



AERZEN COM·PRESS



AERZEN's energy-efficient blower technology takes over the pneumatic conveyance in Aerzener Brot und Kuchen GmbH from the silo to a scale.

With high-pressure in the mixer

AERZEN's energy-efficient blower technology

With a blower station as part of the pneumatic conveying unit, Aerzener Brot und Kuchen GmbH ensures water-borne supplies in the "bakery". After a recent modernisation, together with AERZEN, a new especially energy-efficient blower unit of type Delta Blower E-design, was put into operation.

According to the Federal Statistical Office, annual sales of bakery goods total around EUR 18 billion. Behind this is an annual consumption of 85 kilogrammes per inhabitant, within which the general public prefers bread, which accounts for 63 percent of the total. With this type of food being so popular, the market is extremely competitive. The significance of larger medium-sized bakeries and industrial bakeries is increasing, accompanied by a constantly changing array of baked goods available in the market.

High requirements

Rye meal with bio certificate is a basic product, which Aerzen Brot und Kuchen GmbH of Lower Saxony stores in an external silo. If this type of grain is requested in a bread formula, a blower station takes

over the pneumatic conveyance from the silo to a scale.

Removal of grain from the silo is effected by rotary valves at discharge of the reservoirs, which convey the grain into the piping, from where, it is then blown into production. „Each part of a batter mix is transported individually, so that we can weigh it exactly“, explains Andreas Specht, Technical Manager of Aerzener Brot und Kuchen GmbH. For each batch, the around 200 employees of the Brotfabrik mix approximately one ton of flour and meal into a smooth dough. Five batches are processed per hour - a daily production quantity of 80 tons of bread. The figures clearly show the importance of the demands on the technology being used. Against this background, the industrial bakery has undertaken a mod-


Andreas Specht,
Technical Manager of Aerzener Brot und
Kuchen GmbH

We need a defined volume flow with the correct pressure and absolutely do not need devices with oil injection.



ernisation programme and replaced the outdated blower for pneumatic conveyance with a modern unit from AERZEN - an energy-efficient Delta Blower E-Design GM 15 L (700 mbar, 1,038 m³/h, 30 kW). These units are designed for intake volume flows from 30 to 1,000 cubicmetres per hour and complement the rotary lobe compressors of series Delta Hybrid in the lower volume flow range.

Energy-efficient technology

In compressor technology, more than 90 percent of the life cycle costs can be attributed to energy consumption. This high percentage clearly shows that savings and operation correlate closely with each other. Energy consumption can be reduced by lower internal pressure losses of a blower, which has a positive effect on the energy bill. 

“Absolute growth market”

The Asia-Pacific region plays an important role for AERZEN



Extra large for “Jamnagar” Unit for Indian oil refinery



Sufficient air in the fixed bed reactor Delta Hybrid in use



Dear Readers,



Sebastian
Meißler,
Marketing

In this year's last edition, we would like to invite you to join us on our trip through the multifaceted world of AERZEN.

As you can see from the contributions, “internationalisation” is a particularly important topic for AERZEN. For decades, AERZEN has successfully dealt with all kind of challenges, made investments in growth markets, and used our local know-how to further extend

the AERZEN brand. AERZEN is following this path within the framework of Vision 2022, in order to offer in future, as an application specialist, innovative technologies for a variety of industrial applications. Therefore, we will be very happy to welcome you again to one of our forthcoming trade fairs world-wide. For now, we say good-bye until next year, and present here our outlook on the development of the Asia-Pacific region, news from all over the world, and last but not least, we are including some interesting user reports from the field of waste water treatment and pneumatics.

I wish you and your families a Merry Christmas and a Happy New Year 2016!

Yours,

S. Meißler

Extension of Delta Screw series

The planned range of four compressors of the new series Delta Screw E compressor has been extended by AERZEN with two additional sizes now available. The new models VM 30 and VML 35 cover the lower volume flow range of the series and are the perfect addition to the Delta Screw compressor packages with belt drive. This new series of E compressor includes 6 sizes in the volume flow range from 330 m³/h to 7,000 m³/h and drive capacities from 30 to 400 kilowatts. VM 30 and VML 35 cover a volume flow of 330 m³/h to 2,590 m³/h and a maximum differential pressure of 2 or 3.5 bar.



The new models VM 30 and VML 35 complete the E compressors of AERZEN's Delta Screw series.

