

GAS SCREW COMPRESSOR FOR BIOMETHANE & METHANE

GG VSD Series



Atlas Copco





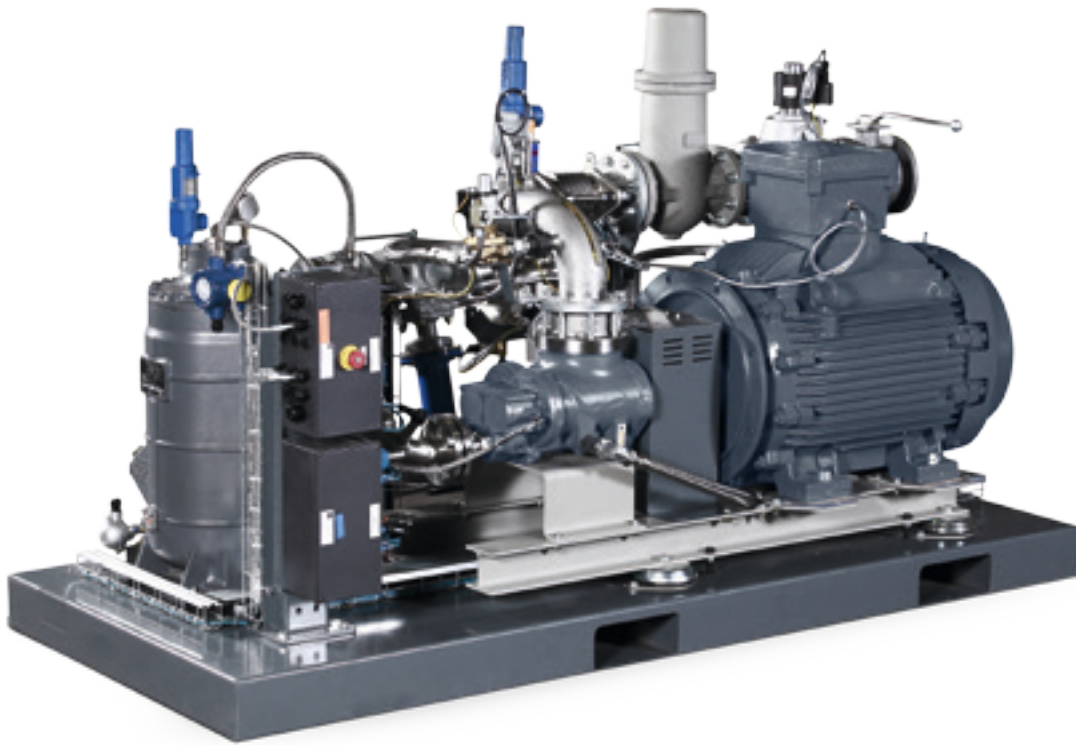
A GLOBAL PARTNERSHIP

From being a biogas pioneer in the mid-eighties, Atlas Copco has accumulated extensive knowledge and experience in the field of biogas upgrading and grid injection, natural gas boosting and vehicle fueling.

Consequently, Atlas Copco has evolved into a fully-grown industrial player in the biogas field. Our solutions reduce your environmental impact due to low methane and CO₂ emissions, and deliver an economically viable business opportunity. Our portfolio for biogas and methane includes gas screw compressors up to 16 bar(g) and piston compressors up to 350 bar(g).

