

TRM-390 Technical Information

Motor Parameters		Symbols	Units	TML-390-035		TML-390-070		TML-390-140	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	24	48	24	48	24	48
	Rated Torque	T_r	Nm	108.5		199.2		361.7	
	Peak Torque	T_p	Nm	179.3		359.6		717.4	
	Rated Speed	N_r	rpm	70	160	40	100	25	70
	No-Load Speed	$N_{no-load}$	rpm	100	200	60	120	35	85
	Torque Constant	K_t	Nm/A	2.41		3.88		5.79	
	Voltage Constant	K_v	V/rpm	0.207		0.331		0.496	
	Max. Cogging Torque	T_{cog}	%			<1			
	Torque Ripple	T_{ripple}	%			<1			
	Number of Pole	$2p$	--			64			
ELECTRICAL	Rated Current	I_r	A_{rms}	45		51.3		62.5	
	Peak Current	I_p	A_{rms}	75		93.4		125	
	Line Resistance	$R_{LL}@25^{\circ}C$	Ohm	0.1 ($\pm 20\%$)		0.11 ($\pm 20\%$)		0.08 ($\pm 20\%$)	
	Line Inductance	$L_{LL}@60Hz$	mH	0.48 ($\pm 30\%$)		0.55 ($\pm 30\%$)		0.59 ($\pm 30\%$)	
MECHANICAL & THERMAL	Stator Weight	W_s	kg	8.93		16		30.4	
	Rotor Weight	W_r	kg	4.98		10.0		20.0	
	Total Weight	W_{total}	kg	13.91		26.00		50.40	
	Mech. Time Constant	K_{mech}	ms	2.47		2.03		1.47	
	Thermal Resistance ⁽²⁾	R_{th}	$^{\circ}C/W$	0.190		0.152		0.114	
	Inertia	J	$kg.m^2$	0.11997		0.24057		0.48177	
	Motor Constant	K_m	Nm/\sqrt{W}	6.29		9.86		16.30	
	Rotor ID		mm			290			
Stator OD		mm			390				

Motor Parameters		Symbols	Units	TMH-390-035		TMH-390-070		TMH-390-140	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	310	560	310	560	310	560
	Rated Torque	T_r	Nm	109.6		199.7		361.1	
	Peak Torque	T_p	Nm	378.3		747.5		1483	
	Rated Speed	N_r	rpm	195	375	155	290	115	220
	No-Load Speed	$N_{no-load}$	rpm	240	435	180	325	135	245
	Torque Constant	K_t	Nm/A	12.89		17.36		23.15	
	Voltage Constant	K_v	V/rpm	1.116		1.489		1.985	
	Max. Cogging Torque	T_{cog}	%			<1			
	Torque Ripple	T_{ripple}	%			<1			
	Number of Pole	$2p$	--			64			
ELECTRICAL	Rated Current	I_r	A_{rms}	8.5		11.5		15.6	
	Peak Current	I_p	A_{rms}	32		47.3		70.2	
	Line Resistance	$R_{LL}@25^{\circ}C$	Ohm	2.8 ($\pm 20\%$)		1.82 ($\pm 20\%$)		1.35 ($\pm 20\%$)	
	Line Inductance	$L_{LL}@60Hz$	mH	13.7 ($\pm 30\%$)		11.2 ($\pm 30\%$)		9.4 ($\pm 30\%$)	
MECHANICAL & THERMAL	Stator Weight	W_s	kg	9.07		16.19		30	
	Rotor Weight	W_r	kg	4.98		10.0		20.0	
	Total Weight	W_{total}	kg	14.05		26.19		50.00	
	Mech. Time Constant	K_{mech}	ms	2.44		1.77		1.47	
	Thermal Resistance ⁽²⁾	R_{th}	$^{\circ}C/W$	0.190		0.152		0.114	
	Inertia	J	$kg.m^2$	0.11997		0.24057		0.48177	
	Motor Constant	K_m	Nm/\sqrt{W}	6.29		10.51		16.29	
	Rotor ID		mm			290			
Stator OD		mm			390				

