



Renewable Energies



Tailor-made attitude at the service of renewable energy

As in Italian haute couture, the main focus of our work is to **meet our customers' requirements**. We listen to needs, take measurements and make **gas compressors** that can be applied to a number of contexts in the sector of renewable energy.





adicomp
ADVANCED AIR & GAS SOLUTIONS



Biogas microturbines feeding

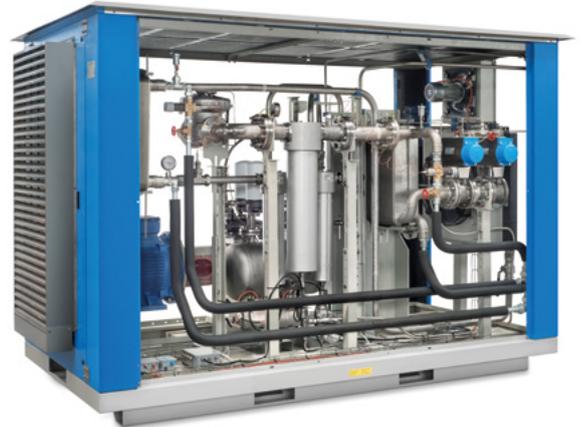
Microturbines can be powered with biogas from various sources: anaerobic digestion of agricultural waste, animal waste, storage of solid urban waste (organic fraction of solid urban waste), treatment of wastewater.

The Adicomp packages provide microturbines with compressed and dehumidified gas at the right temperature to optimise their operation and therefore maximise productivity.

Moreover, the gas can also undergo further treatments to eliminate certain contaminants, including hydrogen sulphide (H₂S) and siloxanes.

Namely, the latter can represent dangerous agents inside the microturbine and even cause a seizure: thanks to special filters and other accessories, Adicomp compressors fully eliminate this issue.

Many treatments are made possible by additional equipment such as chillers that, as well as completing the compression package, also enhance the quality of the gas for the various treatment stages.



Adicomp has developed a specific range:

BVG: screw compressors for biogas

up to 40 bar

DELIVERY
PRESSURE

up to 1 MW

COMPRESSOR
NOMINAL POWER

up to 6000 Nm³/h

FLOW RATE

All compressors may be installed in ATEX 1 and 2 area.

H₂S

High H₂S values? No problem.

Adicomp compressors are able to operate efficiently even with gases that have far higher H₂S values than the ones commonly accepted by other machines on the market.



The strength of the screw.

The core of Adicomp compressor stations is the screw pumping unit. It is designed and manufactured by the Termomeccanica Group, of which Adicomp is an integral part.



Plug & Play.

All Adicomp compressors are designed and made to maximise ease of installation. No special operations are required, except for installation on site and an electricity and gas supply. Everything is already set up in the company and, thanks to the commissioning service, you can fine-tune the operation of the package on site.



Energy savings, flow control, slide valve.

At Adicomp we keep an eye on energy savings and our compressors are designed to adapt to the flow of gas, which usually is not constant. To do this, our packages can be fitted with inverters, by-pass elements and a slide valve.



Air or water cooling.

All Adicomp compressors can be cooled with either air or water.



Heat recovery.

About 80% of the heat generated by a screw compressor can be recovered and used to reduce overall energy costs and thereby power various utilities. How? Thanks to dedicated oil/water or gas/water heat exchangers connected to the water supply on site.



Experience counts.

Adicomp was one of the first companies to compress raw biogas coming straight from the digester. Over about 20 years we provided several hundreds of compressors worldwide, facing extremely different case studies that allowed us to acquire a high level of know-how acknowledged by the market.



Full control over operation.

Thanks to a latest-generation PLC you can control the operation of all compressor parts, thereby ensuring perfect use, even remotely.



Tailor-made attitude.

At Adicomp products are manufactured to meet specific customer requirements. Not vice versa. We listen to customer requirements and then transmit them to the engineering department to provide the best solutions. Flexible and reliable, always.

