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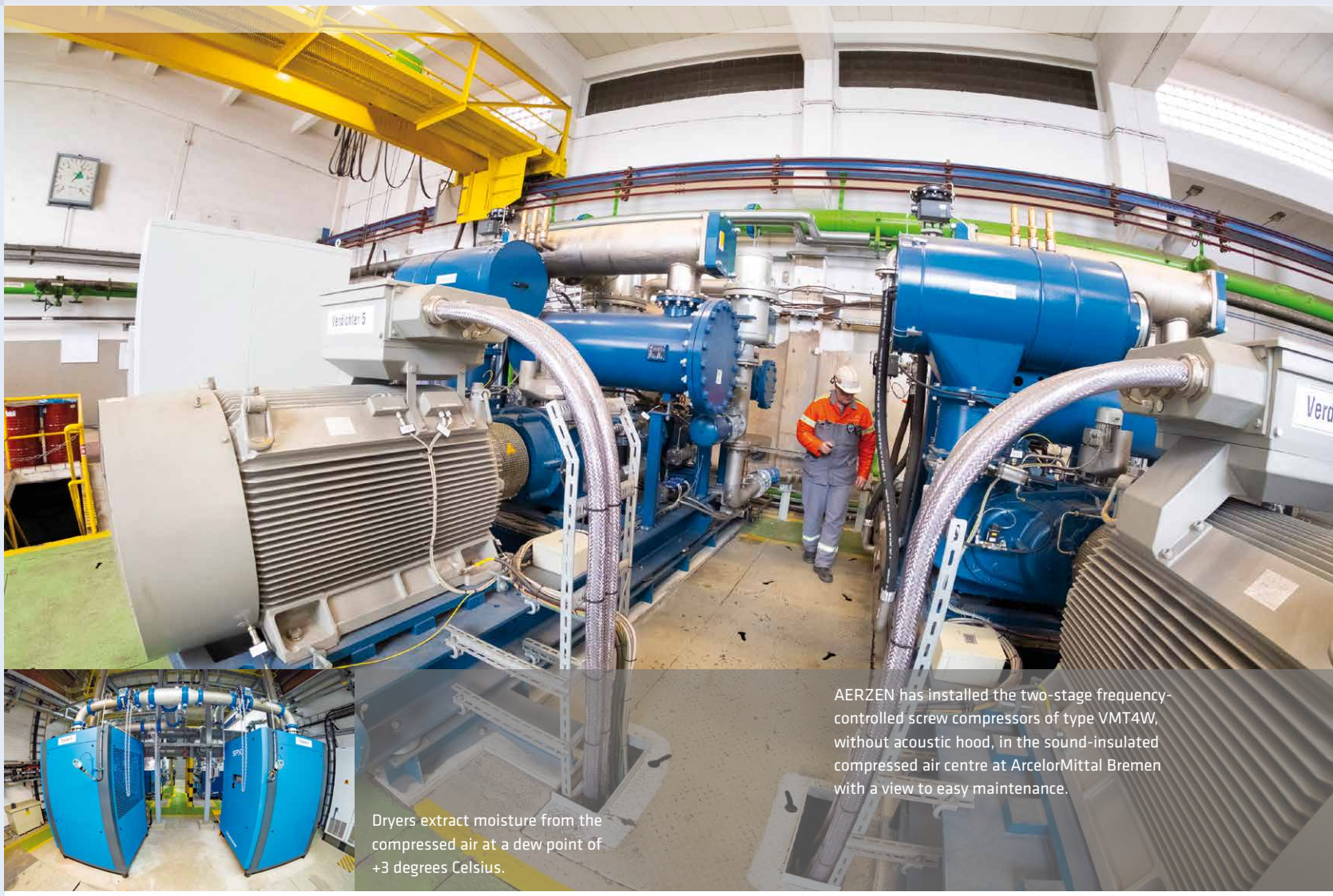
AERZEN COM·PRESS



Dryers extract moisture from the compressed air at a dew point of +3 degrees Celsius.

AERZEN has installed the two-stage frequency-controlled screw compressors of type VMT4W, without acoustic hood, in the sound-insulated compressed air centre at ArcelorMittal Bremen with a view to easy maintenance.

Dear Readers,

Stephan Brand, Vice President Marketing/ Director Turbo Business

Not only is Spring now knocking on our door, but this is also an exciting time for major trade fairs. With ComVac in Hanover and POWTECH in Nuremberg, we are participating in two leading international trade fairs - one in compressed air technology, the other in pneumatic conveying of bulk material.

Accordingly, we would like to present you with the current COM.PRESS reference reports on oil-free process air production in steel mill technology and cement production. Reliability, energy efficiency and bespoke system solutions are the focus here. You will also find a “Trade Fair Special” in this issue in which we present a first insight into our trade fair highlights and innovations.

We would be pleased if we could personally present our new products and solutions to you at the upcoming trade fairs. We’re sure it will be worth your while! So, let’s start a conversation - Let’s Talk!

