

Achieving a 40% Capacity Increase via Upgrade of Existing Thomassen Compressors



The Challenge

This lube base oils company, established in 2012, produces state-of-the-art lubricant base stocks at its facility in Southern Europe. These base stocks are used to manufacture oils for a range of applications, primarily automotive lubricants.

The customer approached Howden, a Chart Industries Company, to assess whether the capacity of their two Thomassen C-25.4 compressors could be increased by 40%, or whether a third compressor would be required to support a new oil production line. Initially, the client expected that installing a third compressor alongside the existing units would be necessary. However, following a detailed engineering study, Howden Thomassen Compression Systems demonstrated that the required capacity increase could be achieved by upgrading the existing compressors.

In response, the Howden team completed a compressor performance analysis and presented three alternatives:

- **Option 1:** Operate both compressors in parallel, with no spare unit.
- **Option 2:** Upgrade both compressors and operate with one running and one on standby (as per the original design philosophy).
- **Option 3:** Install a third compressor to operate alongside the two existing units.

The Solution

Following the client's decision to proceed with Option 2, Howden delivered the required capacity increase by upgrading the existing compressor units—avoiding the need for a third machine and preserving the original operating philosophy of one compressor in operation and one on standby.

To achieve the new capacity target, Howden implemented a combination of targeted equipment upgrades and system-level optimisation, including:

- **Main motor upgrade:** Replacing the existing main motors with higher-speed motors to increase available compressor throughput while maintaining reliable operation within allowable mechanical and process limits.
- **Train and process optimisation:** Optimising the compressor train and overall process layout to improve efficiency, reduce bottlenecks, and ensure stable performance across the required operating range.
- **Site execution:** Managing the full scope of installation and commissioning on site, including integration with existing systems, functional checks, performance verification, and handover to operations.

This approach enabled the client to meet the expanded production requirement using the current compressor footprint, while maintaining operational resilience through a dedicated standby unit and minimising disruption compared with installing an additional compressor.

