

ROTARY LOBE BLOWERS

DELTA BLOWER GENERATION 5

Intake volume streams from 30 m³/h to 15,000 m³/h
For applications in the vacuum range



AERZEN

THE DELTA BLOWERS. ROBUST, DURABLE MACHINES FOR COUNT- LESS COMPRESSOR PROCESSES.



Delta Blower Generation 5

They are the driving force behind countless processes, the heart of a powerful machine assembly: the Delta Generation 5 rotary lobe blowers. They represent the distillation of almost 150 years of AERZEN experience and development work, but are more innovative than ever. AERZEN has packed a number of new features into its latest generation of delta blowers: oil-

free conveyance of air and neutral gases; a broad control range for volume streams of from 30 m³/h to 15,000 m³/h; reduced life-cycle costs; easy handling; quieter operation. What has not changed: the extremely robust, extremely reliable, and extremely durable nature of this global success story. No wonder that their owners are so enthusiastic about putting them into continuous service – year in and year out, decade after decade.





Applications

- Pneumatic conveyance of bulk material
- Degassing
- Vehicle operation
- Ship unloading
- Tunnel boring
- Dust removal
- Vacuum production
- Biogas treatment and many others

Material to be conveyed

- Granulate
- Sugar
- Cement
- Grain
- Carbon and many others

Industries

- Chemical and process technology
- Power plants
- Cement technology
- Foodstuffs
- Pharmacy and many others

THE UNIVERSAL GENIUS FOR EVERY APPLICATION.

The versatile and compact Delta Blower units can be deployed in any climate zone on earth. In the most challenging outdoor environments just as safely as in covered indoor spaces. They can be used as both standalone units or in complex assemblies. They are as reliable in earthquake zones as they are aboard ships or in other mobile applications.

Versatility in detail.

Delta Blowers are powerful all-round geniuses. Miniature units can be mounted on silo vehicles, the largest machines can be used in lifting units. They are used to unload ships – at up to 1000 tons an hour.



Control range from
25% to 100%



Intake volumes streams from
30 m³/h to 15,000 m³/h



Vacuum pressure from
-500 mbar up to 1000 mbar



Nominal widths from
DN 50 to DN 400



Conveyance of powdery goods



Powerful performer for loading and unloading ships

BLOWERS ARE BLOWERS, RIGHT? AN END TO PRECONCEPTIONS.

AERZEN is one of the world's most innovative providers of compressor technology. For over 150 years. And it was almost 150 years ago – 1868, to be exact – that we produced Europe's first rotary lobe blower. Since then we have raised the bar for each generation of this technology. Let yourself be surprised. Discover the extraordinary blowers: the Delta Blower Generation 5.

Extremely robust

- For a broad range of applications in control ranges from 25 to 100%
- Many types of possible modifications

Compact design

- Space-saving side-by-side setup
- Smaller engine rooms

Operation-friendly, low-maintenance design

- High availability in continuous operation under difficult environmental conditions
- Control and maintenance from the front of the machine

Plug&play

- Pre-configured, parameterised, ready to run
- Integrated service package with funnel and initial oil fill

Oil-free per Class 0

- Per ISO 8573-1, TÜV-certified

No absorption material

- For use in the pneumatic conveyance of bulk food items (no contamination).

Integrated power component (optional)

- Frequency inverter, delta-star, direct/soft start
- Intelligent AERtronic control

Smart oil system

- Oil levels can be checked with the machine running
- Readable from outside the machine
- Oil instead of grease: bearings lubricated with oil last longer





A plus for the environment

- Energy-efficient Class IE3 motors as standard equipment
- Intake on the cold side of the unit
- Belt drive for optimal volume flow design
- Retrofitting is fast and easy

Belt-tensioning hinged motor mounting plate

- Fully automatic and maintenance-free belt tensioning
- No need to monitor V-belt tension
- Very easy to mount or replace V-belts

Multifunctional hinged motor mounting plate and lifting jack

- Safer transport
- Easy, secure V-belt installation
- Mobile installation (e.g. aboard ship/ in earthquake zones)
- Hinged motor mounting plate as support for heavy motors

Low noise levels

- For easy compliance with noise level regulations near populated areas and production facilities
- Minimal noise levels with optimised acoustic hood
- Integrated pulsation reduction process (patented AERZEN blower stage)

ATEX compliant

- AERZEN base plates certified as spark extinguishers for ATEX applications

Zone separation filter (optional)
TÜV-certified

EXCEEDING STANDARDS. AERZEN DELIVERABLES.