QUALITY

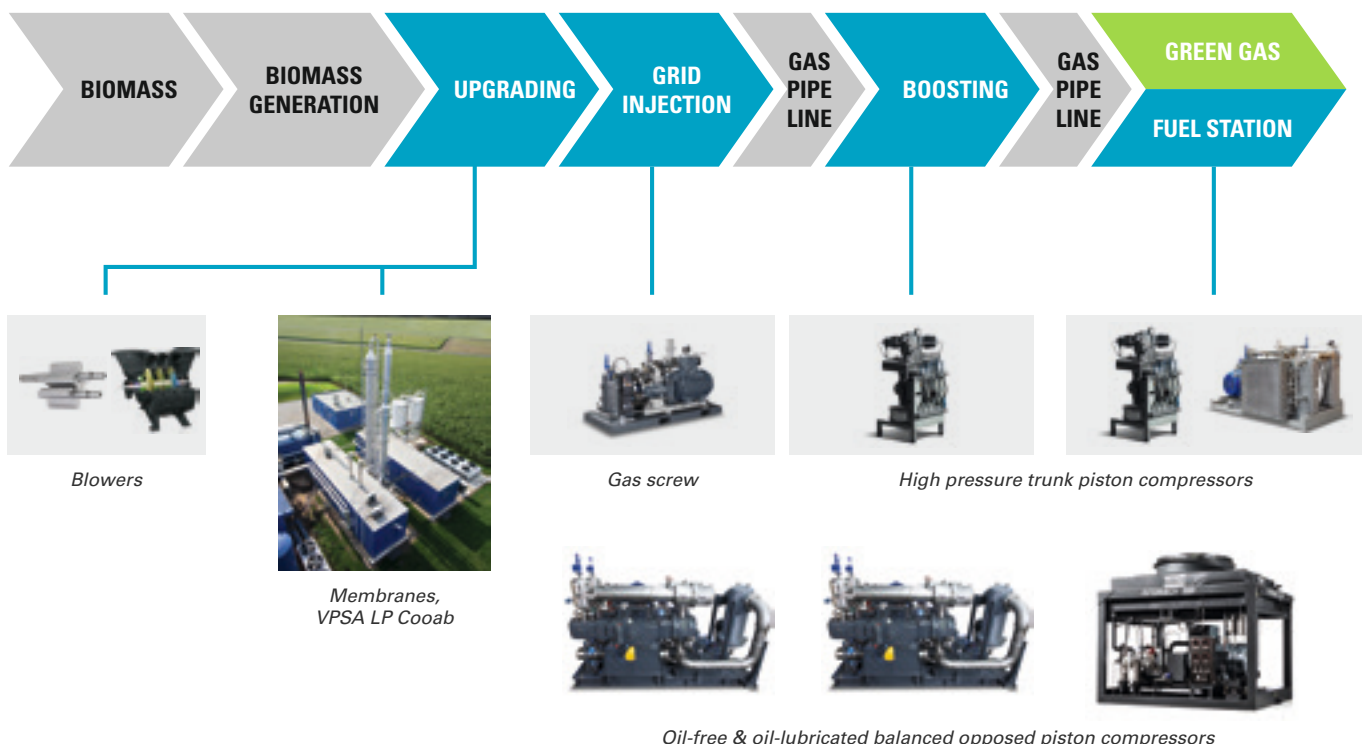
We have put quality in the core of our organization. Our company has received the following certifications: ISO 9001, ISO 14001 and OHAS 18001.



WHY ATLAS COPCO?

With over 140 years of innovation and experience, Atlas Copco delivers the products and services to help maximize your company's efficiency and productivity. As an industry leader, we are dedicated to offering customer proven solutions and seamless integration of critical components. By optimizing your operations you can safeguard your investments. Backed by a strong service network, Atlas Copco keeps your equipment up and running at all times.

We also provide solutions for biogas upgrading, down-stream grid injection, grid boosting and vehicle fueling.



GG VSD GAS SCREW COMPRESSOR

The GG VSD is a highly efficient gas screw compressor, in a single stage execution. Safe for gas and equipped with Variable Speed Drive, it is particularly well adapted for biomethane gas grid injection.

