PittmanExpress™

GM8724S009

Lo-Cog® DC Servo Gearmotor

| Assembly Data	Symbol	Units	Value	
Reference Voltage	E	V	12	
No-Load Speed	S_{NL}	rpm (rad/s)	720	(75.4)
Continuous Torque (Max.)[1]	T_C	oz-in (N-m)	15	(1.0E-01)
Peak Torque (Stall)[2]	T_{PK}	oz-in (N-m)	42	(3.0E-01)
Weight	W_M	oz (g)	11.2	(316)
Motor Data				
Torque Constant	K_T	oz-in/A (N-m/A)	3.09	(2.18E-02)
Back-EMF Constant	K_E	V/krpm (V/rad/s)	2.29	(2.18E-02)
Resistance	R_T	Ω	4.33	
Inductance	L	mH	2.34	
No-Load Current	I_{NL}	A	0.18	
Peak Current (Stall)[2]	I_P	A	2.77	
Motor Constant	K_M	oz-in/√W (N-m/√W)	1.49	(1.05E-02)
Friction Torque	T_F	oz-in (N-m)	0.35	(2.5E-03)
Rotor Inertia	J_M	oz-in-s² (kg-m²)	2.3E-04	(1.6E-06)
Electrical Time Constant	τ_E	ms	0.54	
Mechanical Time Constant	τ_M	ms	14.7	
Viscous Damping	D	oz-in/krpm (N-m-s)	0.020	(1.4E-06)
Damping Constant	K_D	oz-in/krpm (N-m-s)	1.6	(1.1E-04)
Maximum Winding Temperature	θ_{MAX}	°F (°C)	311	(155)
Thermal Impedance	R_{TH}	°F/watt (°C/watt)	70.5	(21.4)
Thermal Time Constant	τ_{TH}	min	10.7	
Gearbox Data				
Reduction Ratio			6.3	
Efficiency[3]			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 25ºC 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-Guage 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
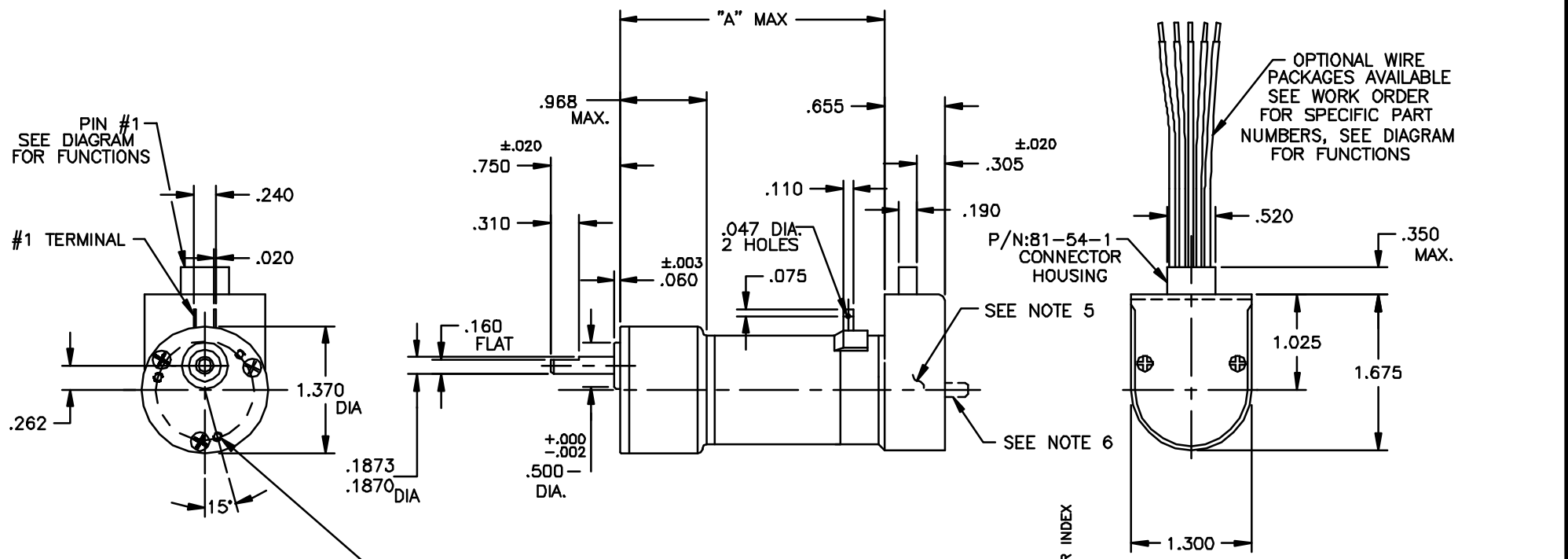Special Lubricant
Optional Encoder
Fail-Safe Brake

