



# Tanks and Biogas Reactors made of Stainless Steel

- Waste-water
- Agri-culture
- Waste industry

TANKS



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Organic energy worldwide



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Video:  
Construction of a stainless steel tank



## Stainless Steel Tanks

The stainless steel tanks are constructed in segments from stainless steel sheet metal panels. This allows for a precise fit and individual design of the tanks. Duplex stainless steel 1.4062/ 1.4162 is used in the liquid zone and 1.4462 in the gas zone. The Lean Duplex stainless steel has a low nickel content and high strength. This saves material and thus costs.

Thus, the material is highly durable and promises a long service life, short assembly times and the ability to be used in all climate zones. Another advantage is the compact shipping requirements of only a few containers, which makes worldwide delivery possible without any problems. In addition, stainless steel tanks are virtually maintenance-free. This keeps maintenance costs low. WELTEC anaerobic digestion plants are manufactured in-house and not only ensure a shiny appearance, but also offer reliable protection against the corrosive components of biogas.

## Areas of Application

### Wastewater Industry

The requirements for septic tanks are high. Especially in existing sewage treatment plants, they must be space-saving and easy to integrate. Gas storage, efficient thermal insulation and a long service life are also important. With a stainless steel tank, all these points are covered.

### Agriculture

In agriculture, tanks are needed for a wide variety of applications. In addition to slurry storage tanks, digesters for biogas plants and digestate storage tanks are also in demand. In this sector, it is important that the material withstands the aggressive components of slurry and other substrates.

### Waste and Food Industry

The scope of tanks in the residual waste industry are diverse. When storing liquid waste, a stainless steel base may be necessary due to the sometimes corrosive effect on the foundation. The flexible WELTEC tanks allow a precise fit in all application areas.

## Dimensions

Diameter	5.43 m - 34.55 m
Height*	3.87 m - 8.80 m
Volume	88 m <sup>3</sup> - 7,078 m <sup>3</sup>

\* plus roof height  
other dimensions on request



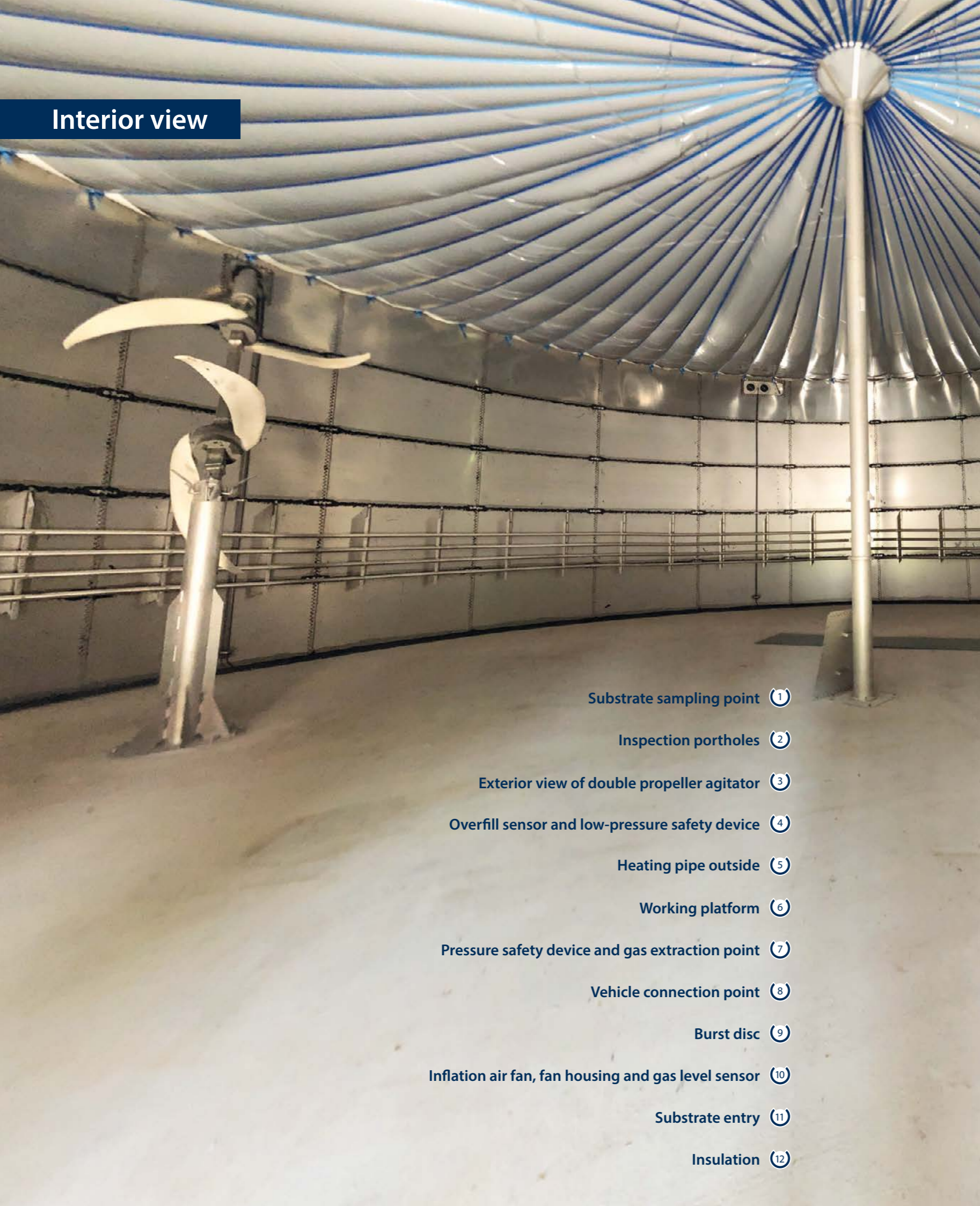
The tanks are screwed together ring by ring and pushed up using jacks.