Well-dosed cold in the continuous casting plant area

Compressed air from AERZEN for ArcelorMittal Bremen

ArcelorMittal Bremen combines its turbo blowers with double-stage oil-free screw compressors from AERZEN in the compressed air centre. In practice, the interaction of these two operating principles results in combining the advantages of turbos as a supplier of large base load blocks with the very good control characteristics of frequency-controlled screw compressors. In this way, the steelworks on the river Weser generates its compressed air in the entire operating range with high efficiency. The demand for compressed air is high - among other things to supply the continuous casting plant. Precisely controllable compressed air ensures that the hot steel is cooled down as it leaves the mould with precisely defined temperature profiles delivered via a finely adjustable water mist.

The steelmakers on the river Weser need air - a lot of air. Well-dosed compressed air is necessary, for example, to cool down the liquid steel in the continuous casting plant by means of finely tuned temperature profiles. ArcelorMittal Bremen has a compressed air centre for this purpose. This centre makes sure that the work never runs out of breath. On average, two turbo compressors are in operation and supply base load blocks of 12,000 Nm^3/h each.

Steel takes shape in copper

Through a comprehensive investment programme, ArcelorMittal Bremen is pursuing the goal of improving the productivity and quality of the continuous casting plant. This also required investments in a better cooling system. The following rule applies: the more effective the cooling, the faster the continuous casting plant can produce. The liquid steel from the steelworks constitutes the beginning. The material flows into a distributor and through a casting tube into the mould. This is a shaping construction made of copper. The copper walls of the mould are water-cooled and give the steel its later rectangular shape. In this area, however, the solidified outer skin is still as sensitive as a raw egg and must be further cooled into so-called slabs before the continuous strand is cut. ArcelorMittal Bremen has a 16 metre long track available for this purpose.

In Bremen, finely atomised steam with compressed air is used for cooling. Before the nozzles wet the four outer surfaces of the continuous casting process with the water mist, the water previously cleaned in filter systems is swirled around a chamber with the compressed air - comparable to the carburettor of an internal combustion engine. The result is finely atomised droplets that allow high heat absorption and bring the steel from liquid 1,600 to solid 800 degrees Celsius

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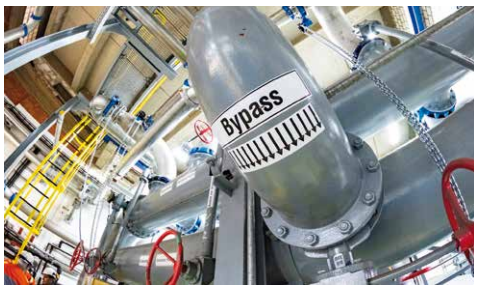
Sven Ress and Bernd Grosse (right) from ArcelorMittal Bremen: cool down steel with finely adjusted temperature profiles.

ArcelorMittal centrally supplies the operating areas with compressed air from one location. One part of this is used to cool down the steel in continuous casting.



in a short time. "The water enters the mixing chamber at 12 bar and is mixed there with a good 5 bar of air," explains Bernd Grosse from the steel manufacturer's engineering department.

The challenge in cooling the steel is to reduce the temperature of the continuous casting after the mould, but only in a frame that allows the steel to pass through a groove from the vertical to the horizontal. "We have to create a shell that is so soft that the steel passes through the curve without leaking," says Grosse, describing the process. If pure water were used here, the control spectrum would be very limited - a real disadvantage on the 16 metre long cooling section, as poorly controlled cooling processes have an unfavourable effect on the solidification process, increasing the risk of cracks and blowholes. Process engineers have therefore developed sophisticated cooling formulations for the respective products. Slabs from Bremen are up to 220 millimetres thick in various steel grades and measure between 950 and 2,670 millimetres wide. Further processing takes place in Bremen in the hot rolling mill.

Downstream of the first and second stage, the compressed air is cooled down with water from the river Weser.

Specially matched compressed air solution

This brief insight into the process shows the importance of compressed air in continuous casting. The metallurgical network measures 20 kilometres and is fed from the compressed air centre at a pressure of around 5.5 bar(g). The frequency-controlled screw compressors of AERZEN type VMT4W with their motor power of 545 kW deliver a two-stage peak volume flow of 4,000 m^3/h, i.e. one third of a turbo machine. The control range in daily operation is between 2,000 and 4,000 m^3/h at a maximum pressure of 8.5 bar(g). Both systems have been precisely adapted by AERZEN.

The two-stage design of two oil-free screw compressors generates a pressure of 4.5 bar (abs) in the first compressor stage. The air then has a temperature of about 250 degrees and must be cooled down to below 60 degrees before entering the second stage. AERZEN has installed an extremely effective water cooler between the two stages, which is also supplied with water from the river Weser. Depending on the weather and season, this corresponds to about 25 to 30 degrees Celsius. This is thus only about ten Kelvin above the temperature of the river. After the second stage, cooling down to about 35 degrees takes place again. At this stage, the compressed air is still 100 percent saturated with water. But the steel mill needs dry air with a pressure dew point of +3 degrees Celsius.

