A future-proof compressed air station with SAM 4.0 at the Popp Group, Forchheim

Award-winning sustainability

By developing and manufacturing stage equipment for film and television, the family-owned Popp Group has repeatedly made statements with extensive media coverage. However, the core business of the Forchheim-based company revolves around products for medical devices, such as side furniture and patient tables for X-ray systems and MRI scanners.

At Popp, numerous production stages are carried out by hand: for example, shaping the plastic parts...

...loading a CNC machine...

...or applying multi-component adhesive.

The CT scanner tubes are coated with a special finish.

Founded in 1905 in Erlangen as a carpentry workshop, the family-owned business Popp can look back on a history spanning some 115 years. Now in the hands of the fourth generation, Popp has moved premises a total of three times, all the while remaining true to its Franconian roots. Not just the devastating flash floods of 2007, but the perpetual lack of space prompted the two managing directors, Frank and Sonja Geppert, to relocate the company in 2012 to the mixed industrial/residential area in Forchheim (Nuremberg-Erlangen Metropolitan Region). Remarkably, the two entrepreneurs prioritised the environmental focus of the entire project from day one. "Ultimately, it is our duty to preserve this planet for future generations", Sonja Geppert explains.

Environmental credentials as a guiding principle

The central ecological theme runs throughout the entire building concept; for example, the photovoltaic system supplies 350,000 kWh of electricity annually, generating a large part of that required by the energy-intensive operations. Two rainwater cisterns are used to water the gardens via a computer-controlled process. Moreover, the solid fuel heating system ties in perfectly with the sustainable concept. It meets all heat requirements by burning the wood and paper waste produced by the plant. Frank and Sonja Geppert refused to compromise on the sustainability of the company building and the company has consequently won several awards in official recognition of this achievement.

Medical products as the main line of business

The family-owned company specialises in the manufacture and development of technical medical products, which account for approximately 80 percent of its turnover. Needless to say, the watchwords here are maximum precision and premium quality. These products include components for MRI and CT scanners, as well as bedside cupboards and tables for technical medical equipment, which are sprayed with a special finish for use in clinical areas. To patients the 'tubes' may seem like metal; however, they are actually made of MDF, plastic or special foam.

In 2013, when the company moved to its new, nearly 6000 m^2 premises in Forchheim Pfaffensee, it took along a large number of premium production facilities from the previous building in Baiersdorf. But since the new hall is almost double the size of the old one, there was finally enough space to add several new, highly sophisticated systems to the existing fleet of machines. Once the state-of-the-art paint robot was installed in 2018, the obsolete compressed air station could no longer keep pace and urgently needed to be replaced with a modern system. As the main energy source at every stage of production, compressed air serves as control air for numerous processing machines. Compressed air is required to handle the panels in the panel storage system, to convey them to the sawing plant for cutting, then to the milling machines for processing; it is needed for the pneumatic control units, for blowing out the workpieces, for the vacuum extraction of the chips and dust, and of course for the new paint robot.

The compressed air wish list

Managing Director Frank Geppert compiled a list of his compressed air requirements; the new system had to be able to deliver compressed air in a range of pressure levels, to accommodate fluctuations in demand, to accomplish a slow start-up

The lacquered housing parts are ready for the next processing stage.

Compressed air is also needed to bore wood parts.

and shutdown and, above all, to do all the above autonomously and on a timer. Moreover, Frank Geppert placed particular emphasis on finding a compressed air partner that, firstly, had the 'Made in Germany' seal of approval and, secondly, was based close to his company. This proximity makes support, service and maintenance significantly easier.

The decision was taken to install a compressed air system from KAESER KOMPRESSOREN. As of the end of last year, a variable-speed ASK 34 SFC rotary screw compressor now handles the base load, while two fluid-cooled SK 22 rotary screw compressors each cover consumption peaks in turn, reliably delivering the compressed air for the entire operation in compliance with guidelines. Two SECOTEC TC 44 refrigeration dryers, various filters and an Aquamat oil/water separator ensure the compressed air quality, which has a purity class of 1:4.1. as per DIN ISO 8573:2010. To maintain this purity class at all times, different sensors transmit their quality parameters to the master controller on a continuous basis, which then autonomously takes appropriate measures to respond to any deviations. If necessary, it would even completely shut down the system.

Given the customer's specifications regarding the option of online monitoring and the automatic response of the compressed air system, it was clear from the outset that a SIGMA AIR MANAGER 4.0 compressed air management system would be the perfect solution. Now, thanks to secure network technology, Frank Geppert can obtain a complete overview of his entire system from any PC, around the clock, in just a few simple steps. Furthermore, the SIGMA AIR MANAGER 4.0 is designed to accommodate potential future upgrades of the compressed air system. A straightforward software upgrade allows for expansion of the master controller without the need for additional investment in new hardware.

The SIGMA AIR MANAGER 4.0 continually displays all operating parameters at a glance.

To maintain the required purity class at all times, different sensors transmit their quality parameters to the SIGMA AIR MANAGER 4.0 on a continuous basis.