AERZEN Product overview

Positive displacement blowers, screw compressors, rotary lobe compressors and turbo blowers





Expect a lot premium technologies from **AERZEN**



Content

04	Positive displac
06 08 10 11	Overpressure/Ne Process gas blow Vacuum blowers Biogas blowers
12	Turbo blowers
14	Screw compres
16 18 20	Oil-free/oil-inject Process gas com Biogas compress
22	Rotary lobe cor
26	Service
27	Applications

Expect Performance

The story of AERZEN? It is the story of compressor technology. In 1868, we built Europe's first positive displacement blower. In 1911, we built the first turbo blowers in the world. Then, in 1943, the first screw-type compressors, and in 2010, the first rotary lobe compressor worldwide. And today? Today, it is our task to design these machines to work as efficiently as possible - and to adapt them to the hundreds of applications our customers bring to us. And what remains of our tradition? We have preserved the character of a medium-sized family company into the fourth generation. This gives us our drive for innovation. We strive to develop products that strengthen our customers' global businesses. Expect a lot. Expect Performance!

Typical for AERZEN

What distinguishes modern premium technologies? Performance and worldwide service? Sure. Energy efficiency? Nowadays, this goes without saying. However, we at AERZEN believe there is more to it than that. More innovative ideas, for example. These are evident in many national and international patents. But at AERZEN, these can also be found in more discreet aspects of our machines. In our particularly compact designs. In our simple Plug&Play principle. In our fantastic, userfriendly operating concepts. Or our especially long oil-change and maintenance intervals. This brings us back to the topic of quality. The unconditional reliability, the extremely long service life of our technology paired with ground-breaking energy efficiency - all of this is typical for AERZEN.

cement blowers

egative pressure blowers wers

ssors

cted screw compressors apressors sors

mpressors/Screw blowers

Positive displacement blowers Tough endurance runners

AERZEN built the first positive displacement blower in Europe. That was in 1868. Today, these stages and assemblies are among the most successful compressors ever. Highly developed series products for the most diverse applications. In almost all industries. Powerful, economical and extremely durable.

Proven - and more innovative than ever

The Roots principle was the inspiration for the development of AERZEN's positive displacement blowers. And that is a good thing. Even 150 years later, it remains one of our most successful design principles. Today, AERZEN's twin-shaft positive displacement blowers for oil-free conveying are more innovative than ever. The large number of design enhancements ensures first-class values in terms of efficiency. AERZEN patents such as the integrated pulsation reduction ensure low noise emissions and vibrations. Typical for the blowers from AERZEN are also the service-friendliness and the sustainable reduction of life cycle costs. The series of innovative details could be continued. But what counts most in everyday practice? The long-lasting quality of our blowers. Made by AERZEN is legendary for this.

Where reliability decides

AERZEN offers a wide product portfolio for all aspects of blower technology. Perhaps the widest of all. The highly developed machines are available in a wide range of models, sizes, and special designs.

For conveying air, oxygen, neutral, aggressive or toxic gases vertically or horizontally. In overpressure, negative pressure, or vacuum. Can be used worldwide where air and gases are conveyed and compressed. And where reliable availability, energy efficiency and oil-free operation are decisive.



Top performance with highvolume flows. Reliability in its highest form.

Positive displacement blowers Overpressure/negative pressure

Pneumatic conveying of bulk materials and waste water treatment are the main areas of application for positive displacement blowers. AERZEN supplies customised solutions for this. Powerful standard, compact and special blowers. Tailored to the most diverse applications and individual customer requirements. And always a first choice. Functional as well as economical.



Delta Blower G5 blower package

Belt-driven 3-lobe blower with discharge silencer free of absorption material and oilfree according to class 0. Extremely low noise levels, side-by-side installation and versatile adaptability. Available in 17 sizes.



