



AERZEN COM·PRESS



The EU directives for explosion protection play an important role, among others, in the chemical industry. AERZEN always offers suitable solutions with its products.

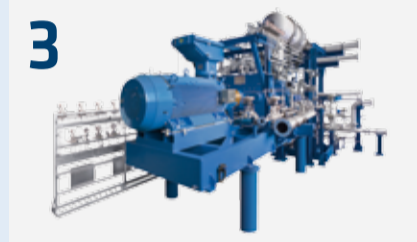
Customer satisfaction analysis

You spoke the truth



Process gas compression with AERZEN

Sits, fits, saves



Butadiene treatment plant

Cool system for hot tyres



Dear Readers,



Ingo Kammeyer,
Manager of
Technical Sales,
Product
Management

ACHEMA - the leading trade fair for process industry takes place between 15th and 19th June 2015 in Frankfurt / Germany.

AERZEN will exhibit there again as we provide special solutions, also for the conveyance and compression of process gases. We invite you to read this edition AERZEN COM.PRESS and get to know our ATEX solutions, which comply with the Explosion Protection Directive of the EU and find out

more about our specifically designed compressors for the refrigeration and process gas industry.

Besides our suitable products, our overall performance means a lot to us. Therefore, you are welcome to read about our customer satisfaction analysis which was recently carried out. This analysis represents our barometer of further potential for improvement. Read more about accompanying certification activities which will enhance your benefit and our qualifications in the areas of quality management, environmental protection, energy efficiency and occupational safety.

We would be pleased to welcome you at our stand in Frankfurt or even at our parent company in Aerzen!

We look forward to meeting you and discussing your requirements.

Yours,

With AERZEN on the safe side

Solutions according to ATEX directives

From chemistry to process technology, the number of applications included in EU-wide directives for explosion protection is growing. On the basis of experience acquired over several decades, AERZEN offers an extensive and cost-effective product portfolio for maximum safety.

ATEX (French: "ATmosphère EXplosible") is the name of a European directive for devices and protection systems used in potentially explosive atmospheres. Since 12th December 1996, ATEX product directive 94/9/EG has been in effect. As a legal provision, it serves to protect persons working in potentially explosive atmospheres, or who might be affected by explosions. In addition, ATEX directive 1999/92/EG specifies, that within a risk assessment, plant operators have to prepare an explosion protection document and have to assign areas with explosive atmospheres in zones.

Products for nearly all ATEX zones

AERZEN offers solutions in its wide-ranging product portfolio for nearly all ATEX zones. These are based on experience ac-

quired over several decades, as compressor and blower packaged units made by AERZEN have been used for a long time in extremely critical working atmospheres. As sound advice is the key in ATEX-compliant plant design, before any action is taken, engineers from AERZEN discuss all the project details with the customer. They collect the ATEX-relevant information concerning type of gas and dust, operational environment, explosion group,

temperature class (concerning gases) or ignition temperature (concerning dusts), ambient temperature and frequency converter operation. Once all these details have been collected, and evaluated, the plant can be assigned to one of three categories. According to ATEX product directive 94/9/EG, distinction is made between normal, high and very high safety requirements.

Solutions from one source

To provide customers with exactly the product they require, the ATEX specialists from AERZEN develop a tailored unit concept, including all the required documentation, and the corresponding accessories, according to ATEX product directive 94/9/EG. Before they are ex-

Horst-Ulrik Schwarz,
Product manager single-stage compressors AERZEN

As far as ATEX is concerned, no risks should be taken. Our customers can rely on the know-how that AERZEN has acquired over the decades. Analysis of the situation, comprehensive advice and perfect translation into action are our strengths.



