Installation Guide: NexBot Robotics 541-001 Cable Carrier

SKU: NXB-CBL-541-001 | Revision: 1.0 | Category: Cables & Connectors > Cable Management > Cable Carriers (Drag Chains)

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

1. Required Tools & Materials

- Flat-head screwdriver (for opening crossbars)
- Hex key set (metric)
- Torque wrench
- Tape measure
- Cable ties
- Wire cutters/snips
- Safety glasses
- Work gloves

2. Pre-Installation Checks

1. Verify the received product is SKU NXB-CBL-541-001 and inspect for any damage incurred during shipping.
2. Confirm the machine's travel path is clear of obstructions and debris.
3. Ensure the mounting surfaces for both the fixed and moving ends are clean, flat, and structurally sound.
4. Calculate the total cross-sectional area of the cable bundle to ensure it does not exceed 80% of the carrier's 38 x 75 mm inner dimensions.
5. Confirm all cables, especially sensitive PROFINET lines, are long enough for the full travel distance plus a service loop.
6. Power down and lock out/tag out the associated machinery according to site safety procedures.

3. Installation Procedure

Step 1: Mount Fixed-End Bracket

Securely attach the fixed-end mounting bracket to the non-moving part of the machine frame. Use the appropriate hex bolts and tighten to the machine manufacturer's specified torque.

> **Warning:** Ensure the mounting bracket is perfectly parallel to the direction of travel to prevent premature wear on the cable carrier.

Step 2: Mount Moving-End Bracket

Attach the moving-end bracket to the mobile component of the machine. Verify it is aligned with the fixed-end bracket in all axes.

Step 3: Lay Out Cable Carrier

Unpack and lay the NexBot Robotics 541-001 Cable Carrier along the intended travel path. Ensure there are no twists in the chain assembly.

Step 4: Open Carrier Crossbars

Using a flat-head screwdriver, carefully pry open the crossbars on the outer radius of the carrier. Open only as many as needed to begin laying the cables.

> **Warning:** Applying excessive force can damage the crossbar locking mechanism. Pry gently at the designated slots.

Step 5: Install Cables and Hoses

Lay cables and hoses into the open carrier, starting from the center and working outwards. Place heavier or stiffer cables towards the outside edges and sensitive data cables, like PROFINET, towards the center.

> **Warning:** Do not twist or pull cables taut. Cables must lie flat and move freely within their compartments.

Step 6: Respect Bend Radius and Separation

Ensure all cables can comfortably meet the carrier's 150 mm bend radius. Use vertical separators if mixing power, data, and pneumatic lines to prevent electrical interference and abrasion.

> **Warning:** Forcing a cable with a larger minimum bend radius will lead to conductor failure. This is especially critical for high-flex PROFINET cables.

Step 7: Close Carrier Crossbars

Once all cables are in place, snap the crossbars shut. You should hear an audible click confirming they are securely locked. Verify each one is fully seated.

Step 8: Attach Carrier to Brackets

Connect the last link of the cable carrier to the fixed-end and moving-end mounting brackets. Ensure the connection is secure and the carrier is oriented correctly with the bend moving away from the mounting surface.

> **Warning:** Incorrect orientation can cause the carrier to bind or buckle during operation.

Step 9: Secure Cable Ends

Use cable ties or integrated strain relief clamps on the mounting brackets to secure the cable bundle at both ends of the carrier. This prevents the cables from pulling against their connectors during machine movement.

> **Warning:** Do not attach cable ties inside the moving portion of the cable carrier, as this restricts movement and causes abrasion.

4. Post-Installation Verification

1. Manually move the machine component through its entire range of motion to check for smooth carrier travel.
2. Listen for any unusual noises such as clicking, grinding, or scraping.
3. Visually inspect the cables within the carrier at both ends of the travel path to ensure they are not under tension or twisting.
4. Verify that all crossbars remain securely closed after the full motion test.
5. Double-check that all mounting hardware is tightened to the correct specifications.
6. Remove lock out/tag out and power on the machine for a slow operational test.

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