



## GM14904S014

Lo-Cog® DC Servo Gearmotor

Assembly Data	Symbol	Units	Value	
Reference Voltage	E	V	12	
No-Load Speed	S <sub>NL</sub>	rpm (rad/s)	179	(18.7)
Continuous Torque (Max.) <sup>1</sup>	T <sub>C</sub>	oz-in (N-m)	374	(2.6)
Peak Torque (Stall) <sup>2</sup>	T <sub>PK</sub>	oz-in (N-m)	2934	(20.7)
Weight	W <sub>M</sub>	oz (g)	44.7	(1268)
Motor Data				
Torque Constant	K <sub>T</sub>	oz-in/A (N-m/A)	4.33	(3.06E-02)
Back-EMF Constant	K <sub>E</sub>	V/krpm (V/rad/s)	3.21	(3.06E-02)
Resistance	R <sub>T</sub>	Ω	0.27	
Inductance	L	mH	0.40	
No-Load Current	I <sub>NL</sub>	A	0.52	
Peak Current (Stall) <sup>2</sup>	I <sub>P</sub>	A	44.4	
Motor Constant	K <sub>M</sub>	oz-in/√W (N-m/√W)	8.63	(6.09E-02)
Friction Torque	T <sub>F</sub>	oz-in (N-m)	1.6	(1.1E-02)
Rotor Inertia	J <sub>M</sub>	oz-in-s <sup>2</sup> (kg-m <sup>2</sup> )	3.7E-03	(2.6E-05)
Electrical Time Constant	τ <sub>E</sub>	ms	1.58	
Mechanical Time Constant	τ <sub>M</sub>	ms	7.0	
Viscous Damping	D	oz-in/krpm (N-m-s)	0.18	(1.2E-05)
Damping Constant	K <sub>D</sub>	oz-in/krpm (N-m-s)	55	(3.7E-03)
Maximum Winding Temperature	θ <sub>MAX</sub>	°F (°C)	311	(155)
Thermal Impedance	R <sub>TH</sub>	°F/watt (°C/watt)	45.9	(7.7)
Thermal Time Constant	τ <sub>TH</sub>	min	28.8	
Gearbox Data				
Reduction Ratio			19.7	
Efficiency <sup>3</sup>			0.84	
Maximum Allowable Torque		oz-in (N-m)	500	(3.53)
Encoder Data				
Channels			3	
Resolution		CPR	500	

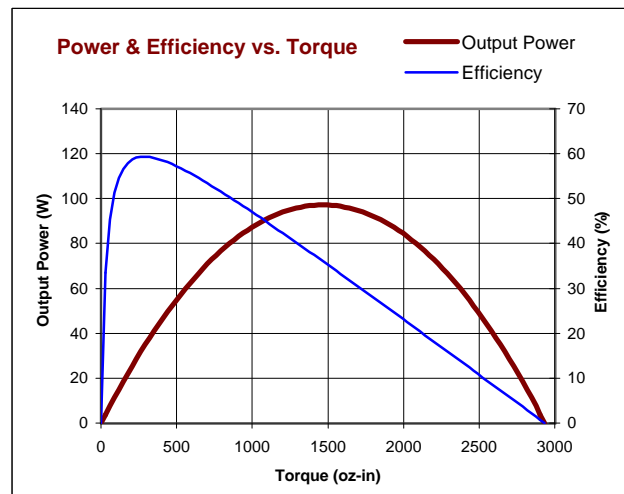
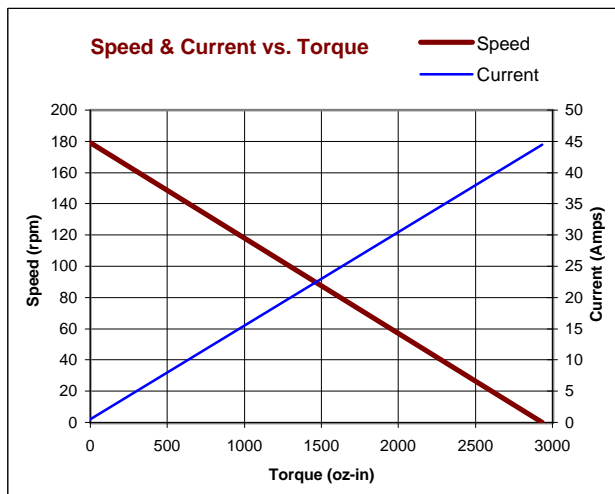
1 - Specified at max. winding temperature at 25°C ambient without heat sink. 2 - Theoretical values supplied for reference only.  
3 - Effective gearbox efficiency for this unit improved by use of ball bearings.

