

CastleTHERMO is the innovative software solution that allows **simulating the thermal behaviour of the die**: the thermal cycle of the mould can be realistically modelled taking into account both the cooling channels and the release agent spraying effect for a state-of-the-art solidification simulation.

Realistic fluid flow simulation of cooling channels: the fluid displacement inside the cooling channels is actually simulated as a fluid flow domain.

The thermal exchange between mould and coolings is thus **realistically and automatically calculated** as a function of the flow depending on position and time.

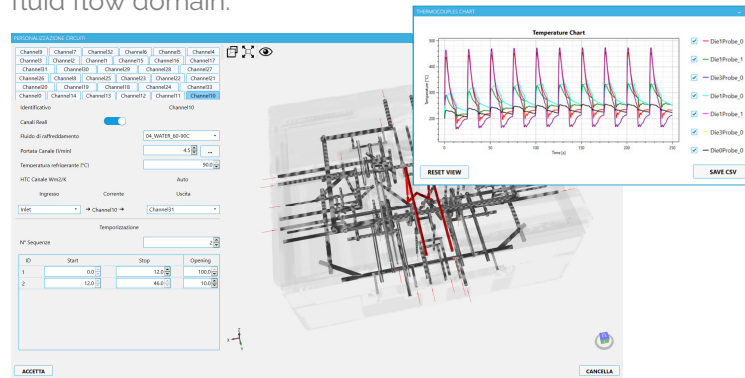
External cooling channel interconnections can be considered.

Complex spraying operations like moving head spraying can be considered.

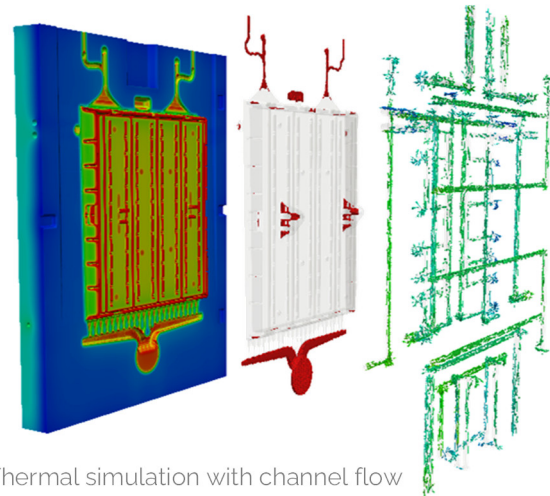
User-friendly interface: simulation can be easily set up in few minutes even for the most complex dies.

CastleTHERMO is a new approach for die castings thermal simulation:

- The full die thermal simulation is finally available for everyone
- The interface is simple and the setup of the simulation is easy and quick
- Cooling circuits can be easily modelled
- The simulation is extremely accurate and takes into account the effective flow of the cooling media inside the channels
- Complex spraying paths and configuration can be considered



Advanced cooling channels configuration



Thermal simulation with channel flow

powered by

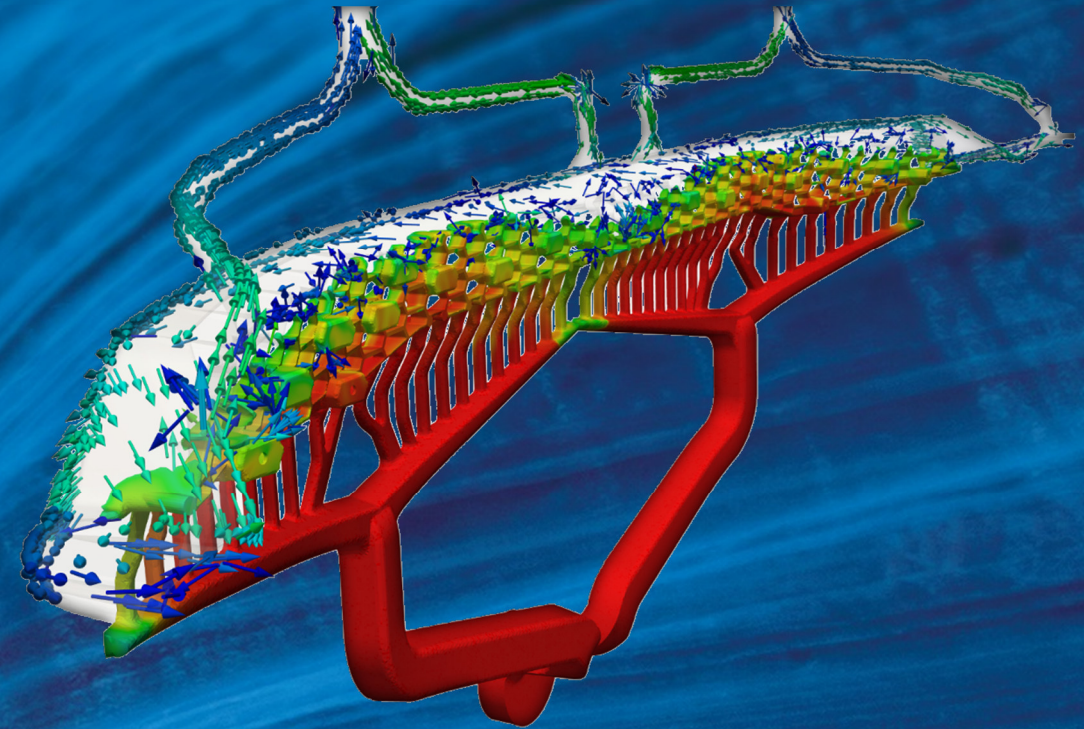
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Developing Expertise