Some do comfortable. Others do efficient. We do both. When your Delta Blower unit is delivered, it comes completely configured, parameterised, ready to plug and run. Designed especially for your processes, of course. And including all the standardised accessories and components you will need for flawless operation at the push of a button.

The AERZEN "All-in" concept: standard deliverables.

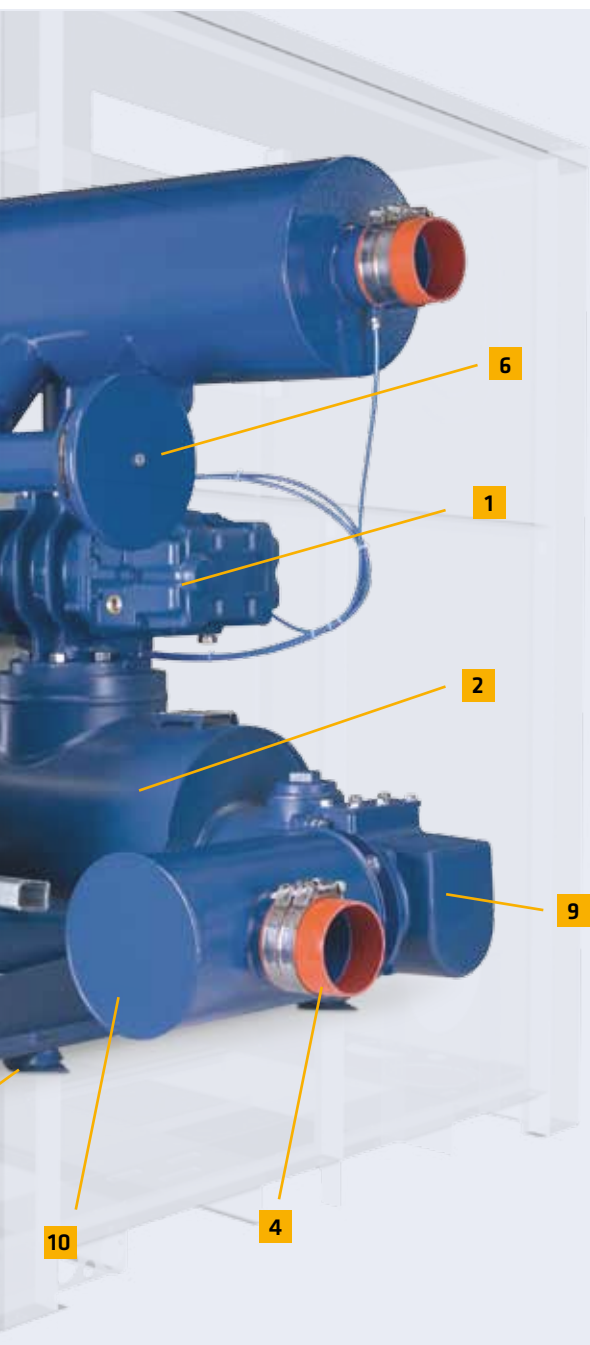


- 1 Triple-lobe blower stage**
 - With integrated pulsation reduction
- 2 Base plate with integrated discharge muffler**
 - Certified as ATEX spark arrester per EU guideline 1999/92/EC
 - Muffler free of absorption material



- 3 Intake muffler with integrated starting strainer**
 - Intake via pipe
 - Intake via filter element as option
- 4 Flexible rubber bushing**
 - With clamps
- 5 Flexible machine mounts**
 - To decouple machine-borne noise
- 6 Suction valve**
 - For sealing of the machine





7 Motor

- High-performance narrow V-belt drive with three-phase AC motor
- Energy-efficient class IE3 motors (up to motor size 315) as standard equipment



8 Hinged motor mounting plate

- Automatic V-belt tensioning
- Multifunctional hinged motor mounting plate and lifting jack

9 Terminal box

- Built-in non-return flap

10 Integrated blow-off silencer

- Horizontal design (to DN 125)

Instrumentation

- Vacuum pressure gauge for displaying conveying pressure

MADE BY AERZEN. EFFICIENCY AND MAXIMUM SAFETY IN ALL ZONES.

