

GM14902S018

Lo-Cog® DC Servo Gearmotor



| Assembly Data | Symbol | Units | Value | |
|---------------------------------------|------------------|---|---------|------------|
| Reference Voltage | E | V | 12 | |
| No-Load Speed | S _{NL} | rpm (rad/s) | 59 | (6.2) |
| Continuous Torque (Max.) ¹ | T _C | oz-in (N-m) | 500 | (3.5) |
| Peak Torque (Stall) ² | T _{PK} | oz-in (N-m) | 4625 | (33) |
| Weight | W _M | oz (g) | 35.9 | (1017) |
| Motor Data | | | | |
| Torque Constant | K _T | oz-in/A (N-m/A) | 3.90 | (2.75E-02) |
| Back-EMF Constant | K _E | V/krpm (V/rad/s) | 2.88 | (2.75E-02) |
| Resistance | R _T | Ω | 0.45 | |
| Inductance | L | mH | 0.63 | |
| No-Load Current | I _{NL} | A | 0.49 | |
| Peak Current (Stall) ² | I _P | A | 26.7 | |
| Motor Constant | K _M | oz-in/√W (N-m/√W) | 5.93 | (4.19E-02) |
| Friction Torque | T _F | oz-in (N-m) | 1.2 | (8.5E-03) |
| Rotor Inertia | J _M | oz-in-s ² (kg-m ²) | 2.3E-03 | (1.6E-05) |
| Electrical Time Constant | τ _E | ms | 1.47 | |
| Mechanical Time Constant | τ _M | ms | 9.3 | |
| Viscous Damping | D | oz-in/krpm (N-m-s) | 0.17 | (1.1E-05) |
| Damping Constant | K _D | oz-in/krpm (N-m-s) | 26 | (1.8E-03) |
| Maximum Winding Temperature | θ _{MAX} | °F (°C) | 311 | (155) |
| Thermal Impedance | R _{TH} | °F/watt (°C/watt) | 48.2 | (9.0) |
| Thermal Time Constant | τ _{TH} | min | 24.0 | |
| Gearbox Data | | | | |
| Reduction Ratio | | | 65.5 | |
| Efficiency ³ | | | 0.80 | |
| Maximum Allowable Torque | | oz-in (N-m) | 500 | (3.53) |
| Encoder Data | | | | |
| Channels | | | 3 | |
| Resolution | | CPR | 500 | |

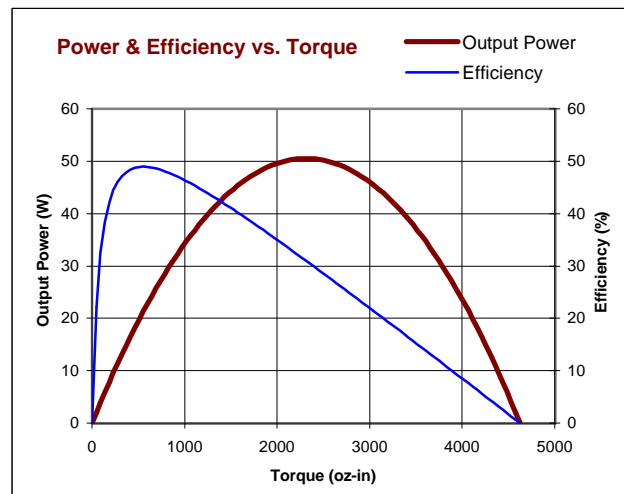
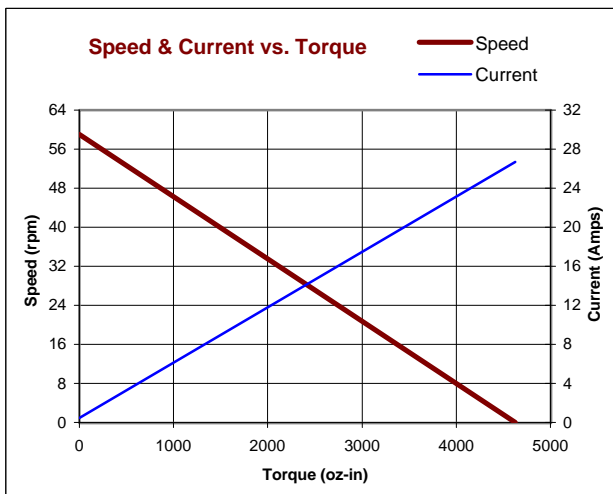
1 - Specified at max. winding temperature at 25°C ambient without heat sink. 2 - Theoretical values supplied for reference only.
3 - Effective gearbox efficiency for this unit improved by use of ball bearings.

