

Problem Limitation on Applied Torque for Joints requires Vibration Resistance

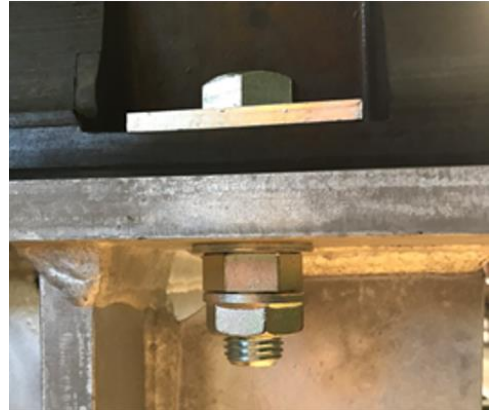
Consideration for Double-Nutting



- Double-nutting is practically useless if the nuts are not properly tightened. This gets more and more difficult for large sizes.
- The fastener can not be checked to see if double-nutting was applied correctly or not.
- When tightening the joint over anti-vibration rubber, too much force will deform the rubber. Double Nut techniques even with the same torque do not produce consistent clamp forces.



HLN replaces Double-Nutting



- HARDLOCK Nut does not require any special Double-nutting techniques. The lower seated nut can be tightened to the designers specification to apply correct clamp force. The upper nut should be tightened within HARDLOCK's specification which will not interfere with the initial clamp force. Over discussion, Upper and lower nut torques can be adjusted to the same value.
- HARDLOCK Nut can be fastened in low torque applications to prevent loosening.

In this case study, HARDLOCK Nut was chosen over Double-nutting for installation in Seismic Isolated Building Dampers on the Anchor Bolt. Fasteners used to hold down the rubber components in the Damper are much weaker than metal joints meaning they must be fastened with much less torque (clamp force) than a regular fastener. Double Nut is a solution which can achieve good locking but can lead to risks of loosening in the case of bad installation. HARDLOCK is easy to install with no risks for installation problems.

In Japan on average, there are 153 earthquakes each year over magnitude 6.0. To keep buildings from shaking such seismic isolators are required. HARDLOCK is used in many seismic isolators across Japan to ensure safety. In Japan they have the phrase "Sonae areba Urei nashi" which means if you are well prepared there is nothing to fear. This phrase represents well the use of HARDLOCK Nut because you don't know whether your current Loosening preventions solution is right until there is an Earthquake.

Details	HARDLOCK Nut
Product	M22 ~ M36 S45C Trivalent Chromate Plating
Usage in	Building Seismic Isolator Damper
Industry	Construction
Notes	Anchor Bolt