 (\mathbf{A})

Negative pressure:

-500 mbar (g)

Overpressure:

1,000 mbar (g)

Blower package Alpha Blower

2-/3-lobe blower package with direct or belt drive in a modular system. Low pulsation and reduced piping noise. Fully integrated oil system in the stage. Integrated sound reduction measures.



Volume flows: 9,600 to 77,000 m³/h

Large Alpha Blower

104 model variants with low pulsation, reduced piping noise, integrated sound reduction measures and fully integrated oil system in the stage. 2-/3-lobe blower stage with direct or belt drive in a modular system.



9,600 to 77,000 m³/h

Vacuum stage with pre-inlet cooling GMa/b/c ... m



Overpressure blower stage bulk vehicle GM 13.5 ... 13.f7-1



6

Robust 2- and 3-lobe blower stage for mounting on bulk and silo vehicles with extended pressure differences up to 1.2 bar. Two-sided conveying direction with horizontal or vertical flow. Direct or belt drive version. Proven technology, oil-free.

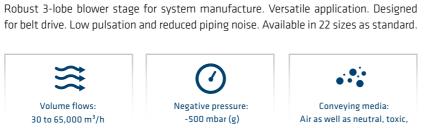


Overpressure: 1,200 mbar (g)



Conveying media: Air and neutral gases

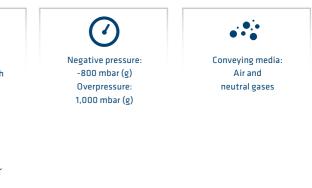
Conveying media: combustible. mixed gases.



explosive, corrosive gases or

Blower stage GM 3S ... 1080 L

 \approx Volume flows: 30 to 65,000 m³/h





Proven 3-lobe blower technology for system manufacture for forced conveying in negative pressure up to 80 % vacuum. Oil-free and extremely robust. Belt or direct drive version. Ideal for bulk and silo vehicles.





Process gas blowers

Process gas blowers from AERZEN are high-performance machines. Developed for the oil-free conveying and compression of technical gases, which can also be toxic, flammable and aggressive. Designed in a wide variety of materials and conveying chamber seals.



Overpressure blower stage GQ

Blower stage (single and double-stage) for system manufacture for conveying process and cooling gas. Horizontal direction of flow Oil circulation lubrication. Suitable for continuous water injection for cooling and cleaning. Available in 6 sizes for overpressure ranges up to PN 6. Delta p up to 1,500 mbar possible.



910 to 104,000 m³/h



Pos. pressure: 6 bar g Diff. pressure: 1,500 mbar



Conveying media: Inert, toxic, combustible, corrosive gases or mixed gases

Overpressure blower stage GR



8

Versatile blower stage (single and double-stage) for system-manufacture for vertical and oil-free conveying. Drive direct, with gearbox or belt. Optionally with liquid injection for gas cooling or gas cleaning as well as in special modifications and materials. 12 sizes for almost all technical gases and mixed gases. Delta p up to 1,500 mbar possible.

Volume flows: 90 to 38,000 m³/h



.... Conveying media: Oxygen as well as neutral, toxic, combustible, corrosive gases or mixed gases

High pressure blower Overpressure stage GM HP

Direct-driven blower stage (single- or double-stage) for oil-free conveying. Separate Circulating lubrication. Optionally in stainless steel version or in special version as Acethylene booster according to TRAC standard. Delta p up to 2,000 mbar possible.



50 to 38,000 m³/h

 $(\mathbf{ })$ Neg. pressure: -700 mbar g Pos. pressure: 25 bar g

Diff. pressure: 2,000 mbar

Conveying media: Inert, toxic, combustible gases





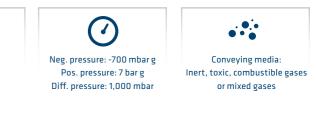


Process gas blower low pressure stage GMD

to AD2000 / DIN EN 13445. 16 sizes.



