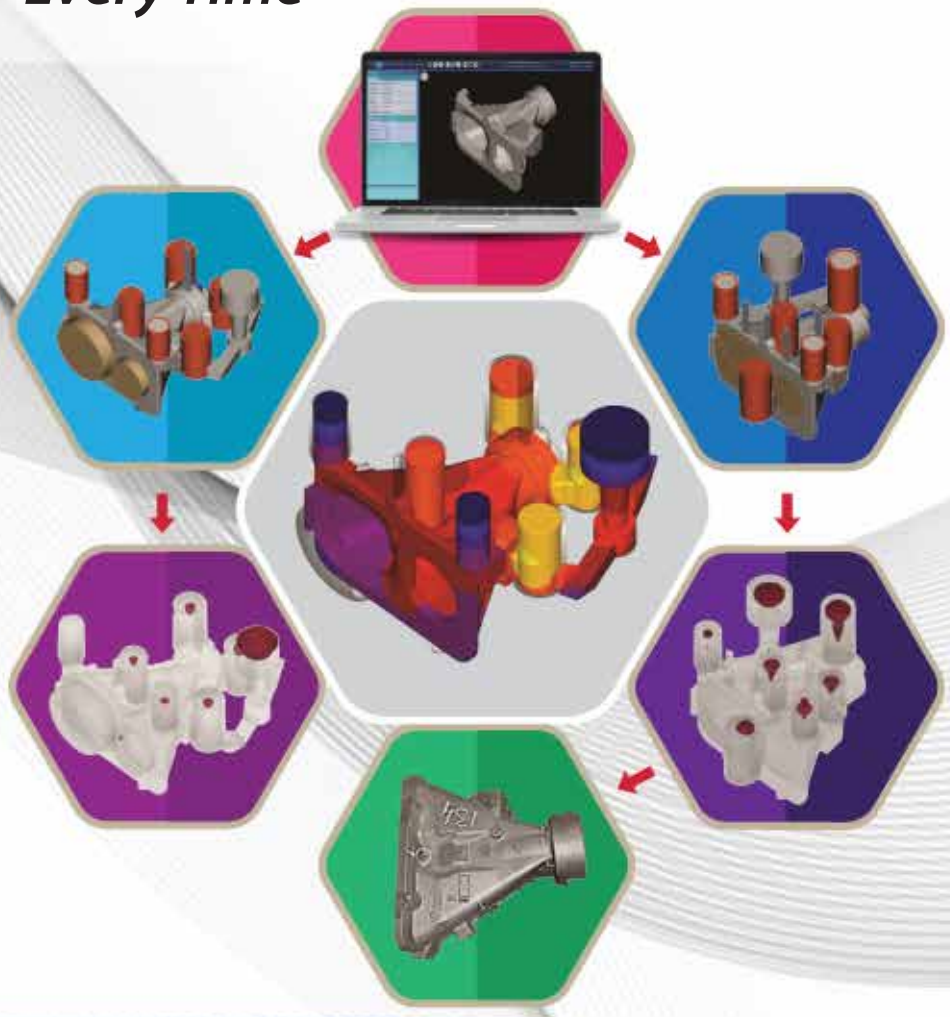
AutoCAST™ X1

RIGHT *First Time Every Time*

- Methoding
- Simulation
- Optimization



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AutoCAST™ X1

Quick Methoding & Simulation

AutoCAST-X1 combines 3D methods design, quick simulation and advanced simulation in a single environment with a pleasant user interface. This gives unmatched ease-of-use coupled with fast turnaround time for even complex castings.

PART Module

Geometric and mass properties
Sectional thickness anaylsis
Cored feature recognition

MOLD Module

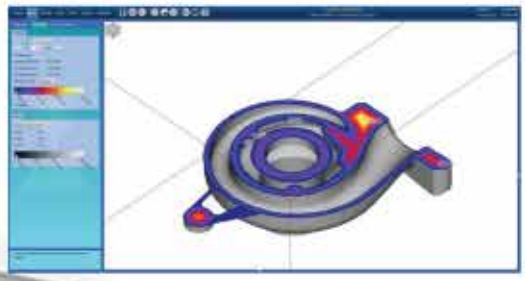
Part orientation, stepped parting line
Horizontal and vertical molding
Core and print design, plug drilled hole
Mold size and multi-cavity layout

FEED Module

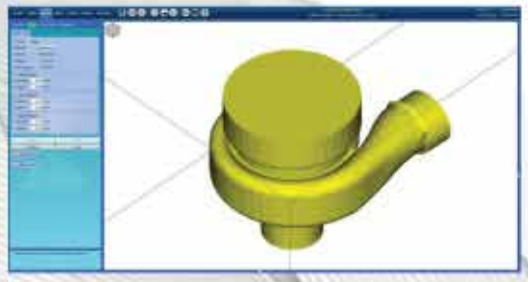
Hotspot location; Feeder design
Feedaids: Neck down sleeve, chill, padding
Directional solidification: feed-paths
Automatic feeder size optimization

