M+T GROUP NEWSWIRE

Burckhardt Compression

Data-driven maintenance doubles compressor uptime in critical hydrogen application

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In a hydrogen production environment, compressor reliability is a crucial element of operational efficiency. When hydrogen is supplied to a refinery hydrocracker, any unplanned interruption can have significant consequences, making the ability to identify developing problems before they become failures particularly valuable.

This was the challenge facing an industrial gas facility where a critical dry-running compressor was experiencing repeated failures across key components. With mean time between failures (MTBF) consistently below 8’000 hours and no clear root cause, the operator needed greater visibility into the machine’s condition and the factors affecting its performance.

Root cause identification

Under an existing service agreement, Burckhardt Compression temporarily deployed its PROGNOST®-NT 360° digital condition monitoring system. Providing real-time data to OEM experts and machine diagnostic specialists, the system made it possible to detect developing issues at an early stage, investigate abnormal behavior and identify the underlying causes of failures.

The monitoring data also provided a means of verifying the correct functionality of the compressor’s stepless flow control system. Combined with remote access to specialist expertise, this enabled potential problems to be diagnosed quickly,

including outside normal operating hours, helping to reduce the risk of unexpected shutdowns.

The approach extended beyond monitoring alone. Following the analysis, sealing elements were upgraded using the latest Redura® designs and proprietary Persisto® 850 material, addressing known failure points and improving the compressor's overall reliability.

Boosting productivity

The results demonstrated the value of combining condition data with detailed knowledge of the equipment. MTBF doubled, rising from less than 8'000 hours to more than 16'000 hours, while compressor availability increased and operating costs were reduced. Maintenance could also be planned around the machine's actual condition, rather than relying solely on fixed schedules.

The success of the project has led the operator to take the approach further. A permanent PROGNOST-NT system will be installed at a sister hydrogen plant, where it will monitor a similar 40-year-old compressor.

The new system will provide continuous visibility of compressor health and includes a SIL3 emergency shutdown function to support personnel safety and asset protection. Regular data assessments by Burckhardt Compression experts will further support a long-term predictive maintenance strategy.

For operators of critical compression equipment, the project demonstrates how condition monitoring can become more than an early-warning system. When combined with OEM expertise and targeted engineering improvements, machine data can provide the foundation for more predictable maintenance, fewer failures and substantially improved reliability.

Image captions:



Image 1: Digital condition monitoring provides real-time data to detect developing issues at an early stage and identify the underlying causes of failures



Image 2: Sealing elements were upgraded using the latest Redura designs, improving the compressor's reliability.

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About Burckhardt Compression

Burckhardt Compression delivers leading compression solutions that enable a sustainable energy future and support the long-term success of its customers. The Group's business is driven by three global megatrends: a growing global population, increasing demand for energy security, and the ongoing energy transition. With its highly engineered reciprocating compressor systems and services, Burckhardt Compression plays a vital role across applications such as hydrogen, gas infrastructure, chemical processing, and industrial gases.

Through its brands Burckhardt Compression, PROGNOST, SAMR Métal Rouge, Shenyang Yuanda Compressor, and Fornovo Gas, the Group offers a comprehensive portfolio of reciprocating compressor technologies, digital monitoring solutions, and lifecycle services.

Founded in 1844, Burckhardt Compression has continuously evolved alongside its markets, from early engineering innovations to today's advanced compressor solutions. Headquartered in Winterthur, Switzerland, the company operates globally with 35 subsidiaries, as well as three manufacturing and five assembly sites.

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