

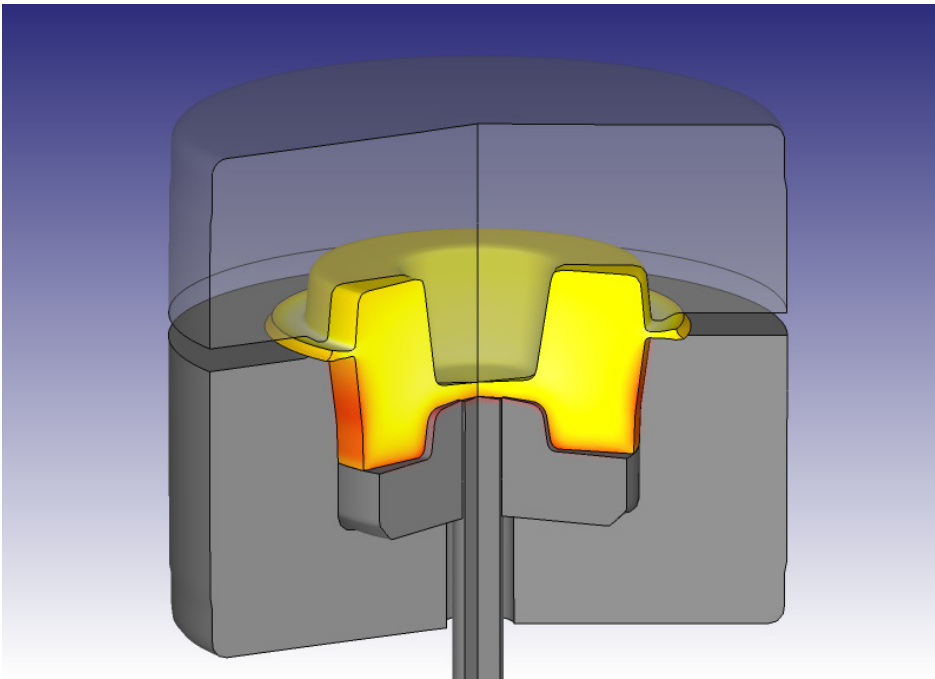
FORMING EXPRESS

2D

FORMING EXPRESS (2D) is an easy-to-use process simulation system designed to analyze two-dimensional flow in metal forming processes. **FORMING EXPRESS** is capable of analyzing forging, extrusion, drawing, heading, upsetting and many other industrial metal forming applications. Two-dimensional simulation is especially efficient for processes that can be described by an axis of symmetry. Disks, hubs, shafts, flanges, fasteners and bearings are representative of parts that can be efficiently simulated using **FORMING EXPRESS**.

FORMING EXPRESS shares the system architecture, mesh generator and FEM engine with **DEFORM-2D**, the standard for process simulation technology since 1989. The Graphical User Interface (GUI) is optimized for forming processes. It is intuitive and easy to learn. The GUI combines the features of a 'wizard style' system that guides a user through data preparation with an efficient open system. The result is a production tool that designers and engineers can use to solve today's and tomorrow's forming problems.

The simulation engine is capable of analyzing complex interactions between a workpiece, dies and forming equipment. This allows a realistic and accurate modeling of the metal forming process in a production environment. The sophisticated mesh generator automatically generates an optimized mesh whenever necessary, without user interaction.



***FORMING EXPRESS** (2D) is frequently used to simulate manufacturing operations like the hot forging process shown above. Results include deformed shape, die fill, defects, part/die temperatures, strain, forming load and more. Die stress analysis facilitates troubleshooting of die failures and optimization of tool life.*

Numerous 'success stories' have been reported in both product development and die design. Scientific Forming Technologies Corporation (SFTC) is dedicated to bringing state-of-the-art process modeling technology to small to mid-sized companies. SFTC provides unparalleled training, technical support, advanced training workshops, frequent program updates and User Group meetings.

Product Specifications

- Simulates cold, warm and hot forming processes.
- Predictions of die fill, workpiece and die temperatures, forming load, energy and grain flow are included in the results.
- Elastic die stress analysis is available through a decoupled (single step) simulation of die assemblies including multi-body contact and shrink fits.
- Two-dimensional capabilities include plane-strain and axisymmetric simulations.
- Fully-automatic and optimized remeshing is performed during simulations.
- Forming equipment models are available for hydraulic presses, hammers, screw presses and mechanical presses.
- Material models include rigid-plastic for cold forming, thermal rigid-viscoplastic for hot forging and elastic for die stress analysis.
- Deformation, contour plots, load-stroke prediction, point tracking, FLOWNET and other features are available in the postprocessor.
- A self-contact boundary condition allows a simulation to continue after a lap or fold has formed.

DEFORMTM

Design Environment for FORMing

Computer System Requirements

- The minimum recommended configuration is:
 - 4 GB RAM,
 - 300 GB free disk space,
 - CD writer,
 - Windows 7 / 8.

Licensing

- **FORMING EXPRESS** can be licensed as a 3D & 2D, 3D or 2D system.
- Node-locked licenses support one user on one computer. Floating licenses are available to use within a local-area network.