Speed & Current vs. Torque
— Speed
— Current

Power & Efficiency vs. Torque
— Output Power
— Efficiency
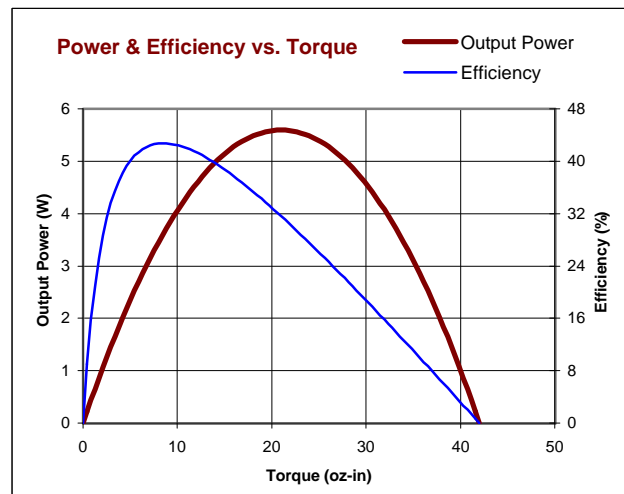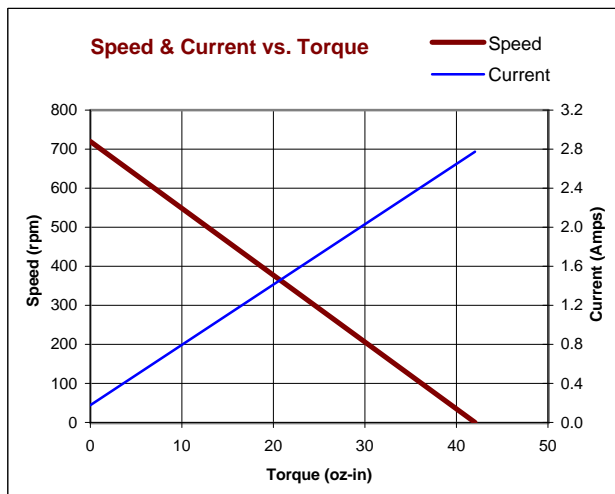
All values are nominal. Specifications subject to change without notice.   Graphs are shown for reference only.   © 2001 Pittman.
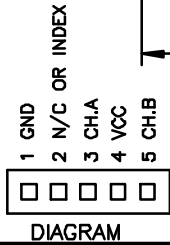
	REVISIONS			
LTR	DESCRIPTION	DRFT/ENGR	DATE	APPR
B	REDRAWN, UPDATED	DLF/DLF		

"A" MAX

.968 MAX.
.655
.750 ±.020
.310
±.003 .060
.160 FLAT
+.000 -.002 .500 DIA.
.1873 .1870 DIA

.047 DIA. 2 HOLES
.110
.075

±.020 .305
.190

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

.520
.350 MAX.

P/N:81-54-1 CONNECTOR HOUSING

SEE NOTE 5
SEE NOTE 6

1.025
1.675
1.300

PIN #1 SEE DIAGRAM FOR FUNCTIONS
#1 TERMINAL
.240
.020
.262
1.370 DIA
15°

#4-40 UNC-2B
.210 DP. REF.
3 HOLES EQ. SP.
ON A 1.062
DIA. B.C.

DIAGRAM

1 GND	2 N/C OR INDEX	3 CH.A	4 VCC	5 CH.B

GEAR RATIO	SHAFT ROTATION	MODEL	"A"
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:		FILE: 150\306	
FRACTION ±1/64	DECIMAL .X ±.015 .XX ±.010 .XXX±.005	ANGLES ±1°	
		DRAFTED BY DLF	DATE 15 JUL 94
BREAK ALL SHARP EDGES		ENGINEERED BY DLF	15 JUL 94
MATERIAL:		APPROVED BY	
		NEXT ASSY:	
FINISH:		USED ON:	

PITTMAN

TITLE:
OUTLINE AND MOUNTING DIMENSIONS
GM8700 W/9100, STANDARD

DWG. NO. B- 150-306	REV. B
SCALE: NONE	SHEET 1 OF 1