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Atlas Copco presents new screw compressors at Achema

Oil-free compressed air with 35% lower energy input

The new variable-speed-drive compressors of series ZR 90-160 VSD⁺ produce oil-free compressed air up to 35% more efficiently than fixed-speed compressors. They are suitable for the food and beverage, electronics, automotive, textile and pharmaceutical industries and are on show for the first time at Achema.

Essen, May 2018. At Achema, which is being held in Frankfurt from 11 to 15 June, Atlas Copco is showing a world innovation, its ZR 90-160 VSD⁺ compressor series to the public for the first time (Hall 9.0, Stand B33). “These oil-free, variable-speed-drive compressors allow energy savings of up to 35 percent compared with fixed-speed compressors,” said Michael Gaar, Communications Manager of Atlas Copco Kompressoren und Drucklufttechnik GmbH in Essen. The water-cooled ZR compressors in the new “Plus” series are ideal for applications in the food, beverage, electronics, automotive, textile and pharmaceutical industries. They are equipped with highly advanced compressor elements, a new cooler design and improved controllers. All components are installed in a compact, acoustically insulated housing, which means that the compressor only needs to be connected to the power supply and to compressed air and cooling water lines.

The ZR 90-160 VSD⁺ compressors are powered by two high-performance permanent motors with Neos VSD⁺ speed control systems, used for the first time on the series:

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the configuration with two motors and an intelligent control algorithm means that the two compressor elements can be operated at different speeds, further improving efficiency. “By adapting performance to actual demand, the ZR 90-160 VSD⁺ significantly reduces energy consumption, cost and environmental impact,” says Gaar. “The water-cooled IP 66 permanent magnet motors are designed for outstanding efficiency and high reliability.” They are equipped with oil-lubricated bearings for a long service life without maintenance. In addition, all the wear parts have been grouped together to ensure rapid maintenance work.

Models with integrated, efficient rotary drum dryer

In the full-feature version (ZR 90-160 VSD⁺ FF), the compressors are equipped with an integrated MDG rotary drum dryer. This unit has been developed for a stable discharge dew point of -40°C and was recently presented by Atlas Copco at the Anuga Foodtec trade fair. The MDG produces high-quality compressed air with respect to residual moisture considerably more efficiently than other dryers. To reach such low dew points, the dryer does not need additional heating elements or a blower. As purge air is also not required, the energy balance of the dryer is very good. The total power absorbed is less than 0.2 kilowatts (kW).

Class 0 oil-free compressed air in accordance with ISO 8573-1:2010

All components in the compressor element of the new ZR compressors, especially the profiles, bearings and the rotor coatings, have been redesigned for especially high efficiency and durability. The design and sealing of the air chamber maintain physical separation between oil and air systems, ensuring that no oil can enter the compressed air chamber and that the air delivered is absolutely oil-free, corresponding to Class 0 in accordance with ISO 8573-1.

The newly designed coolers are equipped with stainless steel tubes with an exchanger surface that has been increased in order to further improve cooling performance. In addition, the coolers feature special water separators that also improve the efficiency of the unit.

Online visualization of all machine status data

The Neos converter communicates directly with the new user-friendly Elektronikon-Mk5 Touch controller. The controller issues warnings, is programmed with information on maintenance intervals and visualizes the current condition of the compressor unit online. The Smartlink data monitoring program is a standard feature of the controller. This remote monitoring system allows the entire compressed air system to be analysed with a view to planning preventive maintenance.

Compressors in the ZR 90-160 VSD⁺ series work with Atlas Copco's new higher-level controller Optimizer 4.0. This controller selects the most efficient combination among the compressors installed at a compressed air station. This way, all equipment requiring compressed air is supplied with air at the required pressure with maximum efficiency at all times, at the same time as balancing the operating hours of the compressors. The Optimiser 4.0 can also operate air dryers. Via the intuitive user interface, users can inspect the output and energy consumption of each compressor and the entire system. The Optimiser 4.0 can also be monitored using the customer's PC. In addition, the new ZR compressors may be included in a premium maintenance contract, with Atlas Copco assuming responsibility for all maintenance work, upgrades, repairs and possible failures.

Photo and photo caption:



Example installation of the new series ZR 160 VSD⁺ variable-speed-drive compressors at the front together with the higher-level Atlas Copco controller on the wall. The new ZR is on show for the first time at Achema. (Photo: Atlas Copco)

Atlas Copco is a world-leading provider of sustainable productivity solutions. The Group serves customers through its innovative compressors, vacuum solutions, generators, pumps, power tools and assembly systems. Atlas Copco develops products and services focused on productivity, energy efficiency, safety and ergonomics. The company was founded in 1873, is based in Stockholm, Sweden, and has a global reach spanning more than 180 countries. In 2017, Atlas Copco had revenues of BSEK 86 (BEUR 9) and about 34 000 employees. www.atlascopco.com

Atlas Copco's Compressor Technique business area provides compressed air solutions; industrial compressors, gas and process compressors and expanders, air and gas treatment equipment and air management systems. The business area has a global service network and innovates for sustainable productivity in the manufacturing, oil and gas, and process industries. The main production sites are located in Belgium, the USA, China, India, Germany and Italy.