



November 4, 2013

November 2013 Fastener Industry Technology Update

1. Standards Organizations Activities

a. Standards published during October

[A194/A194M - Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both](#)

b. Standards in the publishing stage

i. B18.6.3 – Inch machine and tapping screws

c. Standards in the revision process

i. SAE J429 – Inch Bolt and Cap Screw Material Standard. The last revision of J429 inadvertently left out AISI 4140 as a qualified material for making Grade 8 bolts due to a slight difference in chemistry between the new requirements and those of 4140. In October a ballot was opened to specifically designate AISI 4140 as an acceptable material for the production of Grade 8 screws and bolts. That is expected to be completed and published before the end of 2013.

ii. ASME B18.16.6 – Inch Lock Nuts. This has been balloted twice. The negatives and comments have been responded to. This standard should go for publication before the end of 2013

iii. ASME B18.24 – Fastener part identification numbering system

iv. ASME B18.31.2 – Inch studs. An Appendix is going to be introduced to define the acceptance criteria for the length on continuous threaded studs ordered to ASTM material standards.

v. ASME B18.31.3, Threaded rod (inch)

vi. ASTM F606/F606M, Fastener Testing Standard, the inch and metric standards are being combined into a single standard. The first ballot closed in mid-October. All comments have been addressed. The revised standard will be reviewed at the ASME F16 meeting during November. The final ballot will go out before the end of 2013.

vii. ASTM F16 Structural Bolt Standard – A new standard is in the works which is a compilation of inch and metric bolt standards including A325, A490, F1852, F2280, A449, A354, A325M, and A490M. This is an effort to make the requirements of these related bolt standards consistent. One ballot has closed the results will be discussed at the F16 November meeting.

viii. ASTM F1941, Electroplating Standard for Fasteners. One ballot closed in early October and a second ballot was opened before the end of October.

ix. ISO/CD 13469 – Riveted Joint Testing. This will be reviewed at the ISO TC 44 meeting on December 9 in Miami.

x. ISO 10683 – Zinc flake coatings for fasteners, is out for final ballot and will hopefully be published by mid-2014.

xi. ISO 4042 – Electroplating finishes for fasteners was discussed at the ISO TC 2 meetings in Paris during the third week of October. The majority of the work was on Appendix B which addressed Hydrogen failures and how to manage process variables to decrease its potential effects. No ballot is expected until 2014.

xii. ISO 3269 – Fastener acceptance, first draft proposal to convert this standard from an AQL plan to a C=0 plan has been submitted to the ISO TC 2 by the US. This was discussed at the ISO TC 2 meeting in Paris in October. There was agreement on the approach that is being taken. Work will be done on selecting a C=0 sampling plan to include in the first draft for ballot in early 2014..

xiii. ISO 6157 – Fastener surface discontinuities was discussed in Sydney. Work will continue in working group in 2014.

- xiv. **ISO 2320** – Locking nut performance – this was discussed in Paris at the ISO TC 2 meeting. There was general agreement except on the specification for test bolt finishes. This will be worked out during the balloting process. A ballot should be issued in early 2014.
- xv. **ISO 1891-4** – Terms and terminology related to quality assurance. This was worked on at an ad hoc meeting in Paris in June, 2013. This should be balloted before the end of 2014.

2. IFI Technical Working Group activities in progress:

a. Division I – Blind Rivet Standards-

- i. **IFI 116 – Multi-grip Blind Rivet Standard.** This is a new IFI standard covering blind rivets that can cover a wider range of application thicknesses than the rivets covered by IFI 114. The standard will be completed and balloted before the end of November.

b. IFI Division III – A Guide for Ultra-high Strength Metric Fasteners-

The work is on-going. More testing is in process. Parts made from the same material some with a martensitic microstructure and others of the same hardness with a bainitic microstructure are being fatigue tested to determine the relative fatigue performance of the different microstructures.

GM, Chrysler, and the IFI have committed to jointly sponsor a research project on evaluating the hydrogen susceptibility of ultra-high strength bolts at the same hardness with a martensitic versus a bainitic micro-structure. The research will be conducted at McGill University directed by Salim Brahim. The research funds will be matched by a Canadian government group that supports research conducted in Canada.

3. Other Technical Information:

- a. Michael Pfeifer, Ph.D., P.E. is offering a FREE webinar on November 22 on failure analysis. The example he is using to explain the process is a screw failure. For more information visit <http://www.imetllc.com/webinar1.html>
- b. The next fastener training opportunity is the Fastener Training Institute Fastener Training Week held at the IFI headquarters in Independence, Ohio on November 18 – 22. For more information see, <http://www.fastenertraining.org/fastener-training-week/>. **There are only two spaces available as of October 31.**
- c. **Waxing parts to improve lubricity and prevent galling:**
It is common practice in the fastener industry to apply wax in the last operation to locking nuts, thread rolling screws, and various stainless steel parts. Unfortunately, not all waxes are created equal. An industry friend and fastener consultant, Lon DeHaitre, londehaitre@sbcglobal.net, passed on the following helpful hint during October I felt was worth sharing.

“Johnson's Wax was the best wax for lubricating fasteners we found through experimentation. Johnson's sold the product to Castrol which is called **Castrol Safety Film No. 639**. We used it at 100% concentration, but it is water soluble and can be diluted up to 50%. We used it extensively on locknuts and thread rolling screws.”