Reference datasheet >Service & Operation<



Landwärme GmbH

Client
Landwärme GmbH

Construction time
08/2023 - 08/2023

Order value net
2,900,000 €

Contractor
VORWERK-ASA GmbH

Own work
Process design, Detail Engineering, prefabrication and plant engineering, automation, Service

Features
Biogas upgrading for H-gas by means of membrane processes in a three-stage process without vacuum pump, Construction and integration of a 3,200m³ biogas storage tank

Contact
www.friedrich-vorwerk.de

BGAA Penkun

At the Penkun site, biogas from 40 biogas plants is collected and upgraded to natural gas quality. The raw gas is collected in a 3,200 m³ gas storage tank built by VORWERK and made available to the upgrading plant wet and without pressure. Under optimal reaction conditions, it is desulphurised on activated carbon, then slightly raised in pressure and freed from condensates. Compression to 16 bar is achieved by an oil-lubricated, single-stage screw compressor with subsequent fine cleaning. In a three-stage process using gas permeation membranes, the raw biogas is separated into a product gas with 98% methane and an exhaust gas with over 99% CO2. Through clever process control, the product gas quality is achieved without the usual vacuum pump. While the residual methane is removed from the waste gas in the autothermal afterburning system, the biomethane flows into the feed-in plant at 8.5 bar via a gas pressure control system.

The treatment plant has been automated and networked with the partners by the process control system based on Siemens S7 1500 developed by VORWERK.

The Penkun project demonstrates the VORWERK Group's wide range of services in the civil engineering trades, prefabrication of complete units, on-site plant automation, commissioning and service.