



Bioclere w/ Tertiary ANOX-MBDR

AQUAPOINT ANOX-MBDR Moving Bed Denitrification Reactor

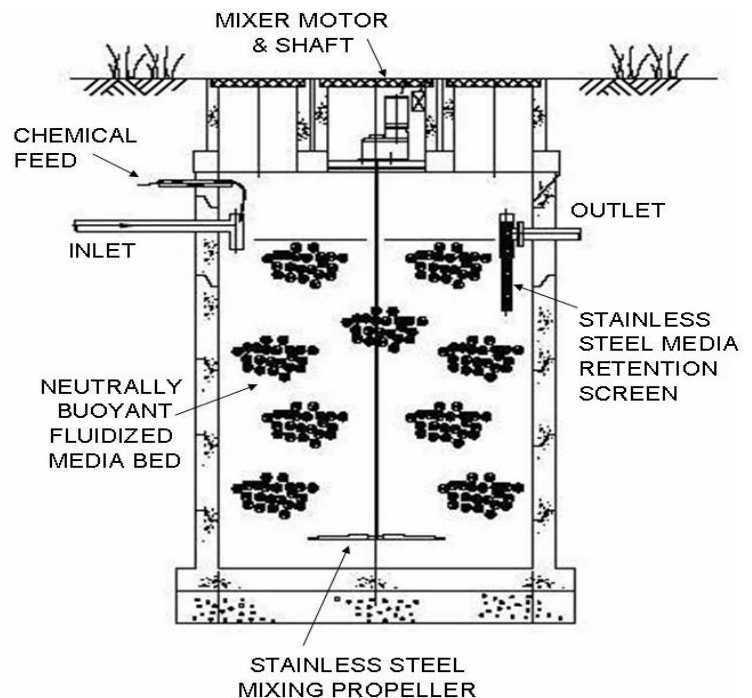
The Aquapoint ANOX-MBDR provides a suitable environment to initiate and complete biological denitrification. Biological denitrification is the reduction of nitrate to nitrogen gas by facultative heterotrophic bacteria in the presence of a soluble carbon source.

The ANOX-MBDR can be designed to precede or follow secondary treatment where ammonia is converted to nitrate. Pre-ANOX Reactors use nitrified water re-circulated from secondary treatment and organic carbon present in the influent waste stream to achieve denitrification. Post-ANOX Reactors also use nitrified water from secondary treatment but incorporate a chemical feed system to dose external carbon to the reactor. The placement of the ANOX-MBDR is dictated by the level of denitrification that must be accomplished and the availability of organic carbon in the influent waste stream.

Submerged in the ANOX-MBDR is neutrally buoyant, free moving media on which the bacteria adhere and reduce the nitrate in the waste stream. A mechanical mixer completely mixes the water and media ensuring contact of the carbon source, nitrate and bacteria. Biomass that sloughs from the media is settled in a final settling tank or clarifier and re-circulated to the primary tank or sludge holding tank via a sludge return pump. Operation of the mechanical mixer, the sludge return pump and the chemical feed pump is automatic and fully adjustable. Audio and visual alarms are installed to detect pump and motor failure.

FEATURES AND BENEFITS

- Will achieve <5 mg/l total nitrogen (TN)
- Will achieve <1 mg/l nitrate-N (NO_3)
- Designed for denitrification using influent organic carbon or an external carbon source
- Energy efficient process
- Minimal O&M requirements
- Modular units for varying hydraulic capacity
- Odor free, quiet processing
- Above ground or in ground installations
- Stainless steel or concrete vessels



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Bioclere w/ Tertiary ANOX-BDR

AQUAPOINT ANOX-BDR Biological Denitrification Reactor

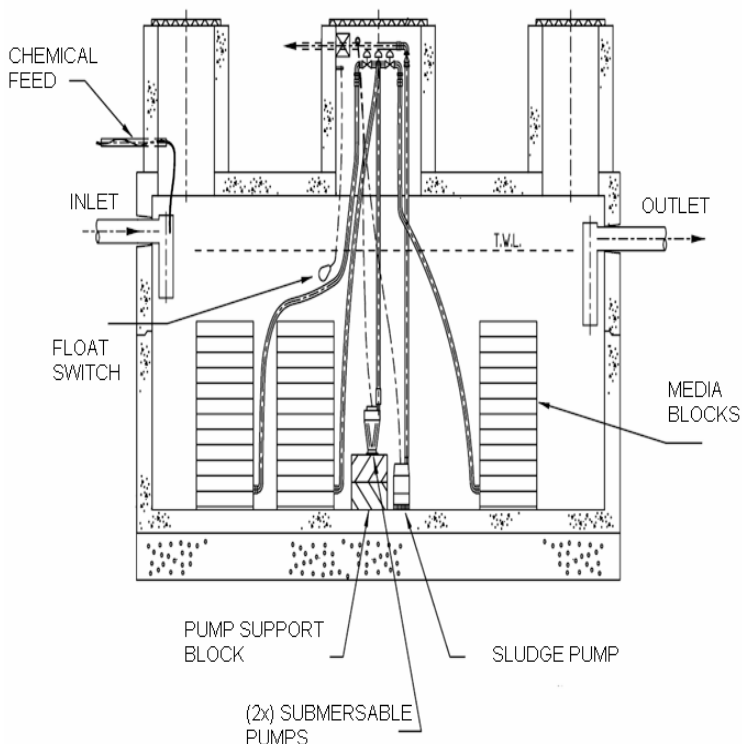
The Aquapoint ANOX-BDR provides a suitable environment to initiate and complete tertiary biological denitrification. Biological denitrification is the reduction of nitrate to nitrogen gas by facultative heterotrophic bacteria in the presence of a soluble carbon source.

Nitrified effluent is pumped or flows by gravity to the ANOX-BDR. An electrical signal from the pump or flow meter will energize a chemical feed pump that transfers organic carbon to the inlet of the chamber.

Submerged in the ANOX-BDR are PVC media blocks on which the bacteria adhere and reduce the nitrate in the waste stream. Submersible pumps operating on a duty cycle of approximately 50% will circulate water through the media blocks, ensuring contact of the carbon source, nitrate and bacteria. Sloughing from the media blocks is re-circulated to the primary tank via a sludge return pump. Operation of the two circulation pumps, the sludge return pump and the chemical feed pump is automatic and fully adjustable by the system operator. Audio visual alarms are installed to detect pump failure.

FEATURES AND BENEFITS

- Will achieve <5 mg/l total nitrogen (TN)
- Will achieve <1 mg/l nitrate-N (NO_3)
- Designed to achieve tertiary denitrification using an external carbon source
- Energy efficient process
- Minimal O&M requirements
- Modular units for varying hydraulic capacity
- Sealed for odor free, quiet processing
- Top of tanks set at grade
- Stainless steel or concrete vessels



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