FIRST COMPRESSOR MANUFACTURER IN THE WORLD ACCREDITED ISO 50001 ENERGY MANAGEMENT

METALPLAN BIOGAS

Foto: Marco Aurélio Esparz

FOR A SUSTAINABLE FUTURE

The search for clean energy sources has become a global priority, driven by the worsening effects of climate change and the need to mitigate its impacts. In this context, biogas and biomethane have emerged as key players in the transition to a greener future.

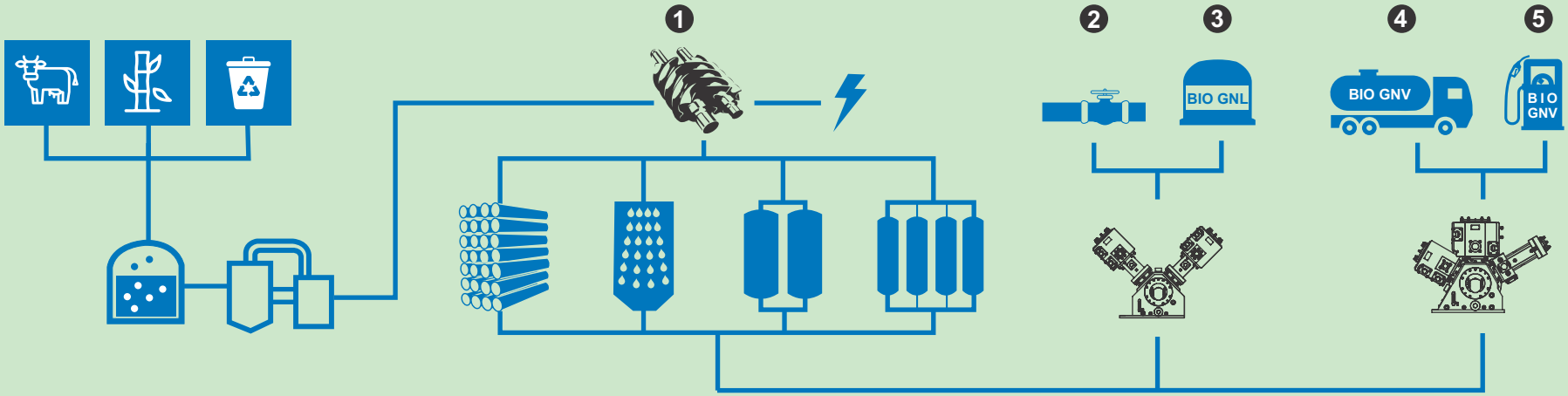
Biogas is a renewable energy source generated by the decomposition of organic matter such as agricultural waste, food scraps, and sewage. Methane (CH_4), the main component of biogas, is one of the most harmful greenhouse gases, but it can be neutralized when used to generate electricity or as a fuel for machines and vehicles.

In Brazil, with its rich agro-industrial base and abundance of landfills, the energy potential of biogas is the largest in the world: 43.2 billion m^3/year from the sugar-energy sector (48.9%), animal protein production (29.8%), agriculture (15.3%), and sanitation (6%). This could meet nearly 40% of the country's electricity demand or replace 70% of Brazil's diesel consumption, as biogas can be purified and transformed into biomethane, a clean fuel that can be directly integrated into the existing natural gas infrastructure.

Thus, the entire process of capturing, purifying, and utilizing biogas for energy earns a sustainability seal, reducing the carbon footprint, cutting greenhouse gas emissions, and recycling solid organic material into fertilizers.

At Metalplan, we are ready to contribute to this new era with cutting-edge technologies and equipment.

METALPLAN
BIOGAS



BIOMASS AND BIOMETHANE COMPRESSION WITH MAXIMUM ENERGY EFFICIENCY

In 2007, Metalplan formed a partnership with Termomeccanica SPA, a traditional Italian manufacturer of rotary screw compressor units. Since then, we have built more than 20,000 compressors in Brazil. More recently, we partnered with Fornovo Gas SPA, also from Italy, a European and Eurasian leader in biogas, biomethane, and CNG compression and distribution equipment.

