

Mini-Strip Shot Peening Intensity Verification Procedure

The correlation between full-size Almen strips and the mini-strips must be established before the intensity in small and hard-to-reach locations can be determined. The procedure requires:

- 1) Standard (full-size) Almen strips, a standard Almen strip holder, and a #2 Almen gage to develop saturation curves at both the minimum and maximum intensity range
- 2) EI mini-strips and TSP-M Almen gage to obtain corresponding arc height

The appropriate arc height curvature of the mini-strips must be produced for the low and high intensity limits. This is done by establishing the T1 times for the upper and lower intensity limits and then exposing the mini-strips to the shot blast at these T1 times. The procedure is as follows:

- 1) Mount a standard Almen holder on a test fixture and attach a standard Almen strip. Peen the Almen strip and measure the arc height on the Almen gage. (Be sure to zero the gage first.) Repeat as necessary to obtain a saturation curve at the lower end of the specified intensity range (a minimum of four data points with increasing exposure times is required). EI recommends Dr. Kirk's free Curve Solver program as the quickest and most accurate method of obtaining calculated intensity T1 from the arc height data. When the proper machine adjustments have been made that yield the lower intensity, attach a mini-strip to a convenient holder (flat surface) using double-sided tape and expose it to the blast stream for the T1 time. Place the peened mini-strip onto the TSP-M gage. Position the strip securely on the flat supports and against the back stops. If it's not convenient to adjust the machine settings to provide the T1 exposure time, then use an exposure time near to T1. This gives the correlation of the mini-strip to the full-size strip.
- 2) Repeat this procedure again to establish the T1 time for the upper intensity limit.
- 3) Upon completion, a range of acceptable arc height readings will have been achieved for the mini-strips. Now that the correlated parameters for the lower and upper intensity range of the specification between the standard strip and the mini-strip are established, the next step is to develop the process parameters to duplicate these readings on a test component or simulated test fixture. Attach the mini-strips to the test component or test fixture with double-sided tape. Develop and record process parameters that will produce an arc height between the lower and higher correlated arc heights obtained in steps 1-3.