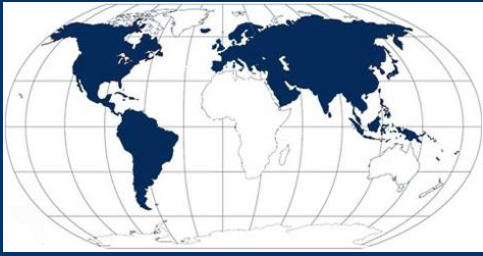




Clarifier Covers





COMPANY SNAPSHOT

- A leading provider of membrane biogas storage and odor/evaporation control systems
 - Custom-engineered solutions
 - Cost-effective
 - Reliable and proven technology
- Innovative solutions for a variety of applications:
 - Wastewater treatment plants (municipal, industrial, mining and others)
 - Agricultural energy recovery facilities
 - Landfills with biogas
 - Food processing with anaerobic digestion
- Outstanding track record spanning 20+ years and 600+ installations worldwide
- Global presence with engineering and manufacturing in the U.S. and Italy



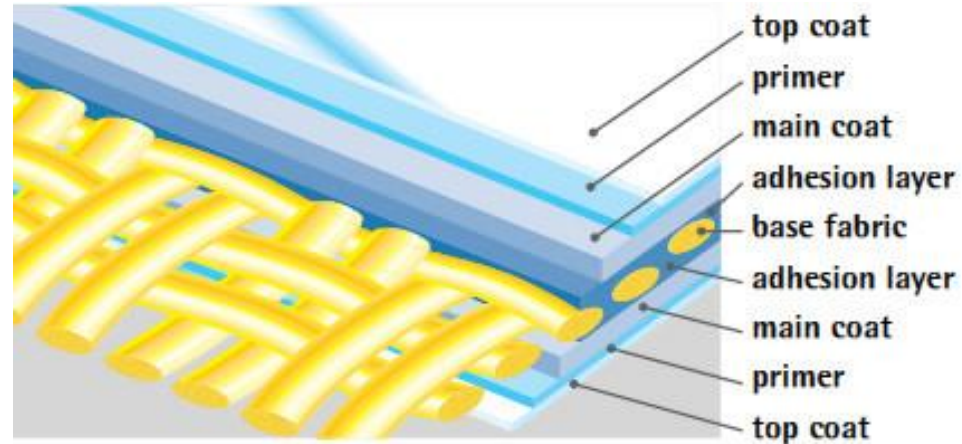
(Hometown Bioenergy, Minnesota)



(Rosendale Dairy, Wisconsin)

MEMBRANES

- Membranes provide structural stability and impermeable gas storage
- Coated structural fabric consisting of a woven base cloth stabilized and protected by a coating on both sides
- Base cloth consists of warp threads running the length of the roll and weft threads running across the width
- PVC-coated polyester fabrics generally have a structural lifespan in excess of 20 years
- PVC coating contains additives that include UV stabilizers, fire retardants, coloring and fungicidal agents
- A protective PVDF (fluorinated polymer) lacquer helps to impede soiling and facilitate cleaning
- Incorporated UV stabilizers protect the color and base cloth, enhancing the life of the membrane



Typical section of coated PVC-Polyester fabric

Material Properties:

- ✓ High tensile and tear strengths
- ✓ UV and weather resistant
- ✓ Flame retardant
- ✓ Fungal resistant
- ✓ Easy to maintain



CLARIFIER COVERS



Ecomembrane's clarifier covers are innovative and unique solutions to cover primary and secondary clarifier tanks in order to capture and contain odor emissions

CLARIFIER COVERS

- Two designs in order to meet different clarifier designs and customer needs
 - CLARICOVER® - clarifiers with rotating bridges
 - CLARIFIX® - clarifiers with non-rotating bridges
- Ecomembrane's clarifier covers provide several key advantages:
 - Effective odor control and heat retention
 - Lower cost
 - Available sizing
 - Installation time and expense
 - Reduced capital investment in air treatment system
 - Full perimeter access (CLARICOVER®)
 - Longevity



