

# Biomethane

.....  
RECIPROCATING GAS COMPRESSORS  
MADE & DESIGNED IN ITALY 



Via Ponticelli, 5-7, 43029  
Traversetolo (PR), Italy



[www.fornovogas.it](http://www.fornovogas.it)  
[info@fornovogas.it](mailto:info@fornovogas.it)



Tel. +39 0521 1553844  
Fax +39 0521 1523066

# Since 1969



1969

## FOUNDATION

.....

Dr. Carlo Bauzone founded Fornovo Gas, creating a company that immediately stood out for its innovation and passion for gas compression.

2004

## FIRST COMPRESSOR

.....

The first reciprocating compressor, fully developed with Fornovo Gas technology, is introduced, marking a crucial moment in our innovation journey.

2009

## CERTIFICATIONS

.....

Fornovo Gas earns ISO 9001, ISO 14001, and ISO 45001 certifications, affirming its commitment to excellence and quality.



2019

#### EXPANSION

.....

Fornovo Gas compressors are now operational in 60 countries, spreading our technology worldwide.

2021

#### HYDROGEN

.....

The range of reciprocating compressors for hydrogen is launched, marking another significant milestone in our mission to support the energy transition.

2024

#### TODAY

.....

Fornovo Gas, a certified Benefit Society, continues to innovate in sustainable solutions. With a strong commitment to carbon neutrality by 2030, the company expands its international presence, driving the global energy transition.

# About Us

For over **55 years**, Fornovo Gas has been synonymous with **innovation, sustainability**, and a strong sense of family passion.

Founded as a **family-run business**, our company has grown into a **global leader** in the **design and production of alternative gas compressors**.

Delivering **high-performance, customized solutions** for a wide range of applications: Biogas, Biomethane, CO<sub>2</sub>, Industry, CNG, Hydrogen, and more...

With a **worldwide network** of partners and clients, we continue to innovate and expand while staying true to the values that have brought us this far:

Meticulous **attention to detail**, unwavering **dedication**, and a **commitment** to delivering solutions that meet today's needs while anticipating the challenges of tomorrow.

## Benefit Society

Since 2022, Fornovo Gas has been a **Benefit Society**.

This decision strengthens our commitment to combining industrial innovation with ambitious **environmental, social, and governance (ESG) goals**.

As a Benefit Company, we align ethical responsibility with tangible results: delivering advanced technologies that **respect the environment, support sustainable development, and create value** for our clients, communities, and people.

This model allows us to provide cutting-edge, reliable solutions while embracing a more **responsible vision** for the future, a path toward progress that benefits everyone.

## Our Numbers

**3000+**

COMPRESSORS  
INSTALLED  
WORLD WIDE

**20 %**

STEADY GROWTH  
IN ORDERS

**120**

OVER 120  
EMPLOYEES

**60**

OPERATING IN  
MORE THAN 60  
COUNTRIES

**2**

AMAZING  
DOGS

# Our Values

.....



## QUALITY AND RELIABILITY

.....

Our compressors are designed and manufactured in Italy, ensuring top-notch **Made in Italy** quality, reliability, and performance.



## TECHNOLOGICAL INNOVATION

.....

Revolutionary **oil-free compressors**: the clean, powerful choice for tomorrow's industries.



## TAILOR MADE

.....

Every client is **unique**, and so is every solution we deliver.



## CORPORATE SUSTAINABILITY

.....

Operating with a focus on **sustainability**, delivering compressors designed for a greener future.



## PARTNERSHIP AND COLLABORATION

.....

We believe **teamwork** is the key to overcoming energy challenges.



## FAMILY TRADITION

.....

A **family-run business** that puts people first, fostering strong and lasting relationships with clients and partners.

## The White Twins

.....

We're not just experts in gas compression...  
**WE'RE A TEAM !**

**Sonny** and **Mizu**, our beloved office dogs, are proud members of the **Fornovo Gas family**.

With their boundless energy and loyalty, they embody our core values of **dedication**, **reliability**, and **teamwork**.



