TRM-310 Technical Information

	Motor Parameters	Symbols	Units	TML-310-035		TML-310-070		TML-310-140	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	24	48	24	48	24	48
	Rated Torque	T_r	Nm	68.4		125.8		219.9	
	Peak Torque	T_p	Nm	109		218		437.2	
	Rated Speed	N_r	rpm	95	210	65	150	40	95
	No-Load Speed	$N_{no\text{-}load}$	rpm	130	270	90	190	55	115
	Torque Constant	K_t	Nm/A	2.03		2.9		4.64	
	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}	33.7		43.4		47.4	
	Peak Current	I_p	A_{rms}	54		75.6		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	Stator Weight	W_s	kg	5.80		10.40		19.76	
	Rotor Weight	W_r	kg	3.76		7.65		15.30	
	Total Weight	W_{total}	kg	9.56		18.05		35.06	
	Mech. Time Constant	K_{mech}	ms	2.34		1.79		1.45	
	Thermal Resistance (2)	R_{th}	°C/W	0.243		0.182		0.141	
	Inertia	J	$kg.m^2$	0.05439		0.11055		0.22116	
	Motor Constant	K_m	Nm/√W	2.62	1.76	4.3	2.83	7.25	4.70
	Rotor ID		mm	220					
	Stator OD		mm	310					

	Motor Parameters	Symbols	Units	TMH-310-035		TMH-310-070		TMH-310-140	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	310	560	310	560	310	560
	Rated Torque	T_r	Nm	68.2		126.2		219.2	
	Peak Torque	T_p	Nm	226.8		455.5		907.3	
	Rated Speed	N_r	rpm	230	440	200	380	140	270
	No-Load Speed	$N_{no\text{-}load}$	rpm	290	530	245	445	165	305
	Torque Constant	K_t	Nm/A	12.18		14.5		20.88	
	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}	5.6		8.7		10.5	
	Peak Current	I_p	A_{rms}	20.2		34.2		47.2	
	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	Stator Weight	W_s	kg	5.81		10.41		19.78	
	Rotor Weight	W_r	kg	3.76		7.65		15.30	
	Total Weight	W_{total}	kg	9.57		18.05		35.08	
	Mech. Time Constant	K_{mech}	ms	2.33		1.79		1.49	
	Thermal Resistance (2)	R_{th}	°C/W	0.243		0.182		0.141	
	Inertia	J	$kg.m^2$	0.05439		0.11055		0.22116	
	Motor Constant	K_m	Nm/√W	1.68	1.22	2.45	1.78	3.87	2.78
	Rotor ID		mm	220					
	Stator OD		mm	310					

1. All performance and electrical specifications are obtained at 25°C ambient and may change ±10%. 2. Housed version of motor mounted to 490 mm sq. x 20 mm aluminum heat sink (maximum winding temperature is 120°C). 3. Higher torque and speed values as well as dimensions on request.

