Turbomachinery Mastered

Consulting Services | Training & Education | Software Solutions

- Project Definition and Technical Specifications
- Research & Development to Support New Designs
- Preliminary Design & Feasibility Studies
- Analysis of Existing Machines
- Turbomachinery Retrofitting & Upgrades
- FEA/CFD Analysis
- Heat Transfer Simulations
- Rotor Dynamics
- Complete Turbomachinery Design

Industries:

Power Generation

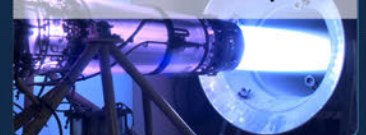**Oil & Gas**

Aerospace

Clean Technology

Automotive

Government & Defense

Mechanical Drives

Research & Development

Medical Devices

Appliances

Engineering Consulting Services:

The world class engineering services team at SoftInWay possesses a wealth of theoretical, academic and hands-on knowledge in a global setting. This depth of expertise enables us to provide exceptional consulting talent in the challenging field of rotating turbomachinery from turbines to compressors, fans, and pumps. We pride ourselves on enabling each client to overcome the challenges they face in getting products to market faster and at more competitive price points.

Our consulting team is split into six distinct engineering specialties and we assign at least one person from each group to each design project. This allows us to optimize resources, set realistic project deadlines and keep within budget. Our goal is to become a seamless extension of your internal engineering team.

Turbomachine Mechanical Design

- Conceptual, preliminary and detailed design
- Model development for retrofits and upgrades
- 3D solid modeling and 2D manufacturing drawings
- Auxiliary system design (bearings, lubrication, valves, sealing and governing systems)

Design of Flow Paths

- Conceptual design of flow path
- Aero flow path final definition
- Profiling and 3D airfoil design
- Design of cooled blades and cooling systems

1D/2D Aero Analysis, 3D CFD

- 1D/2D/3D CFD analysis
- Compressible / Incompressible Flow
- Steady / Unsteady State
- Map calculation and plotting
- Off-design analysis

Startup & Shutdown Diagram Design

- HTC calculation
- 3D FEA thermal analysis
- Rotor to stator relative displacement
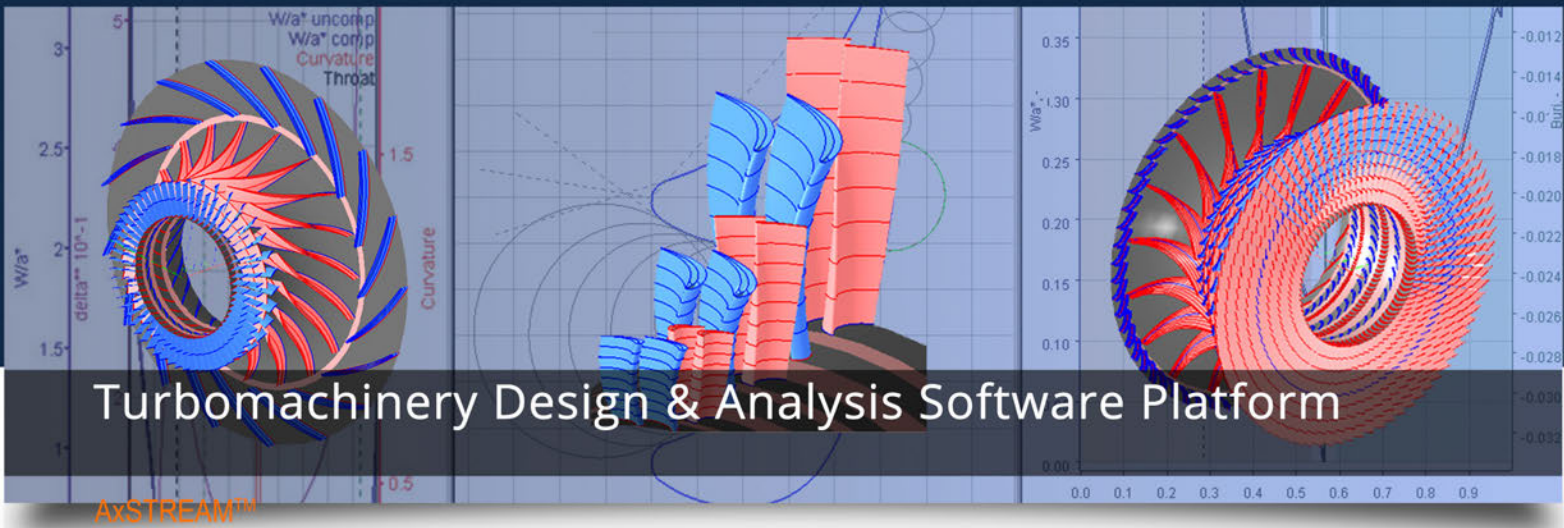- Axial and radial clearances evaluation
- Thermo expansions

