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Femap Case Studies

Industrial Machinery and Equipment

Realize Innovation.

Femap Case Studies
Industrial Machinery and Equipment

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	Company	Description	Country
1	Baotou Hydraulic Machinery	Hydraulic lubricating and pneumatic systems	China
2	Cometal	Extrusion plant manufacturer	Italy
3	Criotec	Commercial refrigeration equipment	Mexico
4	Dae Han Control	Electro-pneumatic Valves	Korea
5	Edunburgh	Elevator manufacturer	China
6	Equipos Nucleares	Nuclear power plant equipment	Spain
7	Everdigm	Construction industry	Korea
8	Femto Engineering	Engineering consulting	The Netherlands
9	Hydrauvision	Hydraulic power manufacturer	The Netherlands
10	Intertraco	Pressurized fluid transport components	Italy
11	Kevin Thomas	Engineering analysis services provider	USA
12	Key Knife	Wood products industry systems	USA
13	Kotchergenko	Industrial machinery and equipment	Brazil
14	Machinefabriek EMCE	Winch manufacturer	The Netherlands
15	Manitowoc	Crane manufacturer	USA
16	Mc Drill Technology	Drilling rig manufacturer	Italy
17	PARI	Automation and robotics	India
18	Ruhrpumpen	Pump manufacturer	Germany

Baotou Hydraulic Machinery Co. Ltd.

Hydraulic Lubricating and Pneumatic Systems

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Challenges:

- Increasingly complex customer requirements
- Demand for better quality within a competitive marketplace

Keys to success:

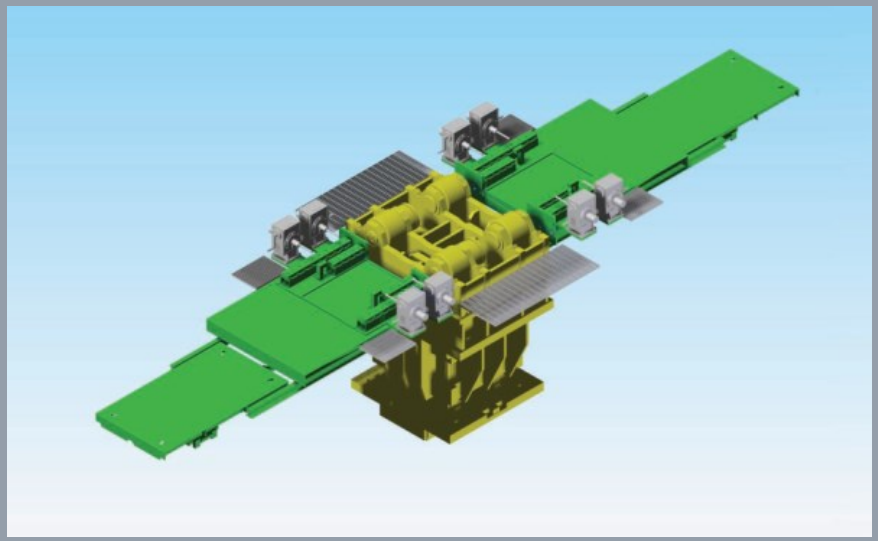
- Simplification of the product validation process through the introduction of Femap with NX Nastran

Results:

- Fewer prototypes manufactured which led to reduced costs
- Shorter development times
- Overall 40% design cycle reduction

"Femap with NX Nastran simplifies the product validation process. Reduced prototypes also lead to reduced costs and shorter development times. The design cycle has been reduced by 40 percent."

Cui Zhongqin, Chief Engineer



Cometal

Extrusion Plant Manufacturer

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Challenges:

- Optimizing use of expensive materials

Keys to success:

