



CONTINUOUSLY SEQUENCING REACTOR

GRO Configuration



Aeration-only in a
single basin suitable
for ADFs from 75,000
GPD up to 3.0 MGD.

GRO Configuration

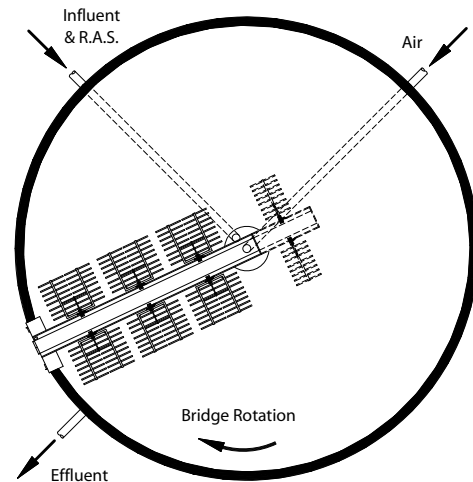
Schreiber's Model GRO basin configuration utilizes Schreiber's Continuously Sequencing Reactor (CSR) system to provide high efficiency aeration and separate low energy mixing for activated sludge. Designed for larger flows and loadings, the GRO configuration provides maximum aeration capacity within a single basin. A single GRO aeration basin is capable of handling average daily flows to 3.0 MGD.

The GRO model utilizes a circular tank up to 184' in diameter with typical sidewater depths from 10' to

20'. Circular structures provide the most economical construction - minimum concrete and excavation with maximum basin volumes. Flexible membrane diffusers are suspended from a peripherally driven rotating aeration bridge with the diffusers just inches above the basin floor. Continuous rotation of the bridge 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 – Oxidic, 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 Oxidic phase, the entire basin is Oxidic (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.