ECOMEMBRANE®

ENVIRONMENTAL TECHNOLOGY

2MASTER Gasholder

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- Two membrane constant-pressure gasholders are designed to store biogas made from anaerobic digestion of organic waste and sludge.
- They are manufactured with biogas resistant polyester reinforced PVC 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.

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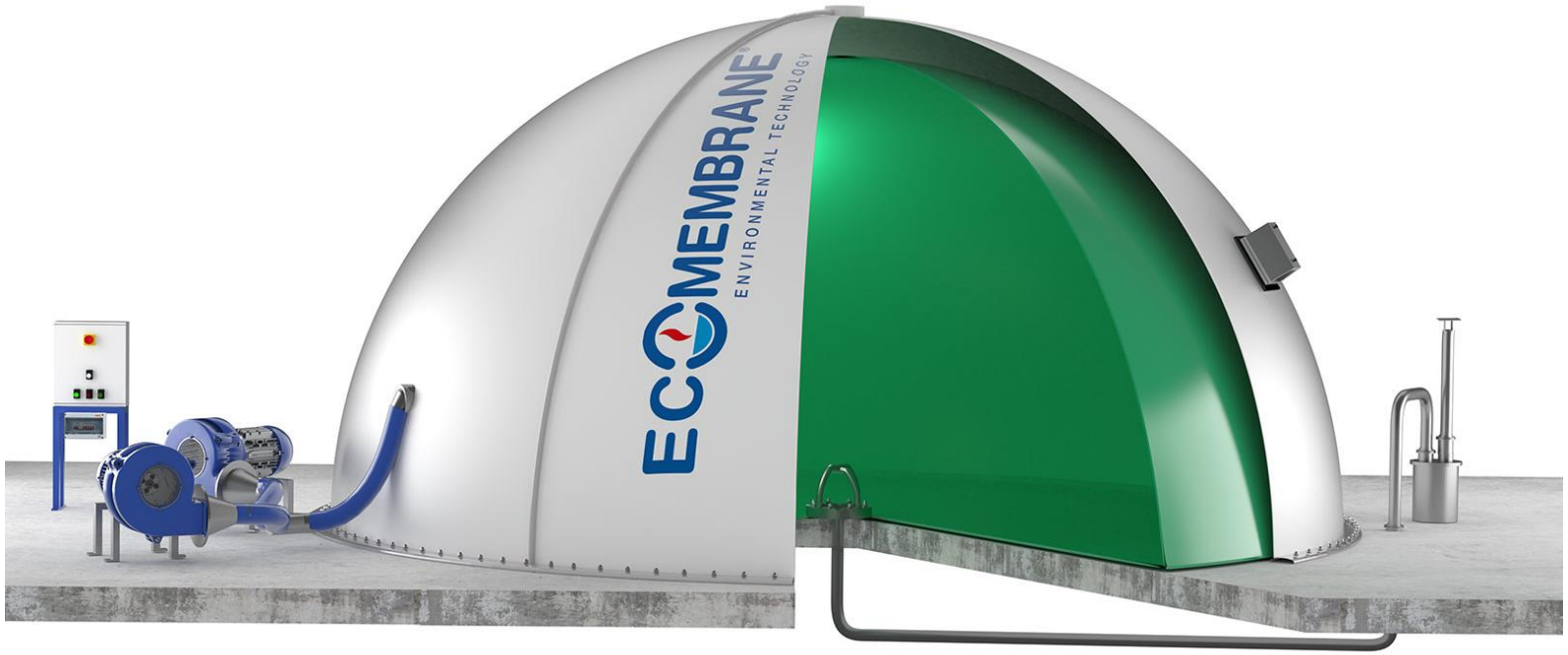

- The 2MASTER system is made with a single upper membrane, pressurized by an air fan 24 hours a day to give a pneumatic push on the inner biogas chamber, keeping the biogas chamber at a prefixed and constant positive pressure.
- The one-piece gas chamber can be made in the factory or on site. Closed piece construction prevents gas losses through the anchor bolts that fix the cover to the ground or tank.

