January 9, 2013

January 2014 Fastener Industry Technology Update

This report covers the fastener standards activities during the last part of 2013 and some technical training activities occurring in the near future.

1. ***Standards Organizations Activities***
   - ***a. Standards published during December – None***
   - ***b. Standards withdrawn during December***
     - ***i. ASME B18.3.1M,*** Metric Socket Head Cap Screw – refer to ISO 4762 in the future.
     - ***ii. ASME B18.3.2M,*** Metric Hexagon Keys and Bits – refer to ISO 2936 in the future.
     - ***iii. ASME B18.3.3M,*** Metric Socket Shoulder Screws – refer to ISO 7379 in the future.
     - ***iv. ASME B18.3.4M,*** Metric Socket Button Head Screws – refer to ISO 7380 in the future.
     - ***v. ASME B18.3.5M,*** Metric Flat Countersunk Head Cap Screws – refer to ISO 106423 in the future.
     - ***vi. ASME B18.3.6M,*** Metric Socket Set Screws – refer to ISO 2342, ISO 4026, ISO 4027, ISO 4028, ISO 4029, ISO 4766, ISO 7434, ISO 7435, and ISO 7436 in the future.
     - ***vii. ASME B18.25.2M,*** Metric Woodruff Keys – in the future refer to ISO 391.
     - ***viii. ASME B18.25.3M,*** Metric Square and Rectangular Keys and Keyways – in the future refer to ISO 773

   - ***c. 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.
   - ***d. Standards in the revision process***
     - **i. SAE J2280,** Ship Systems and Equipment – Fasteners – Selection and Identification Requirements. This standard revision will be balloted between now and early 2014.
     - **ii. SAE J2295,** Fastener Part Standard—Cap Screws, Hex Structural Bolts, and Hex Nuts (Inch Dimensioned). A revision of this Ship Systems Fastener Standard is being prepared for ballot before the end of 2014.
     - ***iii. ASME B18.24 –*** Fastener part identification numbering system. A revision to this standard is in progress.
     - ***iv. ASME B18.8.1–*** Inch clevis and cotter pins. All of the comments from the first ballot were addressed and a new ballot opened in January 2014.
     - ***v. ASME B18.31.2 –*** Inch studs. A revision adding “flange studs (stub bolts)” is prepared for balloting in January. This revision will cover ASTM A193 and similar studs.
     - ***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 first ballot closed in mid-October.

All comments have been addressed. The final ballot has been opened and will close on January 20, 2014.

viii. ***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.

ix. ***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 will go out in January 2014. This revision specifically addresses how to deal with testing and baking of caase hardened screws.

x. ***ISO/CD 13469 –*** Riveted Joint Testing. This standard was reviewed at the ISO TC 44 meeting on December 9 in Miami. All comments were addressed and the final ballot should go out in early 2014.

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

xii. ***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. No ballot is expected until 2015.

xiii. ***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.

xiv. ***ISO 6157 –*** Fastener surface discontinuities was discussed in Paris in October 2013. Work will continue in working group in 2014.

xv. ***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.

xvi. ***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 199, Tap Bolts. Work is in progress on the development of this standard to cover a widely used bolt design that is not covered by the ASME B18.2 sub-committee standards. This will serve as an interim standard until ASME B18 covers this product within an existing standard or by creating a new standard. This will be published in the first quarter of 2014.

SCOPE: This Standard covers the dimensional requirements for inch series tap bolts made of carbon steel and stainless steel in sizes ranging from ¼ through 4 inches.

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 verses a bainitic micro-structure. The research will be conducted at McGill University directed by Salim Brahimi. 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 - **Aerospace Fasteners for Business Professionals**, March 4-6, 2014**,** Radisson Suites Hotel Buena Park, California. For information on thi and other future programs go to www.fastenertraining.org**.**

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