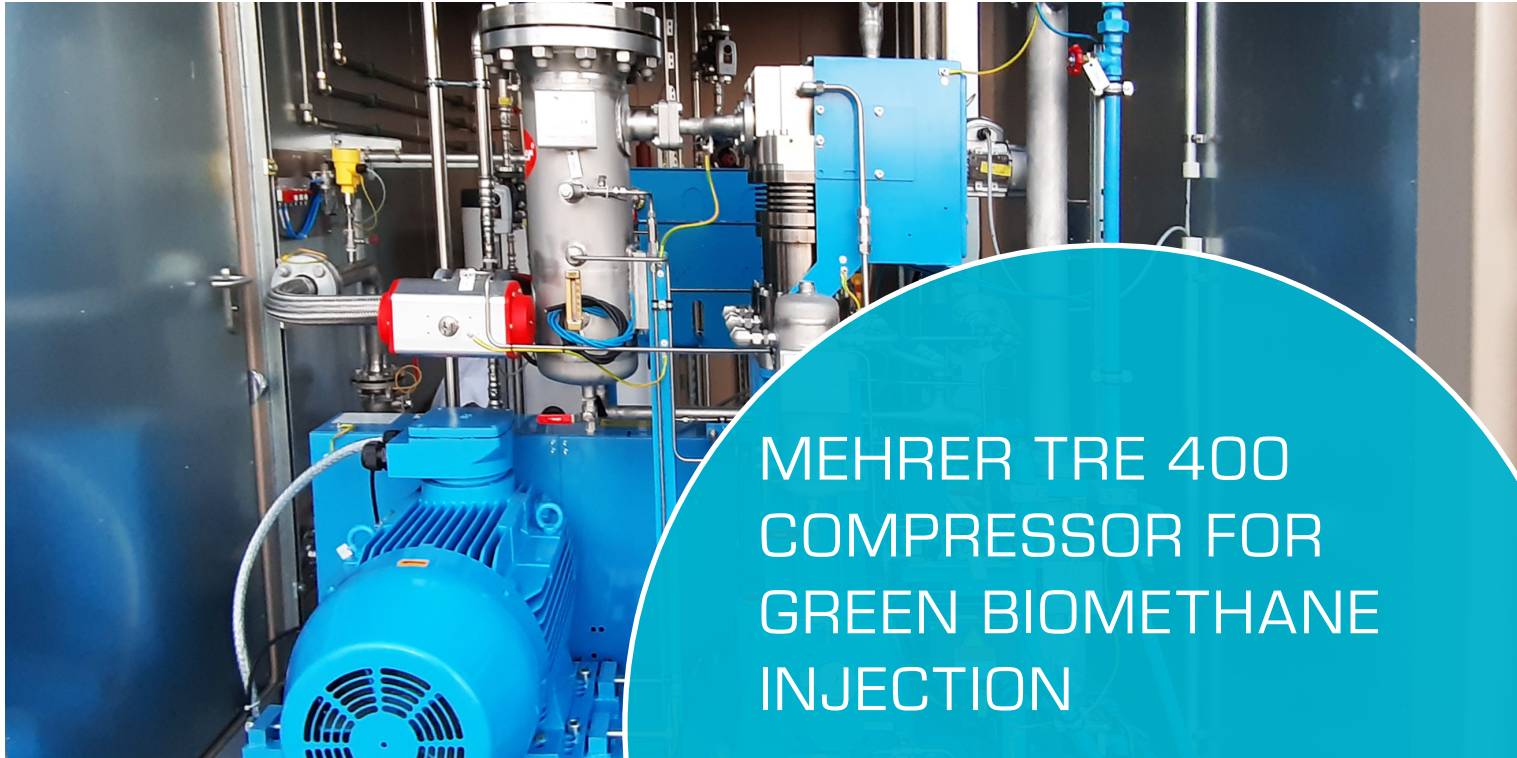


CASE STUDY

MEHRER COMPRESSORS IN USE



MEHRER TRE 400 COMPRESSOR FOR GREEN BIOMETHANE INJECTION

One of the most promising ways of using biomass is the production of biogas. There are many plants in operation in which biogas is produced by fermenting biomass. Using technologies available on the market, this biogas can be upgraded to natural gas quality – known as “biomethane” or “bio natural gas” – and fed into the natural gas grid. This can replace conventional natural gas elsewhere and make an important contribution to climate protection.