MAIN FEATURES

- **High Storage and Gas Flow Rate:**

The 2MASTER system is suggested for use in all cases where storage volume is greater than 3000m³. The lighter weight of the 2 membrane allows larger gas holders to be constructed. The 2 membrane system is also proposed where high and variable gas flow rates are expected.

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- **Shape Variability:**

It is possible to manufacture gasholders with either a ½ sphere or ¾ sphere shape.

Big sizes and sites where high winds are expected then a ½ sphere gas holder would be recommended. Upon request we can design special shape gasholders with rectangular base.

MAIN COMPONENTS

- **Anchorage System:**

Our anchorage system is made in house with specially designed stainless steel anchoring plates that together with the action of the anchoring bolts manufactured by Hilti keep the membrane fixed on the ground concrete slab.

This well proven system with hundreds of installations done is able to keep the stresses acting from the membrane in any weather and pressure scenario.

To achieve the perfect gas sealing there are special butyl made gaskets and silicon sealant that secure the gas tightness on the perimeter of the gasholder.

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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 membrane 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.

It's possible to arrange only one blower functioning 24h, or two blowers (one duty-one stand by) with electrical panel useful to switch from one to another.

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Air Valve:

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.

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Hydraulic Safety Valves:

Ecomembrane produces his own stainless steel hydraulic safety valve.

For the gasholder, Ecomembrane proposes stainless steel hydraulic gas safety valve with stainless steel venting pipe with flame arrestor and automatic water refill system constructed with a stainless steel water tank and floating control valve

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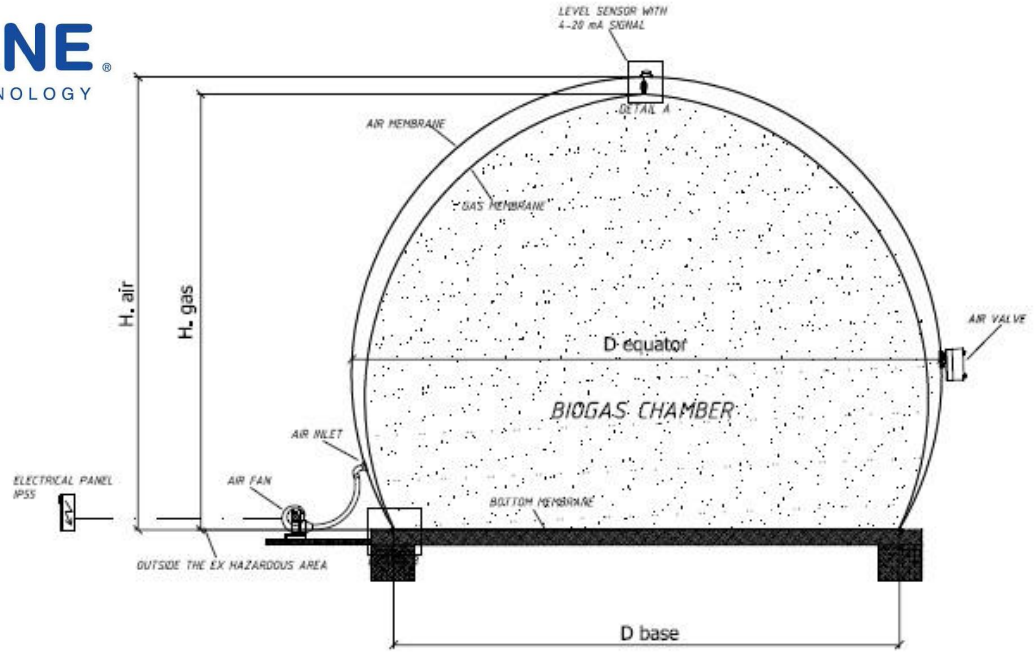
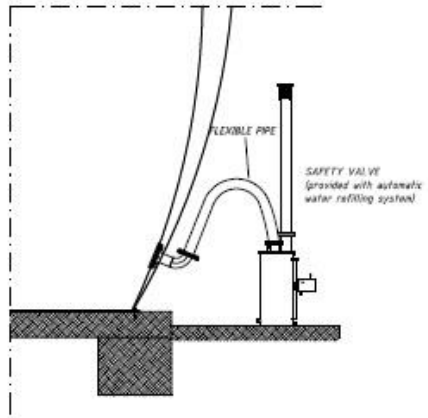
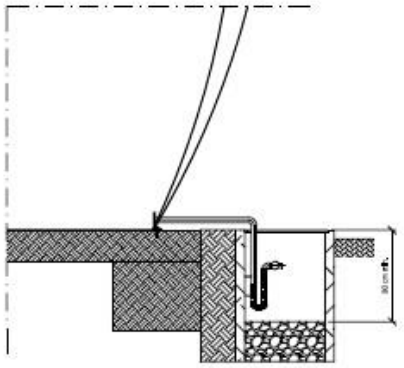
2MASTER ¾ sphere
<500 m3



