

Articles of Particular Interest

Dr. Kirk's "Verification of Peening Intensity"

Peening machine parameters are established by experimental settings of machine variables and submitting Almen test strips to the blast stream for increasingly longer exposure times and graphical analysis of the arc heights. Using the 10% rule (developed by SAE in 1984), the machine peening intensity could be declared. Once the machine is placed into production, a procedure is needed to verify its consistency.

J443 Revision in 2003 described (for the first time) the procedure for intensity verification. It states:

"Confirmation readings shall be taken at a frequency determined to be appropriate to assure consistent peening intensity. Confirmation of peening intensity is accomplished by shot peening a test strip at the time T, as determined in the previously established saturation curve. The arc height shall fall within the intensity tolerance specified for the part."

The problem with this procedure is the time "T" might not be available. For example, if the machine is run on the basis of the number of revolutions, the value of "T" is 4.3 revolutions. The strip arc heights for 4 revolutions most likely would be different than exposure of the strip to 5 revolutions. Whichever exposure time was used, either 4 or 5, the acceptance criteria was held to "...arc height shall fall within the intensity tolerance." This generally worked (it was close enough) until you had a large number of test strips on a fixture with a large number of "T" times. How were you supposed to pick the exposure time for the test fixture and what are the accept/reject requirements for the arc height readings? This was finally addressed in J443, revised in 2010, with the concept of Target Arc Heights. This concept is eloquently explained by Dr. Kirk on page 28.

The Center for Surface Engineering and Enhancement at Purdue

I was pleased to learn that Purdue University is establishing a Center for Surface Engineering and Enhancement (C-SEE) on their campus. Their extensive laboratory facilities and faculty are eminently qualified to offer leading-edge research into the basics and advanced facets of surface treatments from shot peening to laser peening. See the article on page 16 for more information on this exciting announcement.

And So Much More...

I'm not allotted enough space to review every article in our Fall magazine except to write that I'm continually impressed by the quality of work being done in our industry. I hope you have the same sense of pride as I do—it's great to be a part of this vibrant community. A big thank you to all of you that take time from your busy schedules to share information with our readers. ●



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