



# Simcenter FLOEFD 2020.2.0

## Improving product performance, functionality and reliability

### Benefits

- Improve product performance, functionality and reliability
- Reduce physical prototyping and production costs
- Minimize risk of making design mistakes
- Save both time and money by reducing design times and speeding up workflow

### Summary

For analysis to become an integral part of the design process, it must be easy to use and adapt to your design process. Developed for engineers, Simcenter™ FLOEFD™ software turns computational fluid dynamics (CFD) analysis into a plug-in for computer-aided design (CAD). Because of its intuitive interface, Simcenter FLOEFD is extremely easy to use – in fact, most design engineers report they can use Simcenter FLOEFD with less than eight hours of training.

### Better products, faster

Simcenter FLOEFD, which is part of Xcelerator, the comprehensive and

integrated portfolio of software and services from Siemens Digital Industries Software, is a fully embedded CFD analysis software that facilitates concurrent CFD and enables design engineers to create better products faster and:

- Improve product performance, functionality and reliability
- Reduce physical prototyping and production costs
- Minimize risk of making design mistakes
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### Quickly generate reports

You can create and distribute your animated results as well as quickly generate reports in Excel spreadsheet software and Word software, including all your favorite plots.

### Analysis wizard

The powerful wizard in Simcenter FLOEFD guides you through the problem setup so you don't forget any important steps before the solution step solving the problem.

### Effortless what-if testing

Perhaps the most powerful feature of Simcenter FLOEFD is the ease with which you can conduct what-if analysis. Easily modify your models and immediately analyze them: Simcenter FLOEFD helps you create multiple variations of your designs by modifying your solid model without needing to reapply loads, boundary conditions, etc. Simply compare your many design options and choose the best one for your final design.

In addition, Simcenter FLOEFD includes a study tool that significantly increases the speed of parametric analyses such as varying boundary conditions or mesh settings. By using the compare tool, which speeds up identifying the best design variant, you can compare plots and numerical data across multiple projects to select the best possible option.

### Multi-physics analysis

The generic interface of Simcenter FLOEFD to NASTRAN® software structural analysis modules allow you to export pressure and temperature data for structural or thermal simulation.

### 1D-3D CFD simulation

With this unique combination, you can characterize the more complex components of a system in 3D (Simcenter FLOEFD) and easily insert those components into the 1D system-level model (Simcenter Flomaster™ software) for simulation.

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## What's new in Simcenter FLOEFD 2020.2.0

- **Free surface with rotation.** Free surface analysis can now include rotating equipment
- **Simcenter FLOEFD EDA Bridge can save changes.** Adjustments to printed circuit boards (PCBs) and export settings in the Simcenter FLOEFD EDA Bridge are saved to a file before exporting. You can later open saved PCBs as \*.edabridge files
- **SmartPCB material selection.** In SmartPCB you can now choose a material for dielectric and conductor from the engineering database. It is necessary for a PCB whose conductor and dielectric materials are different from the default copper and FR4
- **BCI-ROM console solver.** BCI-ROM models can be solved with the Simcenter FLOEFD executable routine (Results\_Exporter.exe). No need to use third-party software like MATLAB or GNU Octave anymore
- **BCI-ROM FMU (Functional Mockup Unit) export.** BCI-ROM can be exported to a FMU. The FMU can then be imported into 1D or 3D CFD tools for the purpose of co-simulation
- **Thermal netlist VHDL (Very High Speed Integrated Circuit Hardware Description Language) export.** A thermal netlist can be exported to VHDL format for further simulation in Xpedition™ AMS software or SystemVision Cloud
- **Creating heat sources separately for each selected component or surface.** You can create heat sources for each component or surface separately, for example, instead of one heat source that includes all entities a separate heat source will be created for each selected entity
- **Feature goal is available while creating the feature.** A feature goal is available during creation of a feature. This can dramatically save time needed for creating multiple features, each depending on a feature goal, for example, dozens of heat sources, each depending on a source's maximum temperature
- **Electrical resistance: Total value.** In addition to the material thickness and selection of predefined resistances from the engineering database, you can now set a value of total electrical resistance. This makes it easier to perform design exploration varying the value in a parametric study
- **Flux balance: Group all.** You can group all displayed nodes by their types. Displaying the graph for all components and then grouping all will give you an overall balance image. In addition, radiation is split into directional, thermal and solar
- **Point goal improvement.** A point for a point goal can be automatically placed in the center of a component by selecting this component in the model tree. In addition, you can optionally disable interpolation so that a point goal outputs the value of the mesh cell
- **Goal plot at selected physical time.** The goal plot displays the results history until the loaded physical time moment (not the entire results history until the end physical time moment)
- **Display maximum value achieved during calculation in the goal plot.** A goal table has two new columns: Maximum value achieved during calculation and the corresponding physical time moment when it was achieved
- **Equation goal can now calculate minimum, average and maximum values.** The new functionality for equation goals allow you to define minimum, average and maximum from the set of goals or parameters. Regular expressions are supported to handle a huge number of parameters. For example, the expression Max({VG battery name.\*}) will give you the maximum for all goals whose names start with VG battery name
- **Dynamic probe in Simcenter FLOEFD Viewer.** You can use the probe tool and dynamically show physical parameter values in a Simcenter FLOEFD Viewer scene
- **Point parameters can import files.** When creating point parameters you can import \*.csv or text files to define point locations
- **Adding 'mil' unit.** A new 'mil' (one-one-thousandth of an inch) unit is added
- **Upgrade of geometry kernel.** SOLIDWORKS 2020 SP2 OEM is used as geometry kernel in Simcenter FLOEFD Standalone
- **CATIA-to-NX™ software CAD and Simcenter FLOEFD Converter.** A new console converter converts CATIA models with Simcenter FLOEFD projects attached to NX models with Simcenter FLOEFD projects while maintaining all geometry references. A batch conversion of files is possible
- **Import Solid Edge materials.** Solid Edge materials can be imported into Simcenter FLOEFD
- **Easier interface between Simcenter FLOEFD and Solid Edge Simulation.** A new "export results to simulation" command marks model surfaces needed for structural analysis by Solid Edge Simulation, excluding faces when loads are not defined. This allows Solid Edge Simulation (starting with Solid Edge 2021) to automatically get loads for the selected surfaces directly from Simcenter FLOEFD results

### Simcenter FLOEFD support

When you buy products like Simcenter FLOEFD that improve your design productivity and can be seamlessly integrated into your business, a comprehensive support program should be an integral part of your product purchase.

Support is the insurance that allows your employees to concentrate on their work, while our support staff helps keep your downtime to a minimum and moves your project forward faster.

#### Key support benefits

- Software enhancements to bring you the latest improvements in product functionality, usability and performance
- [Support Center](#) for rapid, secure access to online support
- Technical support backed by an award-winning support organization

### About Siemens Support Center

Siemens Support Center is the support portal for all Siemens Digital Industries Software products with everything you need in one easy-to-use location – knowledgebase, product updates, documentation, support cases, license/order information and more.

You can use Siemens Support Center to:

- Troubleshoot technical issues
- Download latest releases
- Reference documentation
- Manage service requests
- Manage and download licenses
- Add, discuss and vote on product improvements with [Mentor Ideas](#)
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