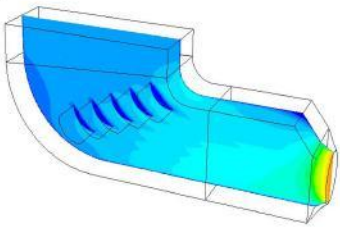


CFD MODELING

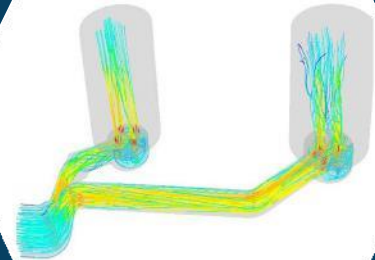
Furnace Improvements has vast experience in Computational Fluid Dynamics (CFD) Modeling of fired heaters, burners, combustion air duct, flue gas duct, AIG-SCR ducts, and auxiliary equipment.

Application Type	Description
Combustion Systems Modeling	Evaluate various burner configuration to improve flame characteristics and radiant heat flux profiles
Combustion Air Duct Modeling	Evaluate design of hot air duct/ burner plenums, to ensure uniform air flow distribution across all the burners
Flue Gas Duct Modeling	Reduce system pressure losses and achieve uniform flow distribution for ID/FD fan ducts
Ammonia Injection Grid (AIG)-SCR Duct Modeling	Design of AIG and mixing devices for uniform mixing of flue gas and ammonia flow at the inlet of SCR unit
Flow Distribution Modeling	Evaluate design of process fluid transfer lines for uniform flow distribution across all the passes

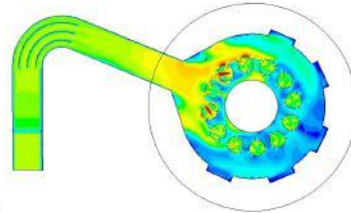
Flow Improvement in ID Fan Suction Duct



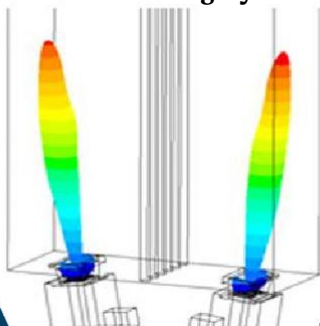
Combustion Air Duct



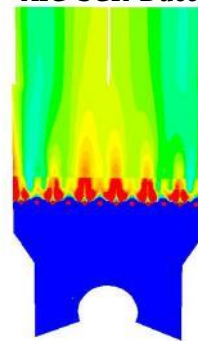
Uniform Air Flow Distribution Across All Burners



Flame Patterns using Inclined Firing System

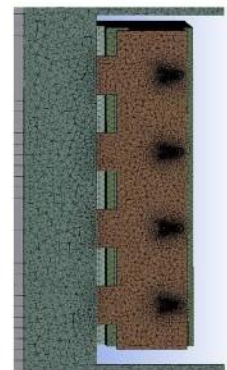


AIG-SCR Duct



SALIENT FEATURES/BENEFITS

- ✓ High accuracy of all geometrical features is maintained in the 3D geometry model.
- ✓ Mesh resolution is varied to resolve the gradients accurately in the solution variables of the simulation.
- ✓ Based on the type of analysis, appropriate solver models are selected, and developed best practices solution methodology is used to predict accurate results.
- ✓ CFD Simulations provide detailed insights which are useful to improve the design



Furnace Improvements Services

Uniform Heat Transfer in Fired Heaters

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