Molon CHM-2401-1M

Molon CHM-2401-1M Gearmotor User Manual

DC Permanent Magnet Gearmotor

1. Introduction

This manual provides essential information for the proper installation, operation, and maintenance of the Molon CHM-2401-1M DC Permanent Magnet Gearmotor. Please read this manual thoroughly before using the product to ensure safe and efficient operation and to prevent damage.

2. Safety Information

Always observe the following safety precautions to prevent injury or damage to the gearmotor.

- **Electrical Safety:** Ensure power is disconnected before making any electrical connections or performing maintenance. Only qualified personnel should perform electrical wiring.
- **Proper Voltage:** Connect the gearmotor only to a 24 Volt DC power supply. Incorrect voltage can cause severe damage to the motor.
- **Mounting:** Securely mount the gearmotor to a stable surface using appropriate fasteners. Loose mounting can lead to vibration and premature wear.
- **Overload Protection:** Do not exceed the specified torque rating of 50 in.-lb. Overloading can cause motor overheating and failure.
- **Environmental Conditions:** Operate the gearmotor within suitable environmental conditions. Avoid excessive dust, moisture, or extreme temperatures.
- **Moving Parts:** Keep hands, clothing, and tools clear of rotating parts during operation.

3. Product Overview

The Molon CHM-2401-1M is a robust 24 Volt DC Permanent Magnet Gearmotor designed for various industrial and scientific applications. It features a low output speed of 1.2 RPM and a high torque output of 50 in.-lb., making it suitable for applications requiring precise, slow, and powerful rotational movement.

Figure 3.1: Front and side view of the Molon CHM-2401-1M Gearmotor, showing the output shaft and mounting points.

Figure 3.2: Rear view of the Molon CHM-2401-1M Gearmotor, illustrating the DC motor housing and electrical terminals.

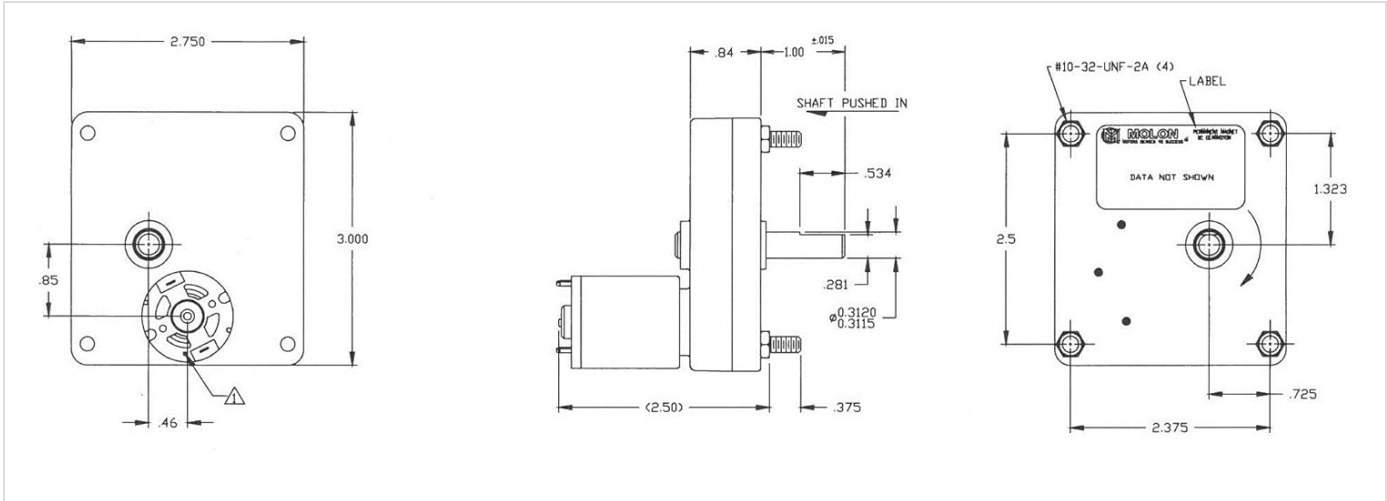

Figure 3.3: Technical drawing of the Molon CHM-2401-1M Gearmotor, providing detailed dimensions for mounting and integration.