Structural Analysis & Reliability

- 3D FEA structural and modal analysis
- Rotor dynamics
- Low Cycle Fatigue (LCF) & High Cycle Fatigue (HCF)
- Creep Analysis

Thermodynamic Analysis

- Heat balance analysis of power plants
- Design, analysis and optimization of waste heat recovery system
- Conceptual design of thermodynamic cycles
- Power plant equipment cost estimation and investment analysis of plant construction

Our engineers, scientists, and technical support staff perform all aspects of product design - from conceptual studies to aftermarket support. As part of your extended turbomachinery engineering team we will assist in designing new machines or the rerate and upgrade of existing machines. Our approach will focus on addressing productivity, cutting cost, increasing the efficiency and reliability of individual components or entire systems.

Turbomachinery Design & Analysis Software Platform

AxSTREAM™

Radically reduce engineering design cycle times and design iterations with a single software solution!
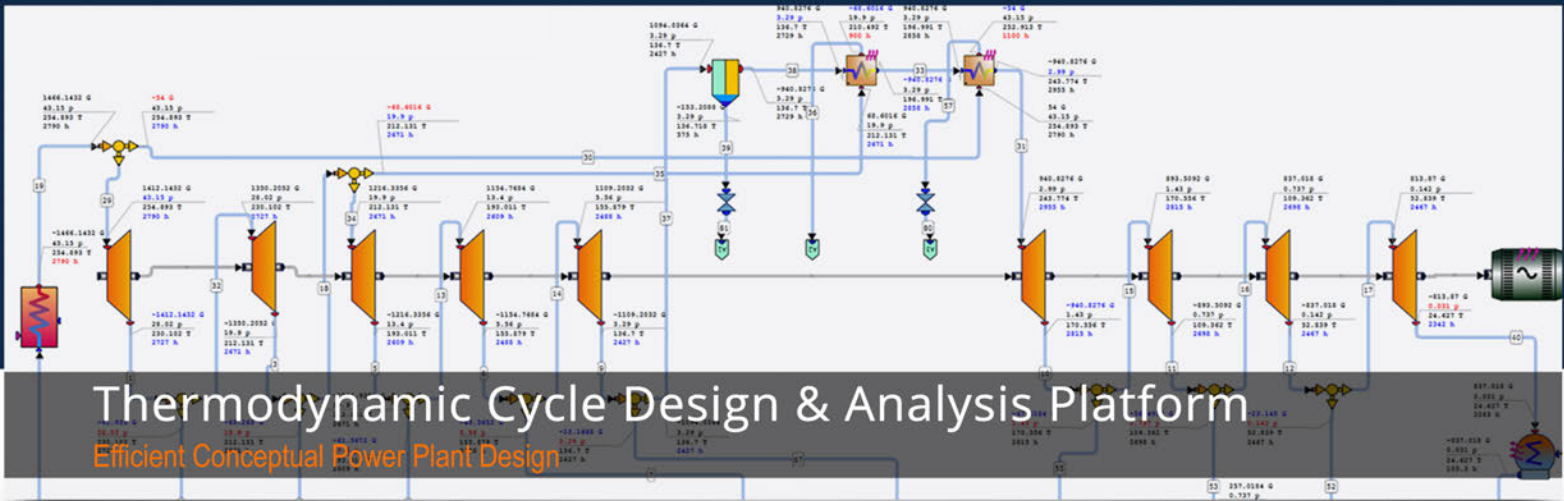
SoftInWay's AxSTREAM® software platform for multidisciplinary design, analysis and optimization provides an integrated and streamlined approach to rotating turbomachinery design. This world-class software solution encompasses the complete process of conceptual design for both radial and axial turbomachinery: turbines, compressors, fans, blowers, bearing, rotors, and pumps.

