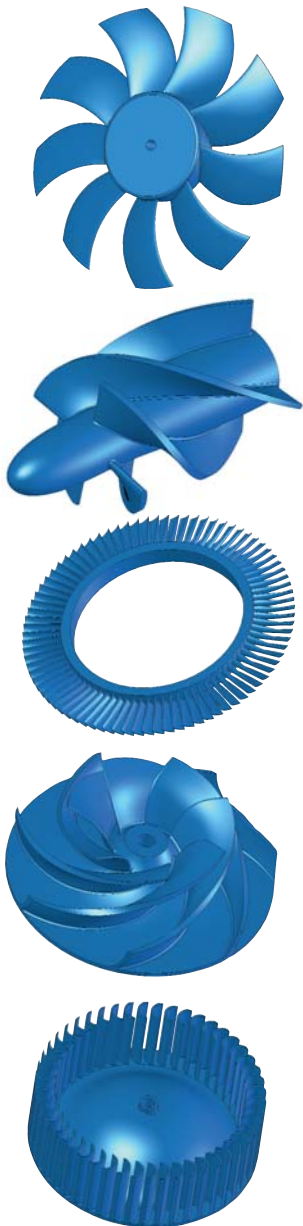




Product Features

A wide variety of rotating machinery can be designed with ANSYS BladeModeler software.



A Geometry Design Tool for Rotating Machinery

ANSYS BladeModeler software is a specialized, easy-to-use tool for the rapid 3-D design of rotating machinery components. Incorporating extensive turbomachinery expertise from ANSYS, Inc. into a user-friendly graphical environment, the software can assist in the design of axial, mixed-flow and radial blade components in applications such as pumps, compressors, fans, blowers, turbines, expanders, turbochargers, inducers and others.

An Integrated Blade Design System

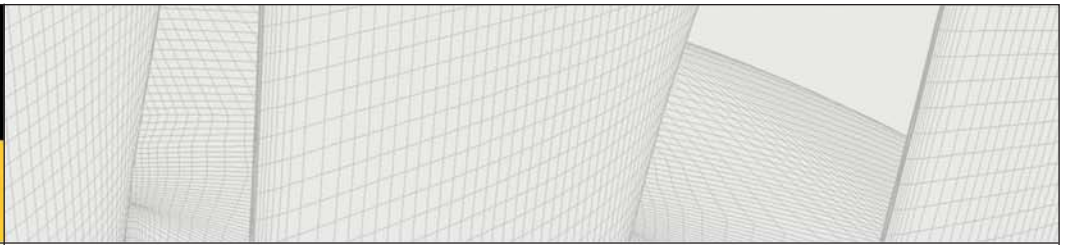
ANSYS BladeModeler provides the essential link between blade design and advanced simulation including computational fluid dynamics and stress analyses. The software contains a rich set of tools and functions for designing a turbomachinery blade from scratch, using industry-specific tools, workflow, and language that the blade designer expects.

Initial Sizing Tools for New Blade Design

If the basic blade geometry has been designed using existing tools, ANSYS BladeModeler can import the design data and prepare it for rapid or detailed design simulation and analysis, as well as further modifications. If generation of fresh geometry is required, meanline sizing tools for centrifugal compressors and centrifugal pumps and volutes are included ANSYS within BladeModeler software. Given the machine duty such as mass flow, pressure ratio, head or speed, as well as geometric constraints, PCA Engineers Vista CCD or CPD provides geometry and essential non-dimensional performance parameters that can be used by ANSYS BladeModeler. Once basic blade design exists within BladeModeler, a true 3-D CAD solid model can be created including the hub metal, blade fillets, cutoffs and trims.