# Our Products

POWER kW	MODEL	Bore (mm)	Acting Strokes (mm)	MAWP (bar g)	Cooling	Features Options	APPLICATION					
							CH4	Bio CH4	N2	CO2	Sour Gas	Toxic Gas
1800	<b>DA500</b>	500 400 300 220 185 150 115 370-190 240-140 160-80 100-55	DOUBLE ACTING 80 110 140 175 48 143 275 500	17,5 34,7 62 70,5 100 140 140 275 48 143 275 500	Air Liquid	B-C B-C B-C B-C B-C B-C B-C B-C B-C B-C B-C B-C	Bone dry gas seals Ni-plated surface treatment Cylinder lubrication system Packings Nitrogen buffer					
315	<b>DA300</b>	320 240 150 90 90 200-130 100-50 100-50	DOUBLE ACTING 100 100 90 275 375	10 40 90 133 220 90 90 275 375	B B B B B B B B	Bone dry gas seals Ni-plated surface treatment						
55	<b>SA200</b>	150 80 50-25 40-20	SINGLE ACTING 65 TANDEM	50 100 306 500	B-C B-C B-C B-C	Bone dry gas seals Ni-plated surface treatment Packings Nitrogen buffer						
7	<b>SA50</b>	65 45 37	SINGLE ACTING	14 14 42	OIL LESS							

## **Oil-Free Technology**

.....

OUR OIL-FREE TECHNOLOGY, COMBINED WITH THE DISTANCE PIECE TYPE B (AS PER API 618) AND AN OIL SLINGER POSITIONED ON THE ROD, ENSURES PHYSICAL SEPARATION BETWEEN COMPRESSED GAS AND OIL-LUBRICATED COMPONENTS, GUARANTEEING CLEAN GAS AND OPTIMAL PURITY.



### **NO TRACES OF OIL IN COMPRESSED GAS**

.....

The **Distance Piece Type B** provides physical separation between the compressed gas and the oil-lubricated components, ensuring **no oil traces** in the compressed gas and maintaining optimal purity.



### **NEGLIGIBLE OIL CONSUMPTION AND ENHANCED AVAILABILITY**

.....

With **minimal oil consumption**, Oil-Free compressors eliminates the need for oil top-ups during regular maintenance, ensuring **uninterrupted, reliable operation** and **maximizing system availability**.

