

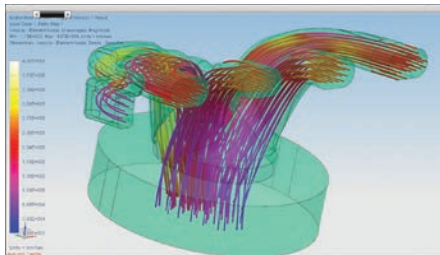


# Simcenter 3D Flow

assembly mesh, thereby avoiding the time-consuming task of remeshing the entire assembly.

## Postprocessing fluid simulation results

The Simcenter 3D Flow postprocessing toolset makes it easy to generate images and reports to communicate the desired results to a design team. Flow simulation results can be displayed graphically with streamlines, ribbons or bubble displays. XY plotting tools are available to plot critical values based on time, distance or in a number of other combinations. Reporting capabilities are also available for you to create the documents that you need to communicate your results to the development team.



View exhaust flow streamlines and velocity within a manifold.

## Integrating with Simcenter 3D

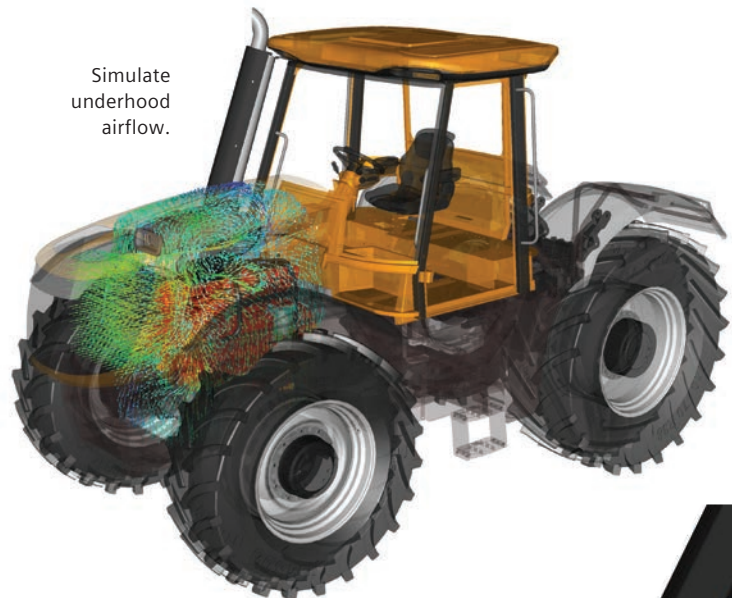
Simcenter 3D Flow is an add-on to the Simcenter 3D platform to deliver CFD solutions. By integrating with the Simcenter 3D platform, CFD engineers gain additional benefits from this modern simulation environment that can help them speed simulation processes and make smarter engineering decisions faster.

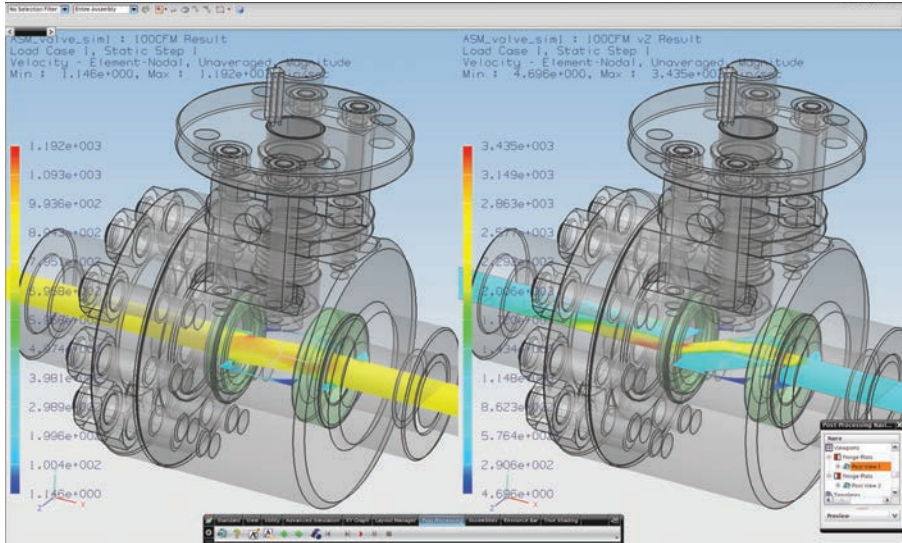
## Preprocess complex models in less time

CFD engineers have access to an extensive set of tools for creating CFD analysis-ready geometry and meshes. The user can fully leverage direct geometry editing with synchronous technology to easily edit and de-feature geometry prior to meshing and defining the analysis model.

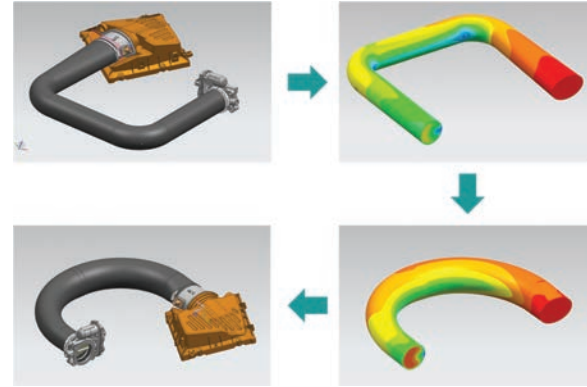
CFD users can also add the Simcenter 3D Advanced Fluid Modeling module to

Simulate underhood airflow.





Use Simcenter 3D Flow to simulate internal flow within valves and pipes.



Optimize design geometry based on flow simulation results.

deliver even more preprocessing power to Simcenter 3D specifically for CFD analysis. Simcenter 3D Advanced Fluid Modeling provides surface wrapping technology that can be used to generate associative fluid domain geometry from a complex CAD assembly. This module also delivers capabilities for boundary layer meshing and CFD General Notation System (CGNS) import and export.

#### Using associative analysis models for rapid design-analysis iterations

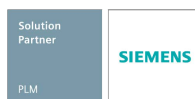
CFD models created and solved in Simcenter 3D are associated to the base geometry. When the underlying design geometry changes, Simcenter 3D rapidly updates the associated analysis geometry, mesh and boundary conditions as required, enabling the analyst to avoid manually recreating the analysis model. This means that you can rerun your flow simulation earlier and speed design-analysis iterations.

#### Solving multiphysics problems

As part of the Simcenter 3D environment, you can combine solutions from Simcenter 3D Flow with other Simcenter 3D solutions for thermal and structural analysis. For example, you can simulate fully-coupled thermo-fluid interaction problems when Simcenter 3D Flow is used in combination with Simcenter 3D Thermal. Pressures from flow analyses can also be mapped to structural analysis solutions available in Simcenter 3D Structures.

#### Optimizing airflow

As part of the Simcenter 3D platform, Simcenter 3D Flow can take advantage of geometry optimization to achieve optimal airflow in or around your products. You can use CFD analysis to drive and optimize geometry dimensions and get the best design in less time.



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