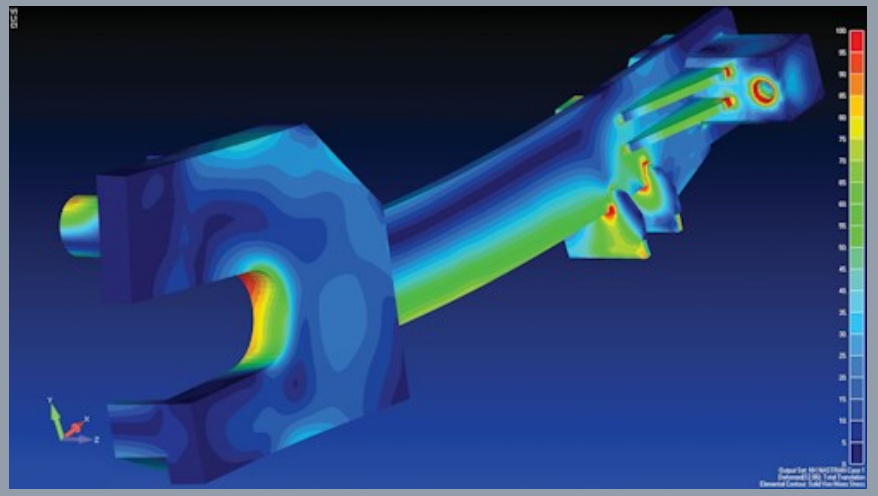
- Deployment of Femap for advanced structural analysis and optimization
- Compliance of structural performance to customer defined limits

Results:

- Reduced development cycle allowing tighter lead times for orders to be met
- Reduction of design margins and oversizing with project optimization
- Reduced physical testing

"Femap contributes to squeezing our development cycle, helping us meet the tighter and tighter lead times for orders. In the past, we could design by allowing for wider margins and oversizing. Now, we have to calculate all weights and materials accurately to cut costs."

Carmine Serio,
Technical Department Supervisor



Criotec

Commercial Refrigeration Equipment

Challenges:

- Speed up new design development
- Increase new product development by 30 percent

Keys to success:

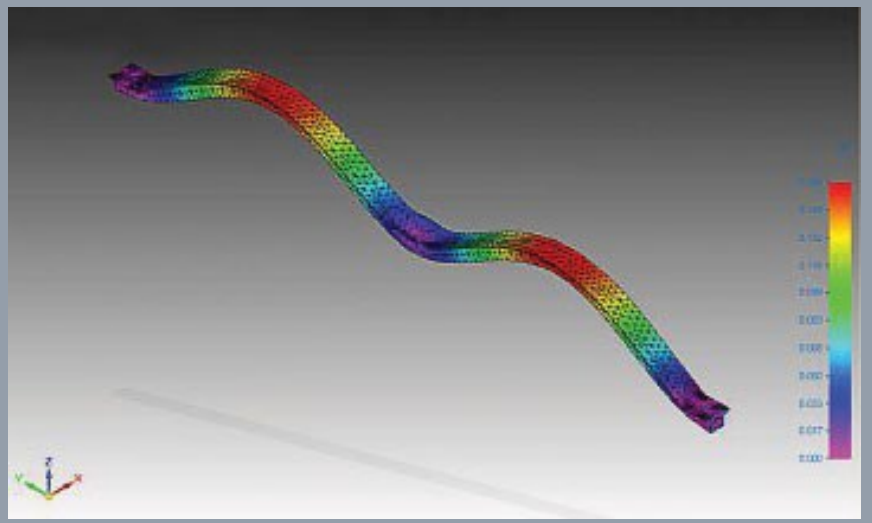
- Using finite element analysis to improve product performance

Results:

- New product development time reduced by 50 percent
- Dramatically faster digital design validation with no need for physical validation

"In reducing time, we save costs by making more rapid digital validations. This has been a big change, because before we had to conduct physical validations to ensure the customer's requirements were met."

