



General Filter

# CenTROL<sup>®</sup>

Cluster Gravity Filter



**WESTECH<sup>®</sup>**

# CenTROL Gravity Filtration

For more than 50 years and with over 300 installations, the CenTROL cluster gravity filter has proven itself as the gravity filter system of choice. CenTROL filters consist of four filter cells clustered around a central distribution box and control column in a compact arrangement. This distributor box and column include filter inlet and backwash waste valves, simplifying the piping. By employing the MULTICELL® design, backwash supply water is produced by in-service filter cells, greatly reducing or eliminating backwash pumping and associated pumping costs. Hydraulic flow control in the CenTROL filter eliminates flow controllers and flow surges caused by sudden changes in flow direction. The CenTROL filter's elegant design provides simple operation with a smaller footprint and lower total ownership cost.

## CenTROL LP – Making a Good Thing Better

CenTROL LP cluster gravity filters are the newest generation of CenTROL cluster gravity filter systems. Building upon the proven design of the original CenTROL cluster gravity filter, the CenTROL LP features a lowered profile of the inlet distribution hydraulics, eliminating 18 to 60 inches of headloss as compared to other gravity filter systems.

## Innovative Design

The biggest advancement of the CenTROL LP filter is found in its distributor column design. Previous designs required a rectangular weir or siphon system for flow distribution, as well as butterfly valves mounted below the distributor box, adding height and headloss to the system. The CenTROL LP filter uses an adjustable circular weir which lowers the inlet hydraulic losses. It also features an innovative plunger valve design which moves the valve actuator to the top of the distributor column for easy access.



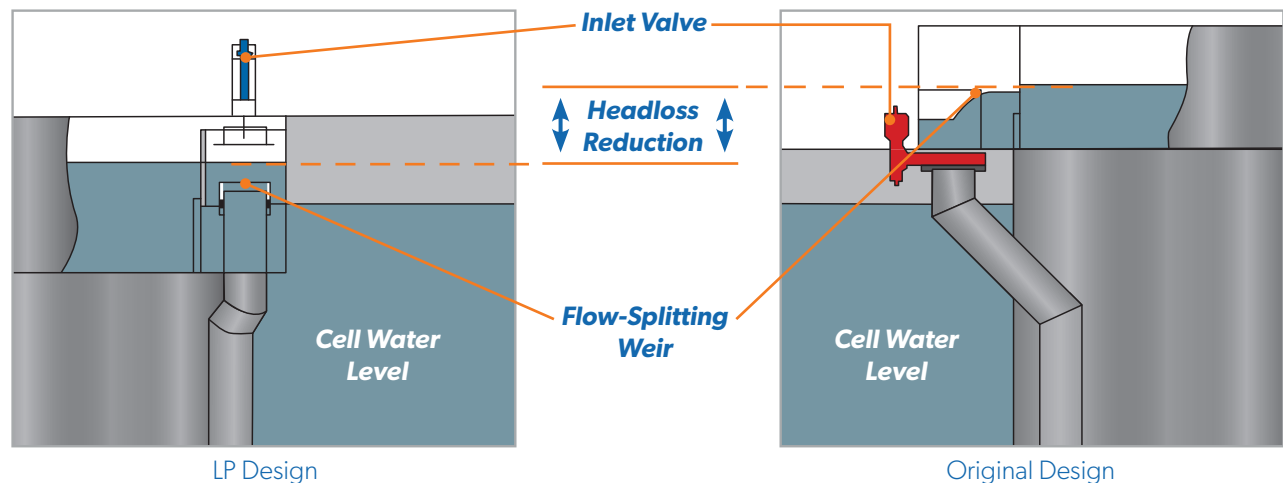
### Applications

Large Flow Gravity Filtration
Potable Water
Wastewater
Tertiary Denitrification
Phosphorus Reduction

## Benefits:

- **Low System Headloss**
- **Compact Footprint**
- **No Risk of Over-Pressurized Backwash**
- **Minimized Backwash Pumping**
- **Decreased Piping Requirements**
- **Pre-Fabricated Components**
- **Pre-Engineered System**

## Headloss Savings



LP Design

Original Design

# How It Works

## Simple Operation

↑ Pretreated water flows into the distributor column and is equally divided among the filter cells. By closing any individual cell inlet valve, that cell is removed from service and the flow is evenly distributed among the remaining in-service cells.