AxSTREAM® is modular-based and can be tailored to suit your project's design and analysis needs. The AxSTREAM® Software Platform architecture allows designers to perform all aspects of the design and analysis process in one convenient and integrated environment. These modules include:

- Preliminary Design
- Meanline/Streamline Analysis
- AxMAP
- AxPLAN
- Profiling & 3D Blade Design
- ATLAS

- AxSTRESS
- AxCFD
- Rotor Design
- RotorDynamics
- Bearings
- AxSLICE

Call today to schedule your software demo!

Turbines

Compressors

Pumps

Turbochargers

Rotors

Bearings

Thermodynamic Cycle Design & Analysis Platform
Efficient Conceptual Power Plant Design

Designed for the thermodynamic simulation and heat balance calculations of heat production and electric energy cycles, the AxCYCLE™ software platform allows users to design, analyze and optimize thermodynamic systems quickly and efficiently.

As a conceptual tool, AxCYCLE™ uses only the basic thermodynamic parameters of the components such as pressure, enthalpy, temperature, steam quality and basic performance parameters such as efficiency and turbine constant. No mechanical or geometric data is required.
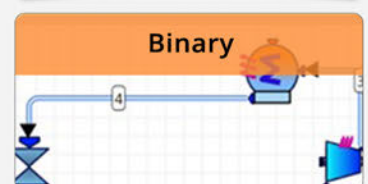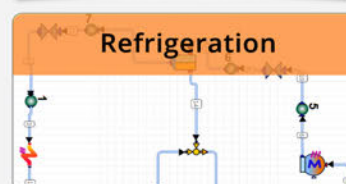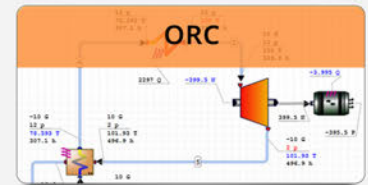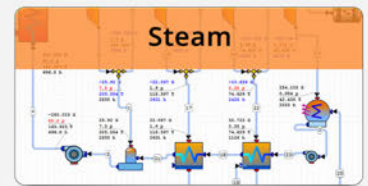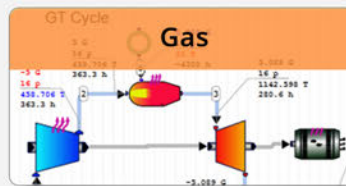
AxCYCLE™ is the perfect software tool to use in either the conceptual design phase of a cycle or for the analysis and optimization of existing cycles.

The software platform features an outstanding and intuitive interface, drag and drop simplicity with an embedded components library for turbomachines, heat exchangers, separation & mixing elements, generators, combustors, engines, as well as auxiliary elements and an infinite number of cycles are possible.

Additional features allow users to:

- Simulate numerous types of cycles

- Create cycle diagrams through our predefined components library. Each component has predefined connection points and ports for fluid flow and mechanical power

- Run heat balance modeling simulations with only a small subset of component parameters

- Generate printer-friendly simulation results

- Calculate cycle maps to study the effects of different operating conditions and component parameters on the cycle performance. AxCYCLE™ also provides a special multi-run map option to calculate such relations

- Embedded P-H and T-S diagrams

- Estimate power plant equipment cost and conduct investment analysis of plant construction

- Simplify your process with an understandable Excel interface

Simulate numerous types of cycles:

Gas

Steam

SCO_2

ORC

Combined Steam & Gas

Waste Heat Recovery

Refrigeration

Binary

Training Classes

SoftInWay delivers services, software tools and industry training that enable you and your organization to be more effective. With our extensive curriculum from AxSTREAM® hands on workshops to Waste Heat Recovery and Advanced 3D Blade design courses, we cover the diverse training needs of our global turbomachinery customers through -

- Traditional classroom training
- Online courses
- Corporate learning programs

Our highly skilled Industry Experts will be happy to analyze your requirements and recommend the best training solutions for you!
Call us NOW to boost your productivity in today's most compelling trends!