Everything revolves around production safety

In view of the fact that AERZEN received the order for a complete package, the dehumidification was part of the development and engineering work, as well as the subsequent installation and commissioning. ArcelorMittal Bremen opted for screw compressor technology from AERZEN in the early planning stage of the modernisation work. "From experience we feel safe with AERZEN," emphasises Technician Sven Ress. Against this background, the turbo machines and the two-stage compressors in the compressed air centre are vibration-monitored. "Thanks to the online analysis of the frequencies that occur, we can identify bearing damage at an early stage and plan repairs accordingly," explains his colleague Volker Merrath. In order to save as much time as possible for this work and also for regular maintenance, AERZEN has installed the screw compressors without acoustic hood in the acoustically insulated compressed air centre. ○

Résumé

With the integration of the two-stage VMT4 W screw compressors, the ArcelorMittal Bremen steelworks has succeeded in significantly improving the quality of the process air supply. This is reflected both in the better control properties and in the energy efficiency. Due to the high control range of the screw compressors, these are an ideal supplement to the "base load turbo machines." Which machines run at what time in which operating area, or are disconnected from the network, is decided independently by the network via the data exchange with the overriding PLC, "which takes care of all six compressors and optimally manages the energy consumption of the machine combination," says Bernd Grosse (ArcelorMittal Bremen). "We want to generate our compressed air in the best possible way to meet our needs," he adds.

Aerzen India

AERZEN India impresses at IFAT in Mumbai

AERZEN India participated at IFAT, held in the Mumbai Exhibition Centre from 15th to 17th October 2018, with the refreshing concept under the slogan Performance^3 - The Next Generation already proven in Europe.

The annual event in Mumbai is a branch of the IFAT in Munich, the world's leading fair for the water, wastewater, waste and environmental economy. IFAT India, which is only accessible for professional visitors, is, for the exhibitors, a great platform for entry into the markets in the region.

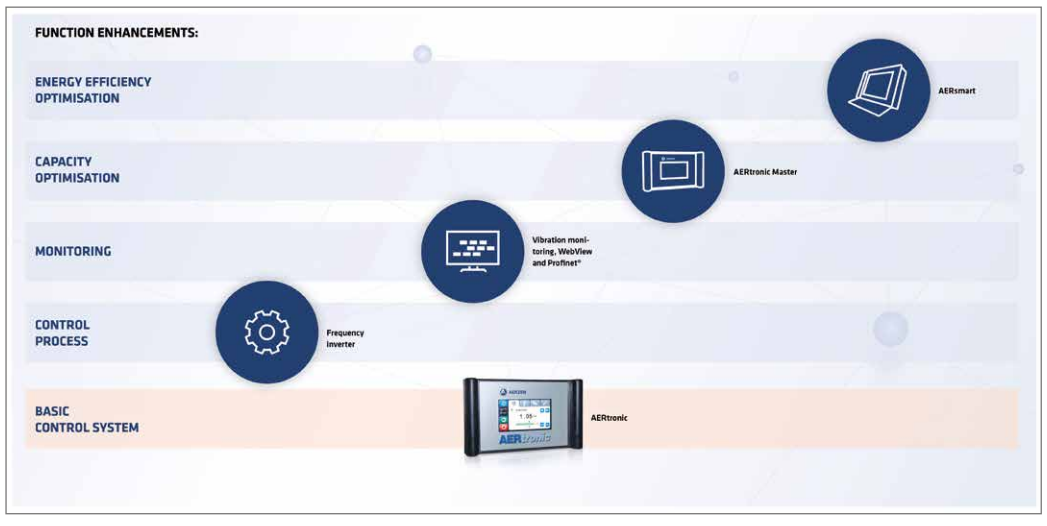
At a 40 square metre exhibition stand, AERZEN India exhibited, among others, the products Turbo AT200 G5^{plus}, Delta Hybrid D12s, AERsmart and AERtronic. Another focal point was the After Sales Services. The sales team, led by Ranjit Lala, Managing Director AERZEN India, presented to customers and other interested booth visitors the different assemblies and solutions for wastewater treatment. The three fair days were very positive for the brand awareness of AERZEN and confirmed the position of the company as a leading supplier in the water and environmental market. ○

AERZEN India presented assemblies and solutions at IFAT in Mumbai.

Intelligent networking with AERZEN solutions

Integrated Industry - Smart Management of your Process Air

Digitisation is a central feature of industrial development. The Hanover Fair, for example, will once again be operating under the slogan "Integrated Industry." The solutions competence of AERZEN shows what the intelligent networking of man and machine in compressor technology can look like.



The innovative machine control system AERsmart is the most intelligent component in the AERZEN communication network.

The interaction of the control and monitoring components AERsmart, AERtronic and Webview from AERZEN is the special performance of the entire process design at the customer's place of business.

AERtronic controls the process air supply. AERtronic's control system includes all common interfaces such as MODBUS RTU (standard), PROFIBUS DP, MODBUS Gateway between RTU and MODBUS TCP (Ethernet) and PROFINET©. The touchscreen navigation is intuitive and user-friendly. All operating data is archived and logged, thus facilitating reliable evaluation. Maintenance cycles can be planned and carried out in advance on the basis of operating hours. As a master version, the overall performance of the system can be improved via AERtronic. The utilisation of individual machines across the entire network can also be displayed more homogeneously. Energy savings of up to 15% can be achieved by switching compressors on and off according to consumption and demand.

As an innovative machine control system, AERsmart represents the most intelligent component in the communication network. With AERsmart, the required oxygen demand in the wastewater tank can be distributed to the machine park in such a way that low, medium and high loads are served as optimally as possible within the configuration of the plant. The respective load profiles are achieved precisely and efficiently. The result: clever load distribution thanks to smart controlled combination operation and energy saving of up to 15%.

