COLDFORM®

Die Analysis

To develop your cold forming processes, you need to be able to address issues relating to dies. How to extend the lifetime of your dies? How to estimate the level of stress and assess wear? How to size a pre-stressed interference fit assembly? If you want to learn more about cold forming die analysis, then this course is for you!

To reduce the cost of parts and speed up production cycles, there is growing interest in Die analysis in the cold forming field. After this course, participants will know how to setup, analyze and interpret their computations on the dies. A number of computation modes will be covered (rigid, uncoupled, coupled) and the advantages of each method will be detailed. On the second day, the emphasis will be on implementing computation with pre-stressed dies and on the 'Virtual Interference Fit' technique that is specific to 3D simulations. The proposed exercises allow precisely understanding the computation results (equivalent stress, main stress, abrasive wear, contact time, etc.).
In this way, you will have a full panel of recommendations to quickly and reliably interpret issues relating to dies.

LEVEL

Intermediate - Users willing to enhance their knowledge of die analysis applied to cold forming.

PREREQUISITES

A good grounding in the use of COLDFORM® is required.
Have completed the 'Starting with COLDFORM®' training or equivalent course.

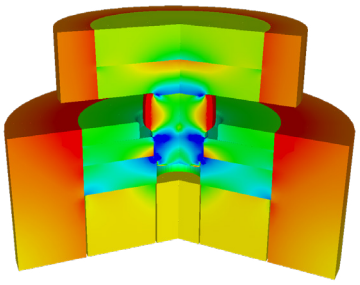
GOALS

- **Importing assembly files in CAD format (*.stl, *.step, etc.)**
- **Working with prestressed dies and assessing interference fit**
- **Simulating die mechanical and heat behavior (damage, fatigue)**
- **Analyzing and interpreting results (wear, stress, etc.)**

TRAINING	DURATION	PRICE EXCL. TAX	PARTICIPANTS
In-company	1.5 days	€2250 per training	1 to 3 people

DAY 1 > 8.30 a.m. to 12.00 p.m. & 1.30 p.m. to 5.00 p.m.

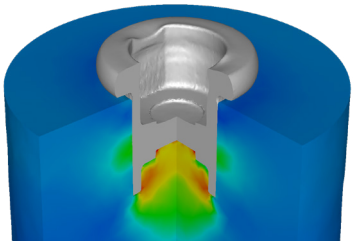
Introduction	• Presentation of Transvalor • Course goals
Rigid tool computations	• Why this kind of computation? • Recommendations for surface meshes in 2D/3D dies • Results available from the simulation for forming rigid 2D/3D dies (abrasive wear, normal stress, etc.)
Uncoupled computations	• Recommendations for volume meshes in 2D/3D dies • Setup • Analyses of additional results on 2D/3D tooling (Von Mises stress and principal stress)
Coupled computations	• Why this kind of computation? • Defining Master-Master and Master-Slave contacts • 2D/3D setup • Analyzing results (stress, temperature) • The various options in coupled computations
Comparisons between uncoupled and coupled computations	• Material flow • Normal stress • Abrasive wear • Von Mises stress • Die deformation • Forming load • Choosing the type of computation



Hoop stress in an assembly of prestressed dies

DAY 2 > 8.30 a.m. to 12.00 p.m.

Prestressed dies	• Defining the prestress concept • Deformable die interpenetration in 2D mode • Virtual prestress in 3D mode (VIF) • Setup • Viewing and interpreting results
Conclusions	• Questions and course assessment



Cold forming a fastener made of stainless steel - Equivalent stress distribution