SIMCENTER FLOMASTER

Reduces costs while improving the safety of all complex thermofluid systems

Simcenter Flomaster is the leading simulation tool for fluids engineering that helps you reduce operating costs while ensuring the safety of complex thermo-fluid piping systems of any scale and complexity.

With Simcenter Flomaster you can effectively size gas, liquid, and two-phase systems and components to achieve maximum efficiency or evaluate the effect of transient scenarios such as the water hammer effect.

Why to choose Simcenter Flomaster?

30 years leader in the market

Flomaster has been market leader for fluid systems simulation since 1990s. It is based on an extended library of ready-to-use components. This database is based on analytical laws and validated experimental measures by D.S. Miller work "Internal Flow Systems".

Fastest transient solver in the market

The demonstrated accuracy of the Flomaster transient solver, allows engineers to precisely model dynamic scenarios such as water hammer, pump tripping or valve closures to reduce risks, ensuring compliance with regulations, and the overall safety of the system.

### Easy to use and focused on the efficiency

The intuitive, engineer-oriented interface guides the user through the modeling and analysis process. Focused on the efficiency of the design process, Flomaster includes quick automated parametric analyses and pipe import models from CAD solutions.

Flomaster approaches complexity through co-simulation

Exporting a Flomaster model as a Functional Mockup Unit allows performing co-simulations, capable of accounting for interactions between the thermo-fluid system and other systems, such as controls. Flomaster models can also be enriched through 1D-3D coupled simulations.
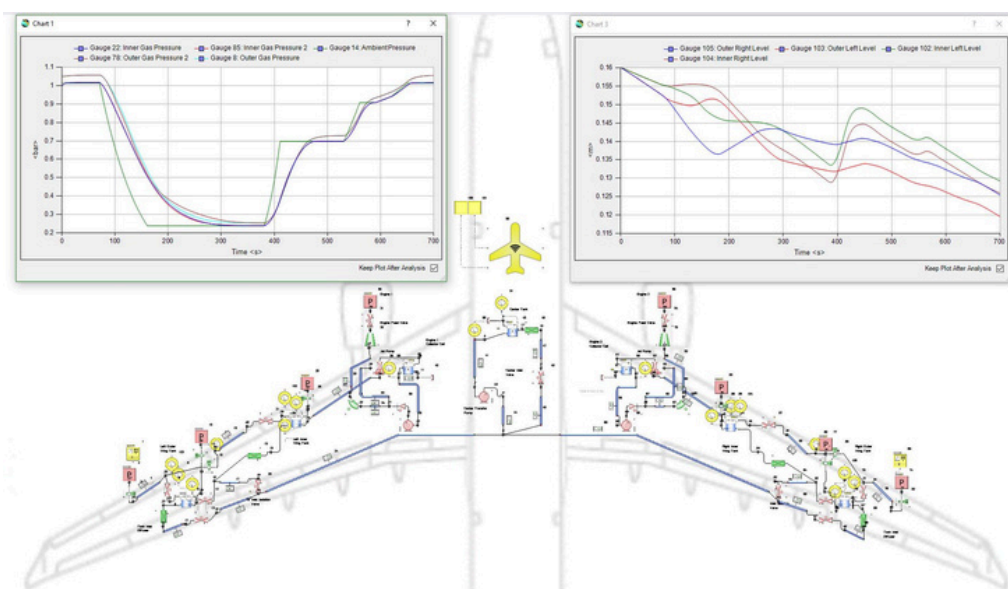
Improving 1D system simulation models with 3D CFD simulation
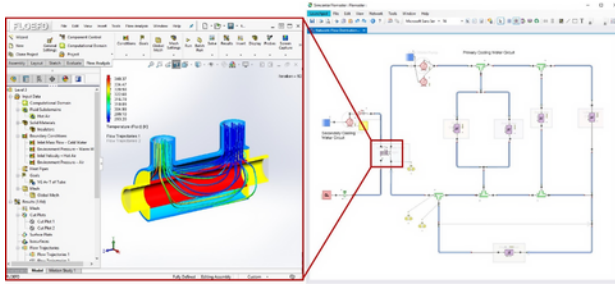
Increase the fidelity of your thermo-fluid system model with embedded 3D CFD.
OneSim allows a tightly coupled co-simulation to solve critical parts of the system in greater detail, allowing interactions to propagate between the 3D and 1D domains to gain greater accuracy, solution stability and confidence in the results.

Pressure surge & hydrodynamic forces
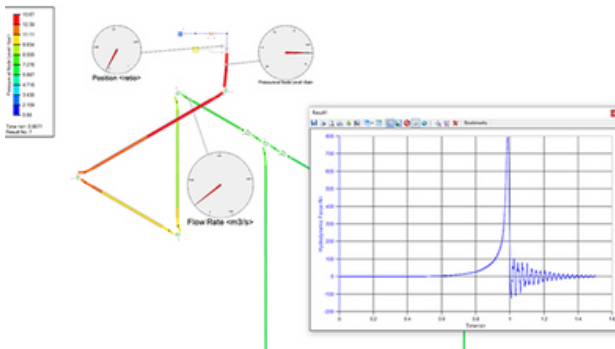
Ensure system safety during rapid transient events like valve closures, pump failure, or compressor start.
With the accurate and reliable transient solver, you can evaluate multiple strategies to mitigate excess pressures or cavitation, account for damping effects due to pipe visco-elasticity, and size additional surge suppression devices.
Once the surge analysis is done, you can automatically export the resulting hydrodynamic forces in order to perform the pipe stress analysis with your tool of choice.

Compressible solver for Industrial Gas Systems analysis

Establish a safe operating environment when handling gases in industrial processes.
These gases may be at elevated temperatures, high flow rates, toxic or any combination of the above.
The accurate and robust compressible solver handles both real and ideal gas models.
Accounting for the full compressibility is the key to modeling critical phenomena like chocking and line packing.
Gas properties are defined based on NIST RefProp or derived from process simulators via the CAPE-OPEN standard.