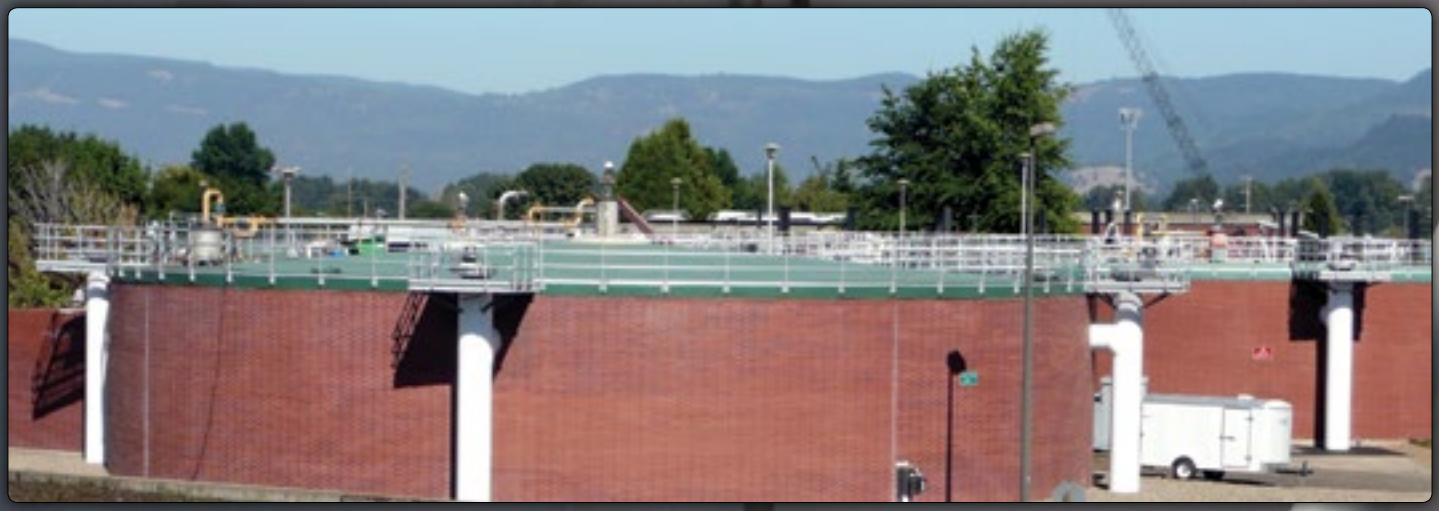
Olympus Technologies, Inc.

Anaerobic Digestion Equipment

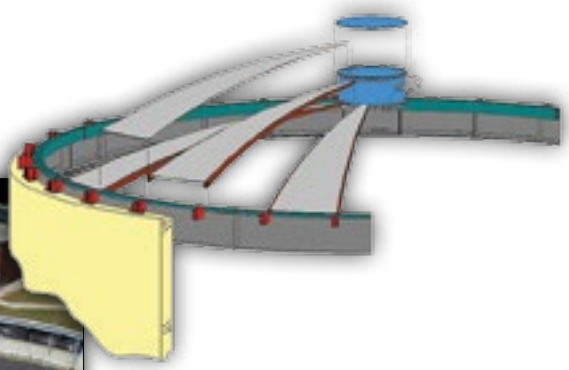


www.oti.cc | Quality Always Since 1979 | 541·689·5891

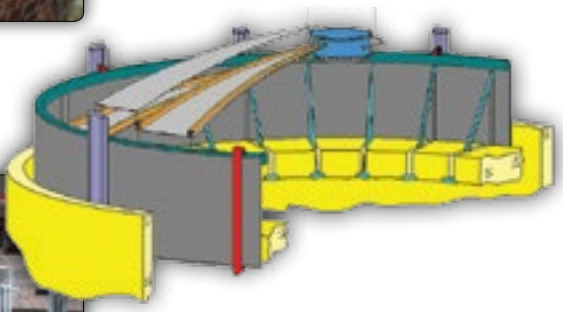
Olympus Technologies

Digester Covers

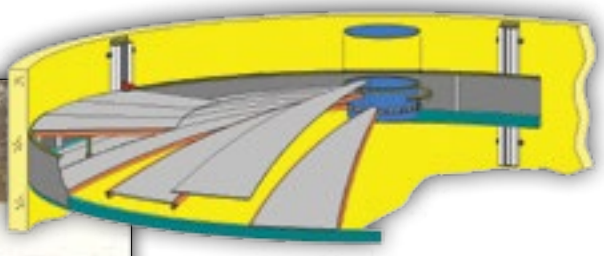
All OTI covers are designed as a ***shell membrane*** with ***arched radial field assembly beams.*** Perimeter thrust and center compression rings are sized to resolve all live, dead and operational forces.



