

# E-Weld Predictor

## OVERVIEW

The patent-pending E-Weld Predictor™ is an easy-to-use online software tool that simulates arc welding procedures. With each calculation, you get a virtual prediction of the resulting microstructure, thermal profiles, residual stress, and distortion for plate and pipe welding.

“With E-Weld Predictor, the benefits of welding simulation are finally accessible to companies of all sizes across the globe.”

— Stan Ahalt, Executive Director, OSC

## BENEFITS

### **Affordable, Attainable Simulation**

Because it's an online service, E-Weld Predictor doesn't require the large upfront investment in staff, technology, equipment, and infrastructure typically associated with numerical simulation.

Users can access the tool from any Internet connection to quickly explore a wide range of “what-if” scenarios.

### **Fewer Experimental Trials**

Experimental welding procedure trials can be cost prohibitive due to the myriad joint geometries, process parameters, and material combinations. E-Weld Predictor can reduce the number of physical welding trials required, saving you time, effort, and money.

### **Reduced Prototype Costs**

Through efficiencies gained during weld design, experimental trials, and a low upfront investment in the technology, E-Weld Predictor can greatly reduce your prototype costs, minimize the risks normally associated with experimental welding procedure trials, and speed your time to market.



**EWI**®



## CAPABILITIES

E-Weld Predictor integrates EWI's welding simulation domain knowledge with the supercomputing power of Ohio Supercomputer Center (OSC) and ABAQUS' solver. It offers a novel method for creating finite element analysis (FEA) welding simulations for a range of joint geometries.

Hosted on OSC's high-performance computing (HPC) infrastructure, customers input joint dimensions, material chemical composition, and welding process parameters into E-Weld Predictor to conduct online simulations and generate reports.

These comprehensive reports—offered in PDF format for ease of use—detail various input parameters ranging from the joint design to the weld bead location. They also provide thermal analysis, including distribution of peak temperatures, reheating temperatures, thermal cycles, and average cooling rates. The distribution of ferrite, bainite, martensite, and Vickers hardness are also covered in the microstructure analysis portion of the report. Finally, a residual stress and distortion analysis is provided that looks at the distribution of von Mises stresses, radial and transverse stresses, vertical displacements, transverse shrinkage, and angular distortion for pipe or plate geometries.

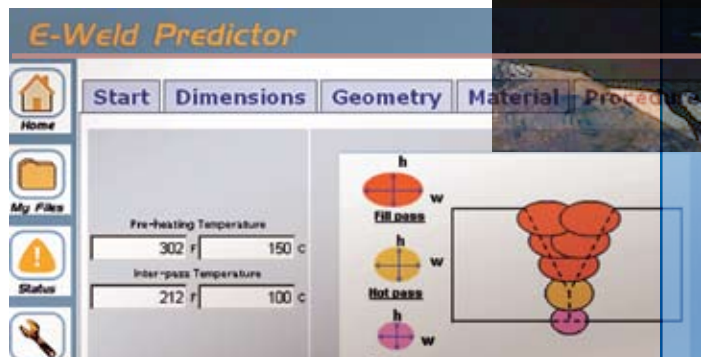
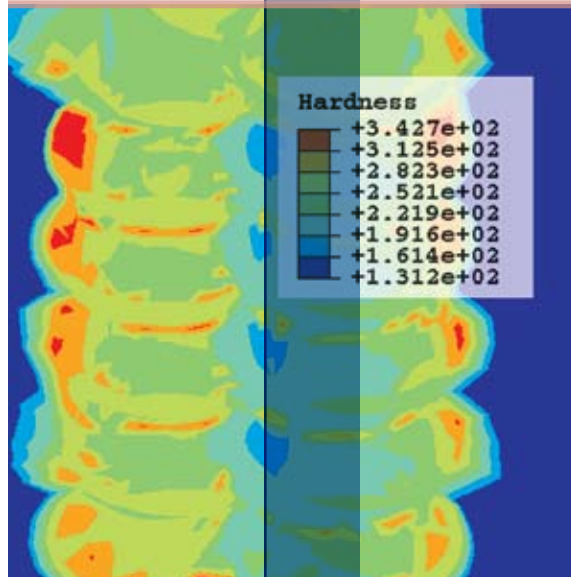
## INDUSTRIES

E-Weld Predictor is a viable modeling tool for all industries reliant on accurate weld joint design and for whom arc welding is a mainstay.

While E-Weld Predictor was initially designed to analyze arc welding of steels for the welding consumables, heavy manufacturing, and energy industries, it can be customized to meet the needs of any industry. Currently, you can use it to evaluate the selection of various types of steels and other material types will be added in the future. Additionally, other welding processes, such as laser welding, will be added to expand the range of applications.

## LEARN MORE

To find out more or to start using the power of EWI's patent-pending E-Weld Predictor, please visit <http://calculations.ewi.org/vjp/EWeldPredictor.html>, email [eweldsupport@ewi.org](mailto:eweldsupport@ewi.org), or call 614.688.5242.



**EWI**

1250 Arthur E. Adams Dr.  
Columbus OH 43221

614.688.5000

[www.ewi.org](http://www.ewi.org)