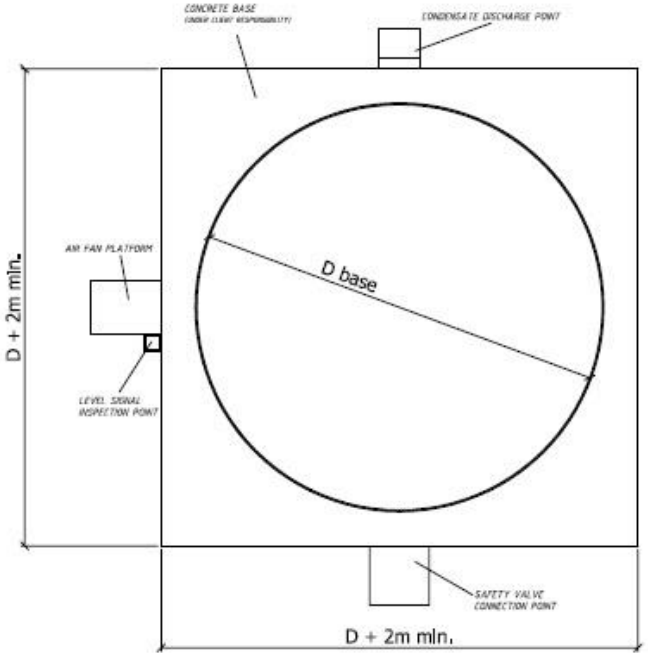
GASHOLDER



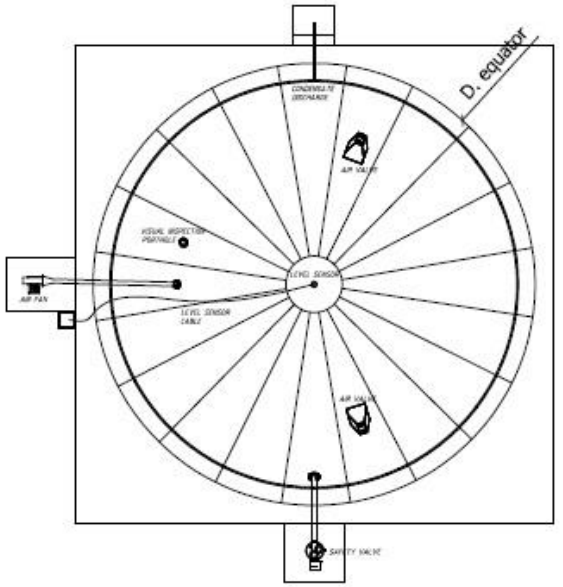
SAFETY VALVE CONNECTION



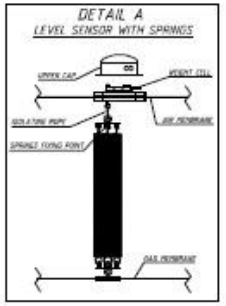
CONDENSATE DISCHARGE

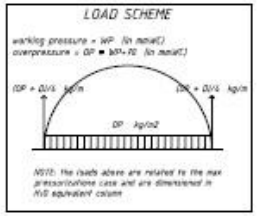


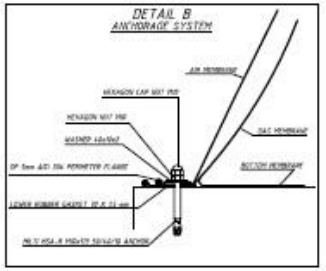
PERIMETER FLANGE



POSITION OF THE ACCESSORIES







DRAFT
DRAWING NOT IN SCALE

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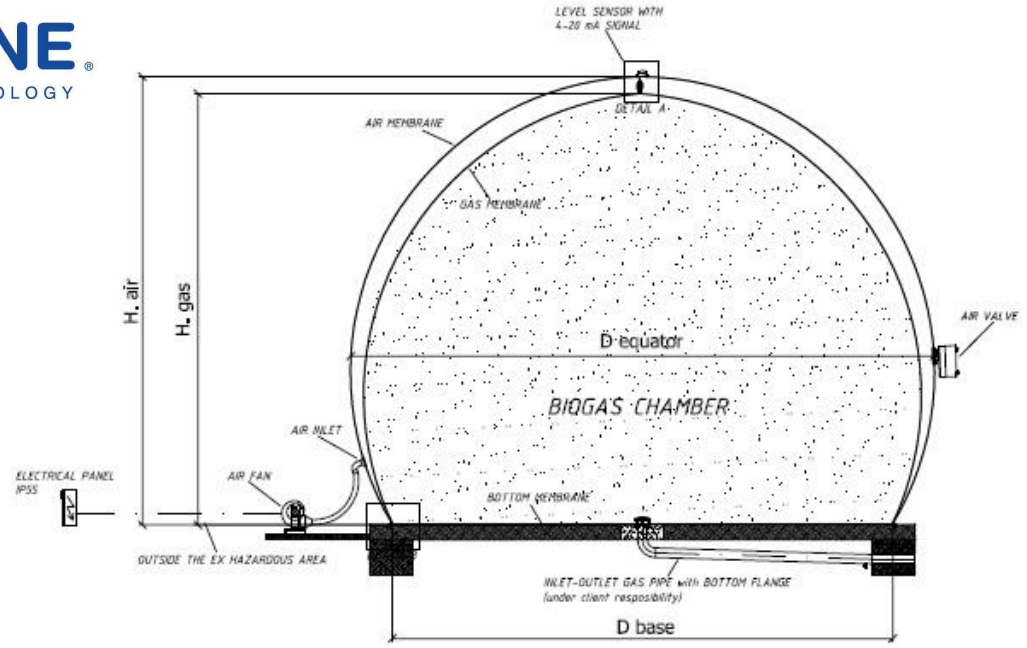
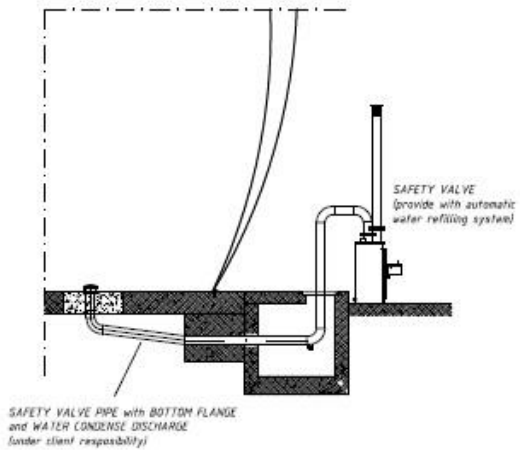
2MASTER ¾ sphere
>500 m3



