

TRM-160 Technical Information

Motor Parameters		Symbols	Units	TML-160-025		TML-160-050		TML-160-100	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	24	48	24	48	24	48
	Rated Torque	T_r	Nm	10.8		21.7		40.2	
	Peak Torque	T_p	Nm	18		35.8		72.3	
	Rated Speed	N_r	rpm	115	290	60	175	40	125
	No-Load Speed	$N_{no-load}$	rpm	190	385	115	240	80	170
	Torque Constant	K_t	Nm/A	1.26		2.01		2.81	
	Voltage Constant	K_v	V/rpm	0.108		0.172		0.241	
	Max. Cogging Torque	T_{cog}	%			<1			
	Torque Ripple	T_{ripple}	%			<1			
	ELECTRICAL	Number of Pole	$2p$	--			24		
Rated Current		I_r	A_{rms}	8.6		10.8		14.3	
Peak Current		I_p	A_{rms}	14.4		18		26	
Line Resistance		$R_{LL}@25^{\circ}C$	Ohm	0.75 ($\pm 20\%$)		0.74 ($\pm 20\%$)		0.58 ($\pm 20\%$)	
Line Inductance		$L_{LL}@60Hz$	mH	3.75 ($\pm 30\%$)		4.3 ($\pm 30\%$)		4.34 ($\pm 30\%$)	
MECHANICAL & THERMAL	Stator Weight	W_s	kg	2.4		4.01		7.19	
	Rotor Weight	W_r	kg	0.80		1.60		3.22	
	Total Weight	W_{total}	kg	3.20		5.61		10.31	
	Mech. Time Constant	K_{mech}	ms	1.06		0.82		0.66	
	Thermal Resistance ⁽²⁾	R_{th}	$^{\circ}C/W$	0.595		0.448		0.367	
	Inertia	J	$kg.m^2$	0.00183		0.00369		0.00741	
	Motor Constant	K_m	Nm/\sqrt{W}	1.19		1.91		3.02	
	Rotor ID		mm			80			
	Stator OD		mm			160			

Motor Parameters		Symbols	Units	TMH-160-025		TMH-160-050		TMH-160-100	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	310	560	310	560	310	560
	Rated Torque	T_r	Nm	11.2		21.7		40.6	
	Peak Torque	T_p	Nm	33.7		65.4		133.6	
	Rated Speed	N_r	rpm	295	585	250	495	230	445
	No-Load Speed	$N_{no-load}$	rpm	400	725	330	600	290	525
	Torque Constant	K_t	Nm/A	7.79		9.45		10.85	
	Voltage Constant	K_v	V/rpm	0.666		0.809		0.929	
	Max. Cogging Torque	T_{cog}	%			<1			
	Torque Ripple	T_{ripple}	%			<1			
	ELECTRICAL	Number of Pole	$2p$	--			24		
Rated Current		I_r	A_{rms}	1.45		2.3		3.75	
Peak Current		I_p	A_{rms}	4.8		7.6		13.6	
Line Resistance		$R_{LL}@25^{\circ}C$	Ohm	28.2 ($\pm 20\%$)		16.5 ($\pm 20\%$)		8.0 ($\pm 20\%$)	
Line Inductance		$L_{LL}@60Hz$	mH	144.0 ($\pm 30\%$)		103.3 ($\pm 30\%$)		61.0 ($\pm 30\%$)	
MECHANICAL & THERMAL	Stator Weight	W_s	kg	2.34		3.98		7.24	
	Rotor Weight	W_r	kg	0.80		1.60		3.22	
	Total Weight	W_{total}	kg	3.14		5.58		10.46	
	Mech. Time Constant	K_{mech}	ms	1.04		0.83		0.64	
	Thermal Resistance ⁽²⁾	R_{th}	$^{\circ}C/W$	0.595		0.448		0.367	
	Inertia	J	$kg.m^2$	0.00183		0.00369		0.00741	
	Motor Constant	K_m	Nm/\sqrt{W}	1.20		1.90		3.14	
	Rotor ID		mm			80			
	Stator OD		mm			160			

