



DERINGER-NEY INC.

The Noble Contact

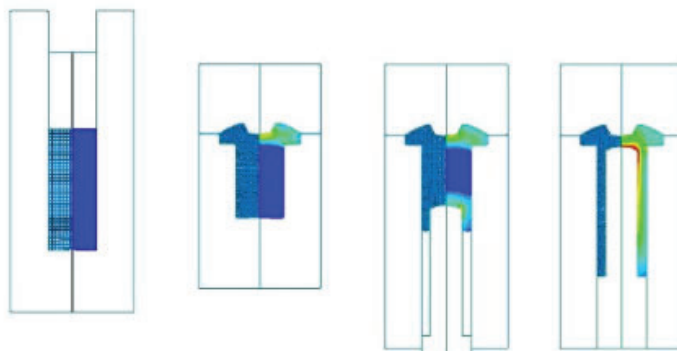
Did You Know??

Cold heading and forming creates a strong, “forged” part where the material grains are compressed, aligned, and conformed to one another, as well as conformed to the part geometry in a uniform flow pattern which greatly increases the shear and torsion strength of the part through “work hardening”. In many cases, this work hardening effect can negate the need for a post processing heat treatment depending on application requirements and material selected.

“Virtual Design” of Cold Formed Parts Using Finite Element Analysis

Finite element analysis (or FEA) is an engineering technique using computer software to accurately predict the performance of a mechanical component design under real world conditions. The word “element” in the phrase “finite element analysis” offers a clue to how this software actually works. The part model is broken down into hundreds of thousands of individual pieces and each piece is analyzed as a tiny stand-alone segment using sophisticated mathematical algorithms. The software finally adds up all the individual results to predict the behavior of the complete part.

At Deringer-Ney, we use FEA as a regular part of our design process to improve overall engagement with the customer and increase design efficiency for the entire cold forming process. During the quoting phase for a new part design, FEA is used to determine the best and most cost effective process to use.



Material Flow Analysis from “Blank” to Final Geometry

This includes an analysis of part progression during the forming process, which machine to use, tool design, and overall best practices. This helps provide customers more accurate price estimates as well as early identification of potential areas for concern or failures that may show up with a new part design. Using FEA, this is all done in a “virtual environment” in an effort to make the best product at the best price so that we can better serve our customers.

Contact Our Material
Specialists or
Application Engineers
at 1-860-286-6101

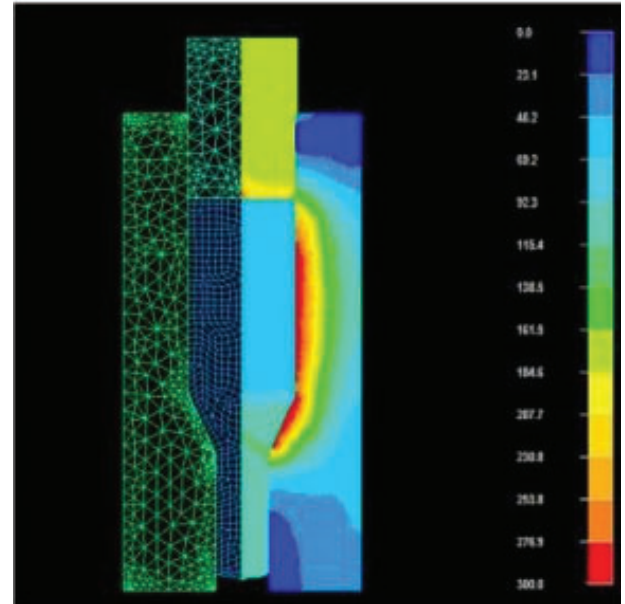




“Virtual Design” of Cold Formed Parts using Finite Element Analysis (continued...)

FEA not only helps with a customer’s part design, but also provides tremendous value in the “tool design” phase of the process. The FEA software provides part progression “proof of concept” and gives excellent feedback for the tooling design analysis. A great deal of time and capital is saved by gaining a deep understanding of the process before cutting a single tool. This also reduces lead time to the customer when providing samples, new product designs, or time sensitive projects. A few days on a computer in a virtual environment can save weeks in the tool room or on the forming machine.

In any case, the design process is complex and usually requires more than one or even several iterations as potential part design issues are discovered or customer requirements change. FEA, however, enables months of design work to become weeks, or weeks to become days, greatly streamlining the product design process.



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