Universally applicable gas-tight booster solution with magnetic coupling for oilfree conveying. Low-maintenance sealing concept, the separation between oil and process side is achieved by a special piston ring seal Design pressure of 7.0 bar (g) acc.



Vacuum blowers

AERZEN offers several answers to the special requirements of industrial vacuum and high vacuum technology: Special blower series with hermetically sealed motor (type HM) or energy-saving IE-3 motors (type HV). Vacuum-tight and air-cooled. In a wide variety of designs for conveying neutral or aggressive gases in combination with a backing pump. Applicable from film and glass coating to the evacuation of hydrogen - or even under clean room conditions.

Biogas blowers

Developed specifically for the biogas market, they ensure maximum performance and efficiency: The GM series biogas blowers from AERZEN. Available in a variety of different sizes. And - in accordance with the ATEX Directive 2014/34/EU, the Machinery Directive (EN 1012-3) and the DVGW regulations - all can be used in explosion protection zones I and II.



High-vacuum stage GM ... HM

Vacuum blower with hermetically sealed motor for system manufacture, also suitable for use under clean room conditions. With 10 sizes, they form the largest series with the highest delta p in the vacuum industry.



1 Pressure: 10-5 mbar abs. up to 200 mbar bar abs.



Conveying media: Air, oxygen as well as neutral, toxic, combustible, explosive, corrosive gases or mixed gases.

Fine vacuum stage GMa/GMb/GMc ... HV

Vacuum-tight stage for system manufacture with ATEX certification for zone 0. Variable direction of flow vertical and horizontal. Delta p up to 200 mbar possible. With 19 performance levels, the largest series on the market.



Volume flows:

250 to 61,000 m³/h

Pressure: 10-3 mbar abs. up to 200 mbar bar abs



Conveying media: Air, oxygen as well as neutral, toxic, combustible, explosive, corrosive gases or mixed gases.



Rough vacuum stage with pre-inlet GMa/GMb/GMc ... mHV

Vacuum-tight blower stage for system manufacture. High pressure ratio due to pre-inlet cooling. With 11 performance levels, the largest series on the market.



Pressure: 10 mbar abs. to 300 mbar abs

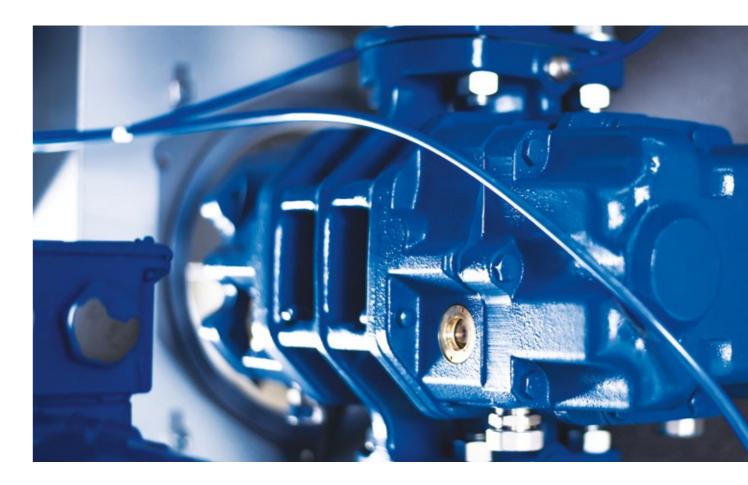


Conveying media: Air, oxygen as well as neutral, toxic, combustible, explosive, corrosive gases or mixed gases.



Belt-driven 3-lobe compact package. Blower stage and assembly with special materials and numerous modification options. ATEX certified. Extensive accessories such as overflow regulators and shut-off devices.





Biogas package Delta Blower GM 3S ... 50L





Conveying media: Landfill gas, biogas, natural gas, town gas

Turbo Blowers **AERZEN** Turbo Compact power in the aeration tank

The turbo blowers made by AERZEN. Over many decades, we have pushed these assemblies technologically to the extreme. Along the way, we've developed expertise that sets standards worldwide today. It is reflected in high energy efficiency, in low life-cycle costs and in specially developed core components. To sum up, it exists and acts in every detail of turbo machines made by AERZEN.

