THERCAST®

Starting with THERCAST® Ingot casting

For all ingot casting areas, discover all of the possibilities offered by THERCAST®.

This course will be your first approach to THERCAST® software. The first day lets you understand all of the data setup steps, the procedure for launching computations and how to analyze the main results. The second day will be devoted to a more in-depth analysis of new concepts such as hot tearing and the impact of heat exchanges (influence of air gaps). A number of key functions will also be covered such as point tracking, using TTT diagrams, predicting segregation, handling knock-out and lastly, customizing the working environment.

LEVEL

Beginner

PREREQUISITES

There is no prior requirement for this course.

GOALS

- **Data setup for ingot casting**
- **Launching a single computation and/or a computation sequence**
- **Analyzing simulation results**
- **Studying the entire process (filling from the trumpet, cooling and strip out)**
- **Allowing for exothermic powders and refractory materials**
- **Identifying and interpreting casting defects (shrinkage, porosity, cracks, etc.)**
- **Studying variations in physical values (temperature, pressure, etc.) at any point on the part and the molds**
- **Predicting stress states and mold deformation**
- **Customizing your working environment**

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

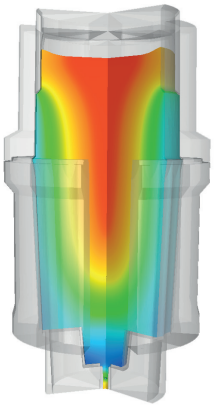
Contact us to arrange the date and place of the training.

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
Graphic environment	▫ Working environment presentation ▫ Project concept with case and stage management
Material file manager tool	▫ Creation of a material from its nominal composition ▫ Managing the unit system ▫ Displaying physical properties
Representing grain structure	▫ Pole figure presentation tool ▫ Application for one or several grains ▫ Displaying grain orientation
Segregation models	▫ Generation data for computations with segregations ▫ Visualizing elements concentration micro and macro-scale segregation ▫ Introduction to micro-segregation models
Tutorial - Ingot casting	▫ Importing geometry ▫ Surface and volume meshing ▫ Defining domains (metal, molds) ▫ Managing simulation control parameters ▫ Type of computation ▫ Reviewing heat and friction exchanges models ▫ Reviewing defect prediction criteria
Launching computation	▫ Quick launch ▫ Computation manager and chained simulations ▫ Procedure for restarting computations
Advanced options for analyzing results	▫ Displaying scalar results: temperature, liquid fraction, material front, strain, etc. ▫ Display options: iso-volumes, cutting planes, curve patterns, scales, smoothed or continuous display, etc. ▫ Identification of sensitive areas: shrinkage, porosity, etc. ▫ Combined analyses: multi-cases, multi-windows options ▫ Animations, VTFx export function
Industrial case	▫ Data setup and starting computation

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

Industrial case result analysis	▫ Interpreting results ▫ Influence of exchanges and/or mold shape on results ▫ Optimizing process data to minimize casting defects ▫ Handling the strip out
Functions	▫ Pre- and post-processed sensors ▫ Hot tearing criteria ▫ Remeshing ▫ TTT and TRC diagram
Working environment customization	▫ Creating specific models and data sets (materials, heat exchanges, friction, etc.)
Conclusions	▫ Questions and course assessment



Temperature distribution during solidification

Grain structure

Particle monitoring during ingot filling