Safe and pure solutions
for the food industry

AERZEN
EXPECT PERFORMANCE

Contents

03 Safe, clean and reliable processes
In the food industry

04 Fields of application
AERZEN Using diversity in a practice-oriented way

06 ATEX
Always on the safe side

08 AERprogress
Digital transformation of blower and compressor technology

10 Purity and hygiene
Clean food production

12 Special solutions
For food industry

14 Matching assemblies
Save energy and protect the environment.

16 A wide range of accessories
Precisely tailored to your application

18 Anything but ordinary
The service world of AERZEN

Safe, pure and reliable processes

In the food industry

Pneumatic conveying processes and other applications are omnipresent in the food industry. Due to the sometimes sensitive conveying media, great importance is attached to purity, safety and careful transport. The choice of process air generators has a significant influence on the compliance with these elementary requirements.

Hygienically clean working blowers and compressors

The food industry is subject to strict regulations. It is necessary to comply with the EU directives on food hygiene regulation (EC) No. 852/2004 and the machinery directive EU 2023/1230. The process air must be kept hygienically clean. It must also be free of oil and absorption material. Dirt- and water-repellent coatings such as PFAS should also be avoided. When working with explosive materials such as flour, explosion protection for the blowers and compressors is also a basic requirement. With the technology concept consisting of rotary lobe blower Delta Blower, rotary lobe compressor Delta Hybrid and screw compressor Delta Screw, AERZEN offers certified low pressure systems which is perfectly tailored to applications in the food industry thanks to a multitude of product modifications and a wide range of accessories.

Investing in the future

How safe and pure is your process air really? How much effort do you have to make to keep the process air clean? If you are faced with these issues, it may be time to upgrade the process air station and use blowers and compressors that will reliably deliver clean process air over the entire lifetime. AERZEN offers exactly these machines.

The investment in Delta Blower, Delta Hybrid and Delta Screw pays off, because AERZEN offers a machine concept exactly tailored to your application, which avoids oversizing and overengineering. The blower and compressor assemblies are also durable, require little maintenance and, thanks to their high process reliability, operate in a resource-saving manner.

- How can hygienically pure process air be generated in continuous or batch operation?
- What makes blowers and compressors safe and reliable?
- Which accessories are important for my process in the food industry?

On the following pages we would like to give you an understanding of our answers to these questions.

LET'S TALK

"... about **resource-saving** and **efficient** aeration of your aeration tanks."

Application ranges
AERZEN using diversity in a practice-oriented way

In the food industry, sensitive, powdery and granular media are conveyed daily. These must not come into contact with abrasion from the rotors or foreign particles from the silencers or with oil-contaminated conveying air. Only a few manufacturers meet these requirements and are certified according to ISO 22000. Therefore, the choice in this branch of industry falls more and more often on AERZEN technologies.

The air is clean

Pure process air is essential in the food industry to prevent contamination of the products. Since the air comes into direct or indirect contact with the medium to be pumped during the production process, it must also meet high quality standards. Contaminations in the compressed air such as dust, moisture, oils or microorganisms affect the product quality. To avoid this, a complete and carefully designed and installed compressed air generation and treatment is necessary. This includes, for example, the use of oil-free compressor stages, reactive silencers that do without absorption material, and perfectly matched filter systems. AERZEN assemblies can be equipped to suit the application areas of the food industry and work very reliably even under difficult environmental conditions such as high or low temperatures.

Fields of application in the food industry

Blowers and compressors are used in food production in addition to pneumatic conveying such as loading or unloading silos or tank trucks, especially in the following processes:

- Wastewater treatment
- Separation
- Silo loosening
- Central vacuum cleaning systems
- Vapour recompression (breweries)
- Fermentation
- Aeration (fish farming)
- Drying and packaging processes (inerting e.g. with nitrogen) and much more.

Blowers and compressors are also used in the production and processing of muesli, coffee, chips or bottles. Whether slim mobile solutions on silo vehicles and ships or large stationary conveying systems with high throughputs: the pneumatic conveying process with AERZEN assemblies is suitable for many different bulk materials.

