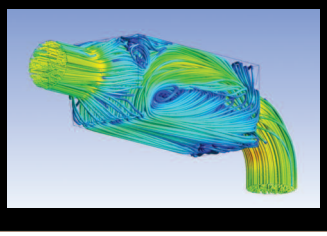
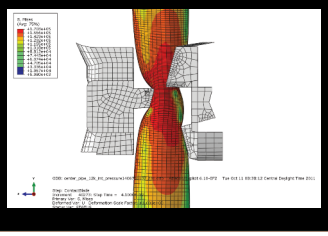
Specialists in Design, Failure Analysis
and Troubleshooting of Static
and Rotating Equipment





Providing Engineering Soulutions Around The World.

At KnightHawk Engineering, your needs are our priority. What sets us apart is simple—expertise and availability. KnightHawk has a highly trained and experienced staff of engineers who utilize a multidisciplinary integrated systems approach, in which we analyze the interaction of the process, the controls and instrumentation and the mechanical equipment. We have the skills to solve problems as small as bolt failures to catastrophic disasters. KnightHawk has been in business since 1991 and has been asked to solve challenging problems in many different industries around the globe.

Industries Served

KnightHawk has considerable experience in the following industries:

- Aerospace
- Automotive
- Fabricators and Contractors
- Legal
- Marine
- Medical Devices
- Military
- Offshore
- Oil and Gas
- Petrochemical
- Pipeline
- Pulp and Paper
- Power – Nuclear and Fossil
- Rail

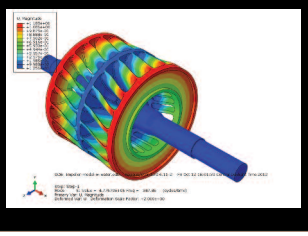
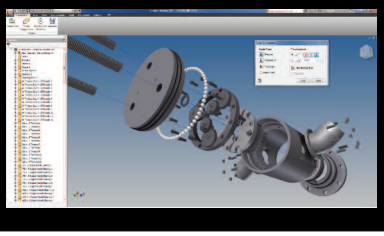
Offering a Variety of Services

- Failure Analysis
- Troubleshooting
- Stress Analysis
- Finite Element Analysis (FEA)
- Computational Fluid Dynamics (CFD)
- Third-Party Design Audits
- Fit for Service Analysis
- Pressure Vessel/Heat Exchanger Design
- Rotating Equipment Analysis
- Piping Systems Analysis
- Life Cycle Analysis
- Controls Systems Analysis
- Process Analysis
- Field Services
- Forensics
- Acoustic Analysis
- Product Design
- Expert Witness
- Vibration Analysis

Software

Our expert staff utilize the latest in analytical tools including:

- ANSYS® FEA
- Fluent™ CFD
- RSR®
- Caesar II™
- Autodesk Inventor
- Abaqus®
- Bentley
- STAR-CD
- STAR-CCM+
- PV Elite
- DSSC SolidWorks

Field Services

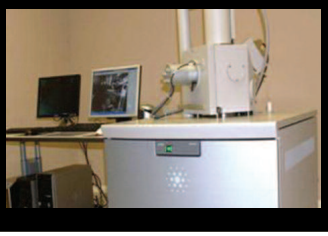
KnightHawk's field service personnel have extensive experience both in data collection and in troubleshooting equipment problems. We have assembled an extensive set of data acquisition equipment that complements the skills of our field service personnel, who work closely with plant personnel to minimize interference with operations. Depending on your needs, we can work either independently or as an extension of your team. Our main specialty areas include, vibration (structural and rotating), acoustics, strain, process, controls and instrumentation

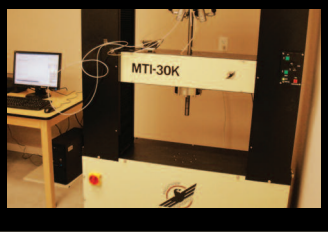
- Laser Scanning
- Process
- Controls
- Acoustic Analysis
- Structural Analysis
- Process Flow Analysis

Product Design

KnightHawk Engineering's Product Design Group is dedicated to offering best-in-class engineering and specialty design services. By working closely with our clients, ranging from individual entrepreneurs to large OEMs and service providers, KnightHawk is able to offer high-level support through the entire product lifecycle, from conceptualization to prototype development, testing and installation. Our Product Design Group specializes in heavy industrial equipment design for use in the offshore and onshore drilling and completions industry. Other industries served include power generation, petrochemical, manufacturing, construction, and aerospace to name a few.

- 3D Modeling
- Reverse Engineering
- 3rd Party Design Audit
- Heavy Industrial Equipment Design
- Onshore / Offshore Equipment Design
- Machinery Design
- Compressor Design
- Pressure Vessel / Heat Exchanger Design
- Specialized Valve Design
- Tooling / Fixture Design





KnightHawk Materials Laboratory

KnightHawk's Materials and Metallurgical Laboratory provides comprehensive high-level testing services to solve the most demanding and complex materials problems in the industry. KnightHawk Materials Lab is in the final stages of receiving ISO/IEC 17025: 2005 accreditation. We are able to respond to customer needs quickly and effectively by collaborating with our specialty engineering team. Our lead Ph.D. Materials Engineer heads a staff of talented engineers and technicians in our state-of-the art laboratory. Together, they provide comprehensive turnaround services which include:

Metallurgical and Materials Services

- Failure Analysis
- Positive Material Identification
- Materials Characterization and Inspection
- Materials Selection and Recommendation
- Corrosion Evaluation and Control
- Coating Inspection
- Non-destructive Testing
- Chemical Conditions
  - Corrosion / Reaction / Thermal
- Customized/Specialized Testing

Testing Services

- The new MTI-10K and MTI-30K universal testing machines can accommodate the following and more.
  - Creep
  - Compression
  - Tension (modulus, strengths & Poisson's Ration)
  - Bending
  - Static and Low Cyclic Loading
  - Hydrostatic Testing
  - Small Scale Heat Treatment

Lab Tools

- Scanning Electron Microscope (SEM) with Energy Dispersive X-Ray Spectrometer (EDAS)
- Digital Optical Scope
- Rockwell Hardness Tester
- Vickers Hardness Testers
- Inverted Stereo Microscope
- Gold/Palladium Sputter Coater
- Complete Sample Preparation Tools
- Programmable Furnace (up to 1,200˚C)

Mechanical Testing Services

KnighHawk Engineering and Mechanical Testing Services' business alliance provides engineering, operational performance, and equipment testing-related services to companies around the world.

- ISO 13679 Connection Qualification
- Drilling and Completion Tool Testing
- Ambient & Elevated Temperature Hydrostatic Testing
- Secure Live Streaming Globally: Data, Graphics & Video
- Umbilical Cable Testing
- Hyperbaric Chamber Testing
- Hydrostatic Pressures to 60,000 psi
- Nitrogen Pressures to 45,000 psi
- Maximum Load Frame Capacity to 5,000,000 lbs.
- Maximum Heating 1,200˚F
- Specialty Testing per Request

Since 1991

Solving Problems, Around The Clock, Around The World

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