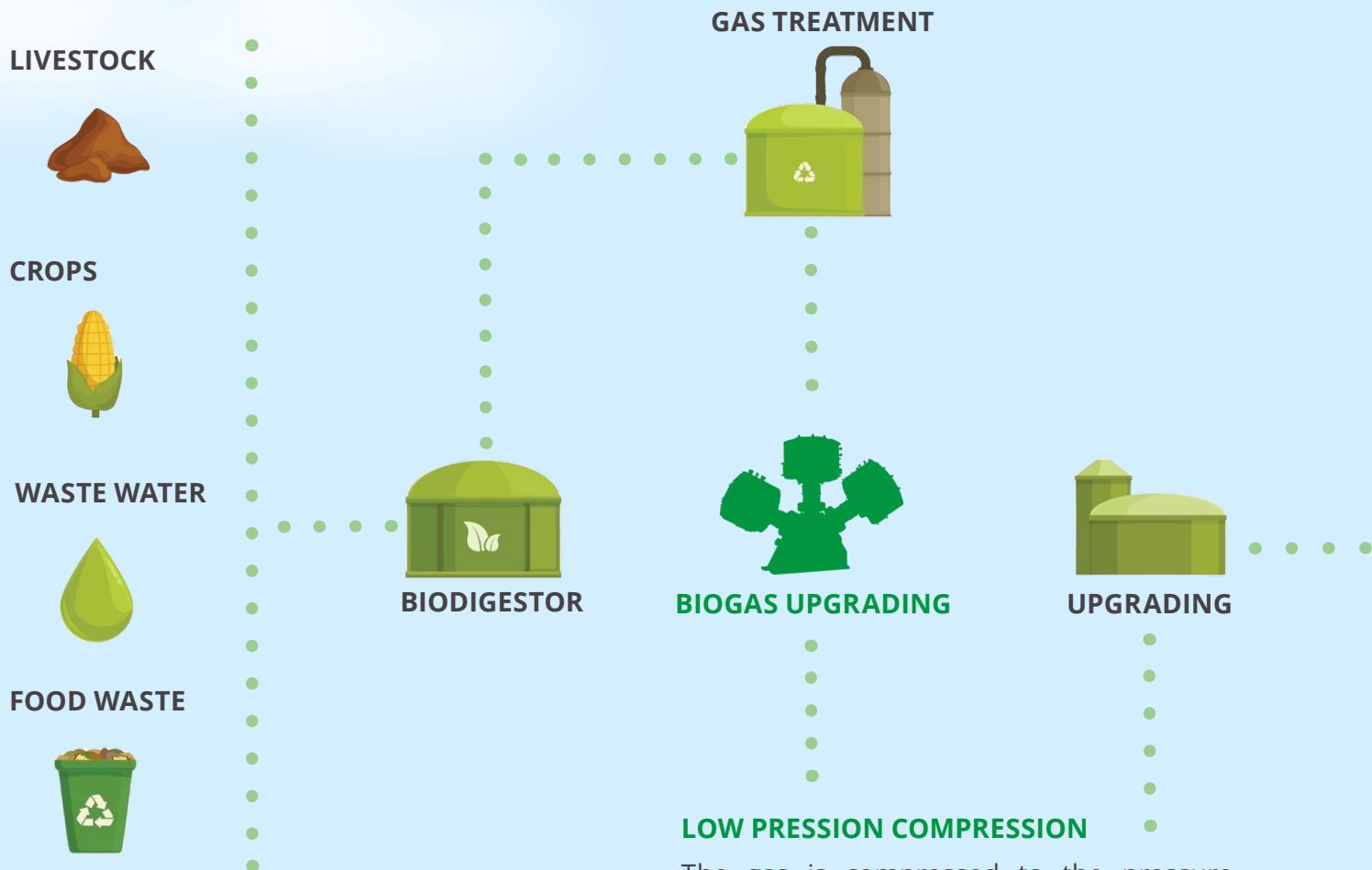


### **BETTER QUALITY OF COMPRESSED GAS**

.....

The **Distance Pece Type B** ensures the highest purity of compressed gas by completely **eliminating the risk of oil contamination**, providing clean and reliable gas for sensitive applications.

# Applications



## LOW PRESSURE COMPRESSION

The gas is compressed to the pressure required by the upgrading systems, up to 8 bar for water washing, amine treatment, or PSA technology, and up to 16 bar for membrane treatment.

# Our History in Biomethane

2005

First compressor installed in a BIOCNG plant in Iceland

2009

First Oil Free compressor in a biogas plant in Germany

2010

First compressor in Sweden to compress Raw Biogas



## CO<sub>2</sub> LIQUEFACTION

CO<sub>2</sub> is compressed to 20 bar and liquefied for easier transport to other sites, ensuring efficient movement for industrial use and storage in various applications.

## CO<sub>2</sub> RECOVERY

In biogas plants, CO<sub>2</sub> is compressed to a typical pressure of 20 bar. This process enables the efficient storage of CO<sub>2</sub>, which can then be utilized in various industrial and food production processes.

## BIOMETHANE GRID INJECTION

Biomethane is injected directly into the regional grid with outlet pressure from 16 to 40 bar or into the main gas transmission grid with outlet pressure from 41 to 100 bar

## BIOMETHANE LIQUEFACTION PLANT

Biomethane is compressed to 15, 20, 30 or 40 bar and liquefied at -160°C through a cryogenic heat exchanger. The LBG product is finally stored in a cryogenic vessel.

## BIOCNG MOTHER STATION

Biomethane is compressed to 250 or 300 bar and transported by tube trailer to be sold for industrial uses.

## BIOCNG REFILLING STATION

Biomethane is compressed to 250 or 300 bar to refill public or private fleets of vehicles that run on natural gas.

**2018**

First compressor in Italy to liquefy Biomethane

**2019**

Became the **exclusive supplier** of the Danish Government of Oil Free compressor, for **biomethane injection** into the **national grid**

**TODAY**

**LEADER IN THE BIOMTHANE MARKET WITH OVER 350 COMPRESSORS**

# Gas Recovery

.....

## GAS RECOVERY RECIPROCATING COMPRESSOR

The SA50 compressor is designed to optimize **CO2 recovery** during the biogas compression process, offering an **efficient, reliable**, and **low-maintenance solution**.

With its **oil-less technology**, it ensures clean and **contamination-free** operation, making it an ideal choice for sustainable and cost-effective biogas applications.



Dimensions: 343 x 327mm



# SA50

# MAIN

## Specifications

- > **OPERATIONAL SPEED**  
From 600 up to 1800 rpm
- > **STROKE**  
40 mm
- > **POWER OUTPUT**  
Up to 7,5 kW

# Technical Specifications

.....

## AUTONOMOUS COMPRESSION SYSTEM

A completely **independent system**, managed by the motor's **electrical control**, ensuring seamless and secure operations.

