WTRM-310 Technical Information

	Motor Parameters	Symbols	Units	WTRM-310-L-035		WTRM-310-L-070		WTRM-310-L-140	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	24	48	24	48	24	48
	Rated Torque	T_r	Nm	109		218		329.4	
	Peak Torque	T_{peak}	Nm	160.2		320.4		437.4	
	Rated Speed	N_r	rpm	55	155	40	110	25	75
	No-Load Speed	$N_{no-load}$	rpm	120	240	85	165	50	105
	Torque Constant	K_t	Nm/A	2.02		2.88		4.63	
	Voltage Constant	K_v	V/rpm	0.174		0.249		0.398	
	Max. Cogging Torque	T_{cog}	%	<1					
	Torque Ripple	T_{ripple}	%	<1					
ELECTRICAL	Number of Pole	2p	--	48					
	Rated Current	I_r	A_{rms}	54		75.6		71.1	
	Peak Current	I_{peak}	A_{rms}	81		113.4		94.8	
	Line Resistance	R_{LL}@25°C	Ohm	0.15 (±20%)		0.11 (±20%)		0.12 (±20%)	
	Line Inductance	L_{LL}@60Hz	mH	0.74 (±30%)		0.7 (±30%)		0.85 (±30%)	
MECHANICAL & THERMAL	Total Weight	W_{total}	kg	11.92		21.45		40.36	
	Mech. Time Constant	K_{mech}	ms	2.35		1.81		1.45	
	Thermal Resistance (2)	R_{th}	°C/W	0.063		0.034		0.018	
	Inertia	J	$kg.m^2$	0.0544		0.1106		0.2212	
	Water Inlet Temp.	T_w	°C	20					
	Water Temp. Diff. Between Inlet-Outlet	ΔT_w	°C	2.4		2.3		1.3	
	Min. Water Volumetric Flow Rate	q_w	l/min	6.2		9.3		15.2	
	Pressure Drop for qw	ΔP_w	bar	0.11		0.16		0.23	
	Environment Temp.	T_{env}	°C	20					
	Rotor ID	R_{ID}	mm	220					

	Motor Parameters	Symbols	Units	WTRM-310-H-035		WTRM-310-H-070		WTRM-310-H-140	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	310	560	310	560	310	560
	Rated Torque	T_r	Nm	135.2		271.7		540.7	
	Peak Torque	T_{peak}	Nm	226.8		455.5		907.3	
	Rated Speed	N_r	rpm	150	305	130	270	90	185
	No-Load Speed	$N_{no-load}$	rpm	255	465	215	390	150	270
	Torque Constant	K_t	Nm/A	12.02		14.3		20.6	
	Voltage Constant	K_v	V/rpm	1.044		1.243		1.789	
	Max. Cogging Torque	T_{cog}	%	<1					
	Torque Ripple	T_{ripple}	%	<1					
ELECTRICAL	Number of Pole	2p	--	48					
	Rated Current	I_r	A_{rms}	11.3		19		26.3	
	Peak Current	I_{peak}	A_{rms}	20.3		34.2		47.3	
	Line Resistance	R_{LL}@25°C	Ohm	5.2 (±20%)		2.8 (±20%)		2.4 (±20%)	
	Line Inductance	L_{LL}@60Hz	mH	26.8 (±30%)		17.5 (±30%)		17.4 (±30%)	
MECHANICAL & THERMAL	Total Weight	W_{total}	kg	11.92		21.45		40.36	
	Mech. Time Constant	K_{mech}	ms	2.36		1.82		1.51	
	Thermal Resistance (2)	R_{th}	°C/W	0.063		0.034		0.018	
	Inertia	J	$kg.m^2$	0.0544		0.1106		0.2212	
	Water Inlet Temp.	T_w	°C	20					
	Water Temp. Diff. Between Inlet-Outlet	ΔT_w	°C	3.8		3.8		3.8	
	Min. Water Volumetric Flow Rate	q_w	l/min	6.2		9.3		15.2	
	Pressure Drop for qw	ΔP_w	bar	0.11		0.16		0.23	
	Environment Temp.	T_{env}	°C	20					
	Rotor ID	R_{ID}	mm	220					

1. All performance and electrical specifications are obtained at 25°C ambient and may change ±10%. 2. Maximum coil temperature is 130°C. 3. All data referenced to sinusoidal commutation. 4. Higher torque and speed values as well as dimensions on request.

