K/W	0.27	0.053
Thermal sensor			PTC SNM100+SNM120+Pt1000	
Max. DC BUS		$V_{DC}$	750	
Inertia of rotor	$J$	$kgm^2$	0.045	
Thermal time constant	$T_{th}$	s	2080	68
Max. continuous power dissipation	$P_c$	W	481	2439
Max. peak power dissipation	$P_p$	W	17785	
Rated speed(at 600VDC)		rpm	300	

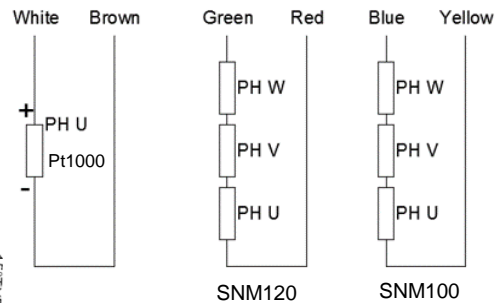
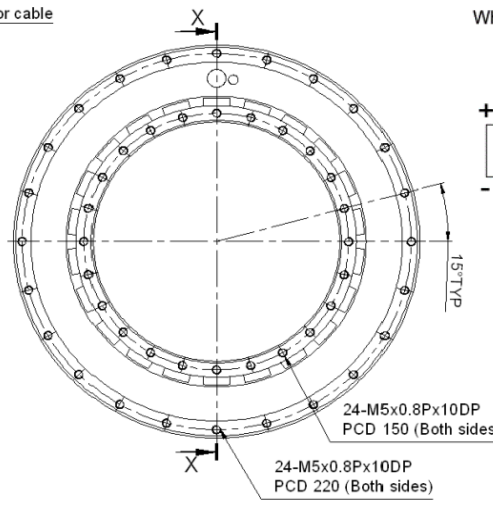
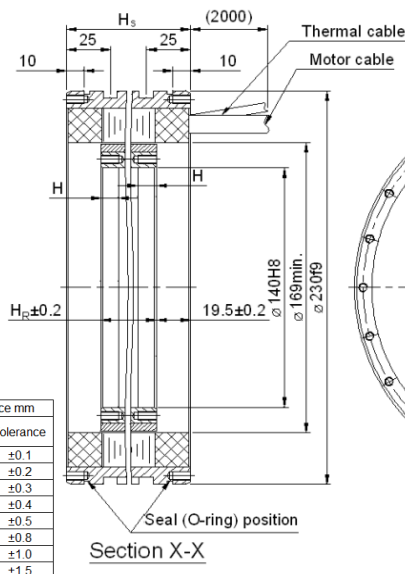
## Mechanical specifications

	Symbol	Unit	Free air convection	Water cooling
Mass of rotor	$M_r$	kg	7.1	
Mass of stator	$M_s$	kg	18.7	
Height of stator	$H_s$	mm	190	
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	-	7
Max. pressure drop	$\Delta p$	bar	-	2

## T-N curve



## Thermal sensor



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

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

Version: 2.00  
Date: 2020/10/23