

Burckhardt Compression reverse engineers third-party hyper compressor to extend lifetime

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Burckhardt Compression, a market leader in compression solutions, has helped a major European energy company extend the lifetime of an aging hyper compressor used in a low density polyethylene (LDPE) production line in France. The Burckhardt Compression team successfully reverse engineered the compressor's first-stage cylinder, designed a replacement, and developed compatible spare parts that will ensure the system can continue to operate for years to come.

Burckhardt Compression had already carried out several repairs and overhauls of the 3.4 MW (4'083 hp) hyper compressor, even though it was designed by a third party, including supplying three complete second-stage cylinders. While these were able to keep the equipment, and the LDPE lines it supported, operational, the company found the maintenance windows were getting too long to be manageable.

Maintenance challenges

There were several reasons why timely maintenance was proving so difficult. The hyper compressor was originally manufactured in 1966, which meant that not only were the components worn so badly that the installed first-stage cylinder was beyond repair, but it was also impossible to find full documentation. Beyond this, the original equipment manufacturer (OEM) could not meet commercial expectations and the customer had a shortage of spare parts.

The Burckhardt Compression team was asked to tackle these challenges, and soon decided that they could solve the issue of missing documentation and OEM support by reverse engineering the cylinder. They used a five-axis automated coordinate-measuring machine (CMM) to make highly accurate measurements, and then used these to create new 3D and 2D manufacturing drawings.

This information, and the Burckhardt Compression's engineers' expertise, allowed them to create a new first-stage cylinder, including head, body, expansion stud, as well as the nuts and bolts. The cylinder was replaced during a scheduled maintenance window, allowing the site to operate with minimal disruption.

The drawings also allowed the Burckhardt Compression team to design and fabricate spare parts that will help service the hyper compressor in the future.

A dramatically extended lifetime

With a fully refurbished cylinder and a range of new parts available at short notice, the compressor's lifetime has been dramatically extended. This hasn't just saved the customer money and reduced site shutdowns; it has also allowed them to improve their sustainability record.

Burckhardt Compression's complete in-house production and supply chain allowed for effective control and monitoring of the execution phase, while the single point of contact and one dedicated project manager, ensured the process ran smoothly from beginning to end.

A spokesperson for the energy company acknowledged the reinforced partnership, saying: "With this project, our companies have again strengthened this long-lasting

partnership. This solution has proven that Burckhardt Compression understands our business and can provide service solutions that help us save money and time, now and in the future.

“Although they are not the OEM of this particular hyper compressor, their compressor technology know-how is second to none. Achieving this lifetime extension also supports our company’s sustainability goals.”

Image captions:



Image 1: The new cylinder after installation.

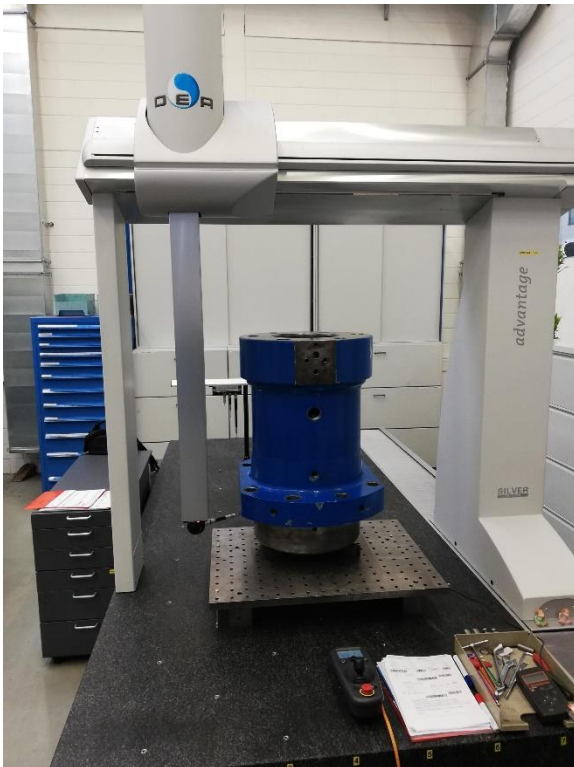


Image 2: The old cylinder being measured on a five-axis CMM.

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About Burckhardt Compression

Burckhardt Compression is the worldwide market leader for reciprocating compressor systems and the only manufacturer and service provider that covers a full range of reciprocating compressor technologies and services. Its customized compressor systems are used in the gas gathering and processing, gas transport and storage, refinery, chemical, petrochemical as well as in the industrial gas and hydrogen mobility and energy sectors. Burckhardt Compression's leading technology, broad portfolio of compressor components and the full range of services help customers around the world to find the optimized solution for their reciprocating compressor systems. Since 1844, its highly skilled workforce has crafted superior solutions and set the benchmark in the gas compression industry.

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