# Installation Guide: NexBot Robotics 832-001 Hardened Steel Dowel Pin and Key Set

SKU: NXB-GEN-832-001 | Revision: 1.0 | Category: Accessories & Mounting > Fasteners & Hardware > Dowel Pins & Keys

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

## 1. Required Tools & Materials

- Safety Glasses
- Soft-faced mallet or arbor press
- Set of precision pin punches
- Digital calipers or micrometer
- Precision reamer (if hole adjustment is needed)
- Deburring tool
- Lint-free cloths
- Isopropyl alcohol or approved cleaning solvent

## 2. Pre-Installation Checks

1. Verify that the SKU NXB-GEN-832-001 is correct for the intended application per the assembly drawing.
2. Inspect each dowel pin and key for any signs of shipping damage, burrs, or manufacturing defects.
3. Measure the receiving holes to confirm they are within the specified tolerance for a light press or transition fit.
4. Ensure the receiving holes and keyways are clean, dry, and completely free of debris, cutting fluid, or old lubricants.
5. Check the edges of the holes and keyways for any burrs or sharp edges; deburr as necessary for a smooth installation.
6. Confirm that the components to be joined are correctly oriented and staged for alignment.

# 3. Installation Procedure

### Step 1: Component & Fastener Verification

Cross-reference the dowel pins and keys from the NXB-GEN-832-001 set with the Bill of Materials (BOM) for the assembly. Use calipers to confirm the diameter of the pin and the width of the key match the specifications required for the mating components.

> **Warning:** Using an incorrect size fastener can lead to improper alignment, component damage, or assembly failure.

### Step 2: Hole and Keyway Preparation

Thoroughly clean the target holes and keyways using a lint-free cloth and an approved solvent. Ensure all surfaces are free from oil, grease, and particulates. A clean surface is critical for achieving the correct friction and fit.

### Step 3: Initial Component Alignment

Carefully align the components to be joined. The corresponding dowel holes must be perfectly concentric. For keyed shafts, slide the hub onto the shaft to ensure the keyways are aligned before introducing the key.

> **Warning:** Do not attempt to force components into alignment using the dowel pin itself, as this can damage the pin or the components.

### Step 4: Dowel Pin Insertion

Insert the chamfered end of the dowel pin into the aligned holes. Use an arbor press for controlled insertion. If a press is unavailable, use a soft-faced mallet and a pin punch to gently and squarely tap the pin into place until it is fully seated.

> **Warning:** Never strike a hardened steel dowel pin directly with a steel hammer, as this can cause it to shatter or mushroom, creating a safety hazard and preventing proper seating.

### Step 5: Verify Pin Seating

Check that the dowel pin is seated to the correct depth as specified in the assembly diagram. The pin should be flush or slightly recessed, depending on the design. Ensure it is not canted or angled.

### Step 6: Key Insertion

Select the appropriate key from the set. Align the key with the keyway on the shaft and gently tap it into place with a soft-faced mallet until it is fully seated. The fit should be snug, without requiring excessive force.

### Step 7: Final Assembly with Keyed Component

Slide the mating component (e.g., gear, pulley) over the shaft and the installed key. The internal keyway of the mating component should slide smoothly over the key. Secure the component axially using the method specified in the design, such as a set screw or retaining ring.

> **Warning:** Ensure no burrs are raised during key installation that could prevent the mating component from seating correctly.

### Step 8: Final Alignment Check

With all fasteners from the NXB-GEN-832-001 set installed, perform a final check of the overall assembly's alignment. Verify that all secured components are parallel and perpendicular as required by the design specifications.

## 4. Post-Installation Verification

1. Confirm all dowel pins are fully seated and do not protrude in a way that could interfere with other moving parts.
2. Verify there is no discernible movement or 'play' between the doweled components.
3. For keyed assemblies, check for rotational looseness between the shaft and the hub. There should be none.
4. Wipe down the assembly to remove any fingerprints or residual cleaning agents.
5. Check that any associated fasteners, like clamping bolts or set screws, are tightened to their specified values.
6. Update maintenance and assembly logs to reflect the installation of new hardware from the NXB-GEN-832-001 set.

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

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