

The Engineering Experts

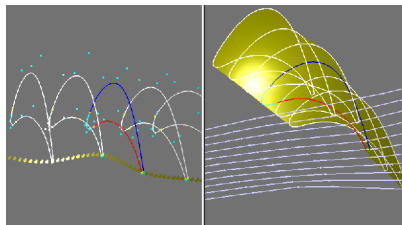
We offer project-related services & technology for engineering development projects:

1. Design Services (CAD)
2. Engineering Services (CAE)
3. Turbomachinery Technology

1. Design Services (CAD)

Design of components and parts

- Free-Form-Surfaces
- Parametric Design
- Blades
- Shrouds
- Disks
- Roots (firetree etc.)
- Platforms
- Piping
- Structural components
- Cooling network kernels



Drafting

Detailing

Assembly Modeling

CAD Systems
Unigraphics NX
Catia V4/V5



Tasks

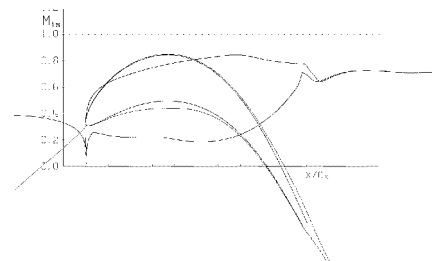
- Solid Modeling
- Parametric features modeling
- Freeform surfaces
- Re-Engineering of existing parts

We have experts with excellent knowledge of geometric kernels like Acis and ParaSolids.

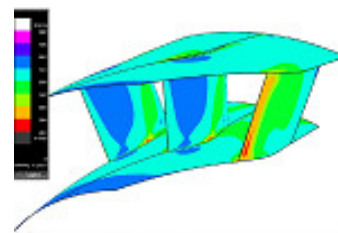
2. Engineering Services (CAE)

FEM & CFD design and analysis

2-D and 3-D aerodynamic design and analysis



Stress and life analysis



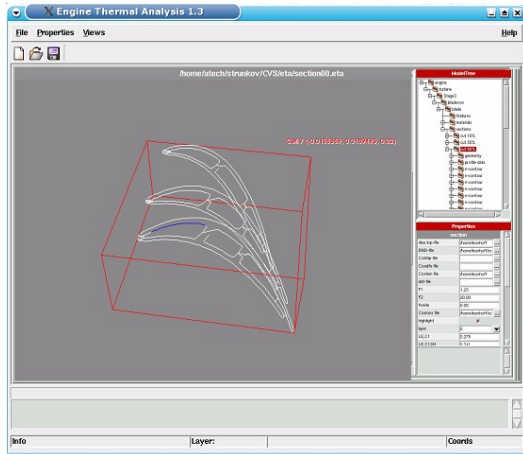
for example:

- Rotor dynamics calculations
- Structural analysis of rotor system
- Transient thermal analysis of rotor system
- Steady state and transient stress analysis
- Low and high cycle fatigue life prediction

Stress coupling analysis

Analysis to determine alternating stresses in bolts and fillets

3. Turbomachinery Technology



Parametric design with constraints, CFD analysis
 cooling flow network topology optimization
 cooling flow analysis
 Heat transfer calculations, Transient thermal analysis
 Steady state and transient stress analysis
 Low cycle fatigue life prediction

Compressor & Turbine Blade Design

- 2-D and 3-D Blade geometry design
- aerodynamic analysis and optimization
- radial blade smoothing and interpolation
- parametric stacking
- flank milling optimization
- rules-based multistage design

Blade analysis

Multistage Blade properties analysis
 Re-engineering, data fitting, legacy data treatment

Blade balancing analysis

Axial compressor rotor and turbine blade balancing on platform
 CG calculation, lean, pre-twist for aerodynamic forces

Integrated Blade/Disk dynamics

Modal analysis, Forced vibrations
 Transient dynamic vibrations
 Investigation of damper configurations

Multistage aerodynamic design

Mean line calculation
 Performance prediction
 Off-design calculations
 CAD/CAE data translation and re-formatting



Processing of experimental data

Pre- and post processing, Interface services
 CAD and CAE data translation and re-formatting
 EDI services
 Statistical analysis

Product data management services

CAD/CAE data translation and reformatting
 EDI services & Database integration services

Customer statement:

"atech has greatly improved the turbine Engine Thermal Analysis system. They integrated multiple codes into a single GUI with automated iteration that reduces time and cost for thermal analyses."

Lauren K. Peterson Siemens PG West Palm Beach 2004.

Ask for References and hourly Rates at +49 (0)30 678 238 0 or info@atech.de.