New Managing Director at Aerzen India

Ranjit Lala became the new General Manager of AERZEN Machines (India) Private Ltd. in August 2015. He succeeds Jitendra Mangle. Within the scope of his activities, Lala will also cooperate more intensively with Chuck Lim, Managing Director of the Asia Pacific region, based in Singapore. In addition, Axel Wehling from the headquarters will provide support. Ranjit Lala, a graduate in engineering and economic sciences from the University of Mumbai, has long experience in leading positions at international companies in the areas of Production, Sales, After Market Service and Supply Chain Management.



Ranjit Lala became the new General Manager of AERZEN Machines (India) Private Ltd. in August 2015.

Aerzen Turbo Generation 5 - now available in Asia

The new turbo series Generation 5 is available in Asia with immediate effect. As a first step, the sizes AT150 and AT200 (3,000 - 8,400 m³/h) will be locally produced by Aerzen Turbo in Korea; the sizes AT300 and AT400 (8,000 - 16,200 m³/h) will follow in the first quarter of 2016.

The new series Generation 5 is characterised by improved fluid mechanics resulting in increased energy efficiency, reduced sound levels and less maintenance. Space-saving "side-by-side" installation is also possible.

Aerzen Turbo Generation 5 - available in Asia with immediate effect.



Aerial photo of the industrial bakery Aerzener Brot und Kuchen GmbH in Lower Saxony

With the E-Blower, AERZEN has been able to increase the efficiency by at least four percent through constructive optimisations - among other things by flow-optimised direction of the intake air in the acoustic hood and the filter silencer. Moreover, the patented intake cone minimises pressure losses as well as sound emissions. Also quickly wearing absorption material was not used in the E-Blower - an additional protection against contaminations of the downstream process system and thereby of the final product. The E-Blower has further advantages with respect to energy efficiency through its revised cooling concept. In this case, an optimally placed and electrically driven fan replaces the widely spread mechanically coupled acoustic hood fans. The independent operation enables control of the fan power, so that in partial load operation with low dissipated heat, the fan can be run at lower speed. Also, in order to achieve more effective cooling, the AERZEN units suck on the cool front side, in order to have a possibly higher Delta T compared with



With compressed air the required raw materials reach the "bakery".

the warmer rear side which has a pressure pipe connection.

Andreas Specht points out, that in his company, energy efficiency gains play an increasingly important role in investment decisions - „especially in view of the long runtime of the machines“. In this case, AERZEN ensures the continuous application of IE3-motors for assuring the future of investments. A further criterion for the selection of the energy-efficient Delta Blower was the absolute oilfree conveyance of transport air. „We need a defined volume flow with the correct pressure and absolutely do not need devices with oil injection“, stresses the Technical Manager.

Ready availability

When designing the new blower, the already known pressure and volume data from the exchanged device could be used - this reduced the expenditure significantly. The modernisation work was limited to the exchange of the devices: - smaller adaptations concerning connection technology and the commissioning were finished in



Support during commissioning of Delta Blower E-Design by an AERZEN technician

just a few hours together with an AERZEN technician. The scope of supply covers the general installation control, as well as the analysis of important operating parameters during test operation with real loads. „We thus ensured, that, after modernisation, the unit works as well as before“, says Specht and notes that Aerzener Brot is pleased to be able to use standard components for the technical equipment. In comparison with special solutions, the use of standard technology means availability of spare parts and maintenance. This also applies to the blowers of AERZEN - spare parts can easily be purchased worldwide and installed without additional expenditure on adaptation work.

Energy-efficiency and safe operation, combined with high availability, determine the technical equipment of all operational ranges at Aerzener Brot und Kuchen GmbH. Against this background, the company attaches great importance to energy-efficient equipment. Energy consumption is one of the most significant operational costs for the bakeries sector.

The Asia-Pacific region plays an important role for AERZEN

“Absolute Growth Market”

In 2004, the success story of AERZEN in the Asia-Pacific region began. Now, four subsidiaries and three sales offices operate in this region. The most recent milestone was the inauguration of the new location of Aerzen China in October 2015.

When it took over Azon Engineering, AERZEN started its commitment to the Asia Pacific region. Soon afterwards, Aerzen Asia and Aerzen China were founded, then Aerzen India (2006/07) and Aerzen Australia (2011) followed, as well as sales offices in Thailand, Taiwan and Vietnam. The customers mainly come from the petrochemical, chemical, cement and steel industries, as well as the mechanical engineering industry. “Asia Pacific, with the main drivers China and India, is an absolute growth market for our company”, emphasises CEO Klaus-Hasso Heller.

