# **AERZEN**Product overview

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





# Expect a lot premium technologies from **AERZEN**



#### 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.

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# 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 Positive pressure, 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.



### Positive displacement blowers Positive pressure/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 oil-free according to class 0. Extremely low noise levels, side-by-side installation and versatile adaptability. Available in 17 sizes.









#### Blower stage GM 3S ... 1080 L

Robust 3-lobe blower stage for system manufacture. Versatile application. Designed for belt drive. Low pulsation and reduced piping noise. Available in 22 sizes as standard.







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



#### Positive pressure blower stage bulk vehicle GM 13.5 ... 13.f7-1

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.









#### 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.









#### 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.









#### Vacuum stage with pre-inlet cooling GMa/b/c $\dots$ m

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.



#### Positive pressure 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 positive pressure ranges up to PN 6. Delta p up to 1,500 mbar possible.







sive gases or mixed gases



#### Positive pressure blower stage GR

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. 14 sizes for almost all technical gases and mixed gases. Delta p up to 1,500 mbar possible.





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



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



#### High pressure blower positive pressure 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.



Volume flows: 50 to 38,000 m³/h



Neg. pressure: -700 mbar g Pos. pressure: 25 bar g Diff. pressure: 2,000 mbar



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



#### Process gas blower low pressure stage GMD

Universally applicable gas-tight booster solution with magnetic coupling for oil-free 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. to AD2000 / DIN EN 13445. 16 sizes.









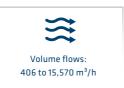
### Vacuum blowers

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.



#### 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.









#### 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.









#### Rough vacuum stage with pre-inlet GMa/GMb/GMc $\dots$ 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.







### Biogas blowers

Developed specifically for the biogas market, they ensure maximum performance and efficiency: The GM series biogas blowers from AERZEN. Available in 8 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.



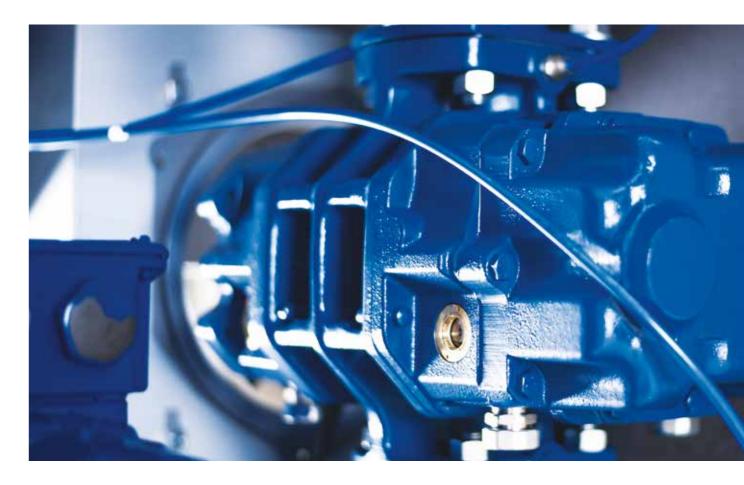
#### Biogas package Delta Blower GM 45 ... 2405

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









# 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, such as cooling- and combustion air: 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<sup>plus</sup>

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 & Play package that integrates all components.







Aerzen Turbo AT G5

Aerzeer Nurchos

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 & Play package that integrates all components.









