

Installation Guide: NexBot Safety MA012-012 6-Axis Robot Arm 25kg Payload

SKU: NXB-ROB-MA012-012 | 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

- Overhead crane or forklift with a minimum 500 kg capacity and certified lifting straps
- Metric torque wrench set (up to 500 Nm)
- M20 industrial-grade chemical or mechanical anchor bolts (quantity as per baseplate)
- Precision laser level or machinist's level
- Calibrated digital multimeter for voltage verification
- PROFINET industrial Ethernet cable crimper and tester
- Complete metric hex key and socket wrench set
- Lifting eye bolts compatible with robot base mounting points

2. Pre-Installation Checks

1. Verify the concrete foundation or steel mounting structure is rated to support the robot's static weight (285 kg) and dynamic operational loads.
2. Confirm the incoming electrical supply is a stable 400-480VAC 3-Phase source and that a suitable circuit breaker and disconnect are installed.
3. Unpack and inspect the NexBot Safety MA012-012 robot arm, controller, and cables for any signs of shipping damage.
4. Cross-reference all delivered components against the packing list to ensure the shipment is complete.
5. Ensure the planned installation area is clear of obstructions and provides sufficient clearance for the robot's full 1710 mm reach.

6. Verify that the ambient temperature and humidity of the installation site are within the robot's specified operating range.

3. Installation Procedure

Step 1: Prepare and Secure Mounting Surface

Prepare the installation surface according to the mounting template provided. Ensure the surface is clean, flat, and level within specifications before drilling holes for the anchor bolts.

Step 2: Lift and Position the Robot

Attach certified lifting eye bolts to the designated points on the robot base. Using an overhead crane or forklift, carefully lift the 285 kg robot and position it over the mounting surface, aligning the base holes with the installed anchor bolts.

Warning: Improper lifting can cause severe injury or death and damage to the equipment. Use only certified lifting equipment and trained personnel.

Step 3: Secure Robot Base

Lower the robot onto the anchor bolts and secure it using the specified washers and nuts. Tighten the nuts in a star pattern to the torque value specified in the robot's mechanical reference manual.

Warning: Failure to properly torque mounting hardware can lead to excessive vibration, poor performance, and catastrophic failure.

Step 4: Connect Main Power and Control Cables

With the main disconnect in the OFF and locked-out position, connect the 400-480VAC 3-Phase power cable to the controller's main input terminals. Connect the main robot data and power cable between the robot base and the primary controller port.

Warning: Ensure all power sources are de-energized and locked out before making any electrical connections to prevent electric shock.

Step 5: Establish Earth Ground Connection

Connect a dedicated, low-impedance earth ground wire from the robot controller chassis and the robot base to the facility's earth ground point. A proper ground is critical for operator safety and reducing electrical noise.

Step 6: Connect PROFINET Communication

Connect the industrial PROFINET cable from your plant network or master PLC to the designated port on the NexBot controller. Configure the robot's IP address and device name to integrate it into your automation network.

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

Mount the desired end-effector or gripper to the robot's Axis 6 mounting flange. Connect any pneumatic or electrical lines for the tool to the utility ports provided on the robot arm.

Warning: Ensure the combined weight of the EOAT and the workpiece does not exceed the robot's maximum 25 kg payload capacity.

4. Post-Installation Verification

1. Perform a final check of all mechanical and electrical connections to ensure they are secure.
2. Remove all lock-out/tag-out devices and apply power to the robot controller.
3. Verify that no error codes are present on the teach pendant upon initial startup.
4. Establish communication with the robot over the PROFINET network and verify a stable connection.
5. Perform the robot mastering and calibration procedure as outlined in the software manual.
6. Using the teach pendant at low speed (10% or less), jog each of the 6 axes to verify correct movement and check for any obstructions.

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