

M04. Biogas Plant Components



- ✦ Stirring devices
- ✦ Digester heating
- ✦ Pumps
- ✦ Pipes
- ✦ Control system
- ✦ Biogas storage
- ✦ Biogas cleaning
- ✦ Heat utilisation

Tightness of the heating piping, lead-throughs of cable pulls and drive shafts



Propeller and paddle stirring devices



Source: KWA Eviva GmbH

Material qualities: piping

Chose the right materials! Check for corrosion resistance (sulfur and acid contents!) and durabilities!



Source: KWA Eviva GmbH

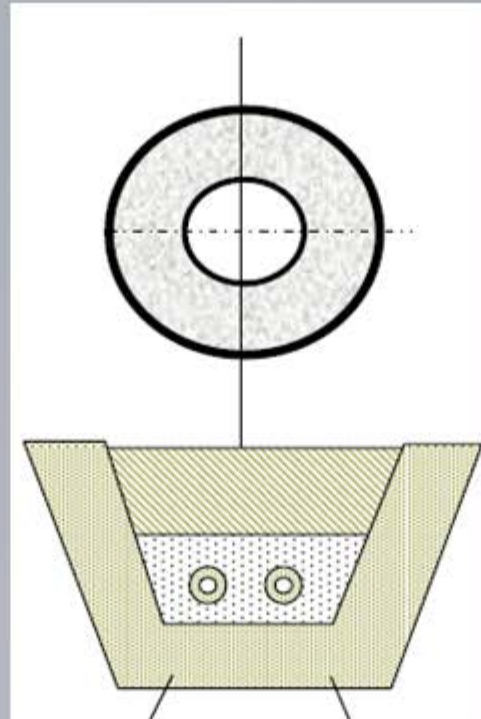
Biogas pipelines

- ✦ Transport of biogas via pipeline
- ✦ Conditioning of the biogas:
 - H₂S-abatement (activated coal)
 - Drying (cooling up to max. + 4°C)
 - To transport biogas: compression to several hundred mBar
- ✦ Data exchange between combustion unit and biogas plant during operation
- ✦ HDPE pipe

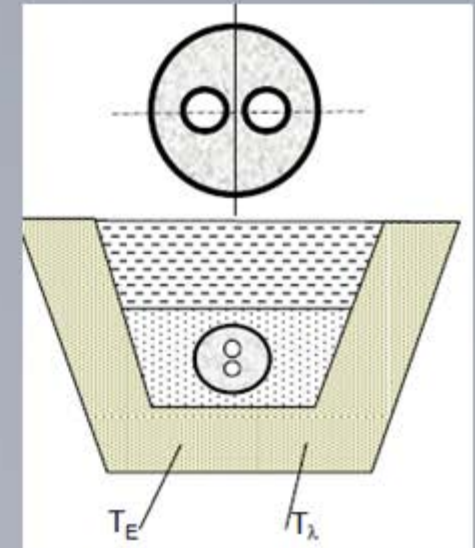


Source: KWA Eviva GmbH

- ★ Technical alternatives – flexible or rigid
- ★ Single piping with insulation
- ★ 2 in 1 with insulation



Source: Weka Rohr



Flexible district heat piping



Sources: Steuernagel Rohrleitungssysteme

District heating networks

– photographs I



Smaller district heating network
– 2 in 1



Larger district heating network
– steam

Smaller district heating network
– 2 in 1 pipes, cross section



Smaller district heating network
– dilatation bend

Sources: KWA Eviva GmbH

Construction



Smaller district heating network – construction phase

Sources: KWA Eviva GmbH



Source Matthias Plöchl

Substrate Storage and Feeding

Sufficient Storage Capacity assures
continous feeding conditions!

Different screw conveyor types
depending on terrain



less abraision and less danger of plocking!
Reduced energy consumption



Source: KWA Eviva GmbH



Source: KWA Eviva GmbH



Feeding Pump to mix input with digestate



Source: Wangen Bio-Mix

Substrate pre-treatment and feeding Macerator



Source: KWA Eviva GmbH

Activated carbon as CHP
protection filter



Sources: KWA Eviva GmbH



Gas cooling and re-
heating for drying
purposes

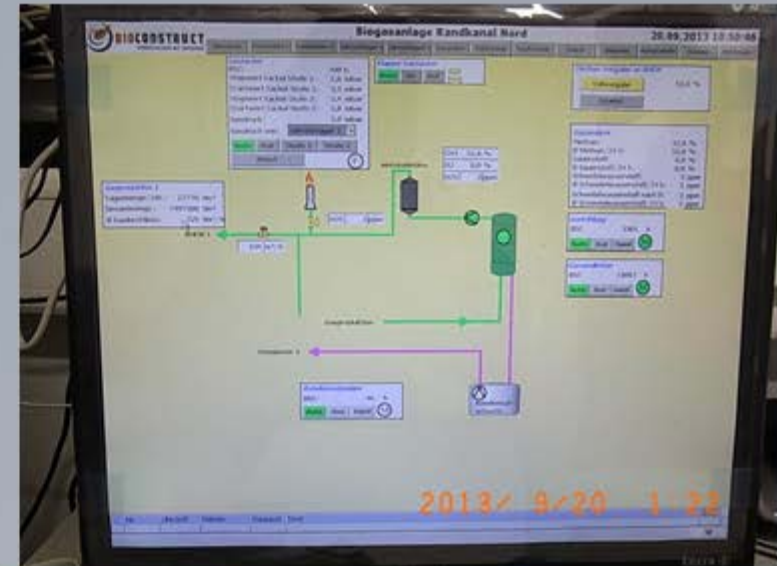


External desulphurisation on food
waste treatment plant

External desulphurisation on food waste treatment plant



Sources: KWA Eviva GmbH



How can the process be controlled?

- ✦ Important parameters to control
 - Temperature
 - Ph-value
 - Organic load
 - Gas quality
- ✦ Substrate control
 - Homogenization
 - Continuous feed at optimum rates
 - Limitation of the daily organic load



Source: renac

Flare for Climate Protection in Emergency Cases

Emergency Pressure Valves



Heat/Cold Storage Tank

Heat/Cold measurement with
archive data backup



Sources: KWA Eviva GmbH



Gas Storage Roofs



Sources: KWA Eviva GmbH

Thank you

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