New rotary lobe compressors for negative pressure applications

Rotary lobe compressors in the successful Delta Hybrid series are now available in the new "E type" construction for a pressure range of up to -700 mbar. As conventional positive displacement blowers are limited to a maximum differential pressure of -500 mbar, expensive vacuum pumps had to be used for lower pressure ranges. The new E-series remedies this situation, reduces costs and opens up new application possibilities in the field of vacuum conveying - for example in foodstuff technology, plastic granulate pneumatics and in the chemical industry. The advantages for the operator include reduced investment costs, higher energy efficiency and greater flexibility.



The new "E type" construction extends the successful Delta Hybrid series.

Exhibition dates

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

- EXPO APA 2015**, Bucharest/Romania
15th until 17th June 2015
- MIOGE - Oil & Gas 2015**, Moscow/Russia
23rd until 26th June 2015
- FENASAN**, São Paulo/Brazil
26th until 28th August 2015
- Electra Mining**, Gaborone/Botswana
1st until 3rd September 2015
- International trade fair for mining, energy and metallurgy**, Katowice/Poland
8th until 11th September 2015
- Rocky Mountain WEA**, Loveland/USA
13th until 16th September 2015
- TURBO SHOW**, Houston/USA
15th until 17th September 2015
- IFAT**, Johannesburg/South Africa
15th until 18th September 2015
- ACODAL**, Santa Marta/USA
16th until 18th September 2015
- PERUMIN**, Arequipa/Peru
21st until 25th September 2015
- Weftec**, Chicago/USA
26th until 30th September 2015
- Solids**, Amsterdam/Netherlands
30th September until 1st October 2015
- FITABES**, Rio de Janeiro/Brazil
4th until 7th October 2015
- SYMAS & Maintenance**, Krakow/Poland
6th until 7th October 2015
- IAOM**, Jakarta/Indonesia
4th until 6th October 2015
- KIOGE**, Almaty/Kazakhstan
6th until 9th October 2015
- 13th TÇMB**, Antalya/Turkey
7th until 10th October 2015
- IPB 2015**, Shanghai/China
28th until 30th October 2015
- WASMA**, Moscow/Russia
28th until 30th October 2015
- Viet Water 2015**, Ho Chi Minh City/Vietnam
30th October until 1st November 2015
- EXPO ANEAS**, Chihuahua/Mexico
9th until 13th November 2015
- Oil & Gas**, Ashkhabad/Turkmenistan
17th until 19th November 2015

Executed, particular customer requests are checked by AERZEN engineers to ensure their conformity with the ATEX-directive. The customer is thus provided with an ATEX compliant, and of course TÜV-approved, comprehensive solution from one source, no matter whether the packaged unit is used in overpressure or negative pressure range. Depending on the product groups and the zone type, AERZEN interprets the technologies in different ways:

- zone separation filter
- special documentation
- use of special materials for medium-contacting parts
- ex-instrumentation

- vibration monitoring
- spark arrester
- special motors according to the corresponding zone

Various possible applications

AERZEN products are used, for example, in environmental engineering for compression of biogas and natural gas, as well as for gas feed-in, in the chemical and pharmaceutical industry for conveying gas and degassing, in refineries, as well as in power plant technology. Furthermore, they are used in the foodstuff and plastics industries for the loading and unloading of silos and for pneumatic conveyance.

During pneumatic conveyance of combustible or explosive bulk material, ignitable mixtures may develop in the plant, so its components have to be declared for different zones, in order for corresponding protective measures to be taken. AERZEN offers all unit components in appropriate ATEX design. Furthermore, with the TÜV-approved and in-house developed zone separation filter, and the integrated spark arrester, cost-effective alternatives to the conventional protective components are available. So, as far as legal explosion protection is concerned, AERZEN's customers are always on the safe side.

Refineries also rely on explosion-proof AERZEN products.



Explosion protection badge on a Delta Blower GM3S



Customer satisfaction analysis 2014/2015

You spoke the truth

Your opinion is important to us! Therefore, at the end of 2014, we asked customers to participate in a customer satisfaction analysis for Germany, Austria, Switzerland and Sweden.