**WELTEC Tanks**  
for Maximum Flexibility

Our high-quality tanks have been the trademark of our company for more than 20 years. The superior material of stainless steel ensures maximum service life of the plant, while the effort involved in their construction is minimised by an intelligent modular design. This quality standard also applies to the other components. Plant and control modules are largely developed in-house and perfectly matched to each other. In addition, each tank is individually designed for the intended application.

# Interior view



Substrate sampling point ①

Inspection portholes ②

Exterior view of double propeller agitator ③

Overfill sensor and low-pressure safety device ④

Heating pipe outside ⑤

Working platform ⑥

Pressure safety device and gas extraction point ⑦

Vehicle connection point ⑧

Burst disc ⑨

Inflation air fan, fan housing and gas level sensor ⑩

Substrate entry ⑪

Insulation ⑫





### The double propeller agitator

uses very little energy and is therefore economical in terms of operating costs. The two large propellers ensure optimum mixing of the substrates even with high dry matter contents, uniform heat distribution in the digester and re-stirring of the floating layers. The motor and bearing support are located outside the digester, which facilitates service and maintenance work.



### The submersible agitator

supplements the double propeller agitator and, with its double-bladed wide-blade propellers, promotes fast and targeted substrate mixing. Due to a variable immersion depth and the large swivel angle, sinking and floating layers can be destroyed or avoided. In addition, the smooth design prevents fibrous materials from sticking, which guarantees high efficiency.

The bottom on the picture is made of stainless steel.



### The tank internal heating system

consists of a flexible corrugated tube made of stainless steel. This is attached to the tank wall with pre-assembled brackets without damaging it by drilling holes afterwards. The corrugated surface allows for maximum and continuous heat transfer, as the surface area is up to 50 percent larger.



### The floor connection

consists of a circumferential angle iron made of stainless steel and is fastened with stainless steel dowels and screws. The stainless steel plates are sealed to the concrete slab and to each other by means of a durable special sealing compound.

From the outside, the tank is clad with insulation and trapezoidal sheets.

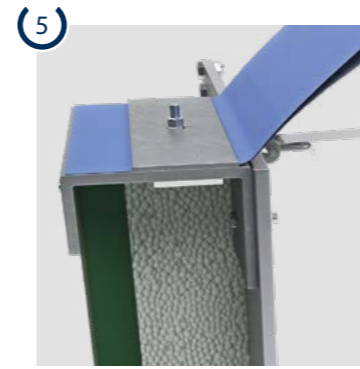


Fig. Roof connection

### The membrane roof

is PVC coated and extremely tear-resistant. The cover consists of a high-quality fabric foil (PES yarn), is flameretardant (DIN 4102 B1) and UV-resistant. The foils are made from a parallel cut and are also fully recyclable. The permeability is well below the limit. A manhole in the roof is available as an option.



## Overview of Possible Equipment Variants

- Thermal insulation by way of form-fitting polystyrene insulation
- Cladding with trapezoidal aluminium sheeting as weather protection
- Choice of colours for trapezoidal sheet metal and roof
- Double-membrane inflatable roof with gas storage for different wind load zones
- Continuous level indicator
- Heating system made of stainless steel pipes
- Working platform at the tank
- Agitator (double propeller and/or submersible)
- Inspection portholes with cleaning unit
- Desulphurisation unit
- Maintenance-free combined under- and overpressure safety devices also for cold regions
- Temperature sensor
- Stainless steel manhole
- Substrate sampling valve
- Optional dummy connection for the installation of a continuous pH-value measurement and foam sensors
- Gas pipe made of stainless steel (1.4571)
- Optional stainless steel bottoms
- Pre-installed connections, e.g. for substrate line, feed screw and the MULTIMix
- Burst disc