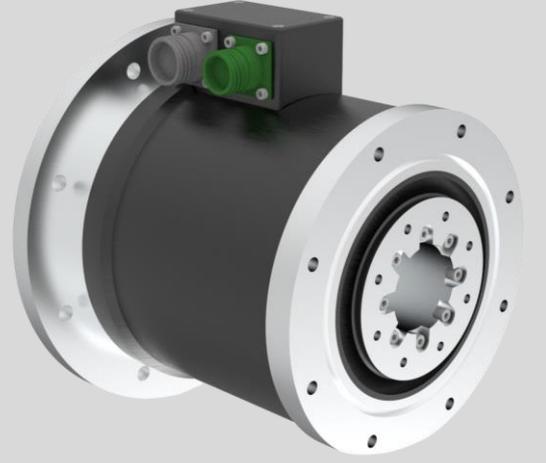


HoSM Series Hollow Shaft DD Motors

www.mdsmotor.com



MDS Motor
Feel the perfect motion...

Kocaeli Üniversitesi Teknopark |
Vatan Cad. No:83 |41275 |
Başiskele, Kocaeli, Türkiye

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HoSM Series Hollow Shaft Direct Drive Torque Motors

MDS has several housed or framed torque motor series for direct drive applications.

MDS Motor offer framed direct drive torque motors with high performance applications. These housed torque motor series combine large diameters up to 280mm with large hollow shafts up to 80mm. The HoSM motors offers high power density with high pole counts and various DC bus voltage levels including 24V and 560V.

HoSM Series torque motors are designed to deliver high torque density at low rated speeds with large hollow shaft systems, which are the perfect solutions for your directly driven system designs requiring high torques in small volumes.

Please contact MDS Motor Ltd for specifications on your new framed custom torque motor and assistance in selecting the right motor from HoSM motor family. MDS Motor specializes in providing optimized custom solutions for your direct drive applications, utilizing various materials, specialized winding structures, tailored mounting features, and adjustments in height and diameter, among others.



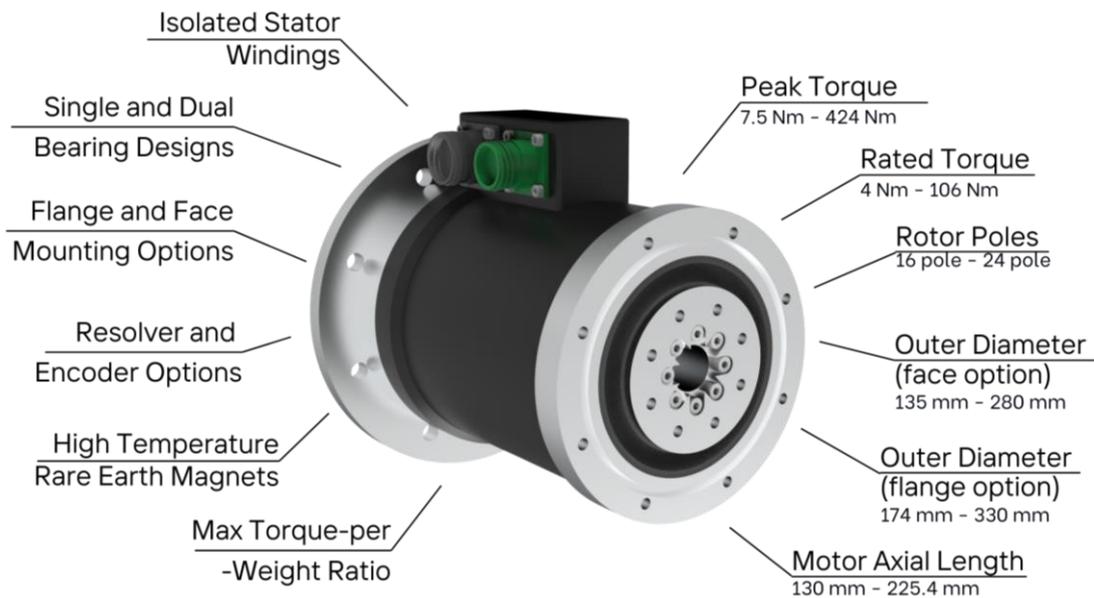
Introduction to Hollow Shaft Torque Motors

MDS Motor 's housed torque motors series (HoSM) are low speed synchronous permanent magnet direct drive motors with high resolution encoder or resolver. The HoSM torque motors provide high torque constants, small size and low thermal resistance.

All hollow shaft framed synchronous torque motors are delivered with various options depending on the customers' needs and specific applications

Overview

- Framed torque motor with IP67 protection
- High torque density and torque-per-weight motors
- Low rated speed for direct drive applications
- Extremely low cogging torque and torque ripple levels
- Very low total harmonic distortion - THD
- High axial load capability
- Low stator and rotor active mass
- Large inner diameter up to 80mm
- Low thermal resistance
- Wide temperature range of operation (-45°C and +75°C)
- Exceptional product quality
- 100% Quality inspection



HoSM Series Motors Features and Performance Benefits

Features

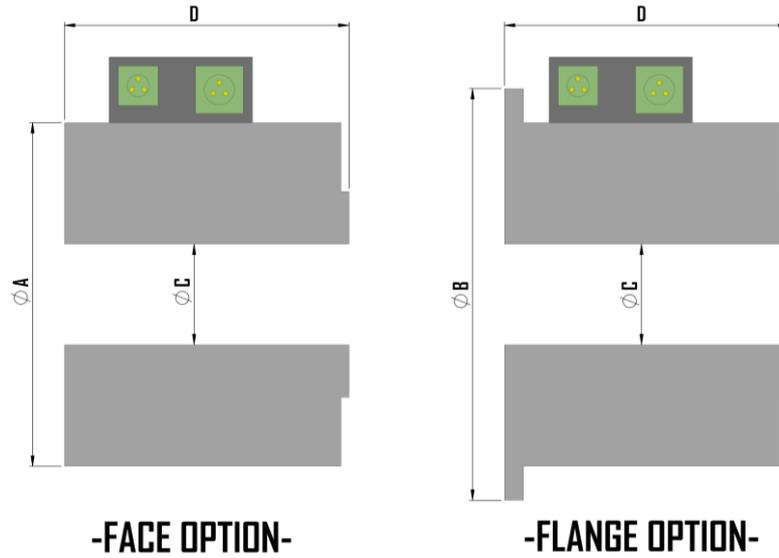
- Frame sizes from 135mm up to 280mm are available with 3 different stacks
- 30 Different HoSM motors with low and high voltage levels
- 24V, 48V, 310V and 560V DC Bus voltage levels for your applications
- Motors offering highest torque-per-weight ratios available on the market
- 7.5Nm to 424Nm peak torque levels for a wide range of application requirements
- Speeds up to 1465 rpm meet most high torque and low speed requirements
- Extremely low cogging torque levels (usually less than 1% of rated) allow precise control
- High output torque quality (torque ripple less than 1% of rated)
- Low back-EMF THD levels allow precise control
- High temperature rare-earth magnets with custom winding options provide excellent motor quality for harsh applications

Benefits

- Direct load connection eliminates backlash and other mechanical issues providing excellent response for system performance
- Single and dual-bearing designs with reduced friction are available
- High-resolution special encoder or resolver feedbacks provide outstanding accuracy with operations in harsh environments
- 130°C maximum winding temperature rating with integrated thermistor allows safe operation
- High axial load capability
- IP65 and IP67 protection and special shaft seals avoids dust and water
- Customized flange design is available
- Both face and flange options are offered
- Hall effect sensor options are also possible
- RoHS compliant magnet and magnetic core material selection

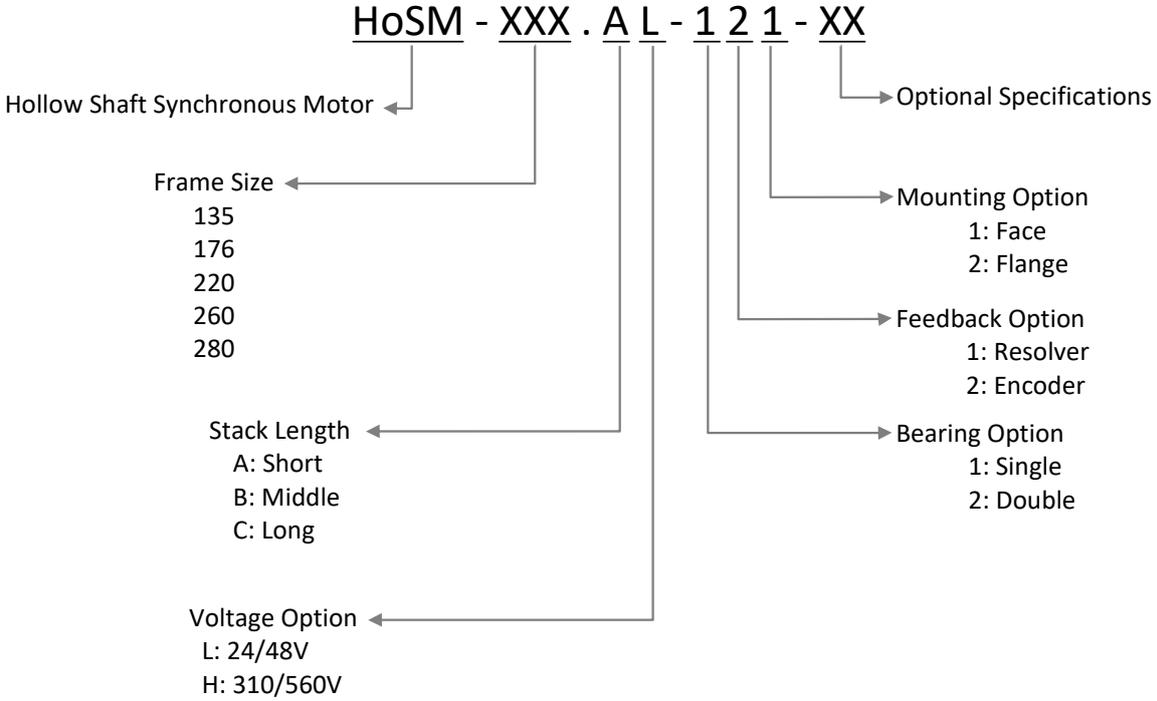
HoSM Series Motors Size Range

The HoSM series hollow shaft torque motor family is made up of 5 different frames with flange options, with 3 possible stacks and 2 possible voltage levels.