Pointing the way

They are developed for small and large volume flows. Speed-controlled, 100 % oil-free and tailored to the most demanding applications in industrial and municipal wastewater treatment as well as many other fields of application: The turbo blowers made by AERZEN. We are continuing to develop this technology at full speed. Since 1911. Generation after generation a leap forward in innovation. The youngest stands for outstanding energy balance, for a wealth of unique details. The design of the stainless steel impellers, permanent magnetic motors with air gap bearings, real air volume measurement - terms that set

standards in the compressor world. Just like Performance³, by the way. With this concept, AERZEN provides what is currently probably the most powerful solution portfolio for the highly fluctuating requirements in biological wastewater treatment plants. This refers to the product trio of Aerzen Turbo blowers, Delta Blower positive displacement blowers and Delta Hybrid rotary lobe compressors. This technology mix guarantees a unique performance. With highest energy savings, best control ranges - depending on system conditions with a ROI of only 2 years.



Aerzen Turbo AT G5^{plus}

Particularly compact turbo package for small and medium volume flows. Lowest maintenance and noise emission, no vibrations and highest energy efficiency. Easy installation thanks to a plug-and-play package that integrates all components.





Aerzen Turbo AT G5



Particularly compact turbo package for medium and high volume flows. Lowest maintenance and noise emission, no vibrations and highest energy efficiency. Easy installation thanks to a plug-and-play package that integrates all components.

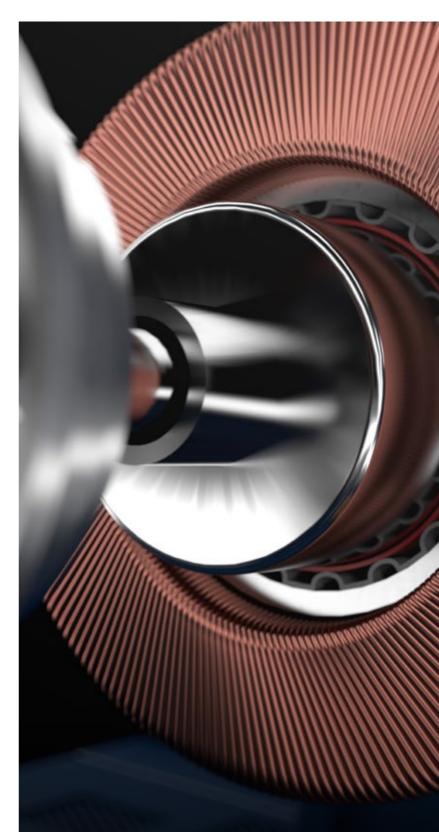
Overpressure

1.000 mhar (g)



 $3.000 \text{ to } 16.200 \text{ m}^3/\text{h}$





AERZEN Turbo air bearing Turbo machines lead the way in Turbo technology.

Screw compressors The universal geniuses

Unrivalled versatility. These two words sum up what distinguishes the screw compressors made by AERZEN. The largest variety of types. The most modification possibilities. The widest range of accessories. And much more. First and foremost, the development expertise of a world market leader that has been constantly innovating, optimising and completing its successful compressors since 1943.

Unlocking potential

Screw compressors are machines designed with a pair of screw rotors. They work according to the positive displacement principle with internal compression and, like blowers, are so-called forced feeders. What makes AERZEN screw compressors special is this: we have made reliability, ease of maintenance, ease of operation, flexibility and energy efficiency our principles. The result is a multitude of unique design details. Take the efficiency factors. For example, the 3+4 VML profiles or the 4+6 VM profiles from AERZEN. They provide significant energy savings compared to conventional compressors. And the ultimate in compressor technology? These are the new E-Compressors from AERZEN. With an increase in efficiency of around 6 %, they release additional important potential.

