

Allseas Group S.A.

Offshore Pipe-laying and Subsea Construction



Challenges

- Design and verify modifications to pipe-laying deployment structure as quickly as possible meeting regulatory compliance

Keys to success

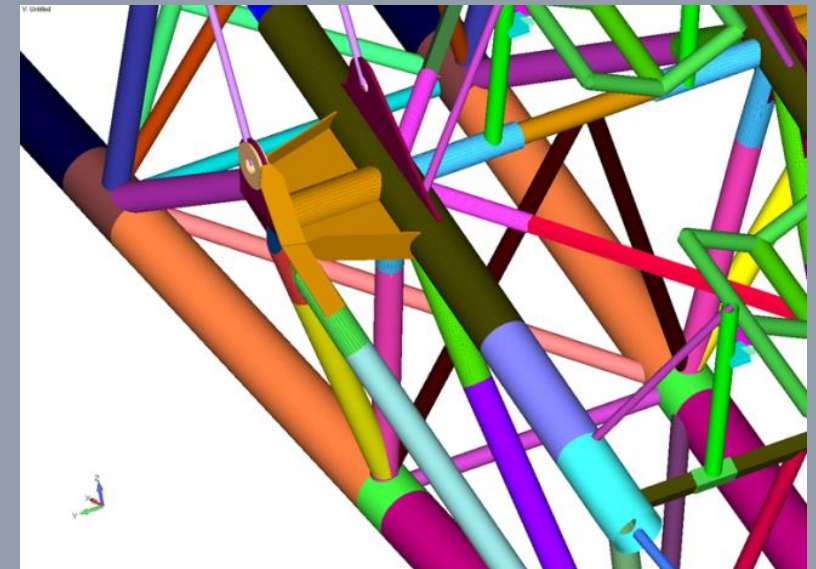
- Use of Femap with NX Nastran taking advantage of parallel processing to reduce solution time

Results

- Fast preparation of analysis model and results presentation allow for rapid model changes that meet insurer's regulations

“Femap lets us prepare analysis models quickly, and present the results quickly. And it gives us the functionality we need for a good price.”

Moshir Daoud
Structural Engineer



Challenges

- Ship designs must conform to many regulations

Keys to success

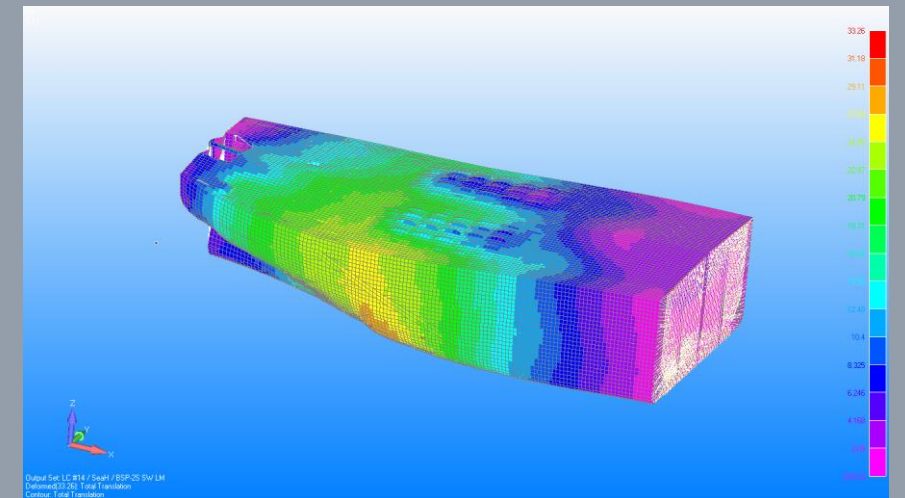
- Femap API enables extensive customization
- Openness of Femap allows use of FE models created using other programs
- Ease of use of Femap accelerates productivity

Results

- Fast processing of hull FEMs
- Customized postprocessing tools that quickly identify problematic areas
- Early FEA results are instrumental in guiding the design process
- Easy to update and include latest ship design regulations

“VeriSTAR Hull is an extensive customization of Femap designed to reduce the time required to generate finite element models as well as postprocessing.”