Challenges in the food industry

In addition to specifications on purity, companies in the food industry must also consider other challenges in production, processing, storage and packaging: in silo applications, blowers and compressors are used to blow in the bulk material or loosen up the contents. Flour or grain is often stored here, both of which are substances that pose a considerable risk of dust explosions. For this reason, assemblies with spark arrestors are mainly used. Users in the food industry benefit especially from the long life of AERZEN assemblies, even under the most adverse environmental conditions. These include strong winds, extreme temperatures and the critical conditions that can occur in ship and desert installations or during operation in earthquake endangered regions.

Delta Screw

The Delta Screw is a screw compressor with belt or direct drive, which is particularly characterised by its increased pressure range of 3.5 bar (g) and a wide range of accessories and modification possibilities. It is an all-rounder with a wide range of applications. It works reliably in all the world's temperature zones, indoor or outdoor, mobile or stationary.

Delta Hybrid

If energy efficiency is required and the required differential pressures are max. 1.5 bar, the Delta Hybrid is the ideal choice.

Delta Blower

The Delta Blower series is the proven standard and a popular choice in the food industry, e.g. for product transport. Delta Blowers are used e.g. on silo vehicles for loading and unloading or work stationary when filling and emptying containers as well as during transport within the production lines. With a differential pressure of up to 1 bar or -0.5 bar, the positive displacement blowers are particularly durable, robust and proven.

ATEX
Always on the safe side

ATEX stands for "ATmosphère EXplosible" and is a European directive for equipment and protective systems used in potentially explosive atmospheres. Explosion protection must be planned. AERZEN makes a contribution to this with its directive-compliant machines.

Reliable protection against explosions

A combustible substance (e.g. flour dust), oxygen and an ignition source form the so-called explosion triangle and are the building blocks of a dust explosion. AERZEN machines counteract an explosion hazard in conformity with ATEX. They are equipped with spark arrestors that prevent sparks from entering the material flow. Zone separation filters are used for vacuum conveying, which in turn protect the blower from an unacceptably high dust concentration.

The ATEX Product Directive 2014/34/EU sets out the rules for the placing on the market of products used in potentially explosive atmospheres. The main purpose of the product directive is the protection of persons working in explosive areas or who might be affected by explosions. Since the end of 1996 only those devices, components and protective systems that comply with ATEX Product Directive 94/9/EC respectively its revised version 2014/34/EU may be commercialised for use in areas with risk of explosion. In comparison, the ATEX Works Directive stipulates that employers (plant operators) must meet or implement certain requirements in the interests of safety and health protection for employees exposed to the risks of a potentially explosive atmosphere. As part of the hazard assessment, the operator must create an explosion protection document and divide areas with hazardous, explosive atmospheres into zones.

Solutions for the relevant ATEX zones

Compressor and blower packages from AERZEN are used in highly critical, explosive working environments without any problems. After inspection and evaluation of the customer's self-disclosure AERZEN designs the machine(s) according to ATEX. They include all ATEX-relevant information about the type of gas or dust, the operating environment, the explosion group, the temperature class or ignition temperature, the ambient temperature and the frequency converter operation.

Device Group II:
Devices for industrial use in explosive areas; hazard due to mixture of air and flammable substances in the form of gases, vapours, steam or dust

Device category acc. to EC directive	Category 1		Category 2		Category 3	
Danger	Constant, frequently or over longer period of time (> 1000 h per year)		Occasional, random (10 to 1000 h per year)		Seldom and short-term (< 10 h per year)	
Level of safety	Very high level of safety		High level of safety		Normal degree of safety	
Zone designation	Zone 0	Zone 20	Zone 1	Zone 21	Zone 2	Zone 22
Ex atmosphere	G (Gas)	D (Dust)	G (Gas)	D (Dust)	G (Gas)	D (Dust)

AERZEN machines guarantee safe use in negative and positive pressure operation for the following zones:

