AERZEN
SAFETY STANDARDS

100% process safety due to absorption material-free discharge silencer and compliance with oil-free operation, class 0

AERZEN

OIL FREE CLASS 0 – AERZEN SETS NEW STANDARDS.

The demands made to wastewater treatment plant operators to comply with and document required post-treatment water values require a large investment in the respective measurement and laboratory equipment, and resulting documentation.
Unintended problems may incur very severe penalties in this case. Subsequent clarification and investigation involves further effort and additional costs.

Oil-free operation as a constructive requirement.
It is important to consider in advance any already installed, oil-operated machines (bearing lubrication, oil cooling circuits etc.) which come into contact with the water cleaning process in any form whatsoever.
Not only does the pollution of the wastewater by oil pose a potential hazard here, the damage to the installed ventilation system, potentially resulting in total failure, may also inflict considerable cost.

AERZEN sets new safety standards.
As one of the leading manufacturers of positive displacement blowers (Delta Blower) and rotary lobe compressors (Delta Hybrid) used as ventilation units in aeration tanks, sand collectors and methane treatment plants, AERZEN has set a new standard for safety.
In cooperation with TÜV Rheinland LGA Products GmbH, this safety standard has been defined according to the following guidelines and standards:
ISO 8573-1: 2010 Part 1: Contaminants and purity class
ISO 8573-2: 2007 Part 2: Test methods for aerosol oil content
ISO 8573-5: 2001 Part 5: Test methods for oil vapour and organic solvent content
With this certification for all supplied machines (Delta Blower, Delta Hybrid), AERZEN has made an important contribution to the high-quality assurance of oil-free operating air, approved according to ISO 8573-1:2010 Part 1 of class 0.

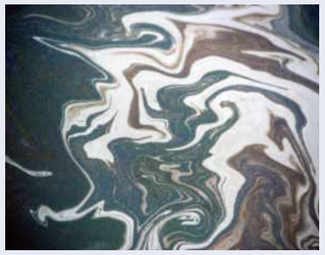

Fig. 1: Oil in water

Fig. 2: Destroyed by chemical reaction with oil

Fig. 3 : Aeration candle blocked by oil and absorption material removed from the discharge silencer

100% PROCESS SAFETY AND COMPLIANCE WITH REQUIRED SOUND PRESSURE LEVELS.

Increased energy efficiency and service life thanks to a pulsation discharge silencer free of absorption material.

Criteria for an optimised energy balance.
In addition to increasing demands for energy efficiency, the sturdiness and availability of compressor stations in water treatment represent an essential requirement criterion for current compressor technology.
Discharge silencers lined with absorption material are subject to natural wear caused primarily by the high intake temperature of the air (up to 150°C) and the abrasive wear by air flow collision in the silencer. The absorption material washes out of the silencer in the form of fine particles and collects on the outlet of the fine-nozzle ventilation system. This results in a gradual increase in pressure. A pressure increase of 10 mbar raises energy costs by approximately 1 to 2%!

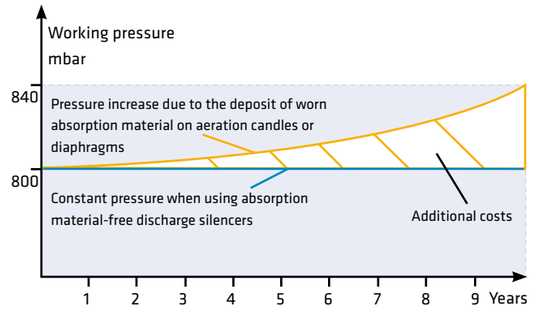

Fig. 1: Increased costs due to clogging of the ventilation system with worn absorption material

Example fig. 1:
Additional energy costs during a service life of 10 years:
Working pressure p_1 = 800 mbar
Average pressure increase in the ventilation system due to clogging with absorption material over 10 years Δp = 20 mbar
Increased efficiency due to pressure increase Δp = 20 mbar, P = 6.6 KW
Required volume flow rate V1 = 9,000 Nm^3/h
Electricity price= 0.2 €/KWh
Service life of machines/year tM = 5000 h
Period of time T= 10 years

Additional energy costs:
6.6 KW x 0.2 €/KWh x 5000 h x 10 = **€ 66,000**

Significant costs resulting from premature cleaning or even early replacement of the ventilation system may also result, bearing a negative impact on the operating costs of a wastewater treatment plant. It should be remembered here that the ventilation system may require maintenance or replacement up to three years earlier due to rising pressure.
If a cost factor of € 1,200 to 2,500 / 1000 PE is taken as a basis for assessing a ventilation system, the following early replacement costs will be incurred as shown in picture 2:

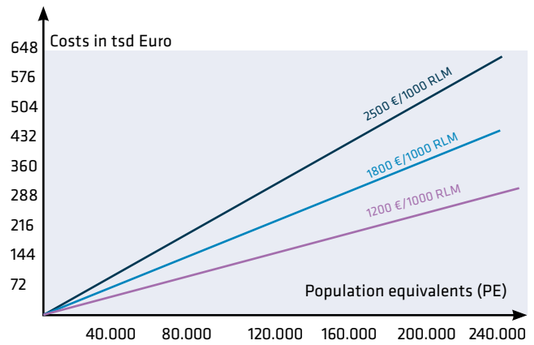

Fig. 2: Overview of ventilation system replacement costs

Continuous development.
AERZEN is in the process of equipping its Delta Blower series and Delta Hybrid rotary lobe compressors with absorption material-free pulsation discharge silencers. In today's world, practical experience has shown that where process reliability and energy efficiency are essential parameters for a wastewater treatment plant, no one can afford unnecessary energy costs and failures.