Fully compliant with CE Directives

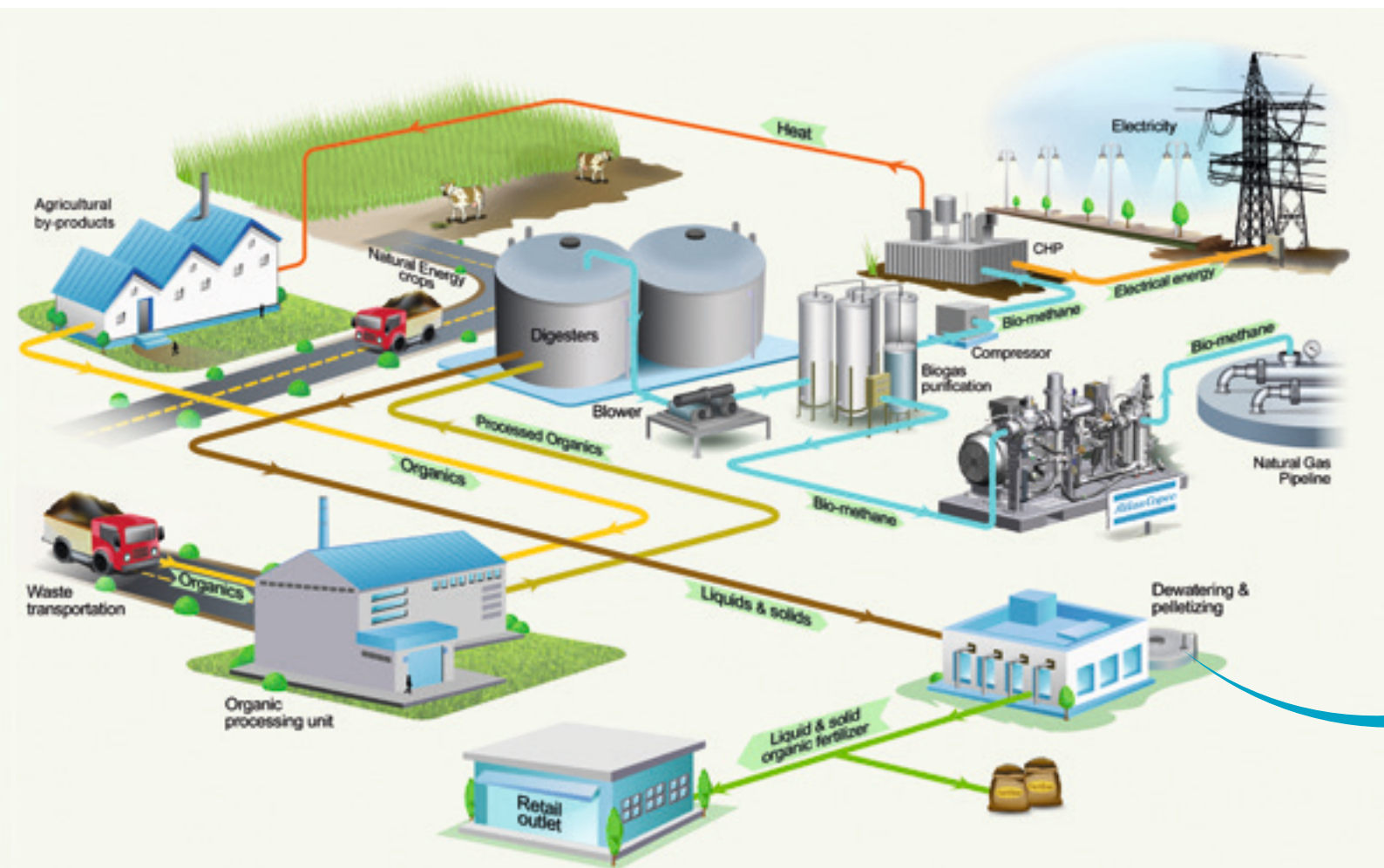
With the latest technologies applied to its safety components and circuit, the GG gas screw compressor is a safe companion for your daily operations, your process and your operators. The GG VSD gas screw compression unit is designed for installation in ATEX zone 1 & 2.

A constant supply of gas to your customers

The Variable Speed Drive motor adapts to the changing gas production path. This ensures a continuous supply of gas to the grid.