Biogas turbines feeding

Biogas turbines are used in the renewable energy sector and are able to produce a higher amount of energy than that normally produced by microturbines. For these applications, there may be the need for far higher operating pressures that can be reached as required by using boosters. Adicomp is able to supply gas at the required quality and pressure for most turbines used in renewables by submitting gas, if necessary, to various treatments to remove certain contaminants, using chillers produced in-house and filtration systems.



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Containerized solutions.

Adicomp can provide packages installed in customized containers suitable for extreme climates, with tropicalization up to ambient temperature of +60 °C and winterization up to -50 °C.



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Quality gas.

The compressed and treated gas by UVG systems is suitable to feed directly the upgrading systems.

Endothermic biogas engines feeding



Endothermic engines used to generate electrical energy can run on biogas. Usually they do not require compressors, as blowers to increase the pressure by some tens of millibars are enough. In this regard, Adicomp can provide both blowers and complete biogas treatment systems (fitted with blowers, chillers, filters and heat exchangers) that allow for a better performance of the engine and extend its service life by eliminating condensation and impurities commonly found. In other cases, the engines instead need gas compressed up to a few bar, especially in combination of the pre-heating combustion chambers.

Adicomp has developed two different ranges:

BL: blowers for natural gas and biogas

BVG: screw compressors for biogas

**up to 500 mbar
up to 40 bar**

DELIVERY
PRESSURE

**up to 55 kW
up to 1 MW**

COMPRESSOR
NOMINAL POWER

**fino a 1500 Nm³/h
fino a 6000 Nm³/h**

FLOW RATE

All compressors may be installed in ATEX 1 and 2 area.



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Oil-Injected VS Oil-free.

Adicomp is a cut above the competition even with oil-free piston compressors: oil injected compressors involve a significant reduction of costs and maintenance intervals, thus leading to savings and greater operation continuity.



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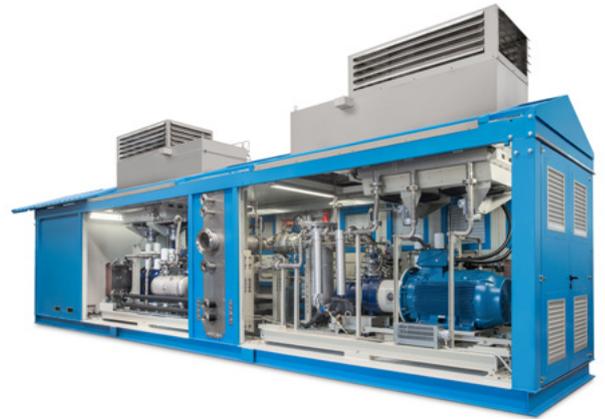


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Biogas upgrading systems (biomethane) feeding

Over the last few years the production of biomethane has become the new frontier of biogas. Adicomp is at the forefront of this revolution with its packages: as a matter of fact it has been among the first players in the sector to believe in this application, developing a range of designated compressors for upgrading and is now one of the main partners of the largest biomethane plant suppliers. The main feature of this type of package is that it works at higher pressures compared to cogeneration and, above all, it provides a complete "plug & play" set consisting of gas compression and cleaning. The systems produced by Adicomp are able to remove hydrocarbons and other contaminants in the gases through coalescing filtration systems or activated carbon columns at controlled temperature. Indeed, the system provides a fluid quality suitable to power on the various upgrading systems such as membranes, washes with water and/or chemical mixes, absorption systems (PSA) and mixed systems.



Adicomp has developed a specific range:
UVG: screw compressors for biogas upgrading

up to 40 bar

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PRESSURE

up to 1 MW

COMPRESSOR
NOMINAL POWER

up to 6000 Nm³/h

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Quality gas.