The Ex-Design you need.

AERZEN rotary lobe blowers, rotary lobe compressors and screw compressors are considered "Equipment" according to Directive 94/9/EC. All AERZEN machines, components, and protective systems fall under Equipment Group II (trade, industry). They are divided into three categories, depending on their application. Following information is important for us when designing machines to completely satisfy your safety requirements.

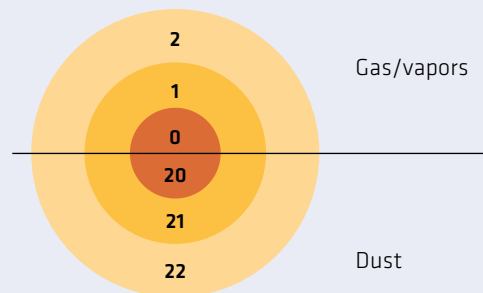
- Ex-Zone
- Type of gas or dust
- Internal zone (pipeline, container, etc.) and/or external zone (surrounding area)
- Explosion group
- Temperature class (for gases) and/or ignition temperature (for dust)
- Frequency inverter operation yes/no
- Ambient temperature

Equipment categories 1 to 3.

| Equipment Group II Equipment for industrial use in Ex-areas; hazard from mixtures of air and flammable materials in the form of gases, vapors, mists, or dusts | | | | | | |
|--|--|----------|--|----------|--|----------|
| Equipment category according to EC directive | Category 1 | | Category 2 | | Category 3 | |
| Hazard | Constant, frequent, or over longer periods (> 1000 h per year) | | Occasional, random (10 to 1000 h per year) | | Infrequent and short-lived (< 10 h per year) | |
| Safety level | Very high | | High | | Normal | |
| 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) |

Dust or gas: the Ex-atmosphere.

- Permanent hazard
- Hazardous conditions during normal operation
- Hazardous conditions limited to system failure (temporary)



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.

Compressors and blower packages “made by AERZEN” have always been used in highly critical areas. The knowhow and experience that we have gathered over the decades in almost all types of application are reflected especially in the processes that fall under the ATEX directive. The range of solutions that AERZEN can offer you for virtually all ATEX zones is unique in its scope and effectiveness: a good starting point for you when it comes to meeting ever more stringent requirements, safely and economically.

Your requirements: our guide for ATEX-compliant designs.

Sound advice is the key to success. This is especially true when planning for applications in Ex-areas. This is why we place great emphasis on careful preparation. Our engineers will discuss with you well in advance the details of your project

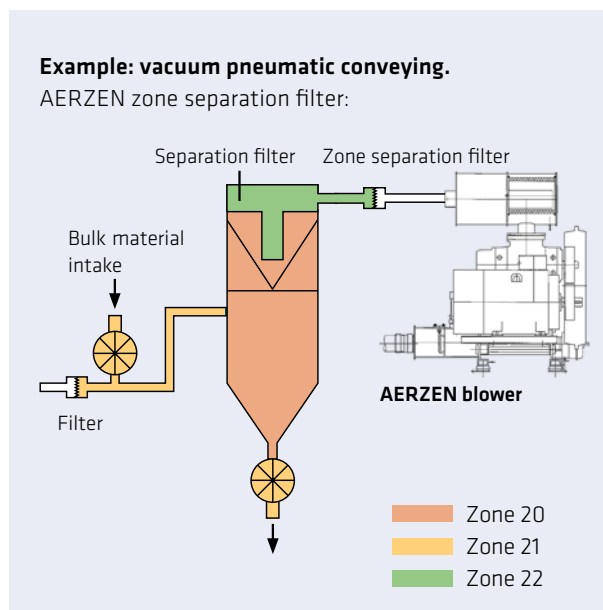
and bring together all ATEX-relevant information (further details on page 3). That is the prerequisite for designing the right equipment for each application in accordance with ATEX zone requirements.

| Positive pressures | | | | | | | | | |
|--------------------|---|----|---|----|--|----|---|----|---|
| ATEX equipment | Internal Ex-atmosphere (intake from Ex-zone) | | | | External Ex-atmosphere (Ex-free intake) | | | | |
| | 1 | 21 | 2 | 22 | 1 | 21 | 2 | 22 | |
| Delta Blower | x | x | x | x | x | x | x | x | x |
| Delta Hybrid | | | | x | | | | | |
| Delta Screw | | | | | x | x | x | x | x |

ATEX solutions from AERZEN: always an idea ahead.