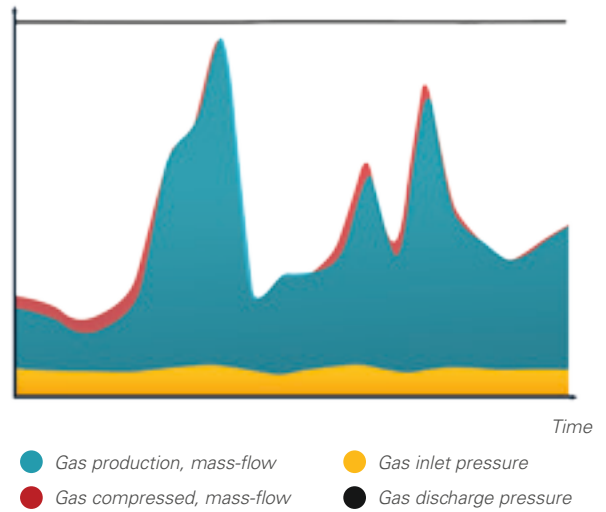
Low cost of ownership

The GG VSD gas screw compressor integrates today's needs for energy savings and low maintenance costs. Screw technology and VSD drive provide tremendous savings in terms of energy and maintenance. Well-designed circuits, full accessibility, and the capability for predictive maintenance also contribute to a low cost of ownership over the lifetime of your investment.



VSD ADAPTS TO CHANGING FLOW DEMAND

Variable Speed Drive (VSD) allows your gas compressor to easily adapt to changing gas production needs. When the quantity of gas available from the bio process rises, the VSD motor speeds up to meet this demand and vice-versa, always ensuring correct gas discharge pressure.



Intelligent technology for maximized savings

The benefits of VSD over fixed speed are numerous:

Operational efficiency:

- A continuous supply of gas to grid, at constant outlet pressure for a given gas feed.
- Inlet pressure is kept constant.

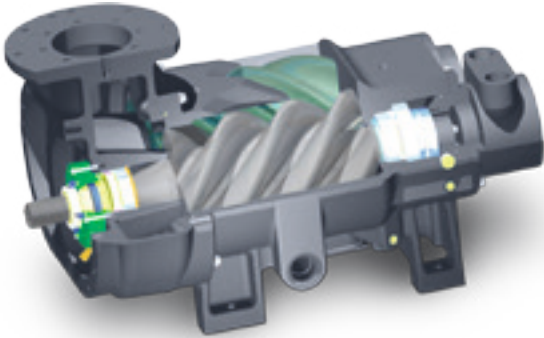
Improved SER (Specific Energy Requirement) of the screw compressor:

- Ensures smooth running of the compressor.
- Saves energy.
- Increases reliability by preserving the integrity of components.
- Reduces maintenance costs.



SAFE FOR GAS APPLICATIONS

The GG VSD screw compressor is safe for gas applications and is compliant with ATEX zone 1 & 2. Security functions are handled by a SIL2 PLC (according to IEC 61508). It is fully compliant with CE directives.



1

High efficiency gas screw

- Single stage, oil lubricated, with superior mechanical shaft seal.
- Large diameter, slow turning rotors maximize gas flow at low energy cost.

2

Junction box with Emergency Shut Down

- Safe, explosion-proof.
- Easily accessible emergency push-button.

