



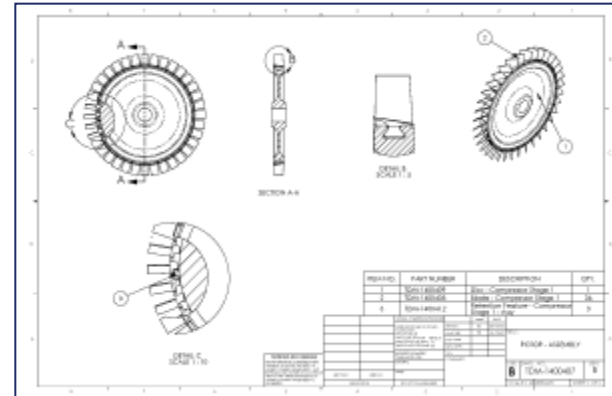
MECHANICAL ENGINEERING CONSULTANTS

Effective Engineering Design and Analysis Solutions

- ▶ Provide design and analysis services designed to meet customer demands in a cost-effective manner.
- ▶ Assist customers in their design and analysis needs, whether this is due to temporary overload situation or because the skill sets are not available in-house.
- ▶ Our engineering capabilities are available in-house and performed by a competent staff of engineers.

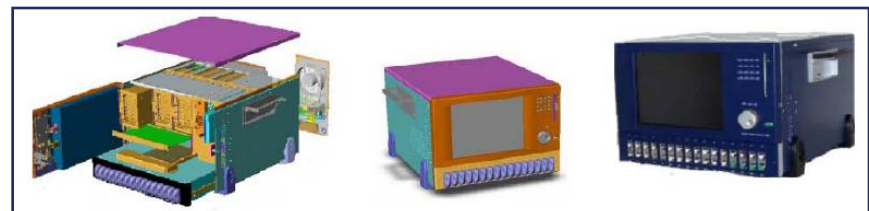
▶ Project Management

- ▶ We have managed many engineering tasks for our customers, including gas turbine engine design and integration, electronic equipment, etc



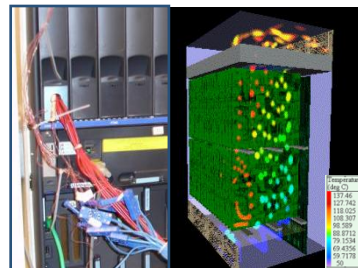
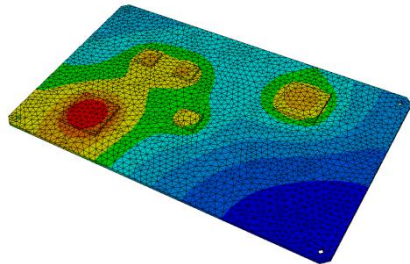
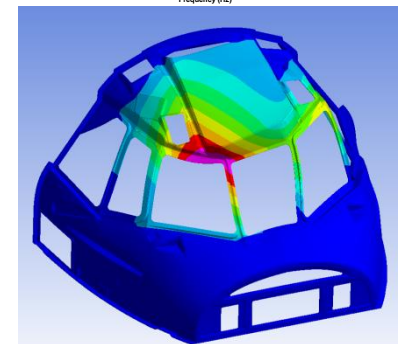
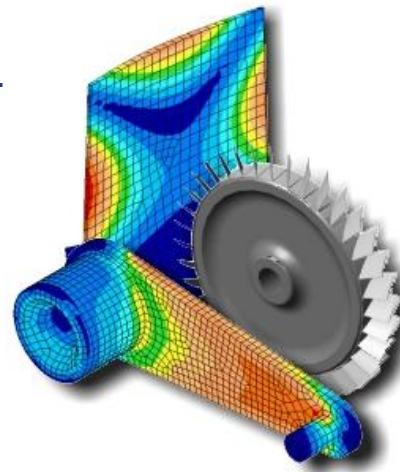
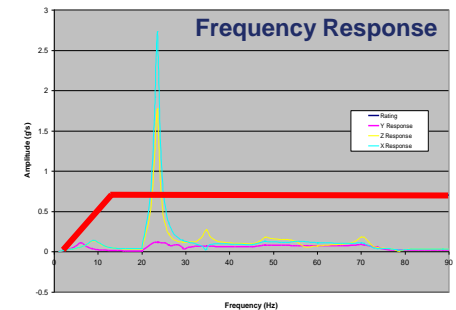
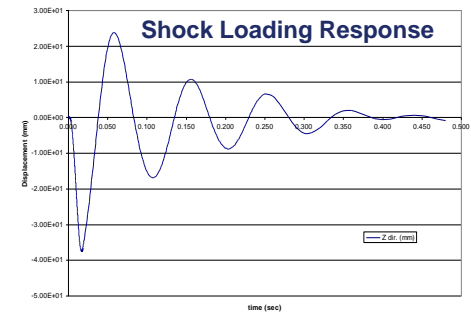
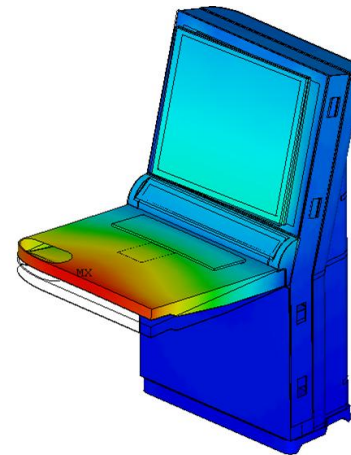
▶ Part and Assembly Design