GASHOLDER



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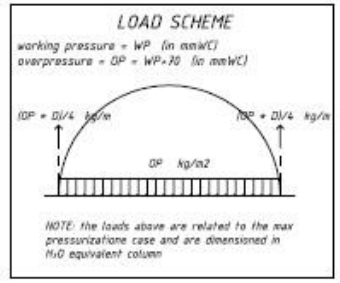
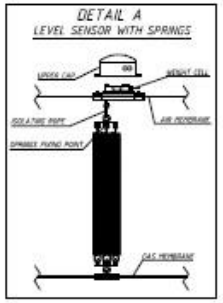
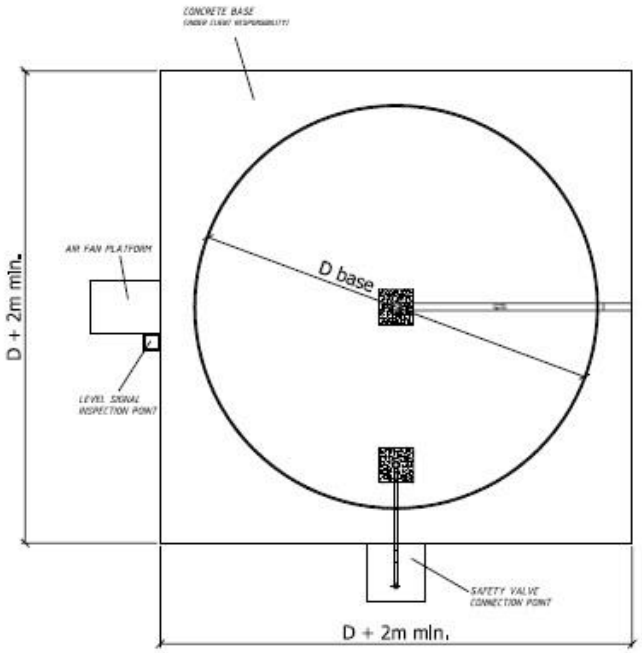
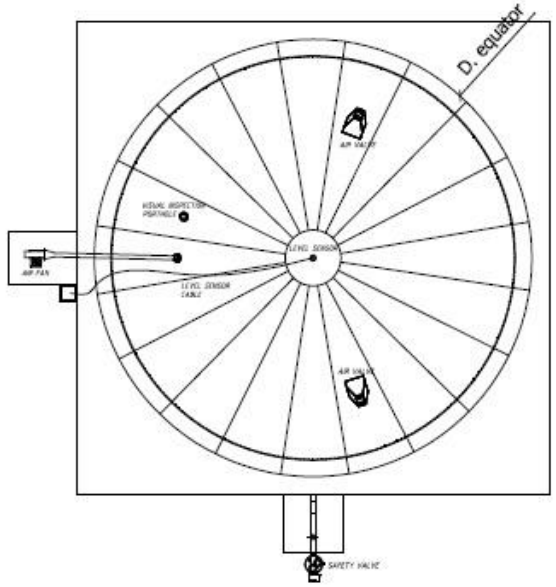