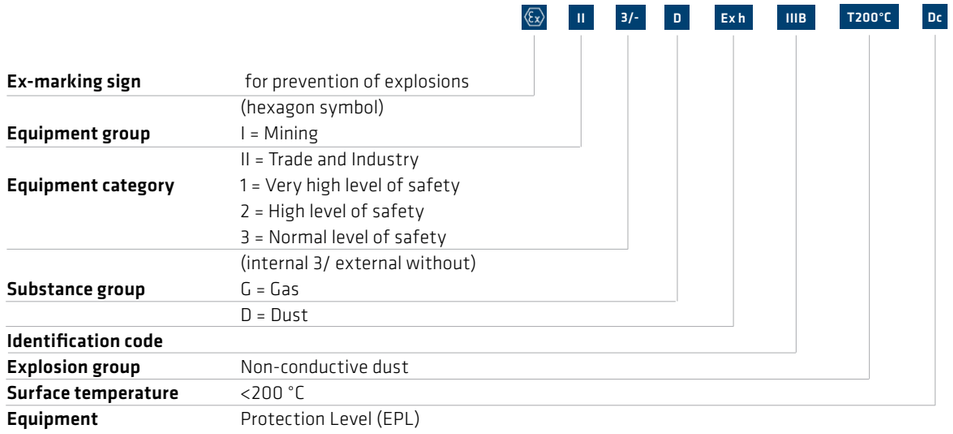
ATEX machines	Internal explosive atmosphere (Suction from the explosive zone)				External explosive atmosphere (Ex-free suction)			
	1	21	2	22	1	21	2	22
Delta Blower	x	x	x	x	x	x	x	x
Delta Hybrid				x		x		x
Delta Screw				x	x	x	x	x

Our know-how, your advantages

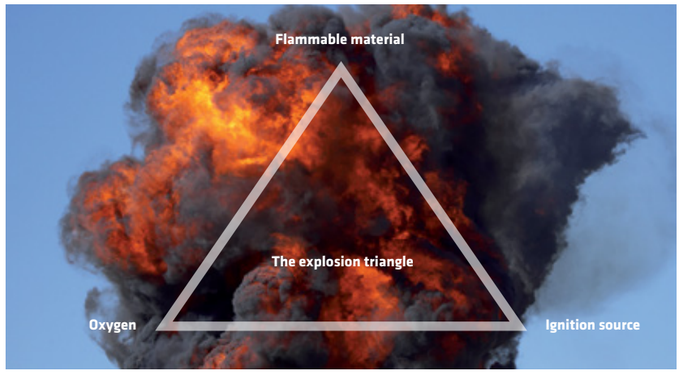
No matter if they are used in positive or negative pressure, the high performance machines from AERZEN are using a wide range of products for nearly all Atex zones, internal as well as external. TÜV tested, of course. The portfolio includes:

- Zone separating filter
- Special documentation
- Use of special materials for parts in contact with the medium
- Ex-instrumentation
- Vibrational monitoring
- Spark arrester
- Special motors according to the corresponding zone

Typical labelling in accordance with Directive ATEX 2014/34/EU.



Ex-marking sign	for prevention of explosions (hexagon symbol)
Equipment group	I = Mining II = Trade and Industry
Equipment category	1 = Very high level of safety 2 = High level of safety 3 = Normal level of safety
	(internal 3/ external without)
Substance group	G = Gas D = Dust
Identification code	
Explosion group	Non-conductive dust
Surface temperature	<200 °C
Equipment	Protection Level (EPL)