Thanks to the large response, we gained a representative survey, based on 699 telephone interviews. This survey included the key aspects of overall satisfaction, total loyalty and value creation by AERZEN.

The survey revealed that about 80 percent of our customers are satisfied with our general range of services. 81.5 percent of those surveyed classified AERZEN as a loyal partner. All business divisions were mainly assessed as positive. We are especially glad about the evaluation of our performance ranges "products" and "field service" which had been judged as the most important divisions by our customers. These divisions received a very positive

rating. However, we still cannot be satisfied with these results. It is mandatory for us to go into greater detail, and to shed light on the background to these assessments. Looking at the questions and responses regarding the individual divisions, a differentiated picture has emerged.

The importance of the performance of each individual division from the customer's perspective plays a key role and often shows optimisation potential. Thanks to initial improvement measures, the delivery times of standard blowers and compressors have been reduced. In addition,

the new project "AERZEN Performance" ensures the optimisation and acceleration of internal processes. In the future, we will report about its progress at this point.

The customer satisfaction analysis has provided us with important new insights. An absolute priority will be to offer our customers smooth co-operation. In order to achieve this, AERZEN needs to act in a more customer-oriented way. Direct discussions with our customers are essential! We appreciate and thank you for your willingness to support us.

Please maintain a dialogue with us!

Importance of services which provide total customer satisfaction



AERZEN concepts for gas compression in the process gas- and refrigeration industry

Sits, fits, saves

For optimal conveyance and compression in the process gas and refrigeration industry, individually adapted solutions are decisive. Therefore, AERZEN works very closely with the customer in the conceptual phase.

AERZEN has been supplying blowers and compressors for the worldwide process gas and refrigeration industry for more than 60 years. Its customers include companies in the chemical and petrochemical industries, the steel and soda industries as well as biomethane gas producers. Due to the presence of partly ignitable, or toxic, gases, the units are of a specially high technical tightness. Furthermore, they are adapted to the guidelines required by the customers (for example, ATEX-specifications and Ex certifications).

Three compressor systems

The following series are available for a tailor-made solution.

- Oilfree compressing positive displacement blowers
 - **Series GR** for differential pressures of up to 1,5 mbar and intake volume flows from 100 to 50.000 m³/h
 - **Series GQ** for differential pressures of up to 1,5 mbar and intake volume flows of 15.000 to 100.000 m³/h
- Screw compressors, oil-injected compression:
 - **Series VMY 36 (Refrigeration and process gas)** for differential pressures, single-stage, to approximately 20 bar and intake volume flows from 500 to 8.900 m³/h
 - **Series VMY 56 (Refrigeration and process gas)** for differential pressures to 25 bar and intake volume flows of approximately 300 to 2.700 m³/h
 - Screw compressors, oilfree compression:
 - **Series VR** for differential pressures to 52 bar and intake volume flows of approximately 650 to 120.000 m³/h

Positive Displacement Blowers of series GR

The two-lobe process gas compressors of series GR work according to the positive displacement principle, and can automatically adapt to changing operating conditions. Depending on process requirements, AERZEN uses nodular graphite casting, steel casting or stainless steel casting materials as well as for the rotors. Moreover, individual sealing variants are available for the conveying chamber, which is separated by a neutral room from the oil chamber. Due to their specially robust type of construction, the compressors are insensitive to contaminations in the gas. For cleaning and cooling, water, as well as solvent, cleaning agent or cooling medium, can be injected.

Positive Displacement Blowers of series GQ

The units of series GQ also work according to the positive displacement principle and can automatically adapt to changing operating conditions. Moreover, they are relatively insensitive to contaminations in the gas. For cooling of the gas, and for cleaning of the conveying chamber, water can be continuously injected. The units have to fulfill particularly high requirements during their application in central power stations, where they are used for compression of water steam in secondary circuits.

