

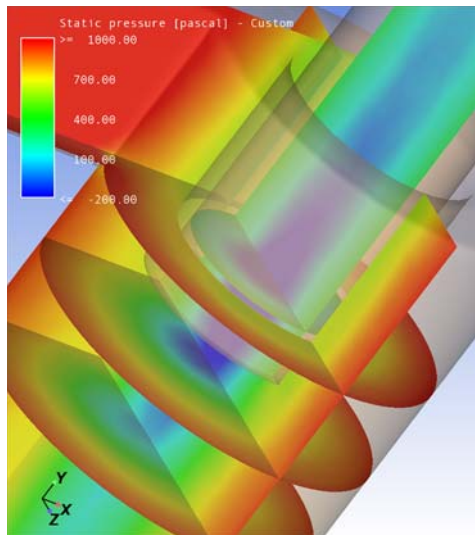
## Product Features

### CAD Geometry and Mesh

- ▶ CAD Connections for:
  - Pro/ENGINEER®
  - SolidWorks®
  - Autodesk® Inventor®
  - UGS NX™
- ▶ Associativity with:
  - Pro/ENGINEER
  - UGS NX
- ▶ Reads the following file formats:
  - CATIA® V4 and CATIA® V5
  - ACIS®
  - Parasolid®
  - STEP
  - IGES
  - NASTRAN®
  - PATRAN®
  - ANSYS®
  - GAMBIT®
  - TGrid™
  - FLUENT®
- ▶ Automated tools for flow volume creation, cleanup and simplification (defeaturing)

## Rapid Flow Modeling for Design

FloWizard® software is a rapid flow modeling tool that aids in the design of a product or process. This computational fluid dynamics (CFD) software is specifically built for design and process engineers who need to understand the detailed fluid dynamics of their designs. To succeed with FloWizard, a user does not need to have extensive experience with complex computational models or meshes. Because it is easy to learn and use, engineers can now deploy flow simulation much earlier in the design cycle, realizing money-saving and design-enhancing benefits. In addition, FloWizard software can be implemented throughout an organization to address a wide variety of fluid dynamics design situations.



The static pressure is shown on plane cuts through a cyclone separator device. The FloWizard turbulence modeling capabilities can handle the most difficult turbulent flows, such as the strongly swirling flow in this separator.

### Rapid Flow Modeling

Rapid flow modeling is an approach to CFD simulation aimed at reducing overall time and increasing efficiency. It allows for quick engineering design validation throughout the product lifecycle. FloWizard software makes use of a high level of automation that is the key to successful rapid flow modeling. Tasks that require a lot of manual intervention, such as meshing, solution steering and reporting, are performed automatically by FloWizard.

FloWizard technology provides fast, automated tools to extract a flow volume from solid geometry parts, a crucial step in the modeling process. Its meshing logic cuts the time it takes an engineer to create high-quality computational meshes — from days to minutes. Specify the physics, and FloWizard performs the simulation without the need to monitor the calculation. Comprehensive reports are generated once the simulation has been completed. FloWizard rapid flow modeling technology dramatically cuts the engineering time required to perform a CFD analysis as well. All models are fully upward compatible with other CFD products in the ANSYS portfolio. Engineers can do more and better analyses faster than before.

### Product Features

#### General Modeling Capabilities

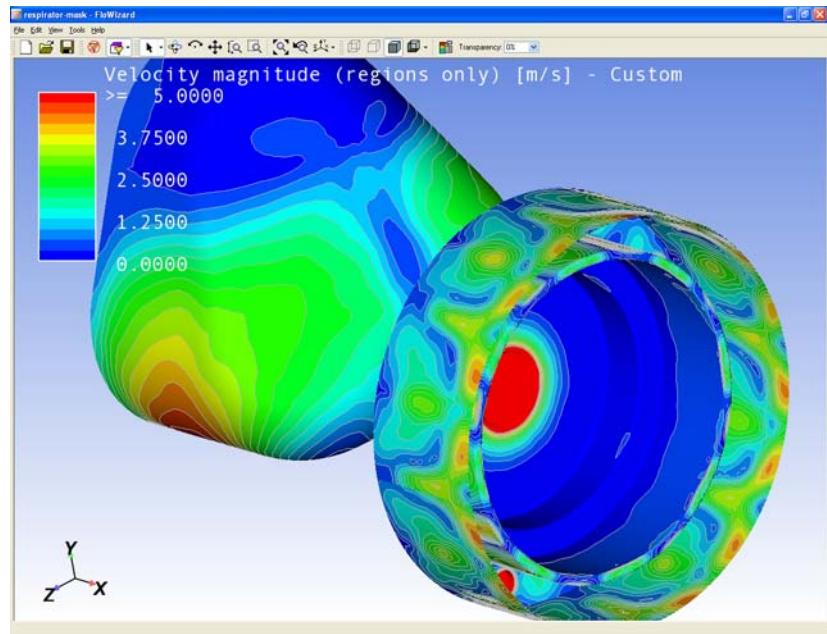
- ▶ Compressible and incompressible flow
- ▶ Three-dimensional, steady-state flows
- ▶ Laminar and turbulent flows with the most advanced turbulence modeling capabilities in the industry
- ▶ Convection and conduction heat transfer
- ▶ Internal and external flow
- ▶ Internal and external radiation
- ▶ Participating and transparent media
- ▶ Rotating machinery
- ▶ Automatic solution process

