



# AERZEN COM·PRESS

## AERZEN invests

Machine park renewed and expanded



## Delta Blower E-Design

Blower units even more energy-efficient



## Process air generation

Stronger in combination



Dear Readers,



Klaus Grote,  
Sales Manager

In this edition of "AERZEN ComPress", we show you some examples of how we are increasing the energy efficiency and further developing our Blowers, Hybrids and Turbos. Our tailored solutions save energy costs and simultaneously protect the environment. Our manufacturing quality is always kept high, and up to date, by regular investment

in our machining centres. The AERZEN Group is represented in over 100 countries, through more than 43 subsidiaries. And, like any family, we are happy about new additions: This year we have celebrated the establishment of Aerzen North Africa and Aerzen Thailand. With these new subsidiaries, we want to strengthen our orientation towards international markets, and be a competent business partner for our customers in all regions. Trade fairs provide an important forum for dialogue with our customers about new requirements, trends and solutions. We are looking forward to our participation in several trade fairs in the coming months and to having a personal conversation with you.

A cordial welcome to our stand, and please visit the parent company in Aerzen whenever you wish!

Yours,



The Milser Mühle processes approximately 400 tonnes of cereals a day with 25 employees, and is, thus a medium-sized company in the North German mills sector.

## The mills grind efficiently

The – "Milser Mühle" – has relied on AERZEN for 50 years

In the pneumatic conveying of food, the highest possible level of supply reliability and energy efficiency can only be achieved with perfectly planned, tailor-made solutions. And so it is with the "Milser Mühle", where, for five decades, AERZEN Positive Displacement Blowers have been used – eleven of them in total.

**W**hen the Borgstedt Family took over the Milser Mühle 130 years ago, at first, it only produced feed material, and then, from 1918, it started to produce flour for human food. "Therefore we selected oilfree compressing AERZEN Positive Displacement Blowers of series GM as conveying air producer for the closed piping systems. Until today we are only using AERZEN units" – says Mastermiller Friedrich-Wilhelm Borgstedt. These blowers are from several generations of the series, due to the long operation period of the units. "Today, pneumatic conveying is necessary for the economical operation of a modern mill company", explains the senior chief. In the Mehlstraße, eleven AERZEN units have been working with a highest pressure from 650 to 750 mbar and driv-

ing power from 4 to 30 kW. According to Borgstedt, the relatively low pressure range is reached with the longer lifetime of the blowers, the locks and the pipings, and, in particular, the pipe bends.

Seven AERZEN blowers, not of sound-insulated design, are in a central station, with three further units, which are sound-insulated, located in an adjacent room. The version without acoustic hoods was consciously selected in order to avoid con-

taminations as a result of vermin-nesting places – a widespread problem for mill technology. However, this means that considerable radiation heat is generated, as well as high noise levels. Consequently, sufficient fresh air has to be ensured for compression and cooling of the units. Due to the corresponding openings, however, noise does not escape from the station.

### Calculation of the optimal room ventilation

Using a special AERZEN online-tool, the so-called "room ventilation calculator", the maximum required inlet air quantity, the ventilator power and the size of the wall openings were determined. In this calculation program, the installed type of machine must first be selected – in

Friedrich-Wilhelm Borgstedt,  
Senior chief Milser Mühle

We would always decide on AERZEN. Our main reasons for doing so are the high quality and reliability of the units, their longevity as well as the geographic proximity of the manufacturer.

## AERZEN Thailand founded



Jittarat Maneewan, AERZEN's new Business Development Manager in Thailand

With the recently opened subsidiary in Thailand's capital Bangkok, AERZEN is now present in the "Land of Smiles". Since 3rd December 2014, Mrs. Jittarat Maneewan, who already knows our products very well, has been working as Business Development Manager for Thailand. In her role, she reports directly to Mr. Andy Lim, AERZEN Singapore, General Manager for South East Asia. Opening a new office in Thailand is part of the AERZEN service strategy to always be close to our customers and to be able to support them directly. The co-operation with the present sales partner, Uni Royal International, will continue - in particular in the After Sales range.

## Laser-based coupling alignment – efficient and precise

Machines that are optimally aligned have lower operating and maintenance costs. Thanks to precise alignment, the "Mean Time Between Failure" is reduced and machine availability is increased. For this reason, AERZEN applies across the group the laser-based alignment system OPTALIGN smart RS5 AERZEN. This enables the alignment of directly driven machines. The customer benefits are obvious: lower-wear operation, increased machine availability and prevention of production failures. Using this approach, AERZEN expands its service competence. For any questions, just contact our service managers on site, or our specialists in our parent company.



