



# 5441S005

Brushless DC Servo Motor

Assembly Data	Symbol	Units	Value	
Reference Voltage	E	V	12	
No-Load Speed	S <sub>NL</sub>	rpm (rad/s)	5,025	(526)
Continuous Torque (Max.) <sup>1</sup>	T <sub>C</sub>	oz-in (N-m)	25	(1.8E-01)
Peak Torque (Stall) <sup>2</sup>	T <sub>PK</sub>	oz-in (N-m)	171	(1.2E+00)
Weight	W <sub>M</sub>	oz (g)	25	(709)
Motor Data				
Torque Constant	K <sub>T</sub>	oz-in/A (N-m/A)	2.96	(2.09E-02)
Back-EMF Constant	K <sub>E</sub>	V/krpm (V/rad/s)	2.19	(2.09E-02)
Resistance	R <sub>T</sub>	Ω	0.25	
Inductance	L	mH	0.06	
No-Load Current	I <sub>NL</sub>	A	0.14	
Peak Current (Stall) <sup>2</sup>	I <sub>P</sub>	A	48.0	
Motor Constant <sup>2</sup>	K <sub>M</sub>	oz-in/√W (N-m/√W)	6.88	(4.86E-02)
Friction Torque	T <sub>F</sub>	oz-in (N-m)	0.42	(3.0E-03)
Rotor Inertia	J <sub>M</sub>	oz-in-s <sup>2</sup> (kg-m <sup>2</sup> )	2.5E-03	(1.7E-05)
Electrical Time Constant	τ <sub>E</sub>	ms	0.30	
Mechanical Time Constant	τ <sub>M</sub>	ms	7.4	
Viscous Damping	D	oz-in/krpm (N-m-s)	0.190	(1.3E-05)
Damping Constant	K <sub>D</sub>	oz-in/krpm (N-m-s)	35.0	(2.4E-03)
Maximum Winding Temperature	θ <sub>MAX</sub>	°F (°C)	266	(130)
Thermal Impedance	R <sub>TH</sub>	°F/watt (°C/watt)	41	(4.8)
Thermal Time Constant	τ <sub>TH</sub>	min	14.0	
Gearbox Data				
Encoder Data				
Channels			3	
Resolution		CPR	500	

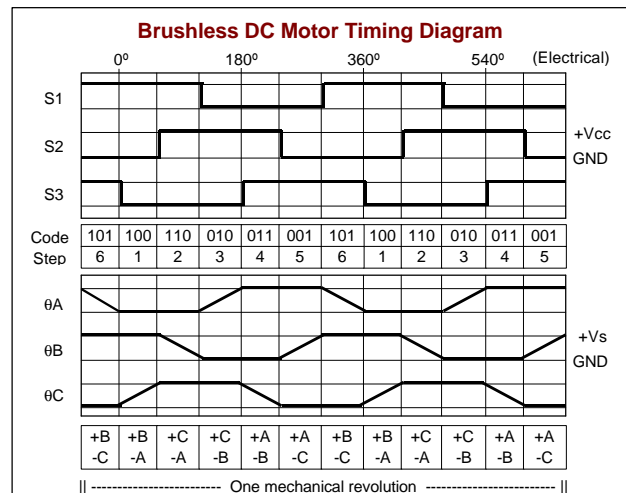
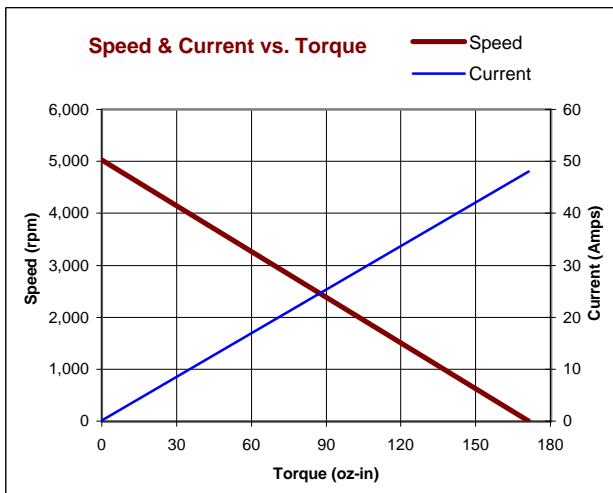
1 - Specified at max. winding temperature at 25°C ambient without heat sink. 2 - Theoretical values supplied for reference only.

### Included Features

- 4-Pole Rotor
- Neodymium Magnets
- 3-Phase Slotless Stator
- Rugged Metal Housings
- Stainless Steel Shaft
- Ball Bearings
- Hall Sensors

### Customization Options

- Alternate Winding
- Modified Output Shaft
- Custom Cable Assembly
- Spur or Planetary Gearbox
- Optional Encoder
- Fail-Safe Brake



All values are nominal. Specifications subject to change without notice. Graphs are shown for reference only.

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