Abstract

Casting process modeling has come a long way since the early 1980s when the casting designer using simulation was limited to deciphering a full casting through primitive two-dimensional sections. In the early days, the focus was on the simple quest of identifying hot spots in the casting. As Computer-Aided Design (CAD) and numerical simulation software packages evolved, the foundry engineer became able to make quick changes to the feeding design, fixing potential defects with relative ease.

ESI Group, world-leading solution provider in Virtual Prototyping software and services, has developed a complete set of solutions for the foundry industry in its Casting Simulation Suite, ProCAST. With more than 25 years of collaboration with major industry & research partners, ProCAST enables rapid visualization of effects of design changes and provides a basis for correct decision-making, from the earliest stages of the manufacturing process. For ESI customers, not only does this mean they have access to the best in class simulation solution, but this translates into weeks of time savings in the product development cycle and a substantial percentage of savings in the total product cost.

ProCAST enables the modeling of all casting processes for all castable alloys, and also addresses other foundry relevant manufacturing process like core blowing & heat treatment. For more information, please log onto http://www.esi-group.com/software-services/virtual-manufacturing/casting-simulation-suite

This presentation provides an overview of latest developments in the casting process simulation and brief insight into the near future developments based on the evolving requirements from the industry. The latest version of ProCAST embeds the QuikCAST solver into Visual-Environment, enabling consistent user access to two different technologies, Finite Element Method (FEM) and Finite Difference Method (FDM), from a single platform. ProCAST also introduces an Optimization solver which allows users to set-up DOE (Design of Experiments), optimize their casting process & finally test for the process robustness, all aided by standard and intuitive workflows.