

Landwärme GmbH

Client
Landwärme GmbH

Construction time
11/2015 - 07/2016

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
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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 is automated by the process control system developed by VORWERK on the basis of the Siemens S7 1500 and networked with the partners.
The Penkun project demonstrates the VORWERK Group's wide range of services in the trades of civil engineering, prefabrication of complete units, on-site plant construction, automation, commissioning and service.