

For further information please contact :
JC Lombard - Business Line Manager: Oil Free Air Division
jc.lombard@atlascopco.com
Tel: +27 (0) 11 821 9921

Schwarzwald-Sprudel goes oil-free and saves energy with the ZD High pressure compressor

Schwarzwald-Sprudel in Wildberg, Germany, produces and uses its compressed air in a particularly efficient manner thanks to the compact Atlas Copco oil-free medium pressure compressor and high pressure piston booster combination (ZD high pressure compressor) with energy-saving VSD option. The plant currently employs 60 people on the two bottling lines, who fill approximately 160 million PET bottles each year - with volumes of 0.5, 0.75 and 1.5 litres.

Preforms made of polyethylene terephthalate, better known as PET, are blown into drinks bottles using the stretch blow moulding method, which requires a lot of compressed air at high pressure levels.

The compressed air supply at Schwarzwald-Sprudel in Wildberg is based on three Atlas Copco [ZR screw compressors](#), two of which are equipped with speed regulation ([VSD - Variable Speed Drive](#)), as well as two speed-regulated high-pressure oil-free air [boosters](#). These components supply the two bottling lines with compressed air. The scale of the system is illustrated by the fact that there is almost 1,000 kW of installed power even if the machines never run all at the same time.

The compressed air for the stretch blow moulding process is first compressed to around 8.5 bar by a screw compressor, before being further compressed to 29 bar by one of the boosters.

Oil-free compressed air is guaranteed as all of the components used to produce compressed air operate entirely without oil. For example, the [DN 160 type booster piston compressor](#) and the ZR screw compressors both deliver oil-free air in accordance with [ISO 8573-1, Class 0 \(2010\)](#).

The Atlas Copco compressor and booster combination ensures sustainable energy management with heat recovery. Schwarzwald-Sprudel Plant Manager, Bernhard Griesau, explains: "We set the system in such a way that for six months of the year over winter, it is primarily the new ZR 250 VSD FF with heat recovery that is running; in this way, we are able to reuse as much heat as possible for heating tasks."

An [ES 130 energy-saving system controls](#) the entire compressed air system in such a way that the compressors run as closely as possible to their optimum operating point, in particular the speed-regulated compressors. In addition to the abbreviation VSD for speed regulation, the FF (Full Feature) in the compressor name stands for a range of equipment from the factory that comprises all the key components for compressed air treatment right through to heat recovery, meaning connection could not be simpler.

Atlas Copco Group Center

Atlas Copco AB	Visitors address:	Telephone: +46 8 743 8000	A Public Company (publ)
SE-105 23 Stockholm	Sickla Industriväg 19	Reg. No: 556014-2720	
Sweden	Nacka	Web site www.atlascopcogroup.com	Reg. Office Nacka

Heat recovery forms part of a sustainable energy management strategy. The general idea is that the power absorbed by the compressor during compression is converted into heat. This heat can be almost entirely recovered and used for heating water. "We use this method primarily to support the heating in the halls and, to a lesser degree, to heat process water," concludes Griesau.

When it comes to servicing the compressed air production system, Schwarzwald-Sprudel relies on the [premium maintenance agreement](#). In addition to the necessary inspections and maintenance, this also comprises free repair for any damage that occurs, up to and including a complete general overhaul.

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Issued by: Laverick Media Communications T: +27(0) 79 949 1090 sonia@laverickmedia.co.za / www.laverickmedia.co.za