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CASE STUDY

SAFETY, EFFICIENCY, AND INNOVATION

The Hallmarks of Metso's Vacuum System Upgrade with Nash

Metso

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Metso, **an established leader in the process industry**, specializes in high-performance **filtration and vacuum systems**, particularly for the Industrial sector. With a strong focus on performance, safety and environmental standards, Metso's reputation is built on delivering reliable and compliant industrial solutions. For this project, Metso designed and delivered an **ATEX-certified** fully enclosed **Larox® RT-GT belt filter** that plays a central role in achieving stringent safety and operational requirements.

Nash, **a division of Ingersoll Rand**, has established itself as a reliable provider of vacuum pump technology with a history spanning over a century. They are especially known for their ability to engineer tailored solutions that address complex industrial challenges. The company's portfolio includes a range of vacuum systems that deliver both advanced designs and operational efficiency, additionally backed by a strong support network.

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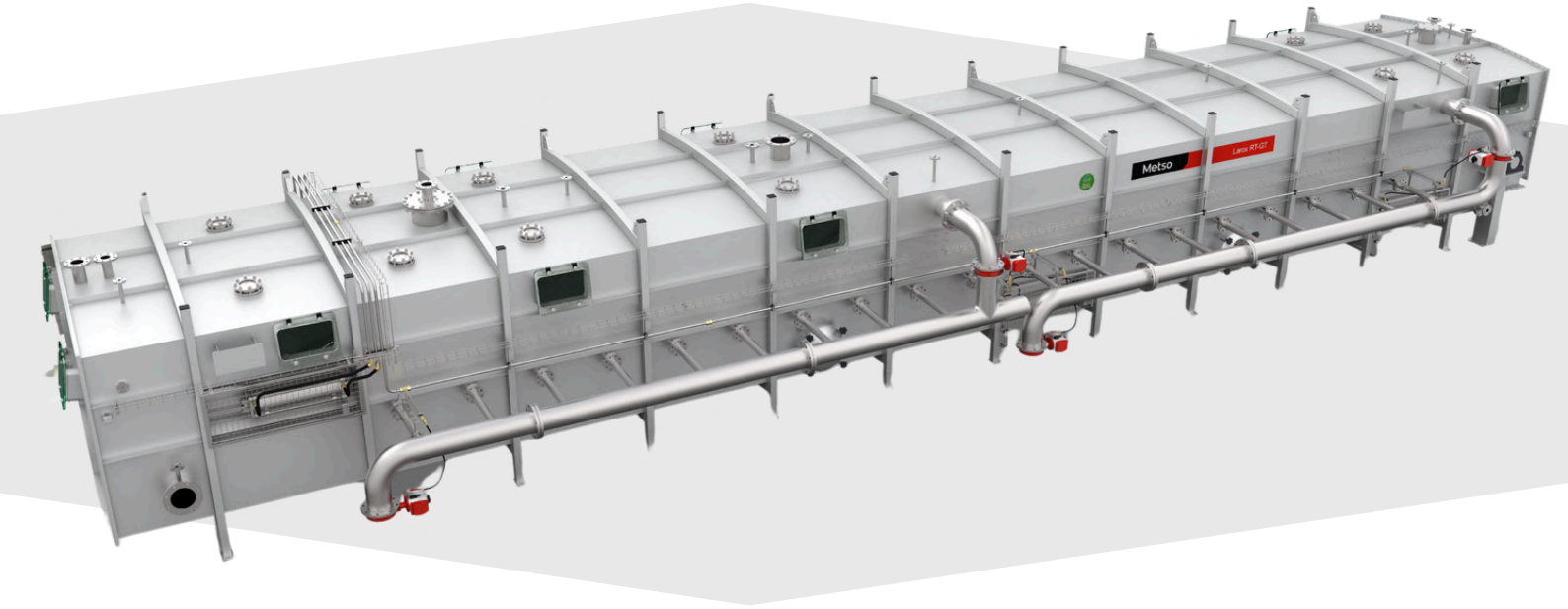
The Challenge and Selection Process

Metso's challenge came from the need for a dependable vacuum solution for their ATEX-certified belt filter application. The system had to comply with **ATEX safety standards**, manage saturated acidic gases, and operate energy efficiently. Additionally, the solution needed to operate seamlessly with **Metso's enclosed Larox® RT-GT belt filter**, ensuring a controlled loop for acidic gases. With these stringent requirements, Metso sought a vacuum system that could handle these demands reliably and safely.

