

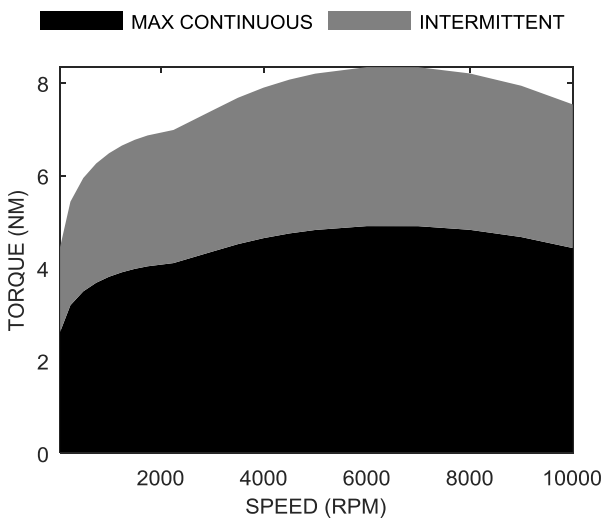
# TG715X

## BRUSHLESS PERMANENT MAGNET MACHINE

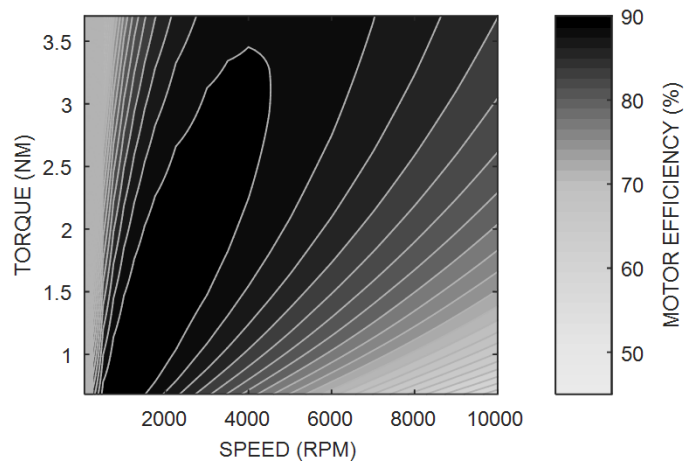
### PERFORMANCE

Max continuous torque	Nm	4.83
Max permissible speed	RPM	10300
Max continuous shaft power	kW	4.04
Max efficiency	%	91%
Max stator temperature	C	120
Peak Torque - 1s (3s)	Nm	23.25 (13.55)

### REGION OF OPERATION



### EFFICIENCY MAP



### MODEL SPECIFICATIONS

		TG7150	TG7151	TG7152	TG7153	SYM
Winding configuration		Series Y	Series Δ	Parallel Y	Parallel Δ	I
Max continuous current	Arms	20.4	30.6	40.8	61.1	I
Voltage constant	Vpkl-I/(rad/s)	0.210	0.121	0.105	0.061	Ke
Voltage constant	Vpkl-I/kRPM	22.0	12.7	11.0	6.4	Ke
Torque constant	Nm/Arms	0.257	0.172	0.129	0.086	Kt
Motor Constant	Nm/√W	0.433	0.433	0.433	0.433	Km
Terminal resistance	Ω	0.236	0.079	0.059	0.020	R
Terminal inductance	μH	20.5	6.8	5.1	1.7	L
Motor drive voltage	Vbus	$(RPM * Kv * \pi / 30 + Torque / Kt * R) * 1.2$ $(RPM * Kv * \pi / 30 - Torque / Kt * R) / \text{Sqrt}(2)$				
Generator terminal voltage	Vrms					

### 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

MODEL NUMBER	TG71	X	X	- X010	EXAMPLE: TG7152 - P010
Machine series	↑				
Rotor configuration		↑			
Winding configuration			↑		
Mounting option (M-Framed, P-Frameless Part Set)				↑	