↑ In each filter cell, water is filtered and collected beneath the underdrain. Loss of head (filtering head) is observed by measuring the operating levels in each cell. As headloss increases, the operating water level rises until it reaches the maximum filtering head. At this point, the cell is backwashed.

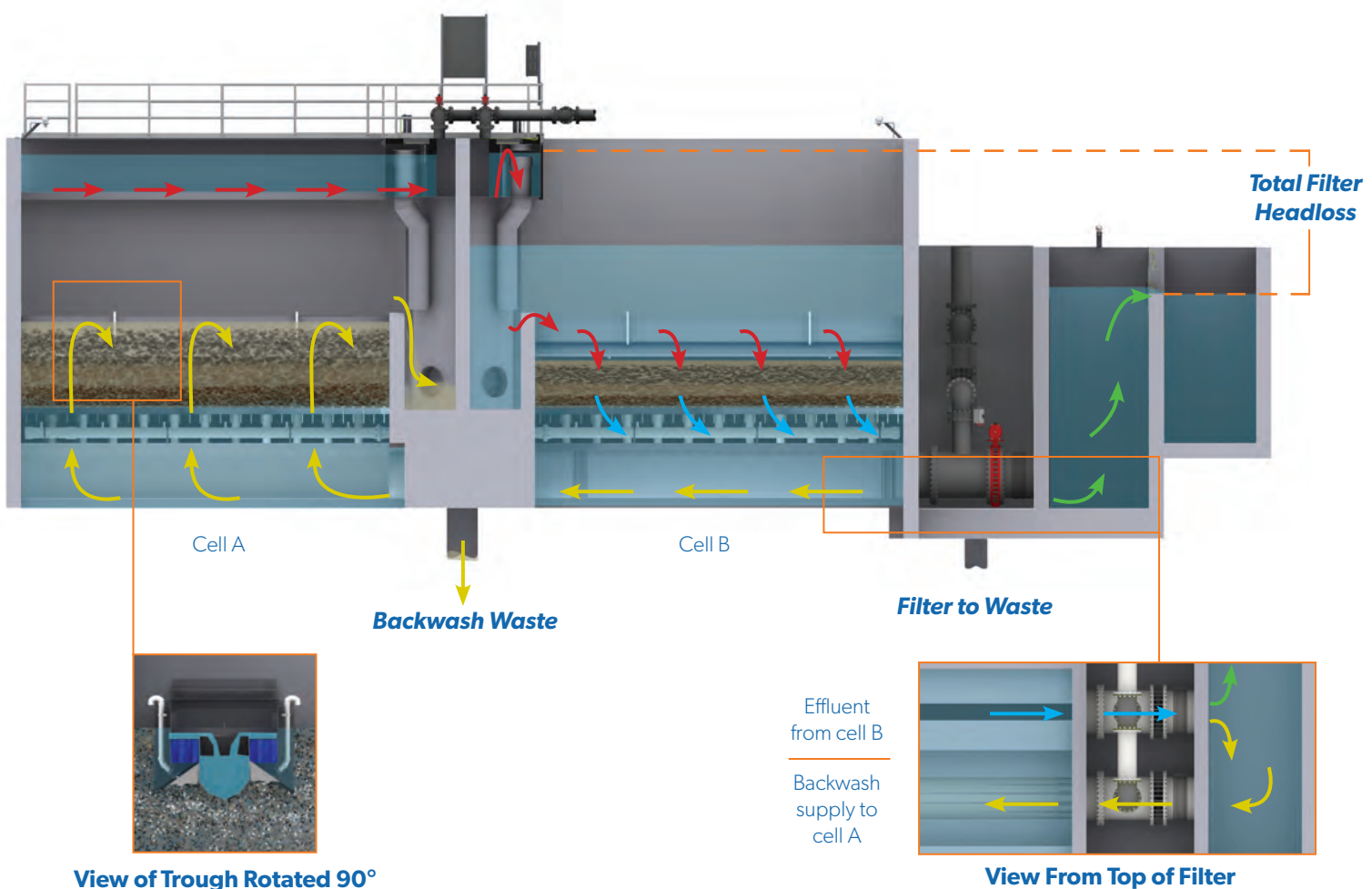
↑ Filtered water is collected in an effluent chamber common to all cells and then flows over the effluent weir to the clearwell. The effluent weir elevation is above the top of the filter media, therefore, the filters are always under a positive head. This eliminates the risk of dewatering the media without the need for rate of flow controllers.