Series VMY in the refrigeration industry

AERZEN refrigeration units of series VMY are used in closed cooling circuits and enable a performance adaptation between 20 and 100 percent with their integrated



The positive displacement blowers of series GQ are also used in power plants.

volume flow control. As a result, the compression of gases, hydrocarbons, ammonia, helium and carbon dioxide can be achieved particularly economically. The oil injection makes the compressors insensitive to fluctuating volumes, temperatures and pressures. Integrated oil separation systems reduce the residual oil content to 1 up to 5 mg/m³.

Series VMY for process gas compression

Screw Compressors of series VMY are used for compression of, amongst other things, natural gas, inert gases, hydrocarbons and further process mixed gases. Through integrated oil separation systems, residual oil contents of 5 to 1 ppm can be reached at battery limits.

Oilfree compressing series VR

With their oilfree working method and the water injection option, screw compressors of series VR can be used for gases with fluctuating molecular weights, contaminations and a tendency to polymerise as well as for processes, which must not include any oil. The water injection serves to cool down gases to admissible operating temperatures. Temporarily, an injection of solvents is also possible. For this purpose, the cleaning effect of injection water and purge water leakages applies, where deposits of gas contaminations and traces of polymerisation on rotors and housing walls can occur.

To develop solutions jointly

Gas compression in the process gas and refrigeration industry requires individual solutions. This is exactly what is developed by AERZEN, together with the plant supplier and operator. This leads to tailor-made products which, are, moreover, robust and energy-efficient, and can have a lifespan in excess of 30 years. ○



VR series works completely oilfree and offers the possibility of water injection.



Aerzen North Africa LLC founded

After a long and successful co-operation with Promotrade as our representative for the Egyptian market, AERZEN has had a new subsidiary in North Africa since February of this year: this is Aerzen North Africa LLC which is based in Cairo, and is a subsidiary of Aerzen International Sales GmbH, which holds 90 % of the shares in the company, with Promotrade holding the other 10 % of the shares.

At present, the team consists of five employees and is responsible for Egypt, Libya, Sudan, Eritrea, Lebanon and Jordan.



Domicile of the North African subsidiary of AERZEN in Cairo

The first children's book about AERZEN

Hamelin's art school under the responsibility of artist Natalia Ovodkova contacted AERZEN some months ago, asking whether the school may create a book about the company. AERZEN was happy to support this request. Children and young people between 5 and 14 years have been painting ambitiously for many weeks now. AERZEN photos and brochures have served as a useful guide for the young artists. An exciting story will arise around the photos. Visiting AERZEN on 19th March helped the talented youngsters to gather many live impressions. The book is expected to be published in autumn 2015.



The talented youngsters during their visit at AERZEN

New management at Aerzen Turbo

Robert Janson, who started as Technical Manager at Aerzen Turbo in March 2015, was appointed as the new Managing Director of Aerzen Turbo in Korea on 1st June 2015. He succeeds Steve Won, who has begun his well-deserved retirement. Janson has many years of experience in managerial positions in mechanical engineering, as well as in international trading companies. In addition, Stephan Brand, Director Turbo Business in the head office, was appointed to the management of Aerzen Turbo, in order to strengthen international team-work.

Robert Janson was appointed as the new Managing Director of Aerzen Turbo in Korea on 1st June.



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

Expanded customer support

In order to expand the support that we provide to our end users in the wastewater domain, AERZEN has hired three new sales and service employees for our sales offices "Nord" (Walrode), "West" (Velbert) and "Mitte/Süd" (Kahl and Elchingen). These three colleagues will be responsible for contacting our end users and supporting them in case they have any sales-related questions, or questions about our services.

In order to be prepared for this, the new colleagues completed a training programme between mid-March and the end of April, where they learned about the comprehensive service product portfolio, as well as about internal processes, procedures and contact partners within AERZEN after-sales service.



