

# Installation Guide: NexBot Drives STP113-006 Stepper Motor

SKU: NXB-SRV-STP113-006 | 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

- Hex key set (metric)
- Torque wrench with appropriate sockets
- Digital multimeter
- Wire stripper and crimping tool
- Small flathead screwdriver for terminal blocks
- ESD wrist strap
- Safety glasses
- Mounting screws (M5 recommended)

## 2. Pre-Installation Checks

1. Verify the received product SKU is NXB-SRV-STP113-006 and check for any shipping damage.
2. Ensure the mounting surface is flat, clean, and rigid enough to support the motor's 1.1 kg weight and operational torque.
3. Confirm the stepper motor driver is compatible with the STP113-006 and configured for its electrical characteristics.
4. Verify the power supply unit (PSU) is rated for 24VDC and can provide sufficient current for the motor and driver.
5. De-energize and lock-out/tag-out all related machinery and power sources before beginning installation.
6. Inspect the motor shaft for any burrs or contaminants that could interfere with coupling.

### 3. Installation Procedure

#### Step 1: Unpacking and Handling

Carefully remove the STP113-006 motor from its packaging. Handle the motor by its anodized aluminum body; avoid impacting the motor shaft or the rear connector.

**Warning:** This component is sensitive to electrostatic discharge (ESD). Use an ESD wrist strap and handle in a static-safe environment.

#### Step 2: Mechanical Mounting

Align the motor's 57 x 57 mm faceplate with the mounting holes on the equipment frame. Secure the motor using four appropriate-length M5 screws, tightening them in a star pattern to the recommended torque specification for your application to prevent frame distortion.

#### Step 3: Shaft Coupling

Attach the load to the motor shaft using a suitable flexible or rigid coupler. Ensure proper alignment to minimize radial and axial loads, which can reduce bearing life and performance.

**Warning:** Do not hammer or press-fit couplings onto the shaft. Use a correctly sized coupling with set screws or a compression hub.

#### Step 4: Connecting Power Wires

Connect the motor phase wires to the corresponding terminals on the stepper driver (e.g., A+, A-, B+, B-). Ensure connections are secure and that wire gauges are appropriate for the current rating of the motor.

**Warning:** Incorrect wiring can permanently damage the motor and/or driver. Always verify the wiring diagram for both the motor and the driver.

### Step 5: Connecting Encoder/Feedback (If Applicable)

If your STP113-006 model includes an encoder, connect the feedback cable to the corresponding input on the motion controller or driver. Ensure the cable is shielded and routed away from high-voltage power lines to prevent signal interference.

### Step 6: Grounding the Motor Body

Connect a ground wire from the motor's anodized aluminum body to the central system ground or chassis. A proper ground connection is critical for safety and for reducing electrical noise.

**Warning:** Failure to properly ground the motor can create a shock hazard and may lead to unreliable operation due to electrical interference.

### Step 7: Cable Management and Strain Relief

Secure all motor cables to the machine frame using cable ties or clamps, leaving enough slack for any required motion. Proper strain relief prevents stress on the motor's connectors and wiring.

## 4. Post-Installation Verification

1. Double-check all wiring connections for correctness and tightness against the system's electrical schematic.
2. Verify that the motor is securely mounted and that the shaft coupling is properly fastened.
3. Remove all tools and foreign objects from the work area.
4. Temporarily restore power and perform a low-speed, no-load jog test to confirm correct rotation direction and smooth operation.
5. Listen for any unusual noises such as grinding or scraping, which could indicate misalignment or mechanical binding.
6. After a short test run, check the motor body temperature to ensure it is within the expected operating range and not overheating.

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

