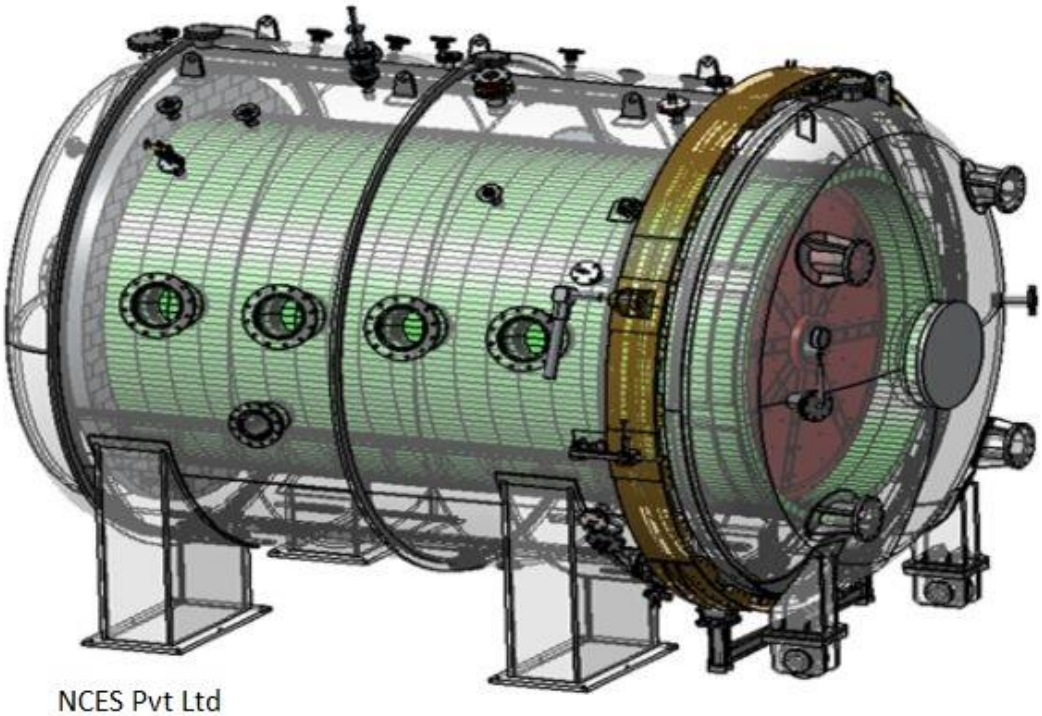
Niharika Computational Engineering Solutions Pvt Ltd

Aerospace & Defence Industry vertical

Case study

CFD analysis of Rotary Vacuum Brazing Furnace (RVBF)



Client: Indian Space Research Organization (ISRO)

Duration: Six weeks

Description of the work:

RVBF is an Inert gas-circulated, closed-loop Integrated thermal system with operating temperatures up to 1500 Deg Celsius. The Integrated thermal loop consists of a heat treatment chamber, a centrifugal blower for gas circulation, Shell and Tube Heat exchanger to achieve gas cooling, and an Electromagnetic Induction heater to reach a higher operating temperature.

Controlled cooling of the job is essential to achieve the desired metallurgical structure after heat treatment. Niharika Computational Engineering Solutions Pvt Ltd (NCES) has collaborated with the client and analysed the overall thermal performance of RVBF. We conducted transient Computational Fluid Dynamics (CFD) analysis to analyse the cooling of the job during the cooling cycle.

Our CFD analysis process is validated with the help of experimental data obtained from the existing RVBF unit, which is of slightly lower capacity.

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