Photo: Kostal

The finest compressed air at a global player from Lüdenscheid

The good connection

KOSTAL Kontakt Systeme GmbH is an independent company within the KOSTAL Group, which serves the world's leading automotive companies as an international, family-owned business. The core business of KOSTAL Kontakt Systeme is the development, production and distribution of connector systems and electromechanical components. KOSTAL Kontakt Systeme has a global presence, with nine sites and 1,400 employees in eight countries across three continents.

The history of the KOSTAL Group, the corporate family to which the independent company KOSTAL Kontakt Systeme GmbH belongs, began in 1912 when Leopold Kostal founded a company of the same name in Lüdenscheid. Its initial focus was on manufacturing installation materials for industrial and domestic applications. However, in 1927, the company branched out into automotive electronics, which was still in its infancy in Germany at the time. The vehicle direction indicator developed by KOSTAL that same year is one of the first of the company's countless patented innovations, which can still be found today in vehicles from virtually all of the world's leading car manufacturers. Other automotive milestones such as the headlamp flasher, the rain sensor, the door control unit with pinch protection and many more were designed in the development laboratories at KOSTAL. Now in the hands of the fourth generation, the family-owned company is a true global player, having established its reputation for the development and production of operating

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Top left: The raw material for the plugs comes in strips and is die cut in the machine.
Bottom left: KOSTAL's product portfolio also includes the plastic casing.
Right: The air centre has been upgraded and extended on an ongoing basis.

elements, sensors and control units among the world market leaders in the industry.

The market leader for plug connection systems

Founded in 1993, the KOSTAL Kontakt Systeme division develops and produces plug connection systems. KOSTAL has focused on the development of these systems since 1938, when everything began with circular contacts. Today, the product range includes a wide variety of application-specific plug-in contacts, including their casings.
With this business segment, KOSTAL is an important partner of the automotive industry; after all, today's automotive electrical systems simply cannot function without plug connections. Having realised this at an early stage, the family business thereby laid the foundations for its current success. KOSTAL Kontakt Systeme is now the world market leader in the field of connectors in automatic transmissions. Every year, billions of contacts are manufactured at the Lüdenscheid plant, achieving zero defect quality. A particular source of pride, this is the result of efficient, process-controlled production methods and optimally coordinated workflows. The traceability of the products is a central manufacturing element. Given the typically high volumes onsite, this quality can only be maintained by continuously logging all key process data for the components. To this end, KOSTAL engineers have developed a laser identification label for the contacts, an alphanumeric code that contains the lifecycle of the contact system.

New site

KOSTAL Kontakt Systeme GmbH was based in Hagen from 2005 to 2012. The Timberg plant in Lüdenscheid was purchased in 2010. Production started in mid-2012, once the high rack warehouse was completed. Once acquired from the previous owner, the building was continuously expanded and extra space added. Following the last extension in 2017, the available production area had tripled in size. Production is currently in full flow, with three shifts, seven days a week. In other words, KOSTAL's manufacturing processes constantly depend on a reliable supply of quality compressed air. Compressed air is required at every stage, from the control technology with valve terminals to the handling system, the injection moulding and thermoplastic machines, through to the gripper systems.

In 2016, it was time for the next step and a third energy-saving SECOTEC TF 340 refrigeration dryer was added to the line-up. When the production area was extended once again in 2017, the air centre had to be upgraded to cope with demand. As a result, one of the four original BSD 62 units was replaced with a modern, even more efficient BSD 83 rotary screw compressor, with a flow rate of 8.16 m³/min. In late 2017/early 2018, the ongoing efforts for further improvements and energy savings culminated in the purchase of a new SIGMA AIR MANAGER 4.0-8, which prepared the compressed air system for potential future expansion and paved the way for even greater cost efficiencies. Since the master controller constantly calculates the best combination of machines to cover actual compressed air demand, KOSTAL currently boasts an idling time of just 2 percent thanks to the SIGMA AIR MANAGER 4.0-8. "To all intents and purposes, as the optimal machine mix is a factor in cutting energy costs, this purchase has already paid for itself", Hans Kmoschka, workshop manager in plant maintenance, is delighted to report. As if that were not enough, all compressors are fitted with heat exchangers that recycle a substantial portion of the compressor exhaust heat by feeding it into the heating circuit and the hot water supply. This set the stage for even greater savings than the power costs alone.

The SIGMA AIR MANAGER 4.0 transformed the existing and the new compressors into one complete, energy-saving system.

"Any problems with the compressed air supply would mean that a large number of employees would unexpectedly get time off", says Johannes Hundhausen, head of plant maintenance at KOSTAL, with a twinkle in his eye. In reality though, a failure in the compressed air supply would lead to production downtime. No company can afford that, but especially not automotive suppliers.

Extending the air centre

When the building was purchased, an excellent basic configuration was already in place, with four energy-efficient, fluid-injected KAESER BSD 62 rotary screw compressors and two TF 201 refrigeration dryers, which were included in the package from the previous owner. Although, in the early days, the dimensions of the centre were insufficient to meet the new requirements of the production area, whose surface area had tripled, the first-generation SIGMA AIR MANAGER master controller was already in situ, making the forthcoming expansion of the air centre a breeze. In 2012, as the first step in the expansion process, two DSD 142 rotary screw compressors were installed, both with a flow rate of 13.32 m³/min, whereby one was designed as a redundancy unit to ensure that production was not interrupted at any time, even in the event of maintenance or inspections: a key criterion for the automotive supplier.

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