

# HX56-100

## HX56-100 Motor Guide Installation Instructions



### **Safety Instructions**

Only qualified personnel are permitted to transport, assemble, commission, and maintain this equipment. Properly qualified personnel are persons who are familiar with the transport, assembly, installation, commissioning and operation of motors, and who have the appropriate qualifications for their jobs. The qualified personnel must know and observe the following standards and regulations:

IEC 364 resp. CENELEC HD 384 or DIN VDE 0100

IEC report 664 or DIN VDE 0110

National regulations for safety and accident prevention or VBG 4

To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and it is your responsibility to determine which codes should be followed, and to verify that the equipment, installation, and operation are in compliance with the latest revision of these codes.

Equipment damage or serious injury to personnel can result from the failure to follow all applicable codes and standards. We do not guarantee the products described in this publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation, or operation.

- Read all available documentation before assembly and commissioning. Incorrect handling of products in this manual can result in injury and damage to persons and machinery. Strictly adhere to the technical information on the installation requirements.
- It is vital to ensure that all system components are connected to earth ground. Electrical safety is impossible without a low-resistance earth connection.
- In operation, depending on the degree of enclosure protection, the product can have bare components that are live or have hot surfaces. Control and power cables can carry a high voltage even when the motor is not rotating.
- **Never pull out or plug in the product while the system is live. There is a danger of electric arcing and danger to persons and contacts.**
- **After powering down the product, wait at least ten minutes before touching live sections of the equipment or undoing connections (e.g., contacts, screwed connections). Capacitors in the Stepper Drive can store dangerous voltages for long periods of time after power has been switched off. To be safe, measure the contact points with a meter before touching.**

Be alert to the potential for personal injury. Follow the recommended precautions and safe operating practices. Safety notices in this manual provide important information. Read and be familiar with these instructions before attempting installation, operation, or maintenance. The purpose of this section is to alert users to possible safety hazards associated with this equipment and the precautions that need to be taken to reduce the risk of personal injury and damage to the equipment.

**Failure to observe these precautions could result in serious bodily injury, damage to the equipment, or operational difficulty.**

## **This motor complies with the following standards:**

- UL 674 ELECTRIC MOTORS AND GENERATORS FOR USE IN HAZARDOUS (CLASSIFIED) LOCATIONS - Edition 5 - Revision Date 2017-05-19
- UL 1004-1, 2nd Edition, Revision Date 2017-03-08
- CSA C22.2 NO. 145-11 MOTORS AND GENERATORS FOR USE IN HAZARDOUS LOCATIONS - Edition 3 - Issue Date 2017-05-01
- CSA C22.2 No. 60079-0, 3rd Edition, Revision Date 2015-10-01
- CSA C22.2 No. 60079-1, 3rd Edition, Revision Date 2016-05-01
- CSA C22.2 No. 100-14, 7th Edition, Revision Date 2017-04-01
- IEC 60034-5 ROTATING ELECTRICAL MACHINES - PART 5: DEGREES OF PROTECTION PROVIDED BY THE INTEGRAL DESIGN OF ROTATING ELECTRICAL MACHINES (IP CODE) - Edition 4.1 - Revision Date 2006/11/01
- IEC 60079-0 EXPLOSIVE ATMOSPHERES. PT. 0: EQUIPMENT GENERAL REQUIREMENTS - Edition 6 - Revision Date 2013-07-26
- IEC 60079-1 ELECTRICAL APPARATUS FOR EXPLOSIVE GAS ATMOSPHERES. PT. 1, FLAMEPROOF ENCLOSURES "D" - Edition 7 - Revision Date 2015-09-18
- CENELEC EN 60079-0 EXPLOSIVE ATMOSPHERES - PART 0: EQUIPMENT - GENERAL REQUIREMENTS - Edition N/A - Revision Date 2013/01/01
- CENELEC EN 60079-1 EXPLOSIVE ATMOSPHERES - PART 1: EQUIPMENT PROTECTION BY FLAMEPROOF ENCLOSURES "D" - Edition N/A - Revision Date 2014/10/01

## **Schedule of Limitations:**

- Motor assembly screws are permanently secured in place and not intended to be removed or replaced. The motor is not field serviceable or repairable. Please contact the OEM or [www.applied-motion.com](http://www.applied-motion.com) for replacement.
- Flameproof joints are not intended to be repaired. The motor is not field serviceable or repairable. Please contact the OEM or [www.applied-motion.com](http://www.applied-motion.com) for replacement.
- The HX56-100 stepper motor is to be used with Applied Motion Products, Inc stepper drive models STAC6-Q-H or STAC6-Q-HA.