- ▶ Part and assembly design is performed using leading edge 3D CAD tools such as Pro/e, SolidWorks, Catia, UG NX, etc.
- ▶ The models are developed and assembled electronically and parametrically, allowing us to quickly implement changes and identify fit and assembly problems.
- ▶ Drawings can be quickly created and modified from the 3D CAD models developed.



Project management, part and assembly design

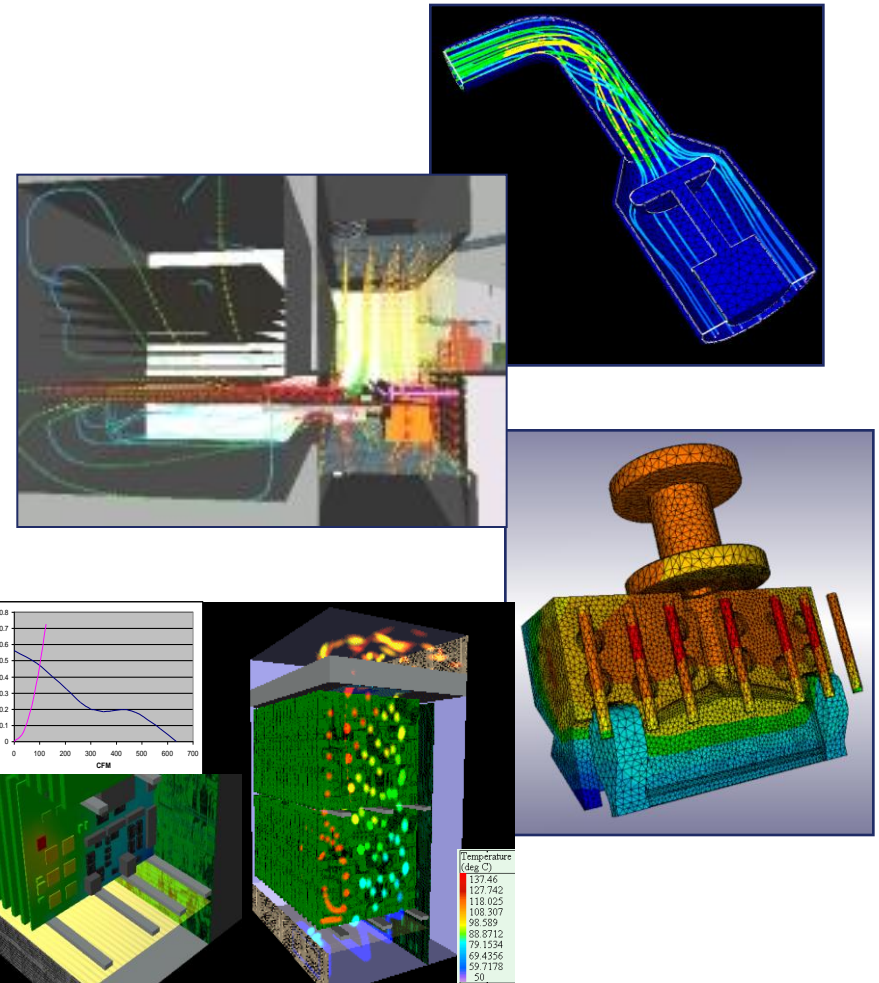
- ▶ Engineering Analysis
- ▶ Our engineering analysis capabilities are extensive and include finite element stress and vibration analysis, CFD analysis, and test support.
- ▶ On the finite element side of things, we can run quasi-static, mode shape, harmonic response, random vibration, shock loading, transient, non-linear analysis and other. Our tools include Ansys, MSC Nastran, and Algor.
- ▶ Our analyses are done in-house using qualified engineering personnel.



