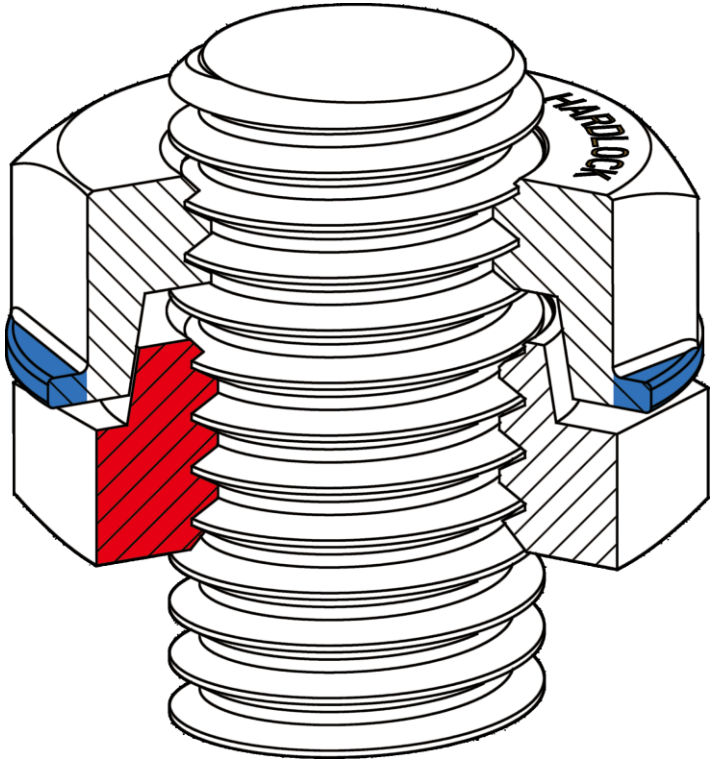
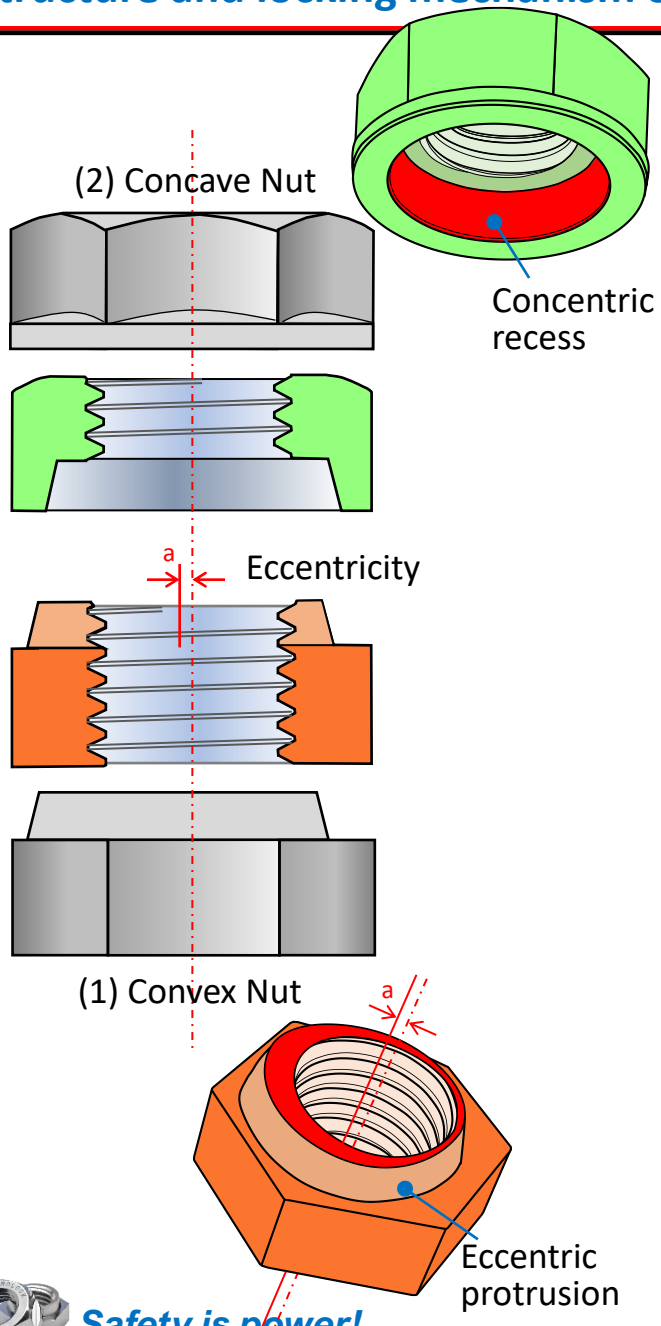
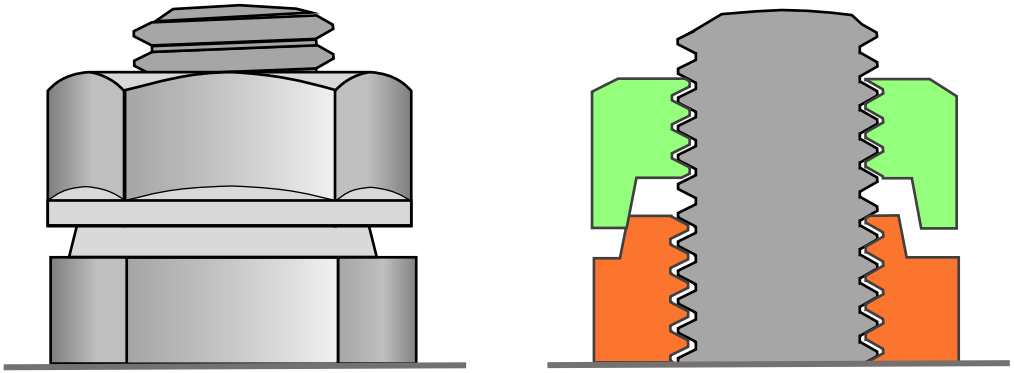


