

# TMRWA5L Torque Motor

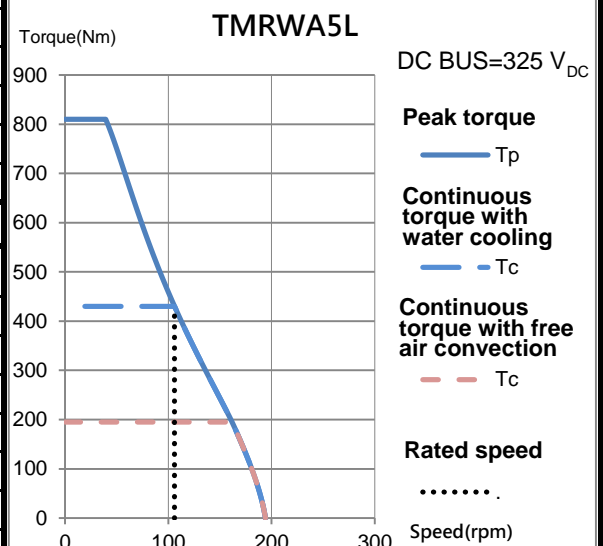
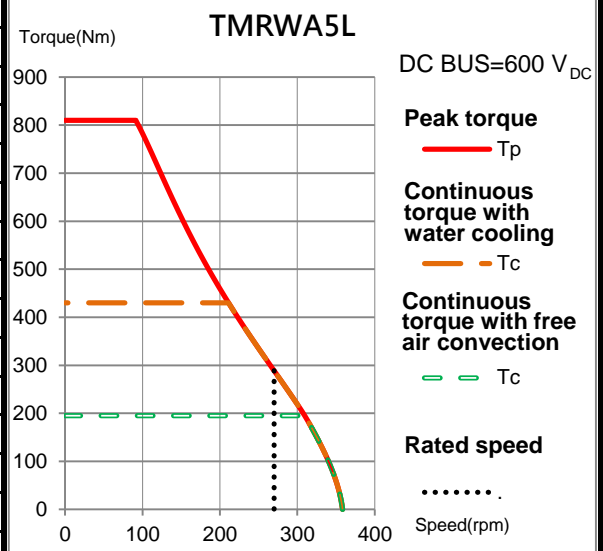
## Electrical specifications

Winding code : SB	Symbol	Unit	Free air convection	Water cooling
Continuous torque	$T_c$	Nm	195	430
Continuous current	$I_c$	$A_{rms}$	12	30
Stall torque	$T_s$	Nm	137	301
Stall current	$I_s$	$A_{rms}$	8.4	21
Peak torque(for 1sec.)	$T_p$	Nm	496.6	810
Peak current(for 1sec.)	$I_p$	$A_{rms}$	36	81
Torque constant	$K_t$	Nm/Arms	16.32	
Electrical time constant	$T_e$	ms	7.5	
Resistance (line to line at 25°C)	$R_{25}$	$\Omega$	1.78	
Inductance (line to line)	$L$	mH	13.35	
Number of poles	2p		66	
Back emf constant (line to line)	$K_v$	Vrms/rad/s	9.42	
Motor constant (at 25°C)	$K_m$	Nm/ $\sqrt{W}$	9.94	
Thermal resistance	$R_{th}$	K/W	0.25	0.04
Thermal sensor			PTC SNM100+SNM120+Pt1000	
Max. DC BUS		$V_{DC}$	750	
Inertia of rotor	$J$	$kgm^2$	0.1	
Thermal time constant	$T_{th}$	s	3180	120
Max. continuous power dissipation	$P_c$	W	527	3294
Max. peak power dissipation	$P_p$	W	24013	
Rated speed(at 600VDC)		rpm	270	

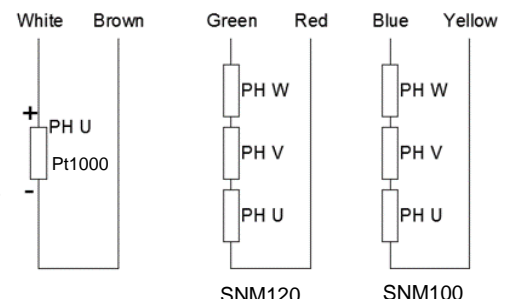
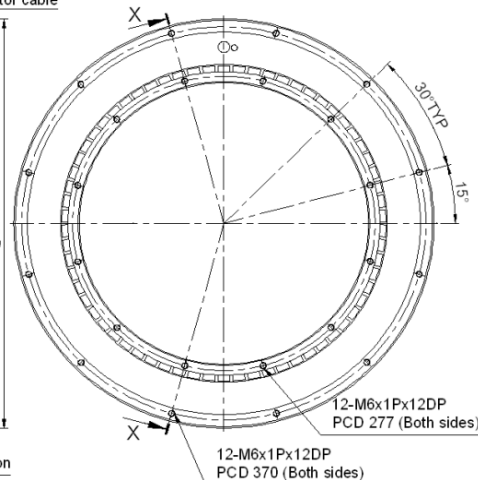
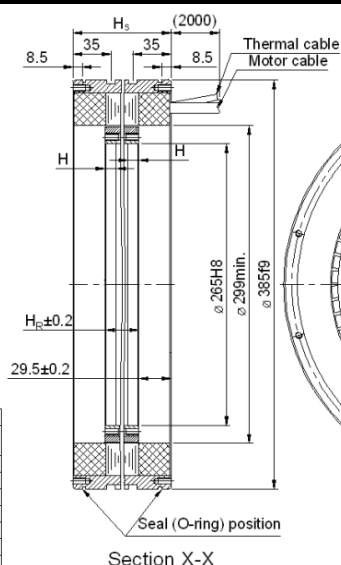
## Mechanical specifications

	Symbol	Unit	Free air convection	Water cooling
Mass of rotor	$M_r$	kg	5.1	
Mass of stator	$M_s$	kg	26.8	
Height of stator	$H_s$	mm	110	
Height of rotor	$H_r$	mm	51	
Length of rotor centring fit	$H$	mm	15	
Water temperature difference for $P_c$	$\Delta\theta$	K	-	5
Minimum water flow	$q$	l/min	-	9.5
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