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



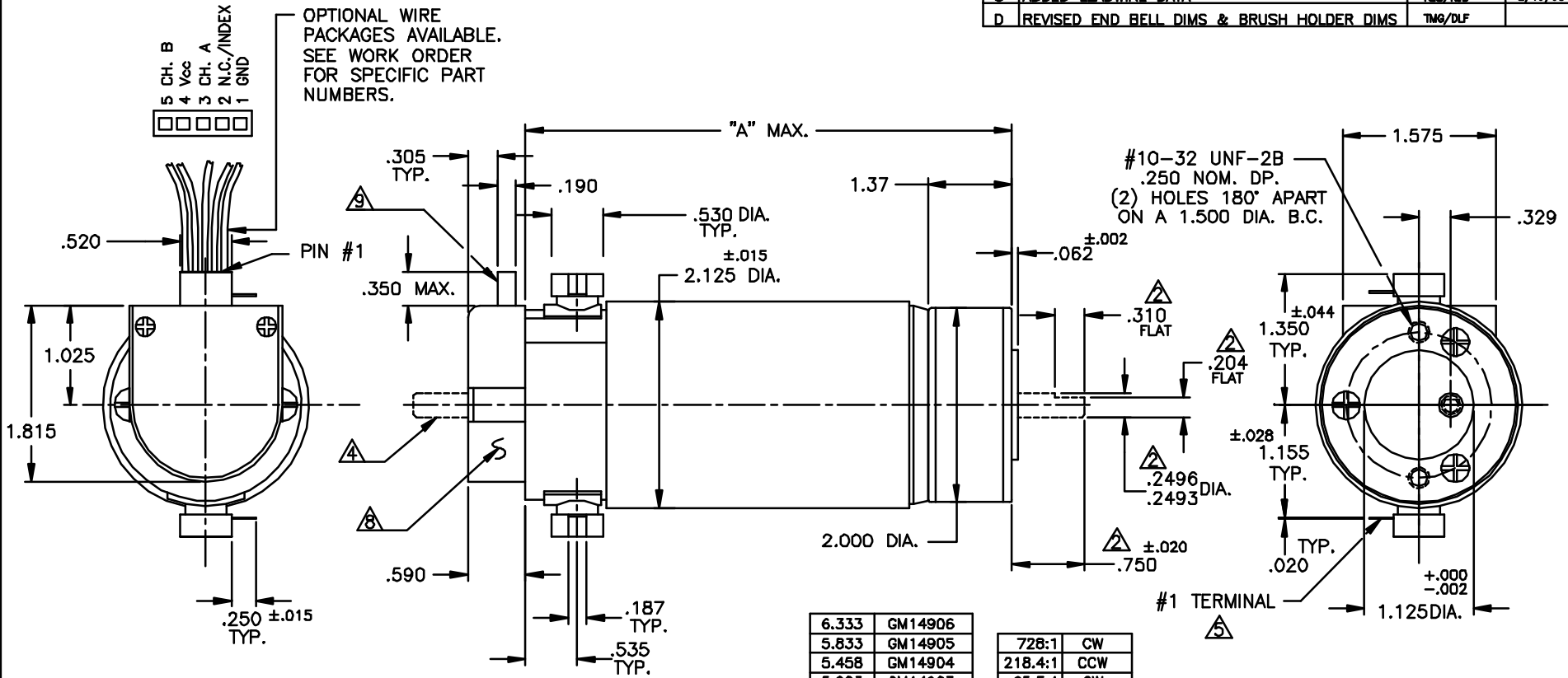
All values are nominal. Specifications subject to change without notice. Graphs are shown for reference only.

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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:
- 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.
 - 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.
 - MOTOR BALL BEARINGS: PRELOAD PER P-107.
 - OUTPUT SHAFT ENDPLAY: .020 MAX.
 - ENCLOSED IS A H.P. HEDS-91X0 OPTICAL ENCODER MODULE. SEE DATA SHEET FOR PART NUMBERS.
 - 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 | TITLE: OUTLINE AND MOUNTING DIMENSIONS GM149XX STANDARD W/H.P. 91X0 ENC. | |
| MATERIAL: | | APPROVED BY JRM | xx/xx/97 | | |
| FINISH: | | NEXT ASSY: | | DWG. NO. B- 150-314 | |
| | | USED ON: | | SCALE: D.N.S. SHEET | |
| | | | | REV. D | |