PRODUCT	A	B	C	D (Motor Length)		
	(mm)	(mm)	(mm)	(mm)		
	Face Option	Flange Option	Inner Dia.	Short	Middle	Long
HoSM-135	135	174	19	130.4	155.4	180.4
HoSM-176	175.3	220	48	130.0	154.9	180.8
HoSM-220	217	260	63.5	145.0	175.0	205.0
HoSM-260	260	306	65	155.4	190.4	225.4
HoSM-280	280	330	73	153.0	188.0	223.0

Nomenclature



Definition of Motor Parameters

Rated Torque	T_r	Torque value at rated speed when continuous power is the output
Peak Torque	T_p	Maximum torque that the motor delivers when maximum current (I_p) is provided. Peak torque is available for a maximum of 2 seconds
Rated Speed	N_r	Speed at continuous power is the output
No-Load Speed	$N_{no-load}$	Maximum possible speed of motor that it can be electrically excited
Torque Constant	K_t	Ratio of the developed torque to input current
Voltage Constant	K_v	Ratio of voltage generated in the winding to rotor speed
Max. Cogging Torque	T_{cog}	Undesirable torque component arising from attractions between magnets and teeth. Cogging torque is minimized for each MDS's torque motor is less than 0.5 % of the rated torque
Torque Ripple	T_{ripple}	Undesirable torque component arising from attractions between stator MMF and magnets
Num. of Pole	$2p$	Number of poles
Rated Current	I_r	Current required to obtain the rated continuous torque
Peak Current	I_p	Current required to obtain peak torque from the motor
Line Resistance	R_{LL}	Cold (25°C) resistance measured between two leads of the winding
Line Inductance	L_{LL}	Inductance measured between two leads of the AC winding (@60Hz)
Total Weight	W_t	Total weight of stator and rotor weight
Mech. Time Constant	K_{mech}	Motor mechanical dynamic capability level at 25°C
Thermal Resistance	R_{th}	Ratio of winding temperature rise to average stator power loss at rated motor operation
Inertia	J	Inertia of the rotor
Friction Torque	T_f	Torque component due to bearings and sealing units
Motor Constant	K_m	Ratio of peak torque to square root of input power: $K_m = T_{peak}/(P_{peak})^{.5}$. It shows the ability of a motor to convert electrical power to torque
Rotor ID		Rotor inner diameter of the motor

NOTE: All performance data is obtained at 25°C ambient

Motor Parameters		Symbols	Units	HoSM-135-AL		HoSM-135-BL		HoSM-135-CL		
PERFORMANCE	DC Bus Voltage	V _{DC}	V	24	48	24	48	24	48	
	Rated Torque	T _r	Nm	4		7.1		10		
	Peak Torque	T _p	Nm	7.5		15		22.4		
	Rated Speed	N _r	rpm	210	540	160	400	125	315	
	No-Load Speed	N _{no-load}	rpm	375	755	260	530	200	410	
	Torque Constant	K _t	Nm/A	0.73		1.05		1.33		
	Voltage Constant	K _v	V/rpm	0.063		0.09		0.115		
	Max. Cogging Torque	T _{cog}	%			<1				
ELECTRICAL	Torque Ripple	T _{ripple}	%			<1				
	Number of Pole	2p	--			16				
	Rated Current	I _r	A _{rms}	5.5		6.9		7.5		
	Peak Current	I _p	A _{rms}	10.6		14.9		17.5		
	Line Resistance	R _{LL@25°C}	Ohm	1.28 (±20%)		0.92 (±20%)		0.8 (±20%)		
	Line Inductance	L _{LL@60Hz}	mH	5.42 (±30%)		5.3 (±30%)		5.7 (±30%)		
	MECHANICAL & THERMAL	Total Weight (+Face)	W _s	kg	6.3		7.6		9.5	
		Total Weight (+Flange)	W _r	kg	6.5		7.8		9.7	
Mech. Time Constant		K _{mech}	ms	2.35		1.1		0.77		
Thermal Resistance (2)		R _{th}	°C/W	--		--		--		
Inertia		J	kg.m ²	0.000819		0.00107		0.00132		
Friction Torque		T _f	Nm			1.5				
Motor Constant		K _m	Nm/√W	0.43	0.27	0.65	0.41	0.87	0.55	
Rotor ID			mm			19				

Motor Parameters		Symbols	Units	HoSM-135-AH		HoSM-135-BH		HoSM-135-CH		
PERFORMANCE	DC Bus Voltage	V _{DC}	V	310	560	310	560	310	560	
	Rated Torque	T _r	Nm	4		7.1		10.2		
	Peak Torque	T _p	Nm	12.4		24.9		37.5		
	Rated Speed	N _r	rpm	1010	1910	885	1650	780	1465	
	No-Load Speed	N _{no-load}	rpm	1275	2315	1075	1950	935	1690	
	Torque Constant	K _t	Nm/A	2.79		3.33		3.81		
	Voltage Constant	K _v	V/rpm	0.24		0.28		0.33		
	Max. Cogging Torque	T _{cog}	%			<1				
ELECTRICAL	Torque Ripple	T _{ripple}	%			<1				
	Number of Pole	2p	--			16				
	Rated Current	I _r	A _{rms}	1.45		2.15		2.7		
	Peak Current	I _p	A _{rms}	5.55		9.35		12.25		
	Line Resistance	R _{LL@25°C}	Ohm	16.4 (±20%)		9.6 (±20%)		6.8 (±20%)		
	Line Inductance	L _{LL@60Hz}	mH	95.0 (±30%)		53.7 (±30%)		45.4 (±30%)		
	MECHANICAL & THERMAL	Total Weight (+Face)	W _s	kg	6.3		7.6		9.5	
		Total Weight (+Flange)	W _r	kg	6.5		7.8		9.7	
Mech. Time Constant		K _{mech}	ms	2.08		1.12		0.75		
Thermal Resistance (2)		R _{th}	°C/W	--		--		--		
Inertia		J	kg.m ²	0.000819		0.00107		0.00132		
Friction Torque		T _f	Nm			1.5				
Motor Constant		K _m	Nm/√W	0.20	0.14	0.28	0.20	0.36	0.26	
Rotor ID			mm			19				

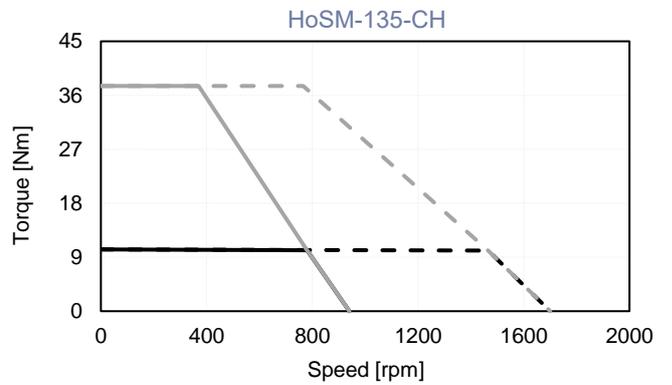
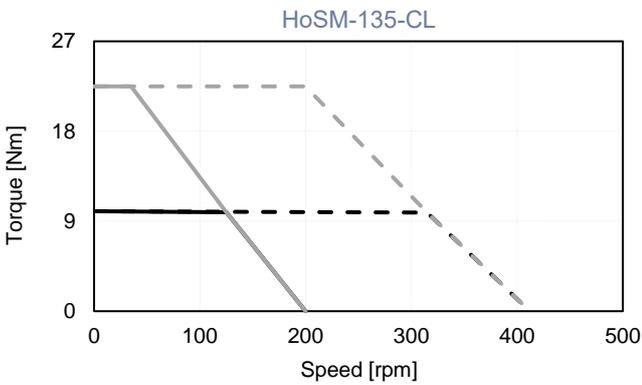
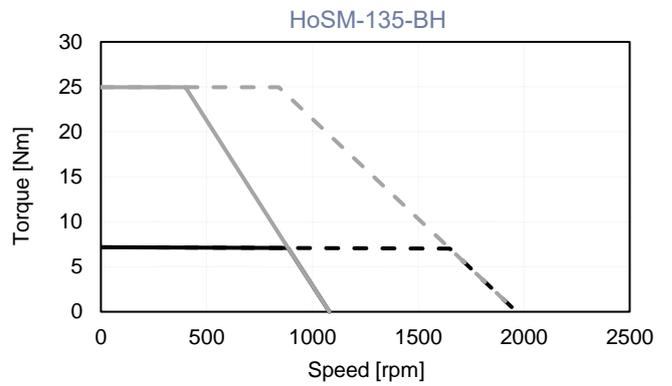
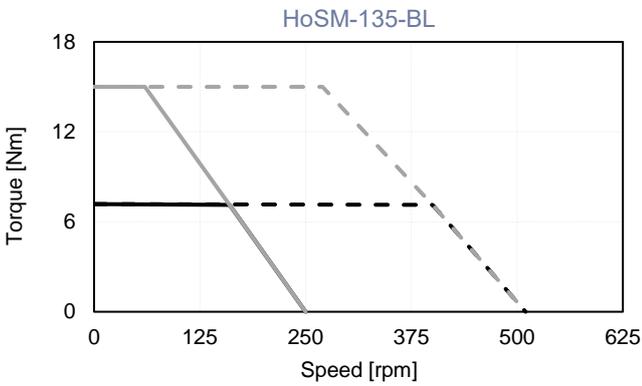
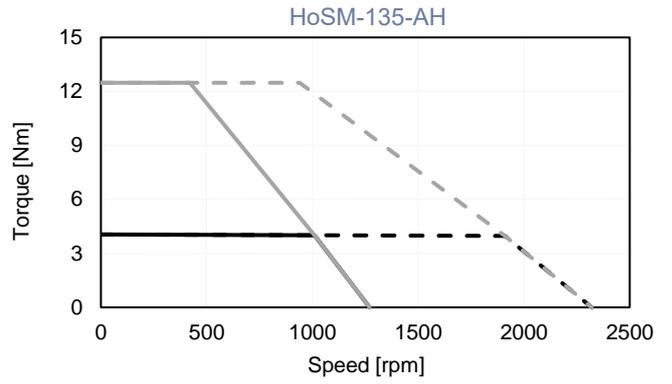
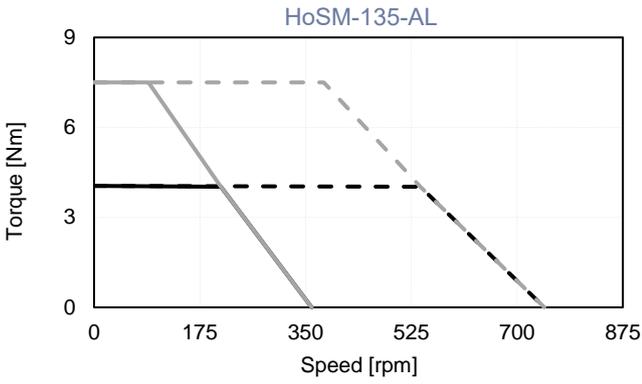
1. All performance and electrical specifications are obtained at 25°C ambient and may change ±10%.

