

# DEFORM News

## Training

SFTC offers DEFORM training for U.S. and Canadian customers on the following dates in 2023.

- Oct. 10-12
- Dec. 5-7

Additional training details are listed on the DEFORM website.

For users outside the U.S. and Canada, please contact your local DEFORM distributor for more information on the training events available in your region.

## Events

SFTC will exhibit in Booth 2145 at ASM Heat Treat 2023 on October 17-19, 2023. Staff will also give a technical presentation about the simulation of gear induction heat treatment methods such as induction spin hardening.

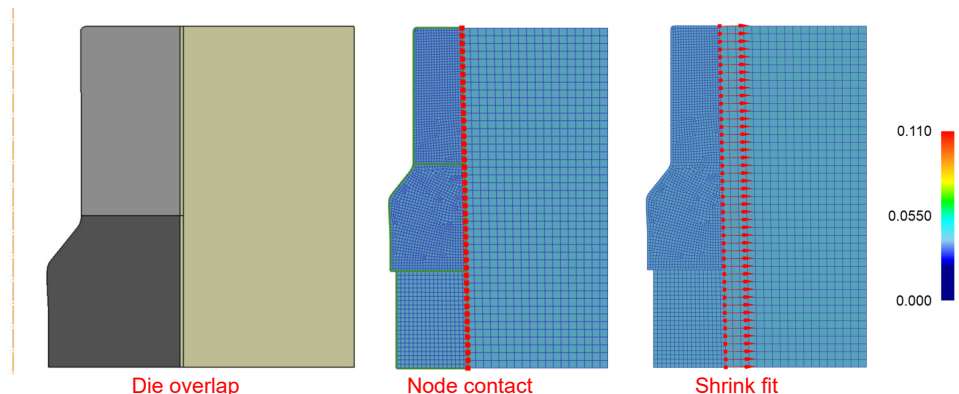
## Careers

SFTC is accepting applications for positions in sales/marketing, support and software development. Prior DEFORM or software development experience is required for each of the particular roles. Interested and eligible candidates may apply through the DEFORM website or [jobs@deform.com](mailto:jobs@deform.com)

## DEFORM® V13.1 Release

This issue of DEFORM News will highlight new capabilities of DEFORM V13.1. New features for press deflection, damage element deactivation, tool life and 2D cutting design of experiments will be covered in future newsletters.

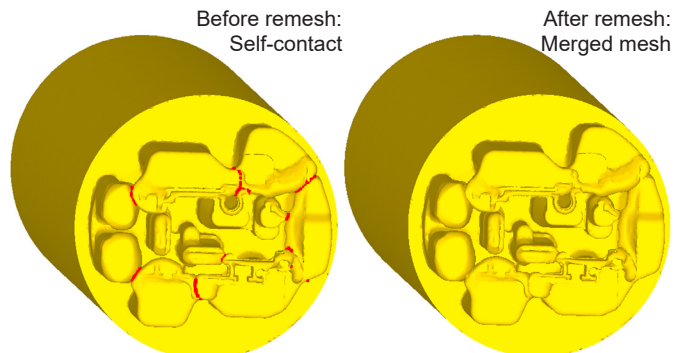
2D parallel processing (MPI) is now available as a license option. DEFORM Premier licenses will include 2D MPI at the licensed MPI level. 2D MPI performance improvements are similar to 3D, where run time are often cut in half if running on four cores instead of one. The change is welcome by users running time consuming 2D simulations, such as those involving large models, radiation view factor calculations or induction heating.



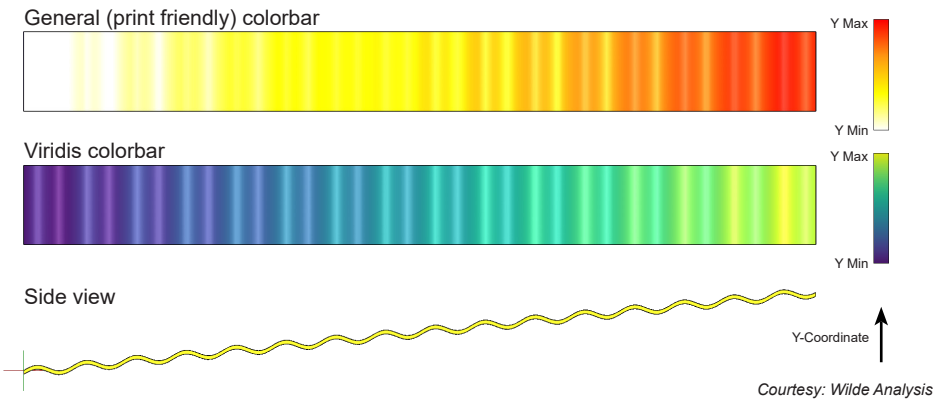
Shrink fit enhancements were introduced to the die stress analysis workflow. A new definition option automatically selects nodes based on contact at the shrink fit interface. The system also allows the shrink fit magnitude to be set to the detected interference between the contacting geometries. These automations (above) will simplify setup procedures for those modeling large assemblies.

