

FORTY-X™ DISC FILTER  
**HIGH QUALITY, HIGH VOLUME  
FILTRATION IN LESS SPACE**



# Proven Performance and Low Cost Operation

## TERTIARY FILTRATION OPTIONS

Tertiary treatment, also referred to as effluent polishing, is required to improve water quality in the wastewater treatment process before discharge to the environment. Most wastewater treatment plants use at least one tertiary filtration system to accomplish coagulation assisted filtration, absolute barrier filtration or chemical phosphorus removal. As wastewater is purified to higher degrees by treatment processes, the treated effluent can then be reused for irrigation, recreational use, or water reuse.

For decades, deep-bed sand filtration was one of the few effective options, however this method requires a large area of physical space. Today, there are a number of options, many increasing filtration capacity into a small physical space. Among the most practical and efficient are disc filtration systems.

## INSIDE-OUT FILTRATION DESIGN

Evoqua's Forty-X™ Disc Filter is an ideal high-rate, inside-out tertiary filter that requires a fraction of the footprint required by sand filters. Designed with a unique woven optimum tertiary mesh (OTM) filter panel, the Forty-X Disc Filter uses an inside-out flow pattern that reduces backwash cycles and energy demand providing lower life cycle costs.

At the heart of each Forty-X disc filter are individual filter panels with an integral molded frame that supports an engineered stainless steel dual weave media. The media panels are molded one piece construction with structural stiffeners through the center of the panel area. Unlike other filter panel designs, Evoqua's stainless woven dual weave media design captures solids below the typical geometric micron rating.

Each circular disc assembly is made up of 28 media panels. The media panels are mounted on the central influent drum to form the individual circular



The inside-out flow of the Forty-X™ Disc Filter panels effectively captures suspended solids and adds to back-washing efficiency.

discs. The number of circular disc assemblies mounted on the central influent drum range from 1 to 24, depending on the scale of the installation.

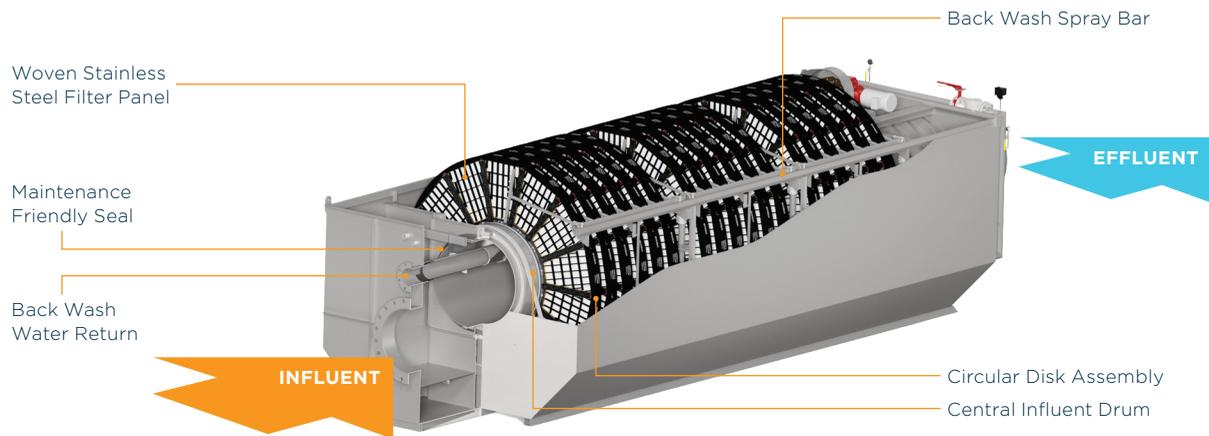
During operation, the inside-out design of the Forty-X disc filter allows the water to flow into the influent center drum and then out through the disc filter panels capturing solids on the inside surface of the media. This filtration characteristic eliminates the need for a separate system for handling floating material and settling sludge. Captured solids are also backwashed into a reject trough using a positive pressure cleaning system. A backwash cycle is automatically initiated by a level sensor in the influent channel with filtration continuing during backwash. The inside-out filtration flow, combined with the dynamics of the central influent drum effectively isolates trash so it is easily and quickly transferred to the reject flow.



Woven stainless steel filter panels improve solids rejection

## Did You Know?

The modular design of the Forty-x disc filter offers flexibility for a broad range of flows and applications including municipal tertiary filtration, phosphorus removal, water reuse and process water filtration.



### OPTIMIZED TERTIARY FILTRATION

Evoqua's woven optimum tertiary mesh filter panels utilize 316L stainless steel threads that create a weave, improving solids collection and rejection. The media includes a porosity rating or percent open area of  $\geq 60\%$  and a strength of 19-22 N/mm, far greater than alternative filtration media offerings.

Each panel is equipped with a molded EPDM edge gasket for a watertight seal between the filter panel and the plastic filter support structure of the disc filter housing. The filter panel is held in place with a molded plastic rim cap secured by conventional stainless steel hardware thereby allowing for easy maintenance.

Evoqua's woven stainless steel filter panel is an ideal retrofit option for the Forty-X™ Disc Filter pleated panels. The panel offers an option for municipal and industrial applications that has not previously existed in barrier media filtration.

### MORE FILTRATION IN LESS SPACE

The Forty-X disc filter frame-only design is an ideal drop-in retrofit solution for existing traveling bridge filters and provides an easy retrofit for most other conventional sand filtration systems. Evoqua Water Technologies can repair or replace individual components or upgrade an entire wastewater filtration system. This is because of the exceptionally small footprint relative to the high volume filtration capacity of the Forty-X disc filter. Also, the micron-rated media panels can be changed-out when filtration requirements change.

### Forty-X™ Disc Filter Advantages

- Modular design offers flexibility and expandability
- Innovative 316L stainless steel filtration media improving solids collection and rejection
- Low backwash generation resulting in higher efficiencies
- Wind-safe sliding covers provide easy access to interior
- Easy to operate and maintain
- Suitable for retrofit or existing conventional filters



The Forty-X™ Disc Filter requires a fraction of the footprint required by traditional sand filters increasing capacity and performance

May be covered by one or more of the following patents: 7,597,805; 7,972,508; 8,118,175; 8,409,436; 8,801,929; 8,808,542; 8,961,785

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**WATER**  
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