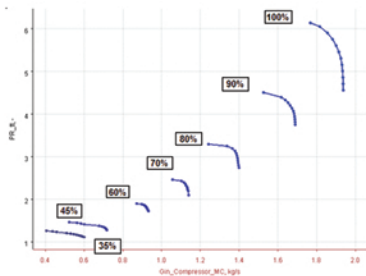
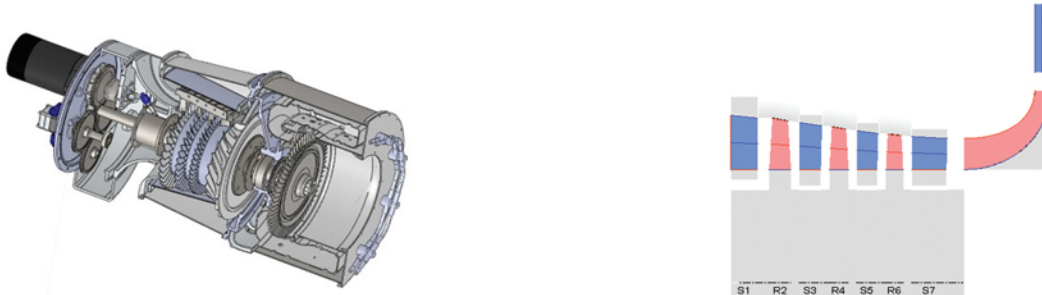


New-Generation Engine Design With AxSTREAM

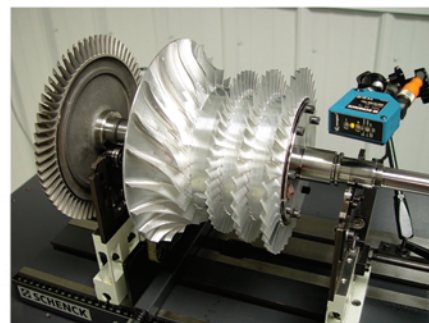
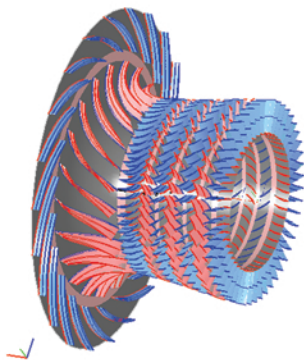
In 2009, SoftInWay was tasked to design and evaluate airfoil geometry for a next generation turbojet engine under development by Kutrieb Research.

The SoftInWay engineering team used the AxSTREAM Software Suite to generate 3-D blade models for the engine's 4-stage, mixed-flow compressor and the high pressure axial turbine stage.



During the engine design process, the engineers were required to analyze off-design performances, as well as properly match gas dynamics between the compressors and the turbine.

The resulting blade geometry was exported from AxSTREAM and provided to Kutrieb Research for integration into their engine design.



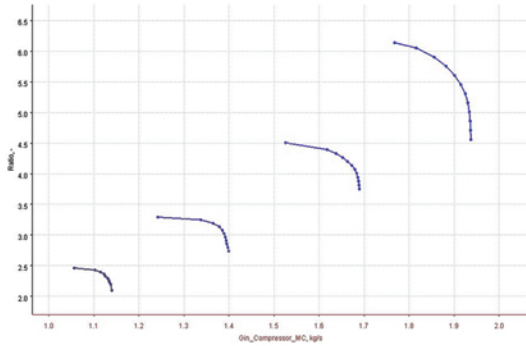
The manufactured engine was successfully tested for the first time in 2010, and now it is passing its final stage of field testing. Producing 350 pounds of high-speed static thrust, the engine will be capable of propelling an unmanned aerial system beyond Mach 0.9.

“X – Engine” is made up of a small number of parts, which helps keep the manufacturing, assembly, acquisition and maintenance costs down. The design consists of an advanced four stage mixed flow compressor that contains only five parts.

The goal of creating the “X- Engine” was to reduce engine cost while providing impressive power density and fuel consumption characteristics.

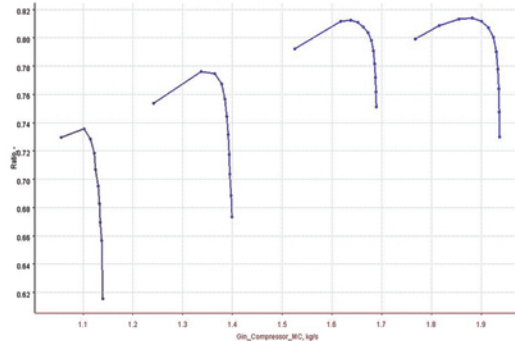


New-Generation Engine Design With AxSTREAM



Axial-radial compressor performances curves for efficiency vs mass flow rate at rotation speeds from 28,000 to 40,000 rpm.

To ensure that the engine operates safely in various flight modes (take-off, cruise mode, etc), the engineers used AxSTREAM to create performance curve maps for pressure ratio vs. mass flow rate at rotational speeds from 28,000 to 40,000 rpm.



About SoftInWay Inc.

SoftInWay Inc. is a USA corporation, headquartered in Burlington, MA. The company's mission is to serve the high technology community by providing software products and engineering services in the area of research, design and digital prototyping of power generation equipment. SoftInWay develops products for rapid turbomachinery design, provides technical engineering services and uses in-house and industry standard CFD, FEA and CAD tools to address design issues at the earliest possible stage to maximize engineering productivity and increase the efficiency and reliability of equipment.



The core product, AxSTREAM™, is an integrated solution based on over 600 years of collective turbomachinery experience of SoftInWay engineering team, with the clear goal of bringing to industry a professional software tool for rapid, optimized turbomachinery flow path design.

Website: <http://www.softinway.com>

About Kutrieb Research™

Kutrieb Research™ is a family owned company located in Chetek, WI (USA). The company's sole mission is to design and manufacture advanced gas turbine engines.



Kutrieb Research™ history includes successful contracts with the United States Naval Research Laboratory, the United States Air Force, Army, NASA, and counterparts around the globe.

The company is presently in development of an advanced technology engine that will offer new capabilities for unmanned vehicle propulsion.

Website: <http://www.kutriebresearch.com>



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