# **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.

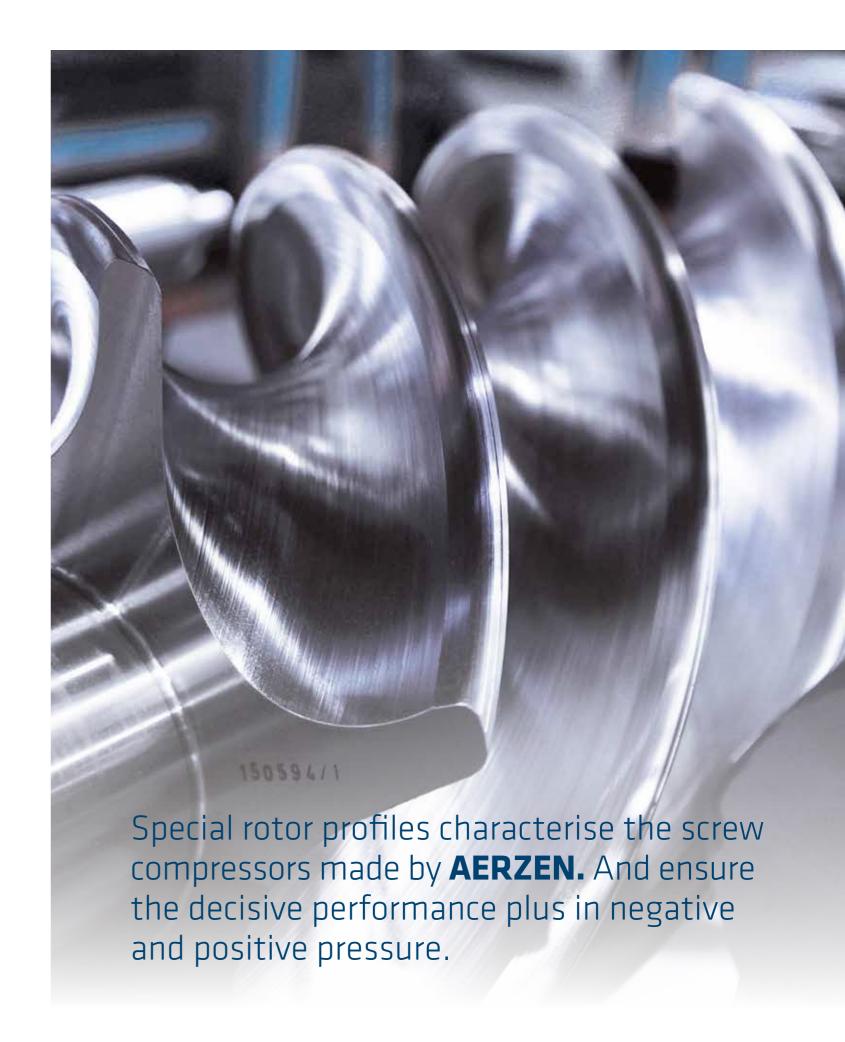
#### Unlocking potential

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.



### Screw compressors

There are virtually no limits to the possible applications of AERZEN oil-free and oil-injected screw compressors. They convey and compress reliably in a wide range of sectors such as pneumatic applications, chemical and process engineering or compressed air technology. They aerate wastewater tanks, keep lakes and harbours free of ice, deliver oxidising air for power plants or serve as jet starters 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.









#### 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.





Negative pressure: -850 mbar (g) Positive pressure: 3.500 mbar (g)





#### 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.



350 to 15,000m<sup>3</sup>/h



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



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



#### Compressed air screw compressor DS series - double-stage, oil-free

The double-stage air compressors in the DS series compress absolutely oil-free in accordance with ISO 8573-1, class O. Outstanding performance in almost all application areas with differential pressures between 5,5 and 10.5 bar. Compact plug-andplay solution for drive power from 55 - 315 kW.









#### Compressed air screw compressor SI series - oil-injected, PM Motor

The oil-injected compressed air packages in the SI series with innovative screw compressor stages and highly efficient IE5 class permanent magnet motors. Maximum energy efficiency in full and partial load operation, with differential pressures between 5.5 and 13 bar and drive power from 7.5 - 75 kW.









#### Compressed air screw compressor 2C series - double-stage, oil-free

Compressor package (double-stage) with direct drive. Customised solutions for special applications that precisely match our customers' needs and requirements. Drive power 90 - 1,000 kW.









#### Compressed air compressor stage VMX series - oil-injected

Versatile positive pressure 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 power levels up to max. 355 kW.







### 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.



#### Oil-flooded screw compressor series 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.





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



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



#### Screw compressor package series VMY

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.



190 to 23,000 m<sup>3</sup>/h



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



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



#### Screw compressor package series VRA

Compressor package (single or multi-stage) for compression of process gases (except O2 and CI). Oil-free compression. Variable drive types: Direct, flange-mounted spur gear or separately arranged. Feasible according to international standards such as API 619 as well as customer specifications.



Volume flows: 380 to 75,000 m<sup>3</sup>/h



Neg. pressure: -900 mbar g Pos. pressure: 52 bar g Diff. pressure: 25 bar (Depends on suction pressure)



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

#### Water-flooded screw compressor series VRW

Bringing large H2 volume flows to the highest possible intermediate and final pressures with oil-free compressor stages, without having to set up huge reciprocating compressor systems for this purpose - precisely here is where the new VRW 536 M oil-free screw compressor from AERZEN comes in.





Diff. pressure ( $\Delta p$ ): 3.000 bis 9.000 mbar (Depends on suction pressure)



Conveying media: Hydrogen



### 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.







Conveying media: 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.







Conveying media: 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.









# The best of both worlds Screw Blower DELTA HYBRID

It is one of the most innovative solutions in blower technology. Delta Hybrid is the only package 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 37% compared to conventional blowers.

#### Two technologies. One package

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 package. 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 the design of a wide range of process requirements - with energy savings of up to 37% compared to conventional blowers.

#### Hotter temperatures. More safety

Delta Hybrid rotary lobe compressors resp. screw blower operate in an extremely wide range of key industrial applications. Economical stand-alone or highly efficient in a machine combination. The package 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°C 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 blower technology. And by far the most efficient packages for a wide control range volume flow of up to 1:5.



## Rotary lobe compressor/screw blower package Delta Hybrid with direct drive

Screw blower with direct drive by means of gears for minimized life cycle costs: extraordinary efficiency, extremely compact, easy transport and installation, durable & reliable reduced maintenance activities, Plug & Play, oil free certified and silent thanks to silencer technology according to customer requirement.









## Rotary lobe compressor/screw blower package Delta Hybrid S with belt drive

Highly economical rotary lobe compressor/screw blower package with belt drive.Oil-free operation according to 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. Oil-free operation according to 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

High-efficiency rotary lobe compressor/screw blower stage. 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



#### Contact worldwide

2,600 employees work for AERZEN. On every continent. With six sales offices in Germany alone, we're there for you. And with more than 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



# LET'S TALK Find your local contact www.aerzen.com/worldwide

## 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

- 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 our success

The Aerzener Maschinenfabrik GmbH was founded in 1864. 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. And among the undisputed market leaders in many areas of application.

In more than 50 subsidiaries around the world, more than 2,600 experienced employees are working hard on shaping the future of compression technology. Their technical competence, our international network of experts and the continual feedback from our customers are the basis of our success. AERZEN products and services set standards. In particular, with regard to reliability, stability of value and efficiency. Challenge us.



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