



Case Study #25

Super Large Liquid Nitrogen Tanks

Manufactured in India



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1-800-400-4683/+91 8623 304700

P/N 21998638

Highlights:

- Two of the growing number of the Indian supplied super large, factory-built engineered tanks
- Liquid Nitrogen (LIN) tanks designed with stringent seismic conditions as final site is located in coastal area
- Project completion inside of the 8 months required timeline

Location: Augmentation of existing petrochemical refinery complex, Gujrat, India

Scope of Project:

- Design, engineer, manufacture, test, and supply two LIN tanks of 411 KL, 12 Bar each
- Customer was a major industrial gas supplier in India, and the end user is a petrochemical company who owns and operates India's 2nd largest oil refinery



Application:

Capacity addition in an existing petrochemical refinery infrastructure is part of the world-scale facility in polypropylene. Two large LIN tanks needed at this site for storage of the liquid nitrogen which will have a wide range of applications in the petrochemical refinery.

Project Background:

Chart's VRV India subsidiary was commissioned to design, manufacture, test, supply and install two LIN tanks at end customer location. The order was received in May 2021 and had a stringent delivery timeline of 8 months as the customer needed tanks on site to proceed with install of other process equipment at site and complete process piping with existing refinery only after the bulk tanks were installed.

System Configuration:

Two vertically oriented tanks were built to design code ASME Sec VIII Div 1 2019, Appendix 44. Gross capacity of each tank is 411KG/ 108,575 gal (Net 390 KL/103,027 gal). Empty weight of each tank is 163 tonnes/147,871 kg. Dimensions are 36.4 meters long and 5.4 meter outer diameter with MAWP of 12 bar.

Significant Accomplishments:

- Working very closely with buyer's team, delivered the two cryogenic storage tanks on time, despite multiple challenges, including vendor supply issues.
- The quality inspections/witness criteria at many stages of the manufacturing points resulted in streamlined workflow processes which benefited all stakeholders.
- Tanks departed VRV facility in Sri City and arrived at the destination 55 days after departing the factory.