GATE Module

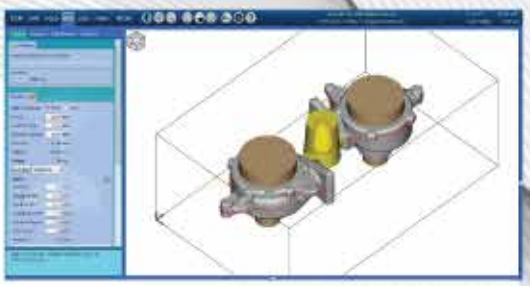
Multi-sprue, gate, runner, layout
Automatic gating optimization
Pressurized and non pressurized gating design



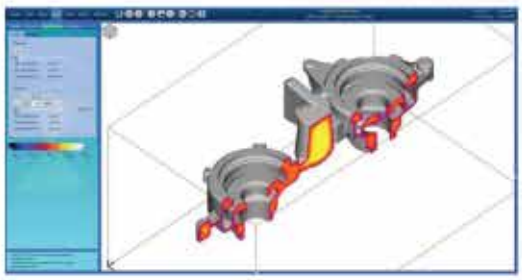
Thickness and radiographic analysis



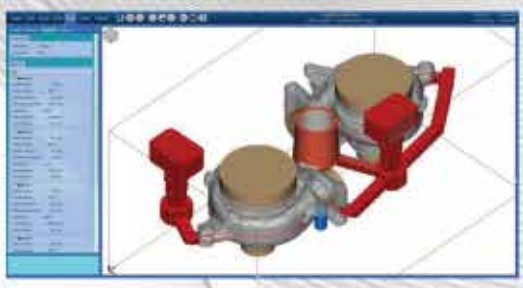
Hole identification and core design



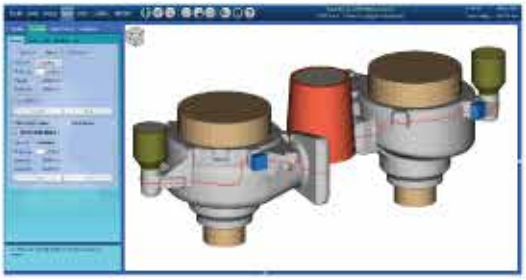
Hotspot location and feeder design



Quick temperature analysis



Gating design and quick mold fill analysis



Feeder, Sleeve and Chill design

Pressurized and non pressurized gating design

FLOW+

Advanced Simulation & Quality Analysis

FLOW+ Module provides the insight and accuracy of physics-based simulation. It computes coupled mold filling and casting solidification, with minimal user inputs. Key results include temperature history, liquid metal fraction, solidification time, cooling curves, and air fraction. Major defects like misrun, cold shut, air blow hole, shrinkage porosity, and hard zone can be predicted.

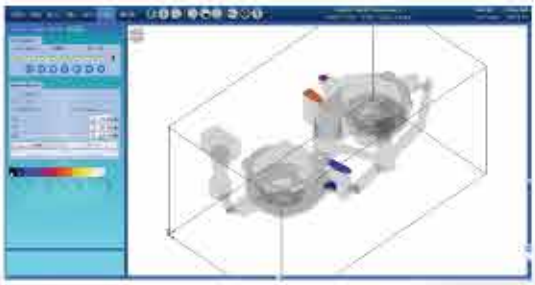
Functions

Simulate
Direct input from AutoCAST methods design, automatic mesh generation, and setting the boundary conditions.

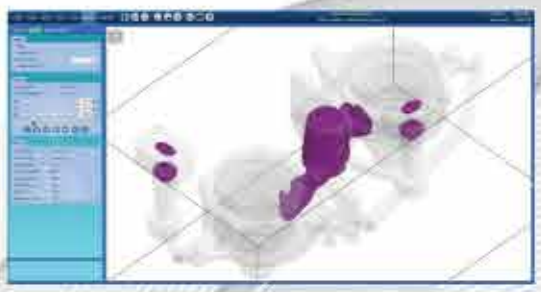
Results
Visualize mold filling, mold/core temperatures, liquid fraction, and solidification time (rate), with precise play & pause and status display, flow velocity value at any section inside part, ingates, runner.

Quality
Predict shrinkage porosity, misrun, cold shut, blow hole, and hard zones: defect location as well as their distribution (severity).

Analyze
Place (Virtual) Thermocouples to generate cooling curves in metal, mold sand, core; visualize air fraction.