### **Electrical Ratings:**

Voltage Rating: 120 VDC rms (170 VDC peak)  
Maximum Amps: 3.39 A rms (4.8A peak)/phase  
Maximum Watts: 246  
Number of Phases: 2  
Max RPM: 2200  
Insulation: Class B  
Duty Rating: Continuous  
Ambient Temperature Rating: -40°C to +60°C  
Frequency Range: (Motor): PWM-Variable Torque 0 to 2.5 KHz  
Environmental Rating: IP66/Type 4X  
Operating Temperature Code (External Surfaces):  
UL / cUL T4A; ATEX / IECEx T5

### **Markings:**

Applied Motion Products, Inc.  
404 Westridge Dr  
Watsonville, CA 95076

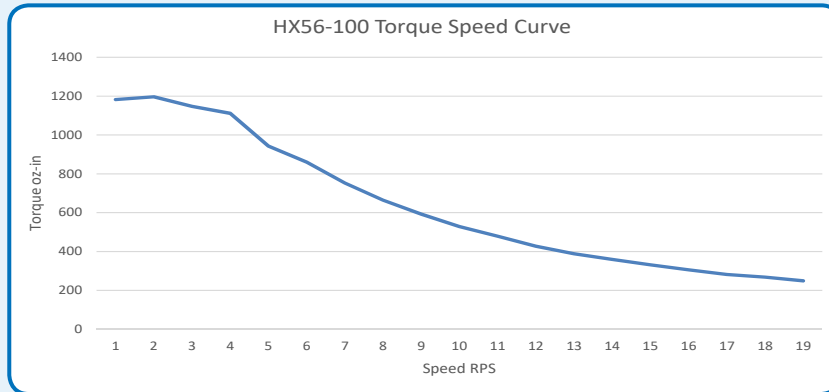
USA: Class I, Division 1, Groups C & D. Class I, Zone 1, AEx db IIB  
Canada: Class I, Division 1, Groups C & D. Ex db IIB

IECEx Cert Number: IECEx UL 18.0057X  
Ex db IIB T5 Gb  
 $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$

ATEX Cert Number: DEMKO 18 ATEX 2016X

CE 0539  II 2 G Ex db IIB T5 Gb

## Speed Torque Curve

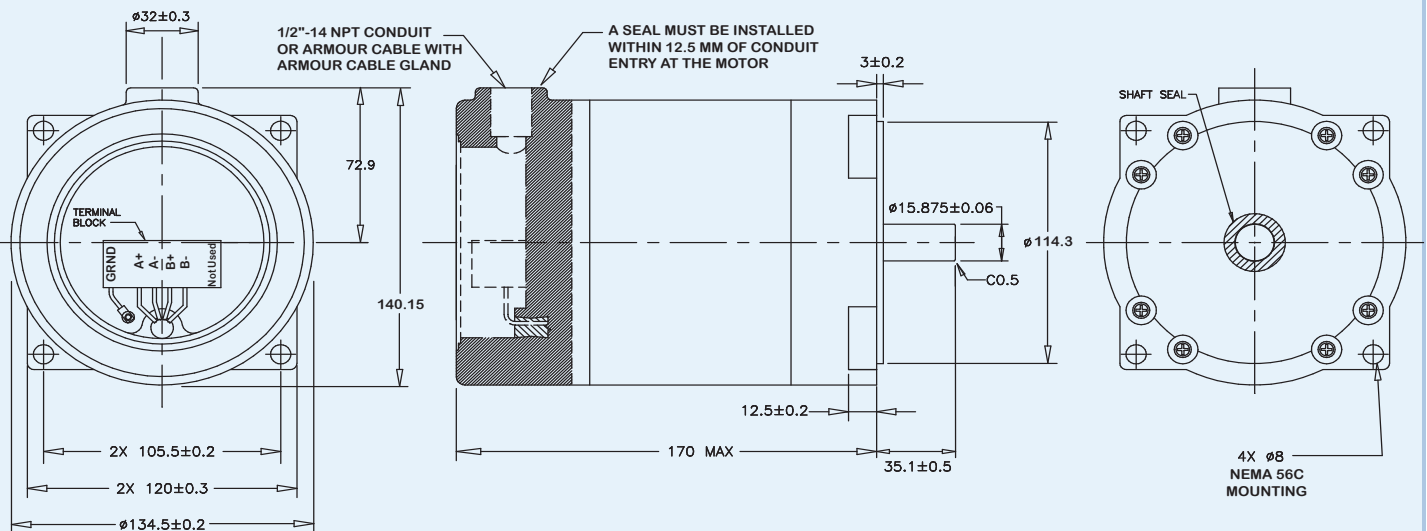


## Mounting the Motor

The HX56 motor should be securely fastened to a smooth, flat metal surface such as a gear head, that will help conduct heat away from the chassis. This motor is rated for use in a  $-40^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  ambient environment.

