Installation Guide: NexBot Drives PLN122-002 Planetary Gearbox

SKU: NXB-GBX-PLN122-002 | 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 300 Nm)
- Metric Hex Key Set (Allen keys)
- Metric Socket Wrench Set
- Dial Indicator with Magnetic Base
- Feeler Gauges
- Lint-free cloths
- Isopropyl Alcohol (for cleaning)
- Approved mounting grease (e.g., lithium-based)

2. Pre-Installation Checks

1. Verify the received product SKU matches NXB-GBX-PLN122-002 on the order.
2. Inspect the gearbox housing and shafts for any signs of shipping damage.
3. Confirm the motor's mounting flange and shaft dimensions are compatible with the PLN122-002 input specifications.
4. Clean the motor flange, motor shaft, and gearbox mounting surfaces with isopropyl alcohol and a lint-free cloth.
5. Ensure the robot arm or machine mounting surface is flat, clean, and free of burrs or debris.
6. Prepare all required mounting hardware (bolts, washers) and verify they are the correct grade and length.

3. Installation Procedure

Step 1: Prepare Motor for Mounting

Remove the key from the motor shaft if present. Lightly coat the motor shaft with a thin layer of approved mounting grease to prevent fretting corrosion and ease future disassembly.

> **Warning:** Do not use anti-seize compound. Use only the specified type of grease to ensure proper fit and performance.

Step 2: Mount Adapter Flange to Motor

Align the adapter flange with the motor's mounting holes. Insert and hand-tighten the mounting bolts, then torque them in a star pattern to the motor manufacturer's specification.

Step 3: Couple Motor to Gearbox

Carefully align the motor shaft with the gearbox's input coupling. Slide the motor into place, ensuring the shaft engages smoothly without binding. Do not use force or hammering to seat the motor.

> **Warning:** Misalignment can cause premature bearing failure. If resistance is felt, remove the motor and re-check alignment.

Step 4: Secure Gearbox to Motor

Insert the bolts connecting the gearbox to the adapter flange. Tighten the bolts evenly in a crisscross pattern to the torque value specified in the NexBot Drives integration manual.

Step 5: Position and Lift Assembly

The combined motor and gearbox assembly has significant weight. Use appropriate lifting aids or a two-person team to carefully lift and position the assembly onto the machine's mounting point.

> **Warning:** The PLN122-002 gearbox weighs 9.5 kg. Improper lifting can cause serious personal injury or damage to the equipment.

Step 6: Mount Gearbox to Machine Frame

Align the 122 x 122 mm gearbox output flange with the mounting holes on the robot arm or machine frame. Insert and finger-tighten all mounting bolts.

Step 7: Torque Output Flange Bolts

Using a calibrated torque wrench, tighten the output flange mounting bolts in a star pattern to the specification listed in your machine's assembly guide. This ensures an even distribution of clamping force.

> **Warning:** Under-torquing can lead to slippage and positional errors. Over-torquing can damage the aluminum housing or mounting threads.

Step 8: Attach Output Load

Mount the robot arm link, pulley, or other mechanical load to the gearbox output shaft or flange. Ensure all connecting hardware is properly seated and secured according to design specifications.

4. Post-Installation Verification

1. Double-check that all mounting bolts on the motor, gearbox, and output load are torqued to their specified values.
2. Manually rotate the output shaft (if possible with motor de-energized) to feel for any binding or roughness.
3. Power on the drive system and run the motor at a low speed (e.g., 5-10% of max RPM) in both directions.
4. Listen for any abnormal noises such as grinding, whining, or clicking, which could indicate misalignment or internal issues.

5. After a brief run-in period, check the gearbox housing temperature to ensure it is not rising excessively.
6. Verify positional accuracy with the machine's feedback system to confirm the installation has not introduced backlash or error.

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