



All sectors

## Digester Systems

for efficient digestion and  
biogas production

can be integrated into existing systems  
flexible diameters and heights  
low space requirement for installation  
short installation time  
durable tanks and covers  
low investment costs  
high functional reliability

STAINLESS  
STEEL  
VERINOX®





# The Digester types

## LIPP KomBio®-Reactor

from 100 to 3,500 m³ digestion volume  
with integrated gas storage

The patented LIPP KomBio®-Reactor with integrated gas storage is used worldwide for efficient energy generation and stabilization of sewage sludge in small and large plants. It is substrate-flexible and its equipment options exceed the industry standard. The KomBio®-Reactor is of modular design and consists at its core of a stainless steel tank (VERINOX®) which surrounds the integrated gas storage balloon. This protects the gas holder from wind, weather and UV radiation, while the insulated roof additionally reduces the required heating demand in winter. The wall heating and insulation are mounted on the outside and are therefore easy to install and maintain.



### Technical data

**Volume**  
100 to 3,500 m³

**Medium**  
substrate flexible

**Operating pressure**  
atmospheric between  
0 – 1 mbar  
**Maximum pressure**  
2 mbar  
**Minimum pressure**  
-1 mbar

**Gas storage**  
integrated

**Exterior color**  
selectable according  
to RAL



## LIPP® Universal Digester

from 100 to 7,000 m³ digestion volume

For larger plants for industry and municipalities, the LIPP Universal Digester is used, which does not have an integrated gas storage tank. The biogas produced here is transferred either to a KomBio®-Reactor combined with the universal digester or to a separate gas holder. The modular design of the universal digester consists of a stainless steel tank (VERINOX®) at its core. Wall heating and insulation are easily accessible on the outside of the tank. The heat input is favored by the good thermal conductivity of the steel. The digester is closed off by a welded, free-supported stainless steel membrane cover which requires no bolting and ensures maximum tightness. LIPP also offers patented and highly efficient aggitation Solutions.



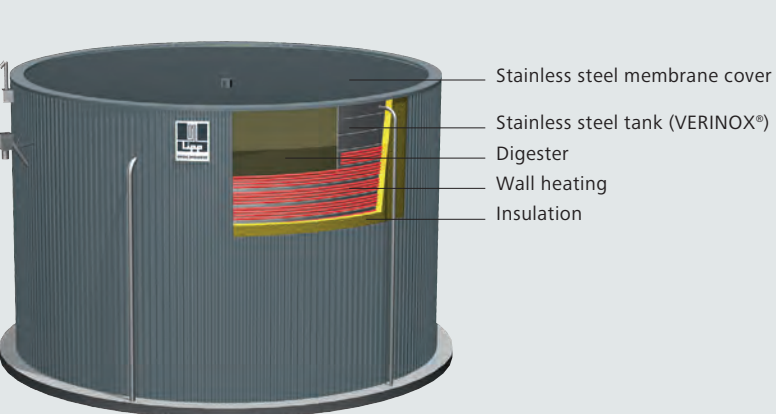
### Technical data

**Volume**  
100 to 7,000 m³

**Medium**  
substrate flexible

**Operating pressure**  
1 – 15 mbar  
**Maximum pressure**  
7,5 – 20 mbar  
**Minimum pressure**  
-5 mbar  
Other pressures on request

**Exterior color**  
selectable according  
to RAL



## LIPP® UniCentralkmix Digester

from 100 to 7,000 m³ digestion volume  
with central agitator

The core of the LIPP UniCentralkmix Digester is a stainless steel tank (VERINOX®) whose contents are mixed by a central, energy-efficient agitator, which is individually designed for the application and can be adapted to customer requirements. The tank is closed off by a roof construction with a welded stainless steel membrane cover, which requires no bolting and ensures maximum tightness. In addition, wall heating and insulation can be mounted easily accessible on the outside of the stainless steel tank. The UniCentralkmix is designed primarily for industrial and municipal applications.