Regardless of whether they are to be used for positive or negative pressure applications, high-performance AERZEN equipment will provide you with the right solution for your ATEX zone: TÜV-certified, of course. Our technical solutions are determined by product group and zone type. Their features may include:

- Zone separation filter
- Special documentation
- Use of specialised materials for components in contact with the medium
- Ex-instrumentation
- Vibration monitoring
- Spark arrester
- Special motors designed for a specific zone



ACCESSORIES AND OPTIONS: THE SKY IS THE LIMIT.

Added value: accessory components.

- Acoustic hood for indoor and outdoor installation, force-air ventilated via mechanical fan
- Startup load relief (10), needed with delta-star motor startup
- Pressure-side axial compensator in place of flexible rubber bushing
- Control cabinet: delta-star, frequency inverter, soft-starter
- AERZEN AERtronic blower control
- Additional accessories on demand



Always the right choice: AERZEN original spare parts

Modifications.

- Special motors
- Special finishes
- ATEX-compliant design
- Acoustic hood with special sand collector for use in desert locations
- Acoustic hood for low temperatures (to -40°C) with heater and gravity-activated blinds
- Acoustic hood for earthquake safety and increased wind resistance
- For use aboard ships and in motor vehicles
- For conveying specialty gases by using specialised materials
- Customer-specific documentation



Always a safe choice: ATEX-compliant AERZEN design



Particularly in the bulk material industry the application ranges are widened considerably by means of the ATEX-certification.

AN ADVANTAGE: THE SLIM DESIGN.



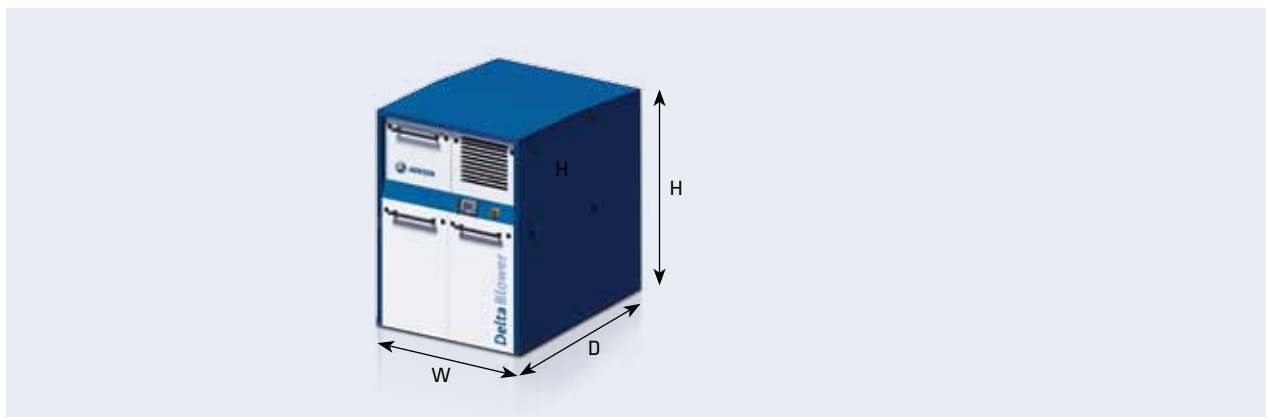
*Delta Blower GM 15 L
packaged unit without
acoustic hood*

