Installation Guide: NexBot Robotics CYC123-007 Cycloidal Gearbox

SKU: NXB-GBX-CYC123-007 | Revision: 1.0 | Category: Drive Systems > Gearboxes > Cycloidal Gearboxes

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

1. Required Tools & Materials

- Calibrated torque wrench (up to 10 Nm)
- M12 socket set
- Hex key set (metric)
- Digital Multimeter (DMM)
- IO-Link Master device
- M12 A-coded 4-pin female connector cable
- Non-permanent thread-locking compound (e.g., Loctite 243)
- Isopropyl alcohol and lint-free cloths

2. Pre-Installation Checks

1. Verify the received part is SKU NXB-GBX-CYC123-007 and check for any shipping damage.
2. Ensure the drive motor shaft and mounting flange are clean, free of burrs, and dimensionally compatible.
3. Confirm the control system's power supply can provide a stable 10-30VDC for the IO-Link interface.
4. Implement Lockout/Tagout (LOTO) procedures on the parent machine before beginning installation.
5. Download the correct IODD file for the CYC123-007 from the NexBot Robotics support portal.
6. Ensure the ambient temperature and operating environment align with the unit's specifications.

3. Installation Procedure

Step 1: Step 1: Prepare Mounting Surfaces

Thoroughly clean the motor flange and the gearbox mounting surface with isopropyl alcohol and a lint-free cloth. Ensure both surfaces are completely dry and free of oil, grease, or debris to guarantee a flush and secure fit.

> **Warning:** Failure to properly clean surfaces can lead to misalignment and premature component failure.

Step 2: Step 2: Align and Mount Gearbox

Carefully align the gearbox input with the motor shaft. Gently slide the NexBot Robotics CYC123-007 onto the motor, ensuring the mounting holes are aligned. Do not force the connection.

Step 3: Step 3: Secure Mounting Hardware

Insert the M12 mounting bolts. Hand-tighten them in a star pattern to evenly seat the gearbox. Apply a non-permanent thread-locking compound as specified by your machine's design requirements.

Step 4: Step 4: Torque Mounting Bolts

Using a calibrated torque wrench, tighten the mounting bolts in a star pattern to the torque value specified by the robot arm or machine manufacturer's documentation. The gearbox itself is rated to handle loads associated with its 7 Nm output torque, but the bolt torque is critical for proper seating.

> **Warning:** Over-torquing can damage the gearbox housing or mounting flange. Under-torquing can lead to vibration and misalignment.

Step 5: Step 5: Connect IO-Link Cable

Connect a standard M12 A-coded 4-pin cable to the gearbox's IO-Link port. Hand-tighten the connector's collar until snug to ensure an IP67-rated seal. Connect the other end of the cable to the IO-Link Master.

Step 6: Step 6: Verify Electrical Connections

Before applying power, use a DMM to verify correct polarity and voltage at the IO-Link Master port designated for the gearbox. Ensure the voltage is within the 10-30VDC range specified for the CYC123-007.

> **Warning:** Incorrect voltage or reverse polarity can permanently damage the integrated IO-Link electronics.

Step 7: Step 7: Initial Power-Up and Configuration

Remove LOTO and apply power to the control system. Using the engineering software for your IO-Link Master, verify that the CYC123-007 is detected. Upload the IODD file if required and check for any initial diagnostic faults.

> **Warning:** Ensure all personnel are clear of the machine's operational area before applying power, as the connected motor may be enabled.

4. Post-Installation Verification

1. Check for any fault codes or warnings from the gearbox on the IO-Link Master dashboard.
2. Perform a low-speed, no-load jog of the motor to listen for any abnormal noises like grinding or whining.
3. Monitor the gearbox housing temperature via IO-Link during the initial test run to ensure it remains within normal operating limits.
4. Observe the system for any unusual vibration during operation.
5. Verify that process data, such as internal temperature or cycle counters, is being correctly reported by the device.
6. Once testing is complete, re-check the torque on the M12 mounting bolts to ensure they have remained secure.

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