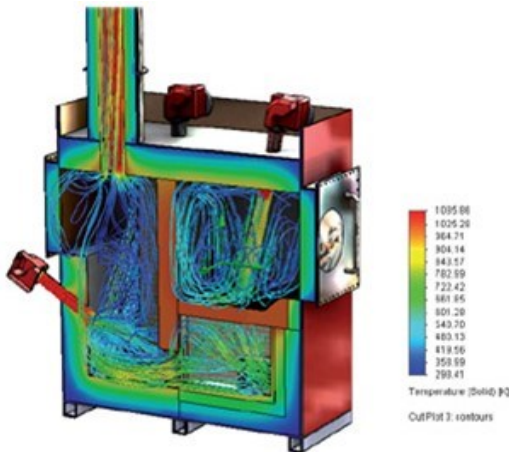
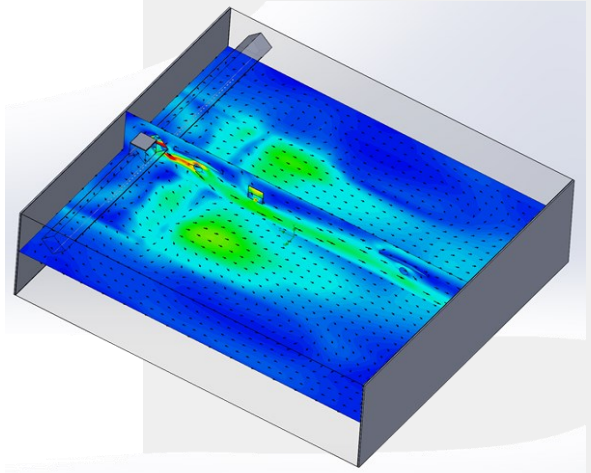


Design/Problem Solving via CFD...

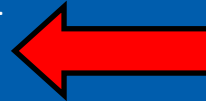
Computational fluid dynamic **CFD** is part of broader range of software tools which is encompassed by **Computer Aided Engineering (CAE)** tools. Whether it is to evaluate and optimize a new design of fault find and troubleshoot an existing design, CFD aims to better understand and reduce the number of costly design iterations and optimize flow and heat transfer problems.

Our customer builds small size incinerators for cremation and incineration purposes. Hospitals require these for disposing of bio-hazard waste materials. This waste must undergo a heat treatment of **1200-1600** degrees Celsius to ensure no contaminants are released into the atmosphere. A 3D model of our customers medical incinerator was generated and used for modelling heat transfer and air flow.



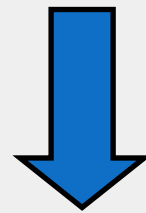
The aim of this model was to demonstrate both uniform heat and flow distribution around the hearth where the waste is laid.

The heat and flow distribution within the combustion chamber is critical to ensure waste is completely burnt...



Another aspect of the simulation was to study the air flow movement and potential vortex formation where ash could be collecting and cause blockage in the long run. Insulation materials were also modelled with their correct thermal properties and this also allowed to evaluate external surface temperature and potential hot spot.

The temperature of the hearth was evenly distributed which showed that the bio hazard waste would burn and be incinerated evenly. The residence time under the required temperature was adequate confirming the requirement of the after burner chamber.



EnerTherm Engineering has demonstrated that the medical incinerator was both fit for purpose and efficient for processing medical waste and both safe to operate with low surface temperature.

The medical incinerator has currently been sold to hospitals and health organizations tackling the spread of certain diseases.



Francois Pierrel

15 Minute Meeting

15 min

"EnerTherm Engineering – Thrive To Optimise"