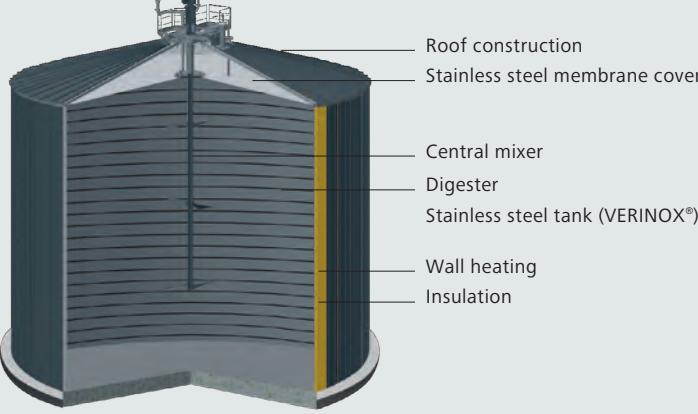
### Technical data

**Volume**  
100 to 7,000 m³

**Medium**  
substrate flexible

**Operating pressure**  
1 – 20 mbar  
**Maximum pressure**  
7,5 – 25 mbar  
**Minimum pressure**  
-5 mbar  
Other pressures on request

**Exterior color**  
selectable according  
to RAL



## LIPP® Eco Digester

from 100 to 10,000 m³ digestion volume  
with various roof systems

The LIPP Eco Digester for industry and agriculture has a modular design and can be configured according to the customer's requirements and wishes. It works substrate-flexible and consists in the core of a stainless steel tank (VERINOX®). In addition, wall heating and insulation can be easily attached to the outside of the tank. The heat input would be favored by the good heat conduction of the steel. Various textile roofs are available covering the digester. For example foil roof, single-skin/twin-skin roof or double-membrane roof.



### Technical data

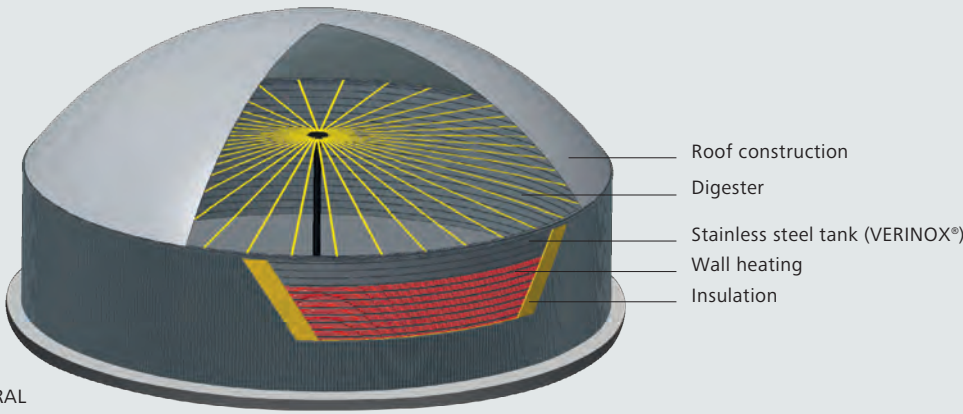
**Volume**  
100 to 10.000 m³

**Medium**  
substrate flexible

**Operating pressure**  
normal 2 – 5 mbar\*  
**Maximum pressure**  
normal 7,5 mbar\*  
**Minimum pressure**  
normal -2,5 mbar\*  
Other pressures on request

**Gas storage**  
depending on  
roof construction

**Exterior color**  
selectable according to RAL



\* According to manufacturer's specifications from roof



# Roof constructions



## Double-Membrane Gas Storage Roof

A UV-resistant outer membrane and a biogas-resistant inner membrane seal the fermentation chamber gas-tight. A supporting air blower conveys air into the intermediate space and keeps the outer membrane in shape. The roof is attached to the top of the tank with a special LIPP profile.



## Gas-tight on central supports

Can be implemented either as a single-shell gas-tight cover or as a double-shell cover with inner membrane and additional gas storage. The roof is fixed on top of the digester with a special LIPP profile and additionally stabilised by a central support.



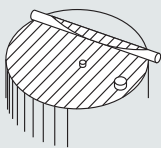
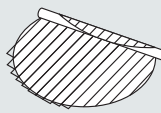
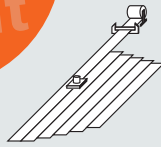
Long service life  
very good insulation

+point

## LIPP® Stainless Steel Membrane Cover up to 50 m diameter

A self-supporting, lightweight stainless steel membrane structure allows tanks with diameters of up to 50 m to be freely spanned.

