



AERZEN BIOGAS SOLUTIONS

Compressors for the compression of biogas and biomethane
Gas meters for the metering of biogas and biomethane



AERZEN

YOU CAN EXPECT A LOT FROM US. PREMIUM TECHNOLOGIES FOR THE BIOGAS SECTOR - MADE BY AERZEN.

Customers benefit from the extensive know-how that AERZEN has gained from decades of experience in the chemical and petrochemical industry.

The use of biogas as an energy source will considerably help achieve the environmental objectives set nationally and internationally; be that reducing reliance on nuclear energy or the reduction of CO₂ emissions.

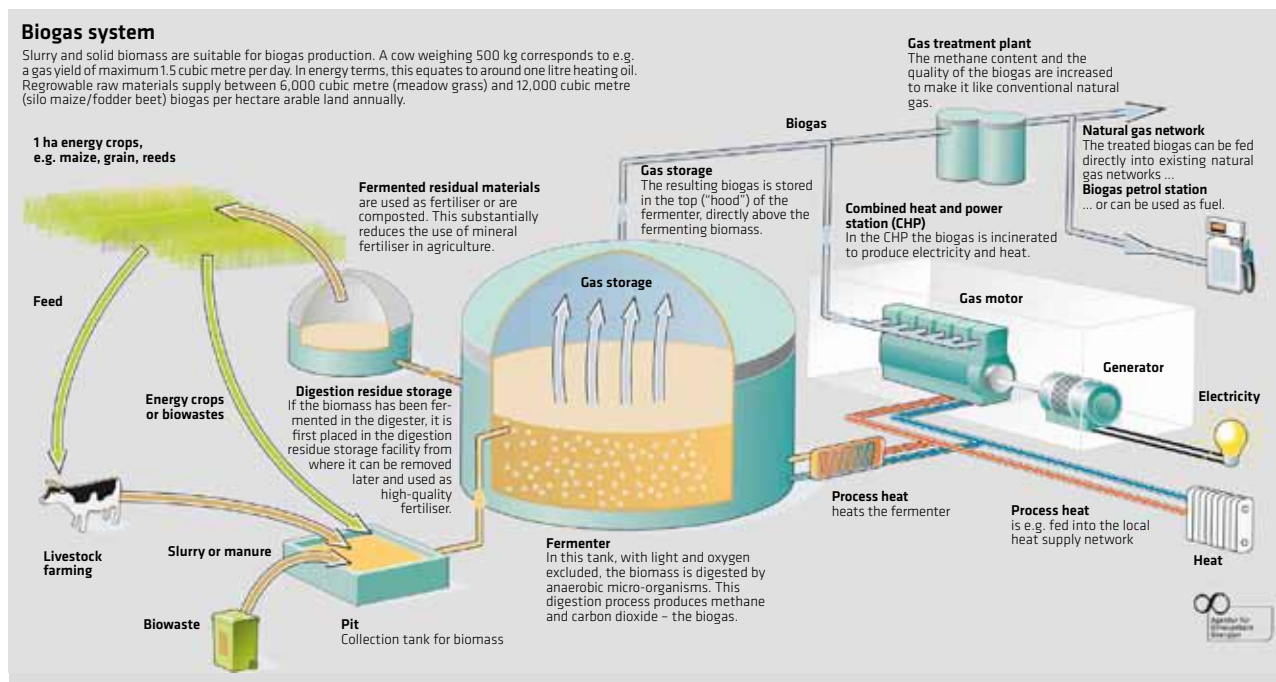
We at AERZEN support all these objectives with our more than 43 agencies worldwide.

For many years, AERZEN blowers and compressors have been conveying and compressing all types of gas and gas mixtures in plants of the chemical and petrochemical plants. Thereby, energy efficiency, plant safety and reliability are the decisive criteria. Based on this know-how and the experience gained, AERZEN offers products especially developed for the biogas market: whether boosting the intake pressure of combined heat and power (CHP) engines and treatment plants for biogas (BGTP) or as an essential part of biogas injection plants

(BGIP) for the compression of biomethane to inject into gas grids; AERZEN has the suitable blower or compressor for each application.