## Backwash Without Pumps

↑ To initiate backwash in a filter cell, the cell inlet valve is closed. The cell will continue filtering until the water level lowers to an elevation just above the effluent weir. At this point, the backwash waste valve is opened and the water remaining above the washtroughs in the cell flows to waste.

The difference between the adjustable effluent weir and the top of the washtroughs is the backwash head. As the water level in the cell lowers below the effluent weir, water from the in-service cells flows backwards through the cell being backwashed.

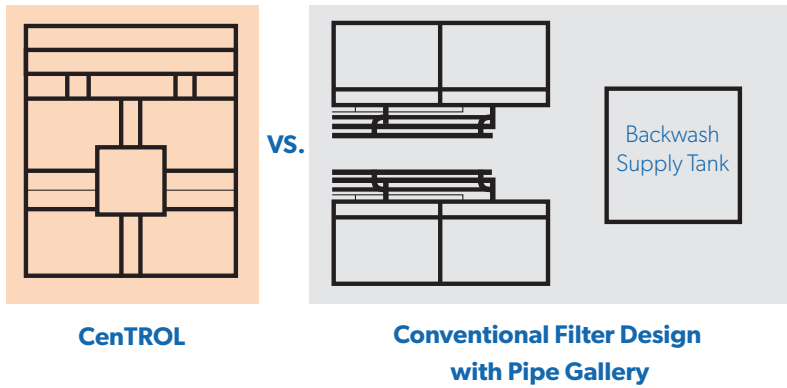
Any excess water produced by the in-service cells flows over the effluent weir to the clearwell. Upon completion of the backwash cycle, the backwash waste valve is closed and the inlet valve is opened. Gradually, the cell water level increases and the cell returns to the filter mode once the water level reaches the effluent weir elevation. A filter-to-waste cycle may also be included for potable water filter applications.