Free of supports and beams, the construction, as a gas- and diffusion-tight cover, withstands snow loads and strong winds. It is resistant to UV radiation. The lightweight construction is also suitable for sealing digesters with volatile and explosive substances. The materials used – high-quality stainless steel 316Ti/L – have maximum corrosion resistance to aggressive substances.



Complete prefabrication of the membrane in the factory

# Digester design

## Materials

### Stainless Steel VERINOX®

A combination material consisting of galvanized steel as base material and a stainless steel internal, e.g. 1.4571 [316Ti] or 1.4539 [904L] on the tank inside.

### Fittings Nozzles and openings

Stainless steel, e.g. 1.4301 [304], 1.4571 [316Ti] or 1.4462

## Maximum tightness

In LIPP liquid containers, a permanently elastic sealing material with high chemical and physical resistance is also used to achieve maximum tightness. This is done immediately before the actual connection process.

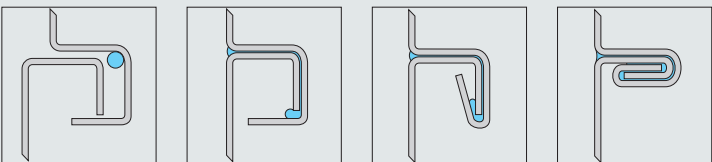
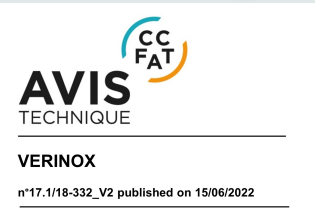
## Equipment

Openings or passages of any size and shape are also possible for retrofitting/installation. A wide range of peripheral accessories is available for the technical equipment of the tanks:

- . Digester roof
- . Digester floor
- . Pumping and agitating equipment
- . Digester heating
- . Digester insulation
- . Stairs, ladders, platforms
- . Nozzles
- . Manholes
- . etc.

## Specialised company

Lipp is a certified specialised company and paying particular attention to the durability of its products, a professional execution and a solid workmanship in every detail.



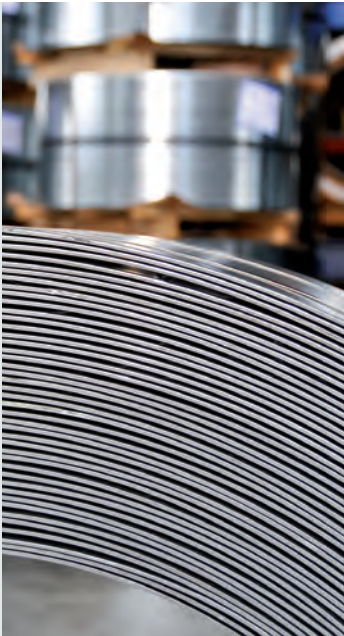
# Behälter und Systemlösungen Tanks and System Solutions



UNIQUE

## The System

The system involves steel bands being interlinked by seams giving the inside of the tank an edgeless and smooth surface. Additionally, the LIPP® Double-Seam System guarantees maximum tightness and stability. The LIPP System has already been successfully used in more than 80 countries.



LONG-LASTING

## The Materials

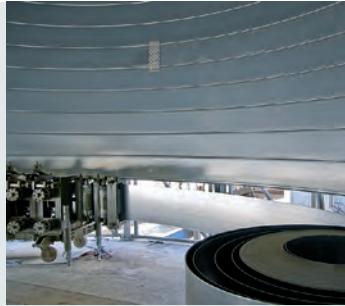
To meet the special requirements of biogas tanks, LIPP has developed a special material. VERINOX® stainless steel is a patented and award-winning combination material that combines the properties of high-quality stainless steel, e.g. 1.4571 [316Ti] or 1.4539 [904L] with the costs of galvanized steel. This makes VERINOX® particularly suitable for digesters and post digesters.



FLEXIBLE

## The Assembly

The LIPP® Double-Seam System is the fastest and simplest method of building reliable tanks flexibly at the customer's site. The system is characterized by on-site machine production, which makes it possible to create tanks with variable diameters and heights from steel strips. A largely automated manufacturing process permits unlimited and flexible assembly with short installation times.



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Double seam  
high stability  
without screws  
+point

stainless steel  
VERINOX®  
long-lasting  
economical  
+point

on-site production  
flexible in  
diameter + height  
little space required  
+point

65 years  
experience in  
metal construction  
+point



Interior view LIPP® tank