



# Why Proper Torque Matters When Installing NTN's Sentinel Series™ Stainless Steel Insert Bearings



Stainless steel is generally more brittle than traditional 52100 bearing steel. Because of this fact, tightening inner ring set screws in stainless steel insert bearings with the proper torque is essential to avoid fracturing of the inner ring.

A fractured inner ring can lead to two catastrophic events in food & beverage production:

- Migration of contamination such as cleaning solutions or other liquids inside the bearing causing seizure.
- Fractured pieces of the inner ring falling into and contaminating the product being produced.

To avoid either of these outcomes, NTN recommends adhering to the following instructions to ensure proper installation of stainless steel Sentinel Series bearings.

## 1. Prepare the bearing & mounting surfaces

- Remove any burrs or damage on the shaft and mounting area.
- Clean the mounting area to remove any contaminants.
- Ensure that set screws are not protruding into the bore of the bearing.

## 2. Slide the bearing into position on the shaft and mounting area

- Make sure the mounting area for the housing is flat. If it is not flat, shim to level.
- Rotate the inner ring of the set screw to be at the same 12 o'clock alignment position with the opposing bearing located at the other end of the shaft.

## 3. Tighten mounting bolts to secure the housing

- Ensure there is less than 2 degrees of misalignment in the shaft.
- Recheck alignment of set screws on bearings at either end of shaft.

## 4. Properly tighten inner ring set screws:

- Using the maximum torque settings in Table 1, tighten the set screws evenly on the shaft.
- For inner rings with two set screws:
  - » Torque first set screw to **HALF** the recommended tightening torque.
  - » Torque the second set screw to **FULL** recommended tightening torque.
  - » Torque the first set screw down to **FULL** recommended tightening torque.\*

\* Appropriate set screw torque by size provided on Table 1 on the next page.

## 5. Perform a final check on alignment of set screws and the bearing unit

## TOOLS REQUIRED FOR INSTALLATION

- Torque Wrench
- Cleaning Tools
- Clean Working Surfaces

**TABLE 1: RECOMMENDED SET SCREW TIGHTENING TORQUE FOR NTN SENTINEL SERIES BEARING INSERTS**

Unit Size	Inch Series		Metric Series	
	Set Screw	Tightening Torque max (in-lbs)	Set Screw	Tightening Torque max (N-m)
201-206	1/4-28UNF	34.5	M6X1	3.9
207-208	5/16-24UNF	73.5	M8X1	8.5
209-212	3/8-24UNF	156.5	M10X1.25	17.7



### Examples of Damage Caused by Excess Set Screw Torque



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