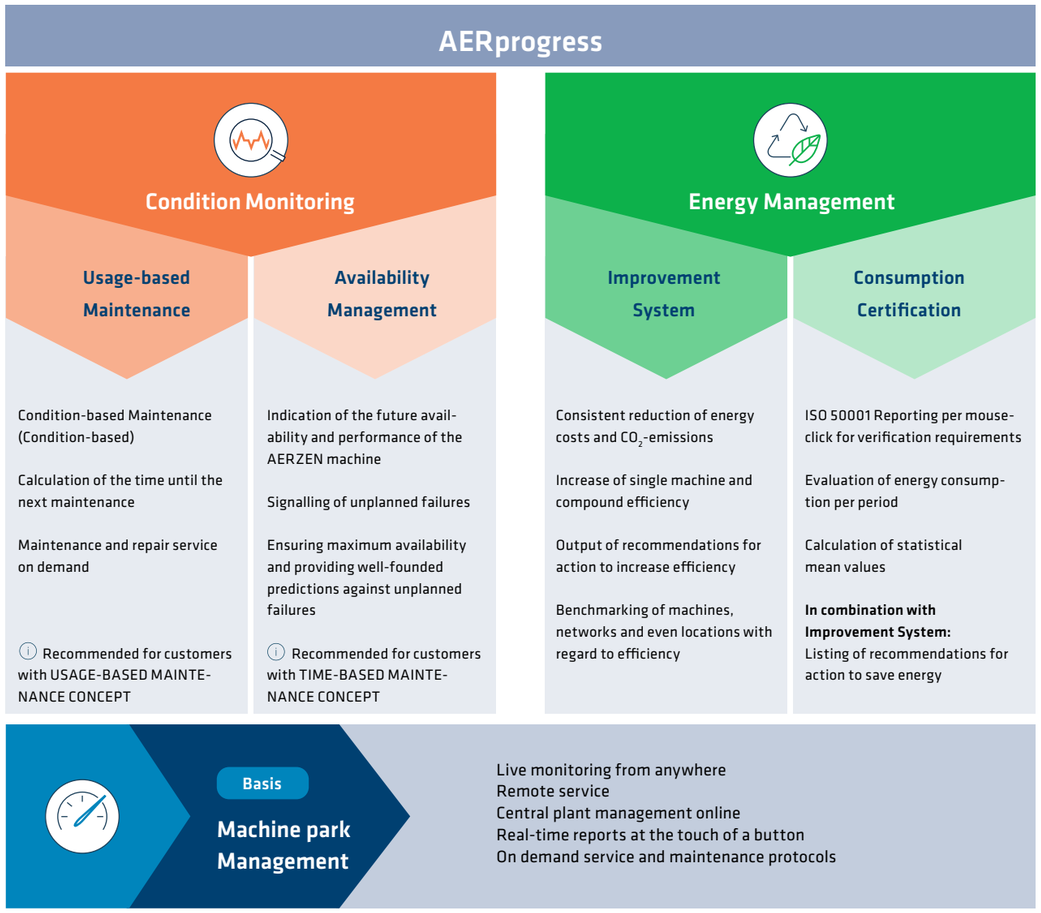
ATEX is a contraction of the French “ATmosphère EXplosible” and is used for the European directive covering equipment and protective systems used in areas with a risk for explosions.

AERprogress
Digital Transformation of blower and compressor technology

Data-based services have the potential to support you in the operation of your compressors or blowers to a completely different extent than before. On the basis of automated collection, evaluation and analysis of data, tailor-made information, reports and recommendations for action are provided for you.

Transparency by data – The AERZEN Digital Platform

Thanks to its cloud-based platform, AERZEN is paving the way into the digital future of compressed air technology.



Machine Park Management and Remote Service for digital future

As a basic package AERZEN offers the user-friendly Machine Park Management as well as remote service. Thus, the customer has the possibility to see transparently the operating status of all installed AERZEN machines including the control technology. On an interactive world map you can get an overview of all facilities and then select them specifically. By displaying the machine status in the dashboard, it is possible to see at a glance which machines are in operation, which are in trouble and where maintenance is due. In this way, the customer is always informed about the current status of his machine park, can take quick action if required and can also instruct or have measures taken remotely.

For further detailed information on the respective facility status, the relevant process parameters of all machines can be selected in the monitoring menu. The data is collected via the AERtronic assembly control system, which is connected to the online system via 4G/LTE mobile radio. Thanks to high-level data security, it is always guaranteed during transmission that the data is securely stored and processed in an EU Cloud and protected against unauthorised access. Particularly important from the user's point of view: the ownership rights to the data (data ownership) remain with the customer at all times. AERZEN always prepares the data anonymously, so that sensitive, customer-specific process data is protected.

