

ENGINEERED SOLUTIONS

CASE STUDY

Nitrogen Generation Skid in Brazil



A FAMILY OF COMPANIES



INTRODUCTION

This case study highlights how Relevant Industrial, in collaboration with key partners, successfully delivered a fully custom Nitrogen Generation Skid Package given very tight specifications into Brazil having unique country requirements in addition to operational parameters.

In 2018, as part of a larger project in Brazil, a global company specializing in the manufacturing of cryogenic process plants and LNG facilities embarked on a project to develop a Nitrogen Generation Skid Package. The objective was to find a partner who could meet their rigorous specifications for moisture measurement and guarantee a high purity Nitrogen supply for their overall compressor and filtration solution for Liquid Nitrogen. This case study highlights how Relevant Industrial, in collaboration with key partners, successfully delivered an engineered solution to meet the manufacturer's specific requirements.

The objective was to find a partner who could meet their rigorous specifications for moisture measurement and guarantee a high purity Nitrogen supply for their overall compressor and filtration solution for Liquid Nitrogen.

CHALLENGES & OBJECTIVES

1

Rigorous
Specifications

2

Complex
Simulations

3

Real-World
Validation

01 RIGOROUS SPECIFICATIONS

They needed a partner who could provide a high purity Nitrogen generation system with specific oxygen and water content requirements. The challenge was to ensure the system's performance would meet these specifications consistently.

02 COMPLEX SIMULATIONS

Achieving extremely low parts per million (ppm) levels in Nitrogen purity required advanced simulations. However, existing simulation tools struggled to accurately simulate such low concentrations. Obtaining reliable simulation data was crucial to guarantee the system's performance.

03 REAL-WORLD VALIDATION

They wanted assurances that the proposed solution could deliver the required outputs under varying ambient conditions. Real-world data and third-party validation were essential to instill confidence in the system's performance.

COLLABORATIVE SOLUTION

1

Simulation and Data Analysis

2

Third-Party Validation

3

Master Services Agreement

Relevant Industrial, a leading partner in specialty chemicals, began to address these challenges. The collaboration aimed to create a new-to-the-world solution that could provide the desired high purity Nitrogen generation and instrument air for the Nitrogen Generation Skid Package.

01 SIMULATION AND DATA ANALYSIS

Relevant Industrial ran simulations based on real-world data collected from multiple operating sites operating across the globe. While simulations alone couldn't achieve the desired low ppm level modeling, proxies and advanced data analysis were employed to validate the system's capability and provide a virtual secondary assurance which enabled the simulation to go further than it had before.

02 THIRD-PARTY VALIDATION

An independent third party conducted additional tests and simulations to validate the system's performance. By considering specific ambient conditions in Brazil, the team could confirm that the solution would meet the manufacturer's stringent requirements.

03 MASTER SERVICES AGREEMENT

Relevant Industrial and the manufacturer leveraged a master services agreement, ensuring a streamlined and efficient collaboration. The agreement enabled both companies to focus on technical aspects without the need for frequent renegotiations, reducing friction and ensuring smooth transactions.



RESULTS & BENEFITS

1

Validated and Assured Specifications

2

Reliability and Confidence

3

Streamlined Collaboration

Relevant Industrial's collaboration with key partners and its commitment to engineering excellence resulted in a successful outcome for the Nitrogen Generation Skid Project in Brazil. The benefits achieved were:

01 VALIDATED AND ASSURED SPECIFICATIONS

By leveraging advanced simulations, real-world data, and third-party validation, Relevant Industrial could provide the manufacturer with the necessary certainty to move forward with the high purity Nitrogen generation and instrument air.

02 RELIABILITY AND CONFIDENCE

The comprehensive approach to data analysis and validation instilled confidence in the manufacturer, ensuring that the proposed solution could reliably meet their critical process requirements. This reliability reduced the risk of production shutdowns and associated costs.

03 STREAMLINED COLLABORATION

Relevant Industrial leveraged its unique ability to bring best-in-class engineered product companies to the table and facilitated a smooth collaboration. This collaboration resulted in a multi-faceted breakthrough at both a technical and commercial level.



FUTURE COLLABORATION

With the success of the Nitrogen Generation Skid project in Brazil, the manufacturer expressed interest in replicating the solution for a similar project, Phase 2, also in Brazil, in addition to multiple other projects around the world, including one north of the Arctic Circle. Relevant Industrial looks forward to continuing this partnership, as well as those with key partners and strategic suppliers to deliver reliable and efficient solutions for future activities.

Relevant Industrial is committed to providing tailored engineering solutions, collaborating with trusted partners, and leveraging advanced simulations and data analysis to meet the evolving needs of industrial customers worldwide.



relevantsolutions.com

For more information or to speak to our team about our
engineered solutions, please contact:

es@relevantsolutions.com

relevantsolutions.com/casestudies | 1.888.605.1458



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