thin gap

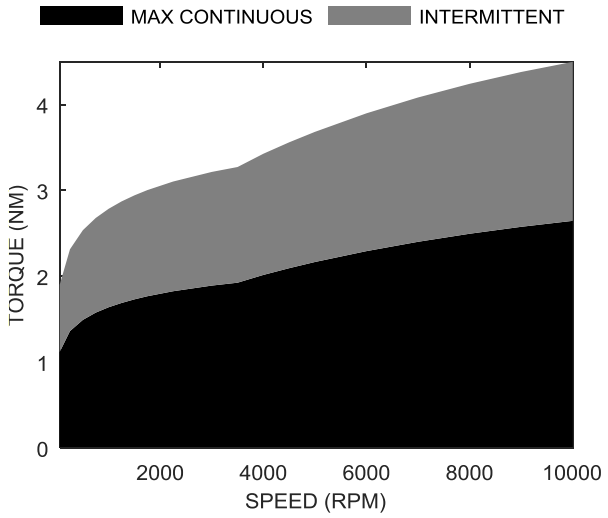
INNOVATION IN MOTORS™

TG514X

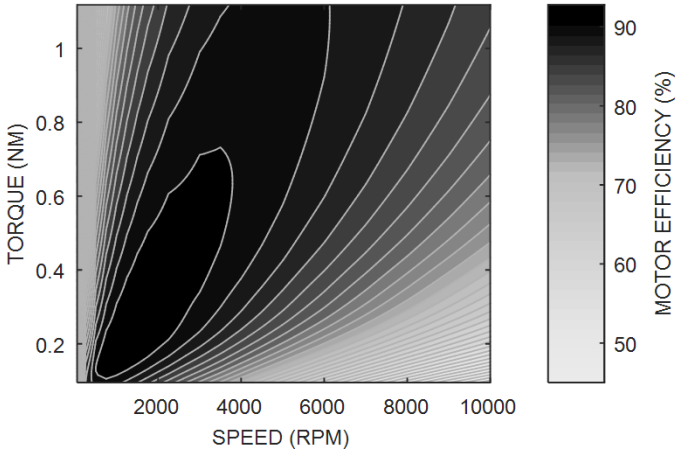
BRUSHLESS PERMANENT MAGNET MACHINE

PERFORMANCE		
Max continuous torque	Nm	2.65
Max permissible speed	RPM	13900
Max continuous shaft power	kW	2.22
Max efficiency	%	92%
Max stator temperature	C	120
Peak Torque - 1s (3s)	Nm	8.12 (4.91)

REGION OF OPERATION



EFFICIENCY MAP



MODEL SPECIFICATIONS		TG5140	TG5141	TG5142	TG5143	SYM
Winding configuration		Series Y	Series Δ	Parallel Y	Parallel Δ	
Max continuous current	Arms	17.5	26.2	35.0	52.4	I
Voltage constant	Vpkl-l/(rad/s)	0.132	0.076	0.066	0.038	Ke
Voltage constant	Vpkl-l/kRPM	13.8	8.0	6.9	4.0	Ke
Torque constant	Nm/Arms	0.162	0.108	0.081	0.054	Kt
Motor Constant	Nm/√W	0.205	0.205	0.205	0.205	Km
Terminal resistance	Ω	0.417	0.139	0.104	0.035	R
Terminal inductance	µH	19.0	6.3	4.8	1.6	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 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

TG51 X X - X010 EXAMPLE: TG5142 - P010

Machine series
Rotor configuration
Winding configuration
Mounting option (M-Framed, P-Frameless Part Set)

