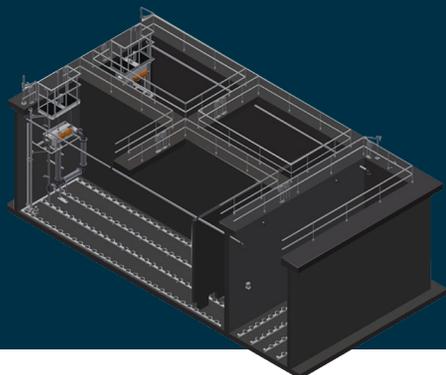


WATER & WASTEWATER





Industrial Service Solutions



Sequence Batch Reactors (SBR)

Clean water made easy

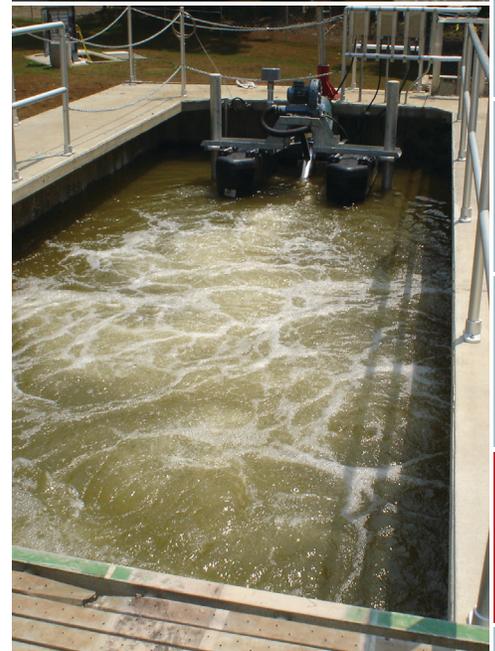
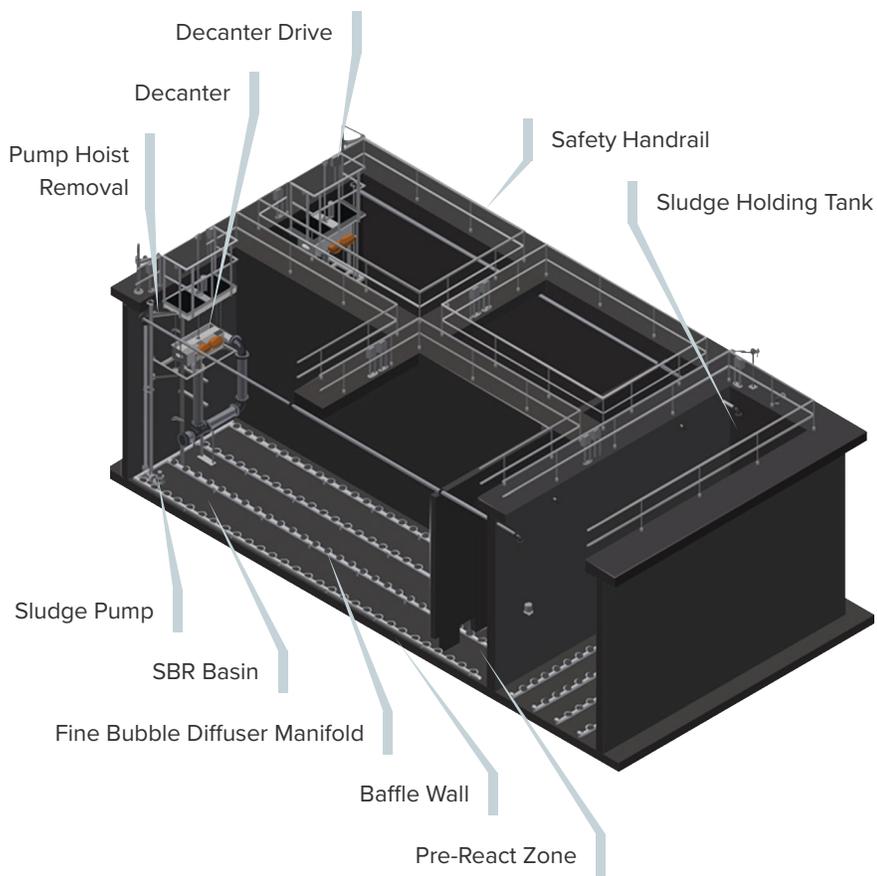
APPLICATIONS

- + Municipal / Sanitary
- + Industrial Wastewater
- + Food Processing Wastewater

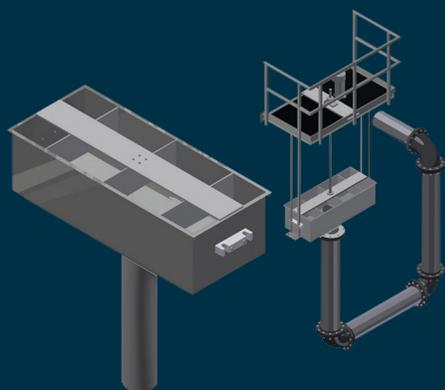
FEATURES

- + One tank for all cycles/steps: Fill, React, Settle, Decant, and Idle
- + Complete effluent treatment, including nutrient removal
- + Tolerates variable hydraulic and organic loading
- + Offered in both continuous and batch operating modes
- + Precisely controlled positively driven jack screw decanter
- + Stainless steel decanter with float activated scum prevention door
- + PLC (Programmable Logic Controller)