Olivier Degrand
VeriSTAR Hull Project Manager



Cardinal Engineering Marine Consultants



Challenges

- Produce high-fidelity, low-cost modeling and analysis results for many unique foundation designs

Keys to success

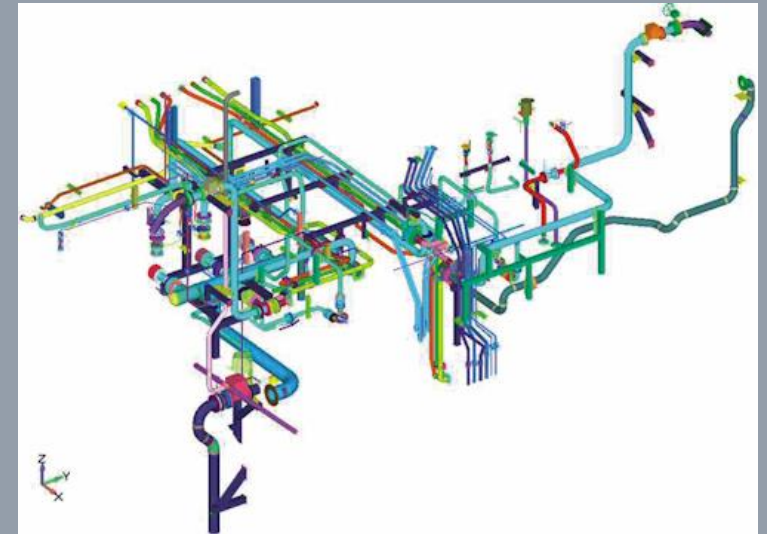
- Develop innovative methodology to meet aggressive schedule
- Automate and streamline FEA modeling and postprocessing
- Use Femap application programming interface (API) to develop custom programs

Results

- Reduced modeling and analysis time by 80 percent
- Enabled direct import of geometry and technical data
- Realized cost savings for the customer
- Won additional work from the customer

“The application of custom tools in Femap enabled us to reduce the time for developing finite element models and postprocessing analysis results by a factor of at least ten.”

*Chris Mairs
Principal Engineer*



Femtec

CAE Service Provider



Challenges

- Accelerate the CAE process with faster digital simulation of complex designs

Keys to success

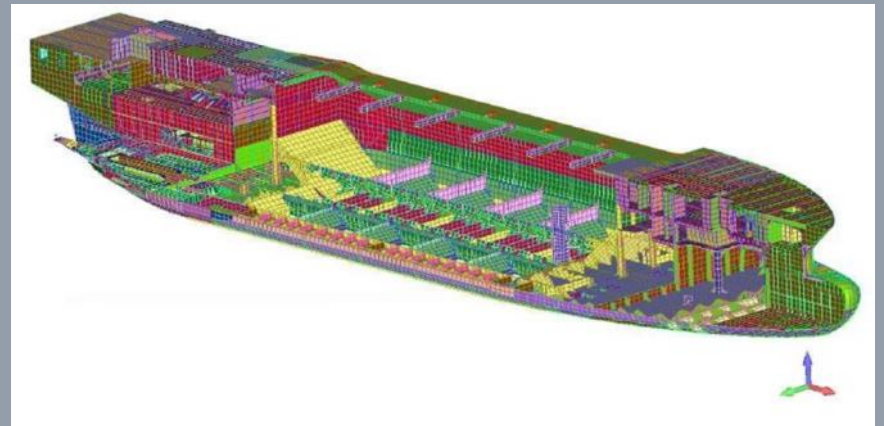
- Rapid modeling, automation of repetitive tasks, and use of open CAE software

Results

- Scaling up simulation between draft and detailed levels, use of API for automation and tool development

“We’re always happy to work with Femap. Femap is technically strong in a wide range of areas. Our employees like its user friendliness, openness and its programming possibilities. In short, Femap is perfect for us.”