WebView is the central control element for transparency in machine park management. The module can be easily integrated into the control panel via plug-and-play and offers access to relevant data and information from anywhere in the world. Once connected to the system, WebView can be used to retrieve all process data via a PC, smart phone or tablet. Whether implemented locally or globally, this is a key building block for your Industry 4.0 solution. ○

The future is customer-specific engineering and integrated compressed air solutions

Get rid of the borders!

Increasing digitisation is changing industrial production in all areas. In process technology, mainly new visualisation and data analysis options provide what it takes to operate plants more productively, more resource-efficiently and with improved safety.

Bernd Klemme, RKR Project Manager: compressed air as an integral part of the overall process.

In view of this development, the AERZEN subsidiary RKR Gebläse und Verdichter GmbH, located in Rinteln, is strengthening its role as an engineering partner and system integrator - with the aim of seamlessly integrating compressed air solutions into process technology plants. It's about the integral approach.

What is important now and in the future for compressed air solutions in process plants, especially in chemical engineering? Self-learning machines, artificial intelligence and preventive analytics are the developments that everyone is talking about. With the aim of operating plants in a more environmentally friendly way, the demand of operators for possibilities to monitor processes more holistically and to optimise them during operation, is noticeably increasing. At the same time, the demands on system reliability and safety are also increasing - something that can only be achieved with more sensors and intelligence.

The view from above to the process level

A glance at daily business processes shows that operators are cooperating more closely with their plant manufacturers - right up to direct cooperation with machine builders. In comparison with the standard repertoire, RKR sees itself increasingly as a partner for specialised compressed air solutions. "In doing so, we leave the equipment view and move to the process level, where the compressed air is a component," explains Bernd Klemme, RKR Project Manager. The definition and design of all conceivable interfaces are of particular importance here. These can be mechanical-constructive as well as affecting the wide field of control software. RKR connects the functional unit directly to the plant control system of a chemical plant.

The AERZEN subsidiary already focuses at an early stage on the machine concept which provides maximum openness, including access to the actuator and sensor level. The barrier-free intervention possibilities then enable the operators of chemical plants to optimise the operating behaviour of compressed air generation as a functional unit of a production plant just as much as the actual chemical processes.

Depending on the application, RKR uses the AERZEN product portfolio for the subsequent realisation phase. For the compressed air supply of process plants beyond the usual supply infrastructure, RKR for example connects the two-stage AERZEN compressors with a truck diesel engine via a flange solution including clutch. Direct drive via a steam turbine is also an option. ○

AERZEN offer includes 16 variants

New modular system for process gas booster - Generation GMd

The variety and application possibilities of AERZEN process gas blowers are unrivalled anywhere in the world. Now a new GMd series is available that bundles many variants and leaves no wish unfulfilled.

In the AERZEN zero-emission concept, the small GMd sizes do not have a drive shaft seal, but only the can of the magnetic coupling, which serves for torque transmission. The cans of the magnetic couplings are made of non-conductive materials, so that even at high speeds there are no eddy currents and associated heating.

Cost advantage without any loss of quality

On larger machines, the drive shaft is reliably sealed by an oil-purged dual-acting mechanical seal with thermosiphon cooling. Thanks to the oil splash lubrication of the roller bearings and the timing gears, separate pressure oil lubrication is not required. This results in a cost advantage without any loss of quality.

The robust, two-lobe rotary pistons are always sealed gas-tightly. The oil chambers and the conveying chamber are separated by PEEK piston ring seals. It is also possible to purge these seals with gas. With a total leak rate of $<10^{-3}$ mbar*l/s, all blower stages of the GMd series can be described as hermetically sealed. The housing flanges are sealed with O-rings. With a design pressure of 7 bar(g) and explosion pressure spike resistance of 13 bar(g), the nodular iron housing ensures particularly high operational reliability.

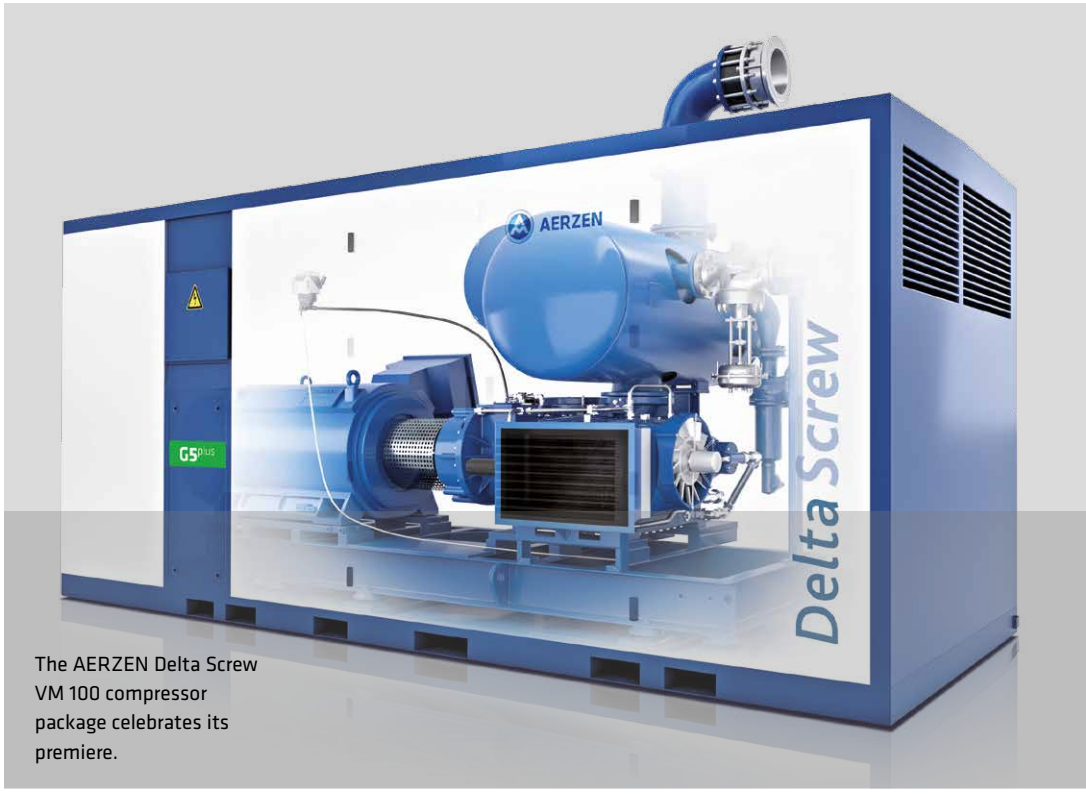
GMd series for volume flows up to 14,000 m^3/h at differential pressures of up to 1 bar