HoSM-135 Torque-Speed Curves

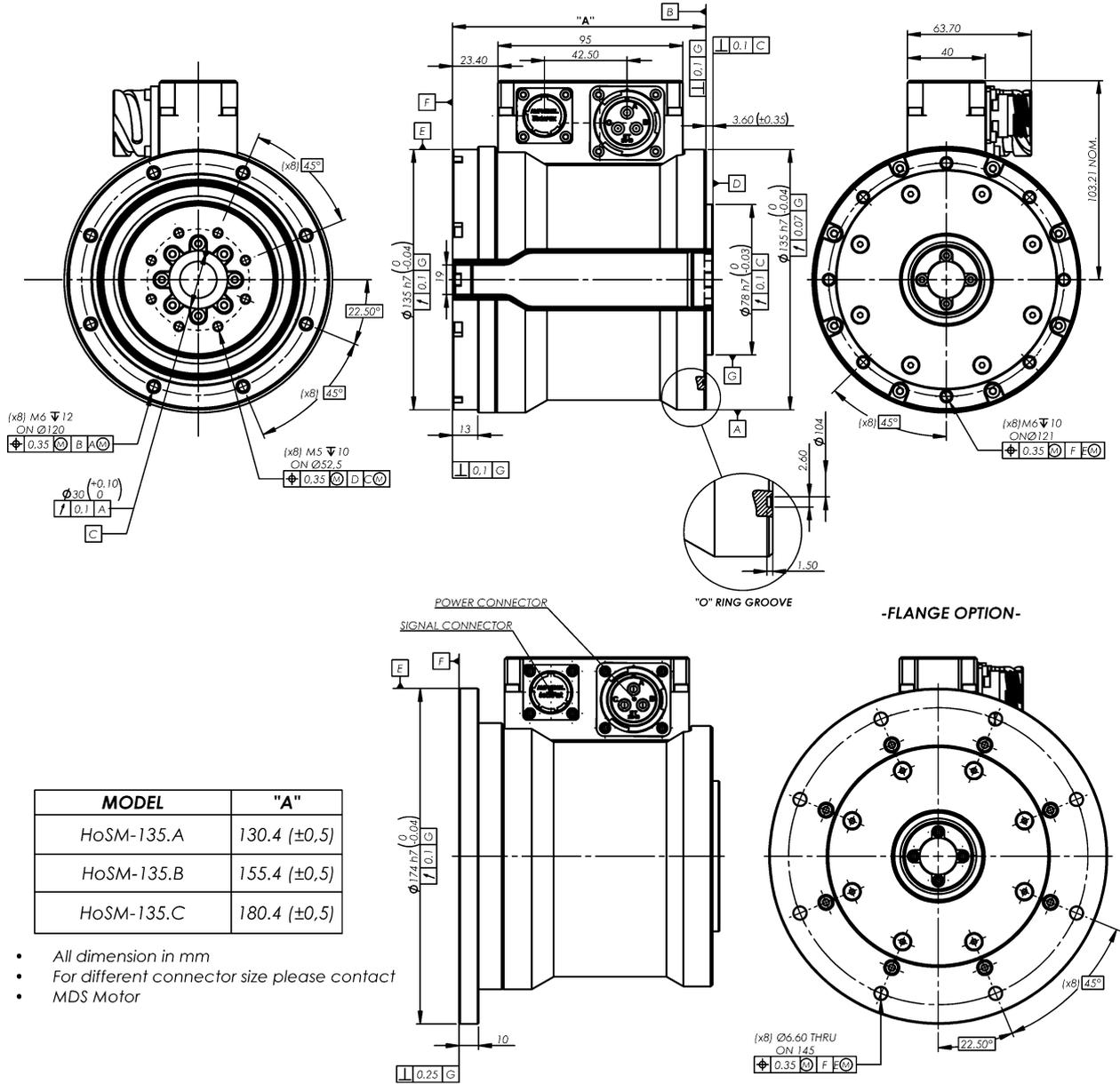
Tr: Rated Torque
Tp: Peak Torque

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

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



HoSM-135 Outline Drawing



MODEL	"A"
HoSM-135.A	130.4 ($\pm 0,5$)
HoSM-135.B	155.4 ($\pm 0,5$)
HoSM-135.C	180.4 ($\pm 0,5$)

- All dimension in mm
- For different connector size please contact
- MDS Motor

Motor Parameters		Symbols	Units	HoSM-176-AL		HoSM-176-BL		HoSM-176-CL		
PERFORMANCE	DC Bus Voltage	V_{DC}	V	24	48	24	48	24	48	
	Rated Torque	T_r	Nm	10.8		21.7		30.2		
	Peak Torque	T_p	Nm	18		35.8		54.3		
	Rated Speed	N_r	rpm	125	315	75	195	65	165	
	No-Load Speed	$N_{no-load}$	rpm	220	440	135	275	110	225	
	Torque Constant	K_t	Nm/A	1.26		2.01		2.42		
	Voltage Constant	K_v	V/rpm	0.108		0.172		0.207		
	Max. Cogging Torque	T_{cog}	%			<1				
ELECTRICAL	Torque Ripple	T_{ripple}	%			<1				
	Number of Pole	2p	--			24				
	Rated Current	I_r	A_{rms}	8.6		10.8		12.5		
	Peak Current	I_p	A_{rms}	14.4		18		22.8		
	Line Resistance	$R_{Ll}@25^{\circ}C$	Ohm	0.75 (±20%)		0.72 (±20%)		0.6 (±20%)		
	Line Inductance	$L_{Ll}@60Hz$	mH	3.75 (±30%)		4.3 (±30%)		4.01 (±30%)		
	MECHANICAL & THERMAL	Total Weight (+Face)	W_s	kg	11		14.3		17.8	
		Total Weight (+Flange)	W_r	kg	11.4		14.7		18.2	
Mech. Time Constant		K_{mech}	ms	3.42		1.8		1.34		
Thermal Resistance (2)		R_{th}	$^{\circ}C/W$	--		--		--		
Inertia		J	kg.m ²	0.00538		0.00802		0.01065		
Friction Torque		T_f	Nm			2.8				
Motor Constant		K_m	Nm/ \sqrt{W}	0.91	0.57	1.66	1.03	2.11	1.32	
Rotor ID			mm			48				

Motor Parameters		Symbols	Units	HoSM-176-AH		HoSM-176-BH		HoSM-176-CH		
PERFORMANCE	DC Bus Voltage	V_{DC}	V	310	560	310	560	310	560	
	Rated Torque	T_r	Nm	11.2		21.7		29.8		
	Peak Torque	T_p	Nm	33.7		65.5		98.8		
	Rated Speed	N_r	rpm	325	650	285	555	315	605	
	No-Load Speed	$N_{no-load}$	rpm	460	835	375	685	390	715	
	Torque Constant	K_t	Nm/A	7.79		9.45		9.03		
	Voltage Constant	K_v	V/rpm	0.666		0.809		0.775		
	Max. Cogging Torque	T_{cog}	%			<1				
ELECTRICAL	Torque Ripple	T_{ripple}	%			<1				
	Number of Pole	2p	--			24				
	Rated Current	I_r	A_{rms}	1.45		2.3		3.3		
	Peak Current	I_p	A_{rms}	4.8		7.6		12		
	Line Resistance	$R_{Ll}@25^{\circ}C$	Ohm	31.6 (±20%)		16.5 (±20%)		8.4 (±20%)		
	Line Inductance	$L_{Ll}@60Hz$	mH	155.2 (±30%)		103.3 (±30%)		60.9 (±30%)		
	MECHANICAL & THERMAL	Total Weight (+Face)	W_s	kg	11		14.3		17.8	
		Total Weight (+Flange)	W_r	kg	11.4		14.7		18.2	
Mech. Time Constant		K_{mech}	ms	3.43		1.81		1.34		
Thermal Resistance (2)		R_{th}	$^{\circ}C/W$	--		--		--		
Inertia		J	kg.m ²	0.00538		0.00802		0.01065		
Friction Torque		T_f	Nm			2.8				
Motor Constant		K_m	Nm/ \sqrt{W}	0.58	0.41	0.85	0.58	0.95	0.69	
Rotor ID			mm			48				