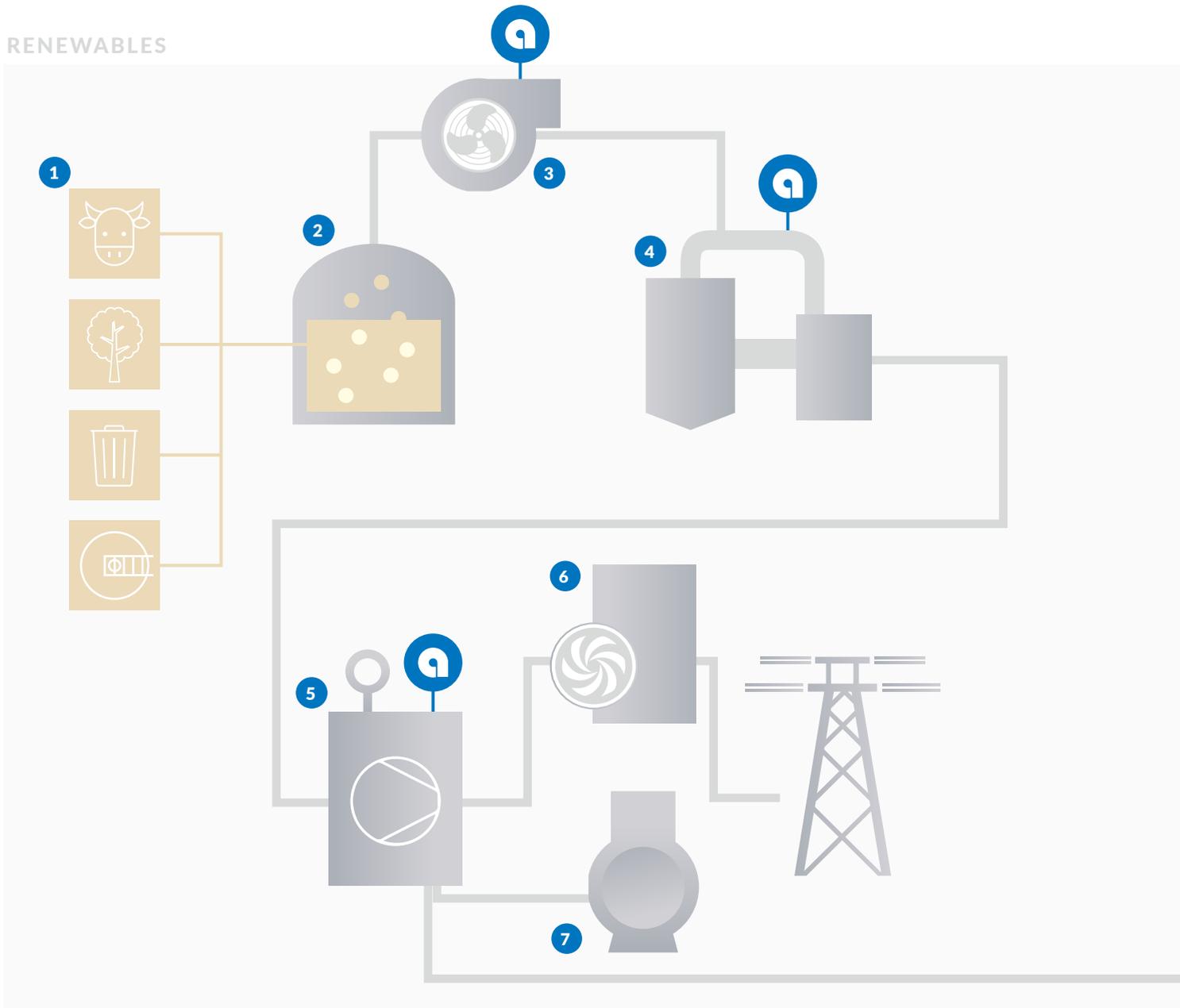
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Typical diagram of a Renewable Energy system



1 ORGANIC RESIDUES AND WASTEWATER

Organic residues of animal, plant, agroindustrial, foodstuff industry or urban waste origin are collected. Another source is wastewater treatment systems (purifiers).