These collaborations have enabled us to reach new heights in the biogas industry by combining Metalplan's recognized engineering and manufacturing expertise—spanning 38 years—with the reliability of Termomeccanica and Fornovo Gas projects, which together boast nearly two centuries of experience.

1 BIOGAS COMPRESSION

Biogas supplied by the biodigester at atmospheric pressure, free of moisture and H2S, is compressed up to 20 bar for electricity generation or upgrading to biomethane.

2 BIOMETHANE INJECTION INTO THE GRID

Biomethane is injected into the natural gas (methane) distribution network at discharge pressures of up to 40 bar.

3 BIOMETHANE LIQUEFACTION PLANT

Biomethane is compressed between 15 and 40 bar and liquefied at -160°C through a cryogenic heat exchanger. The BIOGNL is finally stored in a cryogenic vessel.

4 HIGH-PRESSURE BIOMETHANE COMPRESSION

Biomethane is compressed up to 300 bar and transported via tanker truck to supply industry or stored in cylinders for fueling vehicles and agricultural equipment.

5 BIOMETHANE/CNG DISPENSER

CNG-powered vehicles can be refueled with BIOCNG at 250 or 300 bar through a refueling station.

METALPLAN BIOGAS

POWERPACK FLEX DD

ROTARY SCREW COMPRESSORS (OIL INJECTED)

- Flow rates up to 3000 Nm³/h
- Power up to 450 kW
- Pressures up to 20 bar
- High-efficiency electric motor, IR3 standard, for classified areas
- Direct coupling between motor and compressor unit for maximum performance
- Frequency inverter for optimized operation
- Water or air cooling for high isothermal efficiency
- Synthetic lubricant specially formulated for biogas use
- Oil filters and spin-on separators for easy maintenance
- Pressure vessels designed, built, and tested according to ASME, Sec. VIII, Div. 1 and NR-13
- Compact layout for space optimization and easy maintenance
- Can be installed outdoors, with no need for a machine room construction