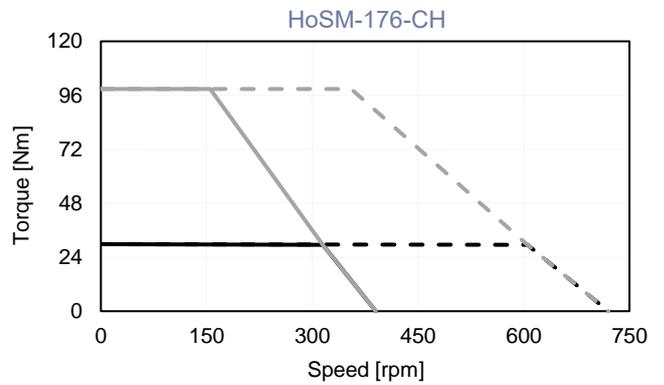
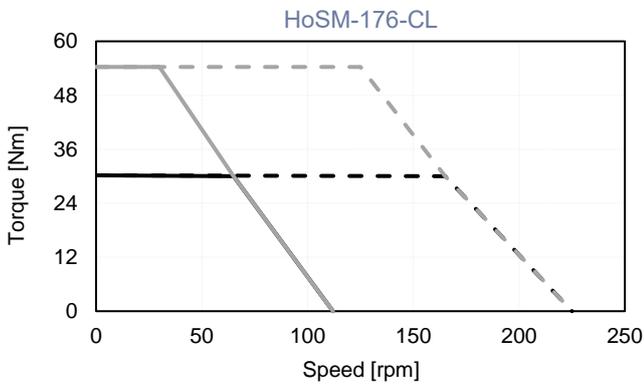
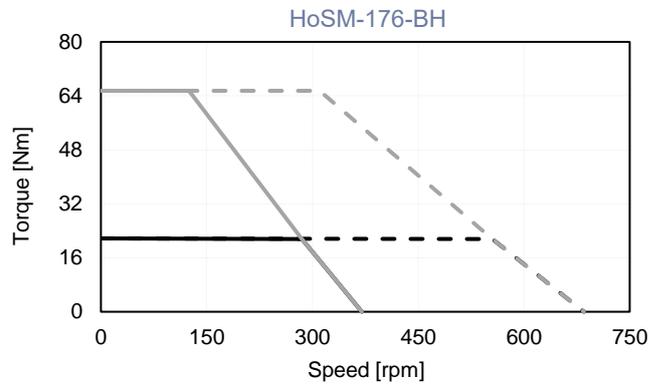
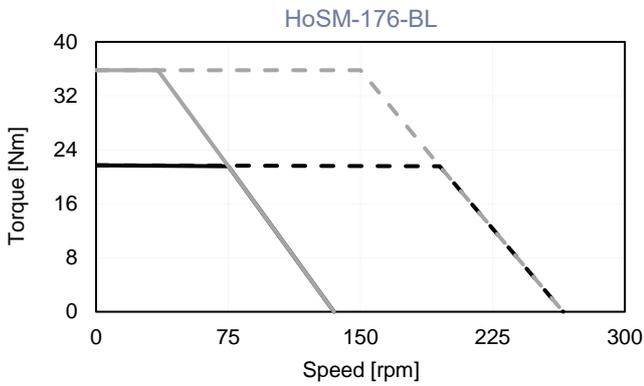
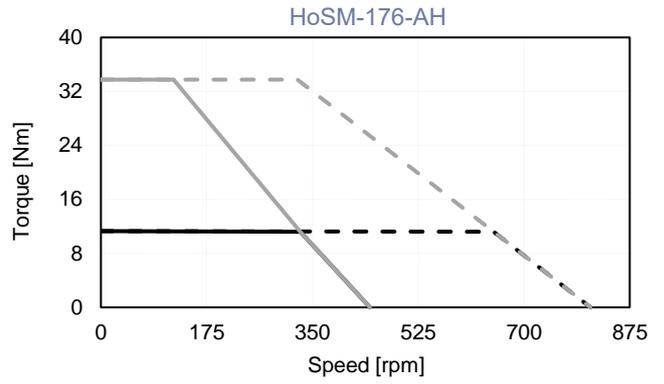
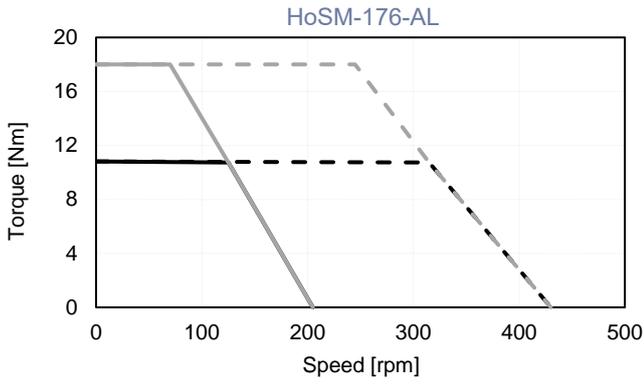
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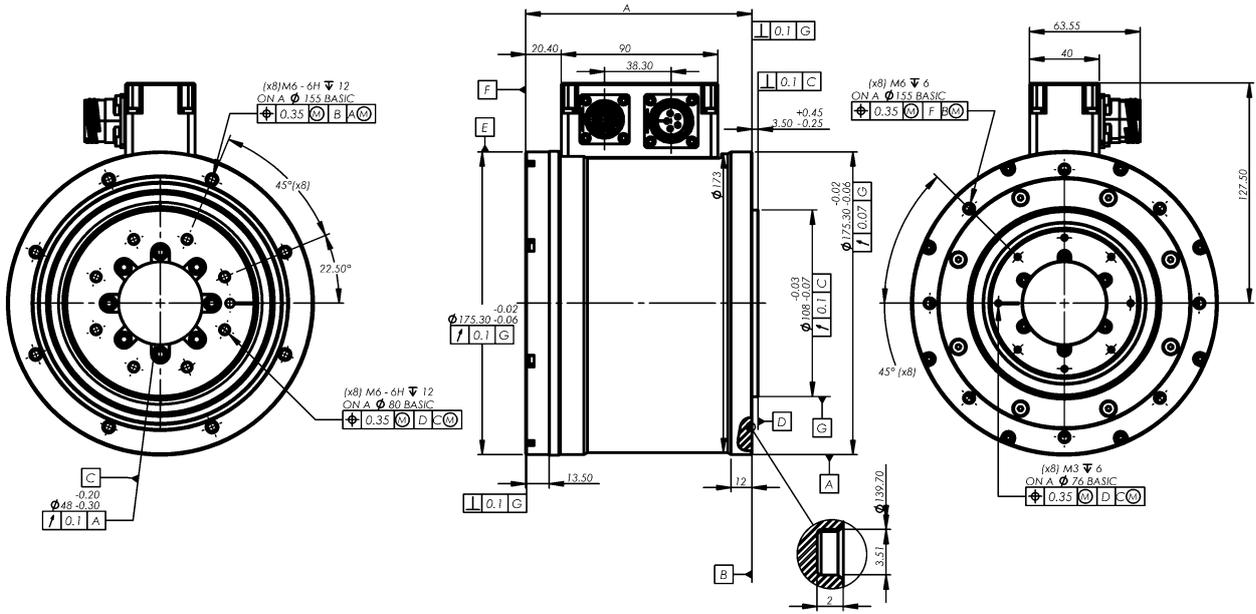
HoSM-176 Torque-Speed Curves

Tr: Rated Torque
Tp: Peak Torque

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

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





"O" RING GROOVE

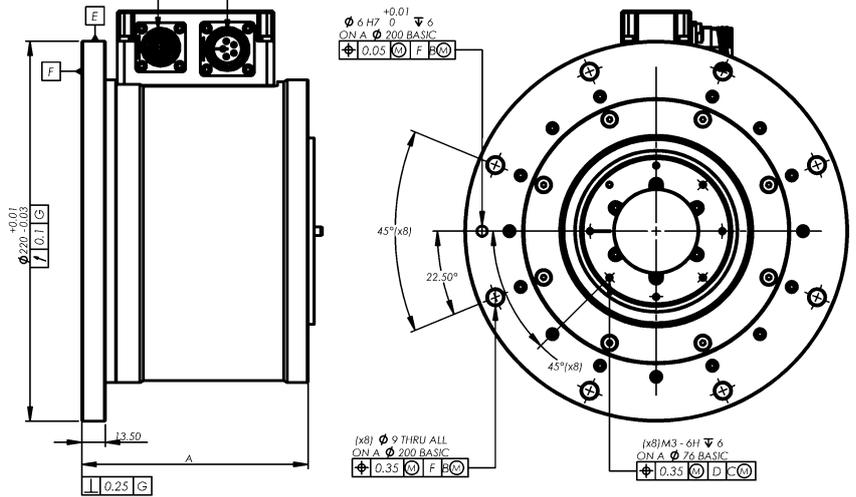
SIGNAL CONNECTOR

POWER CONNECTOR

-FLANGE OPTION-

MODEL	"A"
HoSM-176.A	130 ($\pm 0,5$)
HoSM-176.B	154.9 ($\pm 0,5$)
HoSM-176.C	180.8 ($\pm 0,5$)

