ETW Energietechnik GmbH

Marco Weiss – Managing Director
Company.

Competence in the private sector.

More than 25 years experience in the energetical utilisation of renewable gases as biogas, landfill and sewage gas, and in fossil fueled natural and mine gas combined heat and power (CHP) plants.

100 % private ownership.
Company.

Competence in the private sector.

Turnover 2015: 31 Mio €.
Employees 2015: 85
Installed el. power: 380 MW
International.

We are already here.

As one of Germany’s market leaders in the area of CHP station construction and service, ETW has also meanwhile established itself on the European market for energy systems with an export ratio of 40%.

What are we looking for:
Deliver high-end gas technology and tailored local support to our customers worldwide.
ETW Service: 100% availability.
References. CHP Units 200 – 4500kW.

High efficient CHP technology.

Diverse applications.
Flechtingen (Germany). Gas Treatment 2000 m³/h. 5x CHP Units ETW 800 BG

Customized solutions.
ETW SmartCycle® PSA.

- Continuous CH4 production
- > 99% CH4 purity
- > 99% on-stream time
  (4 plants, total of 90,000 operation hours)
- Dry product gas @ 3 bar g
- 0.14 kWh/Nm³ Feed gas
- Completely controlled process
- Zero chemicals, no membrane replacement, no water consumption
ETW SmartCycle® PSA.

How it works.

1. Biogas flows through the adsorbent at 3 bar g

2. Smaller molecules $\text{N}_2$, $\text{O}_2$, $\text{H}_2\text{O}$, $\text{H}_2\text{S}$, $\text{CO}_2$ penetrate the pores in the sieve and are adsorbed.

3. The larger $\text{CH}_4$ molecule is not adsorbed, thus separated from the $\text{CO}_2$ molecules.

4. Biomethane $\text{CH}_4 \gg 97\%$ can be fed into the gas grid or compressed to CNG & LNG.

5. The saturated adsorbent can now be regenerated by vacuum, completing the cycle.

6. Vacuum regenerates the adsorbent, making it ideal for waste AD plants.
Ranking of Adsorption Forces.

- Hydrogen
- Oxygen
- Argon
- Nitrogen
- Carbon Monoxide
  - Methane
- Carbon Dioxide
  - Ethane
  - Ethylene
  - Propane
  - Butane
  - Propylene
  - Ammonia
  - Hydrogen Sulfide
  - Mercaptanes
  - BTX
  - Styrene
- Water

Weak

Strong
The automatic adjustment of cycle length results in a constant product gas composition (eg. 98% CH4)
ETW SmartCycle® PSA.

- Self-sufficient cycle length control (Accordion principle)
- Gas-purity control mechanism
- Continuous gas production
- Smooth regeneration process of the adsorbent ensures lifetime
ETW SmartCycle® PSA.

ETW Biomethane plant

Mature technology: Biomethane plant Seelow (DE)

Project/Site: Biomethane Plant Seelow (DE)
Startup: 2014

Type: Biomethane plant concentrating 1400 m³/h raw biogas up to 700 m³/h biomethane to be fed into the public natural gas grid

Module type: ETW Biomethane Plant with a pressure swing adsorption unit (PSA) with a layered carbon molecular sieve.

References
- Biogas CHP
- Natural gas CHP
- Biomethane plant
  - BMA 600 m³/h Laupheim-DE
  - BMA 1400 m³/h Seelow-DE
  - BMA 1400 m³/h Nonnendorf-DE
  - BMA 1400 m³/h Platten-DE
- Landfill gas CHP
- Mine gas CHP
- Gas purification
- Powerpacks
ETW Biomethane plant

A convincing solution: Biomethane plant Laupheim (DE)

**Project/Site:** Biomethane Plant Laupheim (DE)

**Startup:** 2011

**Type:** Biomethane plant concentrating 600 m³/h raw biogas up to 300 m³/h biomethane to be fed into the public natural gas grid

**Module type:** ETW Biomethane Plant with a pressure swing adsorption unit (PSA) with a layered carbon molecular sieve.

**References**

- Biogas CHP
- Natural gas CHP

**Biomethane plant**

- BMA 600 m³/h Laupheim-DE
- BMA 1400 m³/h Seelow-DE
- BMA 1400 m³/h Nonnendorf-DE
- BMA 1400 m³/h Platten-DE

**Landfill gas CHP**

- Mine gas CHP
- Gas purification
- Powerpacks
ETW Biomethane plant

Reliable: Biomethane plant Nonnendorf (DE)

**Project/Site:** Biomethane Plant Nonnendorf (DE)

**Startup:** 2015

**Type:** Biomethane plant concentrating 1400 m³/h raw biogas up to 700 m³/h biomethane to be fed into the public natural gas grid

**Module type:** ETW Biomethane Plant with a pressure swing adsorption unit (PSA) with a layered carbon molecular sieve.

**References**

- Biogas CHP
- Natural gas CHP
- Biomethane plant
  - BMA 600 m³/h Laupheim-DE
  - BMA 1400 m³/h Seelow-DE
  - BMA 1400 m³/h Nonnendorf-DE
  - BMA 1400 m³/h Platten-DE
- Landfill gas CHP
- Mine gas CHP
- Gas purification
- Powerpacks
ETW Biomethane plant
Efficient: Biomethane plant Platten (DE)

Project/Site: Biomethane Plant Platten (DE)
Startup: 2016
Type: Biomethane plant concentrating 1400 m³/h raw biogas up to 700 m³/h biomethane to be fed into the public natural gas grid
Module type: ETW Biomethane Plant with a pressure swing adsorption unit (PSA) with a layered carbon molecular sieve.

References
Biogas CHP
Natural gas CHP
Biomethane plant
  :: BMA 600 m³/h Laupheim-DE
  :: BMA 1400 m³/h Seelow-DE
  :: BMA 1400 m³/h Nonnendorf-DE
  :: BMA 1400 m³/h Platten-DE
Landfill gas CHP
Mine gas CHP
Gas purification
Powerpacks
High quality components. Oilfree compressor.
High quality components. Vacuum Pumps.
High quality components. Gas Analyzer.
High quality components. ETW SmartCycle® PSA
High quality components. ETW SmartCycle® PSA
Thank you for your kind attention

ETW Energietechnik GmbH
Marco Weiss
+49 2841 99 90202
info@etw-energie.de

www.etw-energietechnik.de