

# 9233S013

Lo-Cog® DC Motor



Assembly Data	Symbol	Units	Value	
Reference Voltage	E	V	24	
No-Load Speed	S <sub>NL</sub>	rpm (rad/s)	5,993	(628)
Continuous Torque (Max.) <sup>1</sup>	T <sub>C</sub>	oz-in (N-m)	4.7	(3.3E-02)
Peak Torque (Stall) <sup>2</sup>	T <sub>PK</sub>	oz-in (N-m)	32	(2.2E-01)
Weight	W <sub>M</sub>	oz (g)	9	(252)
Motor Data				
Torque Constant	K <sub>T</sub>	oz-in/A (N-m/A)	5.28	(3.73E-02)
Back-EMF Constant	K <sub>E</sub>	V/krpm (V/rad/s)	3.90	(3.73E-02)
Resistance	R <sub>T</sub>	Ω	3.94	
Inductance	L	mH	3.29	
No-Load Current	I <sub>NL</sub>	A	0.15	
Peak Current (Stall) <sup>2</sup>	I <sub>P</sub>	A	6.09	
Motor Constant	K <sub>M</sub>	oz-in/√W (N-m/√W)	2.66	(1.88E-02)
Friction Torque	T <sub>F</sub>	oz-in (N-m)	0.60	(4.2E-03)
Rotor Inertia	J <sub>M</sub>	oz-in-s <sup>2</sup> (kg-m <sup>2</sup> )	4.6E-04	(3.2E-06)
Electrical Time Constant	τ <sub>E</sub>	ms	0.84	
Mechanical Time Constant	τ <sub>M</sub>	ms	9.3	
Viscous Damping	D	oz-in/krpm (N-m-s)	0.034	(2.3E-06)
Damping Constant	K <sub>D</sub>	oz-in/krpm (N-m-s)	5.2	(3.5E-04)
Maximum Winding Temperature	θ <sub>MAX</sub>	°F (°C)	311	(155)
Thermal Impedance	R <sub>TH</sub>	°F/watt (°C/watt)	66.4	(19.1)
Thermal Time Constant	τ <sub>TH</sub>	min	11.1	
Gearbox Data				
Encoder Data				

**Included Features**

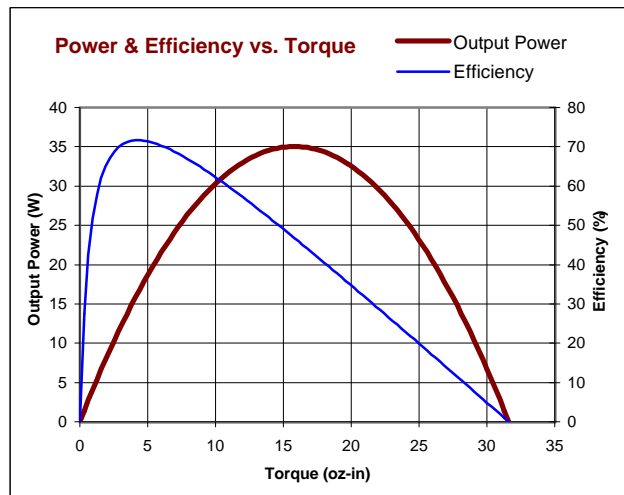
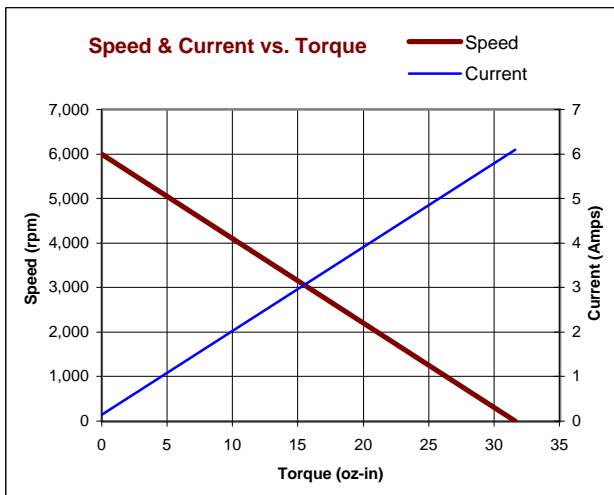
- 2-Pole Stator
- Ceramic Magnets
- Heavy-Gauge Steel Housing
- 7-Slot Armature
- Silicon Steel Laminations
- Stainless Steel Shaft
- Copper-Graphite Brushes
- Diamond Turned Commutator
- Motor Ball Bearings

---

**Customization Options**

- Alternate Winding
- Sleeve or Ball Bearings
- Modified Output Shaft
- Custom Cable Assembly
- Special Brushes
- EMI/RFI Suppression
- Spur or Planetary Gearbox
- Special Lubricant
- Optional Encoder
- Fail-Safe Brake

