



## Product Data Sheet TG7140 DC BRUSHLESS MOTOR

### High Power & Torque Density

- ▶ Continuous Torque: 3.33 lbf-ft
- ▶ Continuous Power: 5.16 hp
- ▶ Continuous P/W Ratio: 2.74 hp/lb

### Mechanically Flexible

- ▶ Available as framless part set and complete motor
- ▶ Low profile ironless composite stator
- ▶ Easily integrated into a variety of applications

### Smooth & Efficient

- ▶ Zero Cogging Torque
- ▶ Zero Hysteresis Torque



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Call for a proposal – all motors are highly customizable for OEM applications

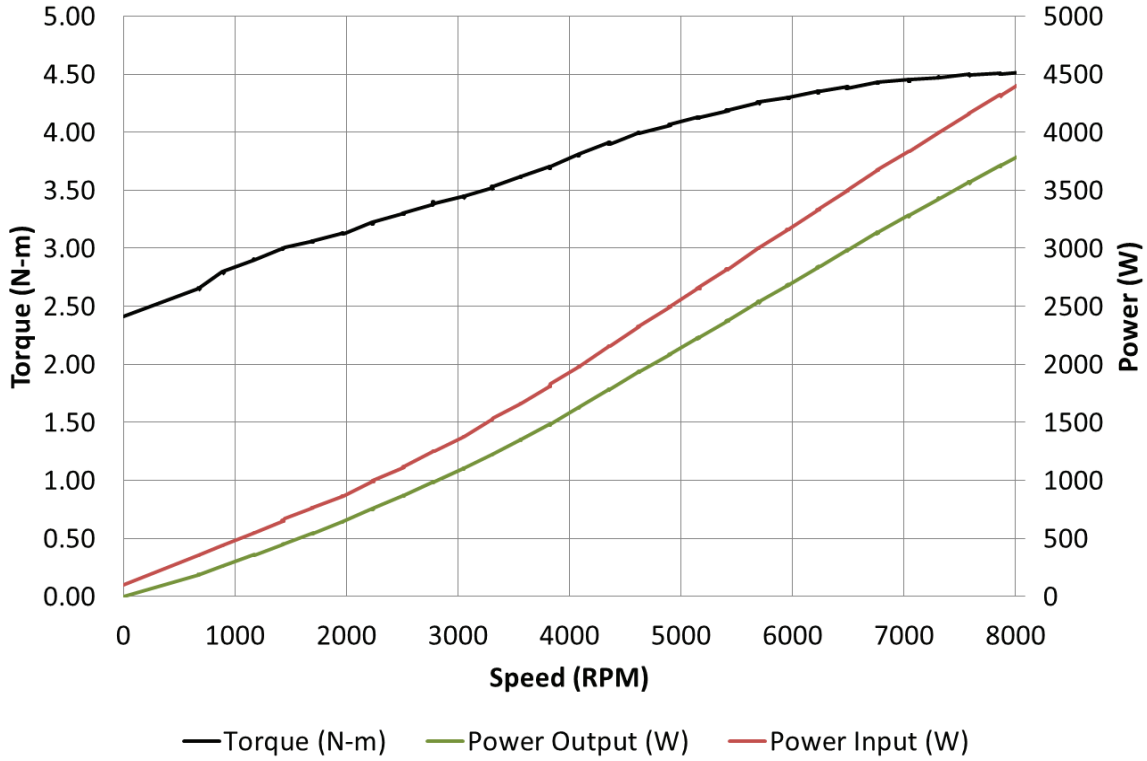
# Detailed Data: TG7140 BLDC Motor

	UNITS		ENGLISH		SI
<b>Continuous Values</b>					
Voltage	Vcont	160	Vdc	160	Vdc
Shaft Power	Pcont	5.16	hp	3,850	W
Power Density	-	2.74	hp/lb	4.51	KW/kg
Speed	$\omega$ cont	8,141	RPM	8,141	RPM
Torque	Tcont	3.33	lbf-ft	4.52	N-m
Current	Icont	28	Amps	28	Amps
<b>Other Values</b>					
Maximum Locked Rotor Torque	Tlr	1.78	lbf-ft	2.41	N-m
Maximum Locked Rotor Current	Ilr	14.1	Amps	14.1	Amps
No Load Voltage					
No Load Speed					
No Load current					
Torque Constant	Kt	0.13	lbf-ft/Amp	0.17	Nm/Amp
Back EMF Constant	Kv	0.183	Vdc/rad/sec	0.183	Vdc/rad/sec
Back EMF Constant	Ke	52.18	RPM/Vdc	52.18	RPM/Vdc