Customised Add-ons for your individual projects

The individual customer requirements for operation of blower and compressor packages are varied. The food industry in particular is interested in a high degree of process reliability and traceability of the processes.

For this reason, AERZEN has developed different Add-ons, whose performance spectrum is optimally tailored to the different customer requirements.

The Digital Services can be booked individually depending on your project and are available as an extension of the Machine Park Management:

Condition Monitoring Section

- Add-on Usage-based maintenance:
  Minimisation of preventive maintenance costs and reduction of downtimes through targeted maintenance
- Add-on Availablility Management:
  Maximisation of plant availability

Energy Management Section

- Add-on Improvement System:
  Maximising efficiency over the entire life cycle
- Add-on Consumption Certification:
  Energy reporting according to the international standard ISO 50001

Data ownership in information tech nology refers to the ownership structure in the handling of company data. Data Ownership refers to the rights and control of data, which are recorded by sensors in company processes, for example. The data owner is the only party with the right to use, exploit and distribute his data.

High-Level Data Security stands for a security standard for the transmission, storage and processing of data and meets numerous international requirements.
The IT security standard ensures that the data is protected against access by unauthorised persons at all times. This is also guaranteed by certification of the hardware components and the Security Management according to IEC62443.

Purity and hygiene
Clean food production

In food production, cleanliness and hygiene are the most important production requirements. Oil-free machines with discharge silencers without absorption material, in combination with the latest filter technology, are ideal for this purpose.

Quality and Hygiene regulations

If food contaminated by production faults reaches the retail trade, this results in considerable (cost) effort and a loss of image for the manufacturer. Entire production batches can be destroyed or expensive recall actions can occur. The state and associations also drastically punish such incidents. In order to prevent this from happening in the first place, the selection of process-relevant machinery and equipment must be based on the specifications of the legislator and relevant associations. Not only national standards, but also international standards must be observed in order to remain flexible and to be able to supply markets across national borders. It is necessary to comply with the EU directives on food hygiene regulation (EC) No. 852/2004 and the machinery directive EU 2023/1230.

Know and comply with important standards

The EU Directive on Food Hygiene and the Machinery Directive define the requirements for food production plants in terms of process control, materials, surfaces and corrosion resistance. They ensure that the process air that comes into contact with the products or conveyance is generated in a pure state and fed into the production or pneumatic conveying system. This is also the basis for the design of the machines. The selection and arrangement of individual components as well as the selection and use of consumables such as lubricants and cleaning agents are precisely defined in the guidelines.

ISO 22000

AERZEN is ISO 22000 certified. With the framework of the new standard, risks in the direct and indirect environment of the food production chain can be identified with uniform certainty at international level. The structured identification of potential dangers then forms the basis for effective risk management. As already successfully practiced in other management standards, the continuous improvement process (CIP) is an essential tool for sustainable process improvements in ISO 22000. Especially in the food industry it is crucial to be able to

rely on process air. It must be guaranteed free of impurities such as oil, abrasion or insulating material. The certification to ISO 22000 ensures that AERZEN documents and fulfils the high requirements of food safety. This means that the operator can fully rely on the assemblies. After all, a management system for food safety in the sense of ISO 22000 is an important contribution to the company's risk management. For AERZEN this international certification according to ISO 22000 represents a further component for product safety.

Adhere to the standards with oil-free machines

With AERZEN machines it is no problem to comply with the specifications for machines in food production. The blowers and compressors work per ISO 8573-1, class 0 and are PFAS-free. Accordingly, they are oil-free and, thus, minimise the risk of contamination of the products by lubricants in the process air. After all, products in the food industry very often come into contact with process air. For example during filling, cleaning, mixing, spraying, cutting, transporting, cooling and packaging. All operations must be carried out in strict compliance with the hygiene rules.

High reliability and cleanliness

If the in-house AERZEN silencer technology contributes to the functional reliability due to the absence of absorbents, so also to the cleanliness of the process air. This is because the silencing by means of the interference method instead of absorption material eliminates the abrasive wear and tear of the silencer. This means that the process air cannot be contaminated with the finest particles of the absorption material and contaminate the food.