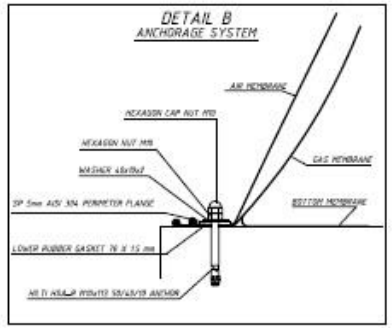




PERIMETER FLANGE



POSITION OF THE ACCESSORIES



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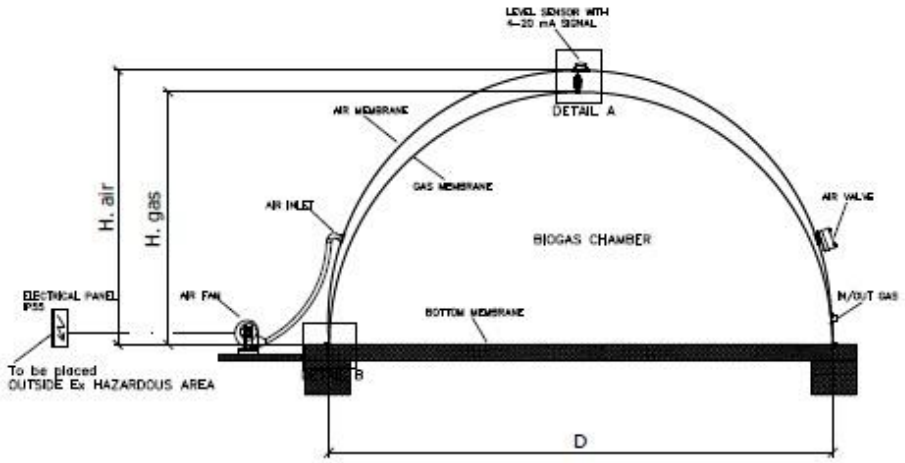
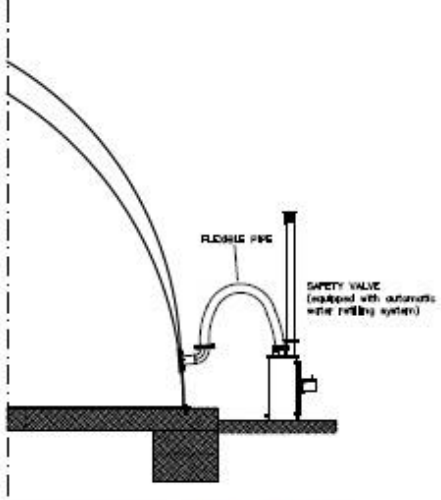
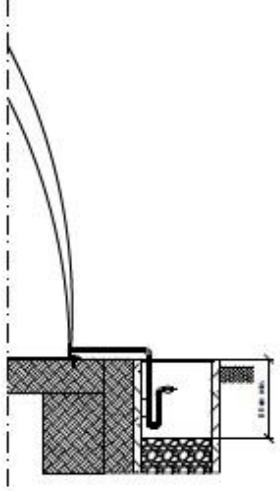
DRAWING NOT IN SCALE