Martijn Wubbolts
Owner



GustoMSC

Offshore and Marine

Challenges

- Manufacture offshore drilling vessels that can withstand harsh environmental conditions, support heavy drilling equipment and ensure decades of operation

Keys to success

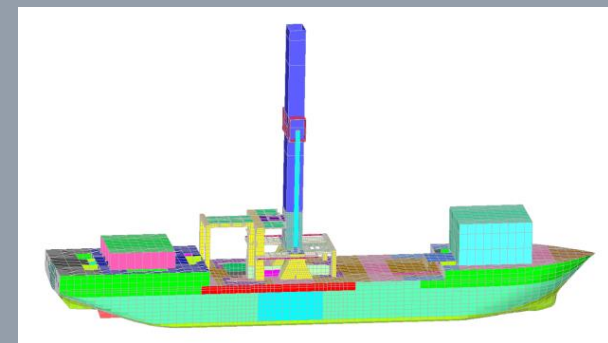
- Use of Femap's plate and beam modeling and meshing within a Windows environment, and the API customization functionality

Results

- Potential hull problems are found and eliminated in the design phase

“Other products focus on automatic meshing of complex mechanical components, which Femap can do, but if you tried to do that with something as big as a hull, your model would be composed of solid elements. Modeling with beams and plates is a better approach, and something that Femap strongly supports.”

Timo de Beer
Principal Structural Engineer



Icepronav Engineering

Offshore and Marine

Challenges

- Performance evaluation and virtual testing
- Efficiency
- Certification to the highest standards

Keys to success

- Access to advanced, high-value technology solutions
- Faster design iterations

Results

- Virtual validation of performance before ship testing and construction
- Accelerated analysis
- Reduced product development time
- Reduced operations costs
- Digital compliance/certification
- Significantly improved collaboration
- Greater innovation

“The capacity of Femap to combine different elements and techniques is a key factor in providing the speed and precision needed for the analyses that we do.”

Alina Florea
Engineering Manager



IHC Handling Systems

Oil and Gas Equipment

Challenges

- Improve the predictability of product functionality and quality in a market where prototypes are almost impossible to effectively create and errors are very expensive

Keys to success

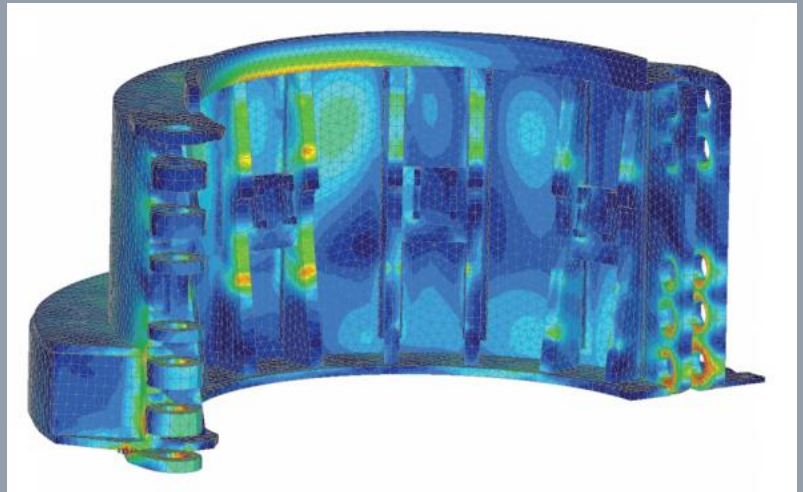
- An integrated CAD/CAE approach that frees more time and attention for design and simulation
- User-friendly programming

Results

- Reduced the turnaround needed for analyzing variants through significantly improved meshes
- Increased productivity through re-use of proven designs
- Notably improved product time-to-market and quality while reducing costs
- Realized a full return on software investment in short-order

"We were satisfied with the engineering tools we had, but there is always room for improvement. Using Femap allows us, better than ever before, to serve our customers with our experience and quality."

Cor Belder
Concept Engineer



Korndörffer Contracting International Consultants – On and Offshore Oil and Gas



Challenges

- Design cost-effective bespoke steel structures that meet oil and gas industry regulations, and to determine efficient designs as quickly as possible

