



*Adhesives for more
reliable assemblies*

APPLICATION CASE HISTORY

No. 103

Loctite® Threadlocker Adhesives Increase Life And Reliability Of Pump; Decrease Assembly Problems

Problem:

One of our customers is a pump manufacturer who was having problems with gland studs and adjustment nuts. Gland studs had previously been made to Class 5 interference fit tolerance of .001" to .0084". To achieve this, special oversized studs with .003" tolerance pitch diameter were used with a Class 2 tapped hole. Stud drivers were used with a capability of driving 1/2" studs (up to 75 lbs/ft) and 3/4" studs (up to 190 lbs/ft). Any deviation from tolerance resulted either in studs being broken during assembly or studs loosening during gland adjustment with the retaining nut. If studs loosened, the whole pump had to be disassembled to repair them. The heaviest interference fits caused high flange stresses which warped the end plates and gland box causing power loss, excess wear, and shortened pump life.

Solution:

Standard Class 2 studs, up to and including 1/2", are now assembled by applying Loctite 271 Threadlocker into the blind stud hole and screwing in the stud by hand. Loctite 271 is a high strength adhesive for fasteners up to 1" in diameter.

On studs over 1/2" diameter, Loctite 277 Threadlocker is used because of its high strength. Loctite 277 Threadlocker is a high-viscosity, high-strength adhesive.

To maintain proper tightness, stud nuts are locked with Loctite 242 Removable Threadlocker, a medium-strength general purpose adhesive. Loctite 242 is ideal for all nut and bolt applications, especially fasteners of 1/4" or larger, and allows for easy disassembly with hand tools.

Results:

Cost savings were achieved because the manufacture of studs now requires only standard tolerance and standard gages. Assembly is easily done by hand. The locking ability of Loctite's permanent threadlockers exceeds the interference fit strength by about 20%. Adjustment of the gland nuts are easy and precise because the studs are never loose. All housings are now stress and warp free.

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