Performance data – DELTA BLOWER – vacuum operation

| Blower size | Vacuum pressure max. mbar | Volume flow max. m ³ /h | Volume flow * max. m ³ /h | Motor rating max. kW ** | Sound pressure level without blow-off noise dB(A) |
|-------------|------------------------------|---------------------------------------|---|----------------------------|---|
| GM 3 S | -500 | 210 | 250 | 7,5 | 68 |
| GM 4 S | -500 | 300 | 340 | 7,5 | 70 |
| GM 7 L | -500 | 450 | 520 | 11 - 18,5 | 70 |
| GM 10 S | -500 | 600 | 600 | 15 - 37 | 70 |
| GM 10 S | -500 | 660 | 730 | 15 - 37 | 70 |
| GM 15 L | -500 | 975 | 1080 | 22 - 37 | 73 |
| GM 25 S | -500 | 1410 | 1510 | 30 - 55 | 73 |
| GM 30 L | -500 | 1980 | 2120 | 45 - 90 | 75 |
| GM 35 S | -500 | 2280 | 2420 | 55 - 90 | 75 |
| GM 50 L | -500 | 2700 | 2700 | 75 - 90 | 75 |
| GM 50 L | -500 | 3250 | 3450 | 75 - 250 | 78 |
| GM 60 S | -500 | 3340 | 3640 | 75 - 250 | 78 |
| GM 80 L | -500 | 4750 | 5150 | 110 - 250 | 80 |
| GM 90 S | -500 | 5220 | 5600 | 110 - 250 | 80 |
| GM 130 L | -500 | 8070 | 8070 | 400 | 82 |
| GM 150 S | -500 | 9700 | 9700 | 400 | 82 |
| GM 220 L | -500 | 12800 | 12800 | 400 | 82 |
| GM 240 S | -500 | 15000 | 15000 | 400 | 80 |

Ask for further pressure ranges within AERZEN scope of supply.

Dimensions and weights (Technical data subject to change – Products subject to technical alteration).



| Model | H | D | W | Nozzle size DN | Weight without acoustic hood | Weight with acoustic hood |
|---------|------|------|------|----------------|------------------------------|---------------------------|
| 3 S | 1055 | 800 | 800 | 50 | 148 kg | 212 kg |
| 4 S | 1280 | 1135 | 925 | 80 | 207 kg | 299 kg |
| 7 L | 1280 | 1135 | 925 | 80 | 212 kg | 304 kg |
| 10 S | 1280 | 1135 | 925 | 80 | 236 kg | 328 kg |
| 10 S | 1500 | 1350 | 1250 | 100 | 336 kg | 496 kg |
| 15 L | 1500 | 1350 | 1250 | 100 | 351 kg | 511 kg |
| 25 S | 1500 | 1350 | 1250 | 125 | 407 kg | 567 kg |
| 30 L | 1900 | 1800 | 1500 | 150 | 690 kg | 1020 kg |
| 35 S | 1900 | 1800 | 1500 | 150 | 780 kg | 1110 kg |
| 50 L | 1900 | 1800 | 1500 | 150 | 830 kg | 1160 kg |
| 50 L | 2111 | 2055 | 1700 | 200 | 905 kg | 1475 kg |
| 60 S | 2111 | 2055 | 1700 | 200 | 1035 kg | 1605 kg |
| 80 L | 2308 | 2200 | 1900 | 250 | 1550 kg | 2200 kg |
| 90 S | 2308 | 2200 | 1900 | 250 | 1620 kg | 2270 kg |
| 130 L | 2345 | 2850 | 2100 | 300 | 2436 kg | 3410 kg |
| 150 S | 2345 | 2850 | 2100 | 300 | 2796 kg | 3750 kg |
| 220 L * | 3500 | 4304 | 2800 | 400 | 4981 kg | 8240 kg |
| 240 S * | 3500 | 4304 | 2800 | 400 | 5371 kg | 8630 kg |

* Implementation in Kompakt IV

Weights without motor and belt drive



AERZEN. Compression as success factor.

The Aerzener Maschinenfabrik was founded in 1864. In 1868 we built Europe's first rotary lobe 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. AERZEN innovations are a driving force behind the development of compressor technology. Today, AERZEN is one of the world's oldest and most important manufacturers of rotary lobe blowers, rotary lobe compressors, rotary lobe gas meters, screw compressors, and turbo blowers. And in many areas of application, AERZEN is among the undisputed leaders.

There are more than 2000 experienced AERZEN employees in over 43 subsidiary companies worldwide working hard to advance compressor technology. Their technological expertise, our international network of experts, and the constant feedback from our customers are what make us successful. AERZEN products and services have become standards in the industry for reliability, lasting value, and efficiency. Go ahead: challenge us!

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EXPECT PERFORMANCE