

## 3442S003-R3

Brushless DC Servo Motor

Assembly Data	Symbol	Units	Value	
Reference Voltage	E	V	19.1	
No-Load Speed	$S_{NL}$	rpm (rad/s)	7,400	(775)
Continuous Torque (Max.) <sup>1</sup>	$T_C$	oz-in (N-m)	5.8	(4.1E-02)
Peak Torque (Stall) <sup>2</sup>	$T_{PK}$	oz-in (N-m)	26	(1.8E-01)
Weight	$W_M$	oz (g)	10	(295)
Motor Data				
Torque Constant	$K_T$	oz-in/A (N-m/A)	3.44	(2.43E-02)
Back-EMF Constant	$K_E$	V/krpm (V/rad/s)	2.54	(2.43E-02)
Resistance	$R_T$	$\Omega$	2.67	
Inductance	L	mH	0.29	
No-Load Current	$I_{NL}$	A	0.12	
Peak Current (Stall) <sup>2</sup>	$I_P$	A	7.16	
Motor Constant <sup>2</sup>	$K_M$	oz-in/ $\sqrt{W}$ (N-m/ $\sqrt{W}$ )	2.07	(1.46E-02)
Friction Torque	$T_F$	oz-in (N-m)	0.14	(9.9E-04)
Rotor Inertia	$J_M$	oz-in-s <sup>2</sup> (kg-m <sup>2</sup> )	2.0E-04	(1.4E-06)
Electrical Time Constant	$\tau_E$	ms	0.12	
Mechanical Time Constant	$\tau_M$	ms	6.1	
Viscous Damping	D	oz-in/krpm (N-m-s)	0.037	(2.5E-06)
Damping Constant	$K_D$	oz-in/krpm (N-m-s)	3.5	(2.4E-04)
Maximum Winding Temperature	$\theta_{MAX}$	$^{\circ}F$ ( $^{\circ}C$ )	266	(130)
Thermal Impedance	$R_{TH}$	$^{\circ}F/watt$ ( $^{\circ}C/watt$ )	46	(7.9)
Thermal Time Constant	$\tau_{TH}$	min	15.3	
Gearbox Data				
Encoder Data				
Channels			3	
Resolution		CPR	500	

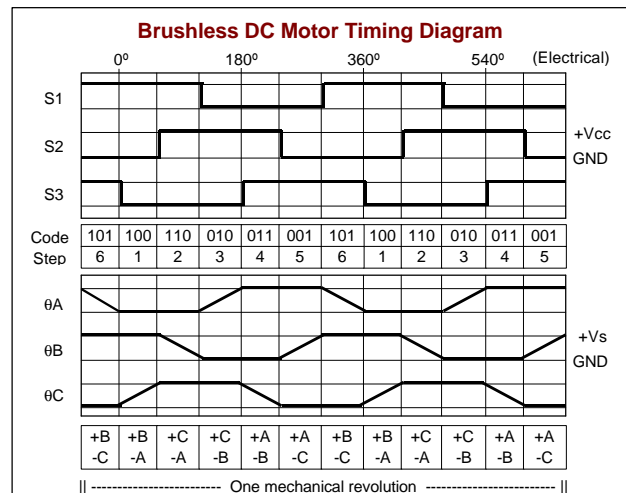
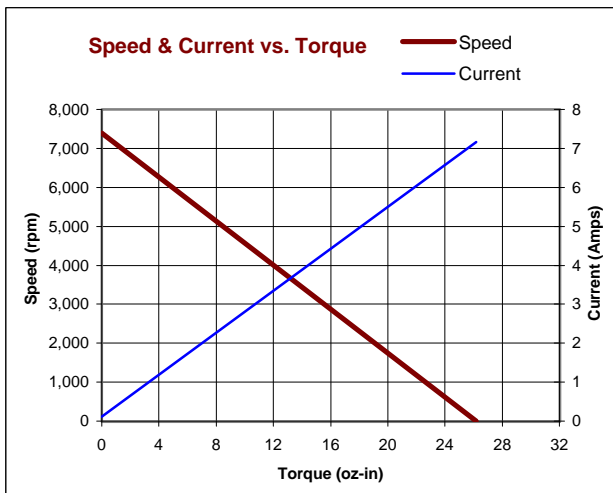
1 - Specified at max. winding temperature at 25°C ambient without heat sink. 2 - Theoretical values supplied for reference only.

