

User Manual: NexBot Robotics 813-010 Tool Adapter Plate ISO 9409-1-100-6-M8

SKU: NXB-MNT-813-010 | Version: 1.0 | Brand: NexBot Robotics

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1. Safety Information

READ ALL SAFETY INSTRUCTIONS BEFORE OPERATION. Failure to follow safety procedures may result in serious injury or equipment damage.

DANGER: Always de-energize and perform Lockout/Tagout procedures on the robot before installing, adjusting, or removing the adapter plate or tooling. Unexpected robot motion can cause fatal injury.

WARNING: Use only high-grade M8 bolts as specified by the robot manufacturer. Failure of mounting hardware can lead to tool detachment, causing equipment damage and serious injury.

WARNING: The addition of the adapter plate (0.85 kg) and tooling must be accounted for in the robot's total payload calculation. Exceeding the robot's maximum payload can lead to premature wear and catastrophic failure.

CAUTION: The hard-coat anodized aluminum plate may have sharp edges from the manufacturing process. Handle with appropriate gloves to prevent cuts.

NOTICE: The hard-coat anodized surface provides corrosion resistance. Do not use abrasive materials or harsh chemical solvents for cleaning, as this can damage the protective layer.

2. Product Overview

NexBot Robotics 813-010 Tool Adapter Plate ISO 9409-1-100-6-M8 (NXB-MNT-813-010) is a tool adapter plates used in industrial robotics equipment where category-specific fit, electrical or mechanical compatibility, and predictable serviceability are important to buyers. The product should be understood as the exact component named by its category path, not as a complete robot or a generic service item. It supports installation, replacement, and maintenance workflows in robotic production cells by giving procurement and maintenance teams a clearly defined part class, relevant engineering specifications, and application context that matches the actual hardware being purchased.

3. Getting Started

1. Product Overview

The NexBot Robotics 813-010 Tool Adapter Plate (SKU: NXB-MNT-813-010) is a high-precision mounting component designed to interface between a robot arm and an End-of-Arm Tool (EOAT). It conforms to the ISO 9409-1-100-6-M8 standard, ensuring compatibility with a wide range of industrial robots. Its Aluminum 6061-T6 construction provides a high strength-to-weight ratio, while the hard-coat anodized finish ensures durability.

2. Compatibility Verification

Before use, confirm that your robot's tool flange matches the ISO 9409-1-100-6-M8 specification, which dictates a 100 mm bolt circle diameter with six M8 threaded holes. Also, verify that the mounting pattern of your EOAT is compatible with the available threaded holes on the face of the adapter plate. This ensures a secure and precise mechanical connection.

3. Unpacking and Inspection

Upon receiving the NXB-MNT-813-010, carefully remove it from its packaging. Visually inspect all surfaces for signs of damage that may have occurred during shipping. Verify the critical dimensions (140 x 140 x 15 mm) and ensure all threaded holes are clean and free of obstruction.

4. Operation

Payload Calculation

This adapter plate is a passive component, but its weight of 0.85 kg must be included in the robot's total payload calculation. Always add the weight of the NXB-MNT-813-010, the EOAT, all fasteners, and the workpiece to ensure the total does not exceed the robot's rated payload capacity.

Tip: Update the robot controller's payload settings after installation to ensure optimal performance and prevent excessive motor strain.

Mechanical Interface Integrity

The primary function of the adapter plate is to provide a rigid, stable mechanical interface. The integrity of this connection is critical for robot accuracy and repeatability. Regular checks for bolt torque and signs of movement are essential to maintaining performance.

Environmental Resistance

The Aluminum 6061-T6 material and hard-coat anodized finish offer good resistance to common industrial environments. However, avoid prolonged exposure to highly corrosive acids or alkaline substances. For washdown environments, ensure all hardware is of a suitable grade to prevent galvanic corrosion.

Tool Center Point (TCP) Definition

The installation of the 15 mm thick adapter plate will shift the EOAT's mounting face away from the robot flange. It is imperative to re-teach or numerically adjust the robot's TCP after installation. Failure to do so will result in positional errors in all programmed points.

Tip: Use the robot manufacturer's calibration tools for the highest TCP accuracy after installing any new hardware on the flange.

5. Maintenance Schedule

Interval	Task	Notes
Daily	Perform a brief visual inspection of the adapter plate and tooling. Look for any signs of physical damage, debris buildup, or fluid leaks from the tool.	This can be done by the operator at the start of each shift.
Weekly	Check for any signs of loosening or play in the mounted tool. Gently apply manual force to the tool to feel for any movement independent of the robot arm.	This check should be performed with the robot de-energized.
Monthly	Wipe down the adapter plate with a clean, dry cloth or a cloth lightly dampened with a mild cleaning agent to remove any accumulated dust or grime.	Avoid using compressed air, which can drive contaminants into tooling mechanisms.
Quarterly	Using a calibrated torque wrench, verify that all six M8 mounting bolts are still torqued to the robot manufacturer's specification.	Perform this check more frequently in high-vibration applications.
Annually	Remove the EOAT and the adapter plate. Inspect the mating surfaces of the robot flange and the plate for signs of fretting corrosion (a fine reddish-brown or black powder), which indicates micro-movement.	If fretting is observed, clean surfaces thoroughly and ensure proper torque procedure is followed upon reinstallation.

6. Troubleshooting

Symptom	Possible Cause	Solution
Decreased positional accuracy or repeatability.	Loosened mounting bolts on the adapter plate or the EOAT.	Power down the robot and perform LOTO. Re-torque all M8 mounting bolts and EOAT fasteners to their specified values.
Visible vibration or chatter at the end-of-arm tool during motion.	Mounting bolts have loosened, or the plate is not seated flush against the flange.	De-energize and lock out the system. Check and re-torque all mounting bolts. If the problem persists, remove the plate and check for debris or burrs on the mating surfaces before reinstalling.
Fasteners for the EOAT will not thread into the adapter plate.	Incorrect fastener size, cross-threading, or damaged threads in the plate.	Verify you are using the correct thread size. Inspect threads in the plate; if damaged, a thread chaser may be used for minor repairs. If severely damaged, the NXB-MNT-813-010 plate must be replaced.
The adapter plate does not fit onto the robot arm flange.	The robot flange is not compliant with the ISO 9409-1-100-6-M8 standard.	Verify the robot's technical specifications. The NXB-MNT-813-010 is only compatible with this specific ISO standard.
Surface of the adapter plate shows pitting or corrosion.	Exposure to incompatible chemicals or a damaged anodized coating.	Clean the plate with isopropyl alcohol. If corrosion is minor, it may be cosmetic. If pitting is deep, the structural integrity may be compromised and the plate should be replaced.
Robot program is crashing into fixtures or workpieces after installation.	The robot's Tool Center Point (TCP) was not updated to account for the 15 mm thickness of the adapter plate.	Immediately stop the robot program. Re-define the TCP to accurately reflect the new position of the tool's working point. Test the program at low speed before resuming production.

7. Technical Specifications

Parameter	Value	Unit
Weight	0.85	kg
Material	Aluminum 6061-T6, Hard-Coat Anodized	
Country of Origin	KR	
Dimensions	140 x 140 x 15 mm	