Eduin Villanueva, Engineering Manager



Dae Han Control
Electro-Pneumatic Valves

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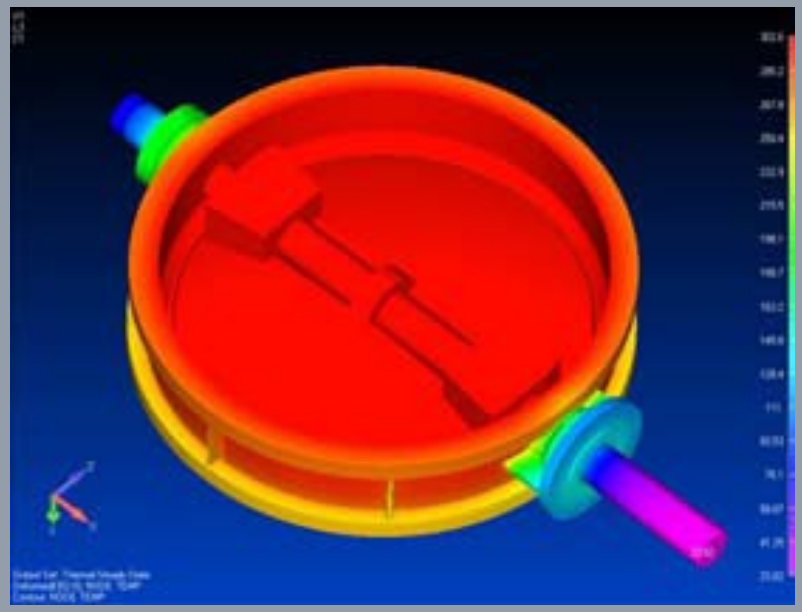
Challenges:
- Expand into the global market and maintain product quality and a strong company reputation

Keys to success:
- Adoption of tightly integrated CAD and CAE software
- Customized training and mentoring post sale

Results:
- Quicker time to market
- Significantly reduced errors and costs
- Confident expansion into the global market

"There are endless markets available to us. With the implementation of Solid Edge, Femap and NX Nastran, we intend to capitalize on further penetration into Europe and Southeast Asia, the Middle East, and more!"

Yong Gab, President



Edunburgh
Elevator Manufacturer

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Challenges:
- Low R&D efficiency
- High costs
- Product quality issues

Keys to Success:
- Improve 3D design visualization
- Product performance simulation

Results:
- New product R&D cycle condensed from 1 year to 10 months
- Achieved significantly greater efficiency, including an 18% reduction in costs and material waste

"The use of Femap with NX Nastran clearly improves design verification, we can now evaluate a virtual assembly and immediately conduct program evaluation and design optimization. This has reduced costs and material waste by 18 percent."

Mao Zhongwei, Chief Engineer

Equipos Nucleares S.A

Nuclear Power Plant Equipment

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Challenges:

- Customer expectations for faster cycle times in a competitive industry

Keys to success:

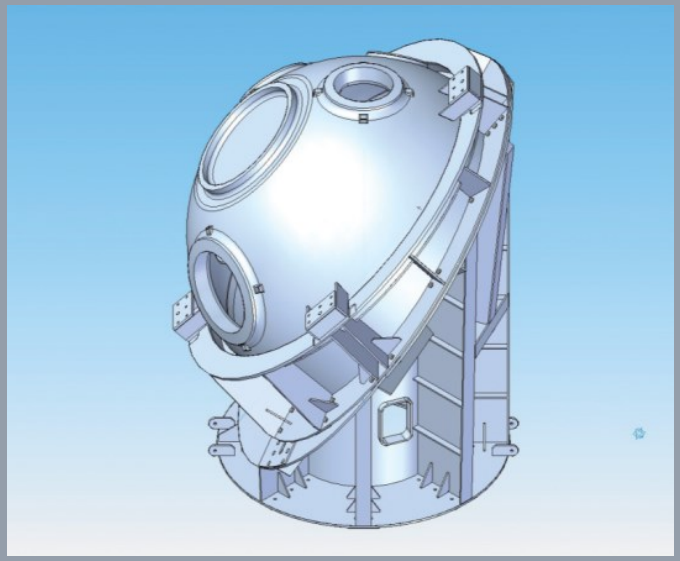
- Use of FEA using Femap with NX Nastran for design validation

Results:

- Significant time savings in design and validation
- Greater accuracy in the design of critical parts

"Because we have Solid Edge and Femap, along with good hardware and good technicians, we know that we can be among the best and that we can compete at the same level as other firms."