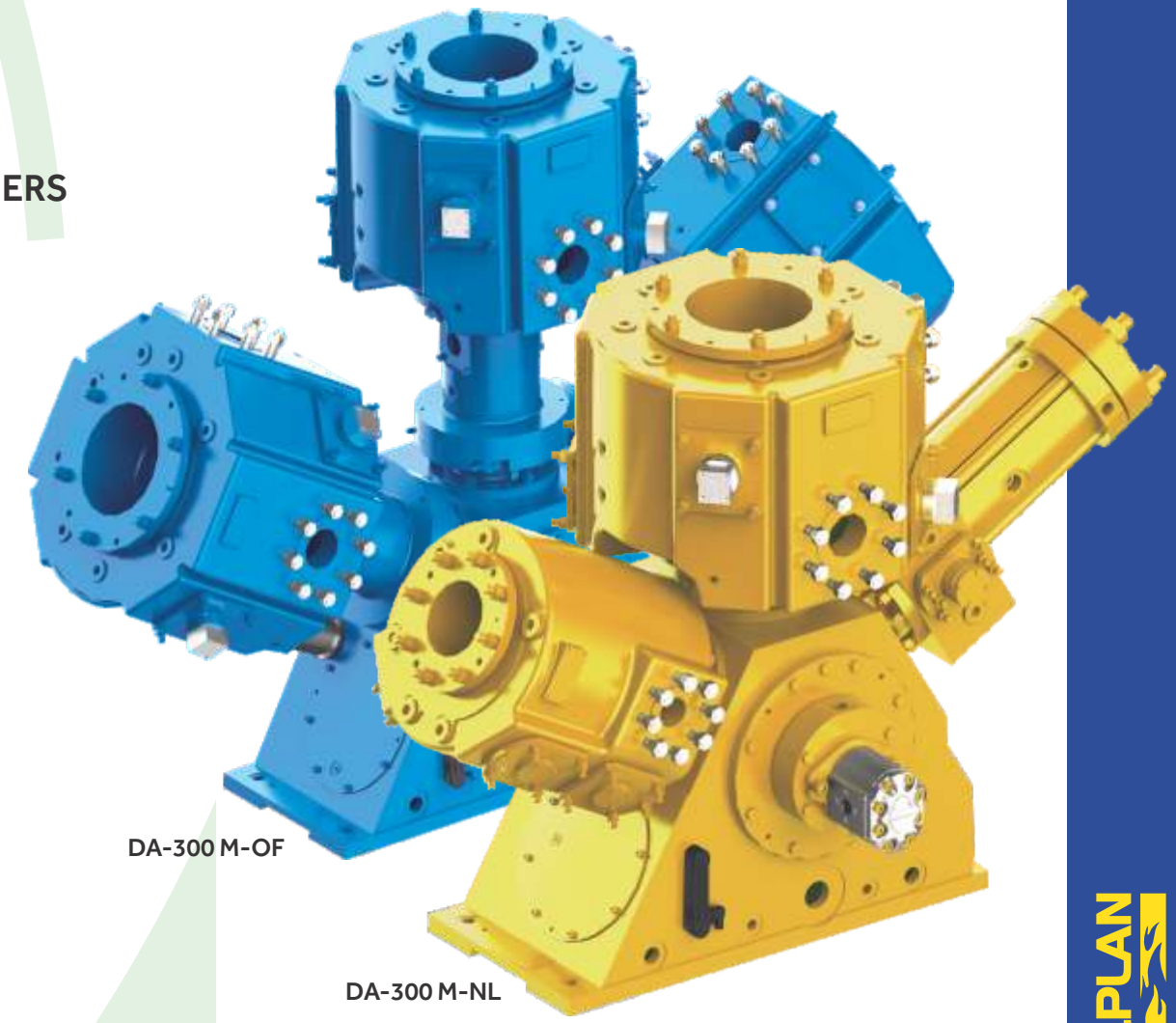
MADE IN BRAZIL BNDES

METALPLAN BIOGAS

DA 300 M

ALTERNATIVE PISTON COMPRESSORS
DA-300 M-OF: 100% OIL-FREE CYLINDERS
DA-300 M-NL: NON-LUBE CYLINDERS

- Flow rates up to 6000 Nm³/h
- Power up to 400 kW
- Pressures up to 100 bar (optionally up to 375 bar)
- High-efficiency electric motor, IR3 standard, for classified areas
- Direct coupling between motor and compressor unit for maximum performance
- Frequency inverter for optimized operation
- Water or air cooling for high isothermal efficiency
- 2 or 3-cylinder configurations
- Compact layout for space optimization and easy maintenance
- Innovative piston and sealing design with minimal vibrations
- NL version includes synthetic lubricant, formulated for biogas or CNG use
- Can be installed outdoors, with no need for a machine room construction
- Minimum vibrations, thanks to a perfectly balanced package



