



CONTINUOUSLY SEQUENCING REACTOR

Digester/Thickener



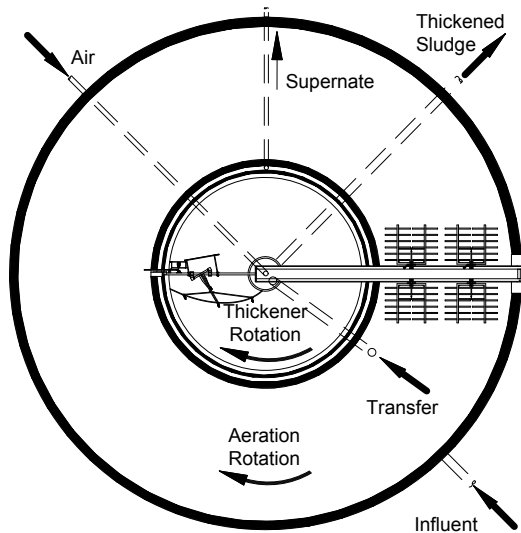
Schreiber handles sludge treatment with a unique all-in-one digester and thickener configuration.

Digester/Thickener Configuration

Schreiber's Digester/Thickener configuration utilizes Schreiber's Continuously Sequencing Reactor (CSR) system to provide high efficiency aeration and separate low energy mixing for aerobic sludge stabilization and gravity thickening. The Digester/Thickener unit incorporates sludge stabilization and thickening within a concentric basin arrangement for optimum space utilization.

The Digester/Thickener model utilizes a circular tank with an outer digester diameter up to 168' with typical sidewater depths from 10' to 20', coupled with an inner concentric gravity thickener. Circular structures provide economical construction and minimal site requirements. A concentric internal wall

is built within the digestion tank to form the thickener structure. In the digester, flexible membrane diffusers are suspended just inches above the basin floor from a peripherally driven rotating aeration bridge. The continuous rotation of the bridge in the digester channel provides constant mixing (separate from aeration) with minimal energy consumption. The motion of the diffusers through the water provides independently controllable, enhanced fine bubble aeration for high oxygen transfer efficiency. Since the bridge motion provides the mixing energy, the design permits 100% turndown of aeration. The stabilized sludge is transferred to the thickener section by gravity on either continuous or intermittent basis. In the thickener, sludge compacts by gravity. Peripheral drive helical scrapers transport the thickened sludge to a central hopper for withdrawal to final disposal or recirculation.



FEATURES

- Separation of aeration from mixing
- High oxygen transfer
- Retrievable membrane diffusers
- Low mixing costs
- Minimal head loss and aerosol release
- Low life-cycle costs
- Maximum process flexibility

PROCESS CONTROL

With the CSR, the air to the diffusers may be turned off as the aeration bridge continues to mix the contents of the basin, while the continuously rotating aeration bridge maintains the organics in suspension. When combined with Schreiber's automatic D.O. control system and high efficiency blowers, the blowers only operate as necessary to maintain aerobic conditions and match the actual oxygen demand, which results in minimal power consumption. When compared to conventional aerobic digestion, operating costs can be reduced by 50 percent.

By adding sludge transfer pumps, thickener underflow can be recirculated to the digester to increase the solids retention time (SRT), which will improve stabilization and increase the thickened sludge concentration. The digester and thickener may be configured as shown in the above drawing or split into separate basins. Where a gravity thickener is not desired, the digester may be decanted to provide batch thickening. The benefits are the same regardless of the configuration.