

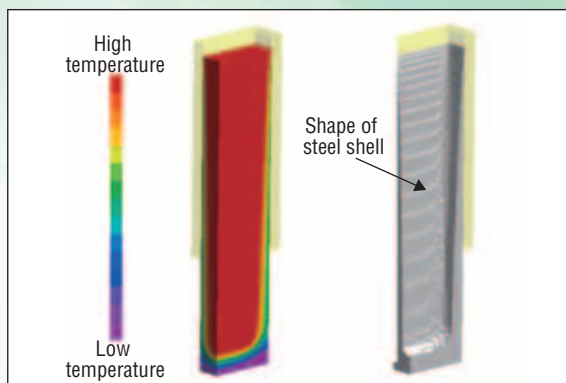
Numerical simulations



Simulations of thermal fluids, structures, and electromagnetic fields are invaluable for developing new iron and steelmaking processes and innovative ways of evaluating and using materials.

Process Simulations

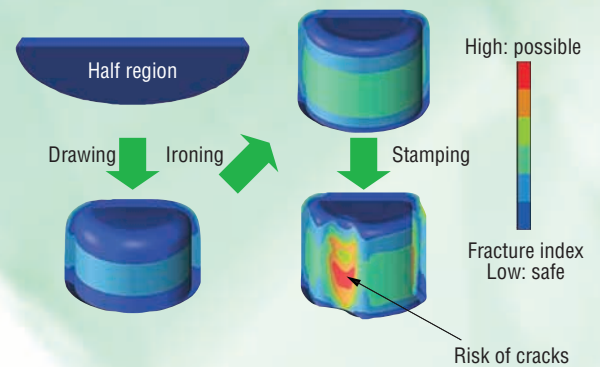
Casting simulations including complex interactions of heat, fluids, magnetic fields, chemical reactions, and transformations are useful for developing and evaluating iron and steelmaking processes.



3D Casting simulations including flow and solidification of molten steel

Material Evaluation and Utilization Technology

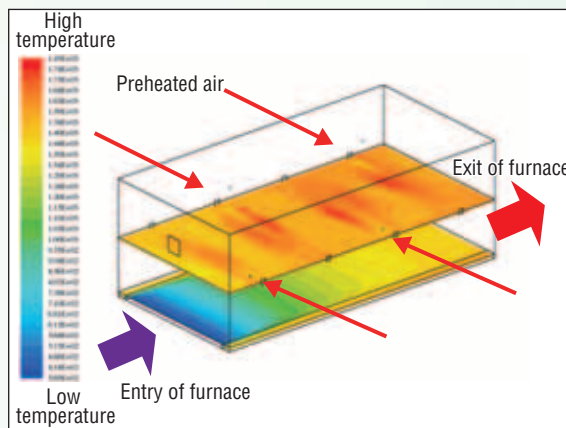
Computer-aided engineering (CAE) is used to perform versatile simulations of the formability of steel sheets, as well as the strength, stiffness & crash-performance of steel products. Simulations substantially reduce the development time and cost by eliminating unnecessary trial & error, mock-ups and experiments.



Feasibility simulation for replacing die forging with sheet metal forming

Thermal Fluid Simulations

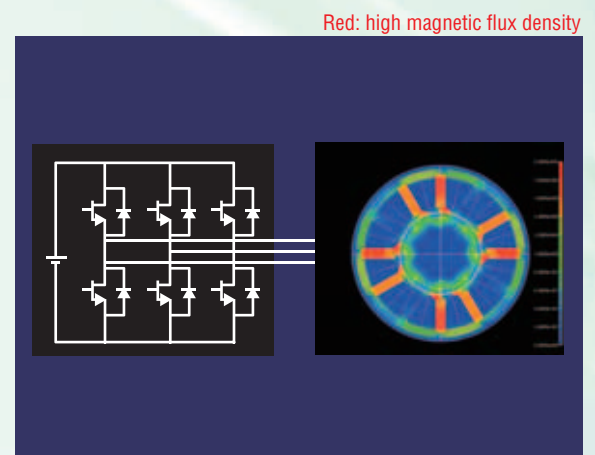
Thermal fluid simulations of a reheating furnace equipped with environment-friendly regenerative burners enable visual analysis of the temperature distribution, concentration of gases such as NO_x, and the thermal conditions of slabs.



Heat conduction simulation in a reheating furnace with environment-friendly regenerative burner systems

Multiphysics Simulations of Electronics and Magnetics

The performance of electrical steel sheets in various customer applications is evaluated through multiphysics simulations of electronics, magnetics and kinetics.



Performance evaluation of motor iron core by multiphysics simulation of inverter circuit, core magnetic field and rotor motion