Configured for service application at AERZEN

## AERZEN further expands its range of compressors

AERZEN has expanded the new Delta Screw E compressor-series to a total of six different sizes: the new models VM 30 and VML 35 cover the lower volume flow range of 330 to 2,590 m<sup>3</sup>/h and thus supplement the belt-driven packaged unit types. The VM- and VML compressors, with a maximum differential pressure of 2 or 3.5 bar, are optionally equipped with pressure retaining valves, overflow regulators and air-to-air aftercoolers, and include cyclone separators and an automatic condensate drain. Specially tailored solutions are also possible.

The Delta Screw E compressor series has been expanded by two types.



> this case "Blower", however, "Compressor" or "Turbo Units" may also be selected. The type of suction must then be defined - in the case of Milser Mühle, the options are: "room suction from outside of the room", or "room suction out of the room". The calculation is effected after input of the following information - the totally installed motor rating, the ambient temperature, the admissible temperature increase, the maximum intake volume flow of the whole station, the installation height and the flow velocity. The combination of this data produces precise findings which can then be used to determine the optimal solution. Although splitter silencers in the channels allow air to enter the station, the noise level outside the building is minimized.

### In operation around the clock

Production at the Milser Mühle normally takes place behind the mills, from Monday mornings through Saturday mornings, prior to the cleaning work. In exceptional

Three AERZEN Positive Displacement Blowers with partly dismantled acoustic hood in an adjacent room



situations, production also takes place on Sunday mornings. Therefore, a reliable and fail-safe supply of conveying air is imperative for Borgstedt. Only then, - can the mill operate on as troublefree basis - an essential requirement for meeting the delivery dates agreed with customers.

However, such solutions for pneumatic conveying concepts in the food industry are not - "ready-made" -. In the preliminary stages of such an investment, a detailed specification has to be compiled. AERZEN supplies the AERZEN Positive Displacement Blowers of the series Delta Blower - "Generation 5" - tailor-made for all ranges of application in the pneumatic conveyance

including all standard accessory components for effective operation at the push of a button. They can be used in all climates and will work in the most difficult ambient conditions just as safely as they will in a hall installation - reliably, durably and energy-efficiently. As an option, AERZEN blowers can also be supplied in ATEX-design according to EU-guideline 94/9/EC. This is an increasingly important criterion not only for the food industry, but also for many other branches of industry such as the synthetics industry, environmental technology, the chemical and pharmaceutical industries, in refineries and in power plant technology.



AERZEN Positive Displacement Blowers in the central station

## Investments

# Machine park renewed and expanded

There have been some major investments in production recently at the location in AERZEN. In the past few months, three new machines have been taken into operation, in order to support high-quality and more efficient production.

### New flat grinding machine

After more than 20 years of operation, the old Favretto machine has been replaced with a compact flat grinding machine model ZT 715 made by Ziersch. Its task is the grinding of rings, bushings, washers, covers and side plates. 70% of the pieces to be processed consist of steel, 20% consist of cast iron and 10% consist of stainless steel. While the old machine could only manage surface roughnesses of up to 4µm, the new one reaches 1µm. The spindle power is now 15 kW and the work surface is even larger. It is remarkable how quietly the new machine runs.

### New machining centre

For the processing of housing parts, a new machining centre DMC 160 U duoBlock

was procured from Messrs. DMG Mori Seiki GmbH. With this machining centre, in future cylinders and side plates can be manufactured from segment 2. January saw the commissioning and the manufacturing of the first cylinders VM 237 L and suction side plates VM 337 L. Thanks to the 5-axis machining centre, the housing parts can be processed in one clamping. A special feature is the universal milling head with kit motor in heavy-duty version, with a capacity of 52 KW and 2000 Nm.

### New CNC turning and milling centre

As a replacement for the FE0178/0179, in November 2014, the new M65 MILLTURN FE 0176 from the manufacturer WFL in Linz, Austria was taken in operation in hall 21. Four identical machines have hitherto been in operation in the production centre for the complete processing of blower



The new flat grinding machine

pistons and compressor rotors. The new machine was designed for the range of parts in hall 21. The essential difference from the existing machines is the reinforced design of the turning, drilling and milling unit, as well as the use of processing heads when milling with bigger profile cutters. This will considerably reduce wear in the turning, drilling and milling unit, and will increase the machine's availability.

