



March 11, 2014

March 2014 Fastener Industry Technology Update

1. Standards Organizations Activities

a. Standards published

- i.** ASTM F837-13 - Standard Specification for Stainless Steel Socket Head Cap Screws
- ii.** ASTM F467-13, Standard Specification for Nonferrous Nuts for General Use
- iii.** ASTM A563M – 07 (Reapproved 2013) Standard Specification for Carbon and Alloy Steel Nuts (Metric)
- iv.** ASTM F835 – 13, Standard Specification for Alloy Steel Socket Button and Flat Countersunk Head Cap Screws

b. Standards in the publishing process

- i.** **SAE J429** – Inch Bolt and Cap Screw Material Standard. Revision to the allowable amount of sulfur (S) and phosphate (P) in alloy steel for Grade 8 for screw machining and hot forging passed the fastener committee balloting and is in the SAE publishing process.
- ii.** **ASME B18.16.6** – Inch Prevailing Lock Nuts. This has been balloted twice. The negatives and comments have been responded to. This standard was approved and is in the publishing process.

c. Standards in the revision process

- i.** **SAE J2280**, Ship Systems and Equipment – Fasteners – Selection and Identification Requirements. This standard revision was balloted in January. There are several comments that must be resolved before the next ballot.
- ii.** **SAE J2295**, Fastener Part Standard—Cap Screws, Hex Structural Bolts, and Hex Nuts (Inch Dimensioned). A revision of this Ship Systems Fastener Standard was balloted in December 2013. Comments are being reviewed in preparation of another ballot.
- iii.** **ASME B18.24** – Fastener part identification numbering system. A revision to this standard is in progress. This will be discussed at the next B18 meeting in Toronto in May 2014.
- iv.** **ASME B18.8.1**– Inch clevis and cotter pins. All of the comments from the second ballot were addressed. A third ballot will be out in March, 2014.
- v.** **ASME B18.31.2** – Inch studs. A ballot went out in February and has not yet closed. This revision adds a product category called “Flange Studs (Stud Bolts) to cover studs made to ASTM A193 and A320.
- vi.** **ASME B18.31.3**, Threaded rod (inch) has been balloted once. Responses to the negatives were discussed and a new ballot is expected in early 2014.
- vii.** **ASTM F606/F606M**, Fastener Testing Standard, the inch and metric standards are being combined into a single standard. The final ballot on this will close on March 21, 2014. At this time there are no negatives or comments.
- viii.** **ASTM F738M**, Standard Specification for Stainless Steel Metric Bolts, Screws, and Studs. There is an open ballot for the withdrawal of this standard in favor of ISO 3506-1. This ballot will close March 21, 2014.

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, F 2280, A449, A354, A325M, and A490M. This is an effort to make the requirements of these related bolt standards consistent. One ballot has closed and the results were discussed at the F16 November meeting. A new ballot will go out in early 2014.

- i. **ASTM F1941**, Electroplating Standard for Fasteners. One ballot closed in early October. The negatives and comments were discussed at the November F16 meeting and a revised ballot opened in January and will close in March, 2014. This revision specifically addresses how to deal with testing and baking of case hardened screws. Most of the requirements are in alignment with the revision ISO 4042.
- ii. **ISO/CD 13469** – Riveted Joint Testing. In February this passed the final committee ballot and has been submitted to ISO for final approval and issuance.
- iii. **ISO 10683** – Zinc flake coatings for fasteners, is out for final ballot and will hopefully be published by mid-2014.
- iv. **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 of hydrogen. An ad hoc group meeting is being held in February, 2014 to make further progress on the revisions. No ballot is expected until 2015.
- v. **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, 2013. 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. The book titled **Zero Acceptance Number Sampling Plans**, fifth edition, by Nicholas Squeglia will serve as the resource document for the basis of the US sample table proposal. An ad hoc group meeting is taking place in Milan in February to discuss the proposed sample tables for c=0.
- vi. **ISO 6157** – Fastener surface discontinuities was discussed in Paris in October 2013. Work will continue in working group in 2014.
- vii. **ISO 2320** – Locking nut performance – this was discussed in Paris at the ISO TC 2 meeting in October 2013. 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.
- viii. **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. **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. A web conference was conducted on December 10, 2013 to review the progress of the various on-going tests. The next web conference is scheduled for March 18, 2014.

3. Other Technical Information:

a. Fastener Training Institute

- i. **FTI/IFI Automotive Fastener Training** class is being offered on April 23 and 24 in Troy, MI. For complete details go to <http://www.fastenertraining.org/event/ftiifi-automotive-fastener-technology/>.
- ii. **Fastener Training Week** will be offered next on **April 28-May 2 in Spokane Washington** and then in July 28- August 1 and November 17-21 in Independence, Ohio. For information on this and other future programs go to www.fastenertraining.org.

Joe Greenslade
IFI Director of Engineering Technology