SCHREIBER

CSR

CONTINUOUSLY SEQUENCING REACTOR

GR Configuration

Aeration/Clarification
in a single basin -
suitable for ADF's
up to 1.5 MGD.

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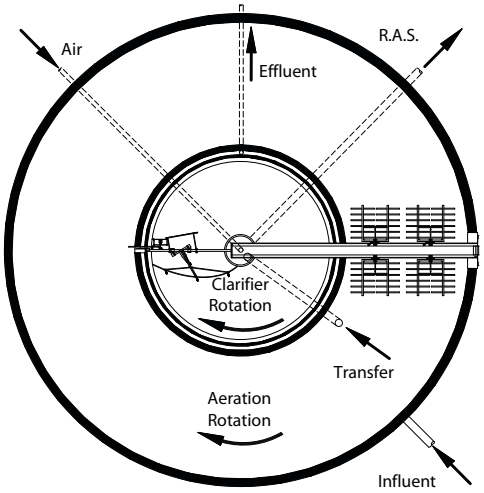
GR Configuration

Schreiber's Model GR basin configuration utilizes Schreiber's *Continuously Sequencing Reactor (CSR)* system, to provide high efficiency aeration and *separate* low energy mixing for activated sludge. Designed for smaller flows, the GR unit incorporates aeration and clarification within the same structure for optimum space utilization. A single GR aeration / clarification basin is capable of handling average daily flows to 1.5 MGD.

The GR model utilizes a circular tank with an aeration diameter up to 168' with typical sidewater depths from 10' to 20'. Circular structures provide the most economical construction - minimum concrete and excavation with maximum basin volumes. A concentric internal wall is built within the aeration tank to form the clarifier structure. Helical scraper assemblies are suspended from a lightweight horizontal arm that rotates within the clarifier section via peripheral drive. Independent from the clarifier arm, flexible membrane diffusers are suspended just inches above the basin floor, within the aeration ring, from a peripherally driven rotating aeration bridge. The continuous rotation of the bridge in the aeration ring provides constant mixing (separate from aeration) with minimal energy consumption. The movement of the diffusers through the water enhances fine bubble aeration, achieving high oxygen transfer efficiency. The design of Schreiber's CSR permits 100% turndown of aeration while maintaining complete mixing.



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

The Schreiber Continuously Sequencing Reactor, or CSR, is a Biological Nutrient Removal (BNR) system contained in a Single Basin. It sequences through the 3 process phases required for BNR – Oxic, Anoxic and Anaerobic – in one basin. The 3 phases do not occur at the same time in the basin. They occur sequentially – one after the other, repetitively, over time. During the Oxic phase, the entire basin is Oxic (i.e. aerobic). When the air is turned off, the entire basin becomes anoxic and then ultimately anaerobic. After the anaerobic phase is completed, the air is turned back on and the cycle repeats –over and over - i.e. a Continuously Sequencing Reactor.

For the CSR, the secret to this "phase sequence-ability" lies in its unique design for complete separation of aeration and mixing. It has a 100% aeration turndown capability! This important feature allows the aeration to be turned completely off while the CSR applies its low energy mixing without aeration. Through the use of Schreiber FlexControls, the CSR process can be advanced to meet the most stringent of requirements for today and the future.

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