## OIL-LESS TECHNOLOGY

By **eliminating oil** in the lubrication process, the risk of contamination is removed, ensuring **superior purity** of the compressed gas.

## POWER RATED

2 Stages	<b>3 kW</b>
3 Stages	<b>7,5 kW</b> with a TANDEM solution

## Available Configurations

.....

### LUBRICATION

Oil Less

### STAGES

2 | 3



# Advantages

.....



ITALIAN  
QUALITY



LOW  
MAINTENANCE



ENERGY  
EFFICIENCY



EFFECTIVE  
RECOVERY



OIL-LESS  
TECHNOLOGY

# The Product

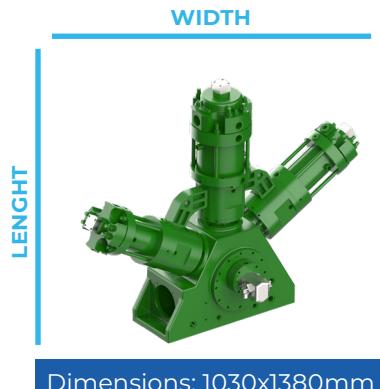
.....

## VERTICAL RECIPROCATING COMPRESSOR

The **SA200** is one of our flagship solutions for biogas and biomethane compression, designed to deliver **maximum efficiency** and **reliability**.

With its robust and technologically **advanced design**, the SA200 handles gases with **high variability** in composition and pressure, ensuring **optimal performance** under all operational conditions.

\* Measurements can differ based on the selected bore size.



# SA200

# MAIN Specifications

- > **OPERATIONAL SPEED**  
From 600 up to 1800 rpm
- > **STROKE**  
65 mm
- > **POWER OUTPUT**  
Up to 55 kW

# Technical Specifications

.....

## CYLINDERS AND BORES

The SA200 offers a **wide range of cylinders** and **bore sizes**, providing significant **flexibility** to meet the specific needs of each application.

## DIRECT COUPLING COMPRESSOR-MOTOR

This integrated system ensures energy transmission with **minimal losses**, **optimizing efficiency** and **reducing system complexity**.

## Available Configurations

.....

### LUBRICATION

No Lube | Oil-Free

### COOLING SYSTEM

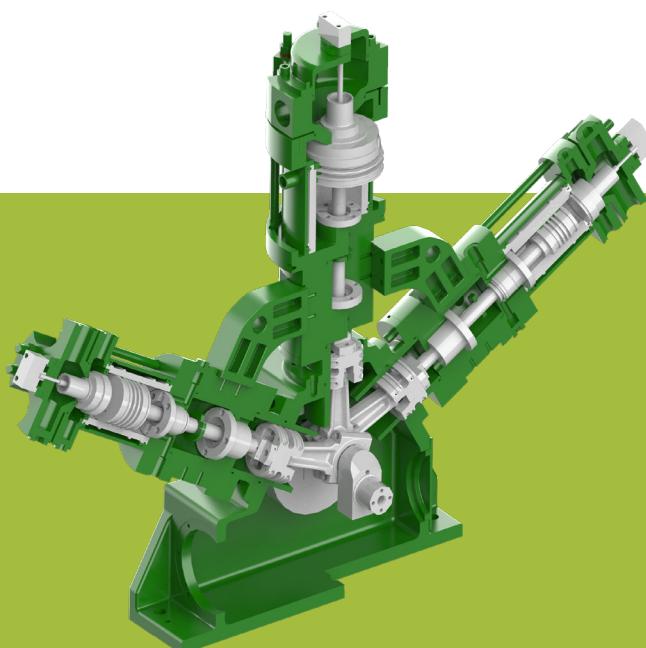
Air | Liquid

### CYLINDERS CONFIGURATION

Vertical

### CYLINDER NUMBER

1 | 2 | 3



# Advantages

.....



ITALIAN  
QUALITY



EASY  
MAINTENANCE



ENERGY  
EFFICIENCY



EXCELLENT  
FLEXIBILITY



DISTANCE  
PIECE TYPE  
B

# The Product

.....

## VERTICAL RECIPROCATING COMPRESSOR

The **DA300** compressor is designed for **efficiency** and **versatility**, ideal for applications such as biomethane injection, carbon capture, LNG production, pipeline transmission, and refueling stations.