The modular system of the new "GMd" generation consists of 16 sizes. ○

Now seven AERZEN Delta Screw model variants

Presentation of new size for E-Compressors

The successful screw compressor generation Delta Screw from AERZEN gets a new addition: with the VM 100 compressor package, the versatile E-Compressor series now comprises seven model variants. Its distinguishing features: the efficient technology for use in the upper volume flow range and the flexible ability to adapt to every requirement.



The AERZEN Delta Screw VM 100 compressor package celebrates its premiere.

The new compressor type is designed for a volume flow range from 1,500 to 7,620 m^3/h and covers a maximum differential pressure of 3.5 bar. The application specialist AERZEN is thus responding to specific practical requirements in the low-pressure range and the constantly growing demands for high-performance and efficient technology. In total, the broad product range of E-Compressors includes 7 sizes in the volume flow range from 330 to 7,620 m^3/h and drive capacities from 30 to 630 kW.

Like all E-Compressors of the series, the VM 100 has an acoustic hood with internal supply and exhaust air louvers, which makes for a compact design. Flow-optimised intake channels minimise pressure loss significantly. A significant improvement in performance can be achieved by supplying cool outside air directly into the intake filter. Also unique is the absolutely oil- and absorbent free compressed air technology of AERZEN. Oil-free operation is certified according to ISO 8573-1/Class 0.

The patented principle of the built-in reflection silencer protects against contamination and ensures process reliability over the entire service life of the system. And the latest addition to the E-Compressors also impresses with its flexibility. Various equipment options and a comprehensive range of accessories complete the VM 100's operational capability.

Efficiency and performance of the Delta Screw E-Compressors are safely controlled by the AERtronic. The integrated panel reliably and conveniently monitors the intake, discharge and oil pressure as well as the discharge and oil temperature.

According to the manufacturer, all Class E screw compressors score points with a strong energy balance. Up to 6 percent energy efficiency is possible compared to conventional compressors. The technology leader from Aerzen calls the sophisticated concept of performance optimisation and resource utilisation, profitability and flexibility "efficiency plus."

POWTECH visitors can get a special impression of the E-compressors at the AERZEN stand via Augmented Reality tour. ○

AERZEN offers a wide range of options and accessories

Air conditioning perfects the process

It is well known that the best solutions result from practical experience. They are only effective and efficient if they are precisely matched to the application. Aerzener Maschinenfabrik knows exactly the requirements in the field of process air. AERZEN completes its blower and compressor range with a wide range of options and accessories.

As one of the leading technology pioneers, AERZEN is characterised by innovative development strength, because application specialization is in the first line of business. This includes a constant focus on improvements and modifications within its own technology as well as on changes in the market and across industry. AERZEN has its own design programs, which can be used, for example, to select suitable aftercoolers according to customer requirements. A simulation of the process data is included, in order to offer customers the most efficient solution for their subsequent use and to illustrate clearly its influence on the entire customer process.

Aftercoolers from AERZEN set standards with their minimal pressure losses, reduced energy consumption and extremely high cooler inlet temperatures. All of our aftercoolers are suitable for cooling air and nitrogen up to 280 °C.

Air-to-air aftercoolers can optionally be equipped with a special paint or coating, special motors for the fan, as well as cyclone separators and condensate drains. The installation is simple, with neither infrastructure nor conditioned cooling water required. A special feature is the speed control of the fan according to the customer's specifications. This allows process fluctuations to be minimised and the end product to be maintained at the highest quality standard. An integrated stainless steel precooler is ideal for temperature ranges of 250 °C and above.