Fixed digester covers are anchored to the top of the tank walls and are typically used on primary digester tanks operating with constant sludge levels.



Gasholder covers move up and down with varying sludge level and with changes in gas volume stored. They are used for gas and sludge storage, often on secondary digester tanks. OTI's innovative, maintenance-free slide/guides, for even and balanced cover travel, are designed for all specific operating conditions.



Bouyant covers float on the sludge and move with changes in sludge level. These covers are generally used with sludge storage tanks or on primary digesters where a constant sludge level cannot be maintained and where gas storage is not required.

OTI

www.oti.cc

Quality Always
Since 1979

- To ensure the highest quality possible, all digester covers, mixers and heat exchangers are **designed and fabricated** at OTI's facilities and by OTI employees.
- Digester covers are carefully detailed to **eliminate acute angles at connect points** which simplifies assembly and painting operations.
- Buoyant and Gasholder covers come with OTI's innovative sturdy **maintenance-free vertical slides and guides** to ensure stability through the entire range of cover travel.
- Design computations specific for **building the cover on the ground** can be provided at no additional cost. When erection is completed, OTI provides **structural lugs** for use in lifting the cover into the tank.
- OTI's "X" cover designs have the **radial assembly beams on top of the cover plates** making it easier to complete sandblasting and painting of the interior surfaces and simplifying the application of insulation to the top of the cover.
- Prior to shipping at least a quarter section of every cover is **shop assembled as a final quality check** for fit up.
- Using **unique concrete ballast configurations** for Buoyant and Gasholder covers, operating, waste gas and pressure relief settings can be **customized for specific project requirements**. Some of these ballast designs will also save weeks in cover installation labor.

OTI's EZup™ cover designs offer the following advantages and savings:

EZup panels consisting of two radial beams and one pie-shaped cover plate pre-assembled and welded at the factory.

Weld joint preparation and lifting lugs on all side skirt assemblies.

Reduced field welding.

Reduction of field handling and assembly time because larger but fewer components are shipped.

A simplified approach for placing the EZup panels and cover closure plates.

Cover lifting design information and lugs for lifting covers into the tanks.

OTI's unique Bouyant and Gasholder cover guides can be installed before or after placing the cover into the tank to help with various assembly sequences.

Olympus Technologies

Draft Tube Mixers

OTI Draft Tube Mixers are ***high volume, axial flow machines*** designed to mix and to turn over the digester tank contents in accordance with the EPA, WEF and ASCE recommended guidelines.

All OTI mixers include non-fouling, reversible propellers. Periodically reversing the rotation of the motor will change the direction of the mixer pumping action and also change the mixing flow dynamics in the tank.

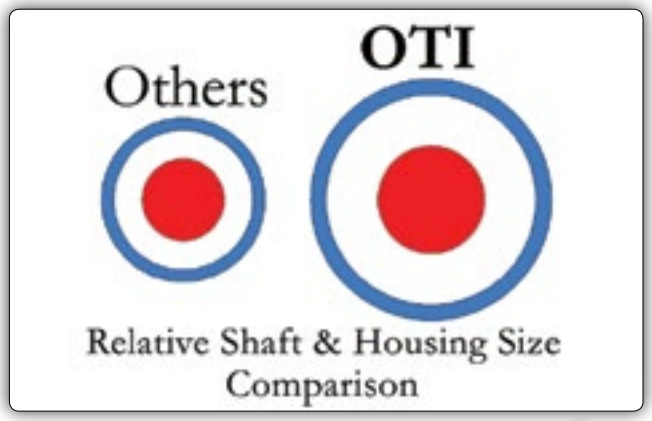
Model E mixers are located outside of the tank and are easily provided with heat exchange jackets as part of the draft tube design.

Model N3, NH and SB mixers can be mounted on fixed or floating digester covers. The Model N3 and NH mixers come standard with a lower draft tube extension mounted to the tank floor. This lower extension includes a section which telescopes with the upper cover mounted draft tube to maintain good, top to bottom mixing, regardless of the cover travel position.

OTI

www.oti.cc

Quality Always
Since 1979



OTI has addressed and resolved

mixer performance issues related to mechanical and hydraulic vibration, lower seal/bearing wear, lubrication and field servicing that have been ongoing concerns with draft tube mixers provided by other manufacturers:

Mechanical vibration has been addressed using larger drive shafts and housings. This reduces shaft and housing deflection, which greatly reduces vibration and wear on mechanical seals that protect the bearings.