- All dimensions in mm
- For different connector sizes please contact MDS Motor



Motor Parameters		Symbols	Units	HoSM-220-AL		HoSM-220-BL		HoSM-220-CL	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	24	48	24	48	24	48
	Rated Torque	T_r	Nm	19.7		34.8		51.7	
	Peak Torque	T_p	Nm	31.3		62.9		94.5	
	Rated Speed	N_r	rpm	115	275	70	175	55	140
	No-Load Speed	$N_{no-load}$	rpm	170	350	105	220	90	185
	Torque Constant	K_t	Nm/A	1.58		2.49		2.97	
	Voltage Constant	K_v	V/rpm	0.135		0.213		0.256	
	Max. Cogging Torque	T_{cog}	%			<1			
	Torque Ripple	T_{ripple}	%			<1			
	Number of Pole	2p	--			24			
ELECTRICAL	Rated Current	I_r	A_{rms}	12.5		14		17.4	
	Peak Current	I_p	A_{rms}	20		25.4		31.8	
	Line Resistance	$R_{Ll}@25^{\circ}C$	Ohm	0.42 ($\pm 20\%$)		0.42 ($\pm 20\%$)		0.39 ($\pm 20\%$)	
	Line Inductance	$L_{Ll}@60Hz$	mH	2.30 ($\pm 30\%$)		2.4 ($\pm 30\%$)		2.4 ($\pm 30\%$)	
	MECHANICAL & THERMAL	Total Weight (+Face)	W_s	kg	17.1		22.3		26.6
Total Weight (+Flange)		W_r	kg	17.6		22.7		27.1	
Mech. Time Constant		K_{mech}	ms	3.4		1.97		1.78	
Thermal Resistance (2)		R_{th}	$^{\circ}C/W$	--		--		--	
Inertia		J	kg.m ²	0.01578		0.02489		0.03399	
Friction Torque		T_f	Nm			3.1			
Motor Constant		K_m	Nm/ \sqrt{W}	1.28	0.83	2.18	1.38	3	1.88
Rotor ID			mm			63.5			

Motor Parameters		Symbols	Units	HoSM-220-AH		HoSM-220-BH		HoSM-220-CH	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	310	560	310	560	310	560
	Rated Torque	T_r	Nm	19.2		35.2		51	
	Peak Torque	T_p	Nm	59.5		121.9		182.6	
	Rated Speed	N_r	rpm	295	570	255	490	240	455
	No-Load Speed	$N_{no-load}$	rpm	370	675	315	575	285	520
	Torque Constant	K_t	Nm/A	9.63		11.36		12.44	
	Voltage Constant	K_v	V/rpm	0.823		0.965		1.065	
	Max. Cogging Torque	T_{cog}	%			<1			
	Torque Ripple	T_{ripple}	%			<1			
	Number of Pole	2p	--			24			
ELECTRICAL	Rated Current	I_r	A_{rms}	2		3.1		4.1	
	Peak Current	I_p	A_{rms}	6.4		11.2		15.2	
	Line Resistance	$R_{Ll}@25^{\circ}C$	Ohm	16.2 ($\pm 20\%$)		10.1 ($\pm 20\%$)		6.2 ($\pm 20\%$)	
	Line Inductance	$L_{Ll}@60Hz$	mH	80.2 ($\pm 30\%$)		60.4 ($\pm 30\%$)		40.6 ($\pm 30\%$)	
	MECHANICAL & THERMAL	Total Weight (+Face)	W_s	kg	17.1		22.3		26.6
Total Weight (+Flange)		W_r	kg	17.6		22.7		27.1	
Mech. Time Constant		K_{mech}	ms	3.4		2.4		1.66	
Thermal Resistance (2)		R_{th}	$^{\circ}C/W$	--		--		--	
Inertia		J	kg.m ²	0.01578		0.02489		0.03399	
Friction Torque		T_f	Nm			3.1			
Motor Constant		K_m	Nm/ \sqrt{W}	0.79	0.57	1.15	0.83	1.42	1.03
Rotor ID			mm			63.5			

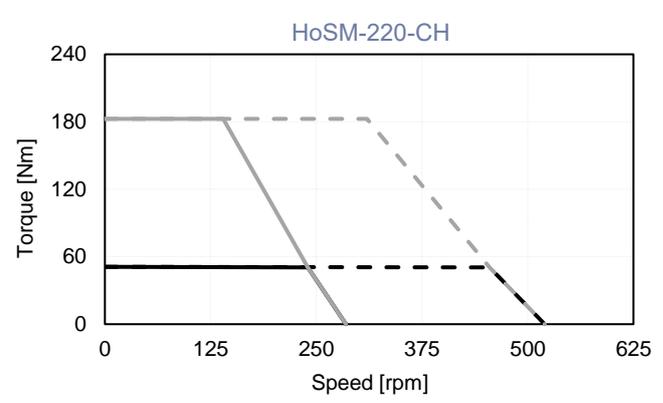
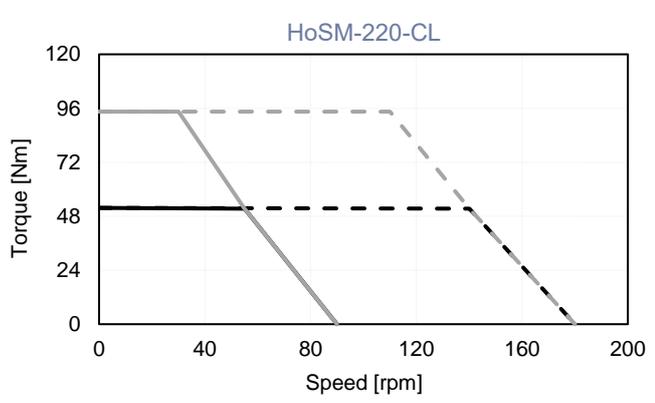
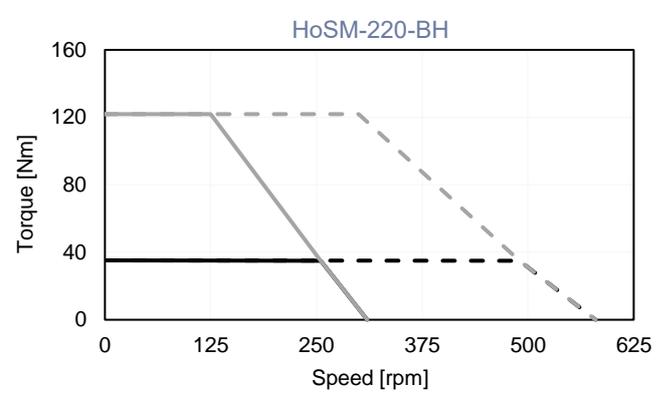
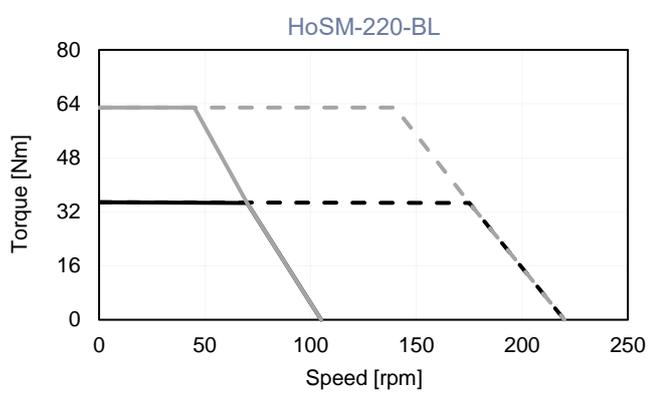
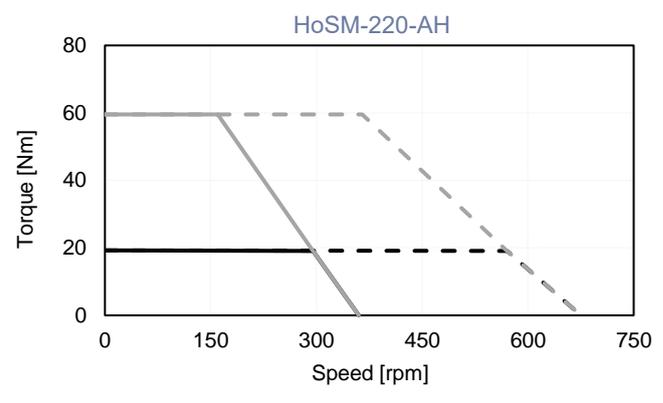
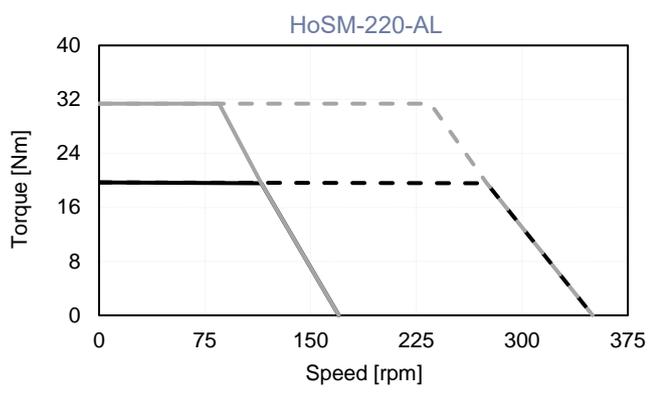
1. All performance and electrical specifications are obtained at 25°C ambient and may change $\pm 10\%$.

