



GM9413-5

Lo-Cog® DC Gearmotor

Assembly Data	Symbol	Units	Value	
Reference Voltage	E	V	12	
No-Load Speed	S _{NL}	rpm (rad/s)	4	(0.4)
Continuous Torque (Max.) ¹	T _C	oz-in (N-m)	175	(1.2E+00)
Peak Torque (Stall) ²	T _{PK}	oz-in (N-m)	2913	(2.1E+01)
Weight	W _M	oz (g)	16.3	(463)
Motor Data				
Torque Constant	K _T	oz-in/A (N-m/A)	5.60	(3.95E-02)
Back-EMF Constant	K _E	V/krpm (V/rad/s)	4.14	(3.95E-02)
Resistance	R _T	Ω	8.33	
Inductance	L	mH	6.17	
No-Load Current	I _{NL}	A	0.10	
Peak Current (Stall) ²	I _P	A	1.44	
Motor Constant	K _M	oz-in/√W (N-m/√W)	1.94	(1.37E-02)
Friction Torque	T _F	oz-in (N-m)	0.50	(3.5E-03)
Rotor Inertia	J _M	oz-in-s ² (kg-m ²)	3.9E-04	(2.8E-06)
Electrical Time Constant	τ _E	ms	0.74	
Mechanical Time Constant	τ _M	ms	14.7	
Viscous Damping	D	oz-in/krpm (N-m-s)	0.011	(7.6E-07)
Damping Constant	K _D	oz-in/krpm (N-m-s)	2.8	(1.9E-04)
Maximum Winding Temperature	θ _{MAX}	°F (°C)	311	(155)
Thermal Impedance	R _{TH}	°F/watt (°C/watt)	66.4	(19.1)
Thermal Time Constant	τ _{TH}	min	11.1	
Gearbox Data				
Reduction Ratio			728.1	
Efficiency			0.53	
Maximum Allowable Torque		oz-in (N-m)	175	(1.24)
Encoder Data				

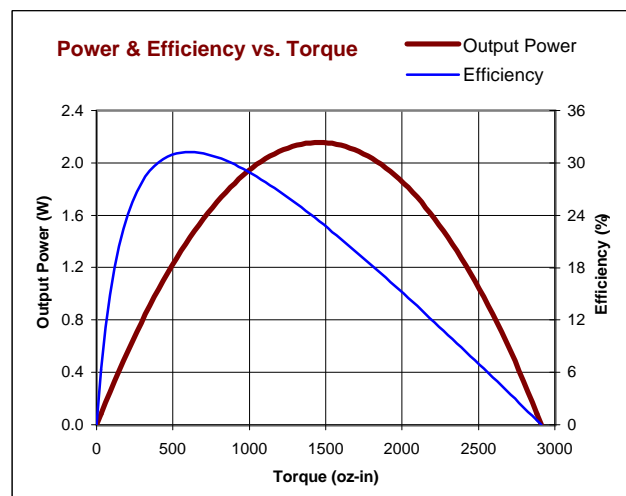
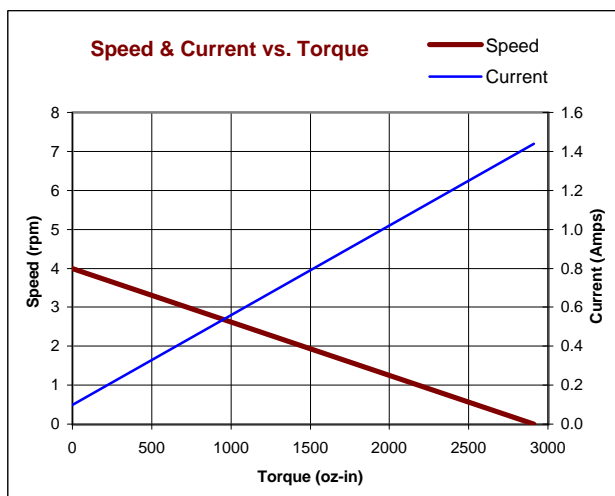
Included Features

- 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 Sleeve Bearings
- Output Sleeve 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