2 DIGESTER

Anaerobic digestion takes place in this stage, by which the biogas develops, normally consisting of 50-60% methane (CH_4) with the remaining portion being carbon dioxide (CO_2) and other components.

3 BLOWER

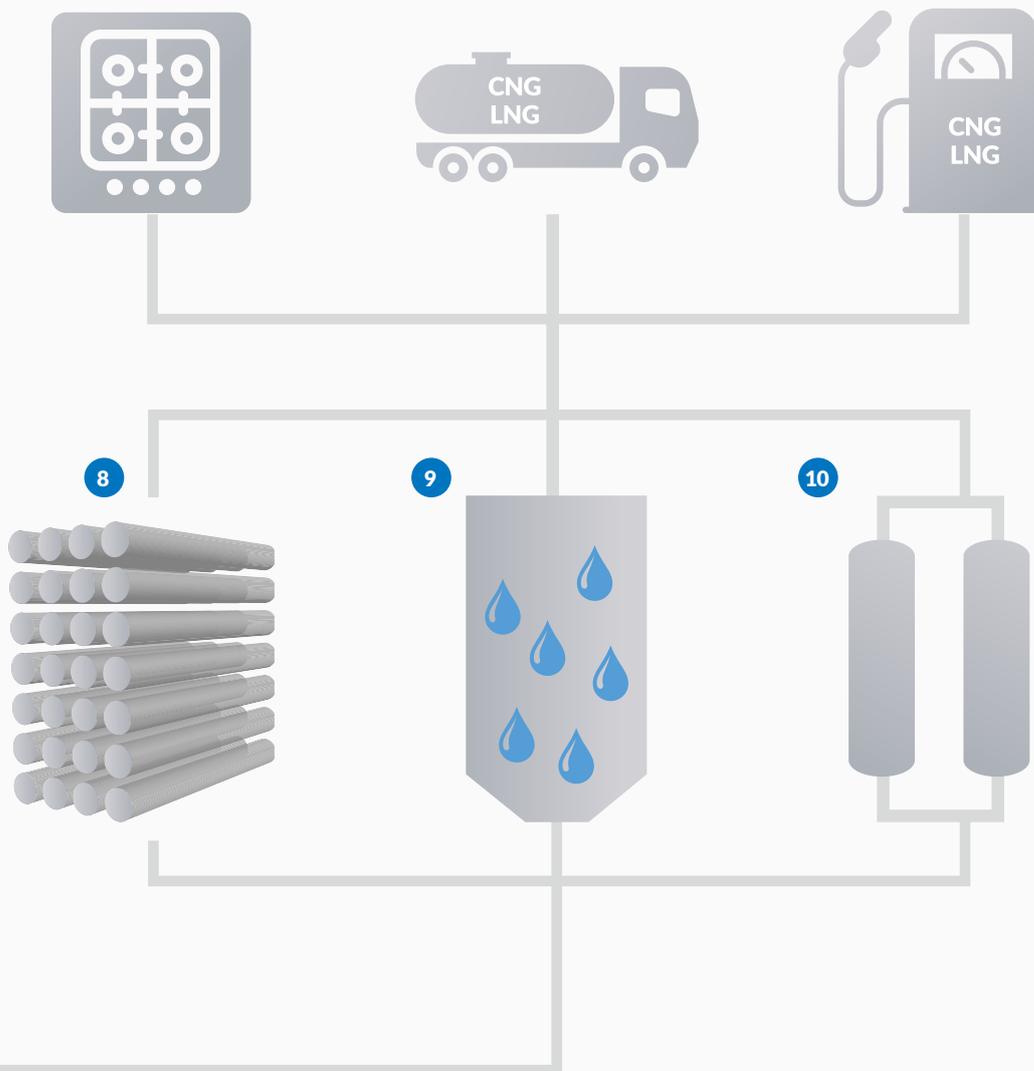
Gas pressure from the digester is increased, from 10-20 mbar (g) to a few hundred mbar, according to downstream use.