Terminal Resistance	Rt	0.239	ohms	0.239	ohms
Cogging and Hysteresis Torque	Tc/Th	0.00	lbf-ft	0.00	N-m
Viscous Drag Torque					
Friction Torque					
Stator Inductance	L	17.6	$\mu$ H	17.6	$\mu$ H
Mechanical Time Constant					
Electrical Time Constant					
Maximum System Efficiency	$\eta$	87	%	87	%
Motor Weight (Rotor + Stator)	Wt	1.88	lbm	854	gm
Rotor Inertia	J	5.93E-01	oz-in.-sec <sup>2</sup>	4.19E-03	Kg-m <sup>2</sup>
Max Rotor Temperature	-	176	°F	80	°C
Max Stator Winding Temperature	-	266	°F	130	°C
<b>Dimensions</b>					
Rotor O.D.		7.16	inches	18.18	cm
Rotor I.D.		6.33	inches	16.08	cm
Stator Hole I.D.		6.47	inches	16.42	cm
Stator O.D.		6.75	inches	17.15	cm
Shaft Diameter			inches		cm
Axial Length			inches		cm
<b>Weights</b>					
Rotor		1.27	lbm	577	g
Stator		0.61	lbm	278	g
Hub			lbm		g
Shaft			lbm		g
Mount w/Bearings			lbm		g
Total		1.88	lbm	854	g

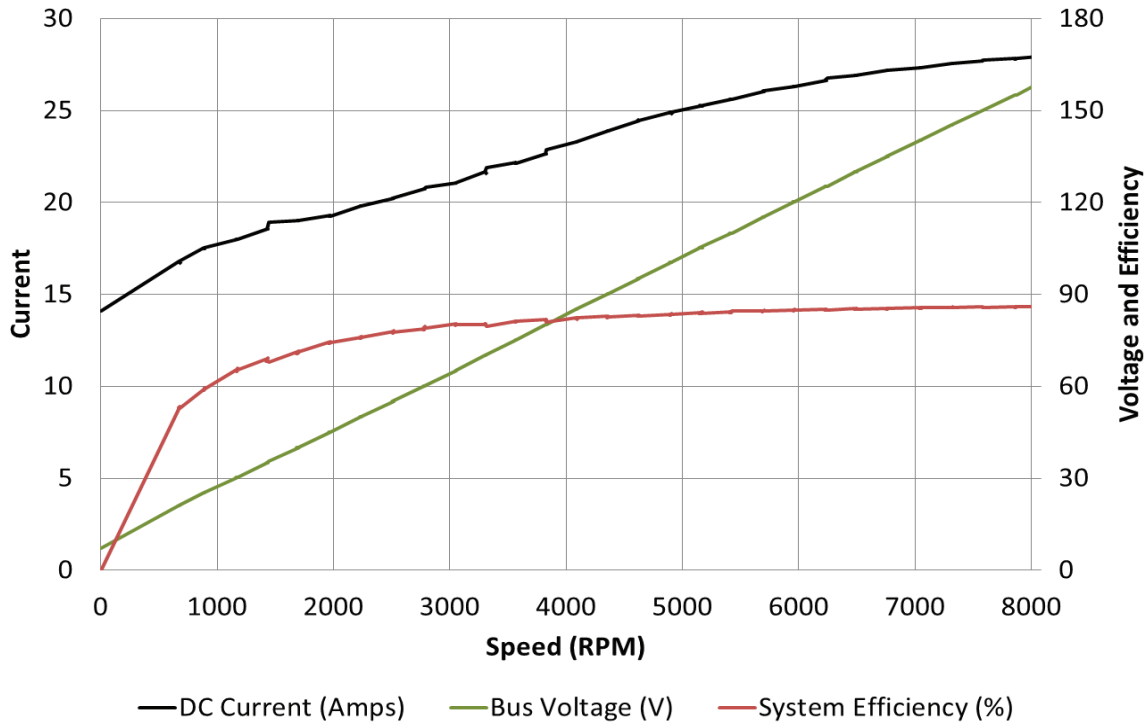
- ▶ See plots of continuous values versus speed for application design. Continuous values taken in open-to-air configuration.
- ▶ Test performed in lab mounted to aluminum test stand load applied through a dynamometer with ambient temperature of 22C.
- ▶ Test performed using trapezoidal commutation at 100% duty cycle.

