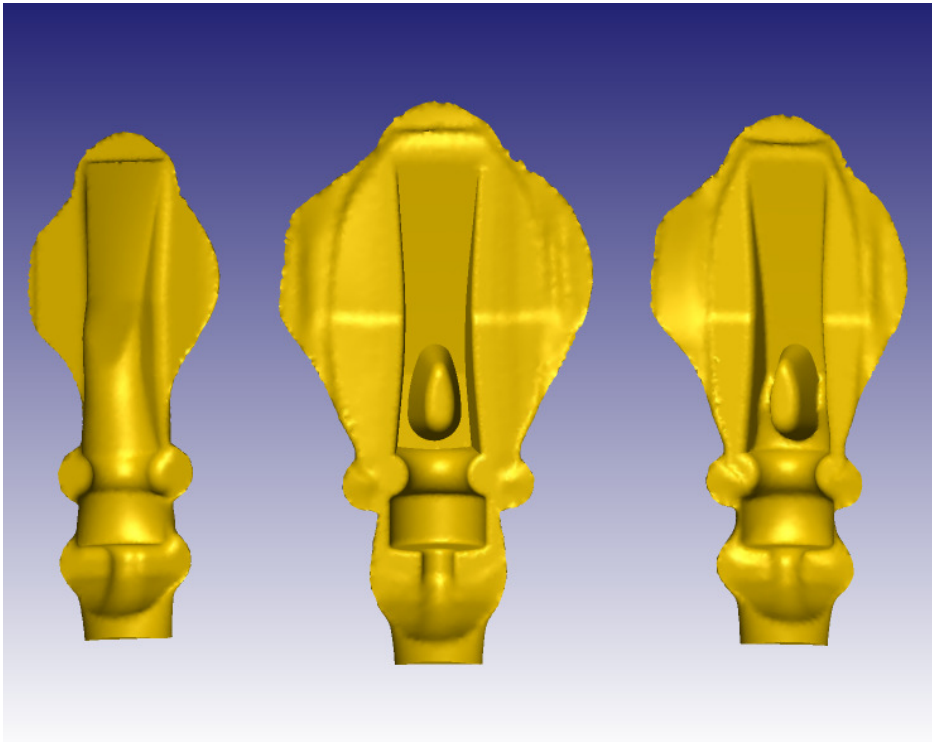


FORMING EXPRESS

3D

FORMING EXPRESS (3D) is a popular process simulation system designed to analyze three-dimensional flow in metal forming processes. Applications include die forging, cold heading, upsetting, drawing and extrusion, among others. Three-dimensional simulation is needed to model complex, 3D shapes or defects such as buckling. **FORMING EXPRESS** is a practical and efficient tool to predict the material flow in industrial forming operations without the cost and delay of shop trials.

Based on the finite element method (FEM), **DEFORM** has proven to be an accurate and robust solution in industrial applications for more than two decades. The simulation engine is capable of predicting metal flow, loads and defects with astonishing precision. The automatic mesh generator produces an optimized mesh with little user input. FEM settings are derived from the process details supplied by the user. **FORMING EXPRESS** shares the system architecture, mesh generator and FEM engine with **DEFORM-3D**, the advanced 3D process simulation system.



*The bust, block and finish forging progression used to make a claw hammer head is shown above. The **DEFORM** results accurately matched production parts, including the prediction of nonfill. Courtesy Vaughan & Bushnell Manufacturing Company.*

While **FORMING EXPRESS** provides sophisticated analysis capabilities, the graphical user interface is intuitive and easy to learn. The system guides a user through data preparation, but also allows direct access to modify parameters or review results.

FORMING EXPRESS continues a tradition of accuracy and state-of-the-art capabilities that were first established in the early 1980's. Scientific Forming Technologies Corporation has the experience and background to provide unparalleled training and technical support. More importantly, our support staff is personally committed to the success of each and every **DEFORM** User!

Product Specifications

- Deformation and heat transfer are calculated in an integrated simulation environment.
- Full three-dimensional (3D) simulation describes a wide range of complex geometries and processes.
- Planar symmetry is easily defined within the preprocessor, when applicable.
- Fully-automatic and optimized remeshing is performed during simulations.
- Forming equipment models are available for hydraulic presses, hammers, screw presses and mechanical presses.
- Supports speed or load-based translational movement.
- 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 wizard-based user interface allows for fast and efficient data preparation.
- A suite of positioning options is available to match the actual workpiece location in the die. Drop (gravity), mouse-driven, offset, rotation and interference positioning options are included.

DEFORMTM

Design Environment for FORMing

Computer System Requirements

- The minimum recommended configuration is:
 - 16 GB RAM,
 - Quad-core processor,
 - 500 GB free disk space,
 - DVD writer,
 - Windows 7 / 8 (64-bit).

Licensing

- FORMING EXPRESS** can be licensed as a 3D & 2D, 3D or 2D system.
- The FEM engine is licensed to run on one CPU thread. Parallel processing options are available.
- Node-locked licenses support one user on one computer. Floating licenses are available to use within a local-area network.

