



## GM8724S011

Lo-Cog® DC Servo Gearmotor

Assembly Data	Symbol	Units	Value	
Reference Voltage	E	V	24	
No-Load Speed	S <sub>NL</sub>	rpm (rad/s)	720	(75.4)
Continuous Torque (Max.) <sup>1</sup>	T <sub>C</sub>	oz-in (N-m)	15	(1.0E-01)
Peak Torque (Stall) <sup>2</sup>	T <sub>PK</sub>	oz-in (N-m)	42	(3.0E-01)
Weight	W <sub>M</sub>	oz (g)	11.2	(316)
Motor Data				
Torque Constant	K <sub>T</sub>	oz-in/A (N-m/A)	6.18	(4.36E-02)
Back-EMF Constant	K <sub>E</sub>	V/krpm (V/rad/s)	4.57	(4.36E-02)
Resistance	R <sub>T</sub>	Ω	17.0	
Inductance	L	mH	9.35	
No-Load Current	I <sub>NL</sub>	A	0.09	
Peak Current (Stall) <sup>2</sup>	I <sub>P</sub>	A	1.41	
Motor Constant	K <sub>M</sub>	oz-in/√W (N-m/√W)	1.49	(1.05E-02)
Friction Torque	T <sub>F</sub>	oz-in (N-m)	0.35	(2.5E-03)
Rotor Inertia	J <sub>M</sub>	oz-in-s <sup>2</sup> (kg-m <sup>2</sup> )	2.3E-04	(1.6E-06)
Electrical Time Constant	τ <sub>E</sub>	ms	0.54	
Mechanical Time Constant	τ <sub>M</sub>	ms	14.7	
Viscous Damping	D	oz-in/krpm (N-m-s)	0.020	(1.4E-06)
Damping Constant	K <sub>D</sub>	oz-in/krpm (N-m-s)	1.6	(1.1E-04)
Maximum Winding Temperature	θ <sub>MAX</sub>	°F (°C)	311	(155)
Thermal Impedance	R <sub>TH</sub>	°F/watt (°C/watt)	70.5	(21.4)
Thermal Time Constant	τ <sub>TH</sub>	min	10.7	
Gearbox Data				
Reduction Ratio			6.3	
Efficiency <sup>3</sup>			0.95	
Maximum Allowable Torque		oz-in (N-m)	100	(0.71)
Encoder Data				
Channels			3	
Resolution		CPR	500	

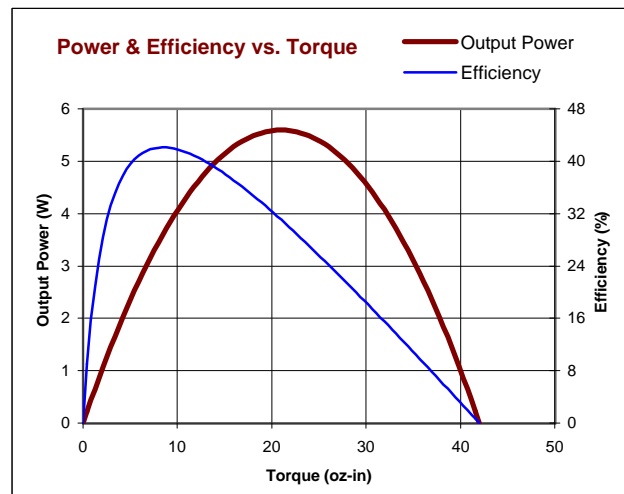
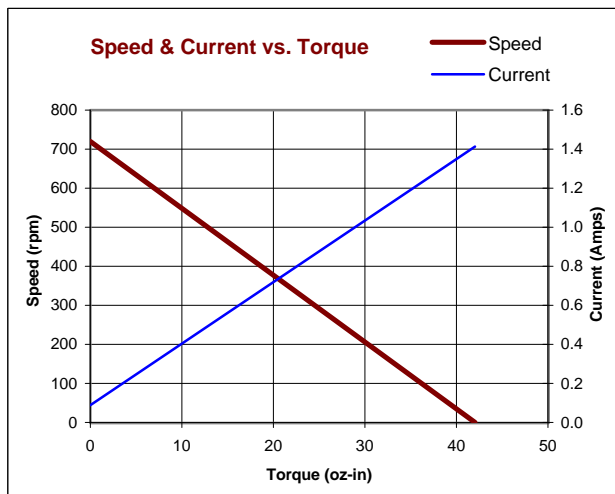
1 - Specified at max. winding temperature at 25°C ambient without heat sink. 2 - Theoretical values supplied for reference only.  
3 - Effective gearbox efficiency for this unit improved by use of ball bearings.