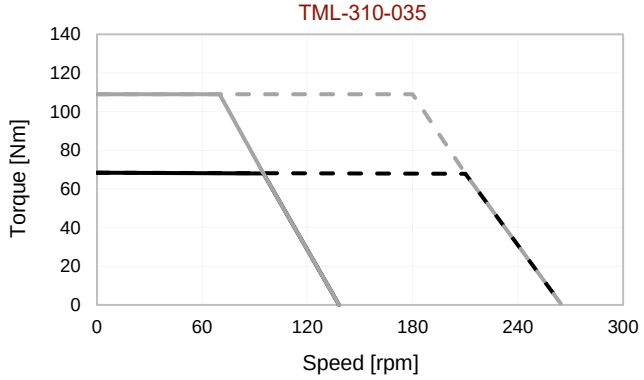
TM(L/H)-310 Torque-Speed Curves

Tr: Rated Torque
Tp: Peak Torque

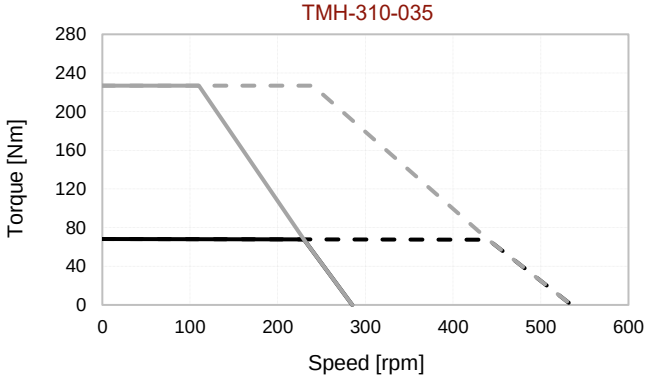
@Tr 24V @Tr 48V @Tp 24V @Tp 48V

@Tr 310V @Tr 560V @Tp 310V @Tp 560V

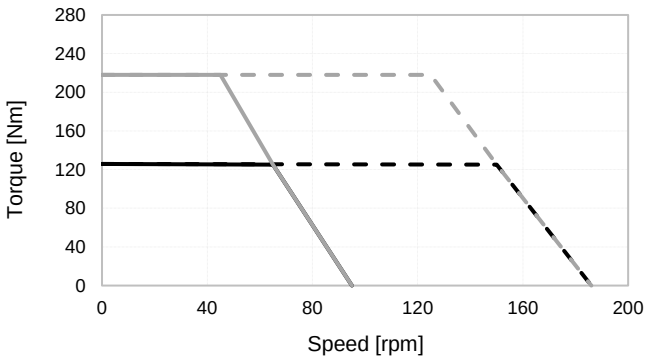
TML-310-035



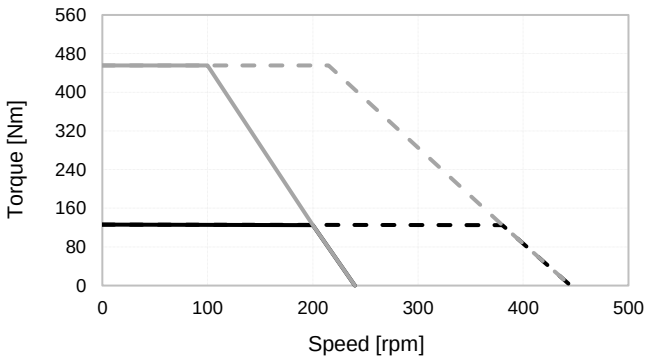
TMH-310-035



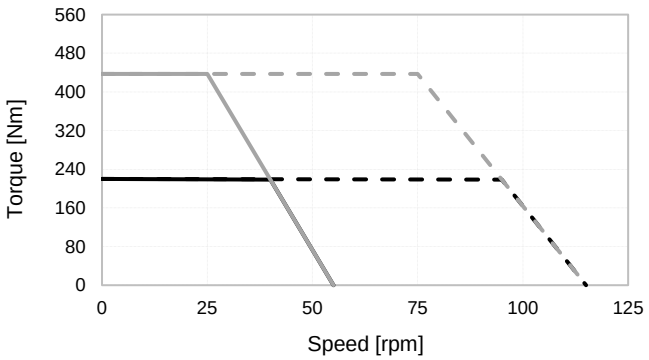
TML-310-070



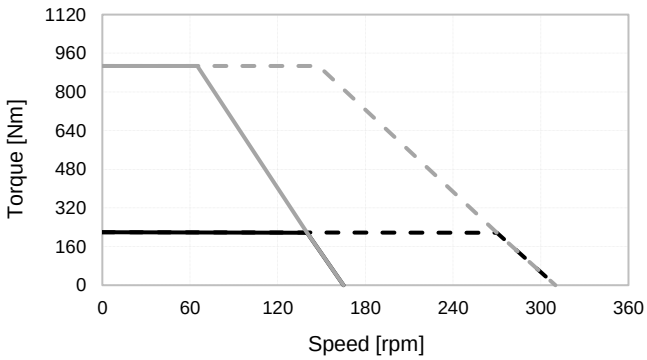
TMH-310-070



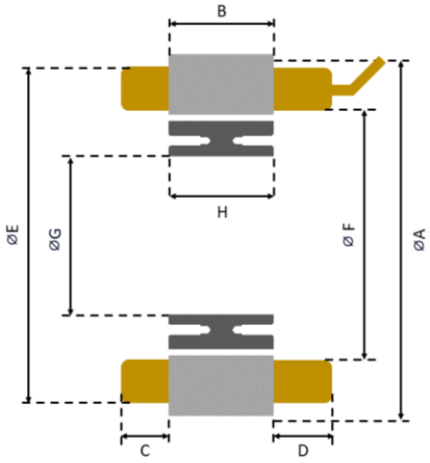
TML-310-140

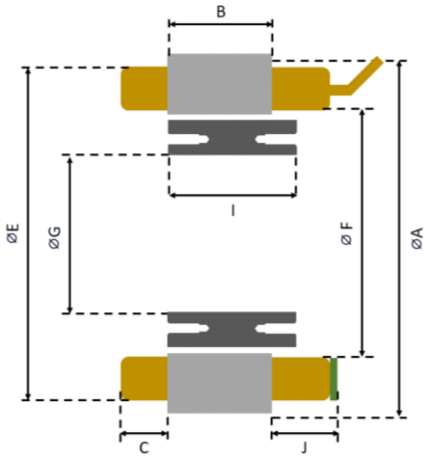


TMH-310-140



TM(L/H)-310 Outline Drawing





Hall Effect Sensor Option

Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)
TM(L/H)-310-035	310	35	16	18	302	263.7	220	35.1	40.1	21
TM(L/H)-310-070	310	70	16	18	302	263.7	220	70.2	75.2	21
TM(L/H)-310-140	310	140	16	18	302	263.7	220	140.4	145.4	21

Notes:

MOTOR LEADS:
310-TML: #7 AWG Teflon® insulated, 500 mm (optional) length, 1-Red, 1-White, 1-Black.
310-TMH: #11 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.

SENSOR LEADS:
#23 AWG Teflon® insulated, 500 mm (optional) length, 1-Blue, 1-Green, 1-Brown, 1-White, 1-Yellow.

MOUNTING OPTION:
#Stator: 3x3 Keyway
#Rotor: (24X on each side) M5 Bolt Hole (For details refer to MDS Motor mounting documents)