# Installation Guide: NexBot Robotics PLN122-001 Planetary Gearbox 10:1 Ratio

SKU: NXB-GBX-PLN122-001 | Revision: 1.0 | Category: Drive Systems > Gearboxes > Planetary Gearboxes

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

## 1. Required Tools & Materials

- Torque wrench (up to 250 Nm)
- Metric hex key set (M4-M12)
- Dial indicator with magnetic base
- Precision feeler gauges
- Lifting straps or hoist for 5.2 kg unit
- Lint-free industrial wipes
- ISO VG 220 compatible gear lubricant
- Thread-locking compound (medium strength)

## 2. Pre-Installation Checks

1. Verify the motor shaft diameter and keyway match the gearbox input specifications.
2. Inspect the mounting surfaces on both the motor and the machine frame for flatness and cleanliness.
3. Confirm the SKU on the packaging matches NXB-GBX-PLN122-001.
4. Check the gearbox input shaft for any signs of damage from shipping.
5. Ensure the ambient temperature is within the specified operating range before installation.
6. Review the motor's technical data to ensure its output is compatible with the gearbox input limits.

## 3. Installation Procedure

### Step 1: Prepare Mounting Surface

Thoroughly clean the machine frame mounting surface and the gearbox mounting flange with a lint-free wipe. Remove any burrs, paint, or debris that could prevent a flat, secure fit.

### Step 2: Mount Motor Adapter Plate

If a motor-specific adapter plate is used, mount it to the gearbox first. Apply a medium-strength thread-locking compound to the bolts and torque them in a star pattern to the specified value.

> **Warning:** Ensure the adapter plate is correctly oriented. Incorrect installation can lead to severe misalignment and component failure.

### Step 3: Install Motor Shaft Coupling

Attach the appropriate coupling to the motor shaft. Ensure it is fully seated and the set screws or clamping mechanism are tightened according to the coupling manufacturer's specifications.

### Step 4: Mount Motor to Gearbox

Carefully align the motor shaft with the gearbox input bore. Slide the motor into place, ensuring the shafts engage smoothly without binding. Do not use force to mate the components.

> **Warning:** Forcing the motor and gearbox together can damage input bearings and shaft seals. If resistance is met, re-check alignment.

### Step 5: Secure Motor Mounting Bolts

Insert and hand-tighten the bolts connecting the motor to the gearbox. Use a torque wrench to tighten the bolts incrementally in a star pattern to the recommended torque value to ensure even pressure.

### Step 6: Mount Gearbox Assembly

Using appropriate lifting equipment for the 5.2 kg assembly, position the PLN122-001 onto the machine frame. Align the mounting holes and insert all mounting bolts.

> **Warning:** The unit weighs 5.2 kg. Use proper lifting techniques or mechanical assistance to avoid personal injury or dropping the equipment.

### Step 7: Torque Main Mounting Bolts

Torque the main gearbox mounting bolts to the specification provided in the machine's assembly manual. Follow a star or cross pattern to ensure the housing is not stressed.

> **Warning:** Under-torqued bolts can lead to vibration and misalignment. Over-torquing can damage the gearbox housing or machine frame.

### Step 8: Verify Shaft Alignment

Use a dial indicator to check for runout on the output shaft. Ensure the total indicated runout (TIR) is within the tolerance specified for your application to maximize life and positional accuracy.

## 4. Post-Installation Verification

1. Manually rotate the input shaft (if possible) to feel for any binding or roughness in the gear train.
2. Perform a low-speed, no-load test run and listen for any abnormal noises like grinding or whining.
3. Check for any lubricant leakage around the input and output seals after the initial test run.
4. Re-check the temperature of the gearbox housing after 15 minutes of low-load operation; it should be warm but not excessively hot.
5. Verify that the gearbox output rotates in the expected direction relative to the motor input.
6. Check the torque of all mounting fasteners after the initial run-in period (approx. 1 hour of operation).

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