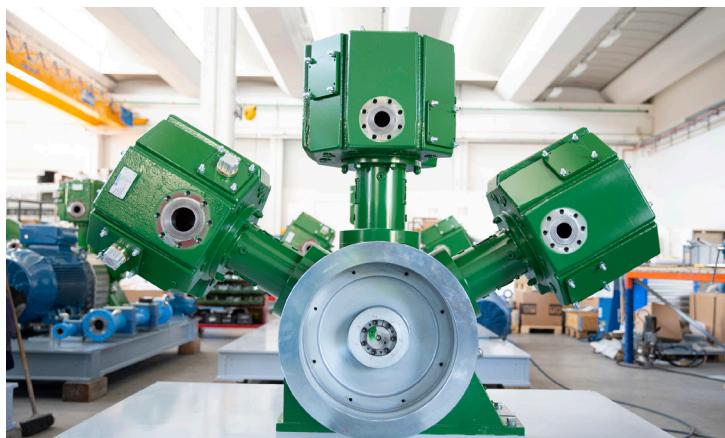
Its **compact size** fits easily into complex environments, while offering low oil consumption, minimal vibrations, and compatibility with any intake pressure. **Easy to maintain**, it ensures **cost-effective, reliable** performance across a wide range of industrial uses.

\* Measurements can differ based on the selected bore size.

LENGTH	WIDTH
	
2 cylinders	Dimensions: 1153 x 1660mm

LENGTH	WIDTH
	
3 cylinders	Dimensions: 1395 x 1900mm



# DA300

## MAIN Specifications

- OPERATIONAL SPEED**  
From 500 up to 1200 rpm
- STROKE**  
100 mm
- POWER OUTPUT**  
Up to 280 kW

# Technical Specifications

.....

## CYLINDERS AND BORES

The DA300 offers a **wide range of cylinders** and **bore sizes**, providing significant **flexibility** to meet the specific needs of each application.

For the DA300, we also offer the option of **TANDEM** cylinders, allowing two compressor bodies to be mounted on a single skid, resulting in a vertical compressor with up to **6 cylinders**.

## DIRECT COUPLING COMPRESSOR-MOTOR

This integrated system ensures energy transmission with **minimal losses**, **optimizing efficiency**, **reducing system complexity** and maintenance.

## Available Configurations

.....

### LUBRICATION

No Lube | Oil-Free

### COOLING SYSTEM

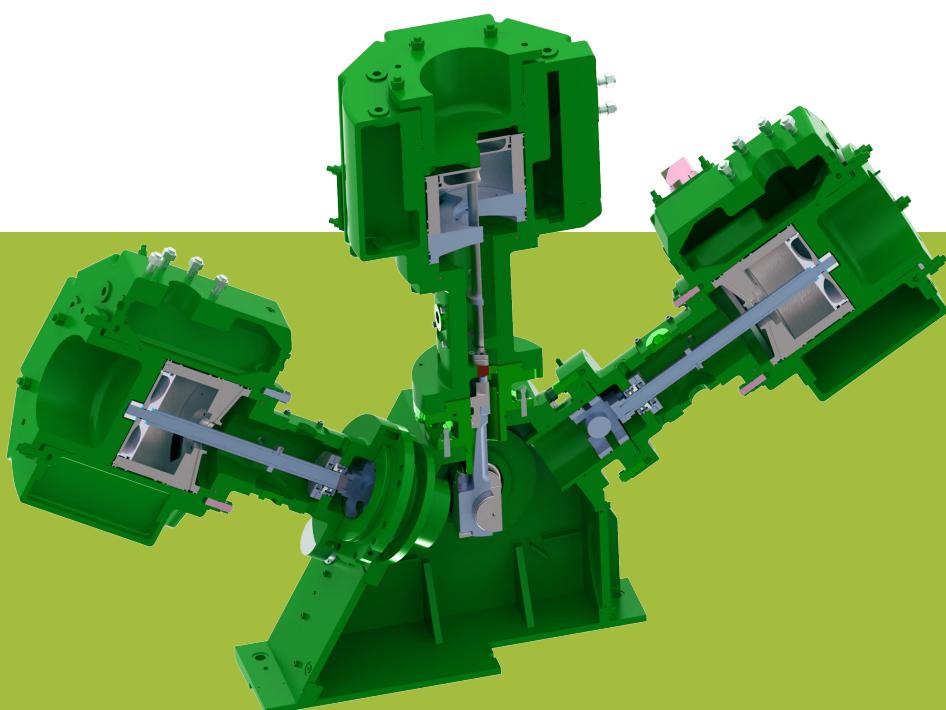
Air | Liquid

### CYLINDERS CONFIGURATION

Vertical

### CYLINDER NUMBER

1 | 2 | 3



# Advantages

.....