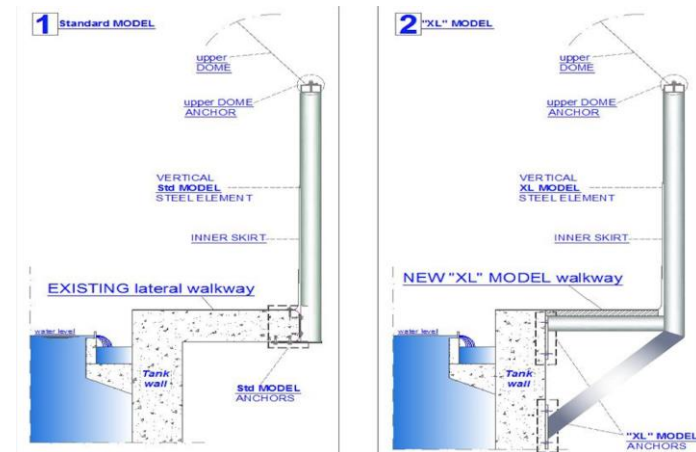
CLARICOVER®



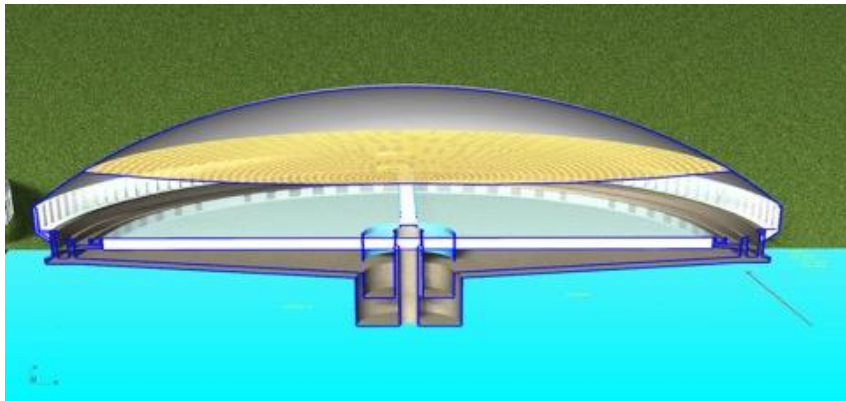
- The CLARICOVER® is designed for primary and secondary clarifiers which incorporate a rotating bridge and for applications with greater snow loads
- The CLARICOVER® includes several key design elements / components:
 - Steel support wall structure and membrane side wall
 - Pressurized spherical membrane cover
 - Permeable inner membrane
 - Air pressurization system
 - Air regulation valves
 - Control system
 - Entrance chamber building
 - Accessories (inspection windows, interior lighting and safety rope system)

CLARICOVER® (CONT'D)

- The stainless **steel support structure** is anchored to the existing tank wall
 1. Standard – anchored to existing internal wall or walkway
 2. XL – incorporates an integrated steel walkway with a width of 3 ft. +/- and allows plant personnel full perimeter access
- The structure, 7 ft. in height, raises the profile of the cover ensuring the cover does not interfere with the bridge and provides walkable perimeter access
- The **membrane side wall**, constructed using polyester PVC-coated fabrics, ensures air tightness



CLARICOVER® (CONT'D)



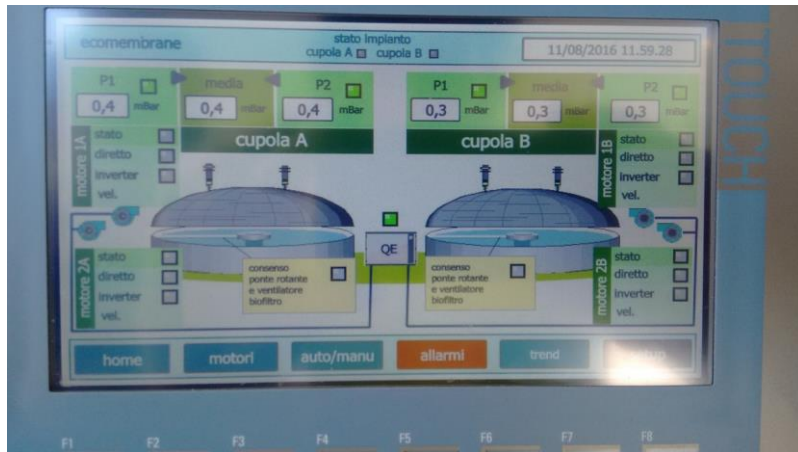
- The **pressurized spherical membrane cover's** primary function is to capture and collect the odorous emissions prior to the air being treated
 - Constructed of polyester PVC-coated fabric membrane and fabricated using high frequency welding technology
- The **permeable inner membrane** is installed at a set height under the cover and reduces the air volume requiring purification
 - Significant reduction of initial investment related to air treatment system
 - Reduced energy consumption by air treatment system
- The permeable inner membrane can reduce the to be treated air by 1/3

CLARICOVER® (CONT'D)