#### Boundary Conditions

- ▶ Pressures, velocities, mass flow rates and volumetric flow rates at inlets and outlets
- ▶ Symmetry planes
- ▶ Walls, with or without internal conduction, translating and rotating
- ▶ Heat exchangers
- ▶ Heat sources
- ▶ Fans and vents

### CAD Connections

FloWizard software is ready to work for all users, no matter what computer-aided design (CAD) software they use. For handling geometry, our CAD Connections tools send the model to FloWizard and even help prepare the geometry model for CFD analysis within specific CAD programs. FloWizard offers associativity for Pro/ENGINEER and UGS NX: Make a change in the CAD model and the flow model is updated automatically. SolidWorks® users can benefit from the model-checking and preparation tools. Autodesk® Inventor® users can send the model to FloWizard for analysis with the click of a mouse. For engineers who already utilize meshing software, FloWizard can read in complete computational meshes as well. Seamless CAD connectivity allows FloWizard software to fit easily into a company's design and engineering process.



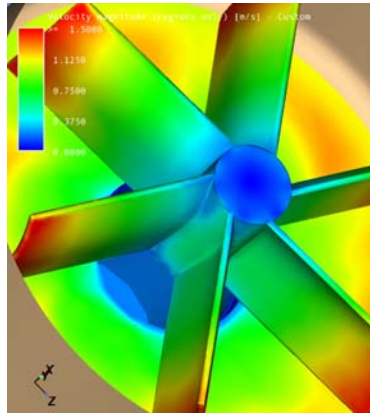
The air velocity in a respirator device. FloWizard software makes it easy to evaluate the effect of airflow rate on the pressure characteristics of the respirator.

### Expert Guidance

The FloWizard interface was developed based on results of extensive usability studies conducted at major industrial companies. FloWizard software guides the engineer through the entire flow simulation process, from start to finish. After reading the CAD or mesh model, FloWizard prompts with intelligent questions written by world-respected experts in CFD. These questions are designed to help users provide the right answers. FloWizard technology has automatic alerts that catch any suspicious inputs or questionable results; it also guides the user in correcting this data. FloWizard software replaces complex CFD jargon with clear, logical questions. Based on the user's inputs, FloWizard chooses the appropriate mathematical models. The simulation results are output automatically as HTML reports that can be brought into a spreadsheet or other data analysis software. This level of built-in expert guidance allows for more reliable answers, regardless of the user's flow modeling experience.

### Upward Compatibility

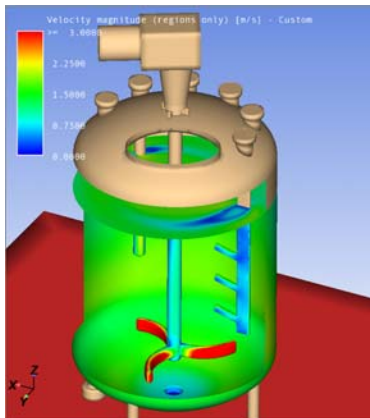
FloWizard software generates files that are 100 percent compatible with FLUENT® and GAMBIT® solutions. This capability allows the user to move back and forth easily between FloWizard, FLUENT and GAMBIT as dictated by special meshing needs or the complexity of the analysis. FloWizard users can do more complex analysis in FLUENT or GAMBIT as the need arises, or they can efficiently pass the files on to colleagues for detailed virtual prototyping.



The color contours show the fluid velocity on the blades of a radial flow pump. FloWizard software has special models to make the analysis of the flow in rotating machinery easier.

### Extend Your Capabilities

FloWizard software provides the option to speed up analysis by calculating in parallel on a multi-processor or multi-core PC. A user also can shift computationally intensive tasks away from the desktop computer to RSolve, a remote simulation facility; this directly improves efficiency, since it reduces turnaround time by running large calculations on a parallel computing cluster. RSolve offers a safe and reliable solution to provide extra capacity during times of peak loads and for projects with short deadlines.



