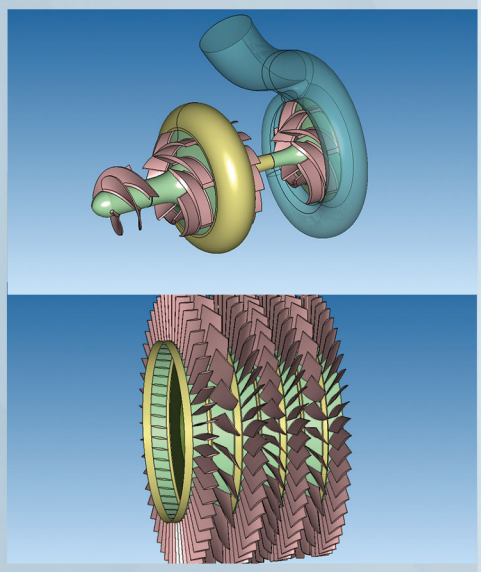
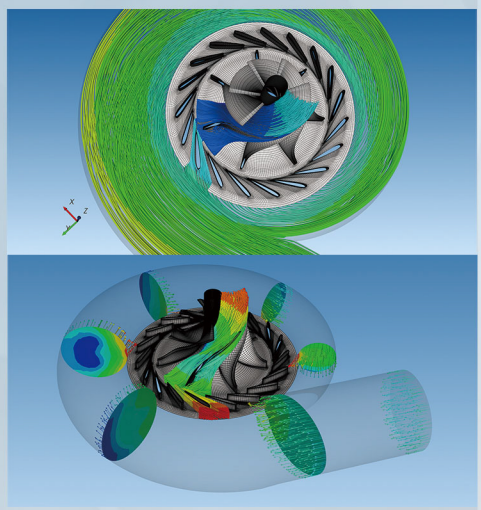
TurboTides Modules: Geometry, CFD, FEA



3D Geometry

Geometry modeler provides full support for 3D geometry generation.

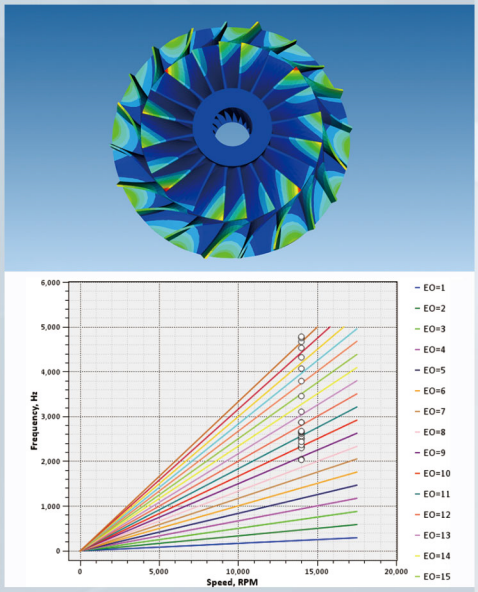
- Geometry editing of common components in radial and axial compressors, turbines, pumps, blowers and fan.
- Mechanical geometry editing.
- CAD import of full 3D CAD geometry including flow passage, blades, impeller blades, disk and backface features.
- Embedded database supports convenient storage and reuse of any 3D component models.
- Advanced volute editing capability with convenient user control of various cross section, volute tongue, exit pipe geometry and dual volute.
- Supports various airfoil types, such as NACA, DCA, MCA etc.



3D CFD

Full 3D pressure based CFD solver with unstructured meshing.

- Support parallel computing with unlimited cores.
- Fully automatic mesh generation and setup of boundary conditions.
- Includes full post-processing capabilities, including text reports and contour mesh/contour/vector/streamline/iso-surface view, line plots.
- Supports real fluid calculations, including automatically generated real fluid property tables for both gases and liquids.
- Easy comparison plots between 3D and 1D results.
- Interface to CFX TurboGrid allows easy employment of ANSYS CFX if desired.



3D FEA

Full 3D Finite Element Analysis for impeller, vane element and volute.

- Static stress analysis, thermal analysis and modal analysis.
- Linear and nonlinear material, including elastic, plastic, creep and hyper-elastic material.
- Convenient pre-processing: automatic mesh generation and automatic setup of loads and constraints.
- Passage and blade surface loads are automatically interpolated from 3D CFD results.
- Full post-processing support: text report, Campbell diagram, interference diagram, contour and deformation plots etc.
- Easy Computation of mass and moments of inertial.