Customer-specific solutions can be offered from a wide array of machine sizes and design pressures. All blowers and compressors can be used in hazardous areas Zone 1 and in Zone 2 as defined under ATEX Directive 94/9/EG as well as the Machinery Directive, including the latest safety standard (EN 1012-3) and for Germany the DVGW regulations.

DVGW: German Technical and Scientific Association for Gas and Water



Functionality of a biogas plant

Applications in biogas plants

Explanations:

BGTP: biogas treatment plant

BGIP: biogas injection plant

CHP: block-type thermal power station

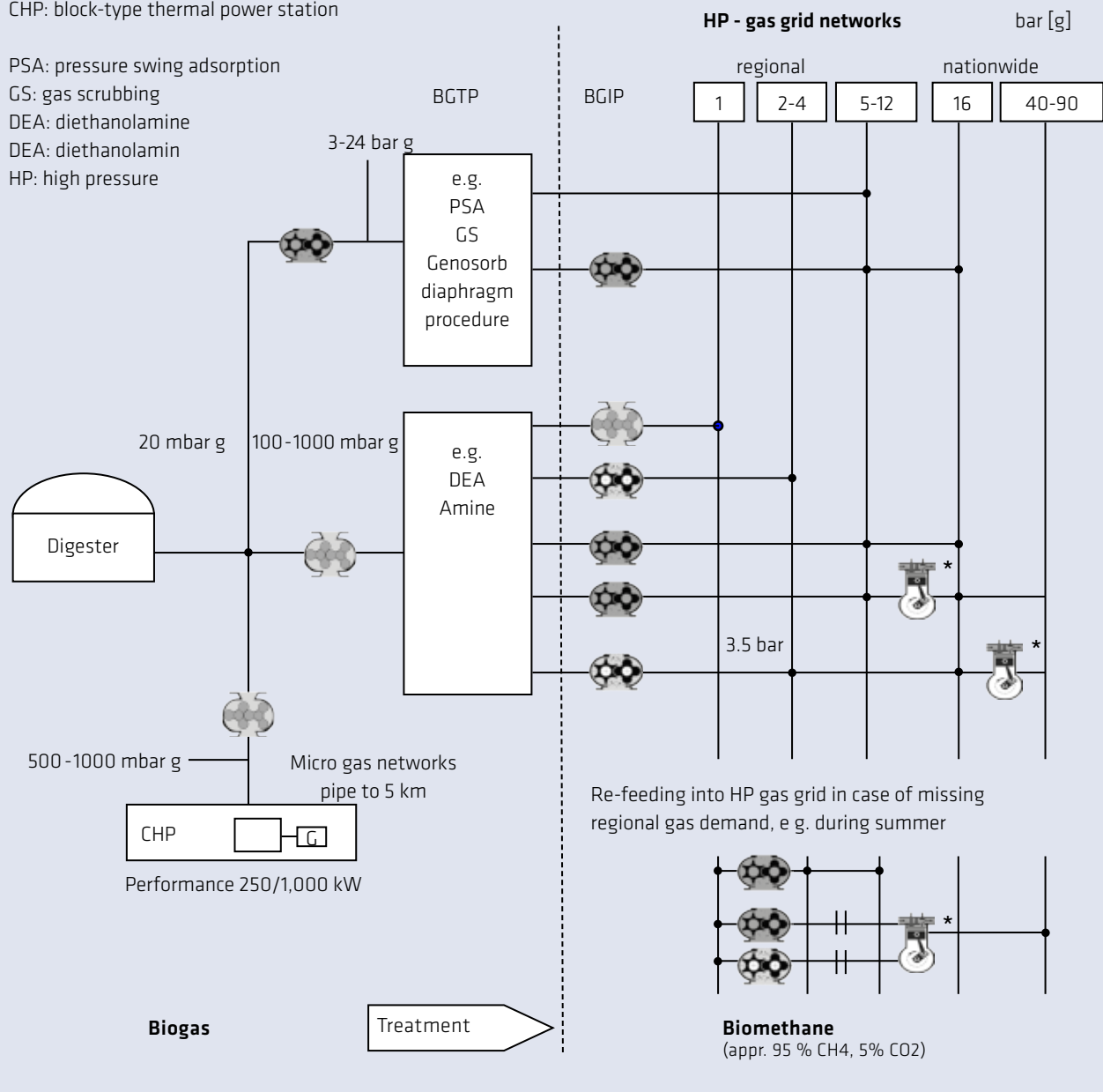
PSA: pressure swing adsorption

GS: gas scrubbing

DEA: diethanolamine

DEA: diethanolamin

HP: high pressure



		Design	Elevated intake pressure [bar g]	Δp max [bar]
Series C		Screw compressors oil-free	to 0,5	3,5
Series VMX/VMY		Screw compressors oil-flooded	to 8 (VMX to 0,5)	24 (VMX to 13)
Series GM		Positive displacement blowers	to 0,5	1
Series DGZ		Rotary piston gas meters	to 16	to 16



* (reciprocating compressor not included in AERZEN's scope of supply)

BIOGAS BLOWERS

Specially designed for the biogas market, these blowers ensure ultimate reliability and efficiency.

AERZEN biogas blowers of series GM are available in a variety of different sizes.

Due to the TÜV-certified explosion pressure resistance of 12 bar, these blowers may also be applied in processes with internal ATEX zone 1.



AERZEN positive displacement blowers are highly-developed standard products. Manufactured using modern CNC-driven specialist technology. For minimal tolerances between components – and exceptional efficiency levels. For nothing short of precision. Made by AERZEN.

Biogas blower – series GM for oil-free compression

Ranges of application

Compression of biomethane and biogas, landfill gas, natural gas, CH-mixed gases etc.

9 sizes for volume flows between 30 m³/h and 2700 m³/h.