The new machining centre began operations in January.



The new CNC turning and milling centre



## Delta Blower E-Design

# Blower units are even more energy-efficient

Today the subject of energy efficiency is particularly important – especially in compressor technology, where energy costs amount to more than 90 percent of the life cycle costs. Now AERZEN's globally successful blower series Delta Blower is guaranteed not only to impress with its new design, but also with its performance in terms of energy saving.

The new E-design reduces energy consumption depending on volume flow and differential pressure by up to four percent. This is possible as a result of numerous design enhancements, such as the flow-optimised routing of the intake air in the acoustic hood and the filter silencer. In particular, the patented intake cone is to be emphasized, which not only minimizes pressure losses, but also restricts the entry of sound. The revised cooling concept is essential for high energy efficiency: instead of a mechanically-driven acoustic hood fan, an electrical fan is

now used. This enables perfect ventilation below the acoustic hood at the lowest power consumption levels.

### Longevity individually adapted

The longevity of the electric blowers is ensured by, amongst other things, the adsorbent free discharge silencer which does not contaminate downstream systems. The blower units can also be equipped with the new AERtronic intelligent control, which is installed in modular design and, consequently, can be adapted individually. Moreover, there is an "ALL-in-

ONE"- solution with integrated frequency converter and power panel. The electric blower is available in 6 sizes for intake volume flows from approximately 30 m<sup>3</sup>/h up to 1,000 m<sup>3</sup>/h, for overpressures of up to 1,000 mbar and for negative pressures of up to 500 mbar. Thus, it is the ideal supplement to the innovative AERZEN Rotary Lobe Compressors Delta Hybrid.



Robust and energy efficient: the new Delta Blower E-Design

## Vibration measurement and analysis

# New accessories for Delta Screw series

An important component of the Delta Screw series made by Aerzener Maschinenfabrik GmbH is the comprehensive accessories programme. Particularly in cases of high-tech applications relating to high system pressures or reactive production ranges, the highest possible level of safety must be guaranteed.

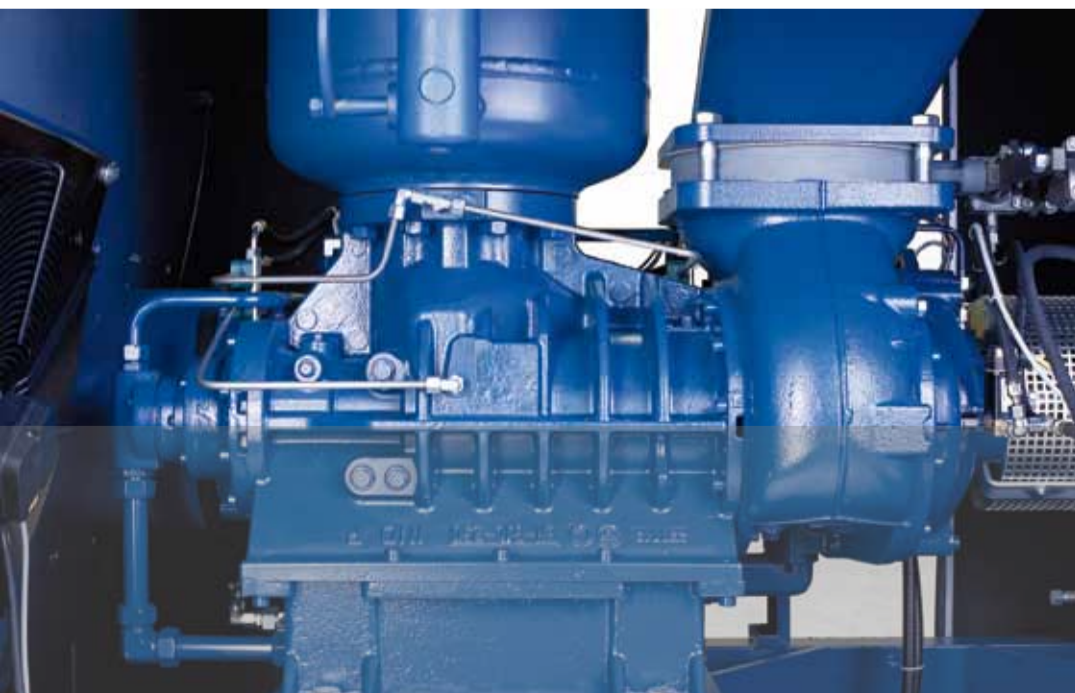
In order to detect any damage to the compressor stage as quickly as possible, Aerzener Maschinenfabrik GmbH provides its customers with comprehensive solutions for vibration measurement and analysis. By means of SPN-nipples,

