

ENGINEERING + INNOVATION

XXTREME TUBULAR TECHNOLOGY in-house engineering capabilities include Concept Development, 3D Finite Element Analysis, Custom Part Design, and Design Validation.

CAD capabilities include both 2D manufacturing drawings and 3D parametric modeling for projects as well as 3D animation and visualization of Concepts and finished project details.

Engineering experience includes, but is not limited to, design and analysis of:

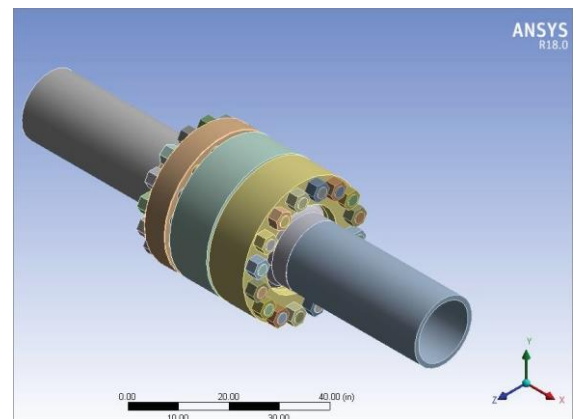
FEA services from initial design, right through to reporting and sign-off

XXTREME TUBULAR TECHNOLOGY utilizes the advantages of FEA to support the design process for all NOVUS components and structures. It is used in driving and supporting new product development, together with the redesign of existing, well-established product lines.

FEA is an engineering methodology used for understanding the performance of a component and/or product when subjected to a set of boundaries or loading conditions. This analysis can be undertaken virtually, thereby negating the need to initially produce a physical prototype. FEA allows component design to be changed, to improve for example, its resistance to plastic deformation and failure due to fatigue. The geometry and material specification can be optimized, giving the client the desired performance characteristics and operational performance envelope required.

FEA can be used as a very accurate and cost-effective tool to support factory qualification procedures. NOVUS is also able to provide computational fluid dynamic (CFD) services upon request.

- In-house analysis software – Vector Analysis
- Linear and Non-Linear FEA
- Static, Dynamic and Explicit FEA
- Coupled structural thermal analysis
- ASME VIII Division 1 – ‘Design-by-Rule’
- ASME VIII Division 2 – ‘Design-by-Analysis’
- ASME VIII Division 3 – ‘High Pressure Connectors’
- Optimization Studies
- Fatigue Analysis



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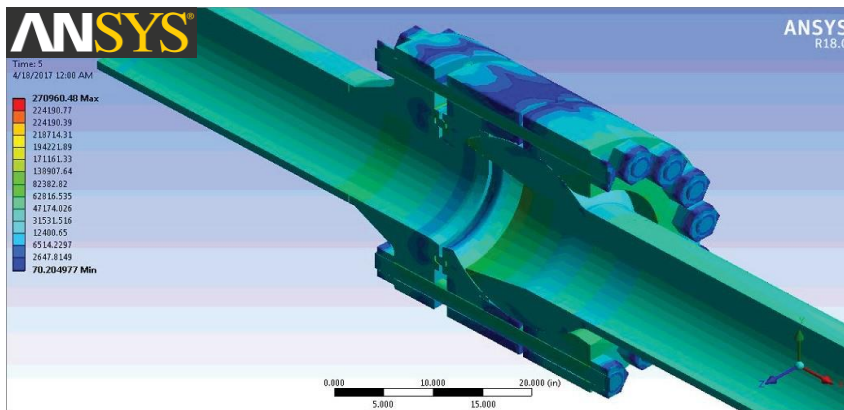
All FEA needs to have suitable verification. NOVUS utilizes a variety of verification tools from simple hand calculations to (in extreme cases) alternative FEA analysis using other established software packages.

ENGINEERING, DESIGN + ANALYSIS CAPABILITIES

XXTREME TUBULAR TECHNOLOGY utilizes the latest in design and analysis software to produce accurate modeling to determine physical characteristic of assembled structures and components.

Capabilities include:

- Pressure Vessel and Heat Exchanger Design using Compress Codeware™
- Valve Design using Flow Consultant™
- 3D CAD Software Modeling
- 2D ACAD Software
- 3D FEA using ANSYS™ on mechanical components and structural assemblies



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