Volume flow control by controlling rotating speed and bypass. Control range 0 - 100 %

Elevated intake pressure: 0.5 bar g max.

Discharge pressure: 1.0 bar g max.

Design compressor stage

Casing material: ductile iron
(GGG 40.3 / EN-GJS-400 / ASTM A395)
Rotors: forged steel (C45N / AISI type 1045)
Drive shaft seal: gas-tight seal
Bearings: rolling element bearings



AERZEN stage
positive displacement blower GM

AERZEN positive displacement blower GM 15 L
for the compression of biogas and biomethane

Scope of supply of blower packaged unit

Starting strainer
Suction silencer
Base support including discharge silencer
Vibration isolating feet
Hinged motor plate to provide for automatic belt tension
Belt drive and belt guard
Check valve
Axial expansion joints
Instrumentation

Options, e.g.

Special motor or customer supplied motor
Control and power supply panel incl. frequency converter
Acoustic hood
Gas cooler
Bypass - control valve

Series GM is also available as direct coupled version

Please find more information in our leaflets G1-068 and G1-069



BIOGAS COMPRESSORS

AERZEN screw compressor packages are characterised by a great variety of types and a lot of modification possibilities. Whether these compressors serve as part of the customer's plant concept or they are applied as complete system solution, AERZEN always adapts to individual customer requirements. Forming the basis for this is the development competence of this world market leader, as AERZEN has constantly innovated, optimised and completed successfully its compressors since 1943.



Special rotor profiles are characteristic of AERZEN's screw compressors. And they ensure significantly better performance in negative and positive pressure operation.

Biogas compressor – series C

Oil-free screw compressors

Ranges of application

Compression of biomethane and biogas, landfill gas, natural gas, CH-mixed gases etc.