ITALIAN  
QUALITY



EASY  
MAINTENANCE



ENERGY  
EFFICIENCY



EXCELLENT  
FLEXIBILITY



DISTANCE  
PIECE TYPE  
B

# The Product

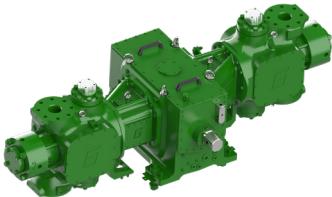
.....

## HORIZONTAL RECIPROCATING COMPRESSOR

The **DA500** compressor is a **powerhouse of performance** and **flexibility**, engineered to meet the toughest demands with customizable configurations and superior capabilities.

It is perfect for applications requiring **high capacity** and **adaptability**, offering reliable, efficient solutions for a wide range of industries.

\* Measurements can differ based on the selected bore size.

LENGTH	WIDTH
	
<b>2 cylinders</b>	Dimensions: 1356 x 3456mm
<b>4 cylinders</b>	Dimensions: 1850 x 3276mm
<b>6 cylinders</b>	Dimensions: 3620 x 3260mm



# DA500

# MAIN Specifications

- OPERATIONAL SPEED**  
From 600 up to 1800 rpm
- STROKE**  
80 mm | 110 mm
- POWER OUTPUT**  
Up to 1800 kW

# Technical Specifications

.....

## CYLINDERS AND BORES

The DA500 offers a **wide range of cylinders** and **bore sizes**, providing **significant flexibility** to meet the specific needs of each application.

## POWER RATED

2 Cylinders	<b>600 kW</b>
4 Cylinders	<b>1200 kW</b>
6 Cylinders	<b>1800 kW</b>

## Available Configurations

.....

### LUBRICATION

No Lube | Oil-Free

### COOLING SYSTEM

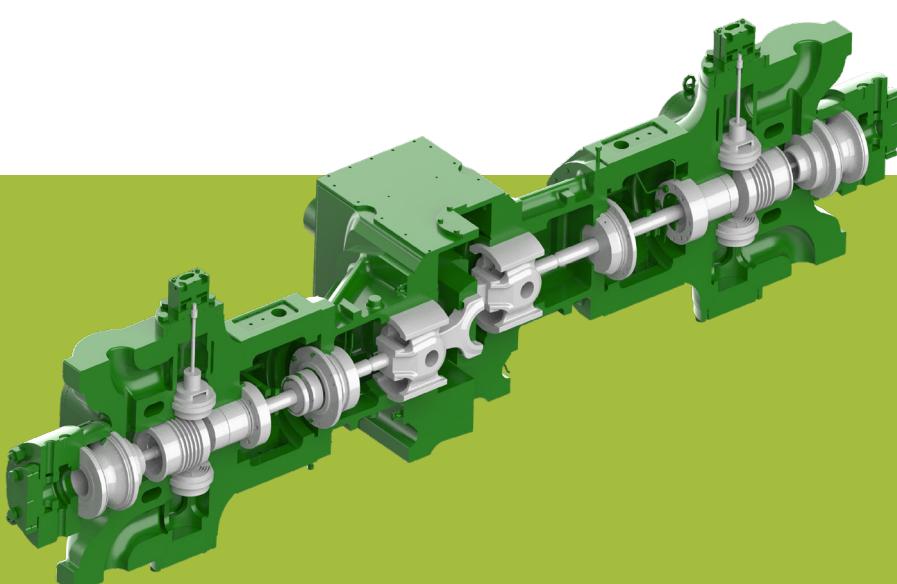
Air | Liquid

### CYLINDERS CONFIGURATION

Horizontal

### CYLINDER NUMBER

1 | 2 | 3 | 4 | 5 | 6



# Advantages

.....



ITALIAN  
QUALITY



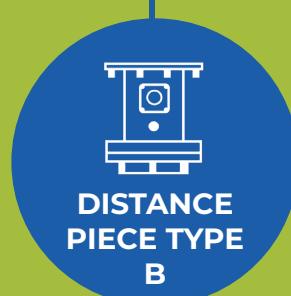
EASY  
MAINTENANCE



ENERGY  
EFFICIENCY



EXCELLENT  
FLEXIBILITY



DISTANCE  
PIECE TYPE  
B

## Our Package

.....