Show versatility

Leading packagers and industrial users have relied on AERZEN compressor stages and packages for decades. Why? Because these machines with their exceptional versatility are the ideal solutions everywhere.

Originally designed for the compression of air, nitrogen and neutral gases, the universal geniuses also develop their great strength with special gases, in vacuum operation or in elevated intake pressure applications. With direct drive or belt drive, dry-running and oil-free according to class 0 or with oil injection. Let us put it this way: AERZEN has the suitable compressor for everything.



150594/1

Special rotor profiles characterise the screw compressors made by **AERZEN.** And ensure the decisive performance plus in negative and positive pressure.

Oil-free and oil-injected screw compressors

There are effectively no limits to potential applications for AERZEN screw compressors. They can serve to create pressure for the pneumatic transport of powders, bulk goods or ash. They aerate sewage tanks, keep lakes and harbours clear of ice, supply oxidising air for power plants or start jets for aircraft turbines.

Compressor stage VM/VML ...



Universal compressor stage with belt drive. Oil-free according to class 0, very energy-efficient and compact. High type diversity in 7 sizes.



Negative pressure: -850 mbar (g) Overpressure 3,500 mbar (g)

Delta Screw compressor package with belt drive



High-efficiency compressor package (single-stage) with belt drive. Optionally with pre-inlet version for high negative pressure up to -850 mbar. Also suitable for suction/ pressure operation. Oil-free as per class O Extremely resilient, durable and lowmaintenance.

 $(\mathbf{ })$



Negative pressure -850 mbar (g) Overpressure 3.500 mbar (g)



•••

Conveying media:

Air as well as neutral, toxic,

explosive, corrosive gases or

mixed gases.

combustible

Conveying media: Air as well as neutral, toxic. combustible, explosive, corrosive gases or mixed gases.

Delta Screw compressor package with direct drive



High-efficiency compressor package (E-Compressor, single-stage) with direct drive. Low maintenance requirements. Extremely resilient and flexibly adaptable to a wide range of applications.

 $(\boldsymbol{\Lambda})$

Negative pressure

-850 mbar (g)

Overpressure

3,500 mbar (g)



350 to 15,000m³/h



Conveying media: Air as well as neutral, toxic, explosive, corrosive gases or mixed gases.

Increasing versatility Profitability starts when compressor systems are tailored to the process

Compressor package (double-stage) with direct drive in air- or water-cooled design. Customised solution for special applications, modification according to customer specifications. 11 sizes available.



Versatile overpressure stage (single-stage) for system manufacture. Belt-driven, directly coupled or with integrated gearbox. Very energy-efficient, robust, durable and low-maintenance. Available in 10 performance levels up to max. 355 kW.



16

Compressed air screw compressor - double-stage, oil-free



Compressed air stage VMX with oil injection





Process gas compressors

Specially designed and certified for plants in the chemical and petrochemical industries, as well as many other ranges of process engineering. For single or multi-stage arrangements. Depending on the requirements AERZEN's process gas screw compressors take into account all the specifications of the most diverse branches of industry and purchasing companies.



Compressor stage VMY

Reliable compressor stage with oil injection for system manufacture. Stepless volume control by hydraulically operated slide valve (slide control). Design according to API 619 possible. Low operating and maintenance costs.



Volume flows: 70 to 11,000 m³/h





 Neg. pressure: -900 mbar g
 Conveying media:

 Pos.pressure: 25 bar g
 Neutral and flammable gases,

 Diff. pressure: 20 bar
 oil-compatible mixed and

 (Depends on suction pressure)
 process gases, as well as all

 common coolants
 common coolants

VMY compressor package for process gas technology

Compressor package with oil-injection. Ideal for gases with light molecular weight, high compression ratio or gases with fluctuating gas composition. Stepless volume control by hydraulically operated slide valves. Design according to API 619 possible.