The patented reactive silencer of AERZEN does not only extend the lifetime of the machine. It also contributes significantly to compliance with food purity regulations.

Integrated spark arrester

Additionally available: a spark arrester which is integrated into the base support or the discharge side of the silencer avoids sparking over in the hazardous zone in case of emergency. A certification of the TÜV-tested spark arrester is available. The installation of spark arresters on site can completely be omitted - a decisive advantage for the customer.

Special Solutions
For the food industry

With its three technologies Delta Blower, Delta Hybrid and Delta Screw, AERZEN offers an extensive product portfolio - individually configured to the process requirements. Because different applications require different technologies.

The endurance runner
Positive Displacement Blower Delta Blower

With the positive displacement blower Delta Blower, air and neutral gases are conveyed oil-free. It is suitable for a large volume flow range from 30 to 15,000 m 3/h. The series includes different sizes for negative and positive pressure operation.

Product features

- Nominal width: DN50 - DN400
- Pressure range: Negative pressure: -500 mbar
  Positive pressure: 1,000 mbar (g)
- With belt drive
- Extensive range of accessories and modification possibilities
- Cost-effective and proven
- Durable and robust

The athlete
Rotary Lobe Compressor Delta Hybrid

With seven patents or patent applications, the rotary lobe compressor is one of the most innovative solutions in compressor technology. It forms a synthesis of positive displacement blower and screw compressor. The series comprises various sizes for negative and positive pressure operation in the volume flow range from 110 m^3/h to 9,000 m^3/h and is particularly suitable for air conveyance and its energy-efficient generation.

Product features:

- Nominal width: DN100 - DN300
- Positive pressure: 1,500 mbar (g)
- With belt drive and direct drive
- Up to 37% energy savings compared to conventional blower
- Reduced life cycle costs

The power pack
Screw compressor Delta Screw

The screw compressor Delta Screw was designed for conveyance of air and neutral gases. It is excellent suited for difficult applications under challenging environmental conditions. It is available as a version with belt or direct drive for volume flows of 120 m^3/h to 15,000 m^3/h. Both are equipped with innovative new features and flow-optimised assembly components and are used depending on the application.

Product features:

- Nominal width: DN65 - DN400
- Pressure range: Negative pressure: -850 mbar
  Positive pressure: 3,500 mbar (g)
- With direct or belt drive
- Comprehensive range of services thanks to different series
- Wide range of applications and flexibility
- Extremely resilient

Further information about pneumatic transport are available at
www.aerzen.com (in the application area)

Tailor-made assemblies
Save energy and protect the environment

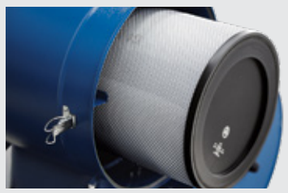
The AERZEN assemblies Delta Hybrid, Delta Blower and Delta Screw are individually adapted under consideration of their place of installation and use in terms of safety, environmental protection, energy saving and customer requirements. Below are the main features for use in the food industry using a blower package.

1 The blower stage made by AERZEN – 100% oil-free as per Class 0
- ISO 8573-1 TÜV-certified and PFAS-free
- Reliable sealing system prevents oil from entering the conveying chamber

2 Base support with integrated discharge silencer
- Absorbent-free silencing through patented discharge silencer
- No contamination of the downstream process

3 Belt guard
- Protection from unintended reaching into the belt drive
- Optionally, from non-sparking material

4 Suction filter with integrated air filter cartridge
- Standard suction from the environment or via connected piping (optional)
- Filter class G4, optionally with F7 filter cartridge (please also refer to corresponding classes according to ISO 16890)



5 Boreholes for vibration monitoring
- Optimally positioned boreholes for measuring sensors which can be equipped with customer-specific or AERZEN vibration sensors

Example Delta Blower

6 Automatic re-lubrication device
- Easy to retrofit in any existing system
- Low annual costs, optimised maintenance result

7 Special oils
- Various special oils, compatible with food industry and FDA-approved

Certificates
- Verifications, certifications and receipts available as per customer request or as part of scope of delivery

Special design of rotor and cylinder
- Parts in contact with the medium are coated in accordance with food regulations
- Rotor design coated or made of stainless steel

Versatile accessories
Perfectly fitting for your application

Machines are only really efficient and safe if they are perfectly matched to the respective applications. That is why every accessory part of an AERZEN blower or compressor is tailor-made and tailored to AERZEN products.

