Installation Guide: NexBot Robotics 813-001 Tool Adapter Plate ISO 9409-1-50-4-M6

SKU: NXB-MNT-813-001 | Revision: 1.0 | Category: Accessories & Mounting > Brackets & Adapters > Tool Adapter Plates

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

1. Required Tools & Materials

- Calibrated torque wrench with appropriate range for M6 fasteners
- Metric hex key set (Allen wrenches)
- Lint-free industrial wipes
- Isopropyl alcohol (IPA) or approved non-residue cleaning agent
- Precision straight edge or dial indicator
- Feeler gauge set
- Personal Protective Equipment (PPE): safety glasses, gloves

2. Pre-Installation Checks

1. Verify that the robot arm is powered down and in a safe, locked-out state (LOTO) before approaching.
2. Inspect the NexBot Robotics 813-001 Tool Adapter Plate for any shipping damage, burrs, or defects on the mounting surfaces.
3. Clean the robot arm's ISO 9409-1-50-4-M6 mounting flange and the end-of-arm-tooling (EOAT) mounting surface to ensure they are free of debris, oil, and old thread-locking compound.
4. Confirm that the provided fasteners are the correct grade, length, and thread pitch (M6) for both the robot flange and the intended EOAT.
5. Cross-reference the SKU (NXB-MNT-813-001) with the work order to ensure the correct component is being installed.

6. Check for flatness on both the robot flange and the tool plate using a precision straight edge.

3. Installation Procedure

Step 1: Safety Lockout and Preparation

Ensure the robot controller is powered off and all energy sources (electrical, pneumatic, hydraulic) are isolated and locked out according to facility safety procedures. Clear the work area of any unnecessary tools or personnel.

> **Warning:** Failure to perform a complete lockout/tagout (LOTO) can result in unexpected robot motion, leading to severe injury or death.

Step 2: Positioning the Adapter Plate

Carefully align the NexBot Robotics 813-001 Tool Adapter Plate with the robot's mounting flange. The ISO 9409-1 standard typically includes a precision dowel pin or a centering recess; use this feature to ensure correct orientation and concentricity.

Step 3: Initial Fastener Insertion

Hand-thread all four M6 mounting screws through the plate into the robot flange. Turn each screw by hand for at least two full rotations to ensure they are not cross-threaded. Do not use tools at this stage.

> **Warning:** Cross-threading fasteners can damage the robot's mounting flange, requiring costly repairs. If a screw does not turn freely, back it out and inspect the threads on both the screw and the flange.

Step 4: Seating the Plate

Using a hex key, lightly tighten the M6 screws in a star or cross pattern to evenly seat the 120 x 120 mm plate against the robot flange. The plate should sit flush with no visible gaps.

Step 5: Torqueing Robot-Side Fasteners

Using a calibrated torque wrench, tighten the M6 screws to the robot manufacturer's specified torque value. Follow a multi-pass star pattern, first bringing all screws to 50% of the target torque, then to 100%.

> **Warning:** Over-torquing can strip threads or damage the aluminum plate. Under-torquing can lead to the plate loosening during operation, causing tool failure and potential equipment damage.

Step 6: Mounting the End-of-Arm Tooling (EOAT)

Align the EOAT with the mounting pattern on the face of the 813-001 adapter plate. Insert and hand-tighten the required fasteners for the tool.

Step 7: Torqueing Tool-Side Fasteners

Tighten the EOAT mounting fasteners to the tool manufacturer's specified torque value. Use a star pattern to ensure even clamping pressure across the tool's base.

Step 8: Final Inspection

Visually inspect the entire assembly. Ensure all fasteners are properly torqued and that there are no gaps between the robot flange, the adapter plate, and the EOAT. Re-verify flatness if required by the application's precision.

4. Post-Installation Verification

1. Verify that the adapter plate and the attached tooling are rigid and exhibit no movement when manually manipulated (with the robot still powered off).
2. Remove all LOTO devices and restore power to the robot controller according to established procedures.
3. In manual mode and at very low speed, move the robot through its full range of motion to check for any interference, cable snagging, or unexpected vibrations.
4. Verify and update the robot's Tool Center Point (TCP) and payload settings to account for the added weight (0.75 kg) and dimensions (15 mm thickness) of the adapter plate.
5. Run a test production cycle without product to confirm positioning accuracy and repeatability.
6. Document the installation date, technician, and any relevant notes in the equipment maintenance log.

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