The new sales and service employees (from left): Bernd Larmann (sales office Nord/Ost), Uwe Gräfe (sales office Mitte/Süd), Frank Bürger (sales office West)

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AERZEN
EXPECT PERFORMANCE



The system consists of three compressor packages VMY 156, one air-cooled condenser, three evaporators and one propylene vessel.

AERZEN Hungaria supplies packaged units for butadiene treatment plant

Cool system for hot tyres

A leading company in the Central European petrochemical industry relied on AERZEN's products and professional competence in the construction of a new butadiene treatment plant.

Compressor packages supplied by AERZEN Hungaria are making an important contribution to automotive mobility: one of the biggest plastics manufacturers in Europe is using the packages in its new butadiene treatment plant, gen-

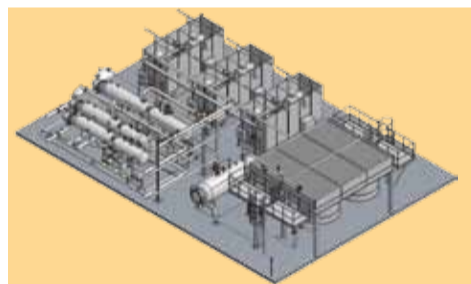
erating the raw material for synthetic rubber, and thus the source material for tyre production. At the location Tiszaújváros (Hungary), the plant has, since spring 2015, been producing 1.3 butadiene for the Hungarian factories of many internationally known tyre manufacturers. The cooler system at the plant was supplied by AERZEN. This consists of three VMY 156 compressor packages, one air-cooled condenser, three evaporators and one propylene vessel.

Always 150 per cent refrigerating capacity

In operation case 1, 545 kW of refrigerating capacity, and thus the application of two VMY 156s, is necessary. In operation case 2, however, 320 kW of refrigerating capacity,

and thus only one VMY 156, is necessary. Thus, the system always supplies 150 per cent refrigerating capacity and one packaged unit is always available as stand-by. This is important, because butadiene must be cooled continuously, as otherwise it will polymerise and stick to the surfaces of pipings and tanks. For this reason, the system has three evaporators. The first evaporator cools the butadiene, when it comes from the plant and is led to the two spherical tanks with a size of 2,500 m³. The other two evaporators provide additional cooling. Besides the production of the cooling system, the team from AERZEN Hungaria was also responsible for its installation at the customer's plant. ○

Cooler system made by AERZEN



Certification measures at AERZEN

Tested quality

Thanks to various certification measures, AERZEN creates legal certainty, improves environmental and work safety, and makes products which are even more energy efficient.

Quality management, the environment, energy efficiency and work safety are key topics at AERZEN. Our customers gain many advantages from this focus. The adherence to binding standards leads to legal certainty. Particularly energy efficient products will be the result. Since February 2015, AERZEN has been certified as per Environmental Management Standard ISO 14001 and Energy Management Standard ISO 50001.

Create confidence

The environmental management certificate creates confidence among public authorities and suppliers, as it certifies that AERZEN ensures the responsible handling of hazardous substances. Moreover, this certificate is often required for companies to be awarded public contracts.

During the certification process as per ISO 50001, AERZEN completely changed the way its building was illuminated by installing LED lighting. The drives were changed to frequency converter control, saving energy and reducing costs. These savings then flow back into production procedures.

Thanks to this energy optimisation of the machines which are produced, our customers will benefit directly.

Right now, AERZEN is working on the introduction of an occupational safety management system as per OHSAS 18001. The corresponding audit for the (hoped for) award of the certificate is planned for January 2016. AERZEN will then become even more interesting for customers in the nuclear energy sector and the petrochemical industry, where the appropriate certification is often required.

Aerzen Turbo was recertified

Aerzen Turbo has again proved its quality standards: in May, the Korean subsidiary successfully passed an audit as per Quality Management Standard ISO 9001. Consequently, this certificate was extended to May 2018. ○



In black and white: Aerzen Turbo was successfully recertified as per ISO 9001.