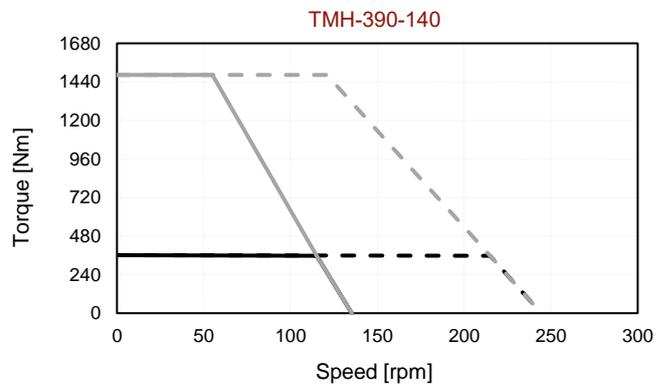
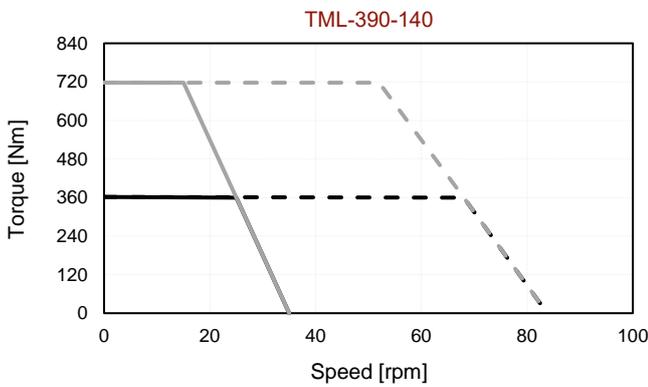
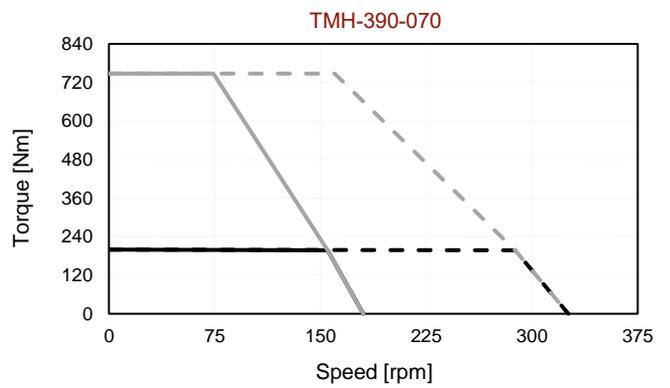
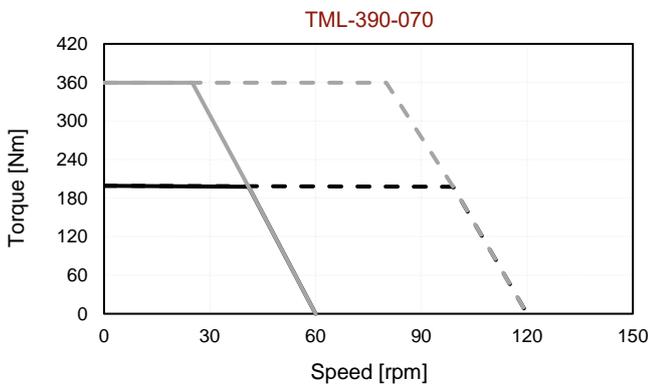
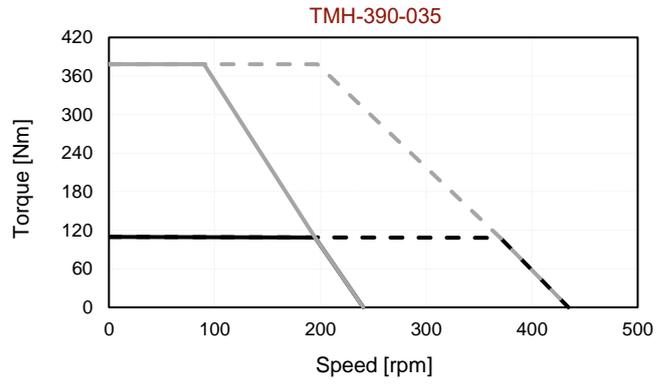
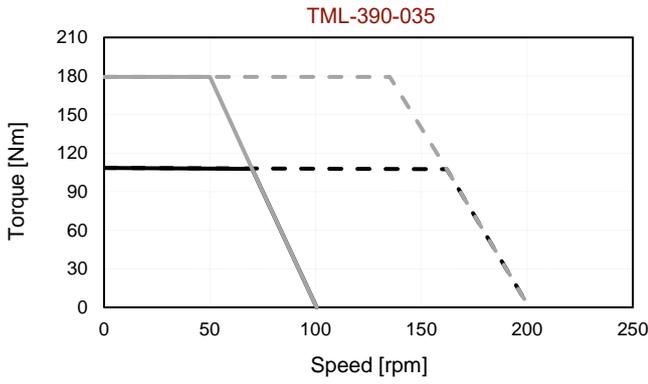
1. All performance and electrical specifications are obtained at 25°C ambient and may change $\pm 10\%$. 2. Housed version of motor mounted to 550 mm sq. x 20 mm aluminum heat sink (maximum winding temperature is 120°C). 3. All data referenced to sinusoidal commutation. 4. Higher torque and speed values as well as dimensions on request.

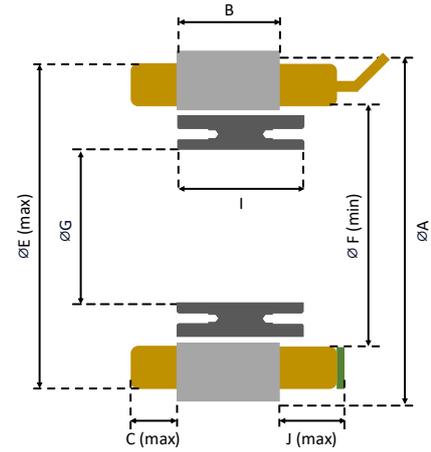
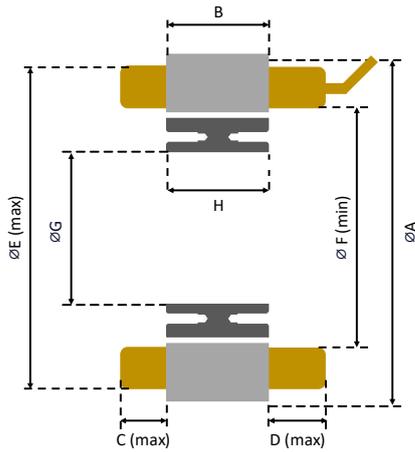
TM(L/H)-390 Torque-Speed Curves

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)-390-035	390	35	16	18	378	334.3	290	35.1	40.1	21
TM(L/H)-390-070	390	70	16	18	378	334.3	290	70.2	75.2	21
TM(L/H)-390-140	390	140	16	18	378	334.3	290	140.4	145.4	21

Notes:

MOTOR LEADS:

390-TML: #6 AWG Teflon® insulated, 500 mm (optional) length, 1-Red, 1-White, 1-Black.
 390-TMH: #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.

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: (16X on each side) M6 Bolt Hole
 (For detailed mounting information, including tolerances, please contact MDS Motor or refer to the MDS Motor mounting document)