F **FORGE®**

NEW

Electrical upsetting

Do you want to optimize your electrical upsetting process and parameter 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 a customer case. This training will give you the knowledge needed to optimize and parameter your processes correctly and obtain the perfect preform.

LEVEL

Intermediate - Users wishing 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. You must 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...**
  - **Electrical data: current density, electrical potential, Joule heat power...**
- **Kinematics data: anvil motion, direction, height, velocity...**
- **Shape obtained during preforming**
- **Continuity of the marking grid obtained after the final forging operation**

OTHER RECOMMENDED COURSES

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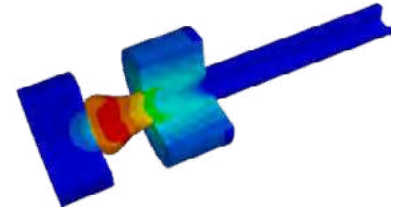- FORGE® - Heat treatment of steel and aluminum

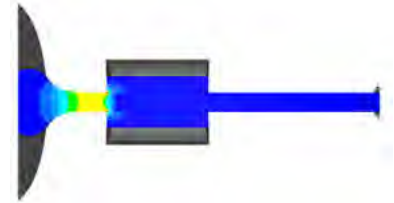| TRAINING	DURATION	PRICE EXCL. TAX	PARTICIPANTS
In-company	1,5 Days	2250€ per training	1 to 3 people

Contact us to arrange the date and place of the training

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

Introduction	· Transvalor presentation · Course goals
Modeling	· Electrical formula: charge conservation · Heat formula · 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