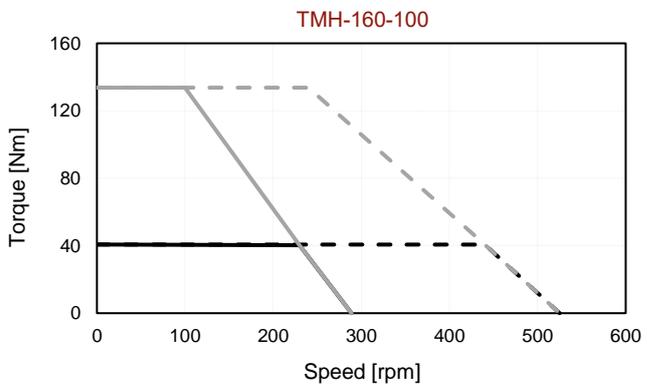
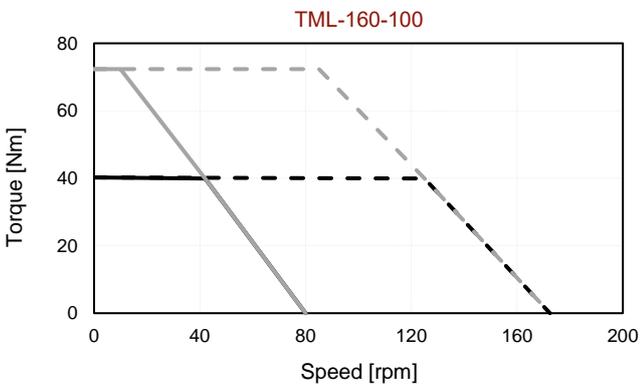
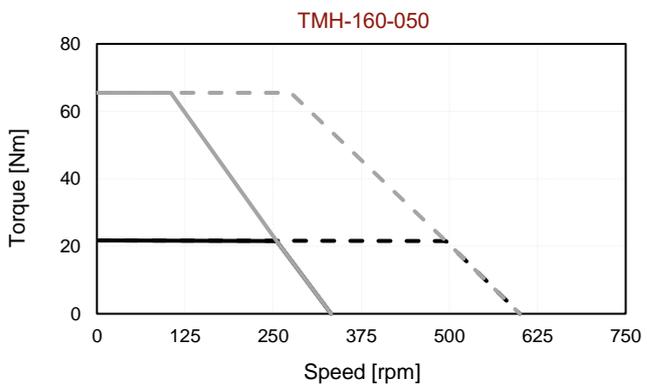
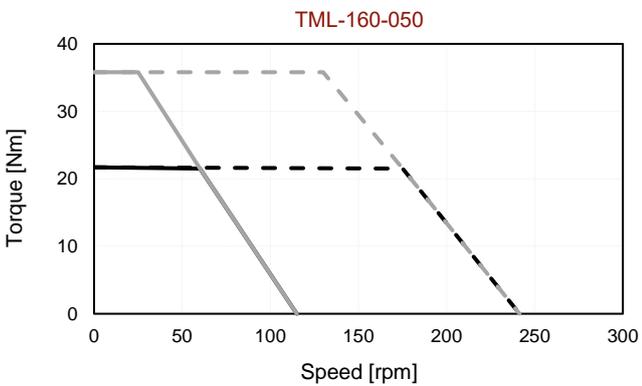
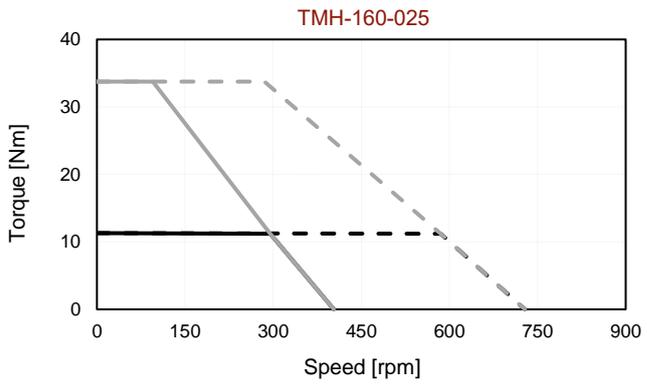
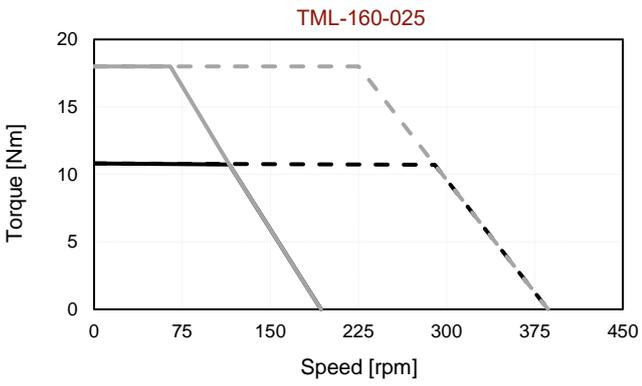
1. All performance and electrical specifications are obtained at 25°C ambient and may change $\pm 10\%$. 2. Housed version of motor mounted to 300 mm sq. x 15 mm aluminum heat sink (maximum winding temperature is 120°C). 3. All data referenced to sinusoidal commutation. 4. Higher torque and speed values as well as dimensions on request.

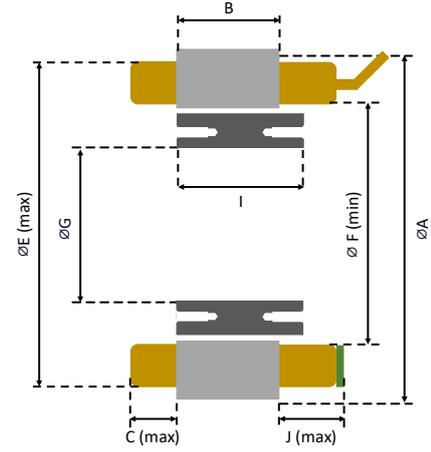
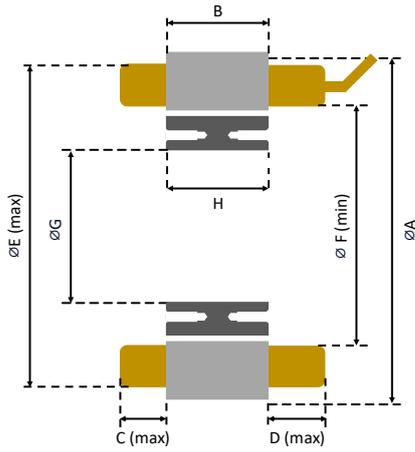
TM(L/H)-160 Torque-Speed Curves

Tr: Rated Torque
Tp: Peak Torque

— @Tr 24V - - - @Tr 48V
— @Tp 24V - - - @Tp 48V

— @Tr 310V - - - @Tr 560V
— @Tp 310V - - - @Tp 560V





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)-160-025	160	25	15	17	154	112.3	80	25.1	30.1	20
TM(L/H)-160-050	160	50	15	17	154	112.3	80	50.2	55.2	20
TM(L/H)-160-100	160	100	15	17	154	112.3	80	100.4	105.4	20

Notes:

MOTOR LEADS:

160-TML: #13 AWG Teflon® insulated, 500 mm (optional) length, 1-Red, 1-White, 1-Black.
 160-TMH: #16 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: (8X on each side) M5 Bolt Hole

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