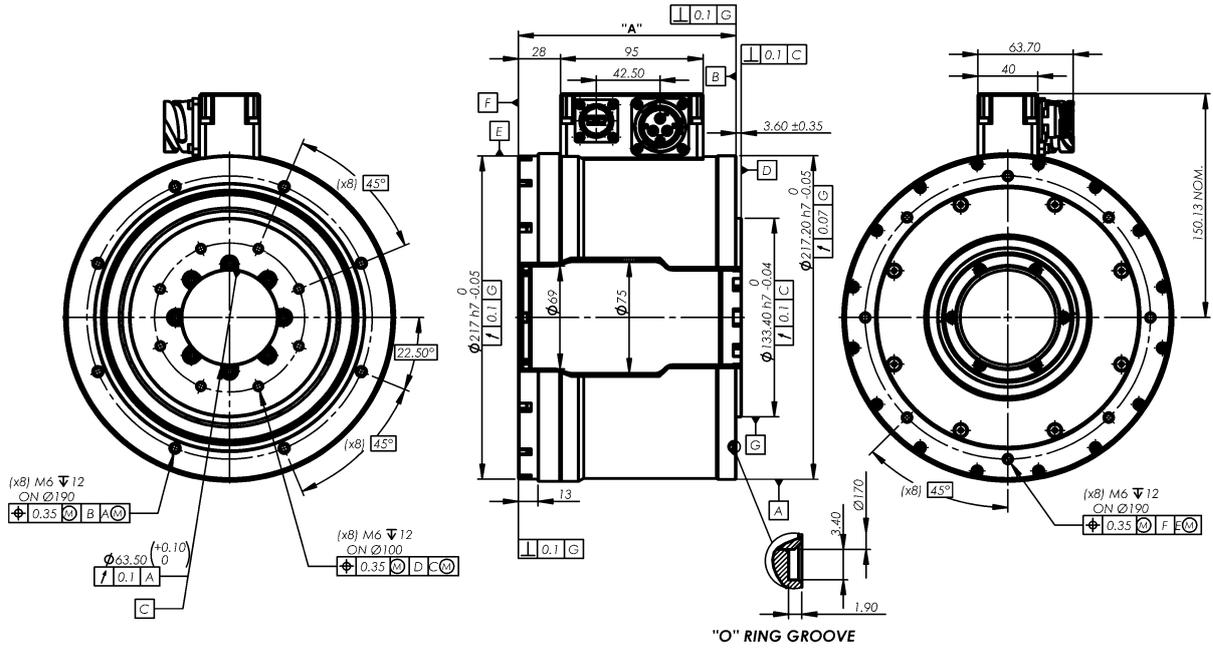
HoSM-220 Torque-Speed Curves

Tr: Rated Torque
Tp: Peak Torque

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

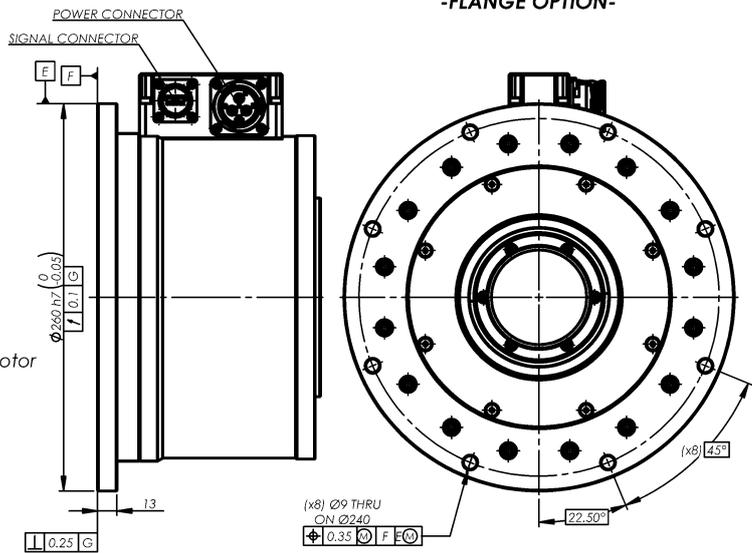
— @Tr 310V - - - @Tr 560V
— @Tp 310V - - - @Tp 560V





MODEL	"A"
HoSM-220.A	145 (±0,5)
HoSM-220.B	175 (±0,5)
HoSM-220.C	205 (±0,5)

- All dimensions in mm
- For different connector size please contact MDS Motor



Motor Parameters		Symbols	Units	HoSM-260-AL		HoSM-260-BL		HoSM-260-CL	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	24	48	24	48	24	48
	Rated Torque	T_r	Nm	34.2		64.9		89.3	
	Peak Torque	T_p	Nm	54.3		112.1		168.3	
	Rated Speed	N_r	rpm	110	260	65	155	55	125
	No-Load Speed	$N_{no-load}$	rpm	155	320	95	195	70	145
	Torque Constant	K_t	Nm/A	1.71		2.8		3.74	
	Voltage Constant	K_v	V/rpm	0.147		0.241		0.321	
	Max. Cogging Torque	T_{cog}	%			<1			
	Torque Ripple	T_{ripple}	%			<1			
	Number of Pole	2p	--			32			
ELECTRICAL	Rated Current	I_r	A_{rms}	20		23.2		23.9	
	Peak Current	I_p	A_{rms}	32		40.4		45.5	
	Line Resistance	$R_{Ll}@25^{\circ}C$	Ohm	0.22 (±20%)		0.22 (±20%)		0.18 (±20%)	
	Line Inductance	$L_{Ll}@60Hz$	mH	1.31 (±30%)		1.63 (±30%)		1.91 (±30%)	
MECHANICAL & THERMAL	Total Weight (+Face)	W_s	kg	25.3		33.5		41.5	
	Total Weight (+Flange)	W_r	kg	25.9		34.1		42.1	
	Mech. Time Constant	K_{mech}	ms	3.53		2.12		1.33	
	Thermal Resistance (2)	R_{th}	$^{\circ}C/W$	--		--		--	
	Inertia	J	kg.m ²	0.03859		0.06218		0.08443	
	Friction Torque	T_f	Nm			3.7			
	Motor Constant	K_m	Nm/ \sqrt{W}	1.72	1.12	3.09	2	3.94	2.61
	Rotor ID		mm			65			

Motor Parameters		Symbols	Units	HoSM-260-AH		HoSM-260-BH		HoSM-260-CH	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	310	560	310	560	310	560
	Rated Torque	T_r	Nm	34.8		64.5		89.8	
	Peak Torque	T_p	Nm	115.5		233.7		351.3	
	Rated Speed	N_r	rpm	280	535	260	490	210	395
	No-Load Speed	$N_{no-load}$	rpm	345	635	310	560	245	445
	Torque Constant	K_t	Nm/A	10.26		11.53		14.49	
	Voltage Constant	K_v	V/rpm	0.879		0.987		1.241	
	Max. Cogging Torque	T_{cog}	%			<1			
	Torque Ripple	T_{ripple}	%			<1			
	Number of Pole	2p	--			32			
ELECTRICAL	Rated Current	I_r	A_{rms}	3.4		5.6		6.2	
	Peak Current	I_p	A_{rms}	12.1		22		26.3	
	Line Resistance	$R_{Ll}@25^{\circ}C$	Ohm	7.88 (±20%)		3.76 (±20%)		3.3 (±20%)	
	Line Inductance	$L_{Ll}@60Hz$	mH	47.2 (±30%)		27.7 (±30%)		28.6 (±30%)	
MECHANICAL & THERMAL	Total Weight (+Face)	W_s	kg	25.3		33.5		41.5	
	Total Weight (+Flange)	W_r	kg	25.9		34.1		42.1	
	Mech. Time Constant	K_{mech}	ms	3.53		2.15		1.6	
	Thermal Resistance (2)	R_{th}	$^{\circ}C/W$	--		--		--	
	Inertia	J	kg.m ²	0.03859		0.06218		0.08443	
	Friction Torque	T_f	Nm			3.7			
	Motor Constant	K_m	Nm/ \sqrt{W}	1.09	0.79	1.54	1.12	2.02	1.47
	Rotor ID		mm			65			

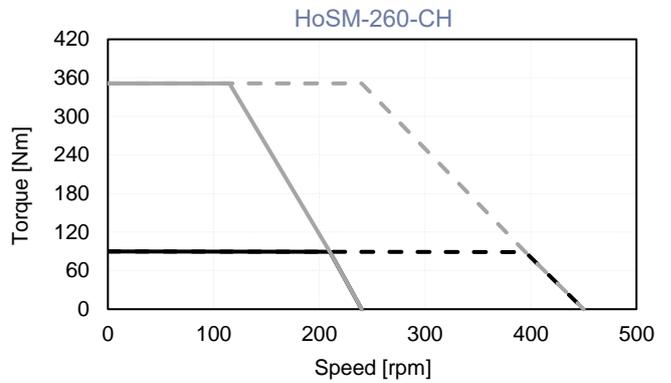
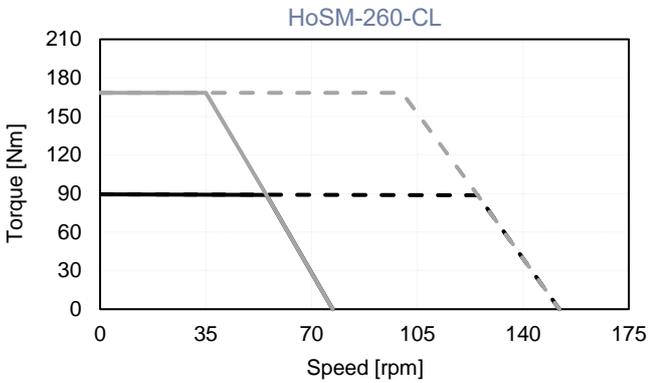
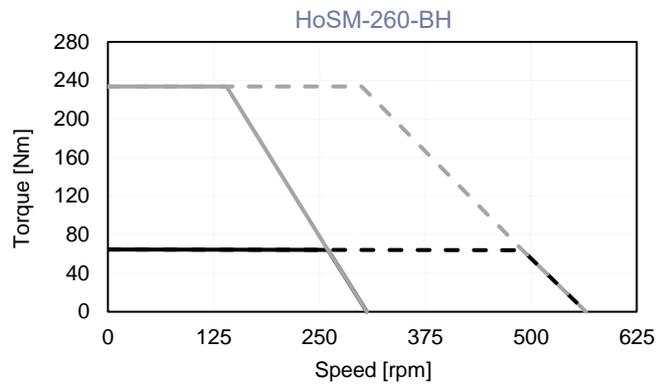
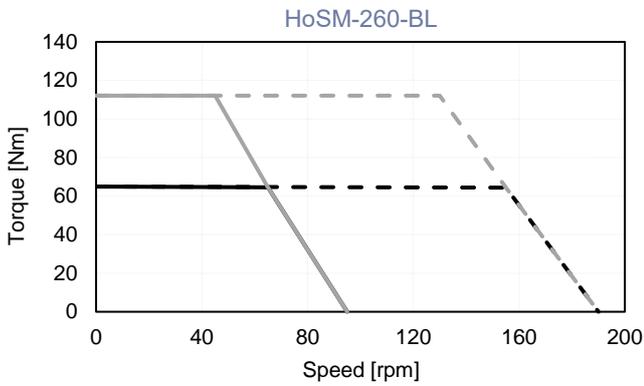
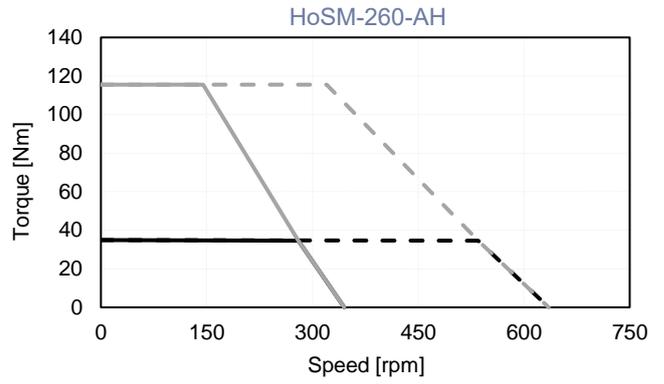
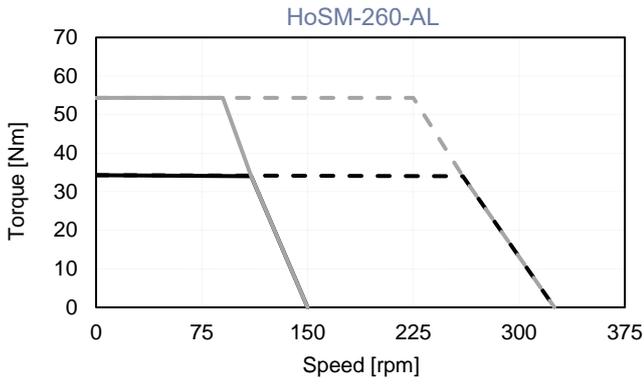
1. All performance and electrical specifications are obtained at 25°C ambient and may change ±10%.