and using an existing measuring system, the customer can identify independently any deviations from the standard which might occur. Alternatively, existing AERtronic control systems can be equipped with vibration sensors, in order to display

the measured values. Permanent monitoring of the packaged unit can be undertaken completely automatically through the use of a connected vibration analysis system. This enables the customer to perform both vibration measurement and independent analysis of the rotor bearing level.

### Monitoring by Aerzener Maschinenfabrik GmbH

In the final stage of expansion "Delta Real Time Monitoring" monitors vibrations, the pressure and the temperature of the machine via sensors. All of the measured values of up to eight diagnostic units are merged in real time in an independent switch cabinet and these values are transmitted immediately via internet, ethernet or GSM-modem to a special server at Aerzener Maschinenfabrik GmbH, where they are stored and can be retrieved at any time. If deviations from trend are observed there, countermeasures can be initiated at once.



With a comprehensive accessories programme, Delta Screw series ensures the highest possible level of safety.

## New concept for service and maintenance trade fairs

AERZEN has developed a new, modular fair stand concept which can easily be adapted to various base areas, and which reflects the new Corporate Identity. The freestanding, portal-like beam construction of this fair stand is designed to attract the attention of visitors from some distance. Therefore, an adequate presentation area is now available for products and services of the AERZEN After Sales Service. We celebrated its debut at this year's "Maintenance" fair from 25-26 February in Dortmund, Germany.



3D model of the new fair stand for the "Maintenance" fair in Dortmund.

## Automatic re-lubrication devices

Packaged units with high annual operating times may require more service calls for the re-lubrication interval of the electric motors. Therefore, AERZEN has included automatic re-lubrication devices in the After Sales Service Programme. These systems are driven by electric motors; the dispensers are provided with the necessary power supply by an integrated removable battery. Cartridges are available in three different sizes and various types of lubrication. The devices can be applied at temperatures from -10 °C to +60 °C. Thanks to corresponding programming, the dispensed quantity can be accurately dosed and adjusted to the requirements of the electric motor. Therefore, an efficient and safe lubrication without downtime is guaranteed. In this way it can be ensured that the system is permanently available.

Retro-fitting of new AERZEN machine lubrication devices is also possible for existing standard motors.

The new automatic re-lubrication devices from AERZEN



## Aerzen do Brasil celebrated its 15th anniversary

Last year, the team at our subsidiary Aerzen do Brasil celebrated its 15th anniversary: to have been in business successfully for 15 years in the important, but highly competitive Brazilian market, is a great achievement. To celebrate this milestone, all Aerzen do Brasil colleagues, and their families, were invited to a celebration "in the green".

Colleagues and their families enjoyed the celebration on the occasion of the 15th anniversary.



## 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](http://www.aerzen.com/news)

## Exhibition dates

In the first half of 2015, AERZEN participates in the following fairs and trade exhibitions:

- Wasser**, Berlin/Germany  
24th until 27th March 2015
- Anuga Food Tech**, Cologne/Germany  
24th until 27th March 2015
- Hannover Messe/Comvac**, Hanover/Germany  
13th until 17th April 2015
- IWEX**, Birmingham/Great Britain  
21st until 23rd April 2015
- Maintenance Next**, Rotterdam/Netherlands  
21st until 23rd April 2015
- Maintenance**, Stuttgart/Germany  
29th/30th April 2015
- Mining Copperbelt**, Kitwe/Zambia  
5th/6th May 2015
- Schüttgut**, Basel/Switzerland  
6th/7th May 2015
- IE EXPO 2015**, Shanghai/China  
6th until 8th May 2015
- OzWater 2015**, Adelaide/Australia  
12th until 14th May 2015
- Pump Centre**, Telford/Great Britain  
14th May 2015
- IPACK-IMA**, Milan/Italy  
19th until 23rd May 2015
- Achema**, Frankfurt/Germany  
15th until 19th June 2015
- EXPO APA 2015**, Bucharest/Romania  
15th until 17th June 2015

## IMPRINT

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View over aeration basins 1 and 2 onto the allocated oxygen station.



