ECOMEMBRANE
ENVIRONMENTAL TECHNOLOGY

Econtainer

▶ ECONTAINER are designed to store biogas made from anaerobic digestion of organic waste and sludge. They are also designed to work even to store different gases like Syngas from Pyrolysis and Hydrogen.

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▶ ECONTAINER working principle is equivalent of a dual membrane gasholder where the outer membrane is made in steel and the inner membrane is a flexible storage volume with variable shape. The scope of ECONTAINER is to provide a constant pressure to the gas line of the biogas plant where the gasholder is connected. It can work with a great variability of gas flow rate. ECONTAINER can be used either as gasholder storage for small scale biogas plants or even as gas buffer for higher gas flow production plants.

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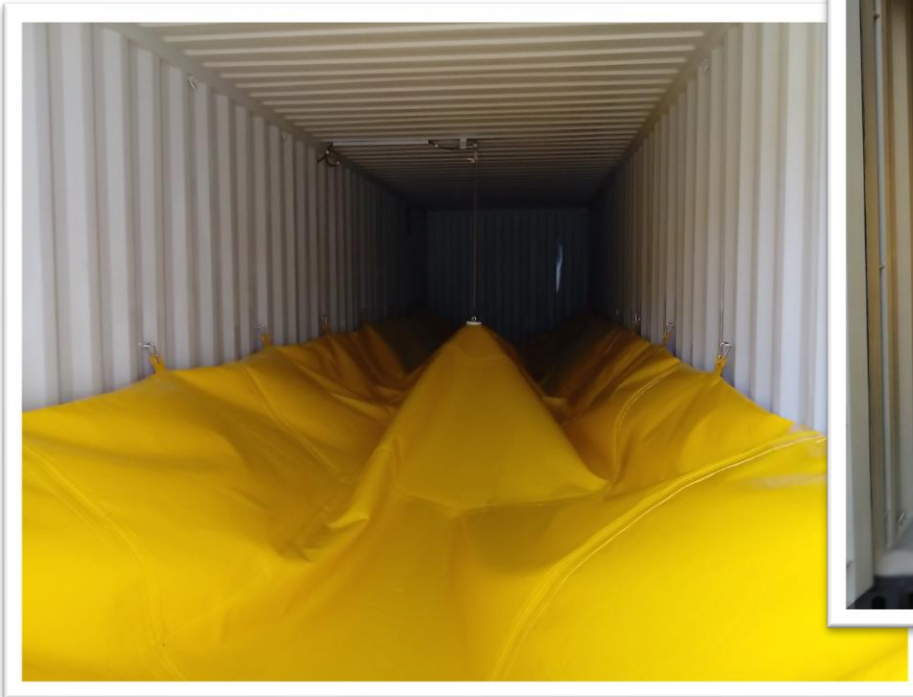
- ▶ The ECONTAINER system is made with a external rigid body constituted by a steel specially reinforced container, pressurized by an air fan 24 hours a day to give a pneumatic push on the inner biogas chamber, keeping the biogas chamber at a prefixed and constant positive pressure. The one-piece gas chamber is made and pre-tested at the factory.

MAIN FEATURES

▶ **Easy handling:**

Thanks to his standardized shape the ECONTAINER is very easy to move and to transport. In fact the container comes with RINA shipment certification that allows the standard handling like a normal 20' or 40' container. All external components can be easily unbolt and inserted inside the container during transportation.

▶ **No need of expensive concrete foundation:**

The gasholder can be placed on simple flat surfaces without need of concrete platform. All gas inlet-outlet flanges including the water drainage discharge pipe are placed on the side of the container for easy access. For those reasons is the cheapest available solution to achieve a high quality pressurized gasholder.

Easy to install:

ECONTAINER is already been tested in our factory and al the valves and levels are pre-set by Ecomembrane following the client's preferred working pressures. For this reason the gasholder can be installed directly by the client's personnel in 3 hours following simple visual steps listed in the installation manual. So there is no need to have the supervision of an Ecomembrane technician on site.

High resistant to extreme weather conditions:

The gasholder can be placed on simple even surfaces without need of concrete platform. It is gas tight and can safely work in any wind or atmospheric extreme condition. It can support fast working filling cycles. Easy to serial production with standard sizes. It can be piled up with more units connected with each other in series or in parallel without occupying any extra ground surface.

MAIN COMPONENTS

▶ **Container:**

The outer shell of the ECONTAINER is made by a 20 feet or 40 feet long ship size container.

The 20 feet container size has a gas storage volume of 20 m3 while the 40 feet container reaches a storage gas volume up to 50 m3.

The gasholder can be set to work at constant pressure from 0 to 50 mbar.

Inner Membrane:

The gas inner membrane is manufactured with biogas resistant polyester reinforced PVC or special thermoplastic rubber membranes seam welded by high frequency electronic machines. The welding of the internal membrane is made adding an Eco-Safe layer of pure PVC that stops every porosity of the fibres to the biogas.

▶ **Centrifugal Air Fans:**

Our air fans are carefully selected only from the best suppliers and only in EX class execution.

The air flow is chosen to secure the perfect gas pressurization while also keeping washed the air volume between the gas and the outer shell to reduce the risk of minimal gas mixtures.

They are furnished always with stainless steel made check valve that secures the maintenance of the pressure for enough time even during temporary power shut off.

Air Pressure Control Valves:

Our air valves have been designed and utilized by Ecomembrane since 20 years to be able to achieve the best performances available for our specific work on the membrane gasholders.

In fact they present the following features and relative advantages compared with the standard weighted clapet-style valves used by our competitors.

They are directly attached to the external air membrane avoiding the use of any flexible pipe that could cause pressure drops and even break after some time.

The valve is totally covered by a aluminum box that protects the air flux from the action of wind, snow and icing that in the other models can change the working pressure of the gasholders.

The system use an Ecomembrane designed unique mechanism that with the use of leverages ensures the increment of the sensibility of the air valve to the pressure changes letting an enhanced control of the flows with the possibility to regulate the working pressure from 3 to 50 mbar without changing the valve.

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► **Level Sensor 4-20 mA:**

Our patented level sensor system is the only one that ensures the following two main goals:

1) achieving a constant and reliable level signal independently from the shape variabilities of the gas membrane during the filling-emptying cycles.

2) controlling the shape of the gas membrane to secure the complete usage of the geometrical volume of gas storage.

Our system control and diminish the weight of the top center part of the gas membrane letting it drive the direction of filling. In other terms with the aid of the special Ecomembrane level sensor the center top of the gas membrane will be the first part to rise up during filling time and the last one to go down during depleting time. In this way all the volume stored inside the gas membrane will be usable for the clients. In all the competitor's products the volume usage can reach no more than the 80% of the stored volume due to different level sensors.

▶ **Overpressure Valves:**

Ecomembrane produces his own biogas controlling valves.

They are available in two working principles:

1) Pure hydraulic safety overpressure gas valves

2) Water sealed mechanical safety overpressure valves

All our valves are made in stainless steel and have an automatic refill system that ensures the reduction of the maintenance time of the end user.