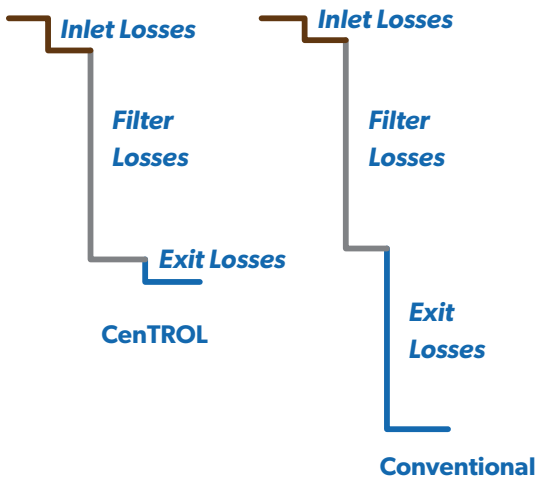


# Space Efficiency

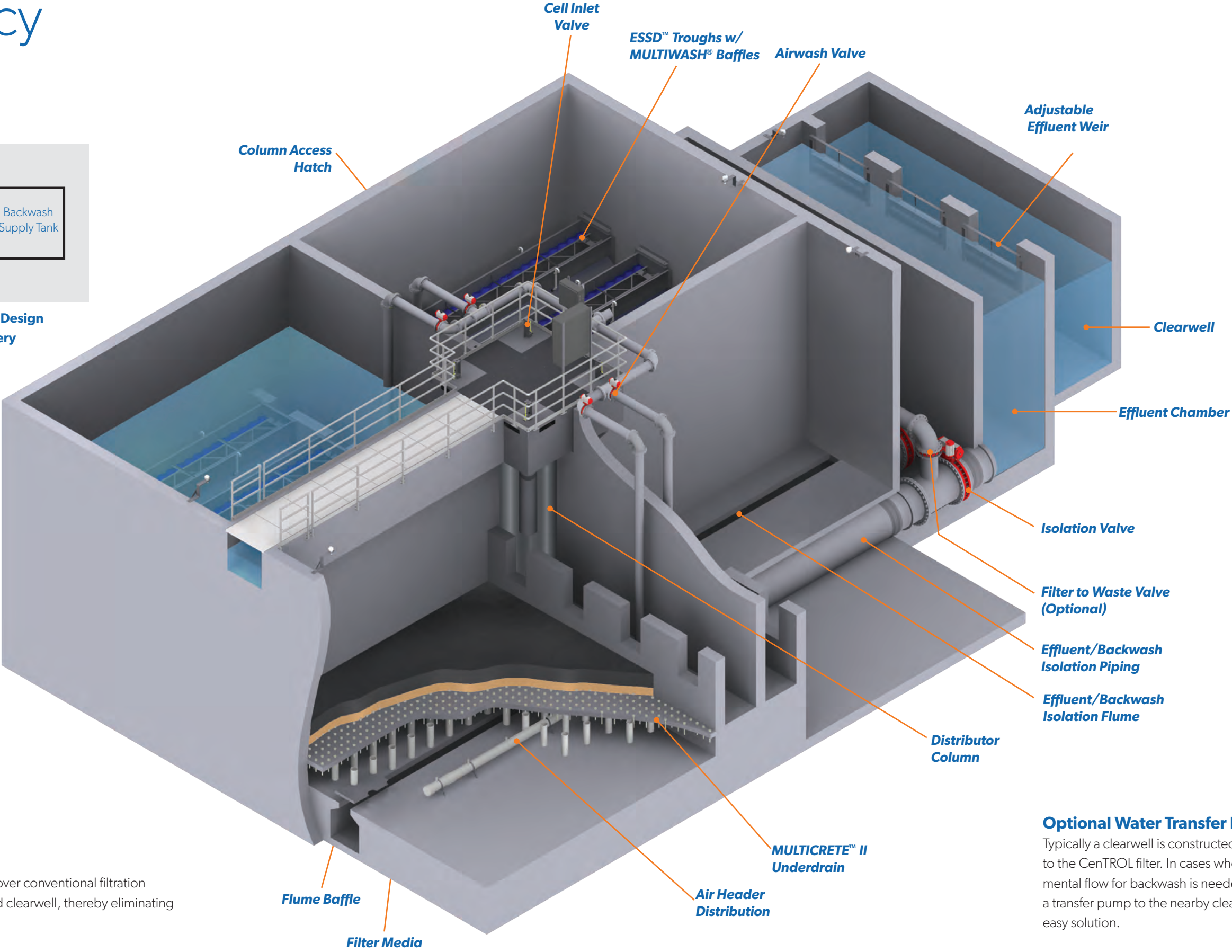
## Footprint Comparison



## Headloss Comparison



The CentROL provides a distinct economical advantage over conventional filtration arrangements by eliminating the need for a below-ground clearwell, thereby eliminating additional exit losses.



### Optional Water Transfer Pump

Typically a clearwell is constructed adjacent to the CentROL filter. In cases where supplemental flow for backwash is needed, adding a transfer pump to the nearby clearwell is an easy solution.

