



**FORGE®**

# Starting with FORGE® Hot Metal Forming Essential

**FORGE® Hot Metal Forming Essential is suitable for most standard hot forging processes and is specifically designed for closed die forging.**

The FORGE® Hot Metal Forming Essential module helps you to validate your forging process chains, especially regarding the metal flow, the detection of major defects and the forging efforts. During day 1, you will learn

how to configure the simulation of a process, how to run calculations, and how to analyze its main results. Day 2 will cover additional features for the prediction of defects and the optimization of your manufacturing processes.

## LEVEL

**Beginner**

## PREREQUISITES

**There is no prior requirement for this course.**

## GOALS

- Configuration of the simulation of one of your hot forging processes
- Analysis of the simulation results
- Identification of forging defects (folds, cracks, etc.) and causes
- Display of grain flow and monitoring of physical values (temperature, pressure, etc.)
- Workspace customization

## OTHER RECOMMENDED TRAININGS

- New functionalities of FORGE® NxT 4.0
- Finite element modeling fundamentals

TRAINING	DURATION	PRICE EXCL. TAX	PARTICIPANTS
In-company	2 days	2600 € per training	1 to 3 people

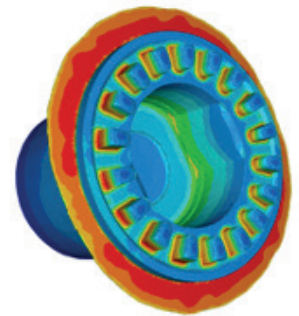
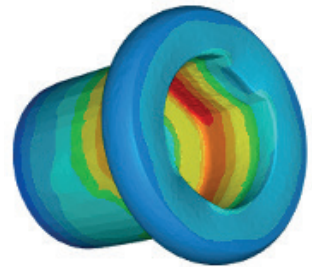
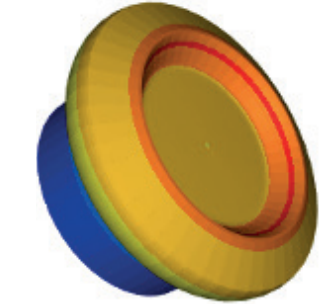
**Contact us to set the course date and location**

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

Introduction	<ul style="list-style-type: none"> <li>▫ Transvalor presentation</li> <li>▫ Course goals</li> <li>▫ Reminders of the finite element method</li> </ul>
Data setup	<ul style="list-style-type: none"> <li>▫ Working environment presentation</li> <li>▫ Concepts: stores, processes, cases and stages</li> <li>▫ Import of geometries</li> <li>▫ Meshing and remeshing procedures</li> <li>▫ Configuration of kinematics</li> <li>▫ Rheology, friction, heat transfer, materials database (FPD)</li> <li>▫ Concept of transition</li> <li>▫ Application to a tutorial case</li> </ul>
Computation	<ul style="list-style-type: none"> <li>▫ Quick launch</li> <li>▫ Computation manager and chained simulations</li> </ul>
Results analysis	<ul style="list-style-type: none"> <li>▫ Display of results, main scalars (reduction, residual stresses, grain size) and vectors</li> <li>▫ Diagrams, animations, VTFx exports</li> <li>▫ Multi-window analysis</li> <li>▫ Handling animations and exporting results</li> </ul>
Setup data of industrial case	<ul style="list-style-type: none"> <li>▫ Starting the computation</li> </ul>

**DAY 2 >** 8.30 a.m. to 12.00 p.m. & 1.30 p.m. to 5.00 p.m.

Analyzing results of an industrial case	<ul style="list-style-type: none"> <li>▫ Results analysis</li> </ul>
Additional features	<ul style="list-style-type: none"> <li>▫ Marking grid and grain flow</li> <li>▫ Predefined and post-processed sensors</li> <li>▫ Shearing, blanking and flash trimming of workpiece</li> <li>▫ Import of tooling assembly</li> </ul>
Die analysis	<ul style="list-style-type: none"> <li>▫ Uncoupled simulation</li> </ul>
Workspace customization	<ul style="list-style-type: none"> <li>▫ Creating specific models and data sets (materials, presses, friction, etc.)</li> <li>▫ Custom keyboard shortcuts</li> </ul>
Conclusions	<ul style="list-style-type: none"> <li>▫ Questions and course assessment</li> </ul>



Temperature evolution during the 3 phases of forging a ring