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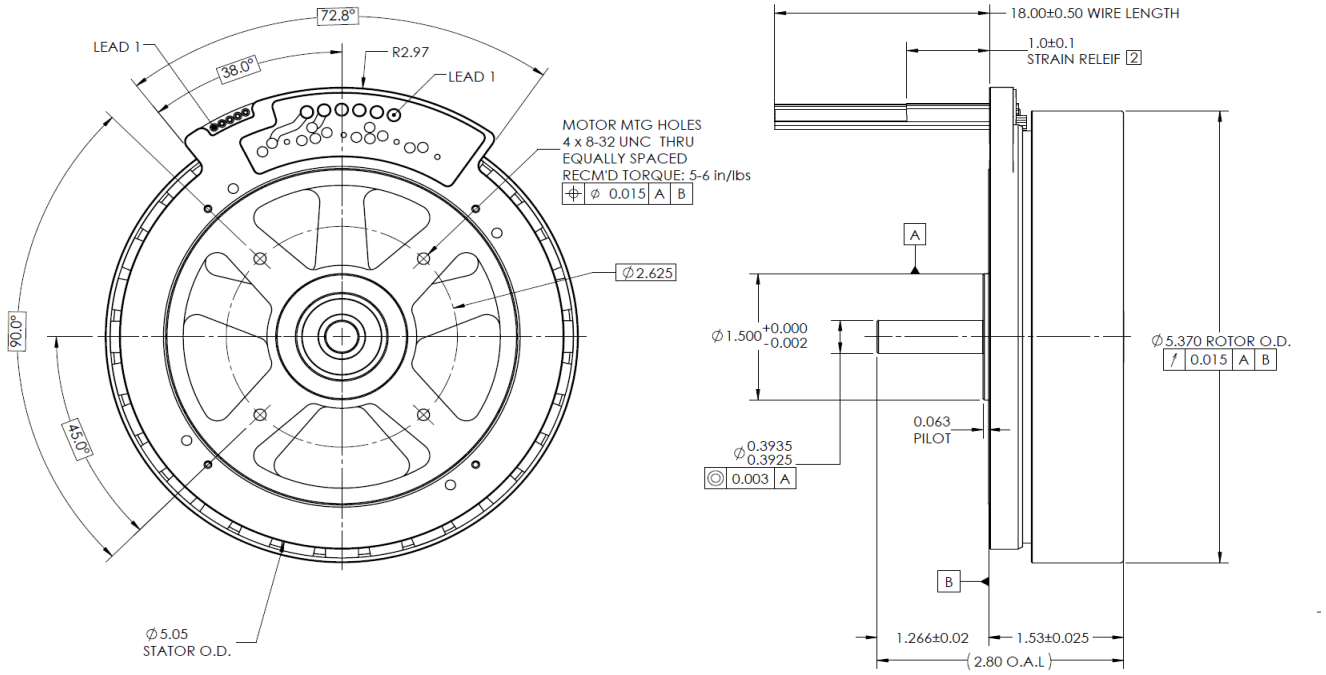
BRUSHLESS PERMANENT MAGNET MACHINE

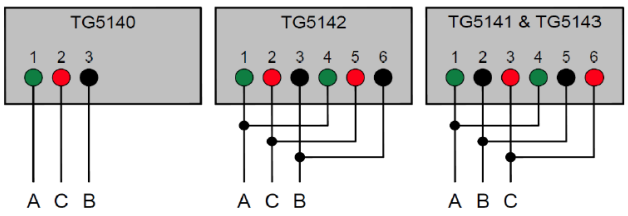
MECHANICAL SPECIFICATIONS		
Max outer diameter	in (mm)	5.37 (136)
Through hole diameter	in (mm)	4.566 (116)
Total axial height	in (mm)	1.184 (30)
Rotor mass	lbs (kg)	0.832 (0.377)
Stator mass	lbs (kg)	0.292 (0.132)
Partset mass (rotor & stator)	lbs (kg)	1.124 (0.51)
Total motor assembly mass	lbs (kg)	1.9 (0.862)
Rotor Inertia	lbm-ft^2 (kg-m^2)	3.70E-2 (1.56E-3)

MACHINE ASSEMBLY DRAWING

SHOWN WITH M010 MOUNTING OPTION



POWER CONNECTION



MOTOR EXCITATION								Hall Sensor Lead Identification		
PHASE	EXCITATION STEP							Lead #	Color	Description
	1	2	3	4	5	6	1			
A	+		–	–		+	+	1	YEL	V+
B		+	+		–	–		2	GRY	COM -
C	–	–		+	+		–	3	BRN	HALL A
								4	BLU	HALL B
								5	ORN	HALL C