AERZEN further guarantees that its compressed air ventilation systems will conform to required sound pressure levels for the duration of their service life.
That is why AERZEN uses pulsation discharge silencers that are 100% free of absorption material. The sound level is reduced purely by means of air deflection. The sound pressure level (blue curve) is therefore maintained throughout the entire life cycle of the machine, and there is no gradual deterioration (yellow curve) in noise value!

With its patented technology, AERZEN takes an important step towards fulfilling VDI directive 2058 and TA Lärm (German Technical Guidelines for noise reduction); not only upon delivery, but also for a machine's entire life cycle. Our units also contribute to work safety (occupational safety ordinance on noise and vibration protection), ensuring that employees are not exposed to a gradual increase in noise level.

100% safety with ATEX applications (e.g. methane gas, digester gas) thanks to an absorption material-free pulsation discharge silencer and non-rupturing intake filter element.
The AERZEN Delta Blower and Delta Hybrid are designed specifically to meet the requirements for categories 2 and 3 for dust and gas zones, in accordance with ATEX manufacturer's directive 2014/34/EU.

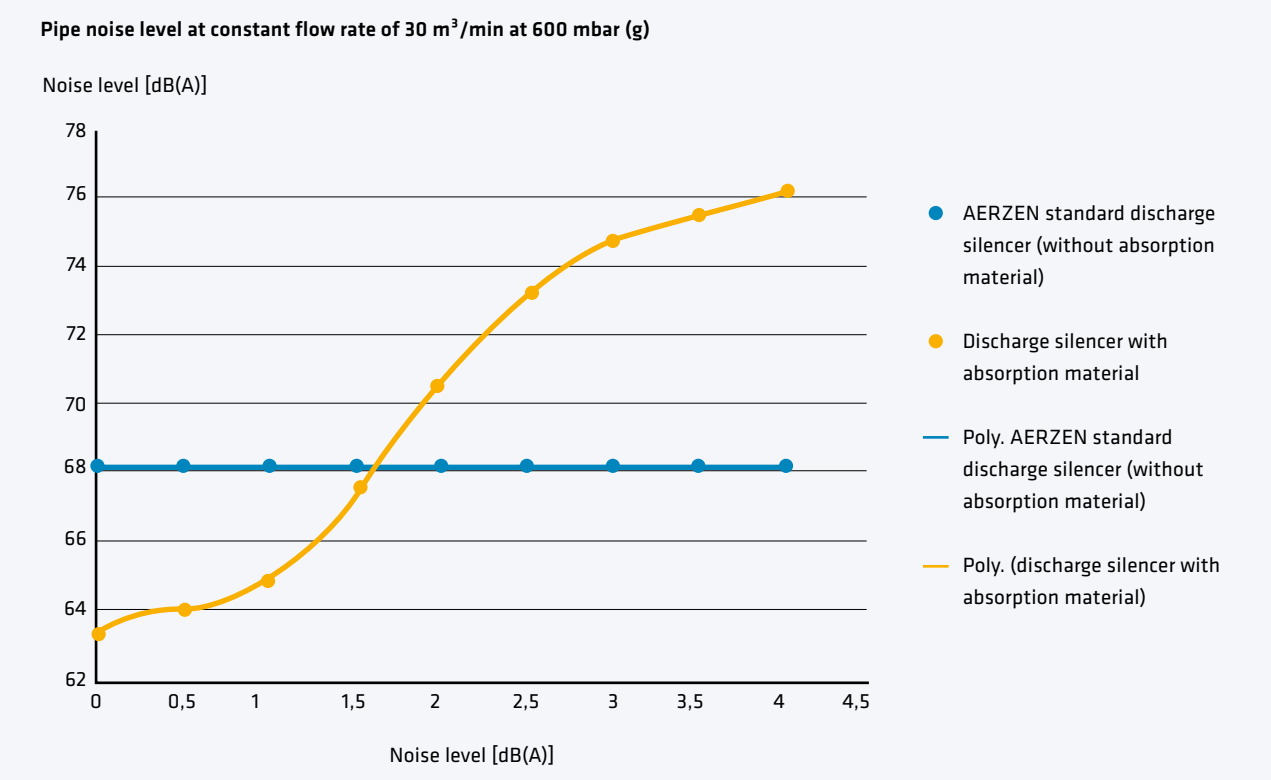

Fig. 3: Noise development due to absorption material wear on the discharge silencer

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