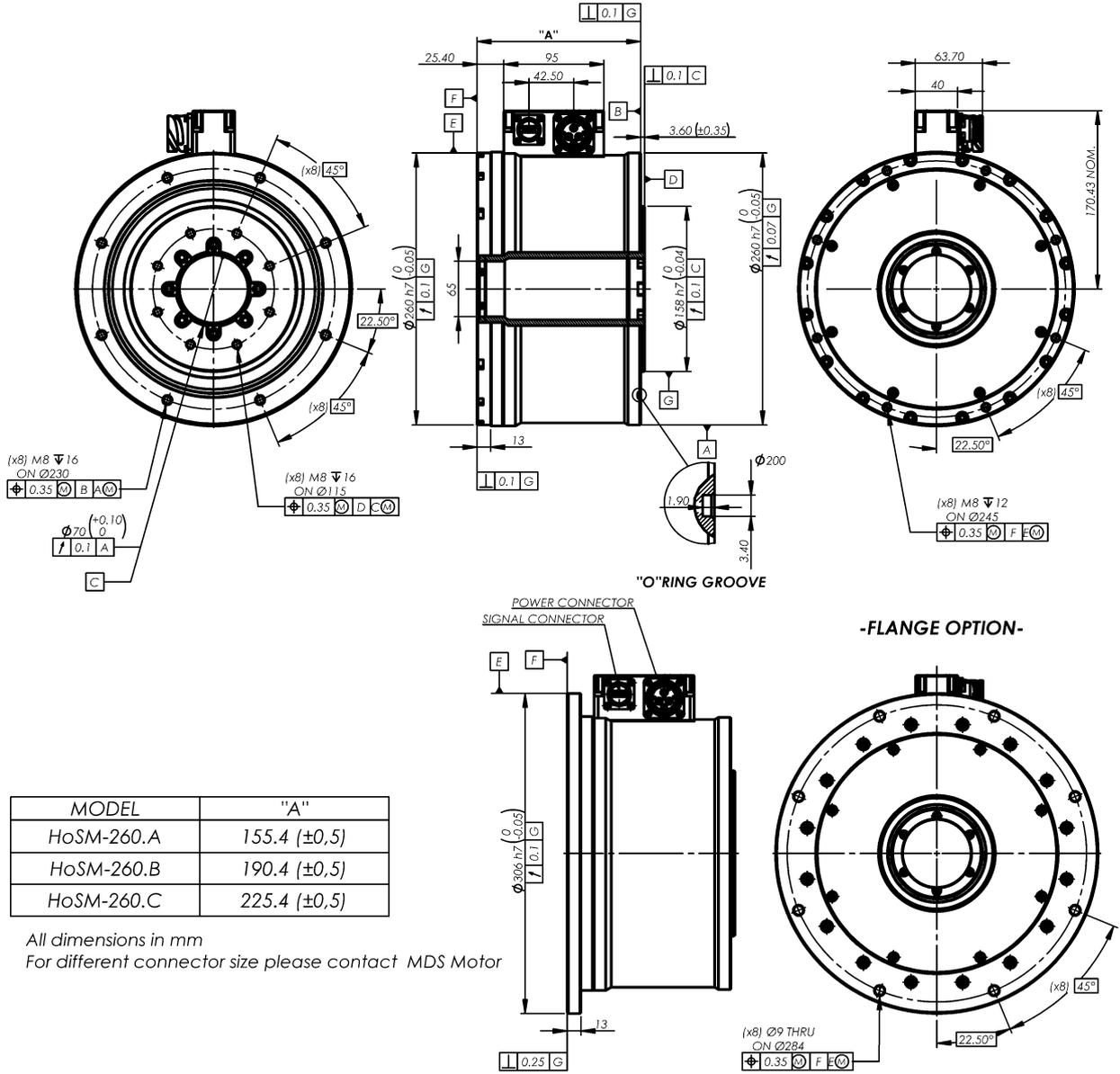
HoSM-260 Torque-Speed Curves

Tr: Rated Torque
Tp: Peak Torque

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

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





MODEL	"A"
HoSM-260.A	155.4 ($\pm 0,5$)
HoSM-260.B	190.4 ($\pm 0,5$)
HoSM-260.C	225.4 ($\pm 0,5$)

- All dimensions in mm
- For different connector size please contact MDS Motor

Motor Parameters		Symbols	Units	HoSM-280-AL		HoSM-280-BL		HoSM-280-CL	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	24	48	24	48	24	48
	Rated Torque	T_r	Nm	41.6		75		106	
	Peak Torque	T_p	Nm	69		135.7		200.7	
	Rated Speed	N_r	rpm	105	240	65	155	50	120
	No-Load Speed	$N_{no-load}$	rpm	150	300	95	190	75	150
	Torque Constant	K_t	Nm/A	1.83		2.84		3.66	
	Voltage Constant	K_v	V/rpm	0.156		0.244		0.313	
	Max. Cogging Torque	T_{cog}	%			<1			
	Torque Ripple	T_{ripple}	%			<1			
	Number of Pole	2p	--			40			
ELECTRICAL	Rated Current	I_r	A_{rms}	22.8		26.4		29	
	Peak Current	I_p	A_{rms}	38		48		55.2	
	Line Resistance	$R_{Ll}@25^{\circ}C$	Ohm	0.21 ($\pm 20\%$)		0.19 ($\pm 20\%$)		0.19 ($\pm 20\%$)	
	Line Inductance	$L_{Ll}@60Hz$	mH	1.04 ($\pm 30\%$)		1.18 ($\pm 30\%$)		1.14 ($\pm 30\%$)	
	MECHANICAL & THERMAL	Total Weight (+Face)	W_s	kg	29.3		37.7		44.6
Total Weight (+Flange)		W_r	kg	30.2		38.5		45.5	
Mech. Time Constant		K_{mech}	ms	4.26		2.57		1.98	
Thermal Resistance (2)		R_{th}	$^{\circ}C/W$	--		--		--	
Inertia		J	kg.m ²	0.05645		0.08736		0.11493	
Friction Torque		T_f	Nm			4.2			
Motor Constant		K_m	Nm/ \sqrt{W}	1.95	1.29	3.32	2.15	4.5	2.9
Rotor ID			mm			73			

Motor Parameters		Symbols	Units	HoSM-280-AH		HoSM-280-BH		HoSM-280-CH	
PERFORMANCE	DC Bus Voltage	V_{DC}	V	310	560	310	560	310	560
	Rated Torque	T_r	Nm	40.5		74.1		105.7	
	Peak Torque	T_p	Nm	142.5		282.8		424	
	Rated Speed	N_r	rpm	260	500	230	435	210	395
	No-Load Speed	$N_{no-load}$	rpm	325	590	275	500	245	445
	Torque Constant	K_t	Nm/A	10.97		13		14.68	
	Voltage Constant	K_v	V/rpm	0.938		1.112		1.251	
	Max. Cogging Torque	T_{cog}	%			<1			
	Torque Ripple	T_{ripple}	%			<1			
	Number of Pole	2p	--			40			
ELECTRICAL	Rated Current	I_r	A_{rms}	3.7		5.7		7.2	
	Peak Current	I_p	A_{rms}	14.0		23.4		31.1	
	Line Resistance	$R_{Ll}@25^{\circ}C$	Ohm	7.72 ($\pm 20\%$)		4.1 ($\pm 20\%$)		2.8 ($\pm 20\%$)	
	Line Inductance	$L_{Ll}@60Hz$	mH	37.5 ($\pm 30\%$)		24.5 ($\pm 30\%$)		18.3 ($\pm 30\%$)	
	MECHANICAL & THERMAL	Total Weight (+Face)	W_s	kg	29.3		37.7		44.6
Total Weight (+Flange)		W_r	kg	30.2		38.5		45.5	
Mech. Time Constant		K_{mech}	ms	4.43		2.6		1.78	
Thermal Resistance (2)		R_{th}	$^{\circ}C/W$	--		--		--	
Inertia		J	kg.m ²	0.05645		0.08736		0.11493	
Friction Torque		T_f	Nm			4.2			
Motor Constant		K_m	Nm/ \sqrt{W}	1.22	0.88	1.75	1.28	2.19	1.6
Rotor ID			mm			73			

