

TG304X

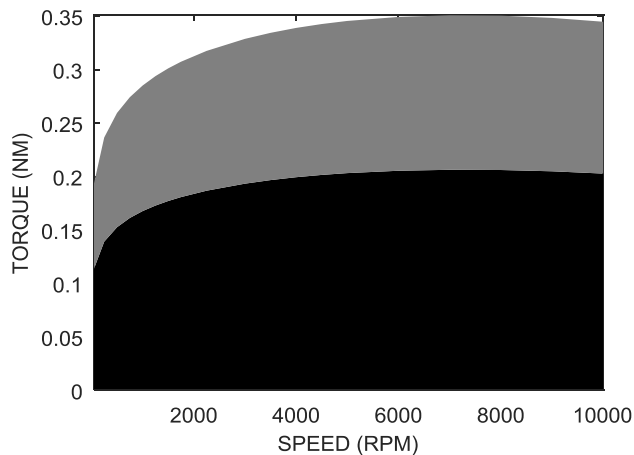
BRUSHLESS PERMANENT MAGNET MACHINE

PERFORMANCE

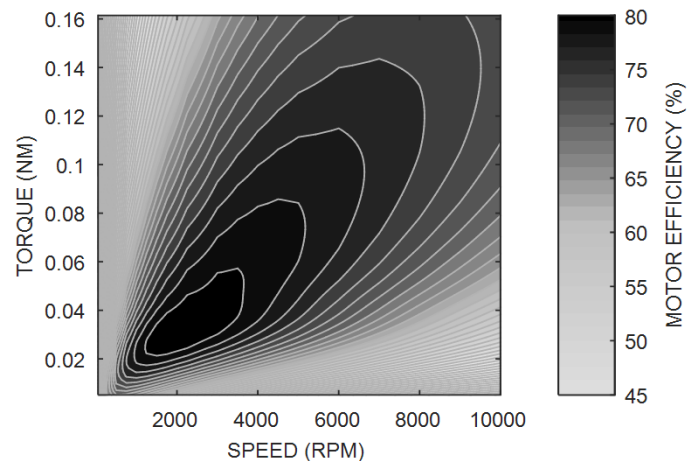
Max continuous torque	Nm	0.19
Max permissible speed	RPM	28400
Max continuous shaft power	W	132
Max efficiency	%	82%
Max stator temperature	C	100
Peak Torque - 1s (3s)	Nm	0.53 (0.32)

REGION OF OPERATION

MAX CONTINUOUS
 INTERMITTENT



EFFICIENCY MAP



MODEL SPECIFICATIONS

		TG3040	TG3041	TG3042	TG3043	SYM
Winding configuration		Series Y	Series Δ	Parallel Y	Parallel Δ	
Max continuous current	Arms	3.2	4.8	6.4	9.5	I
Voltage constant	Vpkl-I/(rad/s)	0.052	0.030	0.026	0.015	Ke
Voltage constant	Vpkl-I/kRPM	5.4	3.1	2.7	1.6	Ke
Torque constant	Nm/Arms	0.063	0.042	0.032	0.021	Kt
Motor Constant	Nm/√W	0.036	0.036	0.036	0.036	Km
Terminal resistance	Ω	2.027	0.676	0.507	0.169	R
Terminal inductance	μH	34.8	11.6	8.7	2.9	L
Motor drive voltage	Vbus	(RPM*Kv*π/30+Torque/Kt*R)*1.2				
Generator terminal voltage	Vrms	(RPM*Kv*π/30-Torque/Kt*R)/Sqrt(2)				

NOTES

- All ThinGap machines can operate as a motor or generator
- 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 drives
- Consult ThinGap engineering for drive compatibility and applications engineering

MODEL NUMBER

	TG30	X	X	-	X010	EXAMPLE: TG3042 - P010
Machine series	↑					
Rotor configuration		↑				
Winding configuration			↑			
Mounting option (M-Framed, P-Frameless Part Set)				↑		