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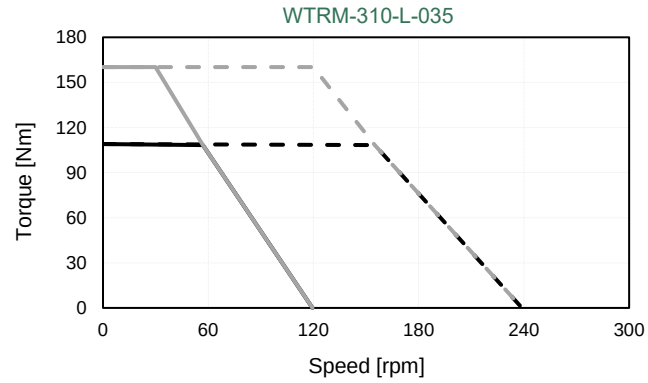
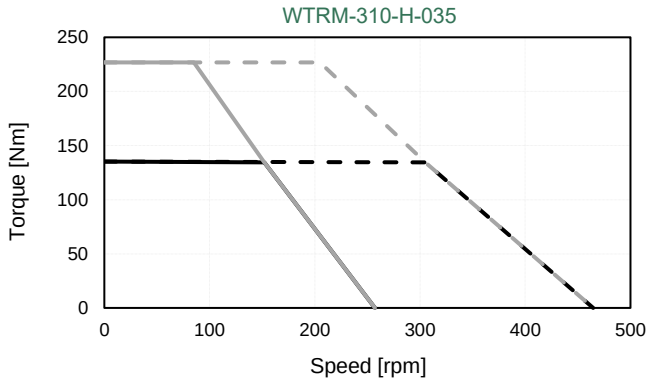
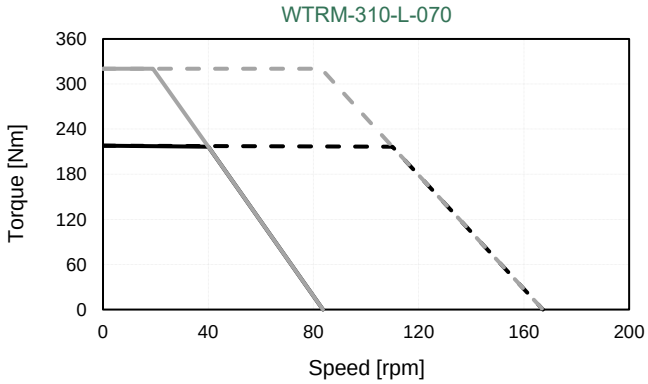
WTRM-310-(L/H)-Torque-Speed Curves

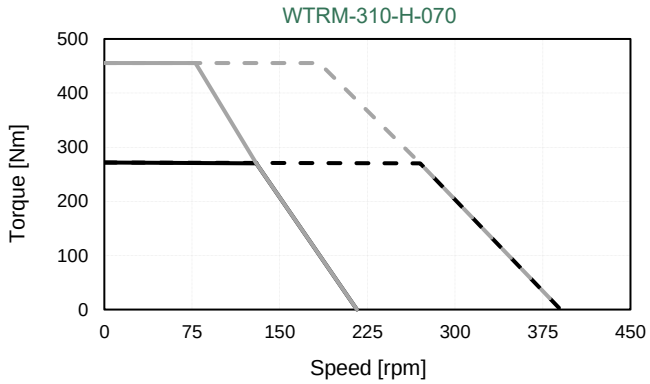
Tr: Rated Torque
Tp: Peak Torque

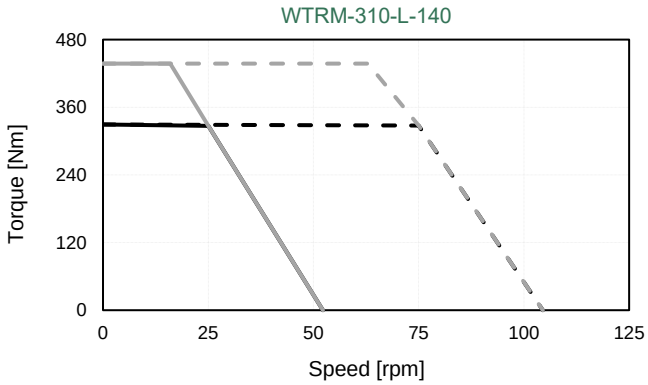
@Tr 24V @Tr 48V @Tr 310V @Tr 560V
@Tp 24V @Tp 48V @Tp 310V @Tp 560V