Demetrio Ugalde
Design Room & CAD CAM Manager

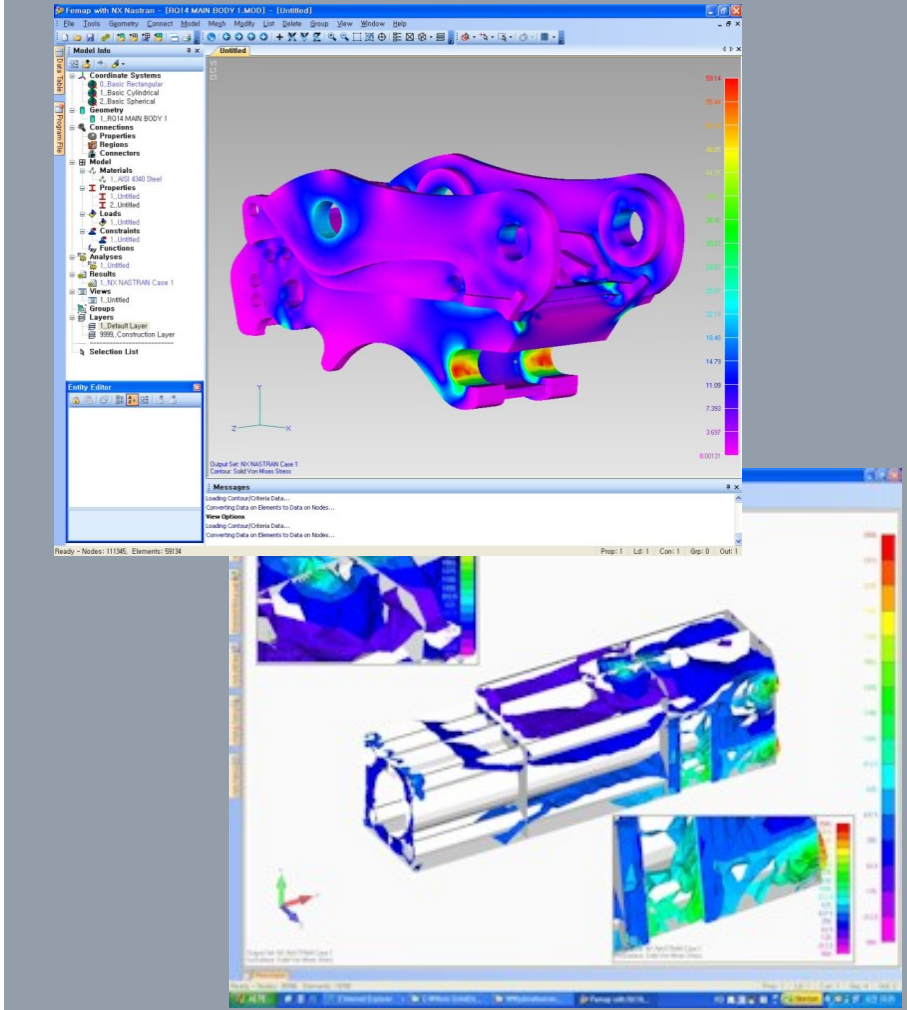


Everdigm
Construction Machinery

Challenges:
- To reduce product defects
- Satisfy customer demands for fast delivery

Keys to success:
- Deployed Femap with Solid Edge to create a highly automated 3D design process

Results:
- Reduced design time
- Reduced number of defects
- Improved customer responsiveness



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Challenges:

- With the complex crane design, there was no apparent cause for the failure in the accident under investigation

Keys to success:

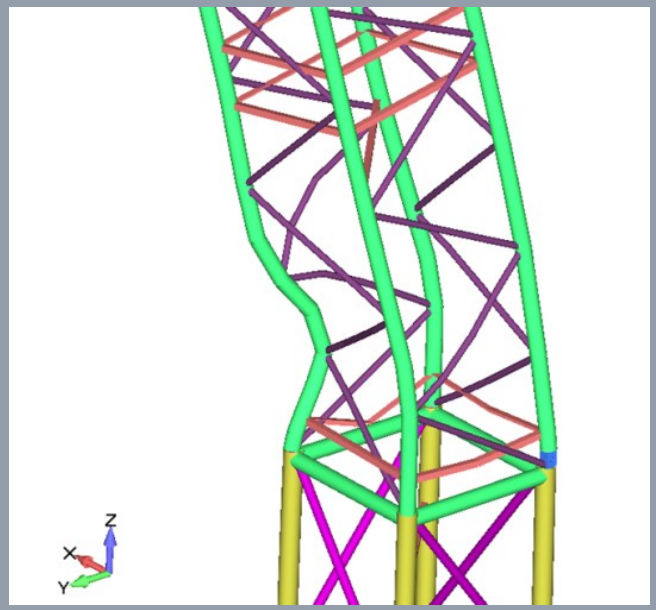
- Femap beam element modeling allowed a simulation model of the crane to be constructed quickly and efficiently

Results:

- FEA analysis revealed that the crane flexibility was greater than expected giving rise to dynamic forces large enough to cause the collapse of the crane

"One single beam element replaces hundreds of solid elements. This is a definite advantage of Femap. You can start your model from nodes and elements and not just from solid geometry."