3 sizes for the following max. volume flows:

C 6 Z	C 13 Z	C 18 Z
610 m ³ /h	1290 m ³ /h	1900 m ³ /h

Volume flow control by controlling rotating speed and bypass. Control range 0 - 100 %

Elevated intake pressure: 0.5 bar g max.

Pressure difference: to 3.5 bar g



AERZEN stage
screw compressor VM

Design and scope of delivery

Compressor stage

Casing material: ductile iron (GGG 40.3 / EN-GJS-400 / ASTM A395)

Rotors: forged steel C45N / AISI type 1045
(all gas-contacted components are coated for corrosion protection)

Drive shaft seal: gas-tight seal

Bearings: rolling element bearings

Scope of supply of compressor packaged unit

Starting strainer

Suction and discharge silencers

Oil lubricating system integrated into the compressor stage

Check valve

Internal pipe work

Instrumentation

Options, e.g.

Acoustic hood

Controls

Modification for zones 1 and 2

Please find more information in our leaflet RKR*

* RKR = a member of the AERZEN Group



AERZEN compressor C 13 Z for the
compression of biogas and biomethane

Biogas compressor – series VMX
Oil-flooded screw compressors packages

Ranges of application

Compression of biomethane and biogas
 Other process gases as CH₄ - mixed gases

5 sizes for the following max. volume flows:

VMX 45	VMX 75	VMX 110	VMX 160	VMX 250
300 m ³ /h	500 m ³ /h	900 m ³ /h	1400 m ³ /h	3000 m ³ /h

Volume flow control by controlling rotating speed and bypass. Control range 0 - 100%

Elevated intake pressure: 0.5 bar g max.

Discharge pressure: 13 bar g max.



AERZEN stage
 screw compressor VMX

Design and scope of supply

Compressor stage

Casing material: ductile iron (GGG 40.3 / EN-GJS-400 / ASTM A395)
 Rotors: forged steel (C45N / AISI type 1045)
 Drive shaft seal: mechanical seal - oil-lubricated
 Bearings: rolling element bearings

Scope of supply compressor packaged unit

Starting strainer

Oil system composed of:

- Oil reservoir
- Oil filter
- Oil cooler
- Oil pressure control valve
- Oil temperature control valve
- Oil separator

Gas cooler

Internal pipe work

Instrumentation and controls

Options, e.g.:

Acoustic hood or container-mounted package

Water chiller and more

Please find more information in our leaflet V1-020

AERZEN compressor VMX 110 for
 the compression of biomethane



Biogas compressor – series VMY
Oil-flooded screw compressors packages

Ranges of application

Compression of biomethane and biogas
 Other process gases as CH₄ - mixed gases

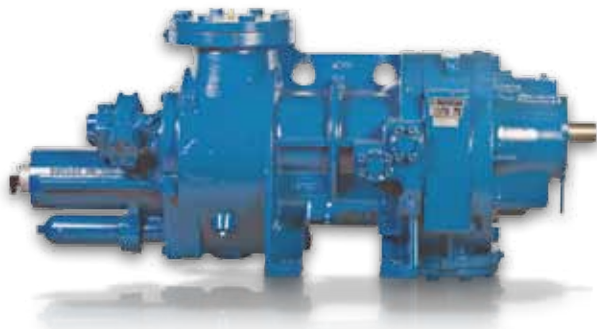
3 sizes for the following maximum volume flows:

VMY 156	VMY 256	VMY 356
600 m ³ /h	1250 m ³ /h	2500 m ³ /h

Volume flow control via integrated slide valve
 and / or control of rotating speed and bypass.
 Control range 0 - 100%

Elevated intake pressure: 8.0 bar g max.

Discharge pressure: 25 bar g max.