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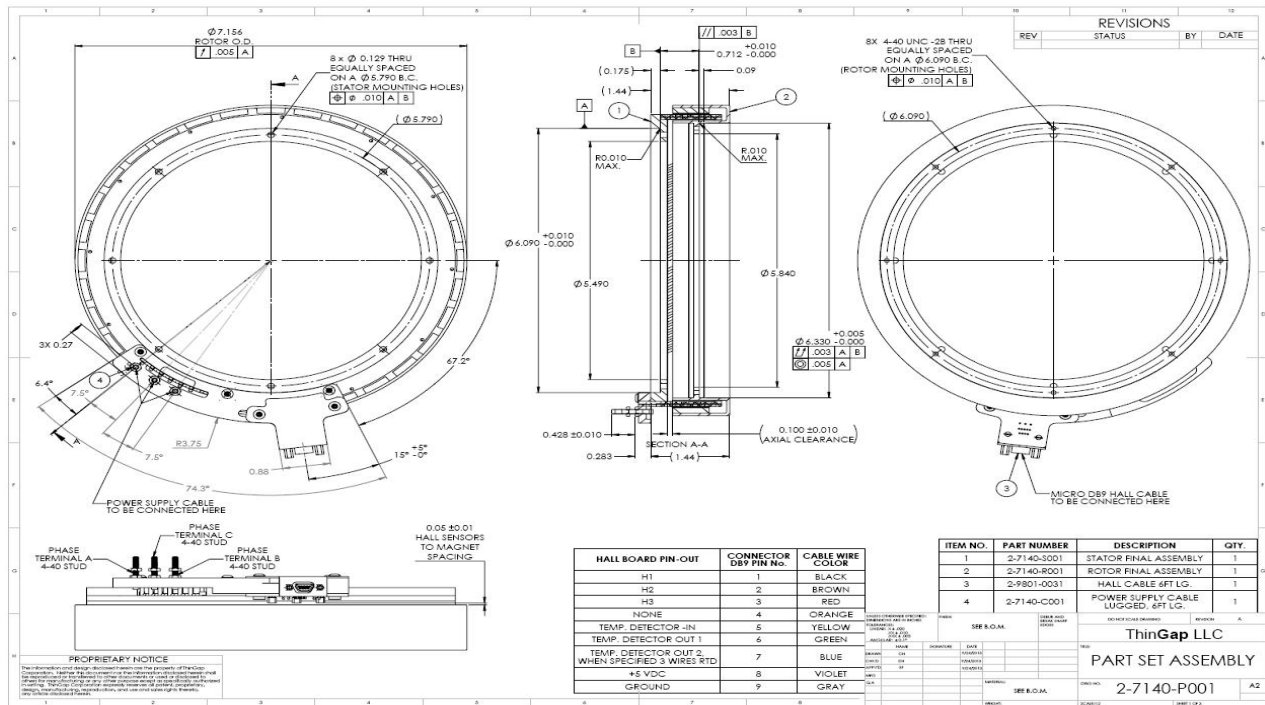
### Max Continuous Power and Torque VS Speed



### Max Continuous Current, Voltage and Efficiency VS Speed



# Part Set: TG7140 BLDC Motor



## Mounting Options: TG7140 BLDC Motor

Shown below is ThinGap's off-the-shelf mounting option. Please note that there are other mounting options available to fit custom designs.