• **Never use this motor in a space where there is no air flow or where other devices cause the surrounding air to be more than  $60^{\circ}\text{C}$ .**

## Motor Dimensions (mm)



## Field Wiring Terminal Block:

Mating Connector (Type)	Manufacturer and P/N	Required Wiring
Motor (terminal block)	Phoenix Contact G5/6-Ex-2703198 (included)	4 wires plus ground required, solid or stranded CU, minimum $-40^{\circ}\text{C}$ to $125^{\circ}\text{C}$ 250V wire, 14 AWG to 12 AWG, 1 conductor per terminal, stripping length 8 mm, tightening torque 0.6 Nm - 0.8 Nm.

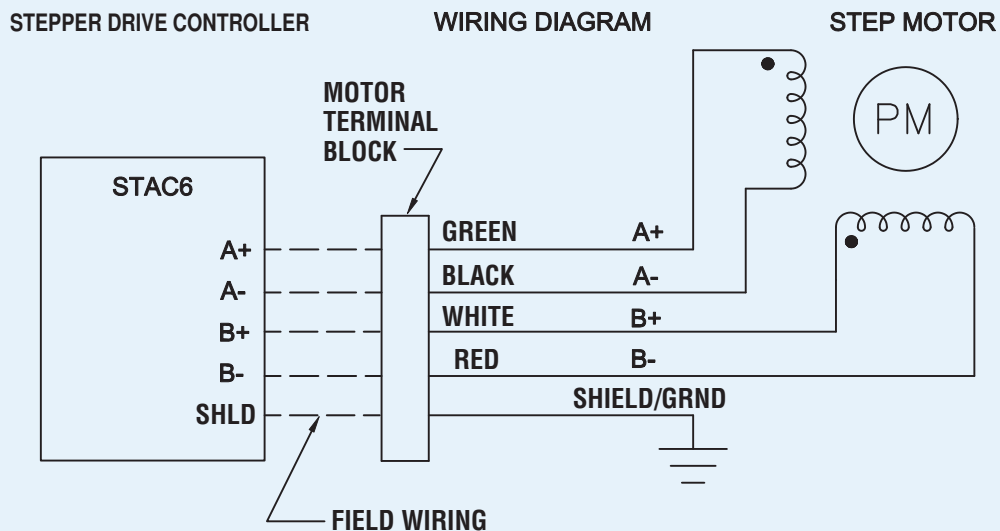
## Connecting the Motor

**ONLY use a compatible Hazardous Location Certified Stepper Drive from Applied Motion Products, Inc., Model STAC6-Q-H or STAC6-Q-HA.**

**Never connect or disconnect the motor while the power is on.**

- The field wiring is to be terminated at the terminal block on the motor, and installed in 1/2" - 14 NPT conduit or Armour Cable with Armour Cable Gland.
- Temperature consideration of lead wires for Armour Cable Gland is 80°C (176°F)
- Use a small flat blade screwdriver for tightening the connectors on the terminal block.
- A seal needs to be installed within 12.5 mm of conduit entry at the motor.
- After completing wiring to the terminal block install the enclosure cap and firmly tighten. DO NOT over tighten.
- Use a 19mm or 3/4" wrench to tighten the cap.
- Refer to the STAC6 Quick Setup Guide for the stepper drive to configure the drive for the HX56-100 motor.
- An Armour cable gland, if used, is to be rated at a minimum for the same certifications as the motor based on the local codes or regional requirements; including IP66. The cable gland is to be rated for a minimum temperature range of  $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +80^{\circ}\text{C}$ .
- For North American installations, Stepper Motor is only for use with conduit or Armour Cable with Armour Cable Gland - No other cables shall be used.
- **Never configure the Stepper Drive to provide more than 4.8A Peak to the motor.**

Connection diagram shown:



If you have any questions or comments, please call Applied Motion Products Customer Support: (831) 761-6555, or visit us online: [www.applied-motion.com](http://www.applied-motion.com).

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