The Sequence Batch Reactor (SBR) is an aeration process for the complete treatment of municipal, industrial, and agricultural wastewaters. The process takes place in a single tank and is capable of removing BOD, ammonia, suspended solids, and nutrients. Sewage is treated in a series of four distinct sequences. An initial fill cycle allows raw sewage to enter the tank. An aeration cycle then begins converting nonvolatile sludge and oxidized ammonia to nitrate. After the aeration cycle is complete, a precipitation phase allows the sludge to settle under quiescent conditions. Treated effluent is then decanted from the tank during a decant phase, after which, the cycle is repeated. A SBR will typically consist of two or more tanks, allowing one tank to discharge treated effluent while another tank is available to accept sewage flow. The process contains minimal basin equipment ensuring affordable capital cost. The simple design and ease of operation ensures reduced maintenance and operation expenses.



- CONTROLS
- ENERGY STORAGE
- MOTORS
- PUMPS
- VALVES
- COMPRESSORS
- PNEUMATICS
- SAWMILLS
- METAL RECYCLING
- TRANSIT & RAILROAD
- WATER & WASTEWATER
- DIMENSIONS & MOUNTING



SBR Decanters

Vertically driven & highly reliable

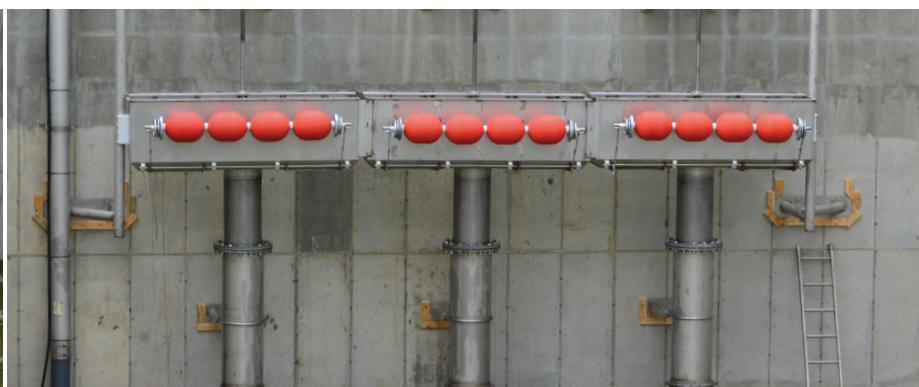
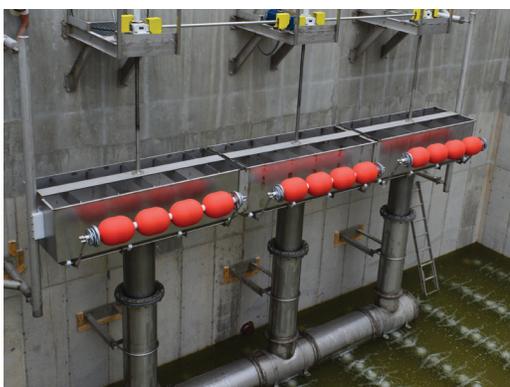
FEATURES

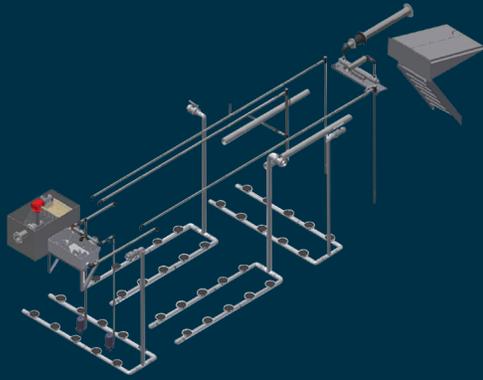
- + Visible decanter weir from basin walkway allows operator to maintain effluent quality visual
- + Decants from top and moves downward preventing disruption of solids and withdraws only clear water
- + All maintenance performed from safety platform

APPLICATIONS

- + Municipal / Sanitary
- + Industrial Wastewater
- + Food Processing Wastewater

The heart of every Sequence Batch Reactor (SBR) system is the decanter. The decanter is responsible for removing clarified effluent from the basin during the decant phase of the sequence cycle. The decanter is installed on the basin wall supported by a stainless-steel fabrication, grating and railing provides a stable platform for maintenance and plant operators. The decanter is lowered and raised using an electro-mechanical jack screw actuator. The actuator moves the decanter between two set point elevations from the “park” position to the bottom water level (BWL). The decanter parks above top water level during the aeration and settling phases of the cycle, thereby eliminating any possibility of solids carryover during these periods. The decanter operation and speed is controlled through use of a variable frequency drive (VFD). As a result, the decanter discharge rate is constant from the time the decanter enters the water to the time it reaches the BWL. Effluent volume per linear foot of weir is controlled and constant versus gravity style decant systems. At “park” position, the decanter provides fail-safe overflow protection in the event of a power failure. Settled supernatant flow raise the scum gate floats allowing water to flow under the scum baffle and over the decanter weir free of floatable scum under power failure or storm mode.