Oxygen station for supply of aeration basins 1 and 2, equipped with two AERZEN turbo compressors with air bearings, installed in the year 2009.

AERZEN provides energy efficient process air generation in the Kötz wastewater treatment plant

## Stronger in combination

For process air generation, the Kötz wastewater treatment plant selected an ideal solution: the compound system of AERZEN turbo compressors for base load, and AERZEN positive displacement blowers, or rotary lobe compressors, for peak load, to provide failure-free supply of the biological wastewater treatment plant at optimal cost.

The Kötz wastewater treatment plant, located a few kilometres south of Günzburg, was designed for a population equivalent of 45,000. About 20,000 inhabitants are connected at present. Due to the additional discharge of industrial wastewater, the average daily load corresponds to a population equivalent of about 35,000.

The wastewater treatment plant works according to the mechanical-biological principle. In the two stage nitrification process, the wastewater, which is mechanically pre-cleaned by a sand collector, is supplied with oxygen, to assist the action, and reproduction, of the bacteria which are required for wastewater purification. In the activated sludge basin, the activated sludge sinks to the bottom, and the cleaned clear water, with a CSB degree of purification of 96 per cent, is then fed into the adjacent River Günz.

### Tailor-made solutions

Sewage plant operator Hans Kempfle has experience with process air generation by turbo compressors as well as by positive displacement blowers, as both systems are in operation in Kötz. In the current equipment configuration, two AERZEN positive displacement blowers, with a maximum intake volume flow of 2,370 Nm<sup>3</sup>/h and 35 kW-motor, have supplied one part of the aeration basins with oxygen since the year 2000. Since 2009, two AERZEN turbo compressors type AT 50-0,6S, equipped with air bearings with maximum intake volume flow of 2,187 Nm<sup>3</sup>/h and 37 kW motor, have been supplying the other. Furthermore,

Oxygen station for supply of aeration basins 3 to 6, equipped with two AERZEN positive displacement blowers with air bearings, installed in the year 2000.



since 2000, two small positive displacement blowers have supplied oxygen for the sand collector aeration. The units were installed in separate buildings in close proximity to the aeration basins which they support.

This compound system offers the operator two key advantages: for each loading situation, even where process air requirements can fluctuate considerably, it ensures an optimally adapted and safe process air supply, and makes particularly energy efficient generation possible. This is significant because energy consumption involved in process air generation at a wastewater treatment plant can amount to up to 80 per cent of total costs.

### New dimensions in terms of energy efficiency

All six units were supplied by the AERZEN subsidiary RKR Gebläse und Verdichter GmbH in Rinteln. The units each work in pairs, in "alternate shifts". One packaged unit is in continuous operation, while the second one is kept as redundancy. For each packaged unit, this concept results in approximately 4,400 operating hours per year.

In spite of their different technical concepts, in Kötz both systems have proved to be outstandingly successful. Meanwhile, AERZEN continues to develop its range of turbo compressors to turbo blowers and positive displacement blowers to rotary lobe

Surface of aeration basin 3. The oxygen bubbles on the surface are clearly visible.



Two AERZEN positive displacement blowers have aerated the sand collector since the year 2000.



Hans Kempfle,  
sewage work operator in Kötz

Due to their high reliability and low maintenance costs we absolutely recommend AERZEN positive displacement blowers and turbo compressors.

compressors, so the units of the new series now generate the required process air even more energy efficiently. Due to the compound concept, the energy efficiency of the process air generation achieves excellent results, as it is possible to respond with great precision to varying requirements. Furthermore, up to now the units have been failure-free and require very little maintenance. Comparing the investment and maintenance costs, even with a long-term consideration of both systems, Kempfle assumes a balanced cost-ratio, as the lower procurement price of positive displacement blowers, plus their ongoing maintenance costs, roughly corresponds with the higher investment costs of turbo blowers. Therefore, he absolutely recommends both air-bearing AERZEN turbo blowers as well as AERZEN positive displacement blowers for generation of process air in wastewater treatment plants.

The process air requirements of a sewage plant, whether operated locally or industrially, can only be achieved efficiently when different machine types are combined. This has been proved by cost-effectiveness calculations undertaken by various engineering concerns.