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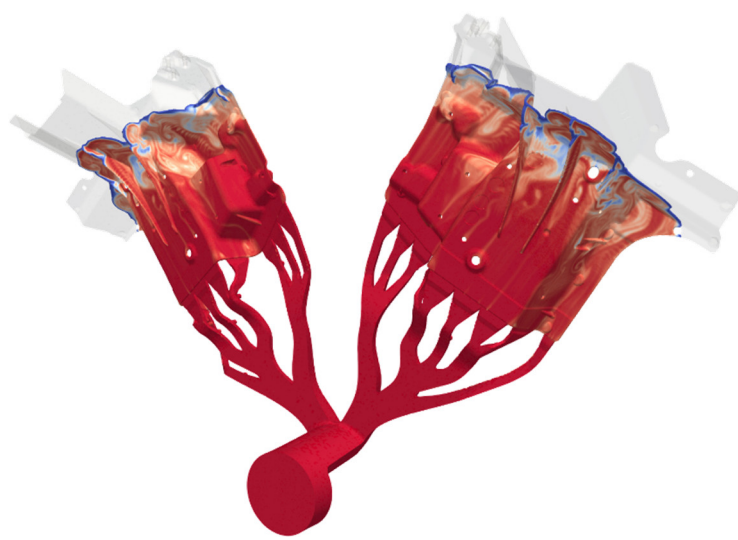
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[castle] BODY

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Dual-phase filling simulation

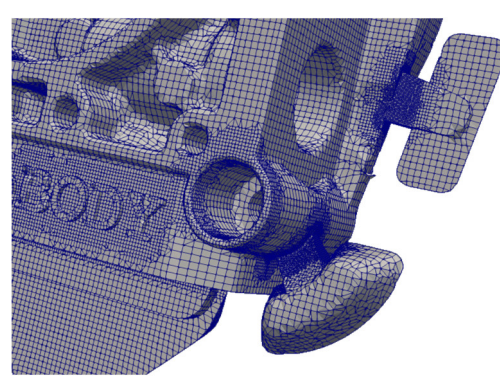
A NEW GENERATION OF SIMULATION SOFTWARE SPECIFICALLY DESIGNED FOR HIGH PRESSURE DIE CASTING

CastleBODY is an innovative software solution that includes very advanced mathematical features for high pressure die casting. Thanks to the **dual-phase technology**, it simulates the combined action of two fluids: heavy-uncompressible alloy and light-compressible air.

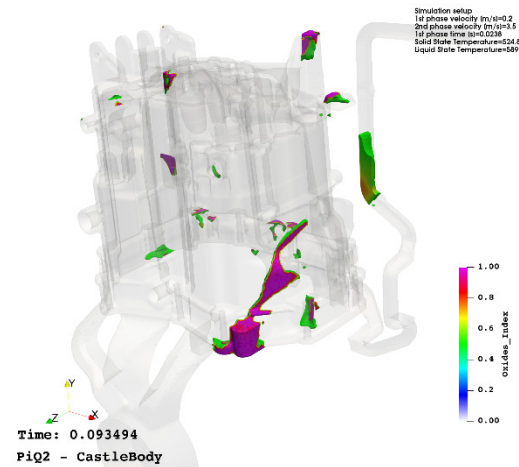
The software takes into account the **effect of the alloy spraying** inside the cavity, thus providing extremely accurate **air entrapment results** and allowing the **vacuum and venting performance evaluation**.