Extended Aeration

Engineered to optimize performance

FEATURES

- + Simple low cost design
- + Minimal sludge production
- + Constructed from concrete and epoxy
- + Coated carbon steel for long lasting corrosion-free service
- + Air-operated lift pumps
- + Flexible process that can treat a wide range of wastewater
- + Can be designed with de-nitrification

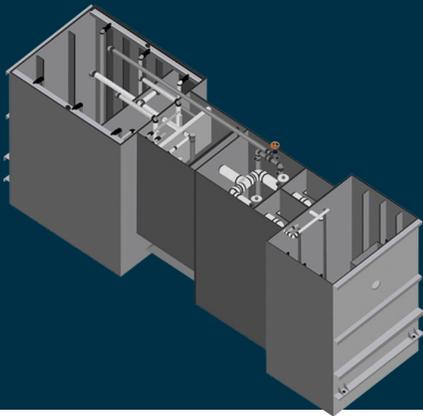
APPLICATIONS

- + Municipal / Sanitary
- + Industrial Wastewater
- + Food Processing Wastewater

The extended aeration wastewater treatment plant is based on a time-proven, conservative process design, and engineered to optimize performance. Extended Aeration wastewater treatment plants are one of the simplest, economical and most versatile methods available to treat sanitary, industrial or agricultural wastewater. Treatment plants meet or exceed effluent parameters for most wastewater applications and are economical to install and operate.

Extended Aeration treatment plants provide the proper environment, sufficient oxygen, and other elements which allow the bacteria to consume the organic matter to live and multiply within the treatment plant. In this way the aerobic bacteria and microbes decompose the sewage and waste to a stable form free of odor and costly maintenance. Each plant consists of two major compartments, the main aeration chamber and a clarifier or settling tank. After initial screening, the wastewater enters the main aeration tank, which has a retention time of approximately 24 hours. Here, natural bacteria feed on the organic fraction of the sewage and reduce Biochemical Oxygen Demand (BOD) concentrations. The partially treated sewage then flows to the final settling tank for clarification prior to discharge. The effluent may be filtered and disinfected, depending on discharge permit requirements.





Denitrification & Tertiary Filtration Systems

Time proven: tried & tested

FEATURES

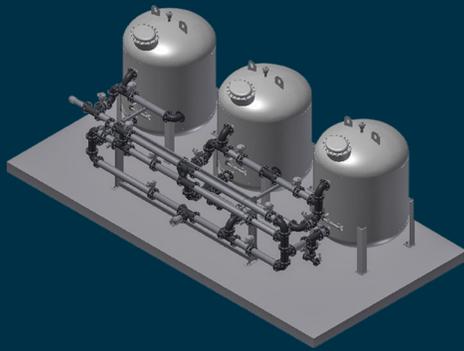
- + Enhanced carbon feed source control and monitoring
- + Wide selection of level controls
- + Highest quality grade of media
- + Backwash and air scouring systems & control optimization
- + Simple operator controls and optional system integration into existing plant control panel
- + Operator training and field service support

Our denitrification and tertiary filtration systems provide a time proven process for the reduction of nutrients as well as suspended solids from the effluent of wastewater treatment plants. The process accepts secondary effluent by gravity or lift station to a distribution box with automatic control valves. The distribution box and control valves direct water to each filter cell in proper sequence. The anoxic biological process and conversion of nitrate-n to elemental nitrogen gas takes place on a fixed film of bacteria residing on and within a coarse mono media. The down flow design of the “De-nite” filter effectively reduces suspended solids and phosphorus by addition of alum and mechanical filtration through the bed. The anoxic bacteria require a carbon source as supplement which may include methanol, acetic acid and other proprietary chemistry.

APPLICATIONS

- + Municipal / Sanitary
- + Industrial Wastewater
- + Food Processing Wastewater





Iron & Manganese Filters

Higher capacity & higher volume

FEATURES

- + Tanks constructed from FRP and carbon steel per ASME Section VIII
- + Stainless steel distribution and collection manifolds
- + Stainless steel air scour piping
- + Pneumatic or electric valves
- + Carbon steel face piping, cement lined rubber, HDPE or stainless steel as option
- + NEMA 4 painted carbon or stainless steel control panel with PLC and HMI touchscreen

Iron and manganese filters are engineered and designed to meet our customer's specific requirements. The process utilizes Greensand Plus®, which is superior to conventional glauconite manganese greensand and synthetic catalyst. Greensand Plus® eliminates the need for potassium permanganate regeneration and may be regenerated with chlorine, hypochlorite or any strong oxidant. It has significantly higher capacity, which results in higher volume throughput, reduced backwash cycles, and volume of waste to drain. Systems come complete with all face piping, blowers, automatic valves, and controls for proper operation.

APPLICATIONS

- + Municipal / Sanitary
- + Industrial Wastewater
- + Food Processing Wastewater





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