ALTAIR® INSPIRE™ CAST: DESIGN, SIMULATE, AND OPTIMIZE METAL CASTING PROCESSES

From product designers to foundry engineers, Inspire Cast is a complete, robust, and easy-to-use metal casting simulation software. It is the only tool that caters to the needs of beginners and experts alike in their quest to design better cast products and improve quality and profitability.
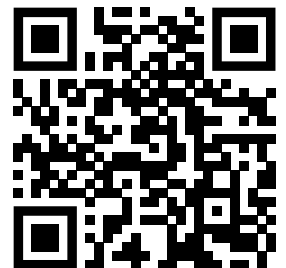
What is Inspire Cast?

Inspire Cast is a modern simulation-driven design and manufacturing tool that allows any level of user to take advantage of integrated finite element analysis with artificial intelligence (AI) technology. Applied early in the design cycle, Inspire Cast eliminates slow, costly iterations between design and manufacturing. In addition, by a unique combination of geometry-centric casting simulation technology with practical AI, the immense value of past simulation data can be easily exploited for better informed future designs.

Altair's design- and part-centric manufacturing simulation approach makes it easy to use and delivers fast, accurate design guidance for a wide set of casting processes and conditions.

- Fast, easy, accurate, and affordable framework for early casting feasibility and process development
- Simple workflow to create runner and gating system geometries for optimizing the casting process
- Unique and powerful geometry-based UI
- No/low mesh requirements, virtually eliminate meshing failures
- Extensive validation process
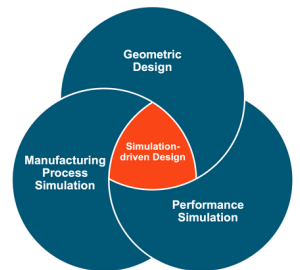
Altair delivers a modern simulation-driven design and manufacturing tool.

Learn more at:
altair.com/inspire-cast

How is Inspire Cast Design-centric?

Inspire Cast is a powerful computer-aided engineering (CAE) tool built specifically for designers, bringing simulation and computational physics into a CAD-like environment. By integrating geometry modeling, generative design, with design for manufacturing simulation, designers without any simulation expertise can run a fast, casting simulation based on geometry to analyze part manufacturability.
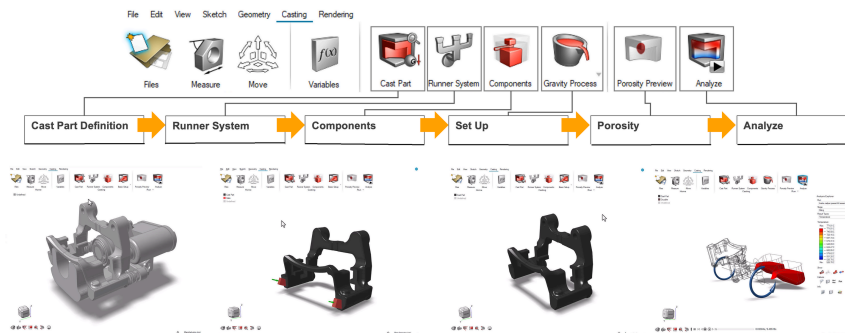

Import and define geometry, create components, set up simulations, and with one-click, analyze and optimize your cast designs.

Simulation-driven Design for Casting: An End-to-End Workflow

Minimize Process Complexity: Looking for an intuitive framework for early casting feasibility and process development? Guided by easy-to-use templates, Altair's streamlined workflow enables users to create runner and gating system geometries to optimize the casting process before moving onto more detailed analyses.

Process-orientated Full Casting Analysis: Inspire Cast's no/low code finite element (FE) analysis means beginners and experts alike can run analyses, optimize, validate, and cast – all within one comprehensive environment.

Create successful designs by simulating process conditions, including mold filling, solidification, and cooling. Using a simple five-step process, templates guide users to optimize gating, runners, and risers – helping to prevent trapped air in both solid parts and those with cavities. Users also can quickly understand the results of cast part residual stresses, distortion, and local properties – all with fast compute times on standard workstations.
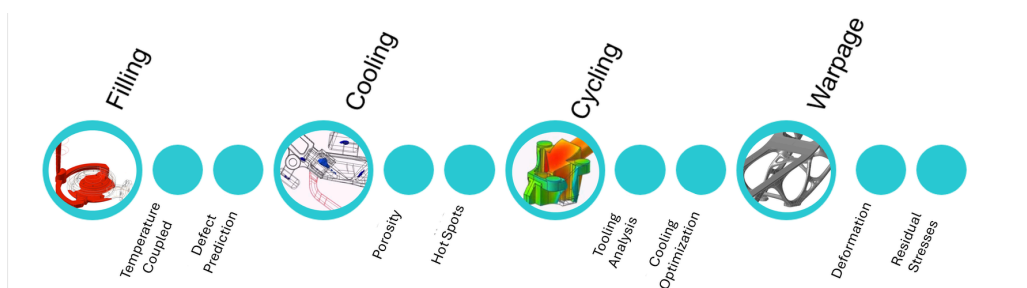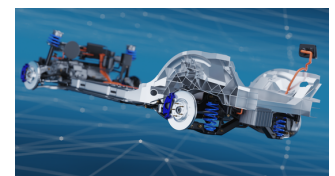

Simple workflow for optimizing the casting processes.

Take the next step into AI-powered engineering - A render of a high pressure die megacasting of an electric vehicle.

Take the Next Step into AI-powered Engineering

Looking to further accelerate design cycles, supercharge innovation, foster sustainability, and stay ahead of the competition without compromising products' performance or quality? The future is AI-powered engineering, which is fundamentally reshaping simulation-centric engineering workflows.

Inspire Cast's geometry-based approach to simulation is ideal to feed results data into geometric deep learning tools, like Altair® PhysicsAI™. Past simulations, an existing and valuable asset, can train machine learning models for fast physics predictions, offering insights for future designs. Once trained, AI models can deliver predictions up to 1,000x faster than traditional solver simulations. Every day, Inspire Cast and PhysicsAI gives companies the confidence to retire traditional one-simulation-at-a-time, trial and error-based approaches that many designers and engineers still use. Learn More About AI-powered Engineering

Try the Solution Today:
Download Now