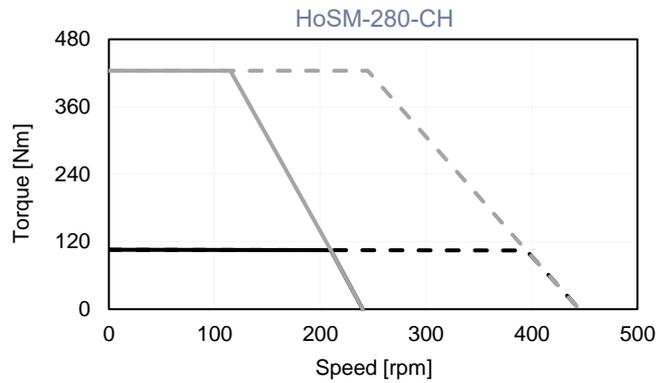
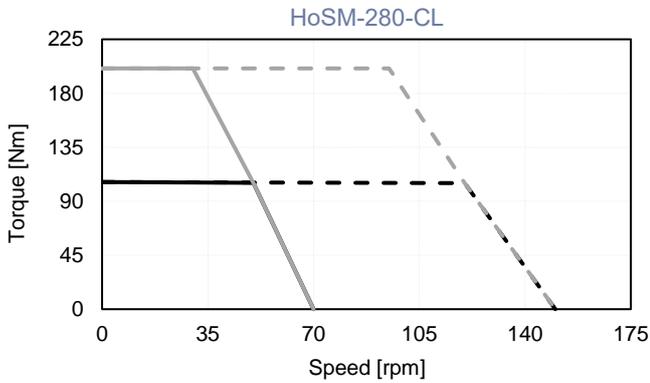
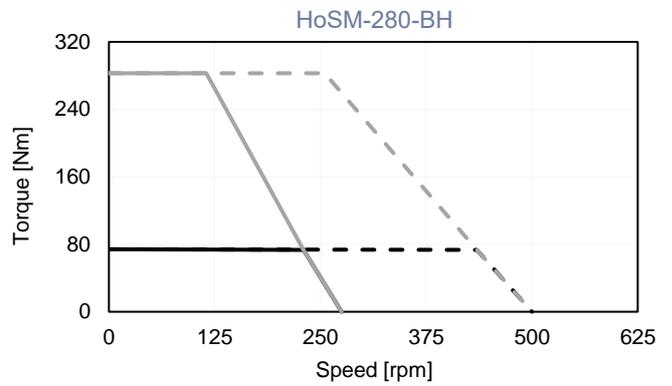
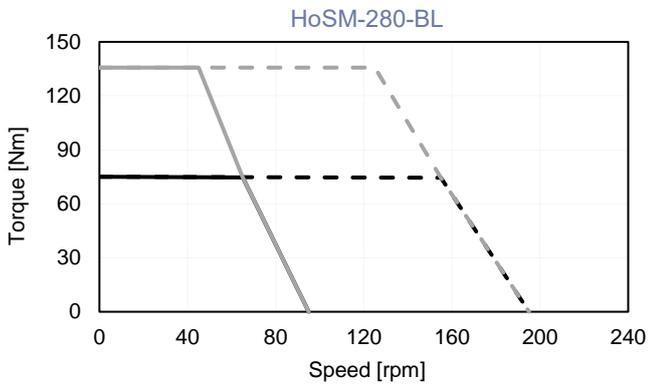
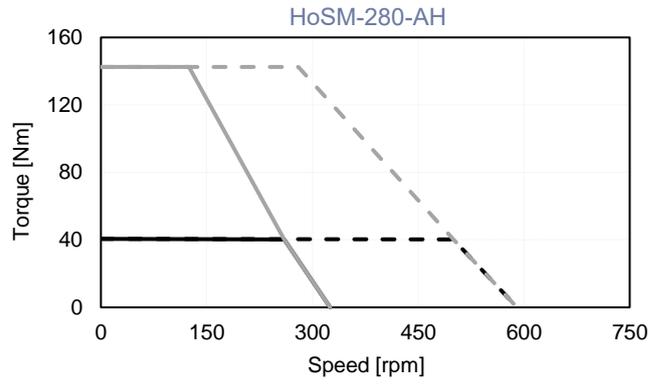
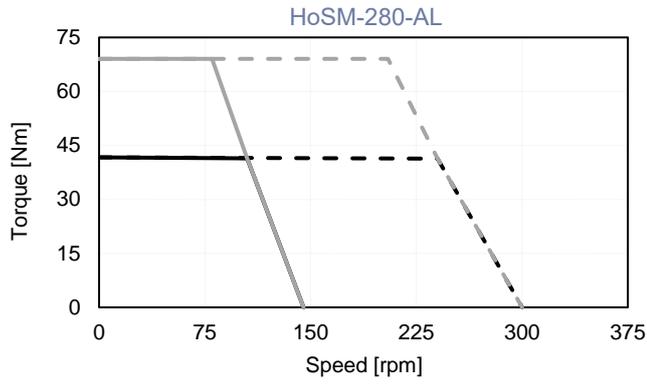
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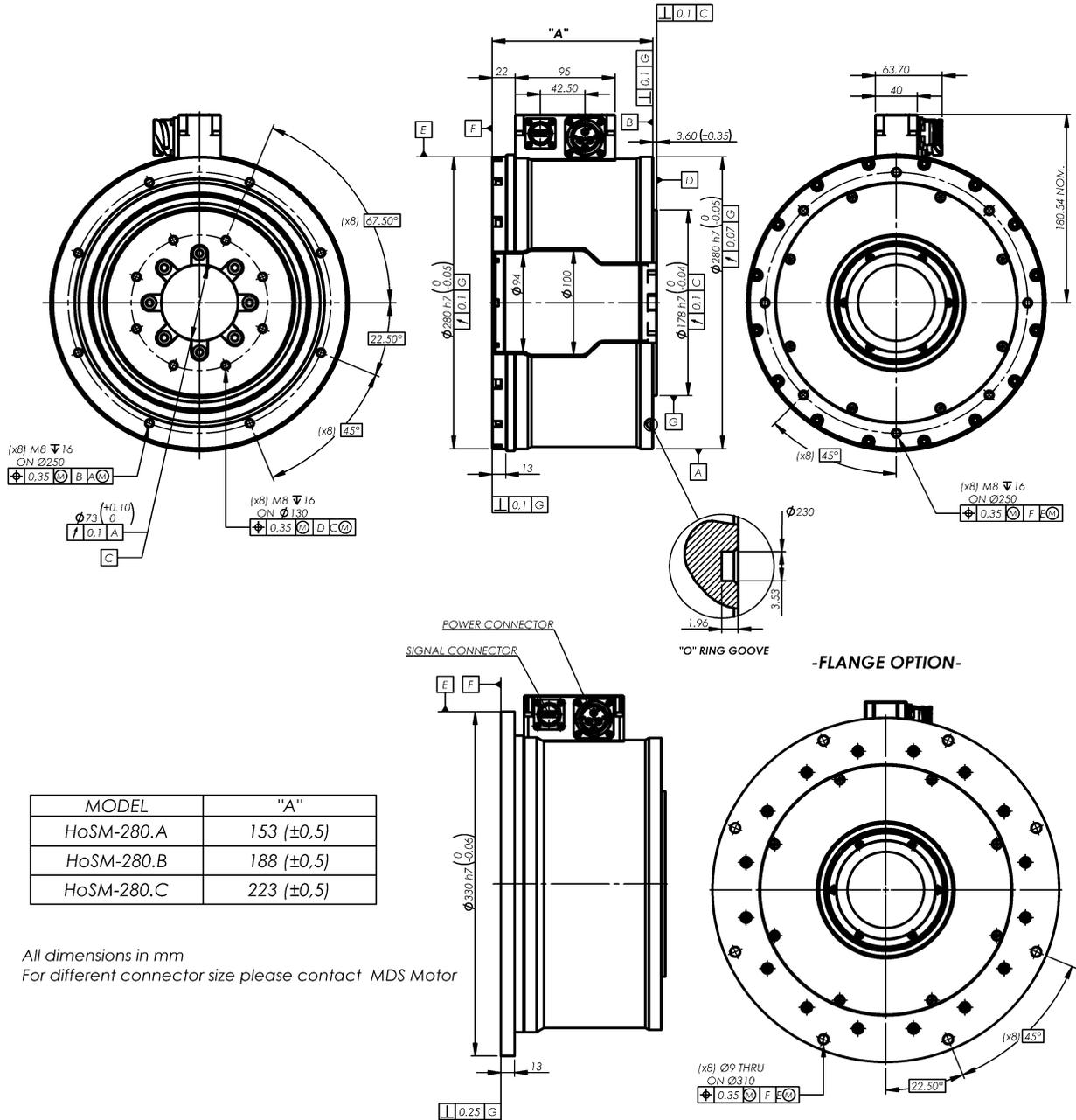
HoSM-280 Torque-Speed Curves

Tr: Rated Torque
Tp: Peak Torque

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

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





Motor Design Sheet

Please send your inquiry to
mds@mdsmotor.com or fax: +90 (262) 341 4472

Contact details	
Company:	
Name:	
Tel:	
Email:	
Application/Project:	

Specifications for motor design

Required torques			
Rated torque [Nm]			
Rated speed [rpm]			
Max. torque [Nm]			
Max speed [rpm]			
Electrical specifications			
DC bus voltage [V]			
Rated current [Arms]			
Max current [Arms]			
Current supply	BLDC / BLAC		
Motor size limits			
Max. diameter allowed [mm]			
Max. length allowed [mm]			
Weight limit if any [kg]			
Inertia req. if any			
Cooling / Construction			
Ambient temp. [oC]			
Housing / cooling type	<input type="checkbox"/> None	<input type="checkbox"/> Air cooled	<input type="checkbox"/> Water cooled
Duty cycle			
Other / Comments			
Rotor type	Surface / IPM / other...		
Torque-speed curve – please draw			
Comments			

Revision No	Made By	Date
4	MO	05.10.2024



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