Alexander Naatje, Project Engineer



Hydrauvision
Hydraulic Power Manufacturer

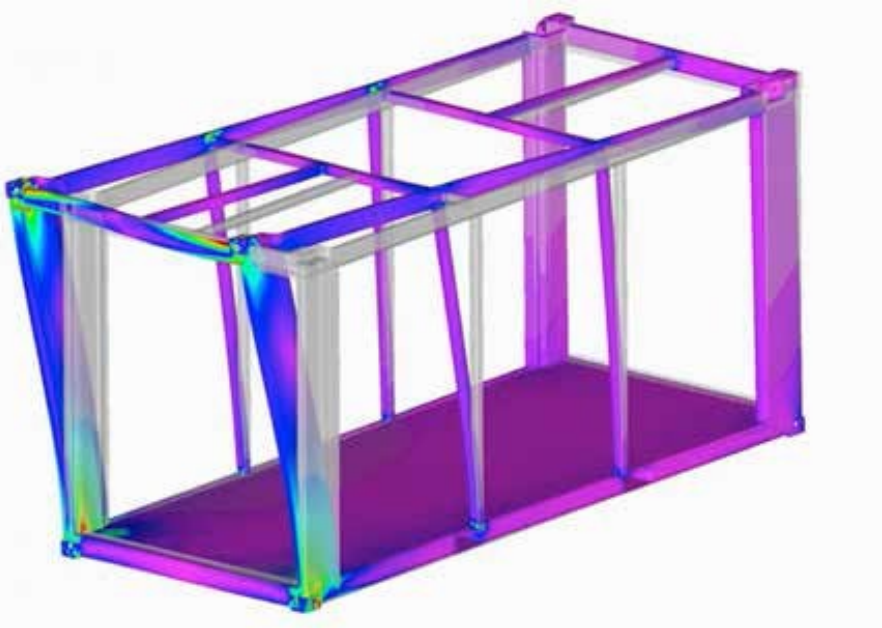
Challenges:
- Reduce number of physical prototypes
- Certify that units meet international standards
- Provide customer confidence

Keys to Success:
- Reduce time needed to manufacture hydraulic units
- Enhanced accuracy of simulation results

Results:
- Reduced number of prototypes by 80%
- Confirmed reliability and accuracy of virtual results
- Provided customers with increased confidence

"Femap is an excellent tool for structural analysis. It is a reliable way to validate the product, gain certification and build confidence with the customer that the unit will perform as expected."

Alex van't Westeinde, DesignEngineer



Intertraco

Pressurized Fluid Transport Components

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Challenges:

- Adopt advanced machinery and tools to operate quickly and efficiently, responding to market demand

Solution:

- Femap for the structural analysis of components before physical tests

Results:

- Significant efficiency and productivity improvements in modeling all components
- Substantial reduction in physical product testing, saving considerable time and money

"Femap helped us identify critical issues and understand which portions of an object could be thinned out, while strengthening weak spots."

David Fava
Chief Financial Officer

Kevin Thomas
Engineering Analysis Services Provider

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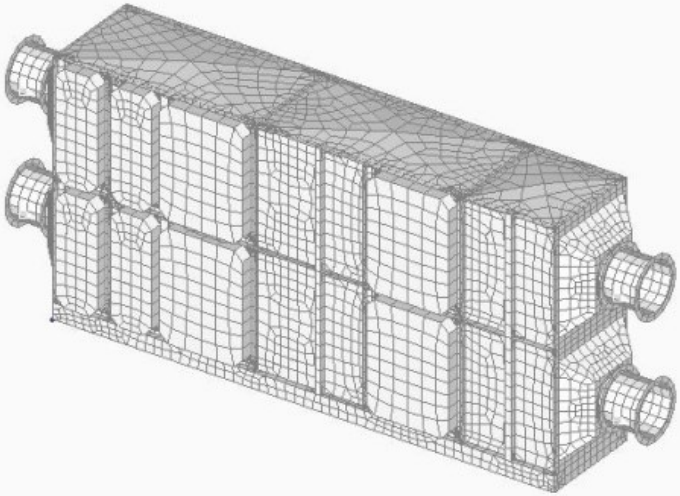
Challenges:
- Assist clients in meeting seismic requirements of IEEE, NRC and other agencies