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



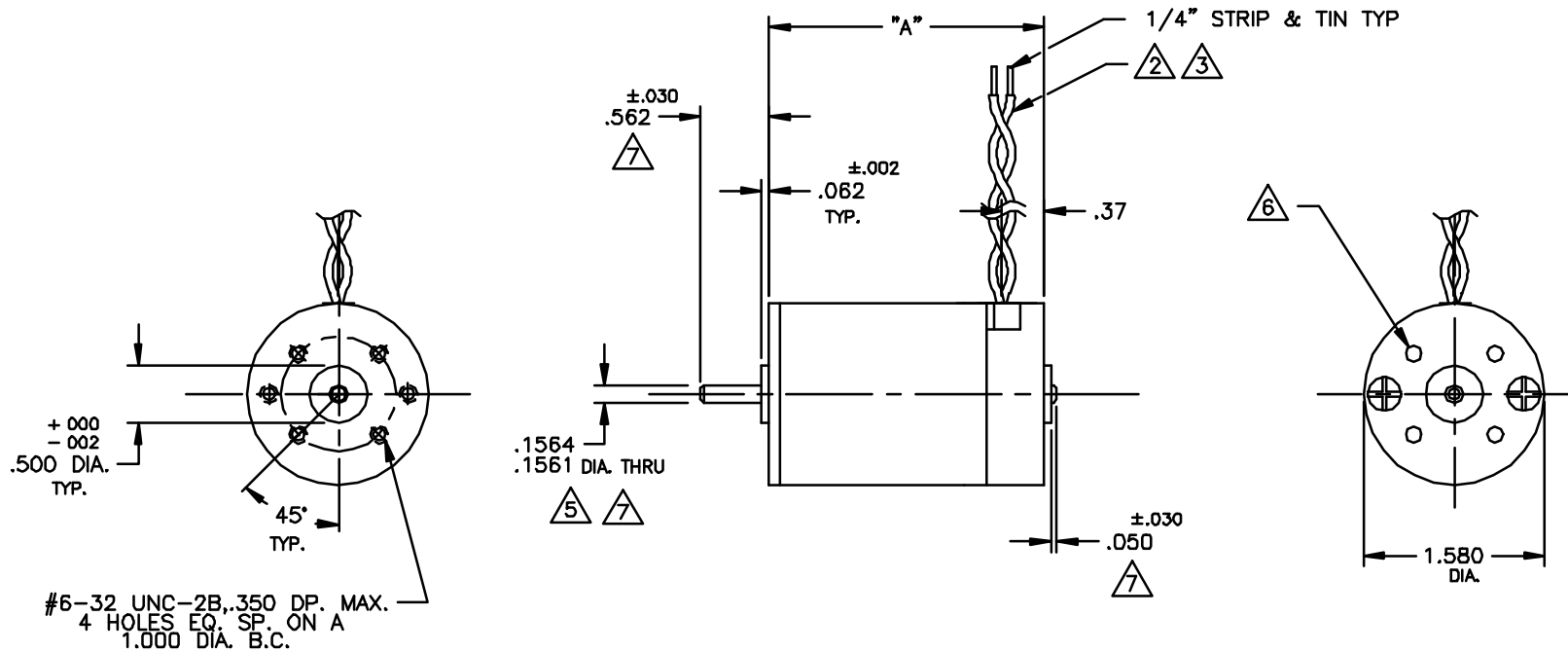
All values are nominal. Specifications subject to change without notice. Graphs are shown for reference only.

© 2001 Pittman.

# UNCONTROLLED

NOTICE: CONFIDENTIAL PROPRIETARY INFORMATION THIS PRINT CONTAINS IDEAS, INFORMATION, AND INTELLECTUAL PROPERTY WHICH ARE THE EXCLUSIVE PROPERTY OF PITTMAN, DIVISION OF PENN ENGINEERING & MANUFACTURING CORP. RECIPIENT MUST KEEP THE INFORMATION DISCLOSED HEREIN CONFIDENTIAL AND RECIPIENT IS EXPRESSLY PROHIBITED FROM COPYING OR PUBLICATION OF THIS PRINT EXCEPT TO OTHERS IN THEIR ORGANIZATION ON A NEED-TO-KNOW BASIS.

REVISIONS				
LTR	DESCRIPTION	DRFT/ENGR	DATE	APPR
D	REDRAWN & REVISED	RJS/RJS	3/20/96	JRM
E	1/4" STRIP & TIN WAS "STRIP"	KUH/KUH		



#6-32 UNC-2B,.350 DP. MAX.  
4 HOLES EQ. SP. ON A  
1.000 DIA. B.C.

**NOTES:**

1. SHAFT ROTATION IS CW VIEWING MOUNTING END WITH POSITIVE (+) VOLTAGE APPLIED TO RED LEAD.
- ② LEADS ARE 22 AWG (7X30) PVC INSULATION, UL STYLE 1569/1007. RED AND BLACK
- ③ STANDARD LEAD LENGTH IS 18" ±1/2"
4. ENDPLAY-.015 MAX. FOR SLEEVE BEARING MOTORS. BALL BEARING MOTORS ARE PRE-LOADED PER SPEC. P-107
- ⑤ OPTIONAL SHAFT DIA. .1246/.1243 IS AVAILABLE ONLY WITH THE 94X2 AND 94X3 MOTOR LENGTHS.
- ⑥ OPTIONAL REAR ENDBELL MOUNTING PATTERN #6-32 UNC-2B, .180 MAX THREAD PENETRATION, 4 HOLES EQ. SP. ON A 1.000 DIA B.C.
- ⑦ ALL SHAFT DIMENSIONS NOTED ARE STANDARD (10-631-00 ): FOR ALL OTHER SHAFT CONFIGURATIONS REFER TO DATA SHEET FOR PART #'S

3.053	92X6
2.703	92X5
2.403	92X4
2.203	92X3
1.828	92X2
"A" MAX	MODEL No.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTION DECIMAL ANGLES ±1/84 ±.015 ±1°		FILE:		
BREAK ALL SHARP EDGES		DRAFTED BY: RJS	DATE: 3/20/95	<b>TITLE:</b> OUTLINE AND MTG. DIMS. 92XX SERIES MOTOR
MATERIAL:		ENGINEERED BY: RJS	APPROVED BY:	
FINISH:		USED ON:	NEXT ASSY:	<b>DWG. NO.</b> B- 150-409
SCALE: NONE				REV. E SHEET 1