4 GAS TREATMENT SYSTEM

Gas is purified by removing moisture and part of the harmful components such as hydrogen sulphide (H_2S) produced by anaerobic digestion.

5 COMPRESSOR

Gas is compressed to the pressure and quality required for the following stages. Adicomp's compressor is able to handle either treated or untreated gas and make it usable according to the required specifications.



**6 TURBINE
MICROTURBINE**

The optimised gas is used to produce electricity, from 30 kW to a few MW.

**7 GAS ENDOTHERMIC
ENGINE**

The optimised gas is used to produce electricity. According to the endothermic engine, the gas may be supplied pressurised (by the Adicomp compressor) or directly by Adicomp's gas treatment system.

**8 BIOGAS UPGRADING
BY MEMBRANES**

The compressed and filtered gas is used to produce biomethane through a membrane upgrading system that separates methane (CH_4) from carbon dioxide (CO_2) and from other gases.

**9 BIOGAS UPGRADING
BY WASHING**

Biomethane production is carried out by biogas washing and its separation from carbon dioxide (CO_2). With this upgrading process, the gas is processed with liquid solutions.

**10 BIOGAS UPGRADING
BY PSA**

Biomethane purification takes place through the PSA technology (Pressure Swing Adsorption) which separates gases through compressed gas adsorption on solid surface, using active carbon as adsorption material.