The head office of Aerzen China in Shanghai, inaugurated on 13th October, shows how important the Asia Pacific market is for AERZEN. A new building was constructed with spacious production, office and social facilities. 150 guests came to the official opening, among them customers, suppliers, government representatives and colleagues from Aerzen China and from Germany. “Our guests were impressed by the quality of the building”, says Klaus-Hasso Heller, who planted four

trees together with Managing Director Bernd Wöhlken, Chuck Lim (Managing Director Asia Pacific) and Sam Hoo (Managing Director Aerzen China) on the occasion of the inauguration.

The new location of Aerzen China offers enough space for further expansions and is therefore a strong basis for dynamic development in the entire region. Growth potential include, for example, our applications in waste water treatment, as in populous Asia a tremendous amount of waste water must be purified. “We are already now the first choice concerning many applications. But in order to continue to develop the

Thumbs up for AERZEN in the Asia-Pacific region (from left): Sam Hoo, Chuck Lim, Bernd Wöhlken, Klaus-Hasso Heller



market, an even more sustainable strategy is necessary. We want to explain to our customers that we do not only offer excellent products, but also provide comprehensive solutions”, says Chuck Lim.

A special challenge for AERZEN is the competitive situation in the Asia Pacific region. Particularly in China, there are numerous cost-attractive product providers, but they have considerably lower product quality than AERZEN: “We therefore have to manufacture our products more cost-effectively without losing any quality - as quality is, and will remain, the backbone of the AERZEN brand”, underlines Stephan Brand, Manager Marketing International. “It is important to explain to customers in the Asia Pacific region”, says Klaus-Hasso Heller, “that investments in AERZEN products pay off after a short time thanks to our energy-efficient solutions.”

Festive inauguration: With traditional ceremonies, Aerzen China officially opened the new location in Shanghai.



Sales Office West

Energy summit on the occasion of the anniversary

The sales office West invited loyal customers to an energy summit on the occasion of its 50th anniversary. A big celebration took place, as well as an in-house exhibition.

This year, the sales office West of AERZEN celebrates its 50th anniversary. 120 loyal customers from the sales areas North Rhine-Westphalia,

Rhineland-Palatinate, Saarland and Luxembourg were invited to an energy summit on 17th September 2015 in Essen-Werden.

At the in-house exhibition, which took

place during the energy summit, the AERZEN products Delta Hybrid, Delta Blower, Delta Screw and AERZEN Turbo were in focus. Energy consumption data of the various AERZEN products was also highlighted and they were compared against each other. In addition, the energy mix of AERZEN was presented to customers, involving different combinations of the products (i.e. Delta Hybrid, Delta Blower, Delta Screw and AERZEN Turbo). By using this approach, AERZEN can supply optimal solutions in terms of energy-efficiency for the particular application of the customer.

Besides giving product information, the 50th anniversary of the sales office West was also celebrated, and this will surely be a reason why the energy summit and the 50th anniversary will be an enduring memory for the customers.



Klaus-Hasso Heller, CEO of AERZEN, welcomed the guests.



Together with loyal customers the sales office West celebrated its 50th anniversary.

VMY-unit for Indian oil refinery

Extra large for "Jamnagar"

AERZEN was given an order, by a big Indian concern, for the development of an extremely large VMY-unit for the "Jamnagar" oil refinery. For this huge project, enormous expenditure was necessary.



A module of the VMY 536M-unit for the "Jamnagar" oil refinery in India

The "Jamnagar" oil refinery, in the western state of Gujarat in India, is at present the largest oil refinery in the world. Furthermore, for many years it has been counted among the world's largest industrial sites. AERZEN was entrusted by the operator for recycling purposes with a so-called Pressure Swing Adsorption (PSA) application, which realises the separation of poisonous carbon/ hydrogen gas mixtures under pressure.

The technical concept of the Process Gas Division, based on an oil-injected VMY 536M-solution, including an extensive control system, convinced our customer and

its partners. So, in February of this year, a nearly identical follow-up order was placed with AERZEN.

New dimensions

With a weight of more than 80 tons, and an installation surface of about 140 square metres, distributed over three so-called "skids", for AERZEN and Emmerthaler Apparatebau GmbH this order represented a new dimension.