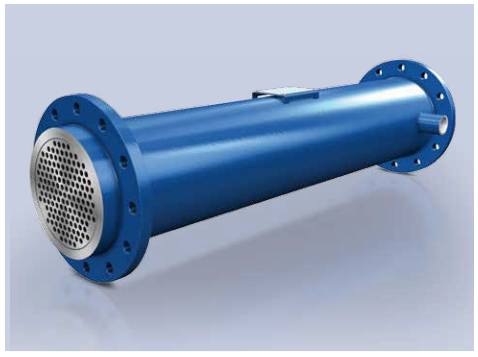
Water-air aftercoolers withstand even high ambient temperatures and convince with their durability. Heat recovery is also possible. In water-air aftercoolers, the compressed medium flows through the cooler tubes, cooling water flows around the tubes in counterflow. The water-air aftercoolers are available in stainless steel or copper-nickel design and are permanently installed or as dismountable tube bundles with ribbed or smooth walls. Also optionally with cyclone separator, automatic condensate drain, flange and mating flange kit, special painting and corrosion protection.

In addition to the filter elements for protecting the machine, a further protective function can be set up by means of downstream filters on the pressure side. The filters with a separation class from F7 to H13 are supplied as a complete, connectable unit consisting of a stainless steel container, filter element, seals and support elements.

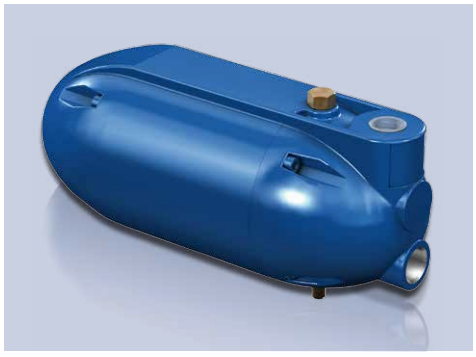
Cyclone separators and **condensate drains** are low-maintenance and robust at the same time and are also effective in a wide range of applications. With a condensate separation efficiency of almost 100%, cyclone separators provide the perfect protection for compressed air systems. They can be protected against corrosion for onshore/offshore use. It is possible to design the separators in accordance with ASME. AERZEN automatic condensate drains operate via level control depending on climate, temperature, time of year and time of day. ○

AERZEN air-to-air aftercooler.

AERZEN water-air aftercooler.



AERZEN cyclone separator.



AERZEN condensate drain.

Reference report

Dry screw compressors for lime kiln and styrene gas have been operating reliably for decades

What are the advantages of AERZEN compressor packages in the oil and gas sector? In order to give potential new customers from this sector an impression of the technology, AERZEN organised a tour to various reference plants in the EU. For process engineering reasons, the discharge temperature of these systems is kept constant with continuous water injection. Among the European operators visited were leading manufacturers of chemical raw materials such as soda, which is obtained from polystyrene (EPS) and synthetic rubber (SBR) using the Solvay process.

When planning a pilot plant, it is primarily a matter of building trust and convincing oneself of the AERZEN performance promise in live operations. The compression of gases contaminated and enriched with CO_2 using dry screw compressors has been one of AERZEN's key applications since the 1970s and still represents a core competence in Process Gas Business today.

The seven systems presented during the trip, which lasted several days, have been running for an average of 19 years to the complete satisfaction of the operators and maintenance staff. The response of the operators to the short-dated visits, which were undertaken before Christmas 2018, was accordingly open and constructive. Up to 35,000 operating hours, i.e. four-year maintenance intervals, are standard for lime kiln gas compressors, while styrene gas compression operations are generally shut down every two years as part of preventive cleaning and overhaul work on the entire plant.

A special highlight was the lime kiln gas compressor VKO 725S, built in 1976, which has already moved from a Czech coking plant and is still characterised by reliability and performance today. An impressive example of engineering know-how, proven technology and quality from AERZEN. ○

VRa 736L for compression of styrene monomer offgas.

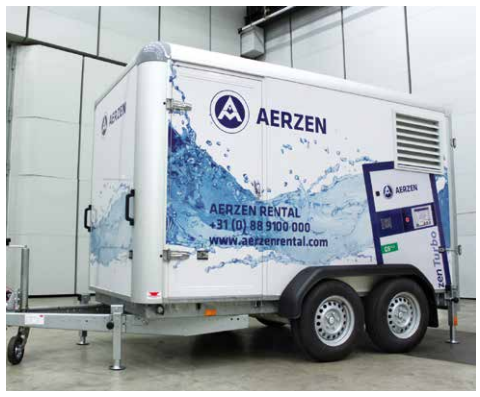
VKO 725S for the compression of lime kiln gas with turbine drive - year of construction 1976.

The VRa 736L for compression of styrene monomer offgas has been in continuous operation since 1998.

One of several VRa 736SDs for the compression of lime kiln gas with turbine drive - year of construction 2008.

New concept from Aerzen Rental International

Fast, mobile, simple: the Aerzen Turbo trailer



The mobile Aerzen Turbo AT50 trailer can be towed by a car.

The first "turbo on wheels" has arrived: Aerzen Rental has developed a mobile trailer for an Aerzen Turbo AT50 for use in the rental business.

A fast, mobile assembly on a trailer is something we at AERZEN have always wanted to develop," explains Gerben Keurentjes, Managing Director of Aerzen Rental. "But the weight of a conventional blower and compressor and their technical limitations have so far stood in the way of a lightweight and simple transport solution," continues Keurentjes. Thanks to the new Aerzen Turbo G5^{plus} series this idea could now be realised.

