

# Installation Guide: NexBot Robotics STP113-001 Stepper Motor 3.2 Nm

SKU: NXB-SRV-STP113-001 | Revision: 1.0 | Category: Drive Systems > Servo Motors > Stepper Motors

**DANGER:** Disconnect all power sources before beginning installation. Follow lockout/tagout (LOTO) procedures per OSHA 1910.147.

## 1. Required Tools & Materials

- M6 Hex Key Set
- Torque Wrench (5-15 Nm range)
- Digital Multimeter
- Wire Stripper and Crimper Tool
- Precision Calipers
- Safety Glasses
- Antistatic Wrist Strap
- Flathead Screwdriver Set

## 2. Pre-Installation Checks

1. Verify that the SKU on the motor label reads NXB-SRV-STP113-001 and matches the packing slip.
2. Inspect the anodized aluminum motor housing and shaft for any dents, scratches, or other damage from shipping.
3. Confirm the motor shaft rotates smoothly by hand without any grinding or binding.
4. Ensure the mounting surface is flat, clean, and free of debris to allow for proper thermal transfer.
5. Verify the stepper motor driver and power supply are rated for 48VDC operation.
6. Follow all Lockout/Tagout (LOTO) procedures to ensure the machine is fully de-energized before starting work.

## 3. Installation Procedure

### Step 1: Position and Mount Motor

Align the motor's 86 x 86 mm mounting face with the corresponding bolt pattern on the equipment frame. The motor weighs 3.5 kg, so ensure a firm grip or use mechanical support during positioning.

**Warning:** Use proper lifting techniques to avoid dropping the motor, which could cause personal injury or damage to the component.

### Step 2: Secure Mounting Bolts

Insert four M6 bolts (not included) through the mounting flange. Hand-tighten all bolts first, then use a torque wrench to tighten them in a star pattern to the torque specification required by your machine design.

### Step 3: Couple Motor Shaft to Load

Attach a flexible or rigid coupling to the motor shaft, connecting it to the load. Use calipers to ensure minimal angular and parallel misalignment to prevent premature bearing wear.

**Warning:** Never strike the motor shaft with a hammer or other tool. Applying excessive axial force can damage the internal bearings and encoder.

### Step 4: Prepare Phase Wires

Identify the A+, A-, B+, and B- phase wires using the wiring diagram included with the motor. Carefully strip 6-8 mm of insulation from the end of each wire.

**Warning:** Ensure power remains locked out. Accidental contact with energized circuits can cause severe electrical shock.

### Step 5: Connect Wires to Stepper Driver

Connect the four phase wires to the corresponding output terminals on the stepper motor driver. Ensure that the terminal screws are tightened securely to prevent intermittent connections from vibration.

**Warning:** Incorrectly wiring the motor phases can result in erratic rotation, excessive heat, or permanent damage to both the motor and the driver.

### Step 6: Connect Chassis Ground

Attach a dedicated ground wire from the motor's housing to the central chassis or earth ground point of the control cabinet. A proper ground connection is essential for operator safety and reducing electromagnetic interference (EMI).

### Step 7: Route and Secure Cabling

Route the motor cable through appropriate channels or conduits, keeping it separate from high-power AC lines. Secure the cable with strain relief clamps to prevent stress on the connection points and protect against abrasion.

## 4. Post-Installation Verification

1. Visually double-check that all wiring connections match the motor and driver diagrams.
2. Use a multimeter to confirm continuity between the motor housing and the machine's main earth ground.
3. Gently rotate the coupled load by hand to ensure the mechanical system moves freely without binding.
4. Verify that all mounting bolts have been tightened with a torque wrench to the correct specification.
5. Remove all tools, hardware, and debris from the work area.
6. Reinstall all machine safety guards and panels before restoring power.

**Note:** For technical support, contact your authorized service provider or visit <https://robotics.barca.group/support>.