Keys to success

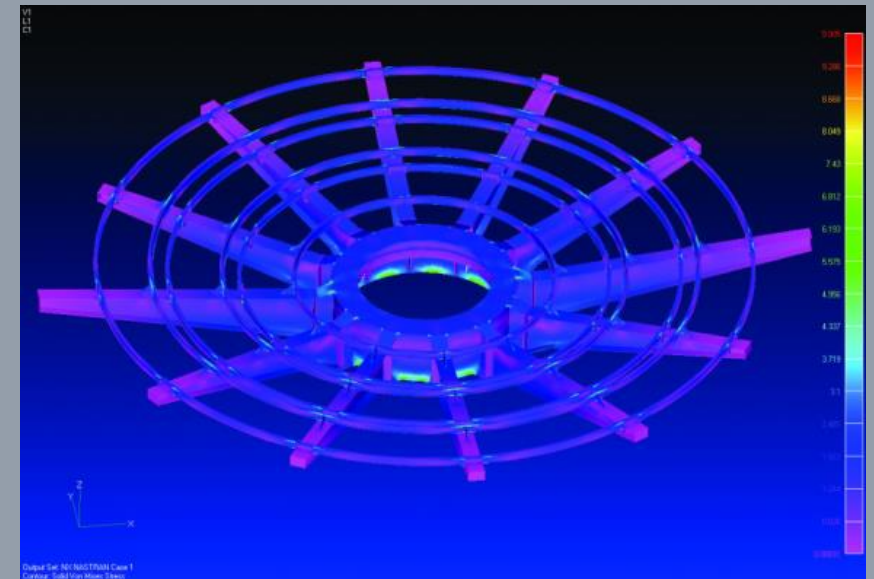
- Use of Femap with NX Nastran for design verification and optimization

Results

- Structural designs are optimized for strength, safety and cost-effectiveness, and the use of Femap with NX Nastran resulted in fewer design iterations to arrive at an optimized design

“Through the efficient use of Femap and NX Nastran, the number of iterations is reduced and the run time is shortened.”

*Dieter Korndörffer
Technical Manager*



Land Rover BAR

Racing Catamaran Design



Challenges

- Design a catamaran that can win the 35th America's Cup
- Ensure stability and safety
- Launch it within 30 months

Keys to success

- Integrated design, analysis and simulation tools

Results

- Time saved by simultaneous multiple analyses
- Potential damage avoided through simulation of complex composites

“We use our sophisticated tools to open up fresh opportunities, which often means that the designs become more complex as we seek new levels of performance.”

Martin Whitmarsh
Chief Executive Officer



Longitude Engineering Offshore and Marine

Challenges

- Provide consistent standards of engineering across the group
- Minimize the cost of new software
- Maximize global collaboration

Keys to success

- Ease of use
- Flexible global licensing
- CAD neutral

Results

- Improved engineering expertise
- FEA capability secured large contract
- Efficiency and speed
- Fuels future growth

“Without the ability to carry out structural analysis with Femap, it would have been impossible to tender for the job.”

David Bignold
Director



Paxocean

Offshore and Marine

Challenges

- Verify rationale for early-stage structural design
- Fulfill rigorous requirements for quality, safety and reliability
- Meet analysis requirements for complex loads
- Enhance efficiency of traditional verification methods
- Reduce product delivery cycle

Keys to success

- Use Femap with NX Nastran
- Conduct structural analysis in virtual environment
- Improve safety and reliability of shipping equipment

Results

- Increased safety and reliability of shipping equipment
- Lowered material costs by optimizing design
- Discovered potential problems in early stages
- Shortened R&D cycle

With Femap with NX Nastran, there have been no errors in our work with the ship design team. Femap with NX Nastran perfectly meets all of our simulation analysis requirements, and plays a huge role in guaranteeing ship quality.”

Feng Wengang
Senior Structural Engineer



Predictive Engineering Consultants – Submarine Analysis

Challenges

- Assist designers of a unique, private submarine by predicting performance prior to construction and sea trials,

Keys to success

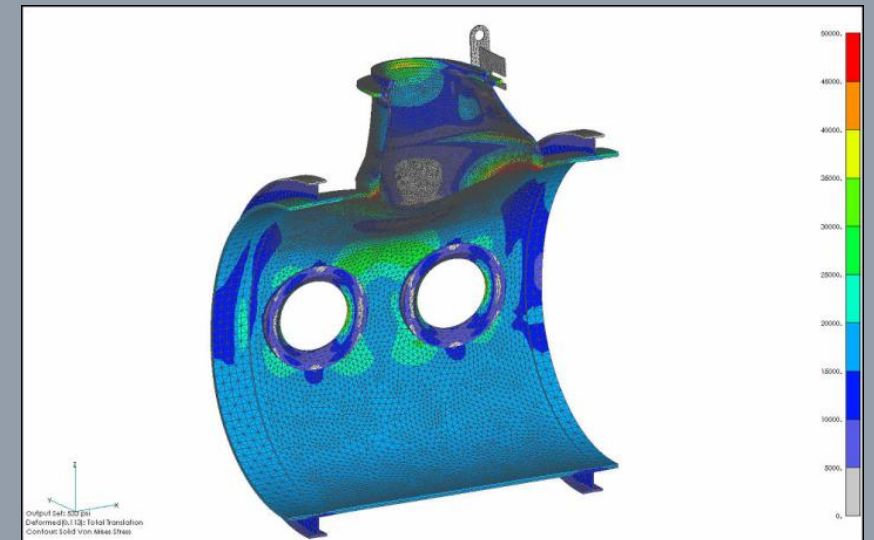
- Used Femap with NX Nastran to predict global buckling behavior and local stress concentrations