Keys to success:
- Created geometry from scratch in Femap that, and used NX Nastran's robust and accurate dynamic analysis functionality

Results:
- Faster product development
- Reduced time and money spent on physical testing

"By doing this analysis, they can find out if the design will perform as it should without conducting a very expensive and impractical test."

Kevin Thomas



Key Knife
Wood Products Industry Systems

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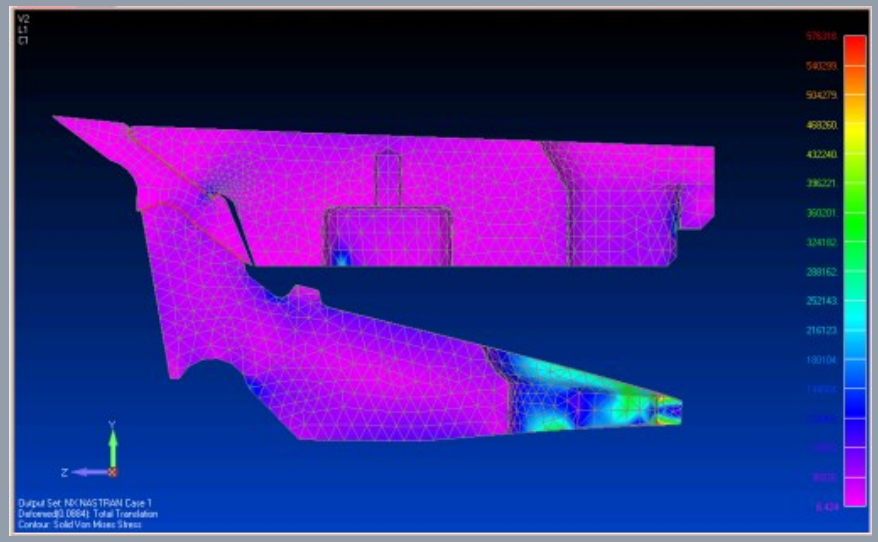
Challenges:
- Quickly turn innovations into products and apply cutting expertise to new markets

Keys to success:
- Adopt Femap with NX Nastran that allows extensive control over the analysis leading to replacement of most physical prototypes

Results:
- Significant savings for each new product developed with considerable reduction of prototype development time
- Better ability to compete in core business area
- Further diversification into new markets

"Femap with NX Nastran speeds time to market, and in the case of new applications where we start out with no idea of the forces or the environment, without this software we wouldn't know where to begin."

John Greiner, Mechanical Engineer



Kotchergenko
Industrial Machinery and Equipment

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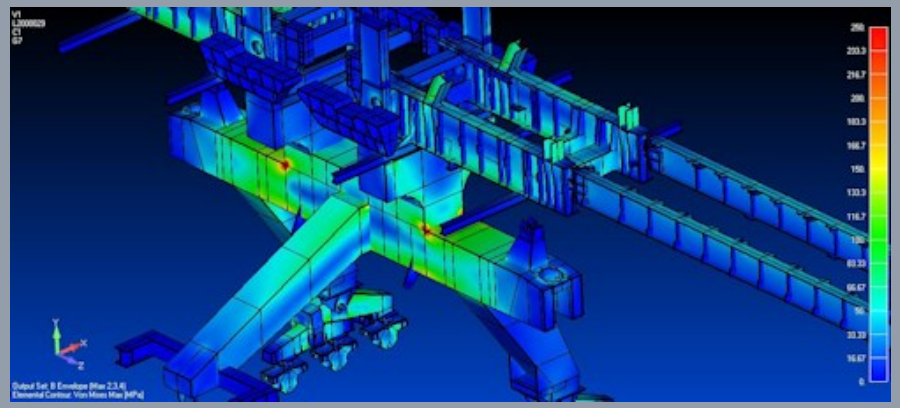
Challenges:
- Find software that reduces the cost of finite element analysis
- Keep up with the company's growth rate
- Expand business with both existing and new clients

