Installation Guide: NexBot Robotics 712-005 Shaft Seal

SKU: NXB-GEN-712-005 | Revision: 1.0 | Category: Wear Parts & Consumables > Bearings & Seals > Shaft Seals

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

1. Required Tools & Materials

- Torque wrench (capable of 8 Nm)
- Metric hex key set
- Lint-free industrial wipes
- NexBot-approved seal lubricant (P/N NXB-LUBE-04B)
- Digital multimeter
- Seal puller tool
- Personal Protective Equipment (safety glasses, nitrile gloves)
- Shaft polishing cloth

2. Pre-Installation Checks

1. Verify the part is a genuine NexBot Robotics 712-005 Shaft Seal by checking the SKU NXB-GEN-712-005 on the packaging.
2. Inspect the new seal for any signs of damage incurred during shipping, paying close attention to the sealing lip and electrical connector.
3. Ensure the robotic arm or machine is powered down and follows Lockout/Tagout (LOTO) procedures.
4. Confirm the machine's power supply can provide a stable 48VDC source for the seal's integrated sensor.
5. Inspect the shaft and housing bore for any burrs, scratches, or contamination. Clean and polish surfaces as required.
6. Measure shaft runout to ensure it is within the tolerance specified in the master robot service manual.

3. Installation Procedure

Step 1: Step 1: Perform Lockout/Tagout (LOTO)

De-energize all power sources to the robotic equipment, including electrical, pneumatic, and hydraulic systems. Apply appropriate locks and tags to prevent accidental startup.

> **Warning:** Failure to de-energize and lock out the machine can result in severe injury or death from unexpected movement or electrical shock.

Step 2: Step 2: Remove Worn or Failed Seal

Carefully remove any machine guards or components obstructing access to the seal. Use a seal puller to extract the old seal, taking care not to damage the shaft or housing surfaces.

Step 3: Step 3: Prepare Mounting Surfaces

Thoroughly clean the shaft and the housing bore with lint-free wipes and a non-residue solvent. Ensure both surfaces are completely dry, smooth, and free of any foreign material.

> **Warning:** Residual debris or surface imperfections can cause premature failure of the new seal.

Step 4: Step 4: Lubricate the New Seal

Apply a thin, even film of NexBot-approved lubricant (NXB-LUBE-04B) to the outer diameter of the seal housing and the inner sealing lip. Do not use excessive lubricant.

Step 5: Step 5: Position the 712-005 Seal

Carefully align the NexBot Robotics 712-005 Shaft Seal with the housing bore. Gently press it into place by hand, ensuring it is square to the shaft and not tilted.

> **Warning:** Do not use a hammer or excessive force, as this can damage the anodized aluminum housing and internal components.

Step 6: Step 6: Install and Torque Mounting Bolts

Insert the mounting bolts and hand-tighten them in a star pattern. Use a calibrated torque wrench to tighten the bolts to the specified torque of 8 Nm, following the same star pattern to ensure even pressure.

> **Warning:** Over-tightening or under-tightening the bolts can lead to leaks or housing damage.

Step 7: Step 7: Connect Electrical Interface

Securely connect the 48VDC power cable to the seal's integrated connector. Ensure the locking mechanism engages fully to maintain the IP54 rating.

Step 8: Step 8: Reinstall Components and Remove LOTO

Reinstall any machine guards or other components that were removed. Once the work area is clear, authorized personnel may remove the LOTO devices and re-energize the equipment.

4. Post-Installation Verification

1. After re-energizing, check the robot controller for any new fault codes related to the seal sensor.
2. Run the associated axis at a low speed for several minutes and perform a visual inspection for any signs of lubricant leakage.
3. Listen for any abnormal noises such as grinding or squealing, which could indicate improper installation.
4. Verify that the 48VDC supply to the seal is stable and within specification using the machine's diagnostic interface.
5. After a brief operational period, check the temperature of the seal housing to ensure it is not overheating.
6. Confirm smooth and unrestricted rotation of the shaft through its full range of motion.

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