3

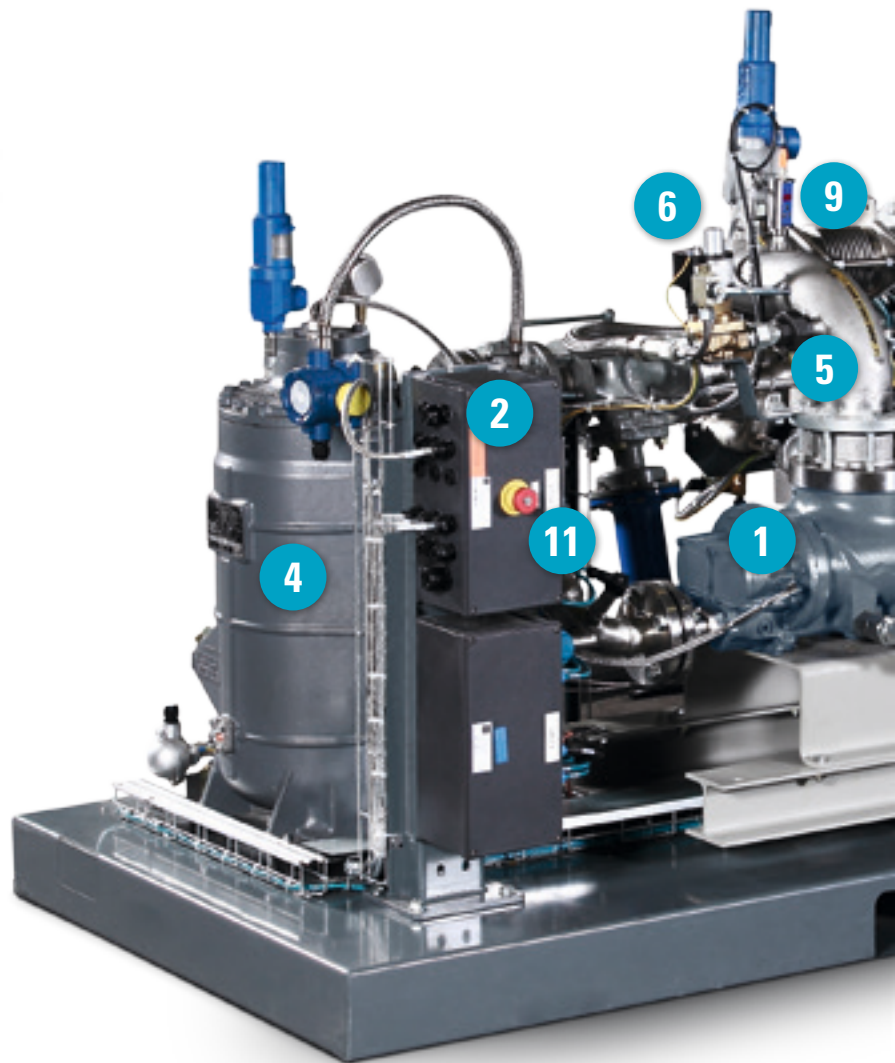
Safe electric motor with Variable Speed Drive

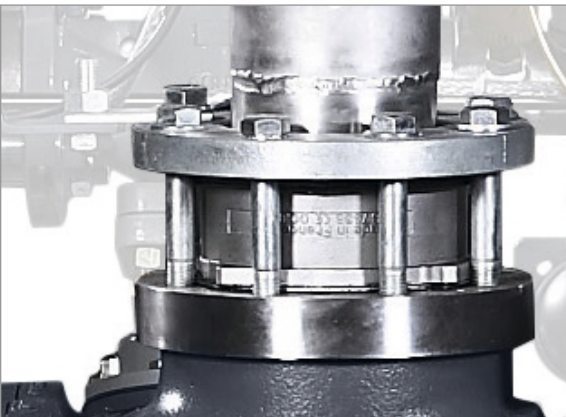
- IP55 – IEC – 400 V/50 Hz – Eexd IIBT4.
- Flexible coupling with guard: no energy loss due to gears or belts.