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

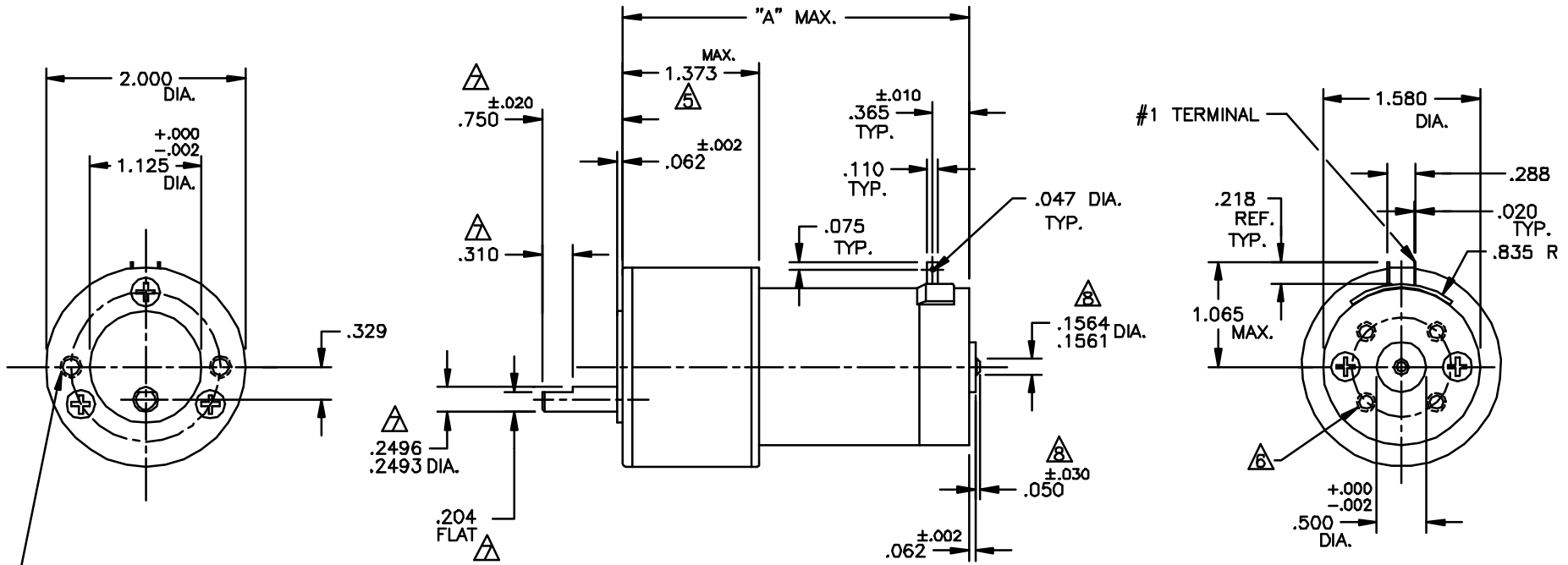


All values are nominal. Specifications subject to change without notice. Graphs are shown for reference only.

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REVISIONS				
LTR	DESCRIPTION	DRFT/ENGR	DATE	APPR
F	ADDED NOTES 7&8. REVISED DRAWING	RJS/RJS	3/15/96	



#10-32 UNF-2B, .250 DP. REF.
2 HOLES 180° APART
ON A 1.500 DIA. B.C.

- NOTES:
- SHAFT ROTATION IS SHOWN WHILE VIEWING OUTPUT SHAFT WITH POSITIVE VOLTAGE (+) APPLIED TO #1 TERMINAL.
 - TERMINALS ARE TIN PLATED FOR SOLDERING.
 - ENDPLAY .015 MAX. ON MOTOR SHAFT, .020 MAX. ON OUTPUT SHAFT.
 - LIMIT TORQUE ON GEARBOX TO 175 oz.in., STANDARD (STD.)GEARING
LIMIT TORQUE ON GEARBOX TO 300 oz.in., HIGH TORQUE (H-T) GEARING
LIMIT TORQUE ON GEARBOX TO 500 oz.in., WIDE FACE (WF) GEARING
- ⚠️ FOR WIDE FACE RATIOS 728/1419:1 SEE 150-33-2
 FOR 2426.9/4732.5:1 RATIOS (ALL GEAR TYPES) SEE 150-33-2.
 ⚠️ OPTIONAL REAR MOUNTING PATTERN AVAILABLE, #6-32 UNC-2B .250 DP. MAX., 4 HOLES ON A 1.000 DIA. B.C..
 ⚠️ ALL SHAFT DIMENSIONS NOTED ARE STANDARD (10-535); FOR ALL OTHER SHAFT CONFIGURATIONS REFER TO DATA SHEET FOR PART NUMBERS.
 ⚠️ OPTIONAL REAR SHAFT EXTENSIONS AVAILABLE FOR MOTOR SHAFT CONFIG. SEE DATA SHEET.

⚠️	728/1419:1	CW
ALL TYPES	218.4/426:1	CCW
ALL TYPES	65.5/127.7:1	CW
ALL TYPES	19.7/38.3:1	CCW
ALL TYPES	5.9/11.5:1	CW
GEARING	GEAR RATIO	DIRECTION

GM94X6	4.326
GM94X5	3.976
GM94X4	3.676
GM94X3	3.476
GM94X2	3.101
MODEL NO. "A" MAX.	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTION DECIMAL ANGLES
±1/64 X ±0.015 ±1°
XX ±0.010 XXX±0.005

BREAK ALL SHARP EDGES

MATERIAL:

FINISH:

FILE: 150-33

DRAFTED BY: RJS DATE: 4/30/83

ENGINEERED BY: DLF

APPROVED BY:

NEXT ASSY:

USED ON:

PITTMAN
Pittman Engineering & Manufacturing Corp., PA, USA

TITLE:
OUTLINE AND MOUNTING DIMENSIONS
GM94XX STANDARD

DWG. NO. B- 150-33 REV. F

SCALE: D.N.S. SHEET 1 OF 1