Fornovo Gas provides a wide range of alternative compressor solutions, offering high efficiency and adaptability for any application.

Our **solutions** can be **customized** based on your specific requirements, ensuring optimal performance and flexibility.

The available purchasing options are:

### GASVECTOR

.....

This compact, **modular metal structure** is easy to install and designed to house DA500, DA300, and SA200 compressors, along with **all necessary auxiliary components**.



# References

### GRID INJECTION

.....

**PACKAGE :** GASVECTOR

**COMPRESSOR MODEL :** SA200 Oil-Free

**N. CYLINDERS :** 2

**INLET PRESSURE :** 12 bar

**OUTLET PRESSURE :** 55 bar

**POWER :** 55 kW

**INSTALLATION COUNTRY :** GERMANY



### LIQUEFACTION

.....

**PACKAGE :** SKID

**COMPRESSOR MODEL :** DA300 Oil-Free

**N. CYLINDERS :** 3

**INLET PRESSURE :** 14,5 bar

**OUTLET PRESSURE :** 110 bar

**POWER :** 132 kW

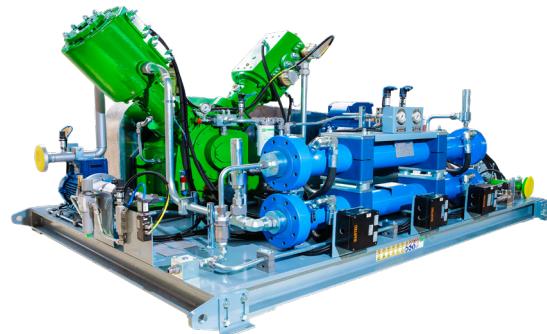
**INSTALLATION COUNTRY :** ITALY



## SKID



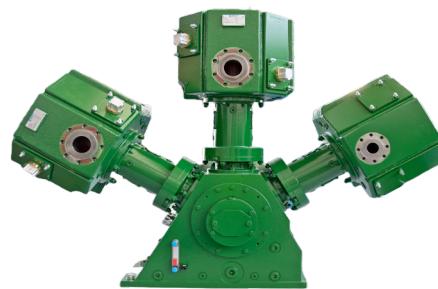
For those in need of a robust and **easily transportable solution**, our compressors on skid provide a stable base and a modular structure, enabling **quick** and **secure installation**.



## BARE COMPRESSOR BLOCK



This configuration allows for **adapting** the compressors **to the customer's specific needs**, providing the **flexibility** to design the auxiliary and control system according to operational and environmental requirements.



## HERE ARE SOME OF OUR SUCCESSFUL PROJECTS, SHOWCASING THE VERSATILITY OF OUR COMPRESSORS IN BIOGAS AND BIOMETHANE APPLICATIONS:

### BIOGAS INJECTION



**PACKAGE : SKID**

**COMPRESSOR MODEL : DA500 Oil-Free**

**N. CYLINDERS : 2**

**INLET PRESSURE : 1,0 - 3,0 bar**

**OUTLET PRESSURE : 70 bar**

**POWER : 280 kW**

**INSTALLATION COUNTRY : GERMANY**



### BIOMETHANE INJECTION



**PACKAGE : 2 GASVECTOR UNIT**

**COMPRESSOR MODEL : DA300 Oil-Free**

**N. STAGES : 2**

**INLET PRESSURE : 12 bar**

**OUTLET PRESSURE : 75 bar**

**POWER : 75 kW**

**Noise insulated 56dBA@1mt**

**INSTALLATION COUNTRY : FRANCE**

Installation date: 09/2022

[www.fornovogas.it](http://www.fornovogas.it)



# The Project

.....

**Caviro**, founded in 1966 in Faenza, is Italy's **largest winery**, representing 12.800 winemakers across 7 regions and supplying 10% of Italy's grapes.

The company prioritizes **sustainability** through an integrated cycle approach, converting **biomass waste** from the agri-food chain into **biomethane**, promoting a circular economy.

## OUR PARTERSHIP

.....

FornovoGas **actively supported** Caviro during **all the phases** of the project: the engineering excellence of highly qualified departments and operational synergy in design, start up and maintenance phase, enabled FornovoGas to supply a **complete technical solution** exactly **tailored** to the needs of the customer.



# CASE STUDY

## BIOMETHANE INJECTION

.....