HARDLOCK®
Solution

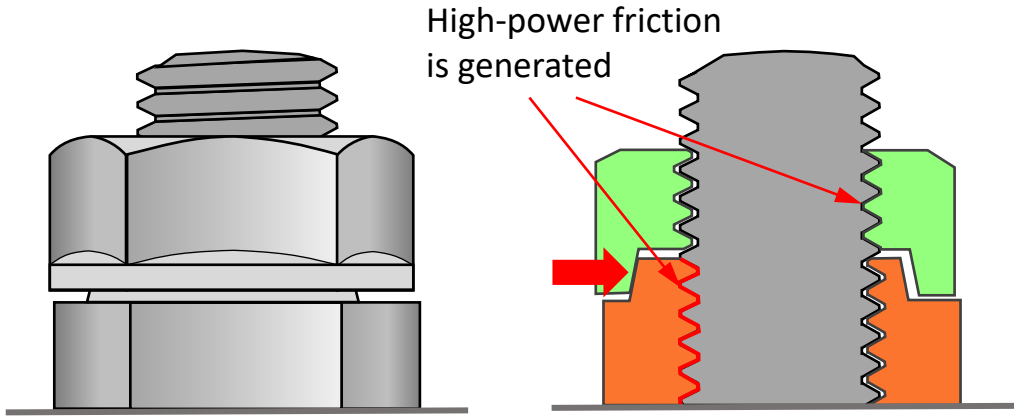
Food & Beverage Applications

Structure and locking mechanism of HARDLOCK Nut (HLN)





The first nut **(1) Convex Nut** (clamping nut) has an **eccentric conical protrusion** on the upper surface. The Convex Nut that has the same strength class as a regular hexagon nut is to be tightened to the appropriate torque for the application.
The Concave Nut is screwed down manually by hand until it no longer turns.

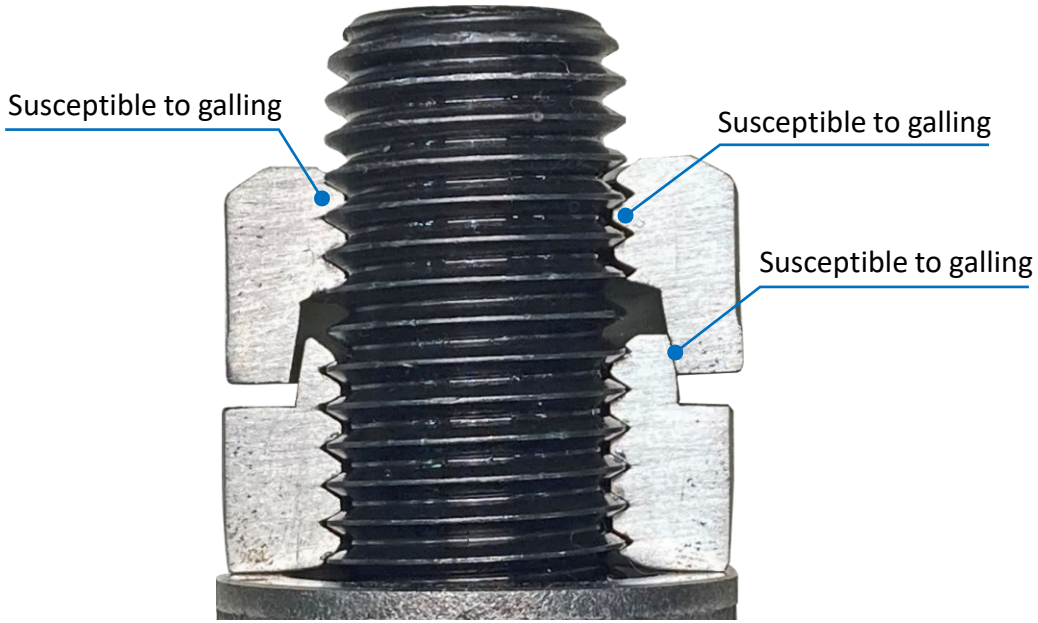


The second nut **(2) Concave Nut** (locking nut) is designed with a concentric conical recess that contacts the protrusion of Convex Nut to generate a strong perpendicular load with resultant elimination of the play (gap) between the Convex Nut and bolt.

