Installation Guide: NexBot Safety VAC413-008 Vacuum Gripper 8kg Payload

SKU: NXB-GEN-VAC413-008 | Revision: 1.0 | Category: End-of-Arm Tooling > Grippers > Vacuum Grippers

> **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)
- Set of metric hex keys (M4, M5, M6)
- Wire stripper and crimping tool
- Digital multimeter
- Safety glasses
- Anti-static wrist strap
- M12 4-pin A-coded IO-Link cable
- M6 mounting bolts (length appropriate for robot flange)

2. Pre-Installation Checks

1. Verify the package contains the NexBot Safety VAC413-008 gripper by checking the SKU NXB-GEN-VAC413-008 on the label.
2. Inspect the gripper's anodized aluminum housing for any signs of shipping damage such as dents or deep scratches.
3. Confirm the robot arm's mounting flange pattern is compatible with the VAC413-008 gripper.
4. Ensure a regulated 24VDC power source capable of supplying at least 2A is available near the installation point.
5. Verify that the robot controller or PLC has a free, configured IO-Link master port.
6. Read all safety notices in the user manual before beginning the installation procedure.

3. Installation Procedure

Step 1: Step 1: System Power Down and Lockout/Tagout

Ensure the robot controller and all related power sources are completely de-energized. Follow standard Lockout/Tagout (LOTO) procedures to prevent accidental startup during installation.

> **Warning:** Failure to de-energize the system can result in severe electrical shock or unexpected robot motion, leading to serious injury.

Step 2: Step 2: Mechanical Mounting

Carefully align the mounting holes on the VAC413-008 gripper with the robot arm flange. Insert the appropriate M6 mounting bolts through the gripper base into the flange and hand-tighten them.

Step 3: Step 3: Torque Mounting Bolts

Using a calibrated torque wrench, tighten the mounting bolts in a star pattern to the specified torque of 8 Nm. This ensures a secure connection and prevents vibration from loosening the gripper over time.

> **Warning:** Do not exceed the 8 Nm torque specification. Over-tightening can damage the threads in the aluminum housing, while under-tightening can lead to gripper failure.

Step 4: Step 4: Connect 24VDC Power

Connect the 24VDC power lines to the designated pins on the gripper's M12 connector. Ensure correct polarity is observed (+24V and 0V) to prevent damage to the internal electronics.

> **Warning:** Applying incorrect voltage or reversing polarity will cause permanent damage to the gripper's control board.

Step 5: Step 5: Connect IO-Link Communication

Connect the M12 4-pin IO-Link cable from the gripper to the designated port on the IO-Link master device. Ensure the connector is fully seated and the threaded collar is tightened to maintain the IP54 rating.

Step 6: Step 6: Cable Management

Route and secure the power and IO-Link cables along the robot arm using appropriate cable guides and ties. Leave enough slack to accommodate the full range of motion of all robot axes without pinching, stretching, or chafing the cables.

> **Warning:** Improper cable routing is a leading cause of premature failure and intermittent communication faults.

Step 7: Step 7: Install Gripping Interface

Attach the desired suction cup or foam pad interface to the face of the gripper. Ensure the sealing surface is clean and the interface is installed squarely for optimal performance.

4. Post-Installation Verification

1. After removing LOTO and powering on the system, verify that the status LED on the VAC413-008 is illuminated.
2. Using your programming environment, confirm that the IO-Link master has successfully established communication with the gripper.
3. Check the IO-Link diagnostics for any active fault codes from the device.
4. Command the gripper to generate vacuum and listen for the sound of the internal pump operating.
5. Perform a dry run of the pick-and-place sequence at a reduced speed without a part.
6. Conduct a final test by picking and placing a representative part, ensuring the vacuum level is stable during transport.

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