### Included Features

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



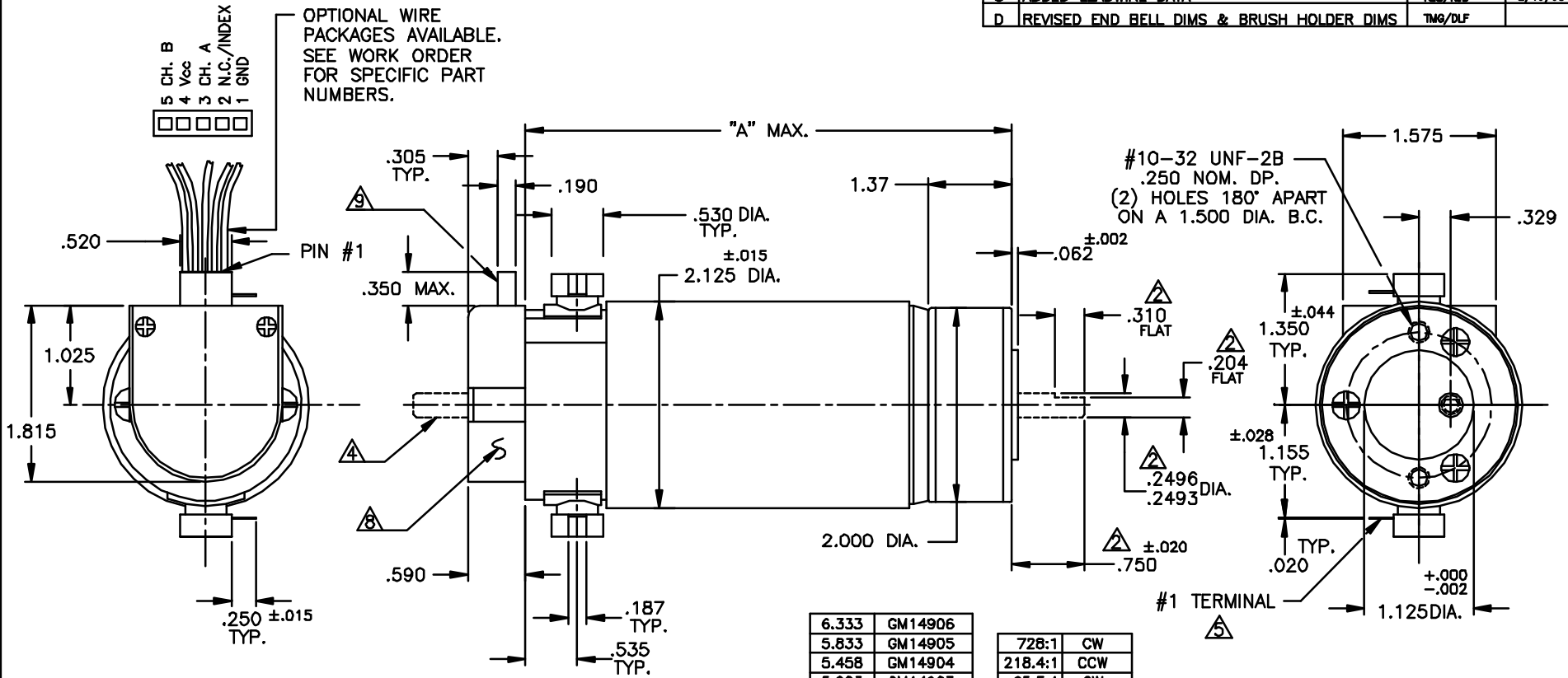
All values are nominal. Specifications subject to change without notice. Graphs are shown for reference only.

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REVISIONS				
LTR	DESCRIPTION	DRFT/ENGR	DATE	APPR
B	REDRAWN & REVISED	DCS/DCS	11/10/95	JRM
C	ADDED LEADWIRE DATA	RJS/RJS	2/13/98	JRM
D	REVISED END BELL DIMS & BRUSH HOLDER DIMS	TMG/DLF		



6.333	GM14906
5.833	GM14905
5.458	GM14904
5.083	GM14903
4.583	GM14902
4.333	GM14901
"A"	MODEL NO.

728:1	CW
218.4:1	CCW
65.5:1	CW
19.7:1	CCW
5.9:1	CW
RATIO	SHAFT ROTATION *

**NOTES:**

- \* 1. SHAFT ROTATION IS SHOWN WHILE VIEWING THE MOUNTING END, WITH POSITIVE VOLTAGE (+) APPLIED TO THE #1 TERMINAL.
- △ ALL OUTPUT SHAFT DIMENSIONS NOTED ARE STANDARD (10-535). FOR ALL OTHER SHAFT CONFIGURATIONS, REFER TO DATA SHEET FOR SHAFT PART NUMBERS.
- 3. FOR MOTOR SHAFT CONFIGURATION, SEE DATA SHEET.
- △ OPTIONAL SHAFT EXTENSION AVAILABLE. REFER TO DATA SHEET FOR SPECIFICS.
- △ TERMINALS WILL MATE WITH '187' SERIES AMP INC. OR EQUIV. PUSH-ON RECEPTACLE.
- 6. MOTOR BALL BEARINGS: PRELOAD PER P-107.
- 7. OUTPUT SHAFT ENDPLAY: .020 MAX.
- △ ENCLOSED IS A H.P. HEDS-91X0 OPTICAL ENCODER MODULE. SEE DATA SHEET FOR PART NUMBERS.
- 9. MOLEX CENTER CRIMP TERMINAL HOUSING, (2695 SERIES), WILL ACCEPT MOLEX MATING TERMINALS (2759).

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		FILE: 150\314			
FRACTION ±1/8"	DECIMAL ±.015	DRAFTED BY DCS	DATE 11/9/95		
BREAK ALL SHARP EDGES		ENGINEERED BY DCS	11/9/95	<b>TITLE:</b> OUTLINE AND MOUNTING DIMENSIONS GM149XX STANDARD W/H.P. 91X0 ENC.	
MATERIAL:		APPROVED BY JRM	xx/xx/97		
FINISH:		NEXT ASSY:		<b>DWG. NO.</b> B- 150-314	
		USED ON:		<b>REV.</b> D	
				<b>SCALE:</b> D.N.S. SHEET	