The improvements which have been made in the Aerzen Turbo G5^{plus} package, with its optimal ratio of performance to weight and size, allow for the placing of an assembly of type AT50 (volume flow max. 1,900 m^3/h, 40 kw, 800 mbar (g)) in a simple trailer which can be towed by an ordinary passenger car. The fully functional machine can be rented in case of emergencies, for on-site testing and for feasibility studies. In addition, the "turbo on wheels" is ideally suited for customer events of all kinds. Aerzen Rental can optionally equip the assembly with remote monitoring. In addition to early fault detection, this service allows essential process parameters to be recorded, evaluated and reported - for example, to estimate the pressure required for a compressed air conveyor system or to monitor the aeration required in a wastewater treatment plant. ○

New solution for Aerzen Rental

Cooling unit in rack form

The AERZEN subsidiary RKR Gebläse und Verdichter GmbH, Rinteln, wants to further sharpen its profile as a partner for engineering and customer-specific system solutions.

Based on this customer-specific engineering strategy, RKR has designed a specially adapted air-air aftercooler in rack form for Aerzen Rental in the Netherlands. The assemblies of the AERZEN Group's own rental company are integrated in a transport frame as rental equipment. This is the easiest and safest way to transport such temporarily installed units, and place them outdoors, duly weather-protected, on construction sites, or in wastewater treatment plants or chemical plants.

Aerzen Rental covers a wide range of applications from a standardised machine park. Consequently, an after-cooling unit must be designed to slide into the container housing like another drawer when the application requires cooled compressor air. In this way, Aerzen Rental is able to offer the air-to-air aftercooler as an option without having to permanently retrofit the machinery. The racks built by RKR are therefore largely plug and play, and the four fan motors are speed-controlled by frequency converters in view of the varying power requirements. ○

The compressors from Aerzen Rental – here in front of the building of the RKR Gebläse und Verdichter GmbH – can be transported quickly and safely in a container.

The air-air after-cooler is integrated into the assembly housing.

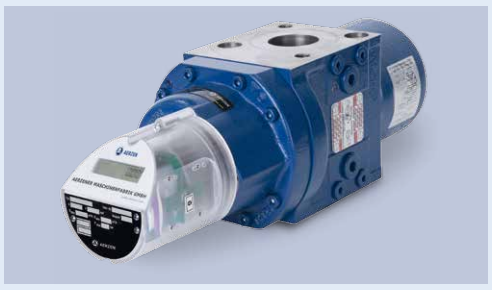
An after-cooling unit constructed like a drawer: the installation as required is carried out by forklift truck and in just a few simple steps.

AERZEN divests its Gas Meter division

Aerzener Maschinenfabrik GmbH successfully sold its product division rotary piston gas meters to RMA Rheinau GmbH at the end of 2018.

The AERZEN rotary piston gas meter has been a product rich in tradition at Aerzener Maschinenfabrik since 1930. Due to their design, however, demand and sales of measuring instruments were concentrated primarily on the German market. On the basis of the company's international growth strategy, which mainly focuses on compressor technology and application specialisation, the AERZEN gas meter no longer fits in with the future target orientation. Against this background, the management decided to sell this product division to another company in the industry with good know-how.

"For AERZEN it was very important to find a buyer who would offer the product range to our long-standing customers with the usual high quality," says the CEO, Klaus-Hasso Heller. "We are very pleased that we have now found a reliable partner in RMA, based in Rheinau, who will not only continue the AERZEN technology, but will also develop it further in this way," adds Klaus-Hasso Heller.



AERZEN sold its product division rotary piston gas meters to RMA.

Questions, Suggestions, Ideas?

We are looking forward to all your queries, comments and suggestions on our customer journal and we are at your disposal for further information on AERZEN products and services. Give us a visit on our website:
www.aerzen.com/news

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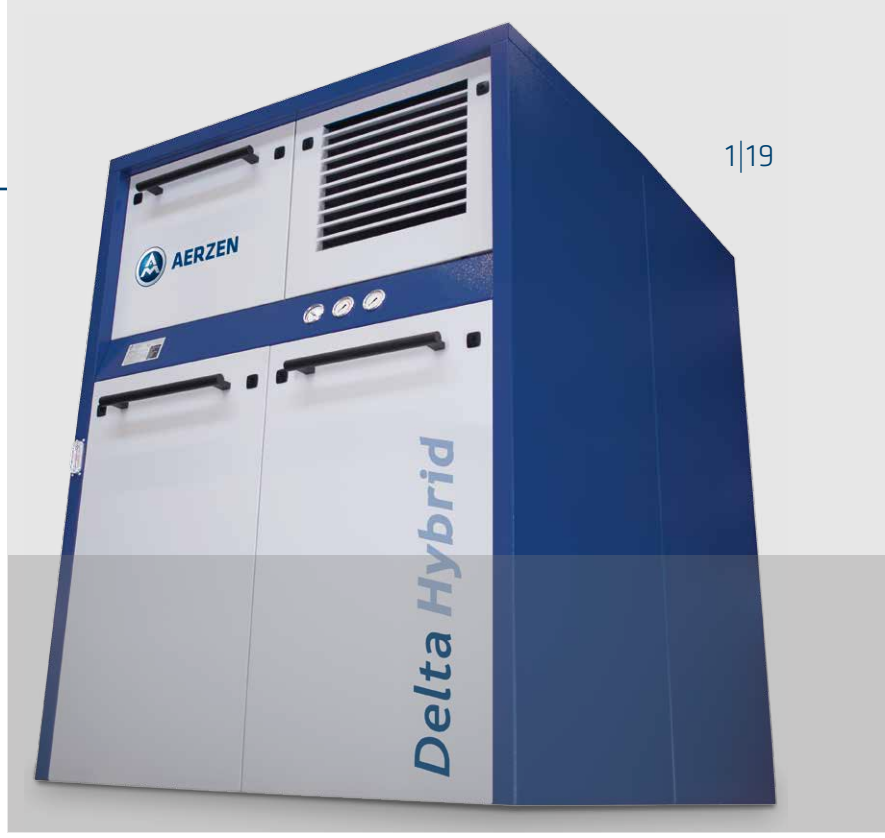
AERZEN