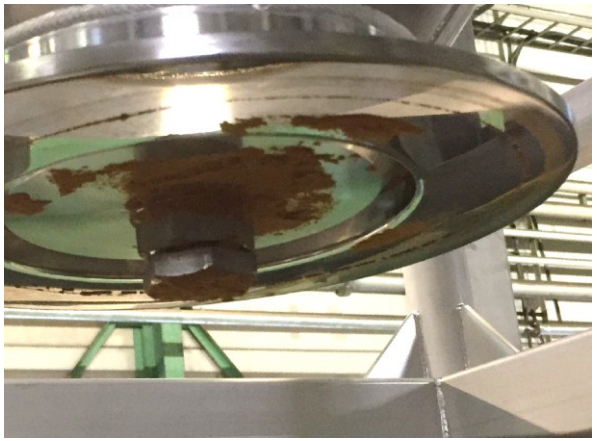
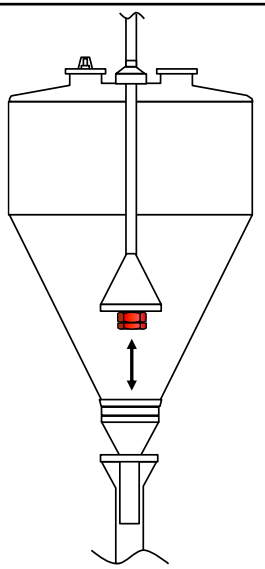
Possible thread galling during HLN installation

From a structural perspective, HARDLOCK Nuts, especially in stainless steel have a risk of galling if tightened without lubrication.

when tightening the Concave nut, there is no room to stretch the bolt and the friction load is imposed right on the bolt thread, also the friction between the protrusion and the recess may generate enough heat to fuse and seize the contact surfaces.



HARDLOCK Nuts use in food & beverage applications (1)

APPLICATION	REASON FOR USE
Cone valve for intermediate bulk container for powders and granules **M24 A4**  	To prevent loosening
Agitation impeller for chocolate manufacturing **M12x1.75 A2** 	To prevent loosening

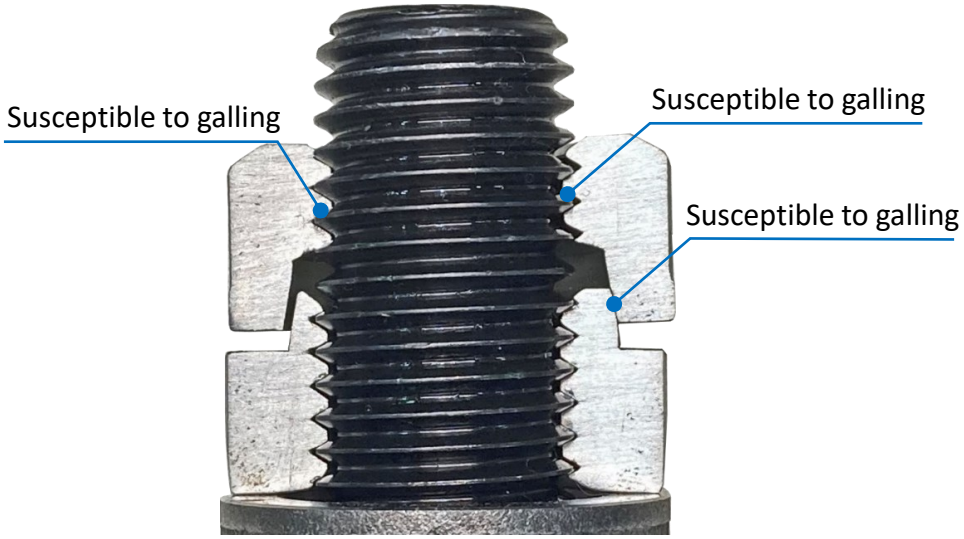
HARDLOCK Nuts use in food & beverage applications (2)

APPLICATION	REASON FOR USE
Handrail of thermal tank for Japanese Sake (rice wine) **M6A2** 	Steel plate is too thin to be welded
To fix the filter of stainless tank **M8A2**	To prevent loosening
Conveyer line	To prevent loosening

Possible thread galling during HLN installation

From a structural perspective, HARDLOCK Nuts, especially in stainless steel have a risk of galling if tightened without lubrication.

When tightening the Concave nut, there is no room to stretch the bolt and the friction load is imposed right on the bolt thread, also the friction between the protrusion and the recess may generate enough heat to fuse and seize the contact surfaces.



Japanese customers usually remove lubricants using emulsion cleaning process.