DA-300 M-OF

DA-300 M-NL

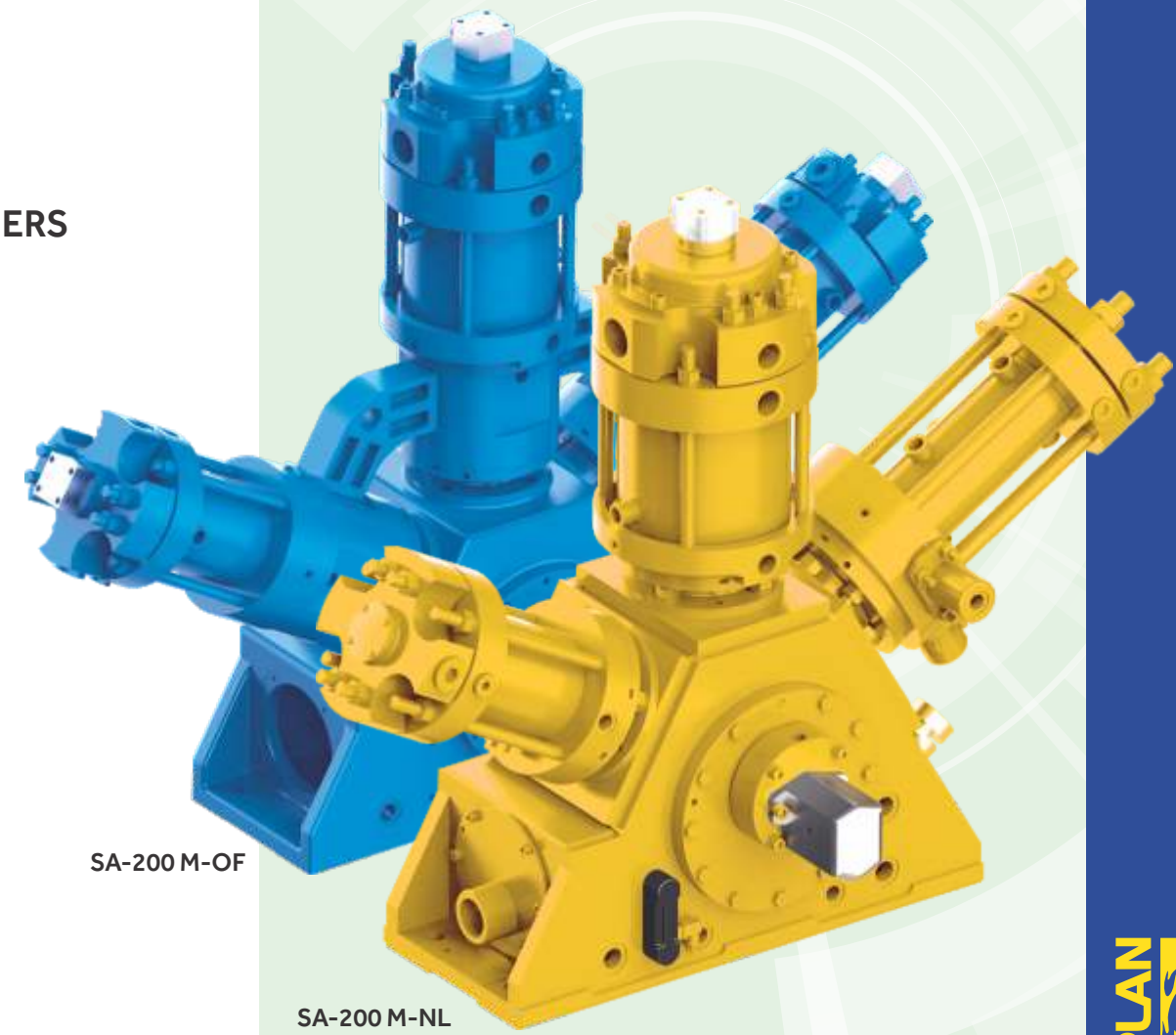
MADE IN BRAZIL BNDES

METALPLAN BIOGAS

SA 200 M

ALTERNATIVE PISTON COMPRESSORS
SA-200 M-OF: 100% OIL-FREE CYLINDERS
SA-200 M-NL: NON-LUBE CYLINDERS

- Flow rates up to 1000 Nm³/h
- Power up to 55 kW
- Pressures up to 300 bar
- High-efficiency electric motor, IR3 standard, for classified areas
- Direct coupling between motor and compressor unit for maximum performance
- Frequency inverter for optimized operation
- Water or air cooling for high isothermal efficiency
- Available in 2, 3, 4, 5, or 6-cylinder (Tandem) configurations for special applications
- Compact layout for space optimization and easy maintenance
- NL version includes synthetic lubricant, formulated for biogas or CNG use
- Innovative piston and sealing design with minimal vibrations
- Can be installed outdoors, with no need for a machine room construction



SA-200 M-OF

SA-200 M-NL

MADE IN BRAZIL BNDES

METALPLAN BIOGAS

INTEGRATED STATION (BIOREFINERY) FOR COMPRESSION & PURIFICATION (UPGRADING) OF BIOGAS TO BIOMETHANE

In 2019, Air Liquide, a global leader in industrial and medical gases, entrusted Metalplan with designing and building the world's first micro-biorefinery for biogas upgrading to biomethane. Using their membrane technology, this project aimed to meet emerging needs, particularly in agribusiness.

New trucks, tractors, and agricultural implements powered by biomethane or CNG, offering superior performance compared to diesel, have been developed by manufacturers such as Case New Holland (CNH) and IVECO. This requires the use of organic waste from agriculture and livestock, promoting the true green circular economy.

We took on Air Liquide's challenge and delivered the completed project in 42 months. Its launch in April 2023 was covered by major media outlets, such as Globo Rural and Forbes.