Keys to success:
- Easy integration of Femap with NX Nastran with other engineering systems
- Reduced licensing cost, better quality and higher level of support
- Reliable supplier
- Appropriate software upgrades
- More comprehensive solutions portfolio via Plant Simulation

Results:
- 50 percent increase in overall productivity
- 20 percent faster model generation
- Significantly improved project quality/reliability
- Enhanced ROI

"Since design methods have evolved substantially, manufacturers are under more pressure to improve their products, reducing weight and therefore costs."

Frederico Mol, Technology Director



Machinefabriek EMCE
Winch Manufacturer

Challenges:
- Design and production efficiency
- Product reliability

Keys to success:
- Use of Femap with Solid Edge for efficient design verification and optimization

Results:
- Faster design iteration
- More accurate designs that assure correct part sizing

"As soon as a construction deviates and can no longer be calculated reliably by hand, we switch over to Femap software."

Remko van Dijk, Head of Engineering

Manitowoc
Crane Manufacturer

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Challenges:

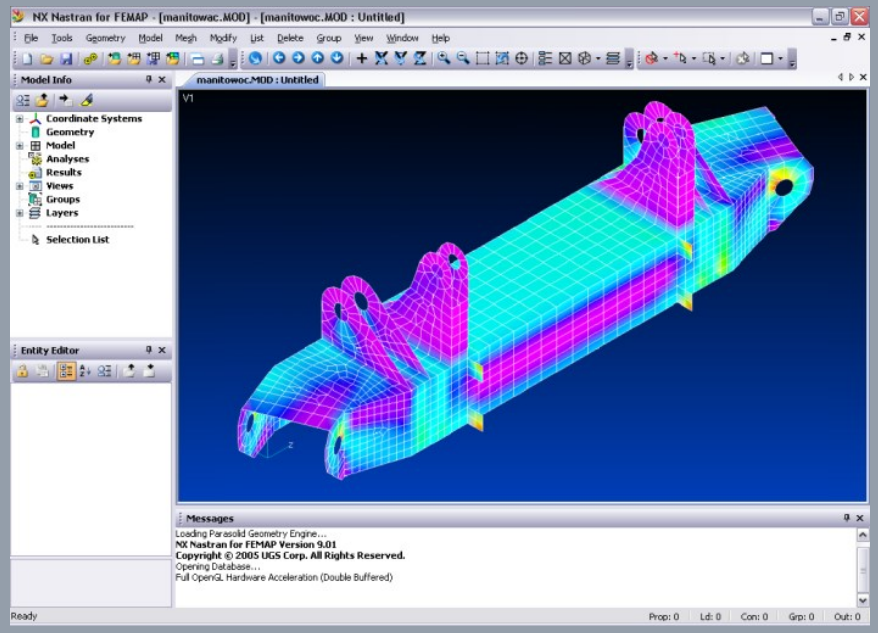
- Complete the design of a new crawler crane within an accelerated timeframe while complying with SAE and ANSI standards – the components have to be able to be shipped on standard tractor trailer

Keys to success:

- By performing analyses using Femap with NX Nastran prior to physical testing, the company was able to ensure that the first design that was built passed all the required tests

Results:

- The company was able to go from a design concept to a finished, certified product in less than 18 months



