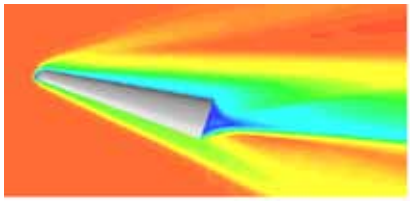
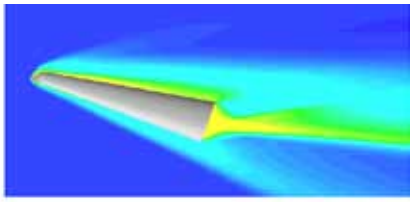
FloEFD Advanced Module

D A T A S H E E T

Angle of attack 20º



Mach number distribution



Temperature field

Mentor Graphics' Mechanical Analysis Division has been a leader in the simulation of airflow and temperature for the engineering community since 1989. With FloEFD's concurrent CFD, software that connects directly with your CAD software, users can simulate airflow and heat transfer using 3D CAD models directly, with no need for data translations or copies.

More specifically the Advanced Module for FloEFD® provides additional capabilities for analysis by specialists. Physical capabilities added to FloEFD are:

Combustion Modelling and Analysis

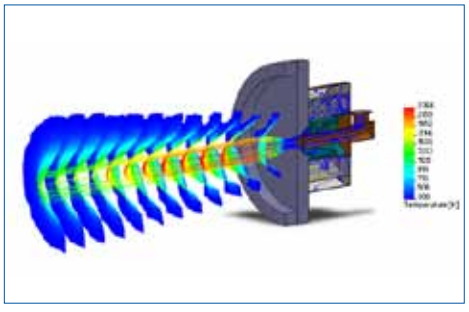
FloEFD can account for the thermal effects of combustion of gas-phase mixtures:

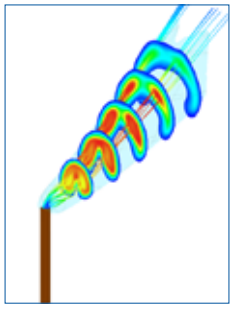
- Non-premixed combustion (combustion starts immediately and infinitely fast upon mixing)
- Premixed combustion that requires an igniter to start the combustion
- There are 26 fuels and 5 oxidizers predefined.
- Mass fraction of combustion products can be visualized for:
  - Carbon Monoxide (CO)
  - Carbon Dioxide (CO_2)
  - Nitrogen (N_2)
  - Nitric Oxide (NO)
  - Nitrogen Dioxide (NO_2)
  - Sulfur Dioxide (SO_2)
  - Water (H_2O)
  - Residual Fuel
  - Residual oxidizer

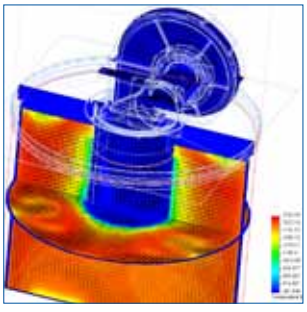
"What-if?" Testing Made Easy

One of the most powerful features of FloEFD is the ease with which you can conduct "what-if?" analyses. FloEFD makes it simple to clone/modify your models and analyze design variations. The process is very simple. Create your base model and analyze it. Then create multiple variations of your design by modifying the solid model without having to reapply boundary conditions, material properties etc. When the analysis is complete, FloEFD makes it easy to compare the results among the many options to choose your best possible design. When you are satisfied with your design, publish your report at a touch of a button. You can even publish a fully interactive 3D dynamic plot and share it with colleagues or customers.

In addition, FloEFD solves the Navier-Stokes equations. FloEFD is capable of predicting both laminar and turbulent flows. FloEFD employs one system of equations to describe both laminar and turbulent flows. Moreover, transition from a laminar to turbulent state and/or vice versa is possible.

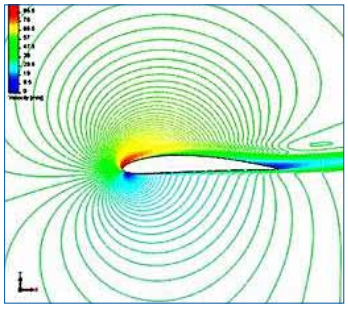




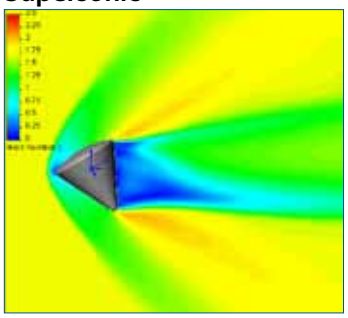


Hoval Aktiengesellschaft, Vaduz, Liechtenstein

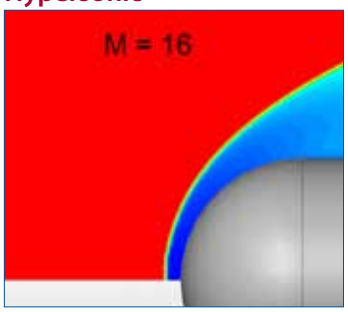
Subsonic



Supersonic



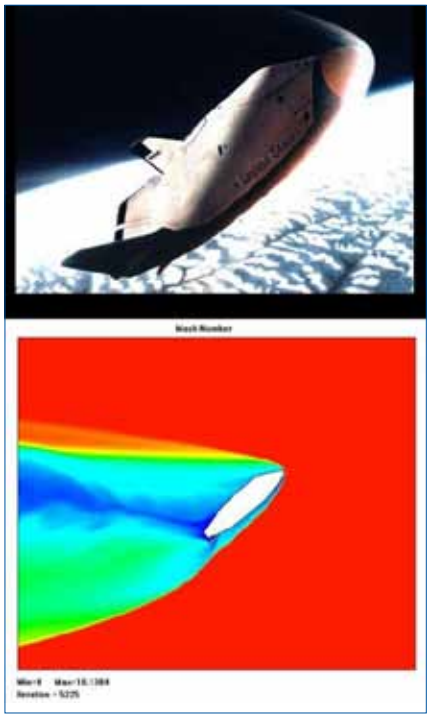
Hypersonic



Hypersonic Analysis

Hypersonic option enables FloEFD to simulate flow of air at hypersonic regimes with the corresponding effects accounted:

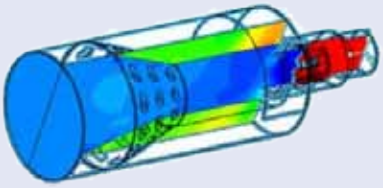
- Flow of air at Mach numbers of 5<M<30
- High-temperature air dissociation and ionization
- Thin shock layer and viscous interaction

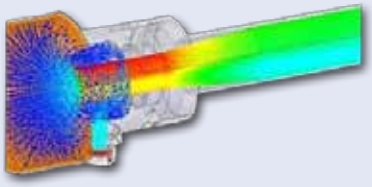


Customer Testimonial:

"We initially invested in FloEFD flow simulation software to solve design problems. Now, we find and solve issues before they even become problems. FloEFD is simple enough for any engineer to use."

Ad Heijmans, Development Manager, Eclipse Combustion





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