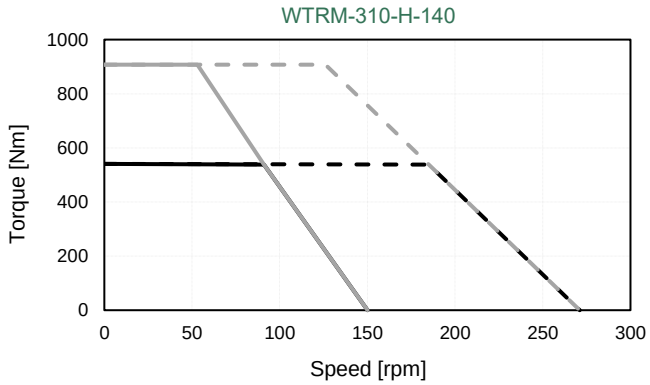




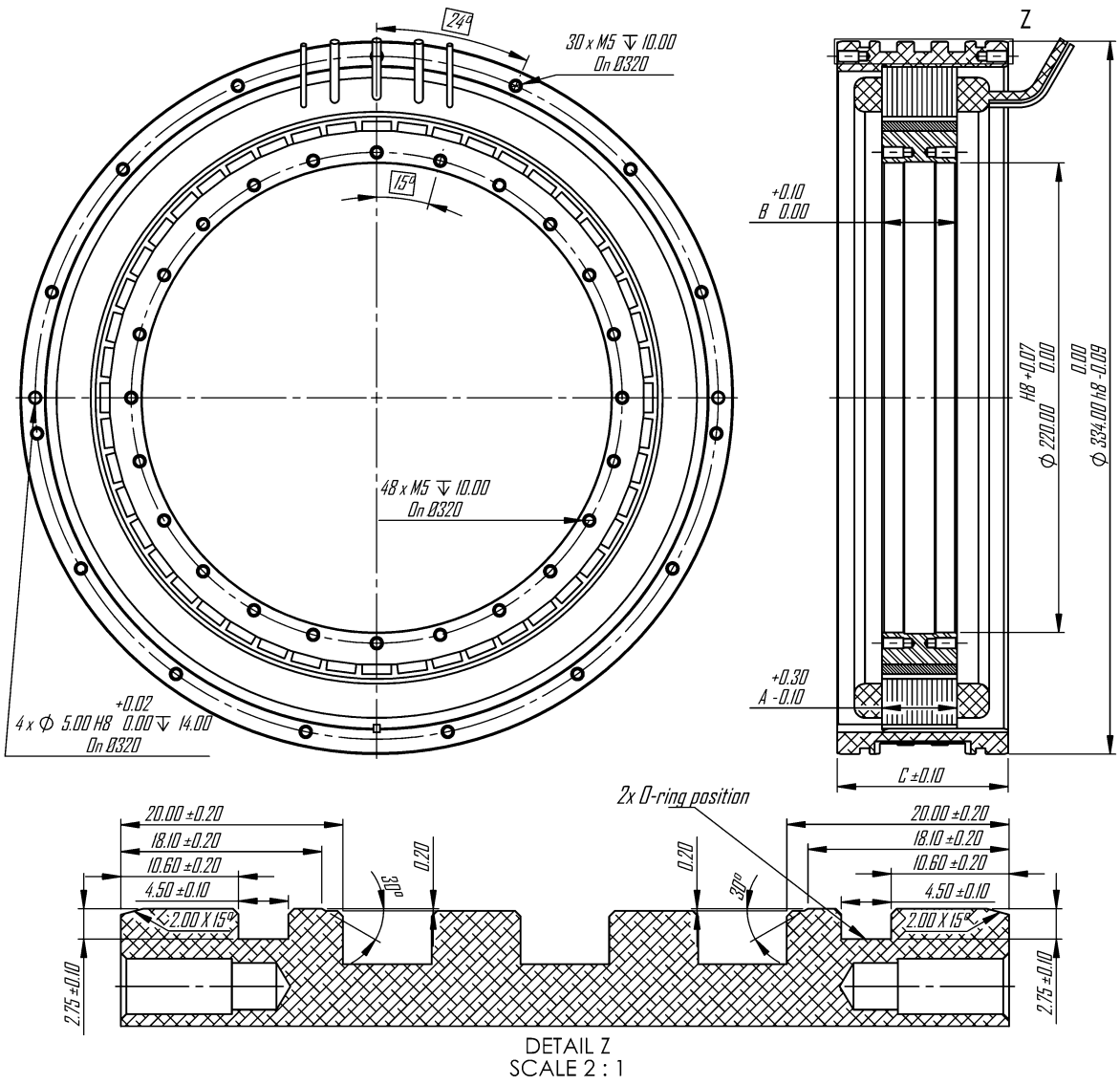








WTRM-310-(L/H) Outline Drawing



DETAIL Z
SCALE 2 : 1

Model	A	B	C
	(mm)	(mm)	(mm)
WTRM-(L/H)-310-035	35	35.1	80
WTRM-(L/H)-310-070	70	70.2	115
WTRM-(L/H)-310-140	140	140.4	185

All dimensions in mm

Notes:

MOTOR LEADS:
WTRM-310-L: #6 AWG Teflon® insulated, 500 mm (optional) length, 1-Red, 1-White, 1-Black.
WTRM-310-H: #10 AWG Teflon® insulated, 500 mm (optional) length, 1-Red, 1-White, 1-Black.

THERMISTOR LEADS:
#26 AWG Teflon® insulated, 500 mm (optional) length, 2-Brown or Blue.

(For detailed mounting information, including tolerances, please contact MDS Motor or refer to the MDS Motor mounting document)