Mc Drill Technology
Drilling Rig Manufacturer

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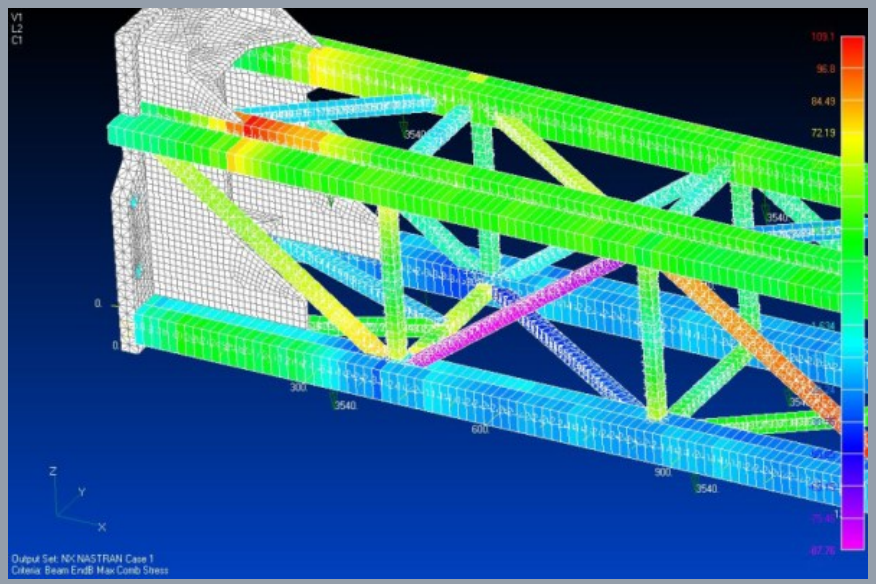
Challenges:
- Fast delivery of new drilling rig designs to market

Keys to success:
- Engineers analyzed what they needed to using Femap with NX Nastran rather than having to follow the more simplistic and limiting wizards offered in other FEA products

Results:
- Fast software deployment and learning led to high productivity early on
- Lower material costs with increased stability and safety

"While very intuitive, Femap with NX Nastran has proved to be the most specialized solution"

Gianluca Camparini
Structural Design Manager

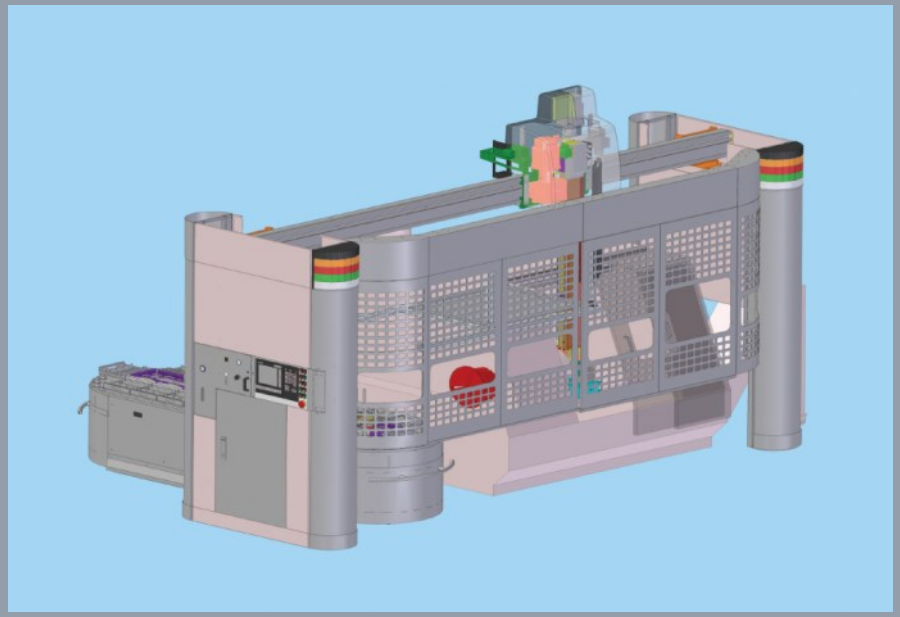


PARI
Automation and Robotics

Challenges:
- Scale up engineering throughput and maintain a 70% growth rate

Keys to success:
- Eliminating problems in the virtual design stage through the use of Femap simulation and Solid Edge CAD software

Results:
- Improved design visualization and a 30% reduction in design errors



Ruhrpumpen
Pump Manufacturer

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Challenges:
- Design process effectiveness for pressure-bearing pumps
- Reduction of costs and rework

Keys to success:
- Modeling of contact and bolted connections for multi-stage centrifugal pump casings
- Verification of structural integrity and maintenance of seal under pressure loading

Results:
- Good correlation between the virtual model and actual test results
- Casing optimization giving a 20% material saving

"An important consideration in our selection of Femap was the fact that it can handle contact surface problems"
Dirk Koep, Designer