



ANAEROBIC  
DIGESTION



# Ultrastore™ Membrane Gas Holders

Capturing and storing biogas for present  
and future energy demands

## What are your needs?

- Increased and/or flexible storage capacity  
(Capacities > 300,00 ft<sup>3</sup>)
- Fast, easy installation
- Slab or tank mounted option
- Capacities > 300,000 cu. ft.
- US manufacturing facility

## Key Benefits

- Eco friendly power generation
- Storage availability indicator
- Easy maintenance
- Custom design to fit your specific needs
- Improved M3™ design

[ovivowater.com](http://ovivowater.com)

© 2014 GLV Inc. All rights reserved.

**OVIVO**<sup>®</sup>  
Bringing water to life<sup>®</sup>

# Ultrastore™ Membrane Gas Holders

## Applications

Membrane gas holders are becoming more desirable throughout the U.S. Many municipalities and WWTP operators are looking for sources of revenue and operating cost reductions. Membrane gas holders provide an opportunity for WWTPs to capture gas in large quantities and allow for stable energy production. Gas can be used as a fuel for engine generators and Combined Heat and Power (CHP) systems thus saving fuel costs. This same gas can be used to feed micro turbines to produce electricity to power the wastewater plant. Some plants may even use the stored gas by converting their fleet of vehicles to be gas powered and save operating costs for their service vehicles.

The Ultrastore™ membrane gas holders provide all these opportunities. The PVC-coated, fabric membrane digester covers offer high gas storage capacity. This high storage capacity provides operators with greater flexibility in operating eco-friendly energy systems. Several hours of storage capacity allows for maintenance to perform tasks such as filter checks, lubricant replacement and shutdown of power generation when demand is low. All this and reducing emissions to the atmosphere while allowing for valuable energy recovery.



- 1 The air relief valve is set to allow the air membrane to be continuously washed.
- 2 The outer membrane is a PVC coated fabric with UV protection for long lasting life.
- 3 The intermediate membrane (grey) that is supplied on the three membrane design.
- 4 The gas membrane. Gas is captured and stored within this membrane.

The Ultrastore membrane gas holders are available in two main designs; the two membrane covers and the three membrane covers. Both of these designs can be installed on top of digestion covers or installed on concrete slabs.

### Two Ultrastore Membrane Gas Holders

The two membrane covers are gas holders with a low pressure internal chamber for gas storage. These membrane covers are available for installation in two configurations; on a new or existing tank as a gas holder or gas storage. The membranes can also be installed on a concrete slab for expanded gas storage.

To provide even further flexibility, these two configurations can be provided in a 1/2 sphere layout or a 3/4 sphere layout. The 3/4 sphere provides additional storage capacity that doesn't impact on the operational pressure of the gas holder.

In either of these configurations the internal biogas membrane is independent of the external structural membrane. The external (air) membrane supports the environmental loads (snow, wind and U.V.) that the gasholder cover experiences throughout its operating life by providing constant blower pressure. This allows for a rigid, flexible external cover. The capacity of the internal biogas membrane varies according to the production and use of biogas by digestion facilities while operating at a constant pressure, similar to that provided by the blowers for the external membrane.

### Three Ultrastore Membrane Gas Holders

The patented three membrane gas holder offer several advantages over the conventional two membrane design. It provides higher operational safety, accurate pressure control and power savings.

With a two membrane design any leaked biogas that passes into the air chamber is removed gradually and continuously by replenishing the air chamber by air blowers operating 24 hours per day.

With the three membrane design, any gas leakage flows naturally into the intermediate membrane avoiding a mixing of gas and air in the air chamber. The gas remains in this intermediate membrane until an operator can hook up a generator and flare the gas.



## Operation

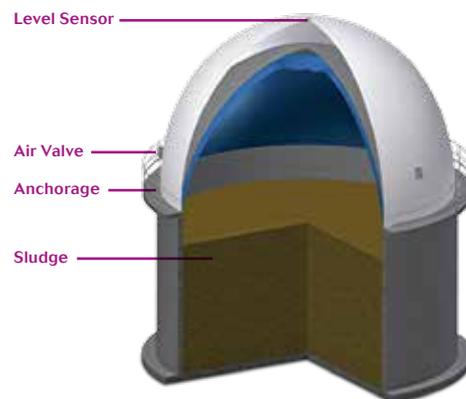
Membrane gas holder operation is simple. The system consists of the fans/blowers that supply air to the external membrane, the air relief valves, the pressure transmitters, the methane gas transmitters, the level control system and the biogas relief valves.