Neg. pressure: -900 mbar g Pos.pressure: 25 bar g Diff. pressure: 20 bar (Depends on suction pressure)

1

Conveying media: Neutral and flammable gases, oil-compatible mixed and process gases, as well as all

common coolants



VR compressor package for process gas technology

Compressor package (single or multi-stage) for compression of process gases (except O2 and Cl). Oil-free compression. Variable drive types: Direct, flange-mounted spur gear or separately arranged. Feasible according to international standards such as API's as well as customer specifications.

Neg. pressure: -900 mbar g

Pos. pressure: 52 bar g

Diff. pressure: 25 bar

(Depends on suction pressure)



70 to 11.000 m³/h

Volume flows: 300 to 75,000 m³/h



Conveying media: Neutral, toxic, flammable, corrosive gases, or mixed gases



"Every solution by **AERZEN** is individually bespoke for the specific requirements of our customers. This is our strenght."

Biogas compressors

Biogas applications place special requirements on compressor technology. Regardless of whether it is the production of biomethane, feeding it into kilometre-long supply networks or generating pre-pressure in block-type thermal power stations. AERZEN biogas compressors are designed accordingly. Reliable in 24-hour operation and consistently compliant with ATEX and DVGW regulations.



Biogas package VMX with oil injection

Powerful compressor package with direct drive and oil injection. Very robust, durable and energy-efficient. Volume control via control of speed control and bypass. 5 sizes.





Biogas, biomethane, process gases such as CH mixed gas

Biogas package VMY with oil injection



Reliable compressor package with oil-injection. Stepless volume control by hydraulically operated slide valve (slide control). Integrated oil separation, 6 sizes.

(1)



Overpressure 25 bar (g)



Biogas, biomethane, process gases such as CH mixed gas



Biogas package VM oil-free

Durable compressor package (single-stage) with direct drive, oil-free conveying. Unique application diversity. High-quality industrial grade. Robust, durable and low-maintenance. Extensive accessories and customer individual modifications. 7 sizes.

Overpressure

3,500 mbar (g)





AERZEN offers versatile solutions for implementing the internatonally targeted CO_2 reduction through the use of biogas.



The best of both worlds Screw Blower DELTA HYBRID

It is one of the most innovative solutions in compressor technology. Delta Hybrid is the only assembly in the world to date that combines the advantages of blower and compressor technology in one system. For completely new possibilities in positive pressure generation. And for savings of up to 30% compared to conventional blowers.

Two technologies. One assembly

The latest technology generation from AERZEN brings a new principle into compression. This refers to the perfect synthesis of a positive displacement blower and a screw compressor in one assembly. The innovative Delta Hybrid screw blower uses a 3+4 compressor profile designed for higher pressures up to 1,500 mbar. Delta Hybrid closes the gap in the existing machine mix. And offers a broad performance spectrum for precise designto meet a wide range of process requirements - with up to 30 % energy savings compared to conventional blowers.

Hotter temperatures. More safety

Delta Hybrid rotary lobe compressors or screw blower soperate in an extremely wide range of key industrial applications. Economical stand-alone or highly efficient in a machine combination. The assemblies can be used globally. Even in zones with very high ambient temperatures. Or in applications with extreme intake temperatures. With Delta Hybrid, discharge temperatures of 160 up to 230 °C are possible today. The prerequisite for operational reliability in all processes.



Rotary lobe Compressor/ Screw Blower

With seven patents or patent applications, Delta Hybrid is one of the most innovative solutions in compressor technology. And by far the most efficient assemblies for a wide control range volume flow of up to 1 : 5.

Decades of experience combined in one phrase: made by **AERZEN.**

A ERZEN



Rotary lobe compressor/screw blower package Delta Hybrid S

Highly economical rotary lobe compressor/screw blower package with belt drive.Oilfree as per class 0. Discharge silencer without absorption material, low noise levels. Reduced maintenance costs and lower energy consumption for sustainably low TCO.