# CenTROL Components

## Distributor Column

The CenTROL LP filter's distributor column forms the heart of the filter system. It evenly distributes the inlet water and collects backwash waste. It serves as the control center of the unit, with the PLC control panel typically mounted at the top. It also provides a location from which convenient observation of all four filter cells can take place simultaneously.

The distributor column is constructed of corrosion-resistant stainless steel for long-term service with low maintenance. It is also pre-fabricated and pre-plumbed for ease of installation, and includes factory-installed inlet and backwash waste valves, simplifying the filter system's piping layout.

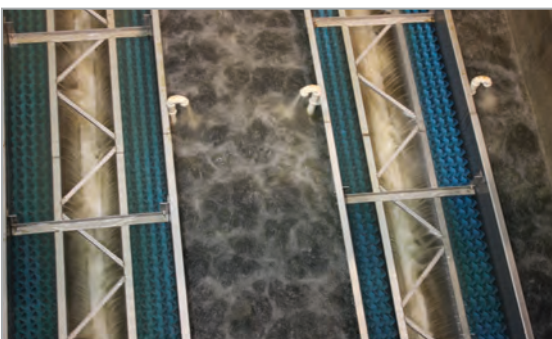
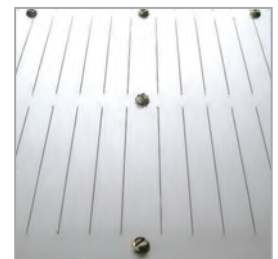
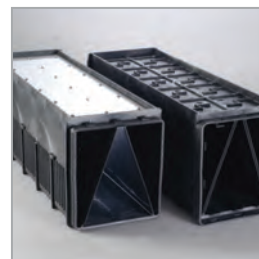


## Underdrain Option: MULTICRETE II

MULTICRETE II underdrains are single-slab, monolithic underdrains for unmatched underdrain strength. The underdrains use sturdy time-proven ABS plastic nozzles with horizontal slot openings sized for the required media. The large open area of the nozzles minimizes headloss and the inwardly opening V-shaped slots prevent plugging. Nozzles include a pipe with air-metering orifices for even distribution of air during backwash sequences. Underdrain plenum access is included with a special manway through the floor.

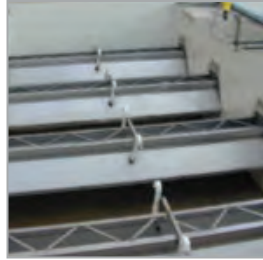
## Underdrain Option: MULTIBLOCK®

MULTIBLOCK underdrains are dual lateral style block underdrains. MULTIBLOCK underdrains may be fitted with the unique Laser Shield™ media-retaining system that eliminates the need for support gravel and reduces potential plugging or fouling. It readily combines with the unique MULTIWASH baffle to provide unlimited air-water backwashing.



## MULTIWASH Backwash

MULTIWASH combined air and water backwash is included in the base design of all CenTROL LP filters to maximize filter cleaning efficiency and extend filter run lengths. MULTIWASH backwash provides a vigorous backwash that is critical when the filter is to be used for advanced waste treatment or when design conditions put a considerable load on the filter. The MULTIWASH process comes with an unmatched media loss prevention and media cleanliness guarantee.



### ESSD Washtroughs

General Filter has pioneered the use of stainless steel to create the innovative Engineered Stainless Steel Design (ESSD) washtrough that now comes standard in all CenTROL filters. ESSD washtroughs feature MULTIWASH low-profile, media-retaining baffles. These baffles are positive prevention against media loss during sustained, simultaneous air and water backwash at both true MULTIWASH rates and lower collapse-pulse backwash rates.

### Customized Controls

Operating controls, including operation of the filter function valves, may be semi-automatic or fully automatic. The control panel is typically centrally located on the observation platform. The controls are completely assembled and factory-tested before shipment. A local operator interface is utilized which allows operational parameters to be easily adjusted while observing the operation of the filters. Chemical feed controls can be incorporated for denitrification or any other granular media filtration processes.



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