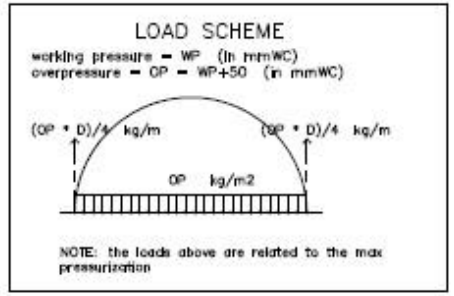
GASHOLDER

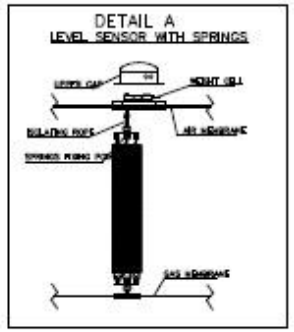


SAFETY VALVE CONNECTION



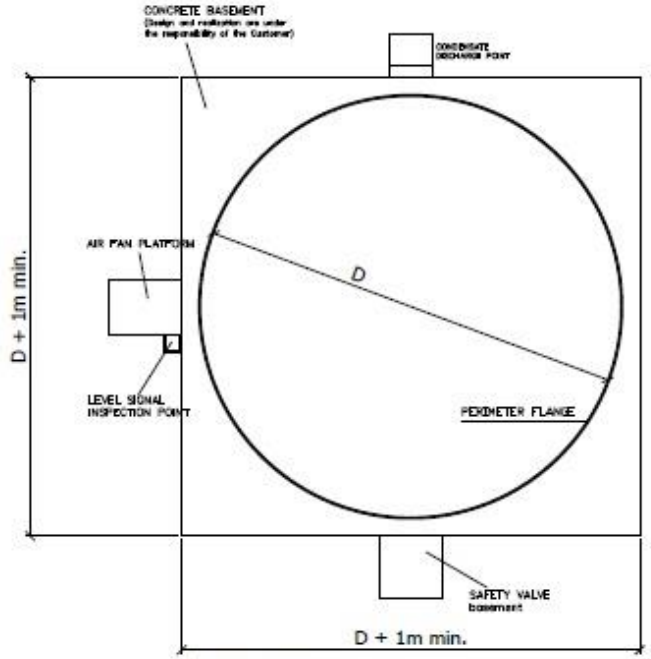
CONDENSATE DISCHARGE POINT





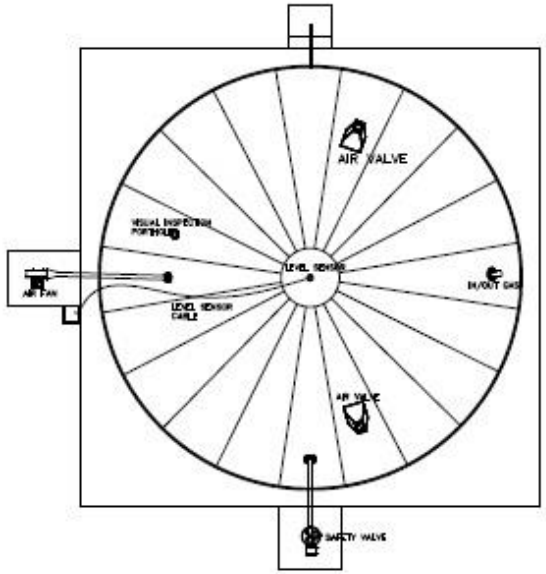
2MASTER ½ sphere

<500 m3



