



Proven Precision Dry Lubrication

DICRONITE®



Anti-Galling/ Run-In Torque Reduction

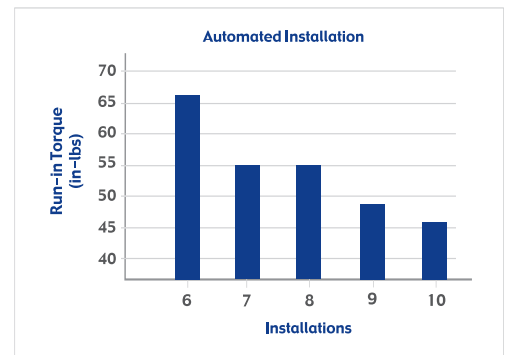
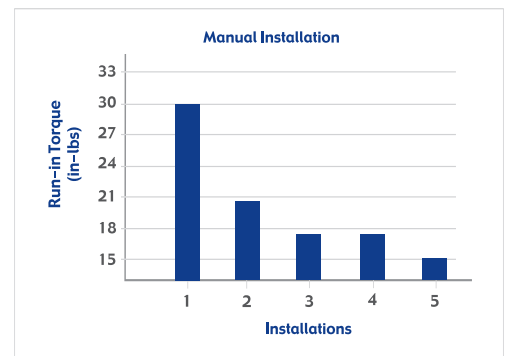
Situation:

- An aircraft structures manufacturing company was encountering galling when installing titanium bolts (type NAS1581) to threaded stainless steel nutplates (type MS21060L6). The fastener system is used to attach a large exterior communications structure to the airframe.
- The end customer had set a specification of 5 installation/removal cycles with no galling for maintenance purposes. While the manufacturer could achieve this at times during pre-production testing, the results were not reliable and required careful manual installation.

Dicronite Dry Lubricated Assemblies

Results:

- A set of Dicronite dry lubricated bolts and nutplates were prepared for testing.
- Manual Installation: As shown in Figure 1, the run-in torque was low and decreased with every installation/removal cycle. No evidence of galling was noted and the coating was found to be in good condition throughout the test.
- Automated Installation: The run-in torque measured after the 5th cycle was 32 in-pounds and no evidence of galling or coating loss was noted. The data from the subsequent five cycles (#s 6-10) is shown in Figure 2. Interestingly the 6th cycle run-in torque was higher but then consistently decreased with each cycle. No evidence of galling was noted throughout; minimal coating degradation was observed.
- Dicronite dry lubrication was recommended for the final design, as it eliminated the galling problem and enabled automation during production. In addition, the design engineer noted that due to the decreased friction during assembly, truer final torque readings were achieved.



Dicronite is available throughout the world. For more information visit us at: www.dicronite.com or contact Lubrication Sciences International at 800.874.4319 • 408.834.7442 • inquiries@dicronite.com