ONE OF THE 1500 SYSTEMS INSTALLED

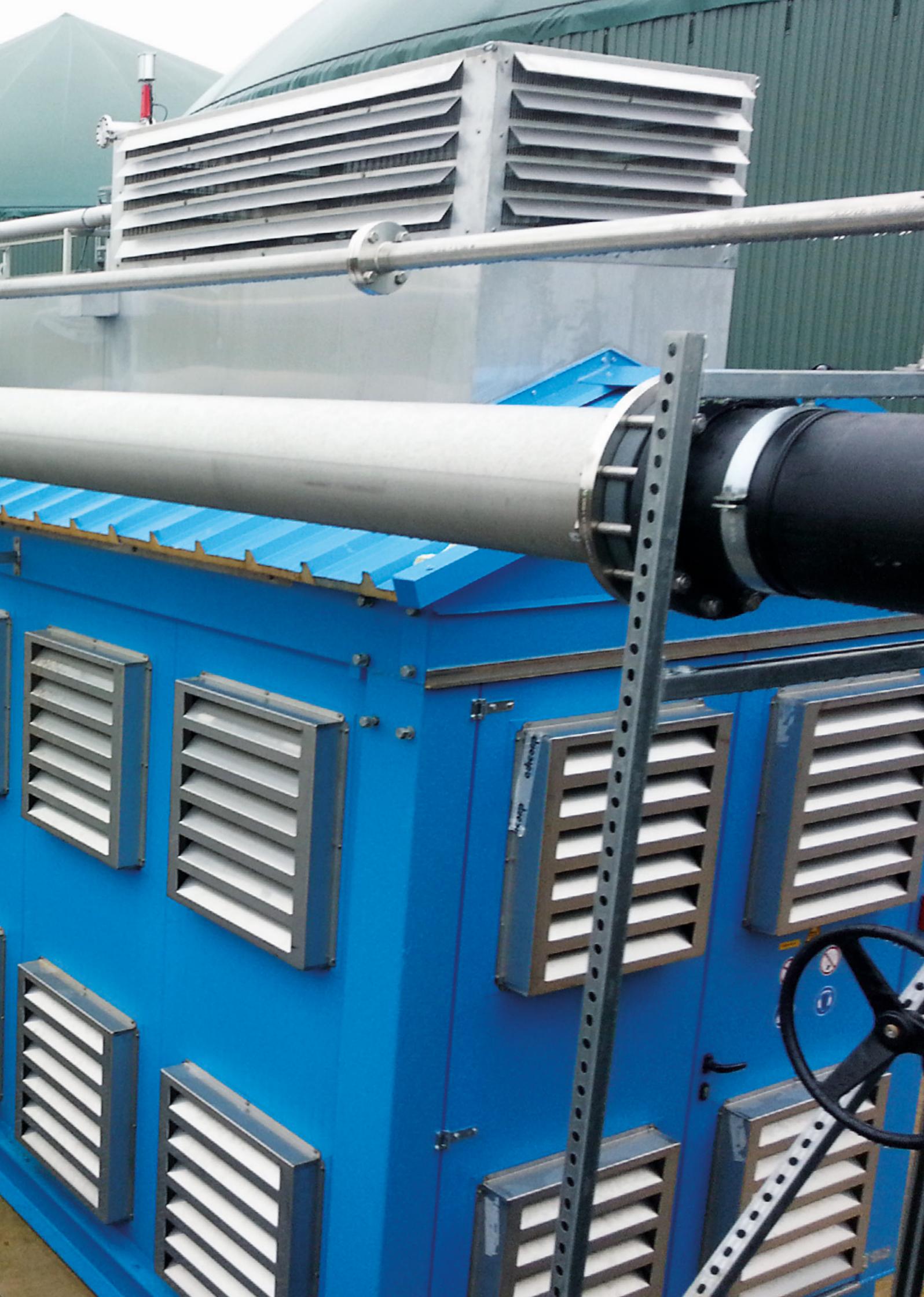
Compression station in container

2x BVG200

BIOGAS FLOW RATE 2.860 NM³/H
YEAR OF MANUFACTURE: 2014
CLIENT: DMT
LOCATION: BRUTON - UK

In this system located in the UK, a tailor-made solution was developed on a 40-foot container with two 200 kW compressors, all managed by a PLC. Here the biogas is compressed and sent to a treatment system that supplies the downstream membrane upgrading unit. The biomethane produced is fed into the national grid. Inside the container, Adicomp also provided a heat recovery system from the oil, which allows the water (used for various uses on site) to be heated, thereby reducing energy costs by up to 80%.







Since 2013 even bigger

Adicomp and Termomeccanica: a team made to reach new heights

The expertise and know-how of Adicomp for the development of solutions related to gas compression and processing were further broadened when the long-standing partnership with Termomeccanica Pompe S.p.A became a true synergy. Indeed, in 2013, Termomeccanica joined the cause and entered the company, bringing into Adicomp the strength and expertise of one of Italy's major industrial groups, a leader in the design and manufacturing of centrifugal pumps for large industrial plants and bare shaft screw compressors. The Termomeccanica Group, established over a century ago, comprises several businesses, branch offices and service centres located worldwide.



ADICOMP WORLDWIDE

Our network of service points

HEADQUARTERS

VICENZA, ITALY





Adicomp focuses on customer satisfaction. This is why we always resort to our expertise and acknowledge know-how to find the best solutions. **For us the service begins upstream: we only use high quality, certified components, we offer scheduled maintenance packages with a warranty extension up to 5 years and with servicing up to 8000 hours, we provide a responsible and committed technical and sales team.** We like to do things properly, taking care of details and supporting our customers wherever they are thanks to partners and service centres located throughout the world. A fast, professional and friendly service.



CUSTOMER SERVICE



ORIGINAL SPARE PARTS



TECHNICAL SUPPORT



SALES ENGINEERS

adicmp®

ADVANCED AIR & GAS SOLUTIONS



ISO 9001
ISO 14001
OHSAS 18001

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Termomeccanica Group