Metal Casting Models

FLOW-3D **CAST** contains a wide variety of physical models specially designed for metal casting. It offers the most accurate solutions to all kinds of metal casting applications and concerns. With it, our customers are constantly improving casting yield and quality, in less time and with lower costs.

FLOW-3D **CAST** is a leading player in metal casting modeling and simulation. Its dedication to the metal casting industry has been demonstrated by our continual developments for metal casting related models and applications. We will continue to work with our customers to develop for real-world applications to help them improve quality and productivity and allow them to continually innovate.

With special capabilities for accurately predicting free-surface flows, *FLOW-3D* **CAST** is the first choice in simulating mold filling and related defects, such as air entrapment. The powerful and flexible heat transfer model can quickly and accurately predict the thermal exchange between the metal and the mold, and lays a solid foundation for solidification, cooling channels, and thermal die cycling simulations.

The chemistry-based solidification model, which can be coupled with mold filling, can pinpoint areas of excessive shrinkage or porosity, and allows customers to determine placement of risers to assure such defects are alleviated.

The granular media model and moisture drying model can be used to simulate sand core blowing and drying. *FLOW-3D* **CAST**'s finite element based thermal stress evolution model enables customers to predict precisely where stresses will occur and how a casting distorts, so that customers can start eliminating thermal stress defects in their metal castings.

The cast iron model predicts the formation of graphite, gamma-iron and carbide phases during the eutectic reaction, extending the applications of *FLOW-3D* **CAST**. The unique features of the core gas model — core gas generation and flow in the sand core — can be used to predict core gas related defects in metal castings.