

# TMRW4A Torque Motor

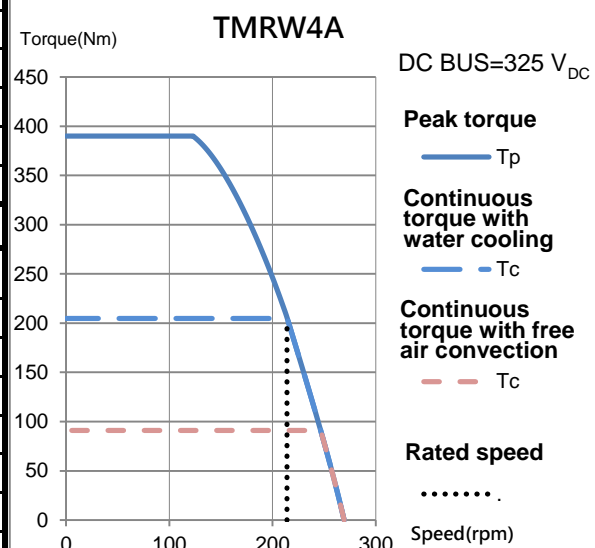
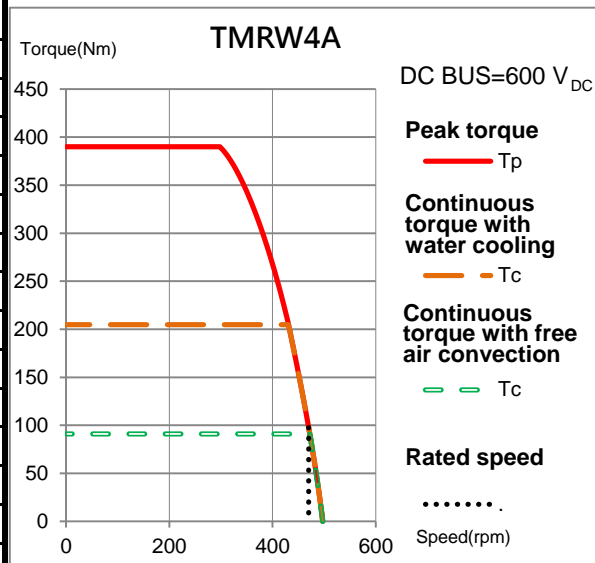
## Electrical specifications

Winding code : PB	Symbol	Unit	Free air convection	Water cooling
Continuous torque	$T_c$	Nm	91	205
Continuous current	$I_c$	$A_{rms}$	8	18
Stall torque	$T_s$	Nm	64	144
Stall current	$I_s$	$A_{rms}$	5.6	12.6
Peak torque(for 1sec.)	$T_p$	Nm	260.7	390
Peak current(for 1sec.)	$I_p$	$A_{rms}$	24	48.6
Torque constant	$K_t$	Nm/Arms	11.76	
Electrical time constant	$T_e$	ms	5.2	
Resistance (line to line at 25°C)	$R_{25}$	$\Omega$	2.5	
Inductance (line to line)	$L$	mH	13	
Number of poles	2p		22	
Back emf constant (line to line)	$K_v$	Vrms/rad/s	6.79	
Motor constant (at 25°C)	$K_m$	Nm/ $\sqrt{W}$	5.87	
Thermal resistance	$R_{th}$	K/W	0.4	0.078
Thermal sensor			PTC SNM100+SNM120+Pt1000	
Max. DC BUS		$V_{DC}$	750	
Inertia of rotor	$J$	$kgm^2$	0.029	
Thermal time constant	$T_{th}$	s	1800	51
Max. continuous power dissipation	$P_c$	W	329	1666
Max. peak power dissipation	$P_p$	W	12152	
Rated speed(at 600VDC)		rpm	470	

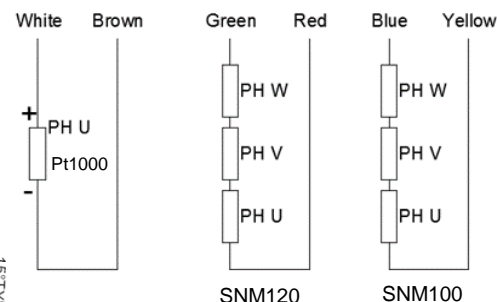
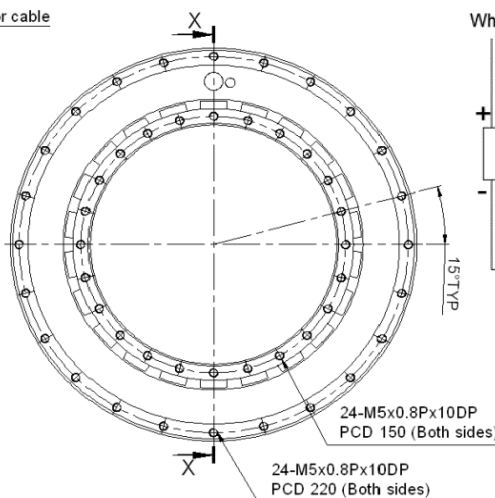
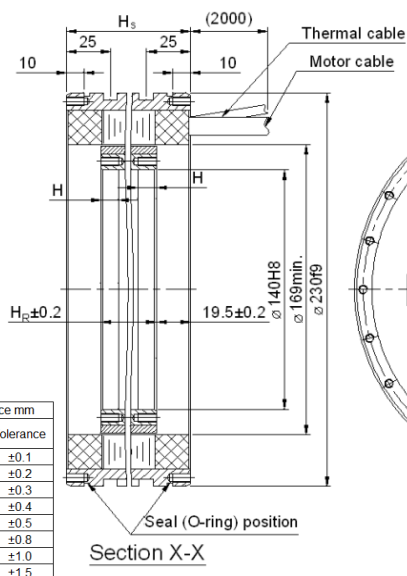
## Mechanical specifications

	Symbol	Unit	Free air convection	Water cooling
Mass of rotor	$M_r$	kg	4.7	
Mass of stator	$M_s$	kg	12.7	
Height of stator	$H_s$	mm	140	
Height of rotor	$H_r$	mm	101	
Length of rotor centring fit	$H$	mm	15	
Water temperature difference for $P_c$	$\Delta\theta$	K	-	5
Minimum water flow	$q$	l/min	-	4.8
Max. pressure drop	$\Delta p$	bar	-	1

## 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  $\pm 10\%$  of tolerance

Version: 2.00

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

Date: 2020/10/23