Engineering Analysis

▶ Engineering Analysis

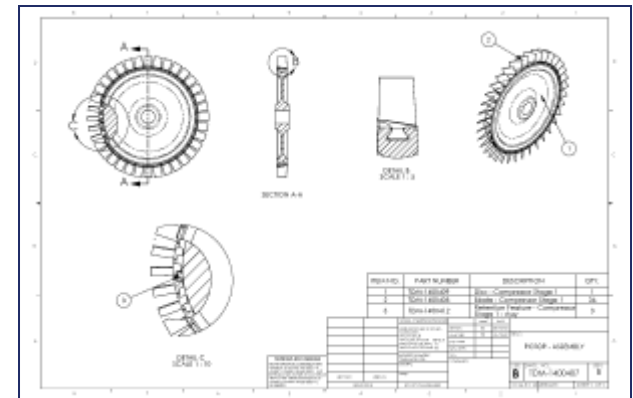
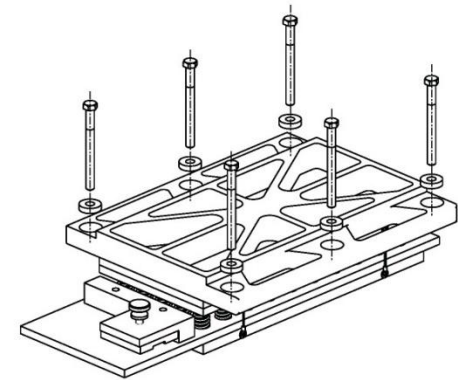
- ▶ On the CFD side, we have the capability to perform general CFD analysis, and we also have tools which are specific to electronic cooling and ventilation applications.
- ▶ This is an area in which we are continuously expanding our capabilities and can provide detailed engineering results based on CFD analysis.
- ▶ Of the most complex type of analyses performed are: complex fire and toxic gas modeling, hydrogen outgassing analysis, polymer extrusion, and other.
- ▶ Our CFD work is also done in-house using qualified engineering personnel.



Engineering Analysis

▶ Production and Prototyping

- ▶ Using prototyping and rapid-prototyping techniques, we can produce development parts to support product development requirements.
- ▶ Using either regional or foreign suppliers, we can procure production level parts.
- ▶ We can support production needs with drawings and documentation.
- ▶ We can support production tooling needs if necessary.



▶ Engineering Tools

▶ *3D modeling and CAD tools include*

Pro/e
SolidWorks
Mechanical Desktop
Catia
UG NX



▶ *Analysis Tools*

Ansys
Algor
CFDesign
Icepak
Airpak
Flotherm
Flovent



- ▶ Industries Served
 - ▶ Aerospace
 - ▶ Design and development of gas turbine components
 - ▶ Systems integration and applications
 - ▶ Stress and vibration analysis of systems and components
 - ▶ Thermal analysis for helicopter structural components
 - ▶ Industrial
 - ▶ Compression system for specialized battery packs
 - ▶ Fire and toxic gas modeling
 - ▶ Power
 - ▶ Thermal analysis of power generating equipment to extend useful life of equipment.
 - ▶ Military
 - ▶ Thermal analysis of projector for use in military vehicles
 - ▶ Thermal analysis of communication equipment
 - ▶ Electronics
 - ▶ Development of cooling unit for telecom system
 - ▶ System packaging for portable electronic test unit
 - ▶ Thermal analysis of electronic systems
 - ▶ Data center ventilation analysis
 - ▶ Medical
 - ▶ Development of surgical equipment
 - ▶ Ventilation analysis for clean-rooms



How We Can Help You Achieve These Benefits

Some of our customers

Accedian Networks

ADC Telecommunications

Allied Telesyn

Alcatel

American Power Conversion

Arrisphere LLC

Avestor

Bell Helicopter

BRT

CEL

ChassisWorks

Christie Digital

Cielo Communications

Dectron

Dellux

Design1st

Elcan (Raytheon)

Emerson Energy Systems, NA

Flomerics

Harris Communications

Heroux devtek

Hydro-Quebec

IBM Canada

Infocite International

Insight Product Development

Intelligent Photonics

Microslate

Mintera Corporation

Pliant Systems

Rolls Royce GTE

SR Telecom

Stratus Computer

Tellabs Transport Group

Velan Valves

Ultra Electronics

Photonic Controls

IQS

Dectron

Liquid Computing

Positron

Air Data

Poetic Technologies

Flextron

ISR Technologies

Optelian

CAE

Lumec

Emcor

Soleno

Hollister-Stier

Sicortex

Scientific Atlanta

D-Box

Railpower

Great Wolf Lodges

Navico

Wave7Optics

Viagate Technologies

- ▶ Please contact us. It will be our pleasure to discuss any needs you may have.

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