**PACKAGE :** 3 GASVECTOR UNIT

**COMPRESSOR MODEL :** DA300 Oil-Free

**N. CYLINDERS :** 2

**INLET PRESSURE :** 12 bar

**OUTLET PRESSURE :** 63 bar

**POWER :** 110 kW

**Noise insulated 60 dB(A) @ 1m**

**INSTALLATION COUNTRY :** ITALY

Installation date: 10/2018



## FINAL OUTPUT

.....

### CAPACITY

**12.000.000 Nm<sup>3</sup>**, corresponding to the **fuel supply for 18.000 cars** for one year.



### CO2 SAVINGS

**68,000 ton/year**, thanks to the biomethane produced and injected into the grid.

# The Project



Located just a few kilometers from Fornovo Gas' headquarters, this project is developed in collaboration with **Sicem Saga S.p.A**, a pioneering company in the **chemimechanical pulp** industry.

Since its founding in **1961**, Sicem Saga has been at the forefront of **innovation**, specializing in the production of superior **pulpwood** renowned for its exceptional **quality**.

## OUR PARTNERSHIP

Fornovo Gas supplied the **SA200 Oil-Free Reciprocating Compressor** for this **biomethane plant**.

The biogas produced is first used to generate high-quality **fertilizers**, and a portion of it is then upgraded to biomethane.

This biomethane is **injected** into the national gas grid, contributing to renewable energy production. Our compressor plays a critical role in ensuring the **highest purity** of the gas .



## BIOMETHANE INJECTION

**PACKAGE :** GASVECTOR UNIT

**COMPRESSOR MODEL :** SA200 Oil-Free

**N. CYLINDERS :** 3

**INLET PRESSURE :** 12-14 bar

**OUTLET PRESSURE :** 40 bar

**CAPACITY:** 500 Nm<sup>3</sup>/h

**POWER :** 55 kW

**INSTALLATION COUNTRY :** ITALY



## FINAL OUTPUT

### CO2 SAVINGS

**9.636.000 kg/year**, thanks to the biomethane produced and injected into the grid.



## What We Do

.....

# Choose Our Services



### EXPERTISE YOU CAN TRUST

.....

Our team comprises **certified technicians and engineers** with extensive experience in gas compression technology, ensuring your systems receive the **highest standard of care**.



### CUSTOMIZED MAINTENANCE PLANS

.....

We offer **maintenance programs** designed to meet your specific operational needs, **minimizing downtime** and **maximizing performance**.



### GLOBAL SUPPORT NETWORK

.....

With a robust **global presence**, our service network ensures **timely assistance** and **quick access to spare parts**, no matter where you are located.



### LONG TERM SUPPORT

.....

We aim to **build lasting relationships** with our **clients**, providing continuous support throughout the compressor's lifespan to ensure optimal performance and quality service.



### SPARE PARTS

.....

We supply **original Fornovo Gas components**, guaranteeing compatibility and maintaining the integrity of your equipment.



### TRAINING & KNOWLEDGE SHARING

.....

We empower your team through **specialized training sessions**, enhancing operational efficiency and ensuring safe and effective equipment handling.

# R&D Software

Fornovo Gas has developed a **proprietary system**, an advanced **configuration** to predict the **optimal** configuration in relation to specific applications.

## CONFIGURATION OPTIMIZATION

The software is designed to **predict** and **optimize** compressor configurations tailored to the specific requirements of industrial processes. This helps **improve efficiency** and **system performance**.

## PERFORMANCE SIMULATION AND ANALYSIS

It allows for **simulating** compressor operation under various scenarios and **analyzing** their performance in real-time, providing data and forecasts to optimize operations and **reduce energy consumption**.

## CUSTOMIZATION FOR SPECIFIC PROCESSES

The software can be adapted to different industrial applications, offering **customized configurations** that meet the precise needs of each client, ensuring high performance and maximizing system reliability.



# WE MOVE ENERGY



**SCAN**

To Learn More  
About Our  
Compressors



**SCAN**

To see Sonny &  
Mitzu Calendar.



**FORNOVOGAS**  
WE MOVE ENERGY  
MADE IN ITALY

Fornovo Gas S.p.A



[www.fornovogas.it](http://www.fornovogas.it)  
[info@fornovogas.it](mailto:info@fornovogas.it)



Via Ponticelli, 5-7, 43029  
Traversetolo (PR), Italy



Tel. +39 0521 1553844  
Fax +39 0521 1523066