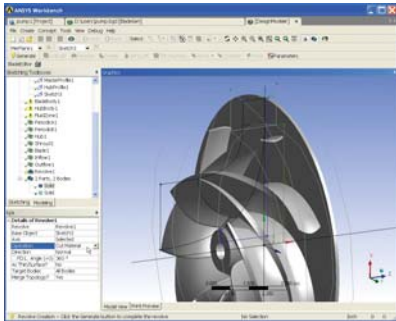
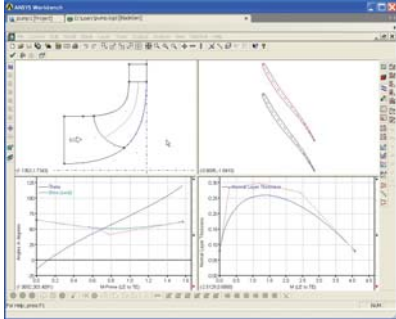
Basic or Rich Geometric Detail

For rapid analysis, the most basic blade sketch can be meshed and analyzed. If and when needed, detailed 3-D solid modeling geometry components can be included for the analysis, for maximum accuracy when assessing a particular design. The geometric level of detail required is the user's choice to make. Depending on the design process and need, the blade geometry can be analyzed for aerodynamic performance or for mechanical behavior using state-of-the-art ANSYS® CFX® or ANSYS® Mechanical™ products, all while staying inside an integrated single environment ... ANSYS® Workbench™.

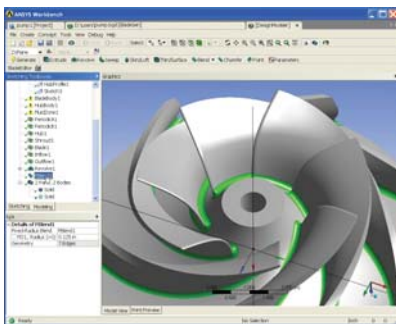


Product Features

ANSYS BladeModeler software gives access to turbomachinery-specific geometry expertise.



Before fillets



With fillets

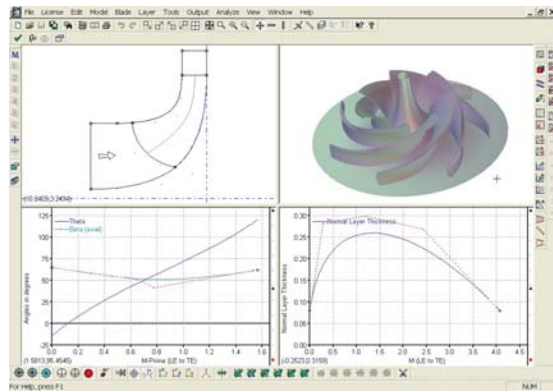
An Interactive Blade Design Tool

ANSYS BladeModeler is a truly interactive blade design tool. Design modifications are seen immediately and clearly. The relevant design information is conveyed in a number of 2-D and 3-D views, as well as via quantitative information such as blade angles, sweep angles, throat area and more.

Radial machinery designers typically use ANSYS BladeModeler in angle/thickness mode, optimize blade designs by defining meridional profile, blade wrap (blade angle), thickness distribution, and leading/trailing-edge shape. Axial turbine designers, who typically work in pressure side/suction side mode, can use ANSYS BladeModeler to create improved blading through independent description of the blade pressure side and suction side curves.

Working Environment

BladeModeler is divided into several views that break down the blade definition into simpler, 2-D components. The *meridional view* allows easy definition of the meridional profile. The *angle distribution view* facilitates description of the blade meanline along any layer (meridional streamline). The *thickness distribution view* specifies the normal or tangential thickness distribution of the blade along any meridional streamline. The *pressure/suction view* permits design of the two sides of a blade independently. An *auxiliary View* displays a large number of geometry diagnostics of the blade. A large toolbox of useful functions for blade design is provided.



Data Connectivity

The blade geometry designed in ANSYS BladeModeler software can be analyzed immediately within the ANSYS Workbench environment, including any 3-D CAD solid modeling operations performed within ANSYS® DesignModeler™. Import and export to third-party formats is also available, such as AutoCAD™, IGES, Pro/ENGINEER®, Parasolid™, etc., in order to pass the blade design forward in the specific design process.

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