### 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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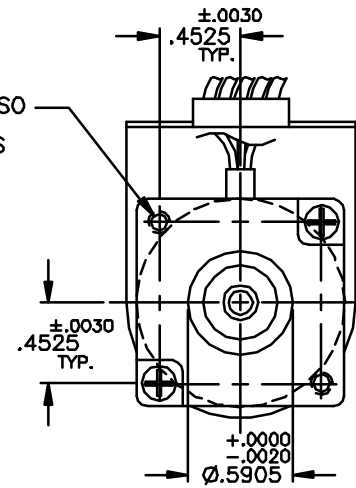
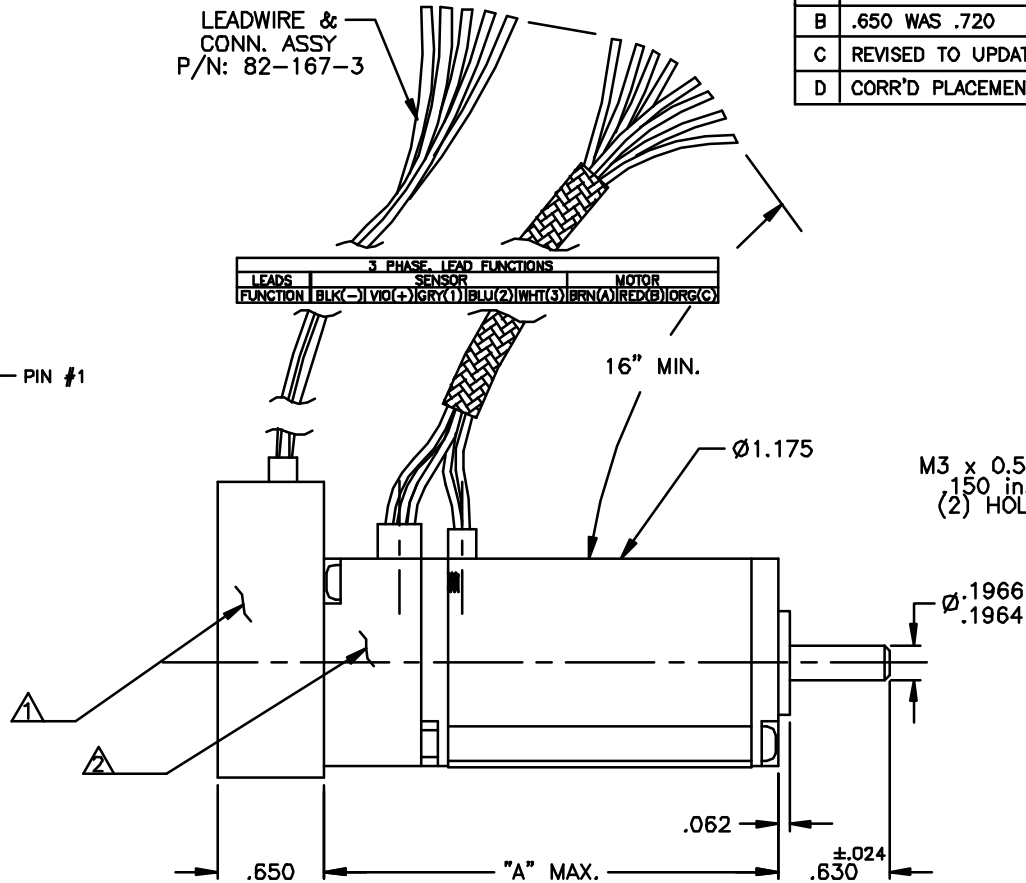
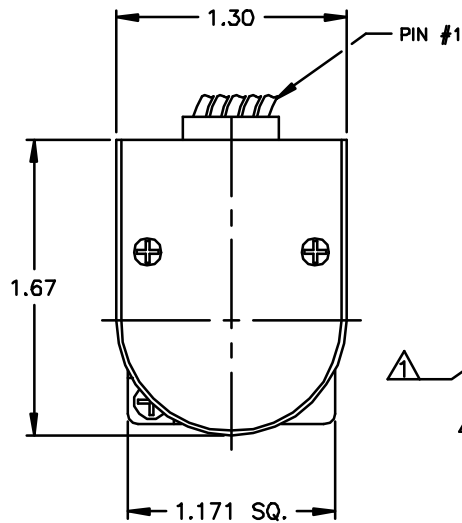
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REVISIONS				
LTR	DESCRIPTION	DRFT/ENGR	DATE	APPR
A	PRODUCTION RELEASE	DCS/DCS	12/2/96	S.D.
B	.650 WAS .720	DCS/DCS	12/30/96	S.D.
C	REVISED TO UPDATED DESIGN PER E.C.O.	DCS/DCS	9/12/97	JVM
D	CORR'D PLACEMENT OF SENSE SCREW ENDS	DCS/DCS		

ENCODER P/N CONNECTION CHART		
COLOR	PIN No.	CONNECTION
BLACK	1	GROUND
GREEN	2	INDEX
YELLOW	3	CHANNEL A
RED	4	Vcc
BLUE	5	CHANNEL B

LEADWIRE & CONN. ASSY  
P/N: 82-167-3

3 PHASE LEAD FUNCTIONS		
LEADS	SENSOR	MOTOR
FUNCTION	BLK(-)   VIO(+) GRY(1) BLU(2) WHT(3)	BRN(A) RED(B) ORG(C)



2.782	3442
2.382	3441
"A"	MODEL No.

NOTE(S):

- 1. ENCLOSED IS A HEWLETT PACKARD OPTICAL ENCODER MODEL HEDS-9140.
- 2. ENCLOSED IS A 3 PHASE (LO-TEMP) HALL SENSE ASSEMBLY.
- 3. BALL BEARINGS ARE PRELOADED SO THAT 4.0 LBS. AXIAL FORCE SHALL YIELD .002 TO .008 AXIAL SHAFT MOVEMENT.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTION DECIMAL ANGLES ±1/64 .015 ±1° XX ±010 XXX±005 BREAK ALL SHARP EDGES	FILE: 150\528 DRAFTED BY: DCS ENGINEERED BY: DCS APPROVED BY: S.D. NEXT ASSY:	DATE: 11/28/96 DATE: 11/28/96 DATE: 12/2/96
MATERIAL:	USED ON:	
FINISH:		

**PITTMAN**  
Pittman Engineering & Manufacturing Corp.  
2800 Rockledge Drive, PA 15106

TITLE:  
OUTLINE & MOUNTING DIMENSIONS  
STD 30MM GOLD W/9140

DWG. NO. B-150-528  
SCALE: NONE SHEET 1

REV. D