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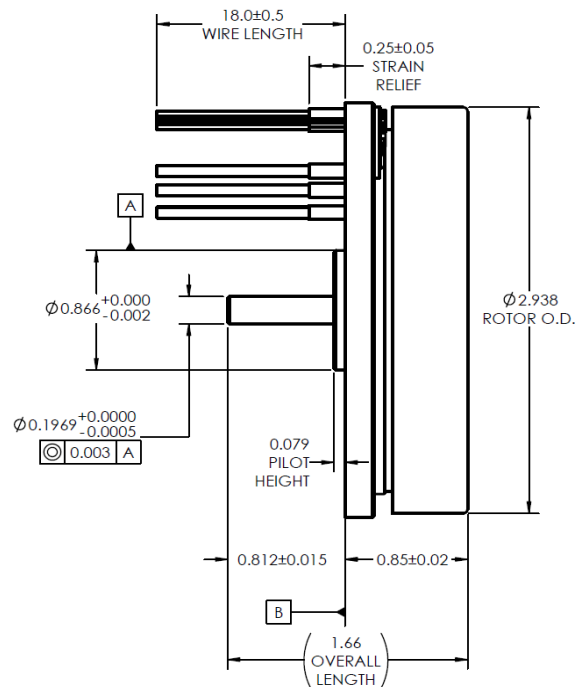
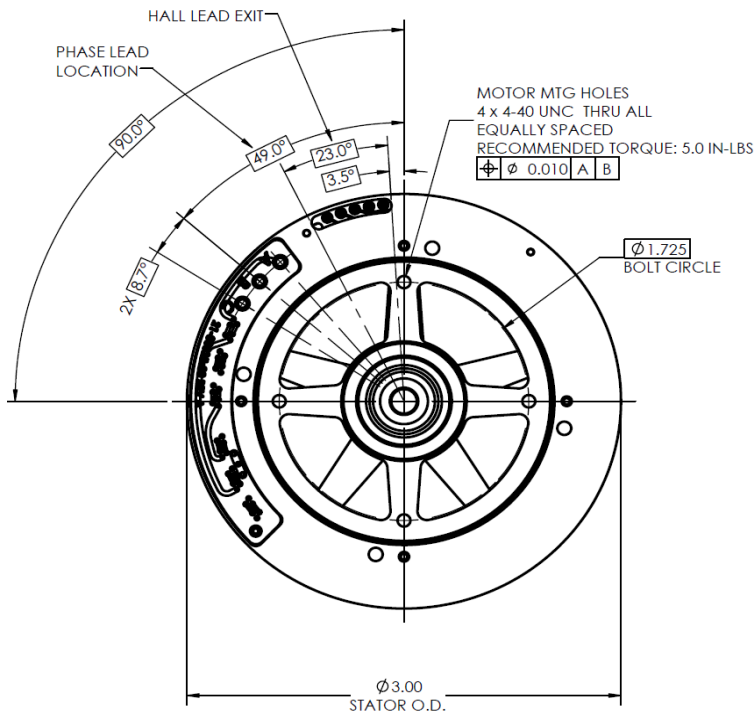
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MECHANICAL SPECIFICATIONS

Max outer diameter	in (mm)	2.938 (75)
Through hole diameter	in (mm)	2.404 (61)
Total axial height	in (mm)	0.657 (17)
Rotor mass	lbs (g)	0.172 (78)
Stator mass	lbs (g)	0.139 (63)
Partset mass (rotor & stator)	lbs (g)	0.311 (141)
Total motor assembly mass	lbs (g)	0.43 (197)
Rotor Inertia	lbm-ft ² (kg-m ²)	2.16E-3 (9.12E-5)

MACHINE ASSEMBLY DRAWING

M1 MOUNT



Hall Sensor Lead Identification			TG304X 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 -	2	BLK	PHASE B	B		+	+		-	-	
3	BRN	HALL 1				C	-	-		+	+		
4	ORN	HALL 2	3	RED	PHASE C								
5	BLU	HALL 3											