The powerful calculation engine is combined with a very **simple and user-friendly interface**, where both input data and output results are provided in an easy way. The simulation setup can be arranged in just a few minutes even by operators without a specific technical background. The 3D mesh can be prepared taking into account any **areas requiring a refined mesh** (i.e. the gates) or a coarse mesh in the thicker sections.

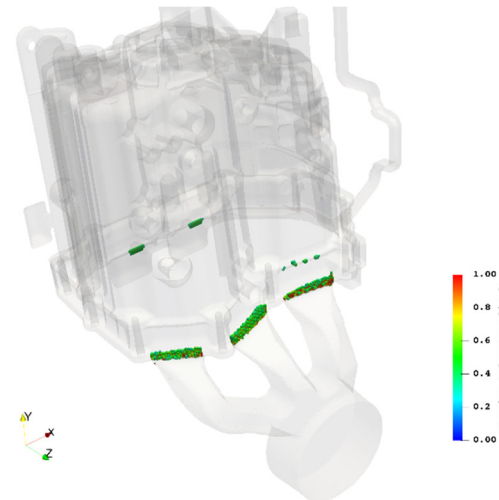
CastleBODY allows **free-of-charge multi-CPU** calculation and meshing. Several simulations can be run at the same time or queued to compare different die configurations or process parameters. This means an important saving of time and the possibility to carry out more simulations within company deadlines



Local refined hybrid mesh

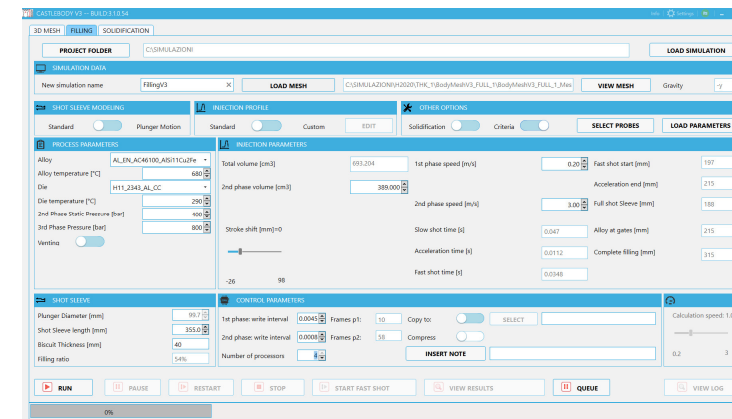


Oxides index criteria



Mould erosion index criteria

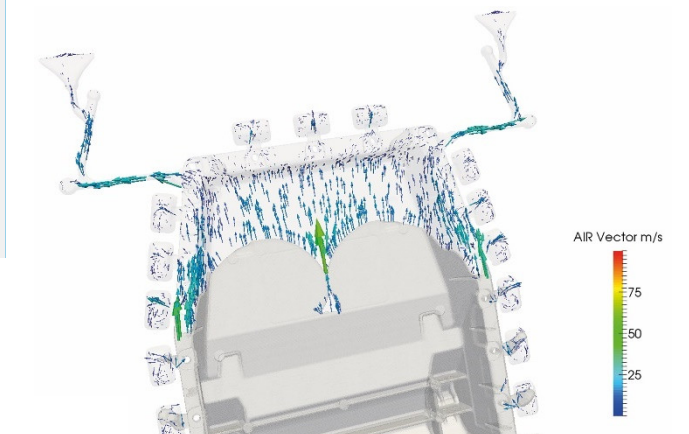
- **DATA IMPORT FROM MANY CAD SYSTEM**
(including Step, Parasolid, STL, Iges and many others)
- **COMPLETE 3D CAD MODELLING CAPABILITIES**
- **EASY PREPARATION AND SETUP FOR THE CALCULATION**
- **SIMPLE AND ROBUST MESHING WITH CUSTOMIZED LOCAL REFINEMENT**
- **DUALPHASE: ALLOY AND AIR ARE SIMULTANEOUSLY SIMULATED AND ANALYZED**
- **REALISTIC FILLING SIMULATION OF ALLOY SPRAYING, VACUUM AND VENTING**
- **FAST AND ACCURATE SOLIDIFICATION ANALYSIS**
- **VIRTUAL SHOT SLEEVE WITH PLUNGER MOTION SIMULATION**
- **SIMULATION OF PERMANENT CO-CAST INSERT**
- **TYPICAL TRAINING DURATION OF A FEW HOURS**
- **FREE MULTI-CPU CALCULATION AND MESHING**
- **FREE RESULTS VIEWER**



CastleBODY v3.1 user friendly interface



Actual air entrapment



Air flow behaviour simulation

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