By means of an extension of the work surface in Emmerthal, the parallel construction of the three skids could be guaranteed. In addition, there were particularly

high and extensive quality demands in the customer specifications, verified during more than 30 visits.

Only by means of special equipment could all three skids be loaded in Emmerthal in September. Due to the external dimensions of the seaworthy packed VMY-unit for transport to the Port of Hamburg, only the Mittelland Canal was considered. Procurement, inspection and transfer of documents for the follow-up order are currently in full swing. As of January 2016, construction and pipework fabrication in Emmerthal will begin again.

The seaworthy packed unit is loaded on a container ship near the Mittelland Canal.



At great expense, the large VMY-unit was transported to its destination.



Correct planning!

At the request of many customers, we have reissued the "planning folder waste water". System manufacturers, engineering offices and customers receive with this folder extensive information about the products Delta Hybrid, Delta Blower and AERZEN Turbo. Technical drawings, detailed performance descriptions and detailed information about our accessories programme will help you to configure and design the most energy-efficient solution for your application.

You can order the new waste water folder free of charge using the attached order form.



Planning folder waste water

Aerzen USA has a new General Manager

To continue the positive trend in growth and development, Aerzen USA has appointed a new General Manager. On 1st September 2015 Tony Morris assumed this role. Morris, who has an academic degree in Engineering and a Master of Business Administration, is very experienced in industry and in business development in an international environment. He succeeds Pierre Noack, who returns to the company's headquarters after 30 years to further push the Process Gas Division.



Tony Morris, new General Manager of Aerzen USA

Exhibition dates

In the first half of 2016, AERZEN will participate in the following fairs and trade exhibitions:

Aqua Pro Gaz,	Bulle/Switzerland	20th to 22nd January 2016
New England Water Environment Association,	Boston/USA	24th to 27th January 2016
New York Water Environment Association,	New York/USA	2nd to 4th February 2016
ANEAS, Mexico		28th to 29th February 2016
AquaTherm,	Tashkent/Uzbekistan	2nd to 4th March 2016
Water Expo 2016,	Chennai/India	3rd to 5th March 2016
Missouri Water,	Missoula/USA	14th to 17th March 2016
Aqua Nederland Vakbeurs,	Gorinchem/Netherlands	15th to 17th March 2016
Asiawater 2016,	Kuala Lumpur/Malaysia	6th to 8th April 2016
SC Environmental Conference,	Myrtle Beach/USA	6th to 9th April 2016
AWEA, Orange Beach/USA		6th to 9th April 2016
Texas Water,	Corpus Christi/USA	14th to 17th April 2016
Neftegaz, Moscow/Russia		18th to 21st April 2016
Maintenance,	Antwerp/Belgium	20th to 21st April 2016
ECWATECH,	Moscow/Russia	26th to 28th April 2016

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

Emmerthaler Apparatebau twice recertified:

During this year's recertification audit pursuant to ISO 9001 and BS OHSAS 18001, Emmerthaler Apparatebau GmbH demonstrated once again its excellent management systems for quality, occupational health and safety. The audit was carried out by the TÜV Nord and by the internal quality management, under the supervision of Michael Stewig. The results showed that no deviations were found. In the course of the continuous improvement process, however, further potential improvements were identified, and these now need to be realised.

Thanks to this recertification, and the already attained certifications such as ASME, TR/TS 032, DNV, China License and H/H1, customers will be provided with the best possible service with regard to planning, calculation and manufacturing of pressure equipment, with everything coming from a single source.



Emmerthaler Apparatebau GmbH has successfully passed the recertification audit pursuant to ISO 9001 and BS OHSAS 18001.

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Editor

Aerzener Maschinenfabrik GmbH
Reherweg 28
31855 Aerzen GERMANY

Editorial staff

M/Stephan Brand (v.i.S.d.P.), Sebastian Meißler,
Andreas Gattermann, Frank Glöckner,
Klaus Grote, Klaus Heller, Ingo Kammeyer,
Bernd Wöhlken

Picture credits

Aerzener Maschinenfabrik, Aerzen Asia,
Aerzen USA Corporation, Aerzen Machines (India),
Aerzen Turbo

Realisation

Maenken Kommunikation GmbH
Von-der-Wettern-Straße 25
51149 Cologne
Auflage 5.500



Thanks to modern technology made by AERZEN, the wastewater treatment plant will save a considerable amount of energy.