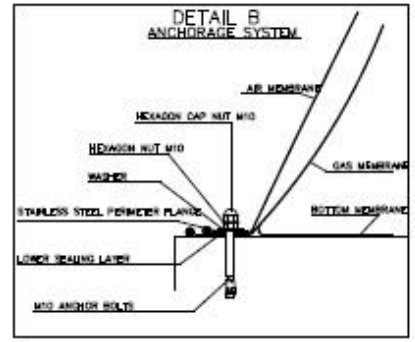
Plan view

BASEMENT AND PERIMETER ANCHOR



View from above

POSITION OF THE ACCESSORIES



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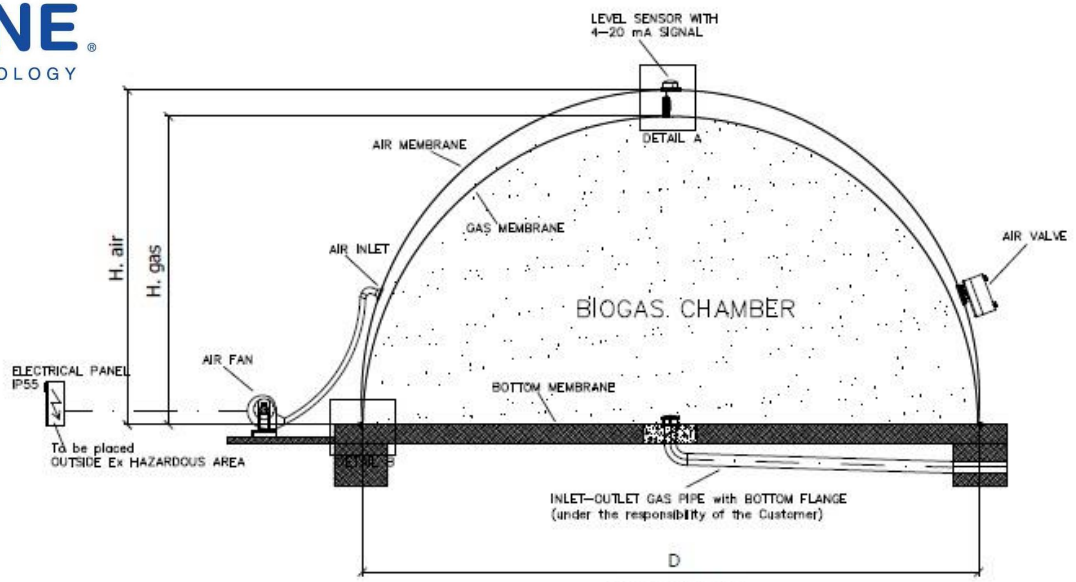
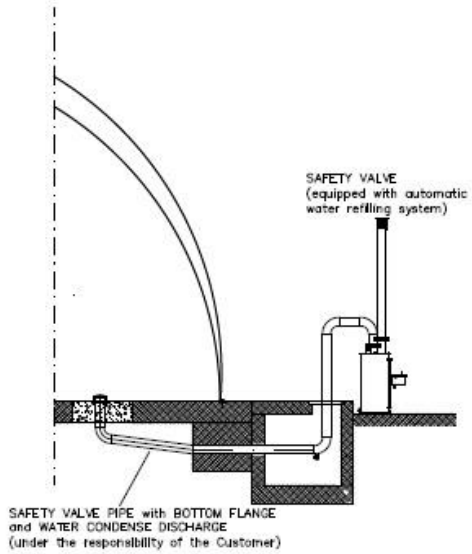