4. Setup and Installation

Follow these steps for proper installation of the gearmotor:

1. **Mounting:** Identify a stable and flat mounting surface. Refer to Figure 3.3 for mounting hole dimensions and patterns. Use appropriate #10-32 UNF-2A fasteners (4) to secure the gearmotor firmly. Ensure there is adequate clearance around the motor for ventilation and access.
2. **Electrical Connection:** Connect the gearmotor to a regulated 24 Volt DC power supply. Observe correct polarity for desired rotation direction. Typically, reversing polarity will reverse the direction of rotation. Ensure all connections are secure and insulated to prevent short circuits.
3. **Load Attachment:** Carefully attach the load to the output shaft. Ensure the load is balanced and does not introduce excessive radial or axial forces on the shaft, which could lead to premature bearing wear.
4. **Initial Inspection:** Before applying power, double-check all connections and mounting. Ensure no foreign objects are obstructing the motor or gear assembly.

5. Operating Instructions

Once installed, the Molon CHM-2401-1M gearmotor is ready for operation.

- **Power On:** Apply 24 Volt DC power to the motor terminals. The motor should begin to rotate at approximately 1.2 RPM.
- **Direction Control:** The direction of rotation is determined by the polarity of the DC power supply. To reverse direction, reverse the polarity of the input voltage.
- **Load Management:** Ensure the applied load does not exceed the maximum rated torque of 50 in.-lb. Continuous operation above this limit can lead to overheating and damage.
- **Monitoring:** Periodically monitor the motor for unusual noises, excessive heat, or vibrations during operation.

6. Maintenance

The Molon CHM-2401-1M gearmotor is designed for low maintenance. However, regular inspection can extend its lifespan.

- **Cleaning:** Keep the motor and gear housing clean and free of dust and debris. Use a soft, dry cloth. Do not use solvents or abrasive cleaners.
- **Inspection:** Periodically check all mounting fasteners for tightness. Inspect electrical connections for corrosion or looseness.
- **Lubrication:** The gear assembly is typically factory-lubricated for life and does not require additional lubrication under normal operating conditions. Avoid disassembling the gear housing unless absolutely necessary, as this may void any implied warranty and compromise the internal lubrication.
- **Shaft Condition:** Inspect the output shaft for any signs of bending or damage.

7. Troubleshooting

Refer to the table below for common issues and their potential solutions.

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Motor does not run.	No power supply; Incorrect wiring; Motor overload; Damaged motor.	Check power source and connections; Verify 24V DC supply; Reduce load; Inspect motor for damage (contact support if damaged).
Motor runs slowly or with reduced torque.	Low voltage; Excessive load; Internal friction/wear.	Verify 24V DC supply; Reduce load to within specifications; Inspect for obstructions (contact support if internal issue suspected).
Motor is excessively hot.	Overload; Insufficient ventilation; Continuous operation at high load.	Reduce load; Ensure adequate airflow around motor; Allow motor to cool down between operations.
Unusual noise or vibration.	Loose mounting; Damaged gears/bearings; Misaligned load.	Tighten mounting bolts; Inspect output shaft and load alignment; (Contact support if internal damage suspected).

8. Specifications

Key technical specifications for the Molon CHM-2401-1M Gearmotor:

Parameter	Value
Model Number	CHM-2401-1M
Brand	Molon
Manufacturer	Molon Motor & Coil Corporation
Motor Type	DC Permanent Magnet Gearmotor
Voltage	24 Volts DC
Speed	1.2 RPM
Torque	50 in.-lb.
Material	Copper (internal windings)
Package Dimensions	6.46 x 6.26 x 4.76 inches
Item Weight	1.19 Pounds
Date First Available	April 23, 2018

9. Warranty and Support

For information regarding warranty, technical support, or service, please contact Molon Motor & Coil Corporation directly. Refer to their official website or product documentation for the most current contact details.
Manufacturer: Molon Motor & Coil Corporation