

CASE STUDY CONSTRUCTION

Quantima compressor technology gives Ahlstrom the cutting edge

To retain its position as a global leader in the manufacture of fibre-based materials, Ahlstrom invests extensively in new process technologies. So, when engineers at its Karhula glass fibre production facility in Finland heard about the new Quantima air compressor, with its claims of high environmental performance and reliability, they were keen to commission a trial unit.

In July 2007, CompAir engineers installed a Quantima, oil-free compressor to provide the compressed air required during raw material delivery to the factory and for the combustion processes. The unit has now been operating for over twelve months and has enabled Ahlstrom to meet its full air capacity requirements and also halve the number of compressors needed by the plant, helping to reduce maintenance and running costs.

Leading-edge Technology

At the heart of the new Quantima compressor is its Q-drive, centrifugal compression assembly. This high-speed motor incorporating direct-driven compression impellers operates with the rotor levitated by active electromagnetic bearings and spinning at up to 60,000 revolutions per minute.

For Pasi Mantila, Karhula's plant service manager, the benefits were compelling. Explains Mr. Mantila, "Finnish industry is

often considered an early adopter of new technologies and when we learnt about the innovative Quantima design, we were keen to find out if it could improve our process efficiencies. Unlike other conventional compressors that we have considered, Quantima's Q-drive assembly has only one moving part, the rotor shaft, which has no contact and no wear – helping us to lower our operating costs and reduce our environmental footprint."

Overview

▶ Client

Ahlstrom Glassfibre Oy

▶ Location

Karhula Plant, Kotka, Finland

▶ Application

Glass fibre production

Products

Quantima compressor and Q-Life predictive maintenance package

▶ Customer Benefit

50% reduction in compressor plant/air purity guaranteed

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Benefits at a glance

- ▶ **Reduced maintenance and operating costs - new installation has halved the number of compressors required**
- ▶ **Completely oil-less operation - with no expensive oil or lubricants to dispose of**
- ▶ **Air quality guaranteed - to ensure production integrity**
- ▶ **Q-Life predictive maintenance - allows Ahlstrom to avoid unplanned service expense**
- ▶ **Variable speed drive - to optimise energy consumption for better environmental performance**

PureAir Guaranteed

Ahlstrom has to ensure that the compressed air used in the production process is clean and oil-free to avoid contamination and the risk of product spoilage. The company had previously experienced problems with oil leaking into the network from its lubricated screw compressors and installed filtration systems that required regular routine replacement.

Quantima's motor design and high frequency inverter mean that no gearbox is required and that the compressor can operate without a single drop of oil, removing the burden and expense of maintaining and disposing of lubricants and oil-laden parts completely.

Best Environmental Practice

The reduction of greenhouse gas emissions remains a key focus for Ahlstrom and the company has set targets to improve energy efficiency at all of its facilities, worldwide. In 2007, the company achieved an 8% improvement over the previous year for the CO₂ per ton of product produced and a 2% increase in energy efficiency. In addition, rising energy prices in Finland has led the Karhula site to consider carefully the power consumption of any new equipment purchased and the Quantima unit has proved that it can consume less energy than conventional compressors on the market.

When compared to standard compressor technologies with wearing parts, Quantima has no degradation in performance

over the life of the compressor. In addition, all Quantima units have a variable-speed drive as standard that matches compressor flow to plant demand with great efficiency and means that Ahlstrom can use precisely the energy required by the process at any given time, helping to reduce electricity consumption further.

Reliability Guaranteed

Unlike conventional compressors with preventative maintenance schedules, Quantima incorporates a predictive maintenance system called Q-life. Operating parameters from the Karhula site are fed back to CompAir's remote monitoring station, alerting the engineer to a potential failure and helping to predict when parts or components will need replacing.

Q-life is a completely inclusive service package, providing Ahlstrom full maintenance and repair services for an annual fixed cost, helping the Karhula site to avoid unplanned service expenses completely. The plant managers can also receive quarterly reports of the compressor's overall system performance, helping to improve plant efficiencies further.



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