FORGE®

Electrical Upsetting

Do you want to optimize your electrical upsetting process and configure your production machine correctly? This training is made for you!

At the end of this training, you will be able to configure an electrical upsetting simulation and analyze the results specific to this process. After a review of the fundamental theory, you will study the key points of data configuration: meshing parameters in the areas of interest, definition of current input and output. The course will then focus on the analysis of the result fields relevant to electrical upsetting.

The second day will be devoted to the simulation of your process. This training will give you the knowledge needed to optimize and configure your processes correctly and obtain the perfect preform.

LEVEL

Intermediate - Users willing to apprehend the capabilities of FORGE® in electrical upsetting and be able to configure simulations and analyze results.

PREREQUISITES

A good basic knowledge of FORGE® software is required.
Have completed the 'Starting with FORGE®' training or equivalent course.

GOALS

- **Mastering the graphical user interface**
- **Understanding the physical phenomena involved in electrical upsetting**
- **Configuring an electrical upsetting simulation: mesh, current**
- **Understanding and predicting with accuracy:**
  - **Thermal data: heating, temperature evolution, etc.**
  - **Electrical data: current density, electrical potential, Joule heat power, etc.**
- **Kinematics data: anvil motion, direction, height, velocity, etc.**
- **Shape obtained during preforming**
- **Continuity of the marking grid obtained after the final forging operation**

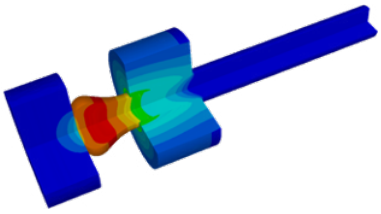
OTHER RECOMMENDED COURSES

- FORGE® - Automatic optimization
- FORGE® - Heat treatment of steel and aluminum

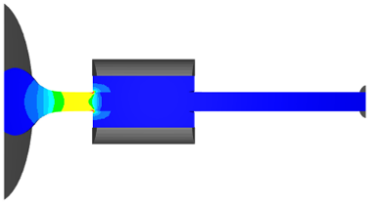
TRAINING	DURATION	PRICE EXCL. TAX	PARTICIPANTS
In-company	1.5 days	€2400 per training	1 to 3 people

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
Modeling	· Law of charge conservation · Heat equation · Properties: resistivity, conductivity · Coupling with metallurgical aspects
Setup data of industrial case	· Import of geometries · Parameters of material data - Mechanical properties - Electrical properties - TTT data · Meshing of different objects - Adaptation of the mesh in areas of electrical contact and high deformation - Remeshing criterion · Kinematics parameters of the rolls · Boundary conditions - Input and output current - Electrical contact · Global parameters of simulation - Friction, heat or electrical transfer - Storage - Time step
Features	· Marking grids · Sensors
Results analysis	· Temperature evolution · Study of stress and strain fields · Analysis of current distribution · Current density



Evolution of the temperature during the electro-upsetting process



Current density mapping

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

Customer case	· Setup · Starting the computation · Results analysis
Conclusions	· Questions and course assessment