The flow field in a pharmaceutical reactor. The color contours indicate the fluid velocity. Velocities are highest on the blades of the rotating mixing impeller and lower in other regions in the vessel.

### Collaboration

FloWizard is the only flow simulation software on the market today that offers peer-to-peer collaboration. With this feature, users can connect to a shared session with others in the organization through a corporate Intranet or with third-party consultants or business partners. An engineer can transfer control of the session to any other participating user, who then can make changes that are seen by all. Each user retains the ability to change the view of the geometry, look at parameters and properties, and examine the results.

## Product Features

### Material Properties

- ▶ Comprehensive database of gas, liquid and solid properties
- ▶ User sites can add custom materials to local database installations
- ▶ Users can directly enter properties for additional materials
- ▶ Non-Newtonian materials
- ▶ Porous media

### Meshing and Solving

- ▶ Completely automatic and transparent
- ▶ Resolution and element types automatically tailored for high efficiency and desired accuracy
- ▶ Solves both serial and in parallel
- ▶ Polyhedral meshes
- ▶ Choice of solvers (coupled and segregated)

### Interface, Graphics, Post-Processing and Reporting

- ▶ Wizard-driven GUI that is easy for new and infrequent users to learn and use
- ▶ Automatic summary reports of flow and heat transfer information
  - Minimum, maximum, and average pressures, temperatures, and velocities at inlets, outlets, walls, and throughout the domain
  - Pressure drops between all inlets and outlets
  - Heat transfer coefficients on walls
  - Net mass and heat flow rates
- ▶ Convenient visualization of pressure, velocity and temperature fields on easily swept planes, iso-surfaces and boundaries
- ▶ Automatic flow pathline animations
- ▶ Automatic HTML reports with embedded alerts and graphics

### Product Features

#### Managed Deployment and Collaboration

- ▶ RSolve: Remote simulation facility based in Lebanon, NH, U.S.A.
- ▶ Standard peer-to-peer collaboration
- ▶ Users can simultaneously connect to shared sessions and collaborate in real time across the world

#### Online Help and Documentation

- ▶ Complete hypertext-based online documentation
- ▶ Comprehensive user's guide
- ▶ Tutorial guide with model-specific examples
- ▶ Online access to FloWizard Web site with product and support resources
- ▶ Online "Getting Started" examples

#### Supported Platforms

- ▶ FloWizard is supported on Windows® XP

### Extend Your FloWizard Capacity with RSolve

RSolve, the remote simulation facility based in Lebanon, NH, U.S.A., offers high-end, supercomputer-like performance without all the hassles usually involved in acquiring and operating a computing center. FloWizard software allows a user to choose between performing meshing and calculations locally — on your own computer — or remotely on RSolve.

If the latter is chosen, FloWizard will do everything else. All the user needs to do is provide RSolve login information to FloWizard, and it will do the rest. It automatically sends calculation files to RSolve over a secure connection, performs the calculations and returns the results. There is no need to manually set up or manage computing jobs. During this time, the user's computer is free to perform other tasks, such as preparing the next calculation or reviewing and post-processing the results from previous calculations.



**Customer Desktop**

- Pre-processing
- Post-processing



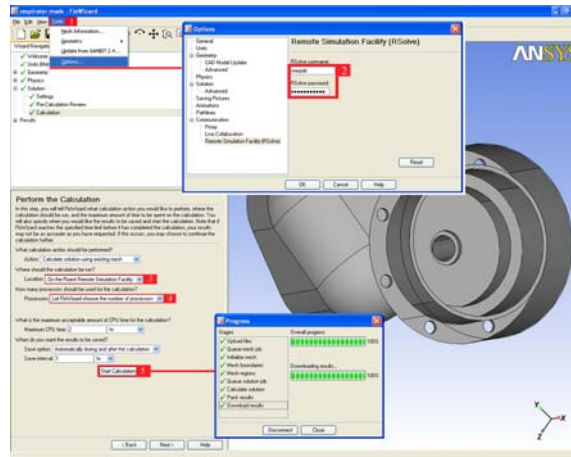
Web



**Clustered Servers**

- Large Simulation Capacity
- Safe and Secure

RSolve is scalable and priced to meet customers' needs. A company can add RSolve to its regular FloWizard license to expand capacity. For example, RSolve can be used to increase capacity and shorten turnaround during times of peak loads for projects with short deadlines. Or a business can get the special FloWizard RSolve package as a low-cost entry point to CFD.



See [www.flowizard.com](http://www.flowizard.com) for more details.