4

High-performance oil separator

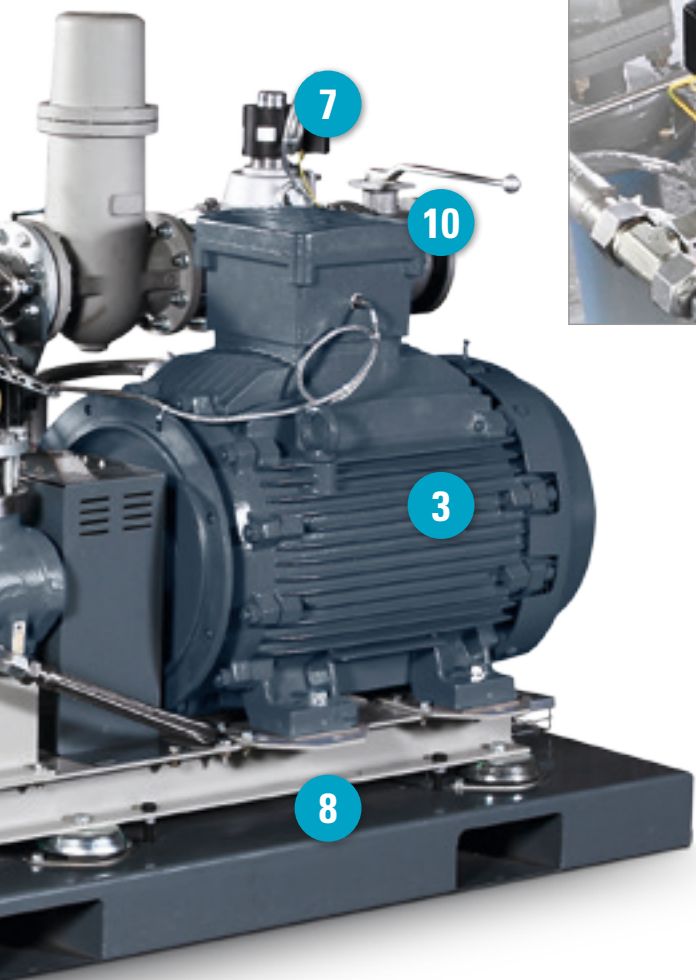
- Oil residue in gas down to 5 ppm.
- Longer duration between oil top-ups reduces maintenance costs.





5 No back-flow

Non-return valve prevents risk of back-flow of oil, protecting gas net.



6 Unique safety loop

- In case of emergency stop, gas is back fed to the inlet train to avoid vacuum.
- Prevents air from entering the compressor.

7 Solenoid valve

Closed on emergency stop, isolating compressor from gas supply.

8 Compact; plug & play

- All equipment fitted on baseplate, anti-vibration pads.
- Cable protection with stainless steel trays
- Slots for fork-lift handling.
- Easily accessible connections for water, gas and power.

9 Inlet pressure transmitter

- Clear display of inlet pressure.
- Motor speed regulated by inlet pressure.

10 Inlet gas train

Straightforward connection with easy access for inlet gas valve, solenoid valve and gas filter.

11 Efficient oil filters

- Extended service interval.
- Easy access for maintenance.



ADVANCED CONTROL AND MONITORING

The Elektronikon® MkV control & monitoring system provides energy saving features. Based on advanced technology, this intelligent system is extremely easy to use in daily operations and for programmed maintenance.



Enhanced safety

- Control command placed in NON-ATEX zone, in tight IP54 cabinet.
- Security functions handled by SIL2 PLC.
- Emergency shutdown and gas detection included.
- Gas handling in case of shutdown.

User-friendly

The 5.7" display with clear pictograms allows clear and easy management of the machines. It is available in multiple languages. The main functions of the MkV are to measure, communicate, control and protect:

- Clear display of all relevant machine parameters, in real time, including the motor bearings and winding temperatures.
- Advanced algorithms ensure optimum efficiency for maximum energy savings:
 - o Converter for Variable Speed Drive saves energy.
 - o Programmable timers (hours, drains) allow for energy and maintenance savings.
- With local or remote display of all parameters on an internal website, you are always connected in real time with what is happening on the machine and network.



A CUSTOMER-FRIENDLY DESIGN

Designed as a plug and play system, the GG VSD compressor is placed on a compact base frame. The screw unit is fixed on anti-vibration pads. Only water, gas and electrical connections are needed.

Straightforward maintenance

- Easy access to all components.
- Stop button easily accessible.
- All functions reported to the control cabinet located in safe area.
- Predictive maintenance.
- Low maintenance cost.
- Options for remote control.
- Competent teams available: qualified and trained to carry out safe maintenance.
- Service contracts available.

