



Avoiding Hot Spots

Discom B.V. use FloEFD™ to ensure Temperatures are kept within Bounds

discom
EXHAUST TECHNOLOGY

In their 30 years as designers and suppliers of exhaust gas systems, Discom B.V. have seen the requirements regarding noise and emissions change and tighten considerably. Investment in research and development is therefore critical to creating new designs and ensuring the continued success of the company.

The challenges they face come not just from meeting or exceeding regulatory requirements, but also to ensure that the systems offer high reliability over their design lifetime. These requirements are made more complex due to the need to ensure that the final design can be practically installed and maintained within the often tight spaces set aside for them.

Given these requirements, it's essential that the tools that support the design process are integrated within the overall suite used, and can provide clear and reliable results with the minimum of user intervention. It's for these reasons that FloEFD, operated by HEC on behalf of Discom, can prove so valuable. For instance, when considering the lifetime estimation of thermal loading on an exhaust silencer for a train, the CAD embedded nature of FloEFD allowed for even this complicated geometry to be prepared and discretized with minimum effort. The results from the simulation can then be fed in to the structural finite element package to define the boundary conditions for the resulting simulations.

Underpinning all such work are two key aspects of the FloEFD package: a comprehensive materials library, which allows for the thermal properties of both metals and insulation materials to be accounted for. In addition, an advanced

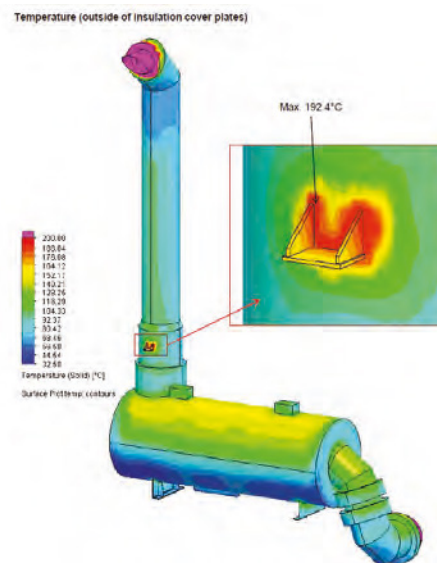


Figure 1. Identification of Local 'Hot Spot' in Train Exhaust Systems

radiation model allows for the effects of these materials, their surface finish and even solar radiation to be accounted for. When such detail is applied alongside a detailed CAD model, it is easy to identify and predict individual hot-spots should they occur. Being able to do all this 'upfront' in a virtual environment ensures that the optimum configuration can be derived before any metal has been cut.

For more information:
www.discom.eu



Figure 2. Discom B.V. headquarters in The Netherlands