Master Thesis project

**CFD simulations of air curtains**

The objective of the master thesis work is to evaluate how Computational Fluid Dynamics (CFD) can be used in the development of air curtains. An air barrier is generated by a device consisting of fans and nozzles, and the geometrical appearance of these components is important for optimizing the screening effect. An air curtain must be efficient for a range of situations, including transient and steady state operating conditions.

In the master thesis CFD will be used to evaluate parametric studies of the air curtain device based on Design of Experiments (DOE), as well as complete system simulations including surrounding spaces and ventilation systems. Both steady state and transient simulations will be performed. Results in the form of flow fields, temperature distributions, and energy balances will be used to evaluate the performance of the air curtains.

The CFD simulations will also be used to guide the construction of a test facility for air curtains. When the test facility is finalized, experimental data will be used to validate the CFD methodologies defined by the master thesis.

The master thesis work will be done in cooperation between FS dynamics, Frico AB and Chalmers University of technology. The project is suitable for one person with a great interest in technical calculations. The project will be carried out at FS dynamics office in Gothenburg during the spring 2015.

Contact Person at FS Dynamics:

**Jonas Edman** Ph.D.  
Manager Fluid Dynamics  
FS Dynamics Sweden AB  
Möndalsvägen 24  
SE-412 63 Gothenburg  
Sweden  
Phone: +46 31 763 21 05  
Fax: +46 31 761 99 49  
Email: jonas.edman@fsdynamics.se  
URL: http://www.fsdynamics.se/