



Analyzer CAE Solutions Pvt. Ltd.

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Our Team Motto

Design team "Transforming Ideas to Reality"

FEA Team "Don't be stressed, We are there"

CFD Team "Diverse requirement, Converged Solution"

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CASE STUDY

ENGINEERING DESIGN & ANALYSIS SERVICES

(Client Presence - **12+ Countries**, Experience - **14+Years**)

Service Verticals

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Industry Verticals

Automobile, Aerospace, Oil & Gas, Process, HVAC, Turbomachinery & Pumping Station, Nuclear Energy, Medical & Electronic Equipment's, Industrial M/C & Equipment's, Construction Equipment's, Etc.

FEA OF SKIRT (Y-FORGING) JUNCTION

CASE STUDY HIGHLIGHTS

Client Profile:

Process equipment manufacturer, India & Abroad

Introduction

Pressure vessels have different types of supports depending upon their service & location of installation. Supports are of great importance in a pressure vessel assembly as their failure will be failure of complete pressure vessel unlike other localized failures. Skirt supports involves Y-Forging, which is a connecting element between shell, dished end & Skirt support. As this element is a major player in load transfer to support so it needs to verify for its strength against applied loadings.

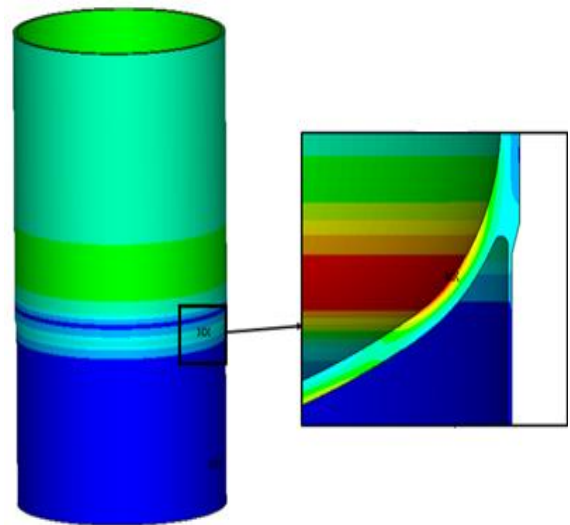
Process equipment manufacturer from India & Abroad approached ANALYZER to seek assistance in evaluating the design of their newly developed vessels to multiple loading conditions using simulation techniques & provide the solution in case of any observed failure.

Workflow

- Design parameters & material properties extraction for Skirt Junction FEA
- Preparing FEA Model
- Solving the FEA Model & Result extraction
- Preparing an easy-to-understand report for the performed FEA.

Challenges

- Modelling welds between Y-Forging to Shell & Skirt
- Simulating different load conditions in case of axisymmetric approach



FEA of SKIRT (Y- Forging) Junction

THE SOLUTION

The Skirt (Y-Forging) junction geometry was analysed using Finite Element Method to determine the induced stresses due to various loading conditions. To assess strength of the geometry, guidelines from ASME BPVC (Boilers & Pressure Vessels Code) Section VIII Div. 2 Ed. 2013 were utilized. Stress Linearization has been carried out at various cross sections of the Forging & its connection with shell & Skirt. The results showed that the induced stresses were well within the acceptable limits as per guidelines. Hence, the structure's design was predicted to behave safe during operation without premature failure.

BENEFITS

- Better insights on Forging design modifications for alternate applications
- Optimized design with reduced material cost
- Reduced manufacturing time

ABOUT ANALYZER CAE SOLUTION PVT. LTD

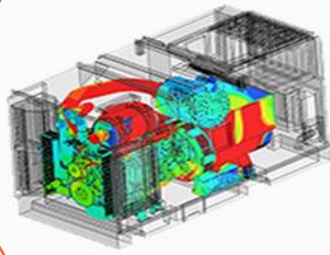
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(Director Engineering)

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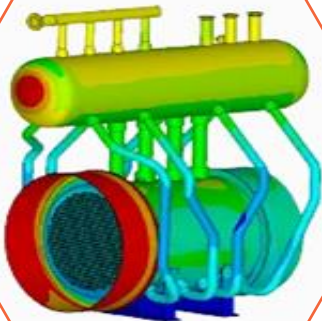
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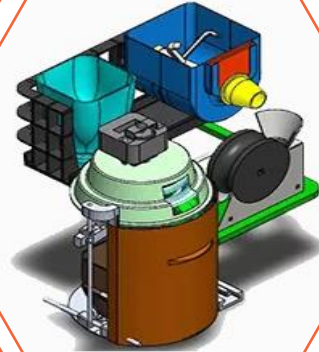
CFD



FEA



CAD/DESIGN



SERVICES



PROTOTYPING



ACOUSTIC CONSULTANCY



STAFFING & MENTORING

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