



**evoqua**  
WATER TECHNOLOGIES



The addition of denitrification filters are perfect for existing installations required to incorporate nutrient removal due to stricter effluent regulations, without modifying or altering the existing equipment or treatment process.

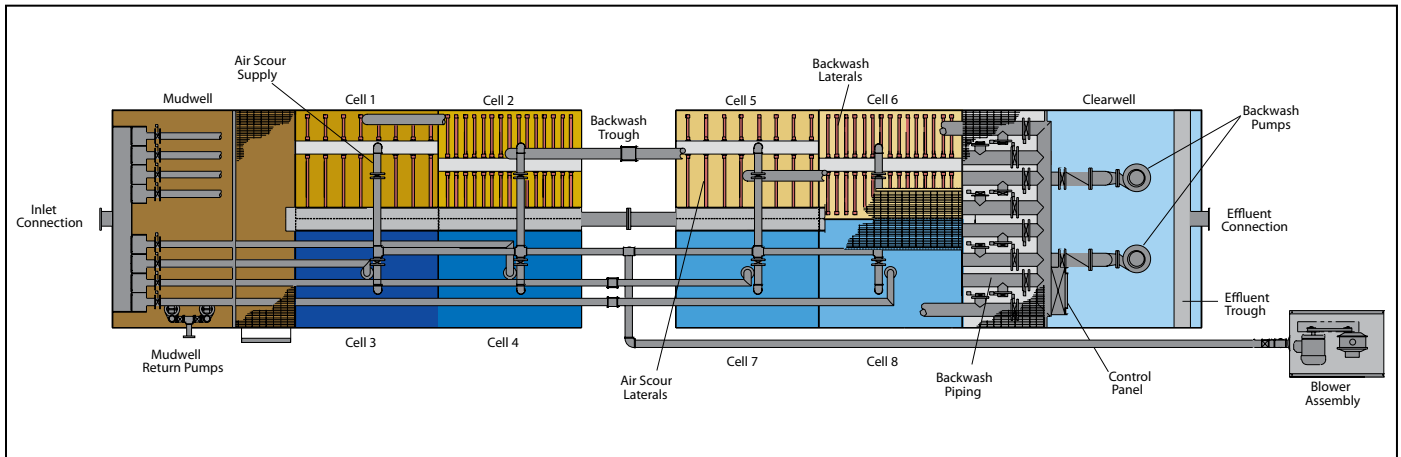
## **NxCLEAR® DENITRIFICATION FILTER**

Nitrogen in wastewater discharges causes excessive algae and plant growth in receiving streams. Regulators in many areas of the country are therefore requiring more extensive treatment for nitrogen compounds to minimize the impacts on our lakes and rivers.

The NxClear® Denitrification Filter from Evoqua Water Technologies is an advanced wastewater treatment process that converts harmful nitrate-nitrogen into nitrogen gas. The process also simultaneously removes suspended solids from the secondary effluent. This makes the denitrification filter the ideal approach for upgrading existing secondary treatment plants to advanced wastewater treatment and tertiary filtration without modifying or altering the existing equipment or treatment process. Denitrification filters are a particularly good process choice when facing very low nitrate discharge limits.

Systems are available in factory built steel tank designs with flow ranges from 10,000 gallons per day (GPD) to 750,000 GPD or higher with multiple units. Component systems for concrete installations are available with flows from 200,000 GPD to several million GPD.

The filter receives a nitrified effluent from a secondary treatment plant or other source. Methanol is injected as a carbon source to sustain the growth of denitrifiers. Effluent flows downward through a deep bed of large spherical media. It then flows through the filter underdrain and to the clearwell.



The conversion of nitrate to free nitrogen is accomplished by denitrifying bacteria that grow on the media surface. The bacteria consume an added carbon source such as Methanol, and use the oxygen in the nitrate molecule. As a result, nitrogen gas is released. As the bacteria population increases, headloss builds up across the cells. Eventually, the filter must be air scoured and backwashed to remove excess bacteria and trapped solids. Air scour loosens the bacteria from the media, allowing the backwash flow to remove the excess bacteria and suspended solids from the filter bed.



Clearwell, pumps, and control valves are included in the complete denitrification filter steel package.

### FEATURES & BENEFITS

- Advanced PLC for completely automated operation and easy troubleshooting.
- One step tertiary filtration and denitrification saves on process conversion expenses.
- Isolated cells adapt to seasonal flow rates.
- Large, spherical media makes for easy cleaning.
- Ease of expansion to match increased flow capacity.
- Complete, factory built systems allow for easy installation and minimum required hook-ups.
- EMU pumps provide durability and dependability even during the harshest conditions.

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