General Information

- Training, support, updates and DEFORM User Group meetings are available to active users.
- Outputs include images, graphs, tabular data, animations and IGES/DXF geometry.
- On-line documentation is provided in HTML and PDF formats.
- The DEFORM Material Database includes a wide range of steel, aluminum, titanium, superalloy, copper and other material data.
- Technical support is readily available by phone, email, web meetings and the online DEFORM User Area.

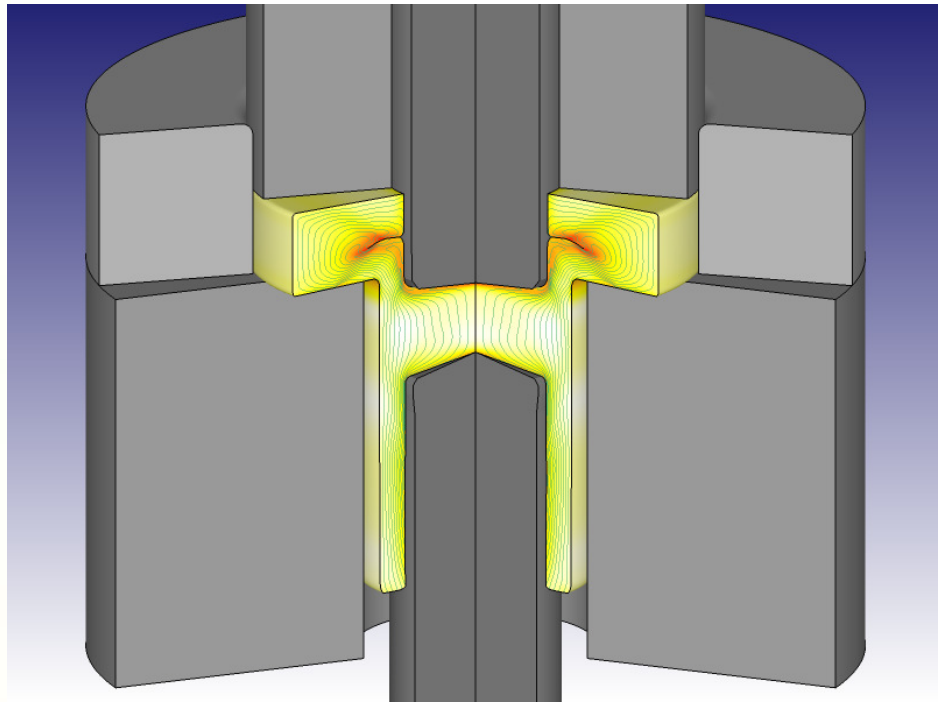
DEFORM[®] is a trademark of Scientific Forming Technologies Corporation. SFTC reserves the right to alter the product, price and/or computer system specifications at any time without notice. The SFTC software license agreement, including terms and conditions of software purchase or lease will be applicable. A perpetual license is subject to a maintenance fee for upgrades and ongoing system support.

06/18/2015

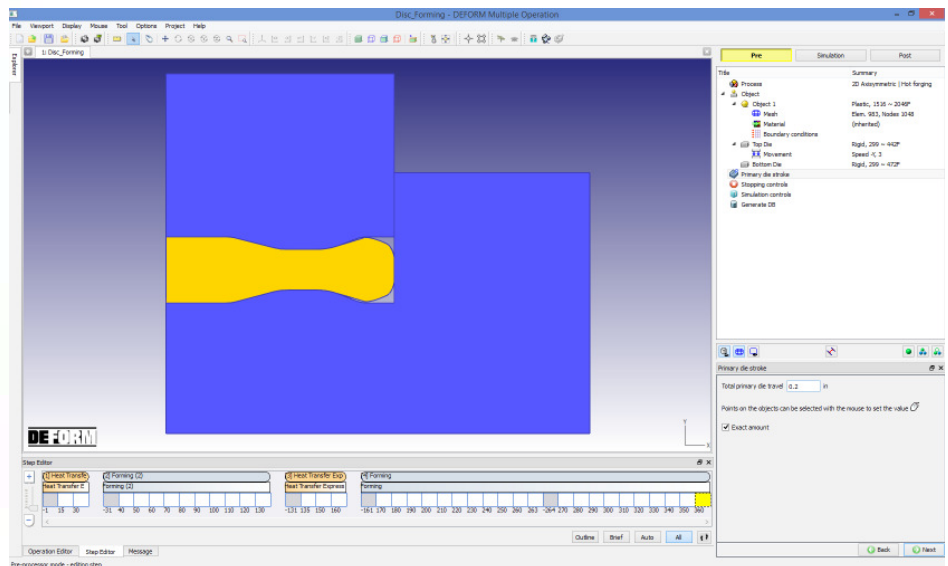


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FORMING EXPRESS



A fastener lap is clearly shown during the final operation of a cold formed automotive part. The actual part exhibited a lap that accurately matched the simulation results. Results such as strain (shown), stress, damage and temperature can be evaluated throughout the forming process. The FLOWNET tool (green lines) allows for the prediction of grain flow within a part.



The DEFORM Multiple Operation environment allows for the automatic simulation of entire process sequences. These are defined using a mix of flowchart, wizard-based and advanced menus. The hot forging process shown above was simulated, from start to finish, with a single click of the 'Run' button.