Especially energy-efficient - AERZEN blowers of series Delta Hybrid.

Delta Hybrid rotary lobe compressors made by AERZEN

Sufficient air in the fixed bed reactor

The wastewater treatment plant located in Beggen, Luxembourg, is considered a model of high quality in respect of sewage water cleaning. In order not to place an undue burden on the plant's electricity bill, highly energy-efficient rotary lobe compressors of series Delta Hybrid made by AERZEN are in use.

What about the typical sewage water smell? No chance! Visitors to the "station d'épuration" located in the district of Beggen have to pay close attention in order to realise that a wastewater treatment plant is in the neighbourhood - and one which processes a daily water volume between 30,000 and 40,000 m³. In order to avoid bad smells emanating from the plant, the city of Luxembourg has enclosed all cleaning stages, even the biological processes. In combination with a powerful exhaust air system, the malodorous air is led through a chemical scrubber prior to delivery to the outside world. "The fans run continuously at 30 kW," Production Manager, Luc Ley, notes pragmatically. He knows that low emissions come at a price, especially looking at the operating costs which arise from power consumption. "Therefore, for us, only the application of IE3-motors makes sense."

More air for microorganisms

Due to EU-wide stipulated limit values, especially with regard to nitrogen and phosphorus, the municipality had to face the challenge of modernising the existing plant. Due to limited space, an increase in capacity was not the only option. "This is why we are today using fixed bed reactors," explains Ley. The procedure works properly, but for nitrogen degradation, considerably more air is required. "We need an oxygen saturation between 7 and 8 mg/l. The standard is between 1 and 1.5 mg/l." The high oxygen requirement results from the special cleaning procedure in the fixed bed reactors. If the air quantity is not sufficient, the microorganisms run out of breath. For the air supply, one AERZEN Delta Hybrid rotary lobe compressor D62 S is applied with each reactor. The packaged units supply a volume flow between 1,700

and 2,000 m³/h at a slight overpressure between plus 550 and 620 mbar.

Long-life operation

As part of a large-scale modernisation of the ventilation technology, the wastewater company had an AERZEN service team size up and install more powerful rotary lobe compressors. The packaged units of series Delta Hybrid have a connected load of 75 kW. However, they are operated with only a nominal power of 40 kW via the frequency converters. This means that the Delta Hybrid systems produce the required volume running at 5,000 rpm, instead of 9,000 rpm. "Today, the packaged units are designed in such a way that they get bored as far as wear and tear is concerned," Ley notes with a smile. Although it might seem paradoxical at first, the overdimensioning provides tangible advantages, such as for longevity and maintenance intervals. The previous equipment required maintenance every three years. This has changed, as the Delta Hybrid systems only require service every five years. "Assuming a lifetime of ten years, I will save one complete maintenance sequence," adds Ley.

Another positive effect of the new units is the reduction in energy costs, thanks to the special operating principles of the Delta Hybrid units.

Here, AERZEN combines the operating methods of both positive displacement blowers and screw compressors. The result is an efficient unit - the world's first rotary lobe compressor. The economical use of results from the fact that the Delta Hybrid series calls for the Roots-Principle of isochoric compression in low pressure applications and the screw compressor principle, with its internal compression, becomes the preferred choice for its energy efficiency in higher pressure ranges. AERZEN has calculated that the rotary lobe compressor re-

quires 15 percent less current than existing compressors. In addition, the air conveying is absolutely oil-free which is an important feature in wastewater treatment.

More than promised

The effects of this operating method in practice are reflected in the power consumption of the wastewater treatment plant in Luxembourg. "Prior to retrofitting, AERZEN promised us energy savings of 8 kW per plant. This will result in annual savings of almost EUR 50,000" reports Luc Ley as he looks his amortisation calculations. A period of five years had been forecast before a return on the investment would be achieved. Such a period will probably not apply in Luxembourg though, as the actual savings will not be 8 kW as expected, but are more likely to be 15 kW! And the corresponding longer maintenance intervals have not even been taken into account yet.

Today, the wastewater treatment plant in Beggen is an example of highly available plant technology, jointly developed by users and manufacturers. Against the background of maximal operational reliability, the design was characterised by a healthy level of power reserves. According to Luc Ley, the confidence in AERZEN is "very high" as no other planning office had been involved in the retrofitting.

The wastewater treatment plant, located in Beggen, Luxembourg, is considered a model of high quality in respect of sewage water cleaning.

