

SHOT PEENING TRAINING

Continued

When it comes to discussion of residual stresses, the engineer Jörg Behler conveys background knowledge and practical exercises with sentenso's X-ray stress analyzer.

Even Level 3 candidates in the Workshops take three days of training, repeating essential Level 2 contents, performing practical exercises, and then deepening their knowledge in intensive discussions with the trainers to prepare for the Level 3 exam. The exam itself is very demanding due to its open questions and the time pressure. Volker and Wolfgang stress the importance of quality thereby maintaining a high level of education and thus the value of the Level 3 training. Nadine Goertz from MTU Maintenance Berlin-Brandenburg confirms, "sentenso has a great experienced team in automotive as well as in aerospace applications. Especially for Level 3 education they found a new challenging way to train the shot peening community!"

Customized On-Site Trainings

Apart from the Workshops with the included practical training, the on-site training concept provides a number of benefits to the company such as:

- Reduced travel time and expenses
- Protection of confidential information when required
- Specialized training contents for the real process and job

More than 100 students have completed such customized trainings in various branches like aerospace, automotive, medical, and other specialized industries such as spring or machine manufacturing.

Despite these excellent reasons for on-site training, students who are trained at their own companies are missing networking opportunities with peers from other companies who often have similar challenges in their shot peening activities. Therefore, Wolfgang and Volker recommend an appropriate mixture of Workshops and on-site training, depending on the tasks students must accomplish. While networking and exchanging experiences in the Workshops, they gain specific training in process and quality management at their own facilities. ●



Training is provided in shot peening's critical fundamentals

SPECIFICATIONS

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The New Four-Four-Two

AS THE SPONSOR of the May 2022 publication of J442, I've asked *The Shot Peener* magazine to allow me to highlight its major changes.

A goal of the SAE Surface Enhancement Committee (SEC) is to remove redundant and conflicting information among specifications thus making them easier to understand. This was the main reason for a new J442.

The current two grades of strips used in the peening industry were defined in different specifications: J442 for standard grade strips and AMS2432 for high grade strips. AMS2432 notes all test strips must conform to J442 but adds tightened thickness, flatness (pre-bow) and hardness requirements.

The main problem with this is the specifications use of different measurement units and tolerance methods. As an example, J442 dimensioned strip thickness using minimum and maximum limits as a tolerance. AMS2432 uses a plus/minus method to tolerance strip thickness. Those unfamiliar with proper dimensioning practices could be confused on how to relate the plus/minus tolerances of AMS2432 to the limit style dimensions of J442. Errors are compounded when different rounding methods are used for converting between metric and imperial units.

This issue has been corrected with the new J442 defining both standard and high-grade Almen test strips: Grade 1 and Grade 1S. Grade 1 test strips have the same requirements as previous J442 versions and Grade 1S adds the tightened thickness, flatness, and hardness requirements from AMS2432. The names "1" and "1S" were chosen due to multiple organizations already using these terms to designate the two grades of test strips.

AMS2432 is currently being revised to simply reference the J442 Grade 1S test strip instead of outlining the tighter tolerance requirements. A provision in both specifications is added to allow a test strip manufacturer 18 months after the new AMS2432 is published to sell existing stock of incorrectly manufactured test strips.

Another change to J442 is the once optional end stops on Almen gages are now required. This, along with centering the test strip on a slightly longer holder, ensure the areas of the test strip shaded by the fastening screws will not corrupt arc height measurements. Again, redundant text concerning this will be removed in the updated AMS2432.

Finally, it's worth noting the new J442 has all new drawings and tables. This was done to correct a couple small errors and make requirements easier to find. Imperial measurements are added throughout the metric specification for reference.

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