# TG715X

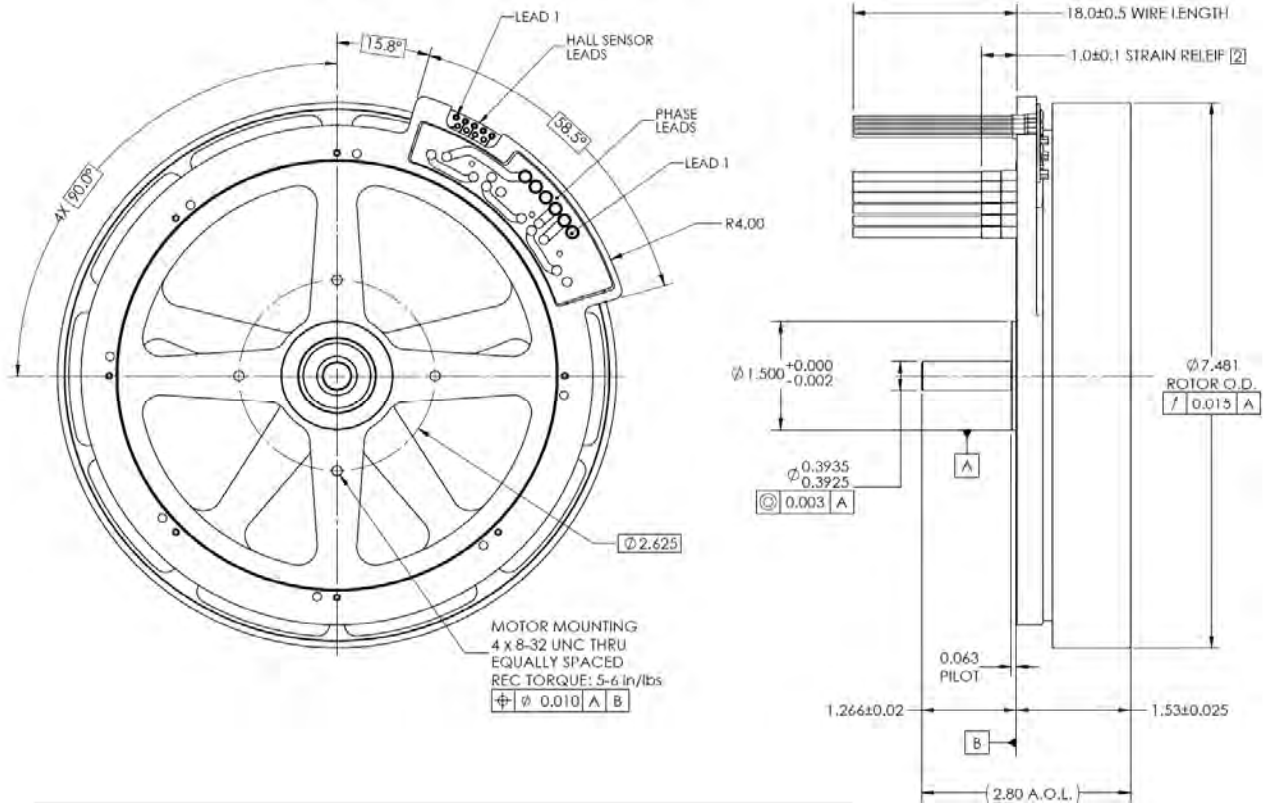
## BRUSHLESS PERMANENT MAGNET MACHINE

### MECHANICAL SPECIFICATIONS

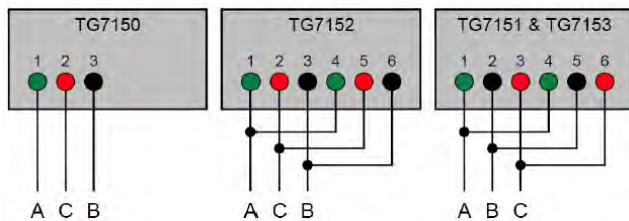
Max outer diameter	in (mm)	7.483 (190)
Through hole diameter	in (mm)	6.341 (161)
Total axial height	in (mm)	1.539 (39)
Rotor mass	lbs (kg)	1.875 (0.851)
Stator mass	lbs (kg)	0.504 (0.228)
Partset mass (rotor & stator)	lbs (kg)	2.379 (1.079)
Total motor assembly mass	lbs (kg)	3.5 (1.588)
Rotor Inertia	lbm-ft <sup>2</sup> (kg-m <sup>2</sup> )	1.62E-1 (6.84E-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