Hydraulic Turbulence: Depending on the final mixer design configuration and shaft length, extra structural shaft housing support or OTI's exclusive PCD (Positive Centering Device) is added to help control and minimize the effects of hydraulic turbulence, adding service life to the equipment.

Bearings and Seals: The lower shaft bearings and seals are factory assembled in a meticulously machined seal/bearing cartridge under "clean room" conditions. This high quality cartridge, along with larger and stiffer mixer shaft, adds to seal and bearing service life. Field replacement of seals and bearings is fast and easy by simply replacing the cartridge. OTI can renovate the old cartridge with new seals and bearings to an "as new" condition, ready for use in future years.

Drive Belts: To replace or adjust the tension of the drive belt, the entire motor base assembly is easily rotated. Easy to remove and install belt guards help reduce service time to minutes. Rust prone, belt adjusting threaded rods, used by other suppliers, have been replaced with a heavy-duty, ACME galvanized steel threaded screw and carrier assembly, which provide a fast and smooth method for adjustment of belt tension.

Olympus Technologies

Heat Exchangers

OTI is accredited for design and fabrication of pressure vessels under the ***ASME "U" symbol stamp*** and for repair under the ***National Board "R" symbol stamp***. Our QC/QA programs meet or exceed the stringent quality requirements of these internationally recognized organizations.

Custom concentric tube units have been designed with 4″ to 14″ sludge tubes. The concentric tube units are configured with the sludge tubes enclosed by hot water tubes. Sludge is pumped through the inner tube while hot water is pumped through the outer tube. Heat transfer takes place across the sludge tube wall. ASME certification is available.

Draft tube heat exchange jackets use stainless steel materials for the heat transfer surface. The heat transfer section is enclosed with a steel shell, with baffles to direct flow in the annular sections. Hot water flows through the annular sections as the mixer pumps sludge through the draft tube and heat exchanger jacket. The heat is transferred across the stainless steel section of the draft tube. Nearly a quarter of OTI's Model E mixers are supplied with heat exchange jackets.

OTI

www.oti.cc

Quality Always
Since 1979

Digester Accessories

OTI provides a wide range of digester related accessory items and often fabricates custom designs to complete the digestion system.

Among many items provided are...

- Digester Viewing Ports
- Supernatant Removers
- EZLift™ Manhole Lids
- Foam Separators
- Hot Water Boiler Packages
- Access Stairs and Steps
- Maintenance and Service Platforms
- Safety Rails
- Concrete Wall Access Ports

Digester Viewing Ports are 10″ diameter and provided with a butterfly isolation valve with stainless steel valve disk to protect the tempered glass when the port is not in use. The glass can be removed periodically for cleaning without depressurizing the digester. These ports are designed for steel or concrete covers or for mounting on manhole covers.

Foam Separators are made of stainless steel with internal baffling and fine water spray nozzles to separate the foam from the take-off gas, to help protect pressure/vacuum relief valves and flame arresters and other gas safety and utilization equipment.

Hot Water Boiler Systems: OTI provides engineering, packaging and assembly services necessary to produce skid-mounted, hot water boiler systems. These units are designed to operate using digester gas as a primary fuel. Natural gas, fuel oil, propane, etc. can be used as a secondary fuel source. The burners are multiple orifice type, with a forced draft fan for intimate mixing of air and fuel for high combustion efficiency. Piping arrangements are customized and can be provided to fit into practically any flow scheme. Boiler systems can be custom designed with OTI's concentric tube heat exchanger in stacked or side-by-side arrangement, with all interconnecting water piping pre-assembled.

EZLift™ Manhole Lids have special handles, a mechanical lever, swivel post and locking mechanism which allow operators to quickly and safely open, lift and rotate the cover away for easy access to the manhole. Standard sizes are 36″, 48″ and 60″ but custom sizes are available.

Customer Comments

"OTI's four, 60-foot diameter Model 60G Gasholder covers were field assembled and installed without a hitch. OTI's eight, 10hp Model E external draft tube mixers are the smoothest running units that I've ever encountered."

–HNTB Engineers

"We are responsible for the installation of the lids and find both the floating and fixed cover to be of high quality workmanship with excellent installation instruction."

–Weaver General Construction Co.

Olympus Technologies, Inc.

1296 Bethel Drive, Eugene, Oregon 97402

541·689·5851 | 541·689·5818 Fax

OTI

www.oti.cc