

Expert Energy Management at Vorwerk

Kaeser and the “Kobold”

Situated in the narrow Wupper valley of north western Germany, the Vorwerk plant is home to production of the renowned “Kobold” vacuum cleaner range, which is manufactured to the very highest quality standards. As you might expect, compressed air plays an integral role in this process and Kaeser provided the necessary expertise to ensure that the plant operates as efficiently as possible.

Vorwerk Elektrowerke GmbH & Co. KG is part of the Vorwerk group, which has its origins with Carl and Adolf Vorwerk who founded “Barmer Teppichfabrik Vorwerk & Co”, a quality carpet manufacturing company, in 1883 (For more details, see box entitled “Vorwerk”). Today, Vorwerk Elektrowerke’s products include the “Kobold” vacuum cleaner range, the “Thermomix” food processor and the “Feelina” ironing system. As with nearly all services from the Vorwerk group, these products reach the customer through direct marketing. Vorwerk Elektrowerke’s headquarters have been based in Wuppertal-Laaken since 1963. Motors, electric carpet brushes and vacuum cleaners – amongst other products – are manufactured and assembled at the plant, which has been continuously upgraded over the years in order to keep up with technological advances and to meet growing demand. The Laaken facility also includes the administration, purchasing and shipping departments.

Energy Advisor

As Vorwerk’s Operations and Building Manager, Werner Kämper, explained



Vorwerk is synonymous with the “Kobold” vacuum cleaner

Photo: Vorwerk

“Compressed air plays a critical role in production at our plant and when you consider that energy costs for its generation and treatment account for the lion’s share of total operating costs, we decided that we’d do the job properly when it came to modernising the air system. As with all serious energy savings measures, the first step was to take a look at the figures and analyse the facility’s energy consumption”. Werner Kämper is also the company’s environmental awareness representative and is particularly experienced in this field. After all, it was he who not only introduced, but also established Vorwerk’s comprehensive energy management program. According to his credo “Every company needs an informed and knowledgeable energy advisor – someone who knows their stuff and who can get things done when it

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comes to tapping into one of the key sources of energy in today’s businesses: The energy that is going to waste. This can be achieved by minimising energy consumption in all areas and through prevention of inefficiencies and wastefulness”. Traditionally, the three separate compressor systems were maintained departmentally by self-taught individuals and delivered their air to distribution networks whose leakage rates were a mystery, as no one was quite sure how to accurately determine their performance.

The road to Vorwerk’s energy savings therefore began by asking the following questions: What is the actual com-



This compressed air system also...

pressed air demand? How much air is being lost through leakages? How much energy and money could be saved with what system? These questions, in Werner Kämper's words, could only be answered "through close co-operation between compressed air system provider and customer". The importance management places on energy and environmental matters also plays an essential part in achieving true energy savings. Management at Vorwerk Elektrowerke, and the Vorwerk group as a whole, have been setting a leading example in these areas for decades. To quote from the 2005

environmental report "Environmental protection is an independent and parallel company objective, which serves our overall aims and is ensured through our business policies".

Tailored Solution

There is no such thing as an off-the-shelf compressed air solution for industrial applications, and the Vorwerk system is a case in point: For many good reasons, Kaeser's experts generally favour centralised compressed air supply systems. However, after just one look at the layout of the Wuppertal-Laaken plant it was clear that Vorwerk's system would be an exception to the rule. The factory facility dates from the end of the 19th century and is located in a narrow valley lined with long roads. Despite undergoing continuous modernisation and adaptation to suit increased demand since 1963 (the year Vorwerk moved vacuum cleaner production to the site), the plant still retained its original basic structure. This remains the case today even after complete renewal of the compressed air supply system with three new compressor installations. Each comprises Kaeser rotary screw compressors and air treatment systems and is centrally controlled via a Sigma Air Manager, which Werner Kämper uses to full potential. The control functions of this advanced com-



...supplies the motor production plant

pressed air management system are completely integrated into the Laaken plant's control technology systems via standard connection interfaces and can be called up on any computer within the company's network.

In addition, Werner Kämper was more than satisfied with the close co-operation of experienced compressed air systems provider Kaeser Kompressoren. A combination of unrivalled expertise and customer focus are essential to ensure long-term success when implementing such projects and the benefits for Vorwerk quickly became apparent.

Vorwerk

Carl and Adolf Vorwerk founded "Barmer Teppichfabrik Vorwerk & Co" in 1883. However, the two brothers parted company that same year and Carl (1847-1907) managed the new company until 1907 when his son-in-law, August Mittelsten Scheid, became the sole managing partner. After many years of successful management, August transferred control of the company to his sons Werner and Erich in 1943.

Dr. Jörg Mittelsten Scheid, son of Werner, started work for the company in 1966 and was the managing director until the end of 2005. He is now chairman of the Advisory Board. A new era for the company began in 1929 when chief engineer Engelbert Gorissen successfully produced a small but powerful vacuum cleaner, which he developed using a gramophone motor. Vorwerk distributed the "Kobold" to its customers through direct sales virtually from the outset and has remained true to this strategy ever since. The company's other products, namely the "Feelina" ironing system, the multifunctional "Thermomix" kitchen appliance and high quality cosmetics from US direct marketing company "Jafra Cosmetics", which was taken over by Vorwerk in 2004, are also distributed in the same way. Today, the Vorwerk group is represented throughout the world by more than 487,000 employees and partners in over 60 countries and generates upwards of 2.1 billion Euros in sales per year.



The plant is located on the banks of the Wupper river Photo: Vorwerk



“Energy Advisor” Werner Kämper with his sidekick, the SAM

Minimal Amortisation Period

The first stage of compressed air system modernisation alone – which involved investment in two new Kaeser rotary screw compressors and a refrig-

eration dryer – led to an energy saving of approximately 18 percent, or, to put it in financial terms, €15,000 per year. Additional savings were also made possible through reduced maintenance requirement and optimised system operation via the Sigma Air Manager, resulting in an amortisation period

of only ~5 years. Werner Kämper has confirmed many similar stories with colleagues from other companies who have also “made the change”. Systematic planning and expert advice

ensure that the numerous compressed air applications operate reliably and are supplied with an efficient source of dependable energy. Amongst other applications, the compressed air powers: production machinery in the state-of-the-art injection moulding facility, assembly lines, film-printing equipment and production lines in the advanced electric motor manufacturing plant. Before leaving the factory, each “Kobold” passes through numerous production stages and undergoes rigorous inspection to guarantee the very best in product quality – and that is something that Kaeser knows a lot about.

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