A: Gas inlet

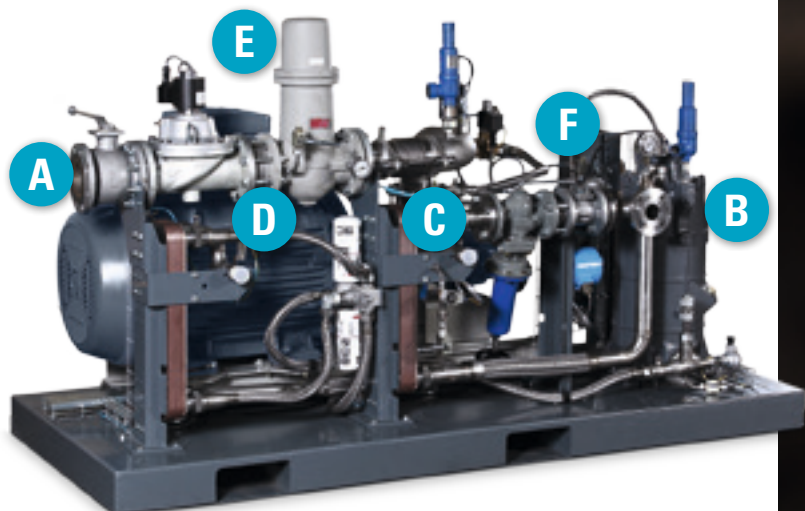
B: Gas outlet

C: Water in

D: Water out

E: Power

F: Controls



THE SCREW COMPRESSOR AS YOU NEED IT!

The GG VSD gas screw compressor is designed as a complete turnkey unit, ready for use. It is built around an efficient gas screw compressor with pre-defined instruments and controls. This arrangement allows you to either choose the complete turnkey unit or the basic compressor with the options you need. You can customize the instrumentation you need.

Gas circuit	Lubricated rotary screw with highly efficient rotor profile	✓
	Mechanical shaft seal (prevents fluid from escaping from screw element)	✓
	Separated oil scavenged back to rotary screw	✓
	Plate gas cooler	✓
	Minimum pressure valve	✓
	Limit inlet/outlet flanges	✓
Driver	VSD electric motor IP55 – IEC – 400 V/50 Hz – Eexd IIB T4	✓
	Direct drive	✓
Oil circuit	Pressurized lubrication	✓
	Oil filter	✓
	Plate oil cooler	✓
	Thermostatic valve (oil temperature)	✓
Instruments	Instrumentation type Eexd.IIB.TB protection IP65	✓
	Junction box on skid with ESD (emergency shutdown) and emergency push button	✓
	Safety relief valve at gas outlet	✓
	Temperature gauges in stainless steel	✓
	Cable on skid protected within stainless steel cable trays	✓
	Gas detector	•
Framework	Skid, no need for foundations, slots for handling	✓
In safe area	Tight IP54 cabinet	•
	VSD converter built as per IEC (SIL 2)	•
	Power cable for the main motor	•
	Control transformer 24 V AC	•
	Control and monitoring system Elektronikon® MkV	•