### 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
- Output Ball Bearing
- Standard Gears

### Customization Options

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

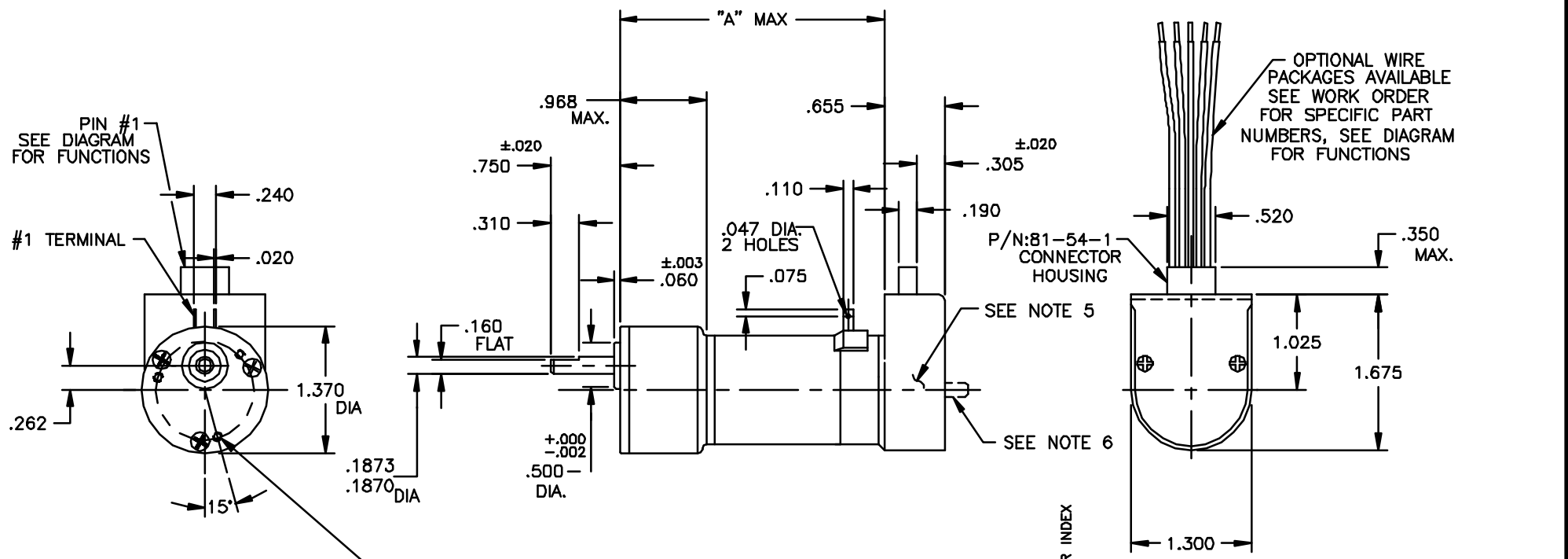


All values are nominal. Specifications subject to change without notice. Graphs are shown for reference only.

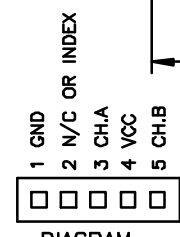
© 2001 Pittman.

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
B	REDRAWN, UPDATED	DLF/DLF		



OPTIONAL WIRE PACKAGES AVAILABLE SEE WORK ORDER FOR SPECIFIC PART NUMBERS, SEE DIAGRAM FOR FUNCTIONS



187.7/96.0:1	CCW	GM87X4	3.230
60.5/31:1	CW	GM87X3	2.980
19.5/10:1	CCW	GM87X2	2.855
6.3:1	CW	MODEL	"A"
GEAR RATIO	SHAFT ROTATION	"A" MAX	

- NOTES:
1. SHAFT ROTATION IS DETERMINED WITH POSITIVE VOLTAGE (+) ON #1 TERMINAL, WHILE LOOKING AT MOUNTING END.
  2. MOTOR IS PRELOADED BALL BEARINGS PER P-107,.020 MAX. ON OUTPUT SHAFT.
  3. MAX. GEARBOX TORQUE RATING IS 100 oz.in. STANDARD GEARBOX, 160 oz.in. FOR CUT STEEL.
  4. TERMINALS ARE TIN PLATED FOR SOLDERING, WILL MATE WITH .110 PUSH-ON RECEPTACLE.
  5. ENCLOSED IS A HEDS-91X0 OPTICAL ENCODER.
  6. OPTIONAL REAR SHAFT EXTENSIONS AVAILABLE.
  7. ENCODER LEAD CONNECTIONS TO BE DONE PER INDIVIDUAL LEAD WIRE DRAWING.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTION DECIMAL ANGLES ±1/64 ±.015 ±1° ±.001 ±.010 ±1° ±.001 ±.005		FILE: 150\306		
MATERIAL:	DRAFTED BY: DLF	DATE: 15 JUL 94	TITLE: OUTLINE AND MOUNTING DIMENSIONS GM8700 W/9100, STANDARD	
FINISH:	ENGINEERED BY: DLF	15 JUL 94	DWG. NO. B- 150-306	REV. B
	APPROVED BY:		SCALE: NONE	SHEET 1 OF 1