1. Filters, additional filters and discharge sided ultra-fine filters

The filter technology of the AERZEN assemblies can be adapted to most different room conditions.

1a. Downstream, discharge sided filters
- Filters with a separation class from F7 to H13
- Additionally possible with sight glasses or differential pressure measurements for filter control
- FDA-approved

(please also refer to corresponding filter classes according to ISO 16890)

1b. Filter in intake area
- Proven standard filters according to G4 or F7
- Quick filter change with a few simple steps
- Optional design as zone separating filter

2. Cyclone separator with condensate separator

Cyclone separators with 99 % condensate separation efficiency are the perfect protection for compressed air systems and downstream processes. Condensate drains drain the condensate from the cyclone separator housing.

- Reduces system maintenance
- Designed without moving parts
- Optionally with corrosion protection
- Design according to ASME possible
- Insensitive to dirt, long service life
- No pressure loss during drainage of condensate

3. Aftercoolers

All aftercoolers are suitable for cooling compressed media, air and nitrogen at temperatures of up to 280 °C. Both of the series mentioned below are equipped with cyclone separators and condensate drains.

3a. Air-air aftercoolers
- Numerous options: Special painting, special coating, special motors, speed control
- From 250°C with integrated stainless steel pre-cooler

3b. Water-air-aftercoolers
- Cooling water flows around the pipes in counterflow
- Also suitable for heat recovery
- With low pressure losses
- Variants: fixed or removable pipe bundles, smooth or ribbed tubes, made of stainless steel or copper-nickel

4. Silencer

Pipe silencers are used when there are particularly high demands on the noise emissions of the systems. The reactive silencer is a particularly relevant accessory in the food industry.

- Pure process air of the required quality
- No need for absorbent material
- Low pressure losses
- Low pipe noise input
- Application between assembly and piping
- Subsequent installation possible

5. Special acoustic hoods

Special acoustic hoods make compressors and blowers suitable for use everywhere: near residential areas or at extreme outside temperatures.

- Earthquake-proof according to magnitude 5.9 on the Richter scale
- Sound reduction according to customer specifications
- Desert installations with additional sand collector
- Truck or ship installations
- Increased wind loads up to around 210 km/h
- Extremely cold temperature zones of -40 °C and more
- For the use of high-voltage and medium-voltage motors with special dimensions

6. Pressure maintenance and overflow valves

The pressure maintenance valves regulate the pressure in your system. This can further increase the service life of the compressors. The overflow valves discharge excess compressed air during operation so that the requested pressure range is not exceeded.

7. AERtronic Master

The AERZEN assembly control AERtronic is part of the standard scope of all screw compressors as well as rotary lobe compressors and can be optionally added to the blowers. This is an individual control. Several individual controllers can be combined into a higher-level group controller (AERtronic Master). The AERtronic Master ensures efficient operation of your group by networking the individual controllers and combining them into a strong machine combination.

Matured to perfection in 160 years:
The service world of AERZEN

The best kind of service is the kind you don't need. But every technology involves wear and tear. Our machines are designed to do their job for as long and efficiently as possible. If necessary, for decades. The goal of AERZEN Services is to extend service life and availability – simple added value for your investment!

With your OEM's best recommendations

We have been manufacturing quality products for over 160 years. At the same time, we also developed a corresponding service world. With tailor-made offers for every phase of your machine's lifespan. With OEM original parts, reliable logistics and excellent service at its core. And with decentralised service centres in your vicinity, which guarantee fast provision of spare parts and competent service - 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 do it? 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.

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

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 2,900 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.

LET'S TALK

Find your local contact

www.aerzen.com/worldwide

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

AERZEN
EXPECT PERFORMANCE

Food (A1-060-05)_EN
02|2026