To the amazement of the audience, the waste from a pig farm was producing, in real time, the biomethane fuel for the brand-new T6 Methane Power tractor, inaugurating an era of sustainability and energy efficiency across Brazil's vast landscape.

https://globoplay.globo.com/v/11765712/

METALPLAN BIOGAS

METALPLAN IS NUMBER ONE IN ENERGY EFFICIENCY

As the absolute leader in screw compressors up to 25 hp in Brazil, Metalplan is the world's first* compressor manufacturer accredited in ISO 50001 - Energy Management, demonstrating its commitment to energy efficiency, the foundation for sustainability and competitiveness of companies.

Founded in 1986, Metalplan has a production area of 6.000 m², developing innovative equipment with a high level of nationalization, exporting to over 20 countries.

Its network of authorized distributors and service centers includes over 300 highly specialized companies with extensive geographic coverage, capable of servicing over 100.000 operating equipment.

In recent years, Metalplan has been expanding its horizons to disruptive technologies in gases and renewable energies, such as on-site generation and compression of nitrogen, oxygen, biogas, biomethane, CO_2 and CNG.

*in the compressed air, gases and industrial refrigeration segment.

1980

1986 FOUNDATION

1987 AIR TANKS AFTERCOOLERS FILTERS

1990

1992 OWN HEADQUARTERS

1993 ELECTRONIC DRAINS

1994 COMPRESSED AIR DRYERS

2000

2002 ISO 9001 QUALITY MANAGEMENT

2003 CHILLERS

2004 AIR AND GAS ULTRA-COOLERS

2006 ROTARY SCREW COMPRESSORS

2010

2011 ALUMINUM PIPES/FITTINGS

2012 ISO 50001 ENERGY MANAGEMENT

2014 PSA NITROGEN GENERATORS

2015 WATER/OIL SEPARATORS

2019 MEDICAL COMPRESSED AIR MODULES

2020

2021 PSA OXYGEN GENERATORS

2022 BIOGAS/BIOMETHANE, CO_2 AND CNG

2024 USA SUBSIDIARY

2030

AFTER-SALE SERVICES

★★★★★

96% OF CUSTOMERS FULLY SATISFIED

In an Annual ISO 9001 Audited Survey, we achieved a 96% customer satisfaction rate for Technical Assistance. This percentage corresponds to the evaluations above 7 (seven), on a scale of 0 (zero) to 10 (ten).

This success is due to over 70 authorized workshops and 200 accredited technicians throughout American continent, supported by an exclusive partnership with National Service for Industrial Training for mechanic training, making our After-Sales Service the most acclaimed in the market.

SAM
Metalplan Authorized Service

Typical facade

COMPREHENSIVE INVENTORY OF ORIGINAL PARTS

MAXIMUM EFFICIENCY IN AFTER-SALES SERVICE

70 CERTIFIED WORKSHOPS

200 SPECIALIZED TECHNICIANS

MARKS OF OUR HISTORY


TOTALPACK


POWERPACK


TOTALPACK
TOTALPACK
TOTALPACK
TOTALPACK


TOTALPACK


TOTALPACK


TOTALPACK

OUR SOLUTIONS

COMPRESSED AIR

- COMPRESSORS
- DRYERS AND FILTERS
- RESERVOIRS
- 100% ALUMINUM PIPING

OXYGEN & NITROGEN

- OXYGEN GENERATORS PSA / VSA ON SITE
- NITROGEN GENERATORS PSA ON SITE

INDUSTRIAL REFRIGERATION

- WATER CHILLERS
- ULTRA AIR AND GAS COOLERS (-35°C)
- THERMOCHILLERS
- DRY COOLERS

BIOGAS & CNG

- COMPRESSORS FOR BIOGAS, BIOMETHANE AND CNG
- BOOSTERS
- CHILLERS
- DISPENSERS

e-line

ROTARY SCREW COMPRESSORS

4 to 25 hp

REFRIGERATION DRYERS

20 to 250 pcm

ABSORPTION DRYERS

6 to 32 pcm

COALESCING FILTERS

25 to 300 pcm

AUTOMATIC DRAIN VALVES

electronic & magnetic

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