✓ : Standard • : Optional

TECHNICAL SPECIFICATIONS

GG VSD compressor

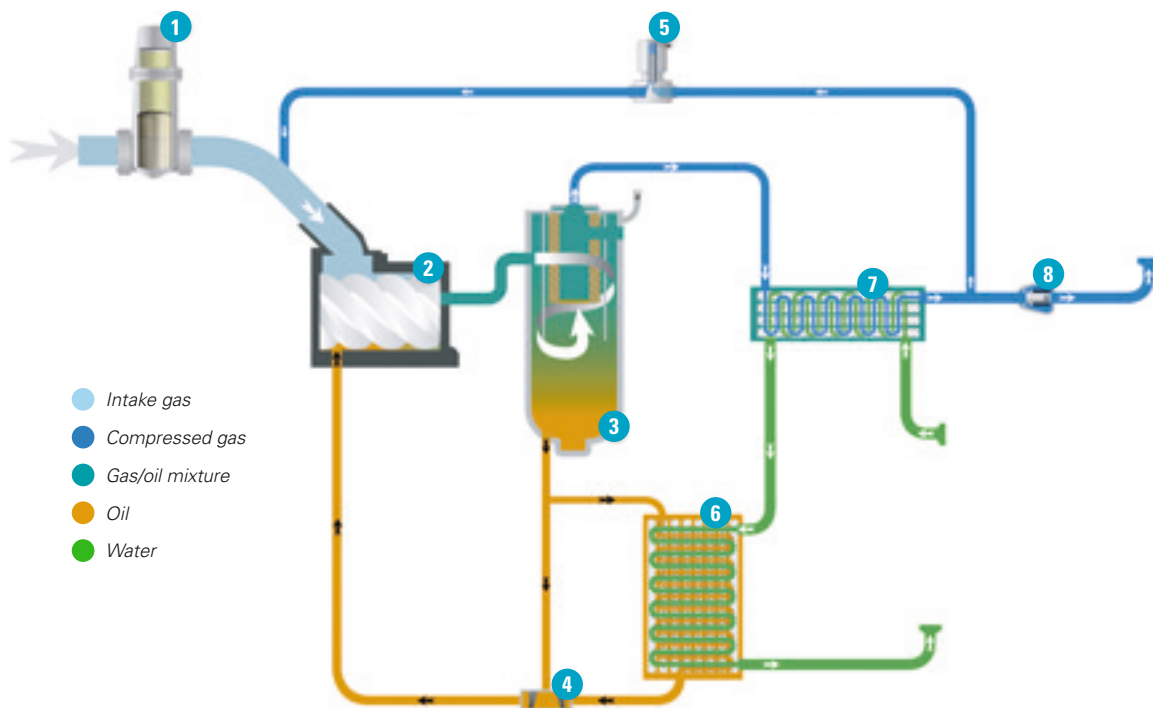
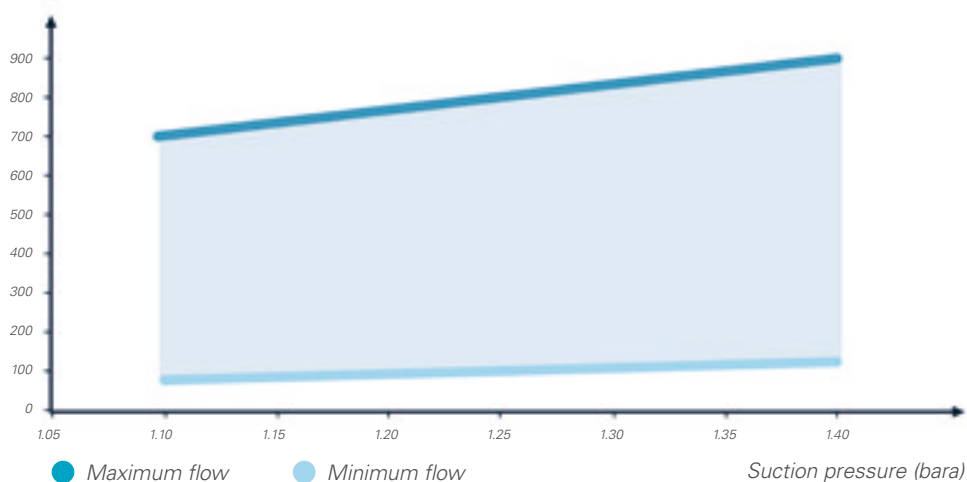
Gas handled	Biomethane, methane
Working pressure	Up to 16 bar (a)
Flow rate at minimum speed	75 Nm ³ /h
Flow rate at maximum speed	Up to 900 Nm ³ /h
Installed motor power	90 / 132 kW
Dimensions (L x W x H)	2530 x 1100 x 1450 / 1617 mm
Weight	Approximately 1800 / 2500 kg

Electrical cubicle

Dimensions (L x W x H)	1400 x 700 x 2000 mm
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Flow rate (Nm³/h)



1. Gas intake filter
2. Screw compressor

3. Separator vessel
4. Thermostatic bypass valve

5. Solenoid valve
6. Oil cooler

7. After cooler
8. Minimum pressure valve

COMMITTED TO SUSTAINABLE PRODUCTIVITY

We stand by our responsibilities towards our customers, towards the environment and the people around us. We make performance stand the test of time. This is what we call – Sustainable Productivity.



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