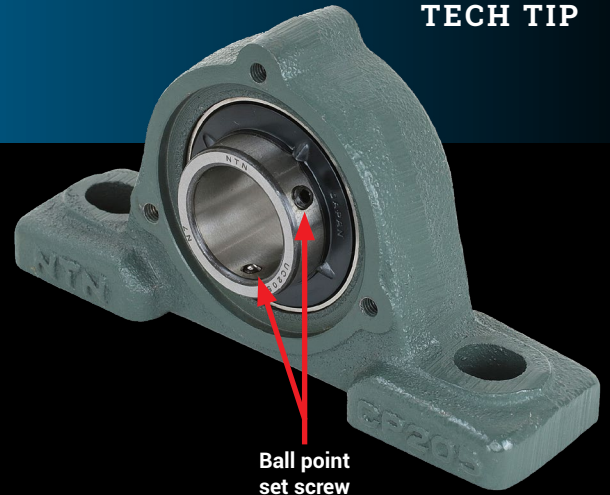




Ball Point Set Screws for NTN Ball Bearing Mounted Units



Ball point set screw

Mounted ball bearing units are generally mounted and fixed to the shaft using a set screw. The idea is that as you tighten the set screw, the face of the set screw digs into the shaft, thus creating a gouge that allows the set screw to hold the inner ring in place. This action will not only permanently deform the shaft, but the face of the set screw as well. While this usually works, the reality is that set screws do not always do the best job of staying in place. They have a tendency to loosen and back out, causing the inner ring of the bearing to slip. There are various types of set screws that can hold better but usually at the cost of the shaft.

Figure 1: Set screw types



Cup Point Set Screw

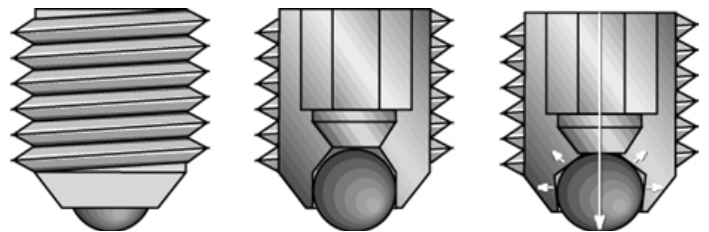
Knurled Point Set Screw

Ball Point Set Screw

The industry standard tends to be the cup point set screw (fig. 1), which is OK in regards to holding power and staying in place, but ultimately will eventually loosen and back out. The knurled point set screw, as indicated by the name, has a knurled face. This allows the set screw to “dig” into the shaft more, thus causing more damage. Although the theory is good, in actuality the holding power is similar to that of the cup point set screw.

The ball point set screw is an NTN exclusive design that is the standard for **ALL** NTN standard steel industrial ball bearing mounted units. NTN developed a hardened steel ball that is retained in the tip of the set screw. The design allows the steel ball to dimple the shaft and push out on the threads to retain its holding power between the inner ring and the shaft (fig. 2).

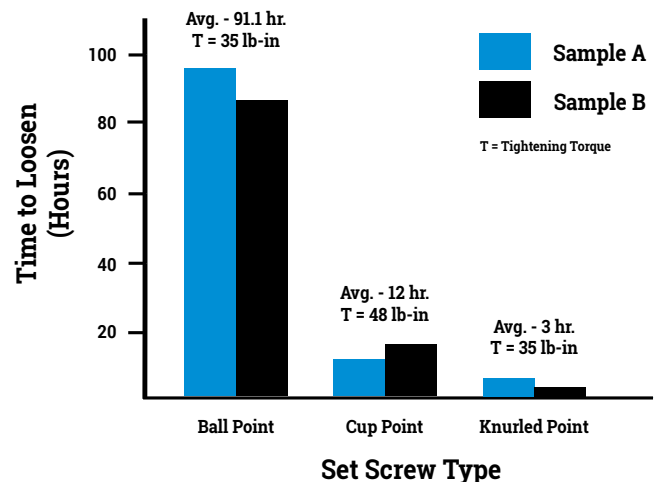
Figure 2: Cross section view of ball point set screw



NTN conducted a test to determine how the ball point set screw compared to both the cup point and the knurled point set screws and the results were astonishing. Under the same application conditions, the NTN ball point set screws outlasted the other two set screw designs by over 7.5X (fig. 3). For this reason, **NTN made the ball point set screw the standard for all of our standard Greenline and premium Ultra-Class ball bearing mounted units.**

Figure 3: Set screw testing results

Time to Loosen Test Results



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