

FastLUBE in the Media



New Compound Overcomes Stainless Bolt and Nut Thread Galling

by Joe Greenslade

Several times each year I receive calls from suppliers who have sold stainless steel bolts and nuts to a customer who is encountering thread galling problems during assembly at the time of their call. Stainless steel fastener users usually jump to the conclusion that the bolt threads are out of specification. Evaluation of the bolt and nut threads usually indicates that the threads are within specification and that is not the root cause of the problem.

For reasons not completely understood, some stainless steel bolts and nuts gall and seize in the threads while being assembled, even before the bearing surfaces come in contact with the assembly components. It is felt by many that thread roughness on either or both the internal and external thread is at least one of the factors contributing to thread galling.

Several years ago I wrote an article about this subject and stated that there are three possible solutions to stainless steel thread galling:

- Add a lubricant to the bolt.
- Slow the driver speed if the fasteners are being installed with a power driver.
- Mismatch the grades of stainless (make the bolts of 302 stainless and the nuts of 316 stainless) if possible.

All of these are still valid suggestions, but none of them is a fool-proof solution. Those having a galling problem

might have to try all three approaches to find the one that resolves their particular situation. The addition of some type of lubricant is probably the most commonly utilized solution.

Since writing the previous article on the subject of stainless steel thread galling, I have continued to seek even more dependable solutions to suggest for solving this troublesome problem. Recently a supplier told me of a new anti-galling compound he had tried that provided some amazing results. I was told that this compound could be put on severely nicked stainless bolts threads and that a nut of the same grade of stainless could be completely assembled onto the bolt without thread seizing and galling.

I like to verify performance claims for myself before passing the information on to others. In this case, I obtained some of the anti-galling compound directly from the compound manufac-

turer and conducted my own test. The pictures in this article are a record of my test.

The threads of a 1/2-13 302 stainless steel bolt were severely damaged by striking them repeatedly with a hammer. It was reasonable to assume that a 302



Anti-galling compound placed on bolt's end threads.



Nut goes entire length of bolt thread without seizing.



Stainless steel bolt with intentionally damaged threads.



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Mr. Greenslade holds twelve U.S. patents on various fastener related products. He has authored over 136 trade journal articles on fastener applications, manufacturing and quality issues. He is one of the fastener industry's most frequent speakers at trade association meetings and conferences. He is the youngest person ever inducted to the Fastener Industry Hall of Fame.

Mr. Greenslade is active in numerous fastener industry associations and societies holding office in several of them.

In addition to guiding the activities of Greenslade & Company, Mr. Greenslade works as a consultant with fastener suppliers and end users on product design, applications engineering, and quality issues. In this capacity he works to resolve fastener applications problems, to help select the best fastening approaches in new product designs, to assist in the standardization of fasteners used within an organization, and to provide training on various aspects of fastening technology and fastener quality assurance. He also serves as Expert Witness in litigation involving fastener related issues. He can be reached at: phone 817-870-8888, fax 817-870-9199 or email: greensladeandcompany@sbcglobal.net.

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stainless steel nut would not go on this bolt without completely seizing on the bolt's thread due to thread galling.

The compound was rubbed on the last three to five threads of the bolt's point end and the nut was started on the bolt. As would be expected, as soon as the nut encountered the bolt's thread nicks the torque required to rotate the nut immediately increased. What was not expected was that the nut could be screwed the full length of the bolt thread without the threads seizing together as a result of galling.

I would never suggest that a user try to use bolts with threads as severely damaged as those in my test. Based on these test results, I believe this compound can probably provide an effective solution to many, if not all, of the routinely occurring stainless steel thread galling problems.

Fastener suppliers who regularly supply stainless steel threaded fasteners should obtain some of this compound and conduct this simple, but dramatic test themselves. If they find the same results I did, they should consider keeping some of this material available for their customers when galling problems occur.

The anti-galling compound used in this test is called "*Fastorq*® A/G." This anti-galling compound is manufactured by *Fastorq*® Bolting Systems. Those wanting more information can contact *Fastorq*® at 800-231-1075 or go to their website at www.fastorq.com. ■