Classroom Training Includes

Design of:

- Steam and Gas Turbine
- Radial Turbine
- Centrifugal Compressor
- Axial Compressor
- Axial and Centrifugal Pumps
- Turbocharger
- Waste Heat Recovery System
- Rotor Dynamics and Bearing Seminar

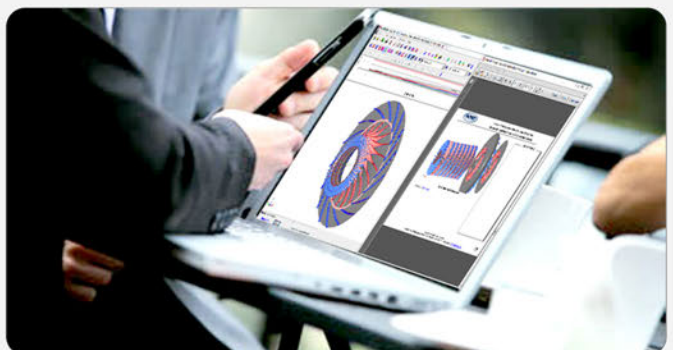 AxSTREAM® Workshops
  AxCYCLE™ Workshops

Online Courses Include

Design of:

- Axial & Radial Turbines
- Axial & Centrifugal Compressors
- Axial & Centrifugal Pumps
- Axial Hydraulic Turbine
- Turbocharger
- Waste Heat Recovery System
- Heat Balance Calculation of
- Power Plants with AxCYCLE™

  And more...

About SoftInWay
The Leaders in Turbomachinery Design and Optimization

SoftInWay *incorporated*

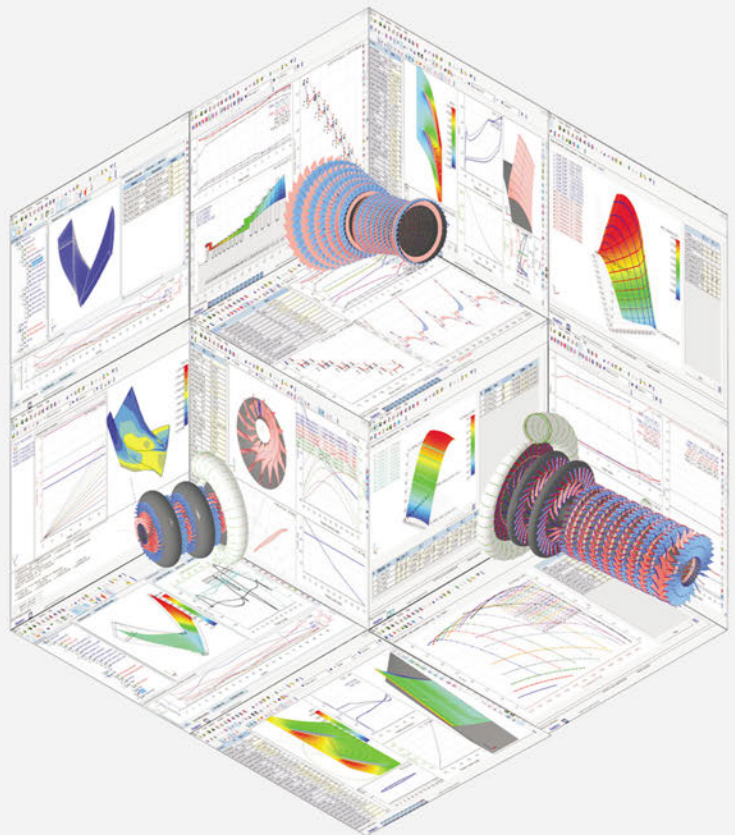| Software	AxSTREAM® Software Platform AxCYCLE™
	Consulting
	Training

SoftInWay Inc. is a global engineering company specializing in turbomachinery. We provide extensive expertise through our services, software, and training. We offer our flagship AxSTREAM® software platform for turbomachinery design, redesign, analysis, and optimization, as well as AxCYCLE™ – for the design and simulation of full thermodynamic cycles.

Founded in 1999, SoftInWay Inc. has offices around the globe and supports over 450 companies worldwide including OEMs, EPCs, and other service providers in power generation, oil and gas, aerospace, defense, automotive and clean tech sectors. SoftInWay also works closely with leading universities and research laboratories, around the world.

Design. Analyze. Optimize.

"Flow path design has always been the cornerstone of turbomachinery design. And each percentage point improvement in capacity and/or efficiency means a competitive edge for your products and services."

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