- The **air pressurization system** continuously replenishes, with fresh air, the air flow needed to exchange the gaseous volume between the water surface and the inner membrane
- Ecomembrane designed special stainless steel **air regulation valves**, located around the CLARICOVER®
 - Enables the air to flow from inside the CLARICOVER® and into the air treatment system
 - Mechanically driven valves are able to finely regulate the working pressure inside the cover



CLARICOVER® (CONT'D)



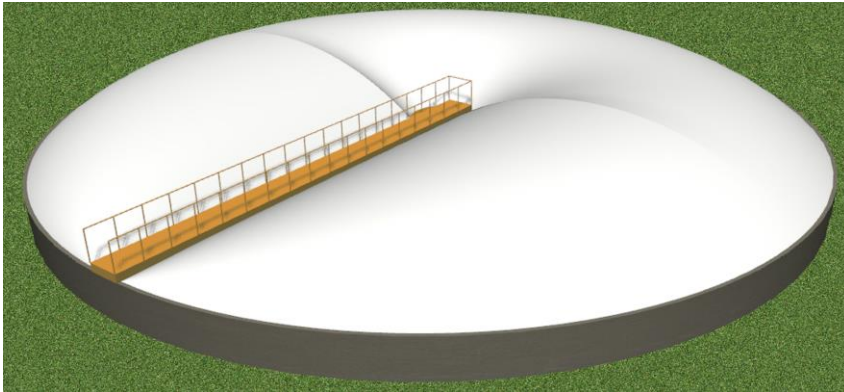
- A **control system** regulates the running time and speed of the air fans based on the signal coming from pressure gauges that measure the operating pressure inside CLARICOVER®
 - In case of danger, the control system can stop the rotation of the clarifier's radial bridge
- The **entrance chamber room** serves as pressure compensation chamber between the atmospheric outer pressure and the higher inner pressure inside the CLARICOVER® that operates at 2 inWC
 - Can be located on the existing overflow pit of the tank

CLARICOVER® (CONT'D)

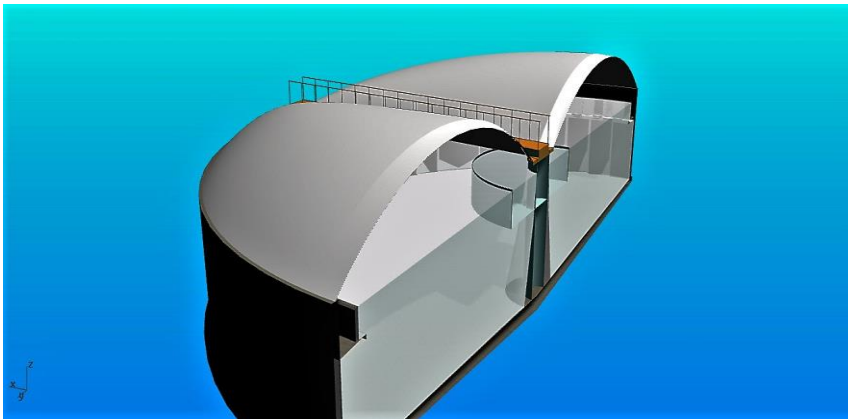
- Based on the individual needs of each customer, the CLARICOVER® can be customized to include the following **accessories**:
 - Inspection windows provide a view inside the CLARICOVER®
 - Internal lighting for nighttime illumination
 - Safety rope system located around the perimeter of the structure wall



CLARIFIX®



CLARIFIX: Cover w/ Radial Bridge



CLARIFIX: Typical Section

- Designed for primary and secondary clarifiers which utilize a non-rotating bridge
- The CLARIFIX® incorporates many of the same features found in the CLARICOVER®, including:
 - Pressurized spherical membrane cover
 - Air pressurization system
 - Air regulation valves
 - Control system
 - Manhole providing access inside the cover
 - Inspection windows
- The CLARIFIX® is a great option for customers desiring heat retention at an economical cost

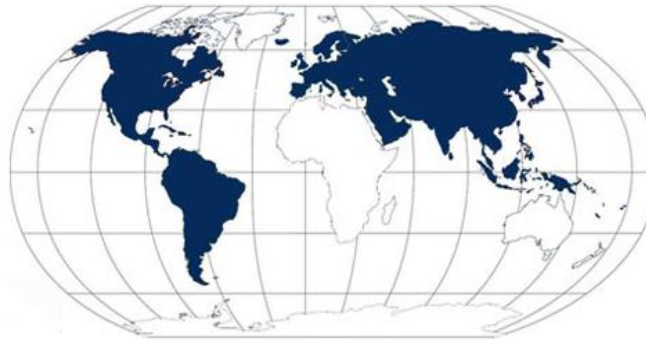


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