Results

- Prediction of submarine performance to well below the target depth of 1,200 feet – a tight correlation between FEA predictions and strain gauge measurements was achieved and the submarine was certified solely on the basis of numerical methods

“When engineers need to get real results, accurately and competently, they use Femap. It’s industrial-strength and stable”

George Laird
President



Revolution Design Shipbuilding

Challenges

- Accelerate product development turnaround, increase production efficiency and improve regulatory compliance

Keys to success

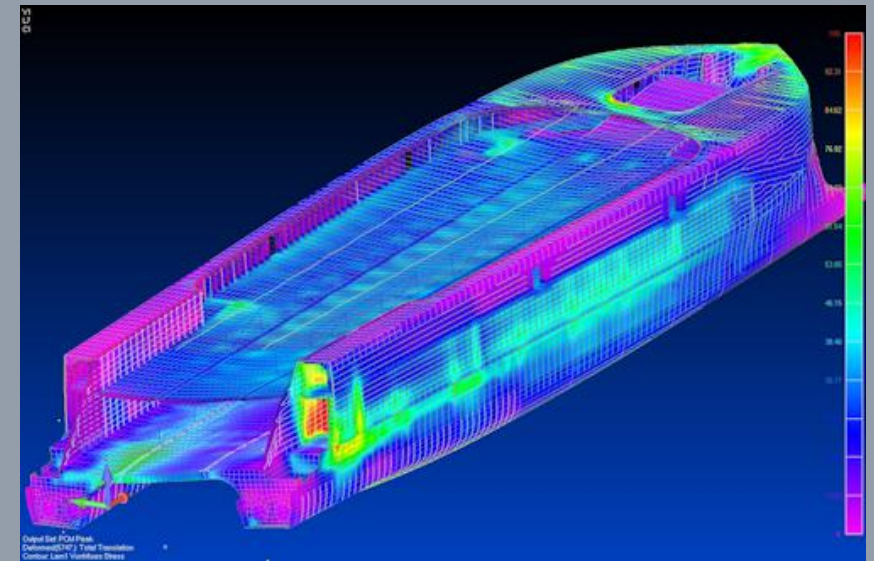
- Leverage Femap with NX Nastran to analyze vessel design options

Results

- Significantly reduced product development costs, faster design turnaround and improved process for meeting stringent industry standards

“Our design team is taking advantage of and realizing great value with advanced modeling and analysis functionality.”

Gary Davidson
Director



SMIT Engineering

Marine Salvage, Transport and Heavy Lift



Challenges

- Analysis to aid a fast recovery of the sunken vessel “Tricolor” outside Amsterdam harbor

Keys to success

- Femap was used to model the ship’s structure with analysis performed using NX Nastran to determine whether the vessel could withstand the lifting forces

Results

- The wreck was cut into nine pieces and auxiliary structures developed and welded to the pieces for the lifting operation

“We have been using Femap for the past ten years to quickly formulate these types of calculations, the value of promptness cannot be underestimated in this sector and Femap plays a vital role in this”

William Looijschelder
Engineer



Sumitomo Heavy Industries

Marine & Engineering



Challenges

- Multiple-skill development to support design and analysis
- Flexible support for changing classification society rules and customer demands
- Development upstream from the design stage

Keys to success

- Analysis with Femap
- Visualization supporting high-precision high-quality analysis
- Flexible modeling functions

Results

- Increased the number of designers who understand both plans and analysis
- Accelerated development and reduced costs
- Improved the precision and quality of analysis calculations

“A ship is useless if it is not operational, so we have to shorten the repair period as much as possible. At times like that, Femap is a big advantage, because it’s easy for anyone to use.”

Toru Ozawa
Structural Group Engineer