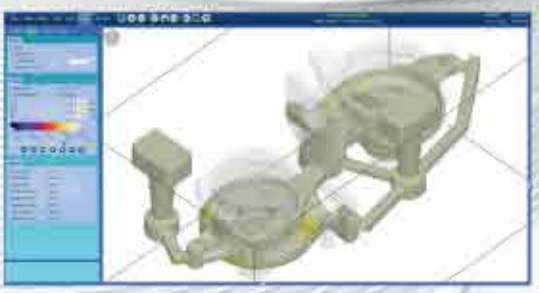


Air porosity

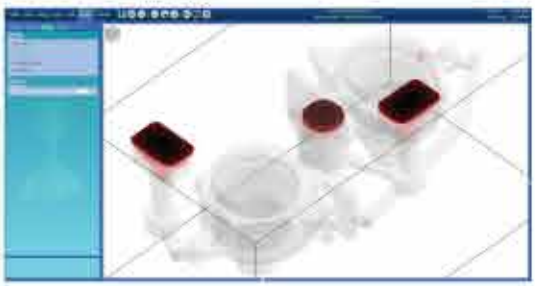


Liquid fraction of solidifying metal

Casting solidification temperatures



Mold filling sequence with solidification



Macro and micro shrinkage porosity

Velocity value at ingates, runner and inside part

Niyama analysis

AutoCAST™ X1

Casting Processes

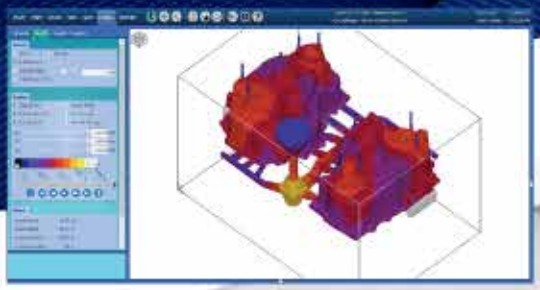
AutoCAST-X1 provides the most comprehensive functionality ranging from part, methods design to advanced simulation, defect analysis and quality assurance, across ferrous and non-ferrous metals and multiple processes.

Parts weighing a few grams to multiple tons are easily simulated on standard desktop computer (Windows 7,8,10).

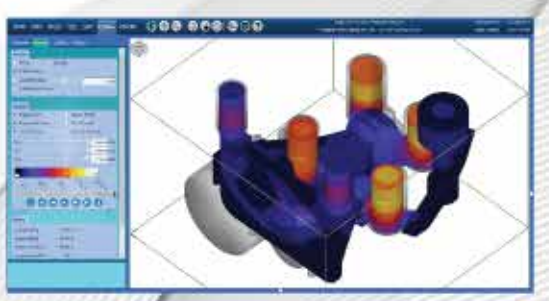
Various casting processes like Sand casting, Shell mold, Gravity die casting and Investment casting (including radiation, view factor effects) can be simulated and analyzed.

Gating design can create intricate gating elements and different layouts to achieve efficient gating for a specific material-process combination.

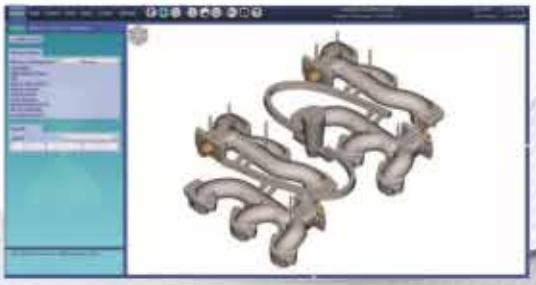
Multiple feeding, gating, chill layouts can be quickly tried and compared to get parts First Time Right.



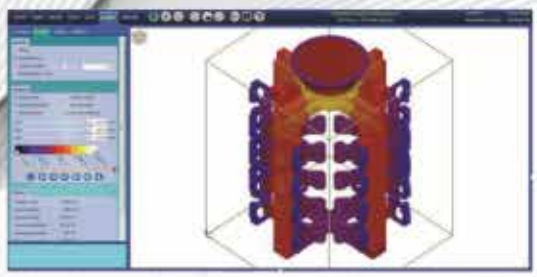
Cast Iron-Sand Casting



Steel - Sand Casting

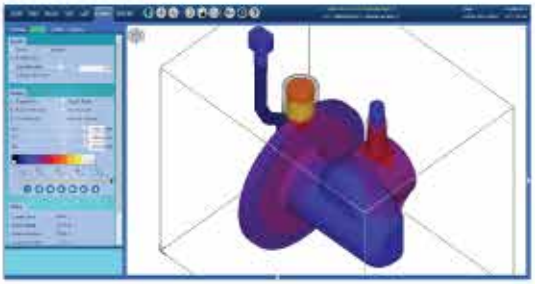


Gating Design - Horizontal Gating



Steel-Investment Casting

Gating Design - Vertical Gating



Aluminium - GDC

3D Foundry Tech

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