Larox® RT-GT - © 2025 Metso



The decision to partner with Nash was based on the latter's extensive experience with **ATEX-certified** environments and their reputation for delivering high-performance vacuum solutions.

Metso valued their proven track record and the comprehensive support they provided, making Nash the ideal choice for developing a customized solution. The collaboration between **Metso** and **Nash** underscored the complementary expertise of both companies in addressing the project's unique demands.

Product Supply and Technical Application

The tailored solution for Metso comprised two Vectra XL-series liquid ring vacuum systems, engineered to meet the specific demands of the Larox® RT-GT belt filter. Key technical details of the supplied solution included:

- Pumps constructed with **stainless steel** to ensure durability and resistance to corrosive gases.
- **ATEX-certified** instruments and components, guaranteeing compliance with safety regulations.
- Double mechanical seals with API Plan 53A flushing systems to maintain seal integrity and prevent leaks.
- The scope capacity was for 800 m^3/hr and 1,500 m^3/hr at a vacuum of 500 mbarA.
- Designed to handle a wide range of capacities, from 200 to 9,000 m^3/h, achieving vacuum levels up to 33 mbarA and pressures up to 2 barG.

Metso's fully enclosed **Larox® RT-GT belt filter** operates seamlessly with the **NASH vacuum system**, creating a holistic solution tailored to industrial demands. The filter's design ensures stable operations under demanding conditions, allowing for continuous solid-liquid separation with a closed-loop gas circulation while minimizing downtime and operational disruptions.

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Metso's Leadership in Filtration Technology

Metso's role in this project extended beyond supplying the Larox® RT-GT belt filter. They ensured compliance with ATEX guidelines through advanced safeguarding instrumentation and meticulous design of the whole filtration plant.

Known for their expertise in the Industrial segment, Metso brought decades of engineering experience to the table, ensuring that every component met the highest standards for safety and performance.

The **ATEX-certified Larox® RT-GT filter** exemplifies Metso's dedication to innovation, enabling a closed-loop operation that minimizes environmental impact and enhances operational efficiency.

By integrating their filtration system with Nash's vacuum pumps, Metso delivered a solution that exceeds industry benchmarks.

