

SmartPlant 3D - Liquid Nitrogen & Vaporization Package 3D Modeling

Key Features

Technology:

Intergraph SmartPlant 3D

Duration:

The project was completed in 1 month

Deliverables:

1. Final 3D model
2. (*.)SAT for discreet component modeling flexibility
3. (*.)SPR files for checking and review

The Client

A global leader in providing solutions for Cryogenic Storage, Vaporization and Distribution Systems for EPC projects. The sectors covered by the client includes a vast pool encompassing LNG, Petrochemicals, Steel, Fertilizer, Oil & Gas industries.

The Business Need

The client required detailed 3D modeling of two different stations for Liquid Nitrogen Storage & Vaporization Package

Rishabh's Solution

Rishabh Engineering was appointed to deliver 3D modeling of the Liquid Nitrogen Storage & Vaporization Packages for two different stations, which included equipment, piping, pipe supports, cable tray routing and mounted instrumentation.

There were three major technical challenges faced while delivering the solution like

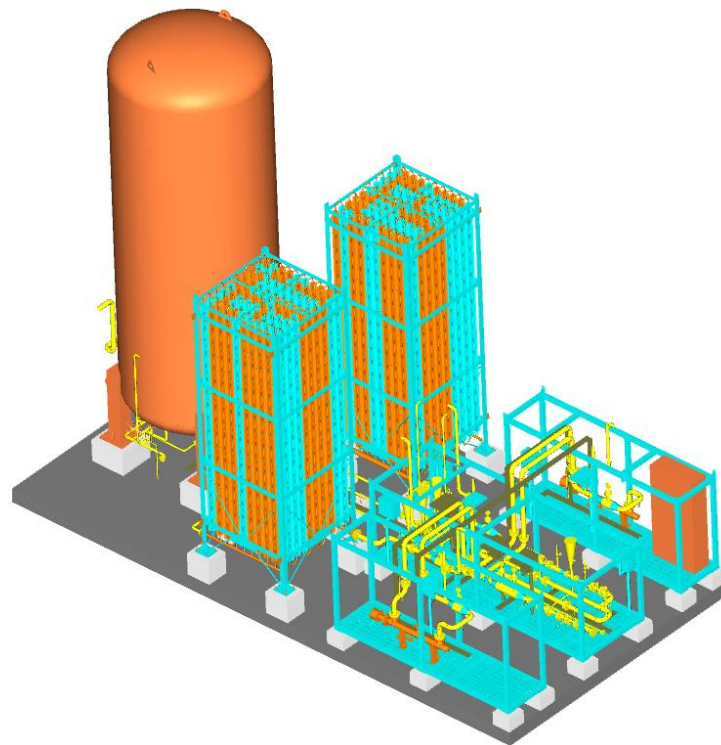
- All the 3D model should be (*.)SAT format
- From a performance point of view, the SAT file size should optimally be less than 5 MB as a 3D model file is typically 15+ MB in size. It required compartmentalization of sub files to meet the desired file size
- Also for efficient Interference Checker processing, SAT files should not have a footprint (range) greater than 100 meters

The reason for following the mentioned guidelines was because (*.)SAT file format gives flexibility to the client to carry out modeling of different units of overall plant in different environments.

Solutions provided are enriched by the expertise acquired and resources developed over years in executing the projects and optimized to accommodate special project requirements. The scope covered:

- Study of Equipment, Skids & GA drawings to render the 3D model
- Each station consists of following equipment for 3D modeling:
 - Liquid Nitrogen Storage Tank - 1 no.
 - Vaporizers - 2 nos.
 - Pressure Build up unit - 1 no.
 - Heaters - 2 nos.
 - Skids - 3 nos.
- Generation of 3D Equipment Layout by placing all equipment on given coordinates by referring General Arrangement drawing
- Design of 3D model for Pipe routing and assigning the line numbering by referring Piping layout & P&ID
- Generation of pipe support and assigning the support numbering by referring the Layout
- 3D modeling of Cable tray routing & miscellaneous components like Junction Boxes, Panels & Instrument stands
- Provision of (*.)SAT files of complete model

We successfully developed intelligent 3D Model on SmartPlant 3D as per standard engineering codes and standards I.E. ASME B31.1, ASME B 31.3, API 560 Codes and completed the project in 1 month with a team of 2 members (including one Project Engineer/Coordinator from client's team & the 3D modeler from Rishabh Engineering).



3D Modeling - Liquid Nitrogen & Vaporization Package

Technology Used

- 3D Modeling – SP3D Version 2011 R1

Key Deliverables

- 3D model for two stations which includes components for Liquid Nitrogen, Storage Tank, Vaporizers, Pressure Build Up unit, Heaters and Skids
- SAT files generated for individual equipment to restrain the file size to below 5 MB
- Extraction of (*.)SPR files for checking & reviewing the completed 3D Modeling task

Our Approach & Achievements

- 3D Model was effectively created with 99.9% accuracy fulfilling the quality parameters required by the client. The project was planned to be completed within 1 month and delivered in a timely manner.

Contact Details

US Ph : +1-201-484-7302, 1-877-RISHABH (747-4224)

UK Ph : +44-0207 993 8162

Email : sales@rishabheng.com

Twitter : www.twitter.com/RishabhEng

Linkedin : www.linkedin.com/company/rishabh-engineering-services

More information about Rishabh Engineering, please visit:

www.rishabheng.com | www.rishabhsoft.com | www.rishabhbpo.com

About Rishabh Engineering

Rishabh Engineering provides multidisciplinary engineering support services to EPC companies in industries like Oil and Gas, Petrochemical, Power and Water treatment. Our parent company, Rishabh Software is a CMMI level-3, ISO9001 and ISO27001 company that provides services in Software Development, Business Process Outsourcing (BPO) and Engineering Services Outsourcing (ESO) to clients globally. Rishabh has offices in USA, UK and India with their main delivery center in Vadodara, India.