Installation Guide: NexBot Vision MA012-003 6-Axis Robot Arm 25kg Payload

SKU: NXB-ROB-MA012-003 | Revision: 1.0 | Category: Robots > Articulated Robots > Medium Articulated (10-50kg)

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

1. Required Tools & Materials

- Industrial crane or forklift (rated for >300kg)
- Calibrated torque wrench with sockets
- M16 Grade 10.9 mounting bolts and washers
- Precision machinist's level
- Metric hex key set (5mm - 14mm)
- Digital multimeter
- EtherCAT network cable termination tools
- Personal Protective Equipment (Safety glasses, steel-toed boots, gloves)

2. Pre-Installation Checks

1. Verify the concrete foundation is level, fully cured, and designed to handle the robot's static weight (275.0 kg) and dynamic operational forces.
2. Confirm the provided 400-480VAC 3-Phase power source is de-energized and follows lock-out/tag-out (LOTO) procedures.
3. Inspect the shipping crate and robot for any signs of damage that may have occurred during transit.
4. Ensure the installation area is clear and provides adequate clearance for the robot's full 1700 mm reach without collision points.
5. Cross-reference the packing list with the delivered components, including the robot arm, controller, cables, and teach pendant.

6. Check that the ambient environment meets the robot's operational specifications for temperature and humidity.

3. Installation Procedure

Step 1: Uncrating and Positioning

Carefully uncrate the NexBot Vision MA012-003. Attach certified lifting straps to the designated forged steel lifting points on the robot base and use a crane to carefully position the robot over the mounting holes on the prepared foundation.

> **Warning:** Improper lifting can cause the robot to become unstable, leading to severe equipment damage or personal injury. Use only the designated lifting points.

Step 2: Base Mounting and Leveling

Lower the robot onto the foundation, aligning the 680 x 550 mm base footprint with the mounting pattern. Insert all M16 mounting bolts and washers, then use a precision level on the machined base surface to level the robot before final tightening.

Step 3: Torquing Mounting Bolts

Using a calibrated torque wrench, tighten the mounting bolts in a crisscross pattern to the specification outlined in the mechanical installation manual. This ensures even clamping force and prevents base distortion.

> **Warning:** Failure to use the correct torque specification can result in excessive vibration, reduced repeatability (±0.03 mm), and potential catastrophic failure during operation.

Step 4: Connecting Main Power and Ground

With power locked out, connect the 3-phase power lines and the main equipment ground to the designated terminals inside the

robot's IP54-rated base. Ensure all connections are secure and wiring conforms to local electrical codes.

> **Warning:** Hazardous voltage. All electrical work must be performed by a qualified electrician. An improper ground connection creates a serious shock hazard.

Step 5: Connecting Communication Cables

Connect the primary EtherCAT communication cable from the robot controller to the X21 port on the robot base. Ensure the industrial connector is fully seated and locked to maintain the IP rating.

Step 6: Removing Shipping Brackets

Locate and remove all red-painted metal shipping brackets from the robot's axes. These brackets immobilize the joints during transport and must be removed before applying servo power.

> **Warning:** Attempting to power on or move the robot with shipping brackets installed will cause immediate and severe damage to the servo motors and gear reducers.

Step 7: Mounting End-of-Arm Tooling (EOAT)

Mount the selected gripper or tool to the J6 axis flange. Ensure the combined weight of the tooling and the workpiece does not exceed the maximum 25 kg payload capacity. Connect any required pneumatic or electrical lines to the utility ports on the arm.

4. Post-Installation Verification

1. Visually inspect all electrical and communication connections to ensure they are secure.
2. Verify that all shipping brackets have been removed from every axis.
3. Ensure the robot's work envelope is completely clear of personnel, tools, and debris.

4. After removing LOTO, apply power to the controller and verify it boots without critical errors.
5. Establish a connection with the teach pendant and check for any active alarms.
6. Perform a low-speed manual jog of each of the 6 axes to confirm smooth movement and correct direction.

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