AERZEN Success Story in Colombia

Improving the coal-feeding conveying system in a Holcim cement plant



Delta Hybrid rotary lobe compressors, model D62S, are the solution in the Holcim Colombia Plant.

AERZEN, as a specialist in cement applications, has improved the pneumatic conveying coal feeding system to the main burner at the Holcim Colombia plant. The plant is located in Nobsa, a small town 2.5 hours away from Bogotá. The plant capacity is about 3Mt/year of cement and has a market share in Colombia of 12%, with high growth expectations following the establishment of the Lafarge Holcim joint venture in 2015.

In 2014, Aerzen USA optimised the pneumatic coal-conveying transport to the main burner, also known as the Pfister system. In this application, two AERZEN GM 35S tri-lobe blowers from the '90s were in operation. Each machine operated at an intake volume flow of 37.4 m^3/min, differential pressure of 600mbar and with a 75 kW (100 HP) electric motor. The noise generated was calculated at 102 dB as the machines didn't have acoustic hoods (local Colombian regulations define 80 dB as the maximum allowed noise level). Power consumption demand for the system was measured at an average of 54 kW per machine, which represented an annual energy cost of USD 78,000 (considering a kW cost of 0.1 USD and 20,000 hours MTBR - Mean Time Between Repairs).

At Holcim Colombia, each production area is independent in its operation. This makes upgrading projects for specific applications easier. At Holcim, the corporate policy says that every kW counts.

Delta Hybrid, AERZEN technology applied to the cement industry

AERZEN's commitment as an application specialist presented a solution with Delta Hybrid rotary lobe compressors, model D62S, that were selected specifically for this application with the primary purpose of improving the following aspects: noise level reduction to comply with the Colombian regulation of 80 dB maximum. The D62S blowers operate at 72 dB under the same operational conditions with a 10% energy consumption reduction, which represents annual savings of around USD 7,800.

Installed power reduction was achieved with the Delta Hybrid performance by replacing the existing 75 kW motors for 55 kW IE3 premium efficiency motors. Process stability improved due to the Delta Hybrid's operating principle that reduces pulsations when the flow is conveyed, delivering a more laminar flow, which makes the burning process smoother.

In addition to the obvious advantages which came from upgrading the technology, for Holcim it was also important to have a TCO (Total Cost of Ownership) evaluation of the new machines in the system. AERZEN delivered a 5-year projection which indicated that by using the Delta Hybrid rotary lobe compressors operational costs would be reduced by 40% and would operate at 40,000 hours MTBR, with 50% better performance than could be achieved with conventional tri-lobe blowers.

Javier Forero, Pfister Area Manager, sums up the results after one year of operation with the new technology: "10% energy consumption reduction, about 20% noise level reduction in the operating area thanks to the improved acoustic hoods, better control of the coal flow into the burner, which improves our kiln operation."

Background

The AERZEN subsidiary Aerzen USA started operations in Colombia in 2008 with the primary purpose of supporting existing customers, such as Holcim, with AERZEN machinery in their processes.

The Holcim Colombia plant uses AERZEN technology in all eight main applications that required oil-free, low-pressure air supply, from raw mill pneumatic conveying to the raw meal silos up to the bagging systems for finished cement. Thanks to AERZEN's specific knowledge in cement applications, an upgrade was successfully implemented in the coal feeding system to the main burner that brings savings in energy consumption, noise reduction and more stable and laminar air flow that helps improve the burner's stability.

Award for Aerzen USA

Best Employer in Pennsylvania (PA)

For the fifth time, Aerzen USA has been voted one of the 100 "Best Places to Work in PA." In a survey, the employees gave their employer excellent marks.

Aerzen USA competed in the category of medium-sized companies with 100 to 249 employees and was among the 27 awarded employers in this group. The "Best Places to Work in PA" competition was launched in 2000 as the first nationwide initiative of its kind in the U.S.A. It is a public-private partnership between the Team Pennsylvania Foundation, the Pennsylvania Department of Community and Economic Development, the Pennsylvania State Council of the Society for Human Resource Management and the business magazine Central Penn Business Journal. The goal is to identify and recognize the best employers in Pennsylvania whose presence contributes to economic development and the well-being of the working population of this American state.

The selection procedure consists of two stages. First, the working conditions, systems, demographic composition, processes and philosophy of the companies are evaluated. The employees of the companies are then interviewed.

Tony Morris, President Aerzen USA (r.), received the award "Best Places to Work in PA" at the Lancaster County Convention Center at the end of November 2018.