In the case of the two Ultrastore membrane design, the fans/blowers continuously pump air through the external chamber. The mechanical relief valves are adjusted to relieve pressure at the required operating pressure of the gas holder membrane.

For the three Ultrastore membrane design, the use of the blower is only required during the initial filling of the membrane, for compensation and for maintaining a constant pressure when biogas is being withdrawn. This provides power savings over the two membrane design.

Membrane gas holders can be mounted on new digester tanks and existing digester tanks, thus increasing the gas storage capacity of digesters. When space is an issue and a plant wants to increase gas storage capacity, this is an ideal solution.

The patented electro-mechanical system at the top of the membrane accurately records the level in the internal biogas membrane's apex, so that the operators can gauge the exact volume of biogas stored in the membrane gas holder. The membrane shape varies and sways inside the external membrane based on the various operating conditions of gas and sludge flow. The electro-mechanical system avoids the usual difficulties encountered by ultrasonic level detectors and laser adjusted instruments that give false readings due to target misalignment.



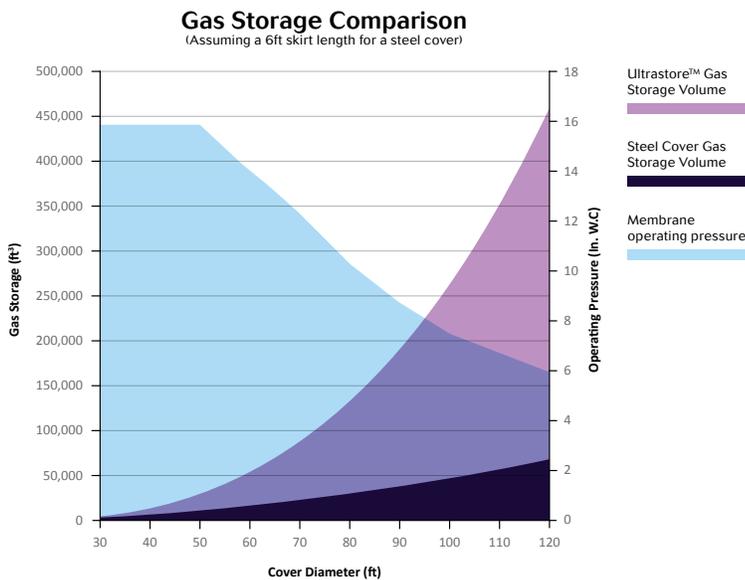
The  $\frac{3}{4}$  sphere can increase capacity for gas storage with a minimal impact on footprint. Usually designed for slab mounted options, the  $\frac{3}{4}$  sphere can be installed on a tank if the layout permits it.



# Ultrastore™ Membrane Gas Holders

## Performance

The great value for Ultrastore membrane gas holders is in their storage capacity versus conventional gas storage systems. As the diameter of a digester increases, the value of the storage capacity of an Ultrastore membrane gas holder increases. As the chart illustrates, at typical operating pressures, the larger the digester diameter, the more storage capacity you get with an Ultrastore membrane gas holder. This increase in capacity gives a plant more flexibility to operate. With several hours of storage capacity, any plant which operates a bio-energy facility can shut down without affecting the digester operation.



## Manufacturing & Installation

The Ultrastore equipment is wholly fabricated in the U.S. All major components of the Ultrastore membranes are supplied from the U.S. This provides for ready access to components and also repair or replacement of membranes in a timely fashion. The fans/blowers and instrumentation are all items that are readily accessible and replaceable. All membranes are subjected to rigorous testing prior to shipping.

Installation of an Ultrastore membrane can be performed by Ovivo contractors under the supervision of Ovivo and certified by our partner Ecomembrane. All installations are certified by Ecomembrane.

Ovivo can provide custom configurations for unique applications.

## Our Expertise

Our facilities in Little Rock, AR and an experienced team give us an edge in delivering and installing membranes in a timely manner. Our teams can also provide assistance in maintenance and repairs on a quick turnaround.



[www.ovivowater.com](http://www.ovivowater.com)

© Copyright 2014 GLV Inc. All rights reserved

00000001