*AERZEN stage
 screw compressor VMY*

Design and scope of supply

Compressor stage

Casing material: ductile iron
 (GGG 40.3/EN-GJS-400/ASTM A395)
 Rotors: forged steel (C45N / AISI type 1045)
 Drive shaft seal: mechanical seal - oil-lubricated
 Bearings: sleeve bearings - (radial)
 angular contact ball bearings - (thrust)

Scope of supply compressor packaged unit

Starting strainer

Oil system composed of:

- Oil reservoir
- Oil filter
- Oil cooler
- Oil pressure control valve
- Oil temperature control valve
- Oil separator

Gas cooler

Check valves

Internal pipe work

Instrumentation and controls

Options, e. g.

Acoustic hood or container-mounted package

Water chiller and more

Please find more information in our leaflets V1-035 and V1-038



*AERZEN compressor VMX 256
 for the compression of biomethane*

AERZEN ROTARY PISTON GAS METER

AERZEN is one of the oldest and biggest manufacturers of rotary piston gas meters in the world. With the current generation, the expert in rotary lobe machines supplies high precision meters for the energy supply industry. Analogue or digital. Designed in accordance with the harmonised EU regulations for use in the European market. Made by AERZEN in compliance with the quality assurance system DIN ISO 9001 and the Pressure Equipment Directive DGRL 97/23/EC.



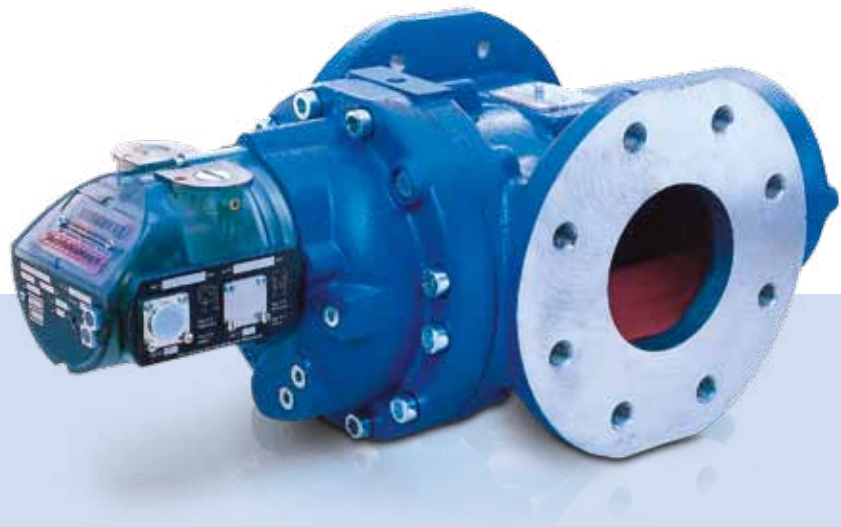
Intelligently designed and with versatile equipment options – AERZEN's rotary piston gas meters can be easily adapted to meet diverse customer requirements.

**AERZEN rotary piston gas meter
for metering flows of biomethane and biogas**

Advantages

- Widest range on the market up to G 4000 (6,500 m³/h)
- Casing pressure rating PN 10 or PN 16
- HTB series designed for 5 bar operating pressure (G 40 - G 400)
- Extended measuring range up to 1:160
- Guaranteed measuring accuracy and measurement stability within the calibration validity period
- Re-calibration every 16 years, unlimited for G 1600 and larger
- Double roller-type counter, alternatively electrical counter
- No straight runs of pipe required compared to turbine-type meters and / or other systems
- Connection for pressure and temperature measurements are available on both sides of the housing
- Flexible customer-oriented solutions by additional equipment

Please find more information in our leaflets Z1-001 and Z1-010



*AERZEN
rotary piston gas meter G 160*

General

The packaged units can be used, adequately equipped, in category 2 - i. e. Zone 1 - temperature class T3, within device group II corresponding to the EC standard 94/9 EG (ATEX).

All AERZEN blower and compressor stages and packaged units comply with the latest safety standard (EN 1012-3), harmonised in accordance with the current EU Machinery Directive (published in November 2013).



AERZEN. Compression as success factor.

AERZEN was founded in 1864 as Aerzener Maschinenfabrik. 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 2,000 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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