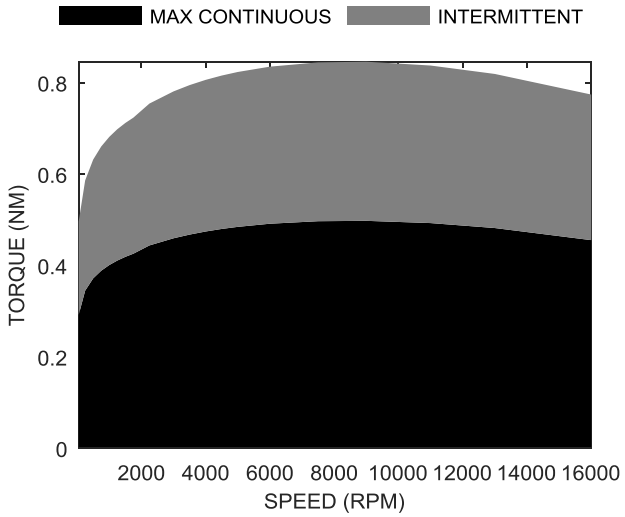
TG232X

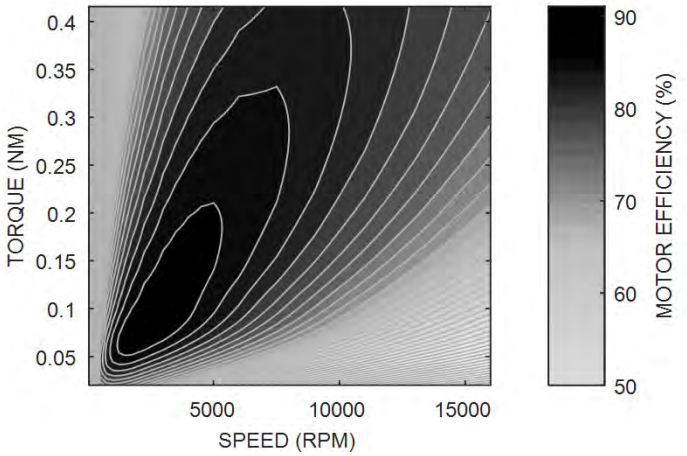
BRUSHLESS PERMANENT MAGNET MACHINE

PERFORMANCE		
Max continuous torque	Nm	0.49
Max permissible speed	RPM	16000
Max continuous shaft power	kW	0.51
Max efficiency	%	88%
Max stator temperature	C	100
Peak Torque - 1s (3s)	Nm	1.87 (1.12)

REGION OF OPERATION



EFFICIENCY MAP



MODEL SPECIFICATIONS		TG2320	TG2321	SYM
Winding configuration		Y	Δ	
Max continuous current	Arms	11.2	16.7	I
Voltage constant	Vpkl-l/(rad/s)	0.039	0.023	Ke
Voltage constant	Vpkl-l/kRPM	4.1	2.4	Ke
Torque constant	Nm/Arms	0.048	0.032	Kt
Motor Constant	Nm/√W	0.070	0.070	Km
Terminal resistance	Ω	0.310	0.103	R
Terminal inductance	µH	20.6	6.9	L
Motor drive voltage	Vbus	(RPM*Ke*π/30+Torque/Kt*R)*1.2		
Generator terminal voltage	Vrms	(RPM*Ke*π/30-Torque/Kt*R)/Sqrt(2)		

NOTES

- All ThinGap machines can operate as a motor or generator and can be purchased with or without frame
- When operated as a motor best performance is obtained with high frequency sinusoidal drives
- 70µH per phase of external inductance is recommended when operated with conventional <40kHz drives
- Contact ThinGap for drive compatibility and applications engineering

MODEL NUMBER TG23 X X - XX EXAMPLE: TG2320 - P1

Machine series
Rotor configuration
Winding configuration
Mounting option (M1/M2-Framed, P1-Frameless Part Set)

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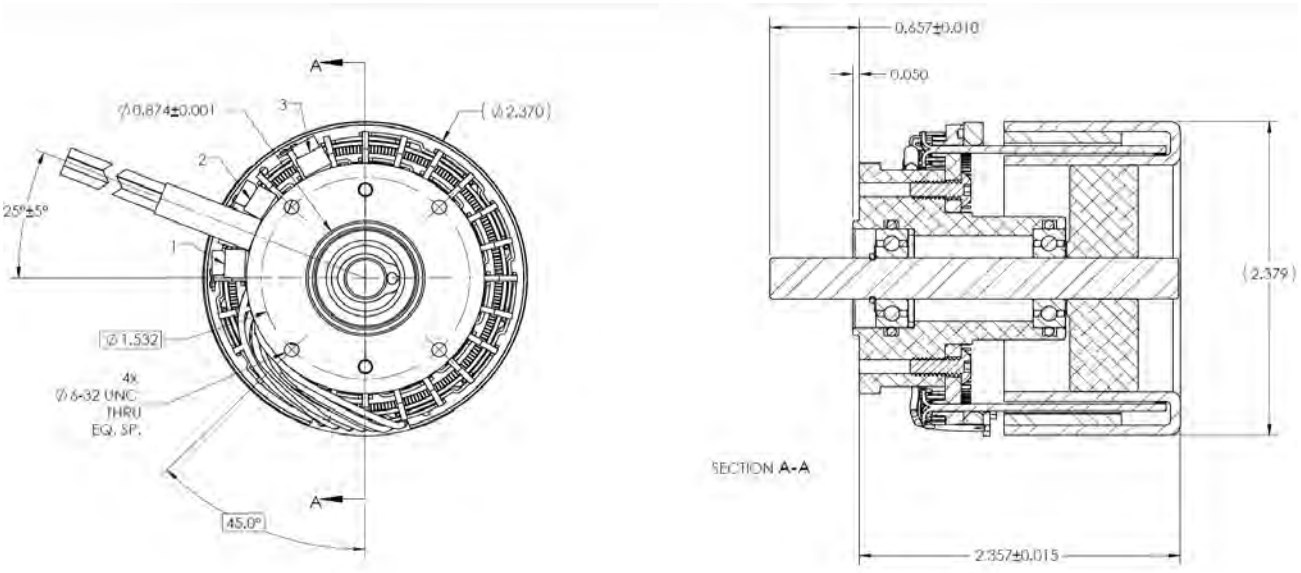
MECHANICAL SPECIFICATIONS		
Max outer diameter	in (mm)	2.379 (60)
Through hole diameter	in (mm)	1.719 (44)
Total axial height	in (mm)	2.357 (60)
Rotor mass	lbs (kg)	0.659 (0.299)
Stator mass	lbs (kg)	1.066 (0.461)
Partset mass (rotor & stator)	lbs (kg)	0.659 (0.299)
Total motor assembly M1	lbs (kg)	1.016 (0.461)
Total motor assembly M2	lbs (kg)	1.066 (0.484)
Rotor Inertia	lbm-ft^2 (kg-m^2)	3.50E-3 (1.47E-4)

MACHINE ASSEMBLY DRAWING — **SHOWN WITH M1 MOUNTING OPTION**



Hall Sensor Lead Identification			Phase Lead Identification			Motor Excitation (Trapezoidal Commutation)							
Lead #	Color	Description	Lead #	Color	Description	Phase	Excitation Step						
							1	2	3	4	5	6	1
1	YEL	V+	1	GRN	PHASE A	A	+		–	–		+	+
2	GRY	COM -											
3	BRN	HALL 1	2	BLK	PHASE B	B		+	+		–	–	
4	ORN	HALL 2											
5	BLU	HALL 3	3	RED	PHASE C	C	–	–		+	+		–