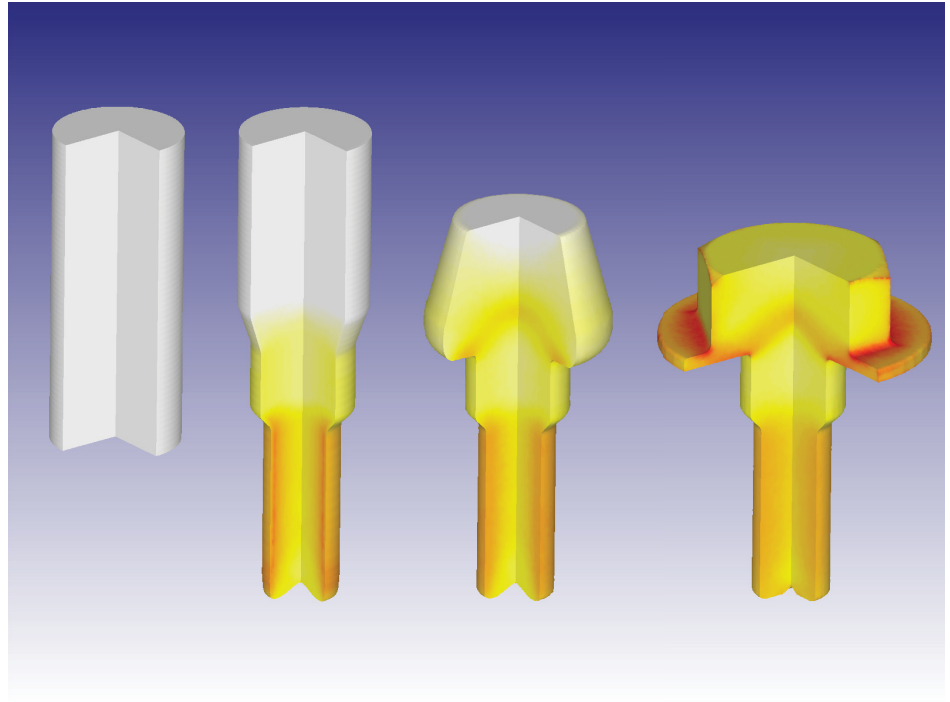
General Information

- Training, support, updates and DEFORM User Group meetings are available to active users.
- Outputs include images, graphics, tabular data, animations and STL 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.

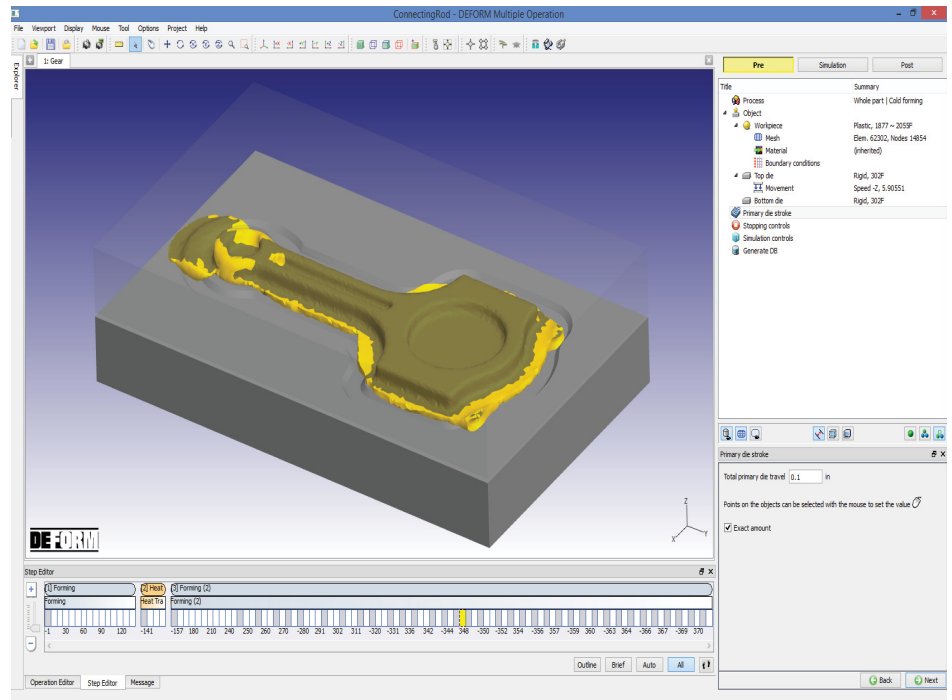
DEFORM is a trade mark of Scientific Forming Technologies Corporation. SFTC reserves the right to alter the product, price and/or computer system specifications at any time without notice. The SFTC software license agreement, including terms and conditions of software purchase or lease will be applicable.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

06/18/2015

FORMING EXPRESS



A cold headed bolt progression is shown above. **FORMING EXPRESS(3D)** provides critical process information such as material flow, defects, forming loads, energy, strain, temperature, tool stress and more. Strain contours (shown) track the work hardening history as the part is passed from one operation to the next.



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