GASHOLDER



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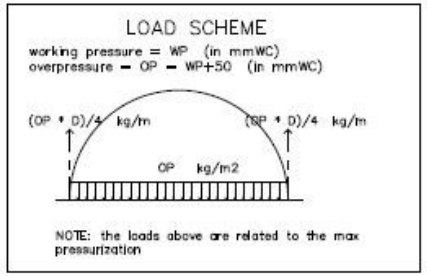
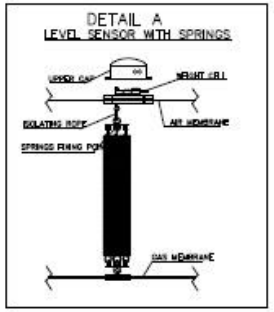
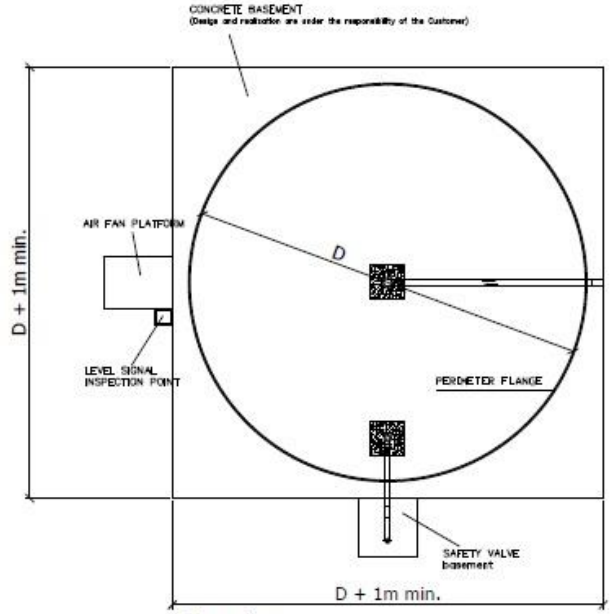
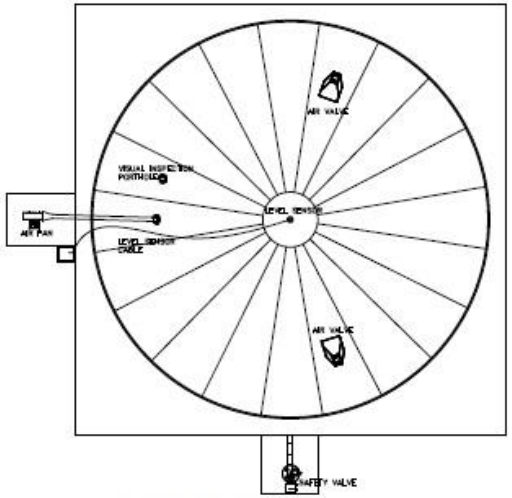


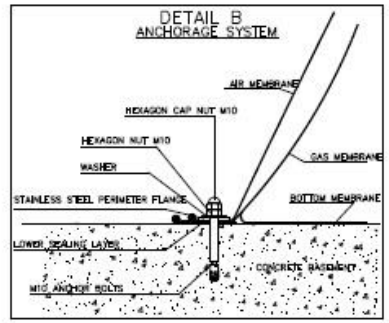




Plan view
BASEMENT AND PERIMETER ANCHOR



View from above
POSITION OF THE ACCESSORIES



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