A pre-trained deep neural network (DNN) model, based on the DEFORM steel material database, was introduced in the v13.0 material library. It allows flow stress to be predicted for a given chemical composition, temperature range, strain rate and strain. V13.1 expanded the tool to support training of a DNN flow stress model based on a user's own material data.

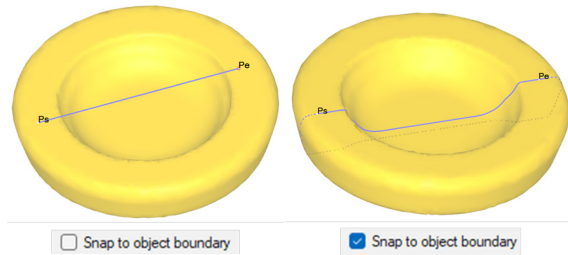
A new “merge overlapping mesh” meshing menu option joins opposing self-contact faces during remeshing. The feature is primarily intended for applications such as linear friction welding (2D) and extrusion (3D). In the image on the right, weld seams that developed in a Lagrangian extrusion model were automatically removed when the merge overlapping mesh option was utilized.



The color bar has received significant updates in V13.1. Some color bars now display with ratio scales centered on 0 or 1. The number of available custom color bar definitions has been increased. Users may now import and export their color bar definitions, greatly improving the reusability of their customizations.

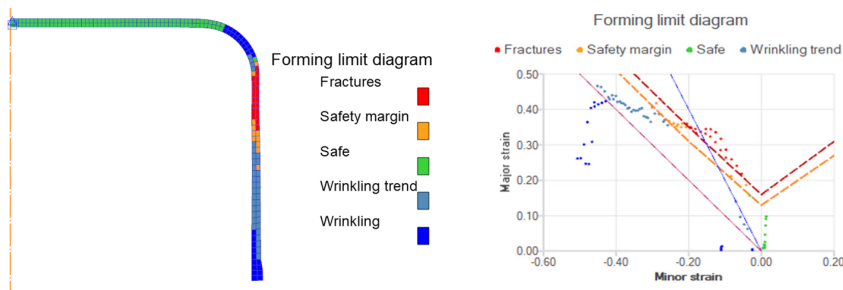


A new color bar library, provided by Wilde Analysis, includes dozen of predefined color bar definitions for users to try. Custom color bar selections are retained between postprocessing sessions. Some new color bars enhance perceptual contrast, allowing subtle detail to be more easily observed (above).



An updated state variable between two points tool (left) allows tracked points to fit to a surface and follow material flow. Options were added to snap points to an object boundary, specify multiple point groups and define patterns of points.

Forming limit diagrams (FLD) are commonly used by designers developing sheet metal parts. FLDs provide a means to evaluate sheet metal forming performance and the risk of defects. 3D FLDs were added to DEFORM V12.1. 2D FLD support has been released in V13.1. The new FLD postprocessing tool displays the local formability on the workpiece and on a standard FLD output plot (below).



A new measurement tool is starting to be introduced to the postprocessor. The v13.1 implementation supports diameter measurements based on three picked points. Future enhancements will introduce distance and angle measurements and certain geometric dimensioning and tolerancing (GD&T) form controls.

A new chart preset feature enables saving and loading of user-defined chart property definitions. Saved presets can be applied to new charts by right clicking on a graph. Presets eliminate the user's need to manually reapply every one of their chart preferences during each new postprocessing session.

A "remaining energy" variable is now available for hammer or screw press controlled objects. This useful process information is accessible in the summary, graph and step browser menus.

## DEFORM V13.1 Release

DEFORM V13.1 was released in May. The release included a variety of enhancements, new features and bug fixes.

- Intel Fortran compiler support
- User routine DLL support
- User routine templates
- FEM performance improvement
- 2D parallel processing (MPI)
- Automatic shrink fit selection
- Shrink fit based on geometry
- Press deflection model
- Custom flow stress predictor tool
- Damage-based softening
- Fracture model updates
- Fracture via element deactivation
- 2D local remeshing interface
- 2D cutting DOE support
- 2D forming limit diagrams
- 2D multiple boundary meshing
- Merge overlapping mesh
- State variable between two points enhancements
- Expanded fluid dynamics tools
- Remaining energy display
- Measurement tool enhancements
- User color bar updates
- Color bar library
- Printing improvements
- Wavefront OBJ file support
- Chart presets
- Swaging in cogging template
- Shape rolling enhancements
- Extrusion bearing control point defaults
- Material Suite improvements

The complete list of changes is available in the V13.1 Release Notes.