CompAir
by Gardner Denver

CASE STUDY
Beverage Industry



Image credit: Copyright CompAir; Hochwald Sprudel Schupp GmbH

Ultima compressor at Hochwald Sprudel

Plant efficiency levels increased with the installation of oil free compressors

Successful installation of Ultima compressor technology has maximized energy efficiency, lowered noise emissions and requires 37% less space. Producing 100% oil- and silicone-free compressed air. Hochwald mineral well in Hunsrück, Western Germany, is benefiting from this unique technology using innovative drive and control.

Project overview

User
Hochwald Sprudel Schupp GmbH, Werk 4, 54424 Thalfang, Germany

Application
Oil-free compressed air for the bottling of mineral water

Products used
A speed-controlled, oil-free Ultima compressor replaces 2 oil-free screw compressors

Customer benefits
- **100% oil** and **silicone free**
- **Low** running costs
- **37 % less** floor space required
- Airends **individually driven**
- Very **efficient heat recovery**
- **No ducting** required
- **On-board** monitoring
- **iConn** remote monitoring

Oil-free compressed air – supplied cost-effectively and reliably: this is one of the requirements of Hochwald Sprudel Schupp GmbH in Thalfang, Germany, enabeling the company to produce premium-quality beverages with a high level of production reliability, increased control on costs and thereby hold its ground in an intensely competitive market.

The Hochwald mineral well company in Hunsrück-Hochwald National Park did its homework here at a very early stage. Bernd Zang, operations manager at the company: "We made some fundamental improvements to optimise the entire compressed air network, switched to oil-free compressed air production and reduced the pressure in 1988. Ever since then, we have been recording compressed air related energy consumption and optimising compressed air costs and quality on a continuous basis." Hochwald runs two ultra modern filling systems at the site. They are the main consumers of the compressed air produced and are used for filling the company's own mineral water at source, as well as for filling fruit drinks from other well-known producers and brands. This is based on a PET filling system which Hochwald used in its work which was pioneering at the time. Bernd Zang: "We fill the beverages here under the protective gas atmosphere and therefore require no preservatives whatsoever."

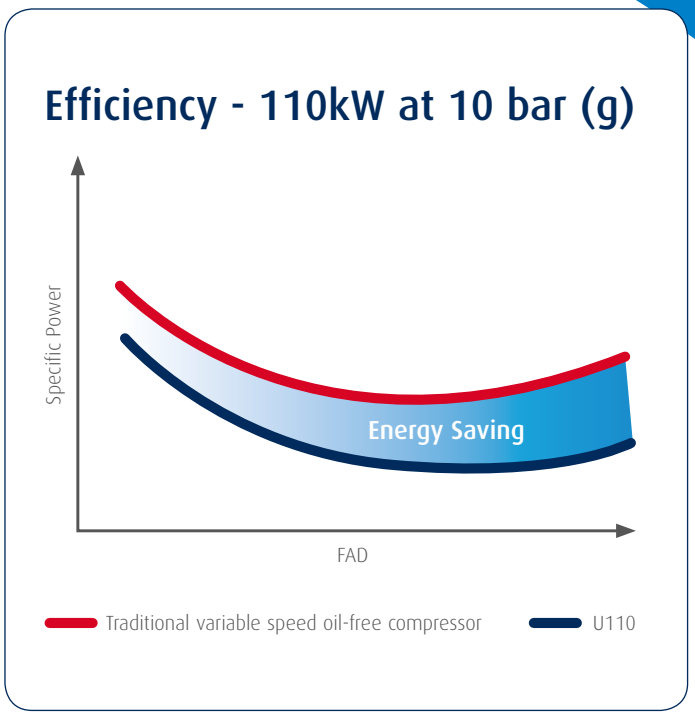
Three oil-free screw compressors with 90 kW of motor power each had been used previously to provide the plant with 7 bar of production air. The 110 kW Ultima compressor is now performing this task.

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Each airend in the speed-controlled Ultima compressors is driven independently, while both airends on the oil-free screw compressors in use previously were driven by a single electric motor which distributed the power to the low and high-pressure sides via a gearbox. An intelligent digital gear-box regulates the speeds on a continuous basis in order to adjust the power rating to the compressed air requirements.

This drive technology with high-efficiency permanent magnet motors – developed at CompAir's Simmern factory – achieves an efficiency range that has never been reached before. The water cooling system also plays a role in this by dissipating the waste heat from the central components of the machine (airend, motors, converter) more effectively than is the case with conventional compressors. This in turn allows greater quantities of heat to be recovered and used. As the energy balance is improved in the package as a whole, including heat recovery, it is not just the compressor itself that operates at high efficiency.



"CompAir managed to convince us directly with their concept. We are always open to innovations that provide technical or financial benefits."

Bernd Zang, Operation Manager

No exhaust ducts are required when using the Ultima compressors since no air needs to be supplied for internal cooling purposes. This makes it easy to install, and the compact dimensions, along with the low noise levels of 69 dB(A), provide flexible deployment options.

Use of the heat energy released from the compressors has also been a fixed part of the compressed air supply concept at Hochwald for decades in the same way as oil-free compressors.

Treatment of the compressed air using drying and filtration in order to produce the specified level of purity is a very cost-effective process, as the air produced by the Ultima compressor is already oil- and silicone-free.

Why is Hochwald deploying this new technology?

Bernd Zang: "With their concept, CompAir managed to convince us straightaway. We are always open to innovations that provide technical or financial benefits. And we are very energy-conscious users of compressed air."

What has been your experience with the Ultima?

"The compressor has been running perfectly since it was installed. We have integrated the machine into our energy management system. The Ultima can generally cover our entire compressed air needs. It is in use 90% of the operating time and perfectly adjusts the quantity supplied to current needs. The first assessments of the amounts of compressed air produced and electrical energy consumed will very soon provide an indication of the energy savings.