Rotary lobe compressor/screw blower package Delta Hybrid H

Highly economical rotary lobe compressor/screw blower package with belt drive. Oilfree as per class 0. Discharge silencer without absorption material, low noise levels. Reduced maintenance costs and lower energy consumptionfor sustainably low TCO. Extended pressure range.



Rotary lobe compressor/screw blower stage Delta Hybrid S/H



24

High-efficiency rotary lobe compressor/screw blower stage for belt drive. Reduced maintenance costs and lower energy consumption for sustainably low TCO. Extremely reliable and durable. Extended pressure ranges.





Everything – expect ordinary The service world of **AERZEN**

The long service life of AERZEN machines is legendary. So why is service an issue at all? Because it's about more than availability and OEM original parts. The services from AERZEN secure investments, productivity and a decisive competitive edge. And this worldwide.



AERZEN on-site service

Our service teams work where our machines are. All over the world. Onshore or offshore. Often under extreme conditions. How do we achieve this? With short distances. AERZEN has a dense network of service centres and decentralised parts warehouses around the globe. More than 200 excellently trained service technicians can come to your aid from there. Any time and anywhere you need us

For rental service and other services

AERZEN's service world has a lot on offer. Tailor-made service kits, for example. Replacement stages, machine diagnostics, sound optimisations. One of our most important services is AERZEN Rental Division, which provides a large fleet of rental machines. Blowers, turbo machines and compressors - made by AERZEN. In a wide range of performance classes. For all common pressure ranges. Can be used immediately and delivered turnkey on request. What does that mean for you? You are also well prepared for unexpectedly upcoming needs **www.aerzenrental.com**

In action for you. In a wide variety of application fields.

- Food and luxury food industry
- Chemical and petrochemical industry
- Medical technology
- Cement industry
- Glass industry
- Plastic industry
- Mining and metallurgy technology
- Textile industry

Contact worldwide

2,500 employees work for AERZEN. On every continent. With six sales offices in Germany alone, we're there for you. And with 50 subsidiaries in over 100 countries around the world. Hence we're never far away – should you ever need us. Give us a call:

+49 5154 81 0

Service-Infoline

Our German Service Centre is available for customers and operators. We are happy to help you. We look forward to your call: +49 700 49318551

Customer Net

Where you can learn more about the company and the leading compressor technologies from Aerzen? It's simple: In our Customer Net on our website, where we have stored everything that is worth knowing for you:

www.aerzen.com





- Paper industry
- Steel and (raw) iron industry
- Pharmaceutical and cosmetics industry
- Electronics industry, solar
- Biogas industry
- Municipal or industrial wastewater treatment plants
- Power plant technology
- Oil and gas industry

AERZEN Compression is the key to success

AERZEN was founded in 1864 as Aerzener Maschinenfabrik. In 1868, we built Europe's first positive displacement blower. The first turbo blowers followed in 1911, the first screw compressors in 1943, and in 2010 the world's first rotary lobe compressor package. Innovations made by AERZEN keep driving forward the development of compressor technology. Today, AERZEN is among the world's longest established and most significant manufacturers of positive displacement blowers, rotary lobe compressors, screw compressors and turbo blowers. AERZEN is among the undisputed market leaders in many areas of application. At our 50 subsidiaries around the world, more than 2,500 experienced employees are working hard to shape the future of compressor technology. Their technological expertise, our international network of experts, and the constant feedback we get from our customers provide the basis for our success. AERZEN products and services set the standard in terms of reliability, value and efficiency. Challenge us.



Aerzener Maschinenfabrik GmbH Reherweg 28 – 31855 Aerzen / Germany Phone: +49 5154 81 0 – Fax: +49 5154 81 9191 info@aerzen.com – www.aerzen.com

