

# The New PeenSolver Pro

**SINCE ITS UNVEILING** at the 2021 USA Shot Peening Workshop, the new PeenSolver Pro (PSP) has received positive reviews from beta testers in the shot peening community. People have come to love the application's useful features.

## POPULAR FEATURES

The following are highlights of the original features that were especially helpful to our beta testers.

### Type-2 Curve Detection

PSP will notify the user if a Type-2 curve is detected and provide the correct intensity value per SAE J443.

### Error Checking

- Invalid curve detection  
The user will be notified if the longest peening time input is shorter than the solved 2T value, thus being an invalid curve/solution.
- Process quality detection – exclusive feature  
PSP will compare each data point's arc height to the generated curve's arc height. The user is warned if percentage of error exceeds a configurable limit.

### Intensity Verification

- Target arc height support  
The user can input a verification exposure time other than the solved saturation time. The PSP will provide the target arc height for the user's time.
- Process file storage  
Process verification arc height values are logged in a file that can be re-loaded into the program.

### Superimposed Curves for Multiple Test Strip Locations

Multiple saturation curves can be displayed with individual verification arc heights based on a single exposure time.

### Process Parameter Documentation – Exclusive Feature

Each part process can have a stored file that may be re-opened when the part is run again. Verification values are logged in a continually updated file. The logged data can be cleared if parameters are changed; the file can then be saved as a new process.

### Additional Features

- Windows OS Based - designed and tested with Windows 10
- Testing verification integrated into the same screen as intensity calculations, keeping curving solving and testing verification on one print out

- Graphs can be zoomed in and out and rescaled
- Ability to individually choose which graphs are displayed
- File location on printout, preventing misplacement of data

## NEW FEATURES

After receiving feedback from the beta testing users, it was clear that the app could provide additional benefits. This led to a complete rework of the backend structure of the app. This was managed without sacrificing the simple user interface people have come to love. In addition, the curve solver can now easily grow into the future. Here are some of the additional improvements.

### Addition of the 2PF Curve

Dave Barkley, EI's training director, requested this feature! This curve is a great alternative to the standard 2EXP and 3EXP equations.

### Reduction in file size

The structure of the new application is much smaller, putting less strain on networks

### Smoother and faster operating speed

Another benefit of the updated application structure

### Customized peening location names

Allows for practical names to be used for strip locations, making the process easier to understand

### Adjustable upper and lower specification limits for curve verification

Allows for the upper and lower specification limits for curve verification to be set independently from one another, providing better tailoring the curve solver to the users needs

## IN CLOSING

We are excited to now share the updated PeenSolver Pro with the entire shot peening community. The intuitive user interface and the ability to customize its parameters means this curve solver is easy to learn and it can be tailored to any process. The updated version is available for download at [www.electronics-inc.com](http://www.electronics-inc.com). We would also love to hear your ideas on how to make the curve solver even better. Please reach out to Ken Derucki at [kenneth.derucki@electronics-inc.com](mailto:kenneth.derucki@electronics-inc.com) with any questions or comments and our team will gladly investigate them for future updates.

*Read a review of the new Peen Solver Pro and see a screenshot on page 18.*

**Electronics Inc. Shot Peening Control**  
 Get in Touch... Phone: 574-256-5001  
 Electronics Inc. Toll Free: 800-832-5653  
 56790 Magnetic Dr. Fax: 574-256-5222  
 Mishawaka, IN USA 46545 Email: info@electronics-inc.com

**Process Settings:**  
 Operator: John Smith  
 Date: Aug 16, 2022  
 Comments:  
 Peening Method: Conventional  
 Strip Type: A  
 Curve Type: Auto  
 Unit System: Imperial (in)  
 Control Type: Time  
 Control Units: s  
 Shot Type: S230  
 Air Pressure: 50 psi  
 Flow Rate: 8 lb/min  
 Speed: 4  
 Blasting Angle: 90 deg  
 Nozzle Size: 1/4"  
 Blasting Height: 6"

**Name:** Top

Strip	Pre-Bow (in)	Time (s)	Arc Height (in)
1		2	0.0033
2		4	0.0047
3		8	0.0055
4		16	0.0063
5		32	0.0067

**Saturation Point**  
 Arc Height (in): 0.0059  
 Time (s): 10.269

**Graph Options:**  
 Display All Locations  
 Display Current Only  
 Top  
 Right  
 Bottom  
 Show Saturation

**Saturation Curve**

Location	Target	Measured
Top	0.0059	0.0058
Right	0.007	0.0072
Bottom	0.0067	0.0069

File Location: C:\Users\kderucki\Desktop\ProcessData.xml

Perform New Verification Test

### PeenSolver Pro Review by Kumar Balan

I had the opportunity to use the PeenSolver Pro for a peening project and was immediately drawn to its simplicity and practicality of use. The intuitive program seemed to know exactly where I was heading with the arc height values with progressive exposure time. To clarify my point (since I am sure you might claim that to be the sole purpose of a curve solver program!), though a curve could be plotted even with “not-so-great” points, this solver identifies these points and marks them for the user to review and then repeat with one or more strips, if desired. The data fields to record process and machine parameters are very well

thought out and purposeful. The program allows the user to add and delete strips as well as to add multiple locations (strips) that are required in most applications.

As this goes to press, I understand the developers are working on enhancing features, including the addition of helpful suggestions to guide the user along the correct path during practical process events such as insufficient strip coverage—longest peening time is shorter than 2T—identification and labeling of Type 2 curves, etc.

Overall, I am happy to recommend this program to the novice as well as to an experienced shot peener.