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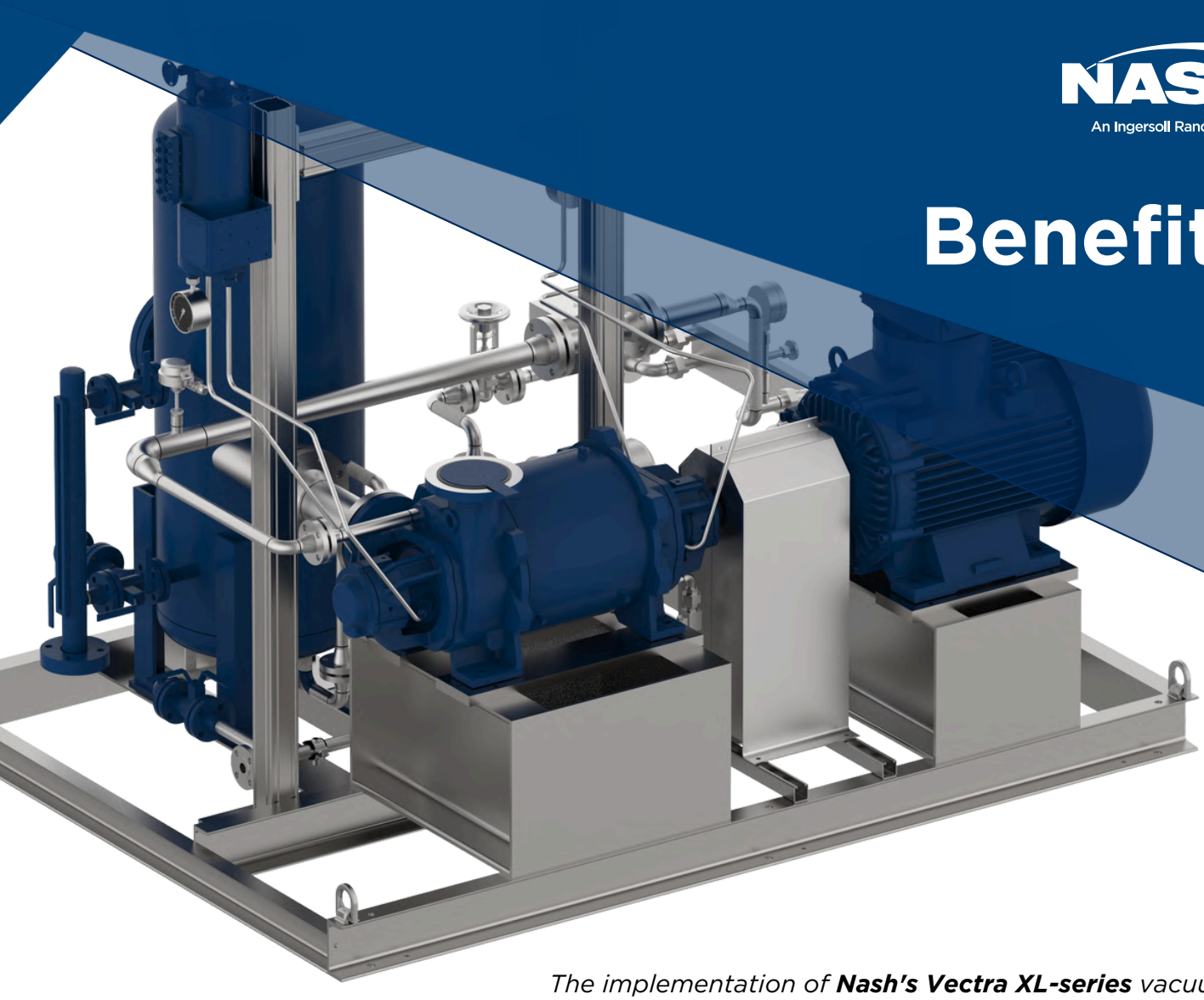
Benefits



*The implementation of **Nash's Vectra XL-series** vacuum systems delivered several key benefits to **Metso**, such as:*

Consistent compliance with ATEX safety standards.

Reliable performance with reduced downtime.

Efficient processing and recycling of acidic gases.

Lower energy consumption and operational costs.

This partnership highlights the strengths of both companies in delivering a comprehensive, engineered-to-order solution. **Metso and Nash** demonstrated how close collaboration and technical expertise can address complex industrial challenges while ensuring safety, performance, and sustainability.

In conclusion, this engineered solution is a testament to Metso's leadership in filtration systems and Nash's unparalleled vacuum technology. Together, they delivered a high-performance system that meets the unique demands of **ATEX-certified applications,** setting a new benchmark for safety, efficiency, and innovation.

CHALLENGE

Objective: Ensure reliable and safe vacuum performance for an ATEX-certified belt filter application.

Target: Manage saturated acidic gases while maintaining high energy efficiency and compliance with ATEX safety standards.

Context: Metso required a robust, customized solution to meet demanding operational and safety requirements in the chemical and petrochemical sectors.

SOLUTION

Technology: Two Vectra XL-series liquid ring vacuum systems featuring stainless steel construction and ATEX-certified components.

Mechanism: Equipped with double mechanical seals and API Plan 53A flushing systems to prevent leaks and ensure seal integrity.

Advantages: Enhanced durability, reliable performance under corrosive conditions, reduced downtime, and energy-efficient operation.

NUMBERS

Capacity: Systems designed to handle 800 m^3/h and 1,500 m^3/h, operating at a vacuum of 500 mbara.

Operational Range: Flexible design supports capacities from 200 to 9,000 m^3/h, vacuum levels up to 33 mbarA, and pressures up to 2 barG.

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