Biomethane produced from biomass replaces fossil natural gas. It can thus reduce greenhouse gas emissions and make an important contribution to a sustainable and environmentally friendly energy economy. Bioenergy sources such as biomethane only release as much CO₂ during their use as was absorbed from the atmosphere during the plants' growth. In this way, climate-neutral use can ideally be achieved. Bioenergy sources can therefore play a crucial role in creating a sustainable society.

Our customer EnviTec, a full-service biogas provider covering the entire value chain for the production and processing of biogas, relies on leak-free and highly available compressors from Mehreer Compression for the connection to the grid.

The project

In order to feed biogas into the natural gas grid or use it as fuel, it must be upgraded to natural gas quality. However, a few steps are necessary before bio natural gas or biomethane can be fed into the grid. This feed-in process essentially takes place with the help of our TRE 400 compressor, which compresses the pressure level of the processed biomethane to that of the connected compressed gas pipeline.

The advantages of oil-free compression over oil-lubricated compression are obvious: No additional filters are required, which in turn results in low maintenance and no need to replace filters. But most importantly, there is no risk of oil contamination of the gas, which reduces OpEX costs overall. Plus, more and more network operators expect oil-free compression to be used.

Mode of operation

Biogas / biomethane plays an important role in creating a sustainable society and reducing fossil fuels. It is a gas from renewable energies that consists mainly of methane. This means that it replaces other fuels such as natural gas, a fossil form of methane, and can be mixed in the same gas pipeline.

The raw biogas, produced by fermentation, has a methane content of between 45 and 70 per cent. The combustible methane is the relevant part of the gas for energy production. Consequently, the highest possible proportion of methane increases the amount of energy that can be obtained from the gas. In order to ensure a consistent quality of the gas in the gas grid, the methane content needs to be increased to that of natural gas, ranging from 85 to 98 per cent.

Various processes are available to upgrade raw biogas to biogas. For example, a higher methane content can be achieved by separating the CO₂ contained in the raw biogas. Compressors are among the most heavily loaded units in a processing plant. They are subject to a large number of full-load hours with sometimes high levels of wear and tear or maintenance needs, which in turn depends on the type of compressor. A failure of the

compressors inevitably leads to an interruption of the feed-in and may cause a range of complications up to the flaring of non-usable biogas.

» *The Mehrer compressor is an easy-to-use and versatile product. It impresses with its low susceptibility to faults.* «

Michael Ueing
Project Manager Gas Treatment

Outlook

The biogas sector is in a state of transformation – in order to keep up with the developments, plant operators need to rethink their approach. The gradual phase-out of nuclear power means that a replacement must be found quickly. Since solar and wind energy are not always available and are difficult to store, biogas could play a key role in achieving the climate targets in the future – because it is suitable for generating electricity and heat, can replace natural gas and can be stored and kept for a long time.

With an annual biogas production of 3,819,316 Nm³ from biomass, which corresponds to a production rate of

436 Nm³ per hour, EnviTec makes a significant contribution to environmental protection. This is made possible by the Mehrer compressor, which provides the desired feed-in pressure to the energy grid by compressing the gas. A crucial factor in EnviTec's purchase decision was the compressor's compact design and diaphragm technology, facilitating its integration into the modular container design. Mehrer Compression is proud to be the supplier of a crucial plant component for producing more climate-friendly electricity, resulting in a further contribution to climate protection.

Biogas-biomethane cycle

