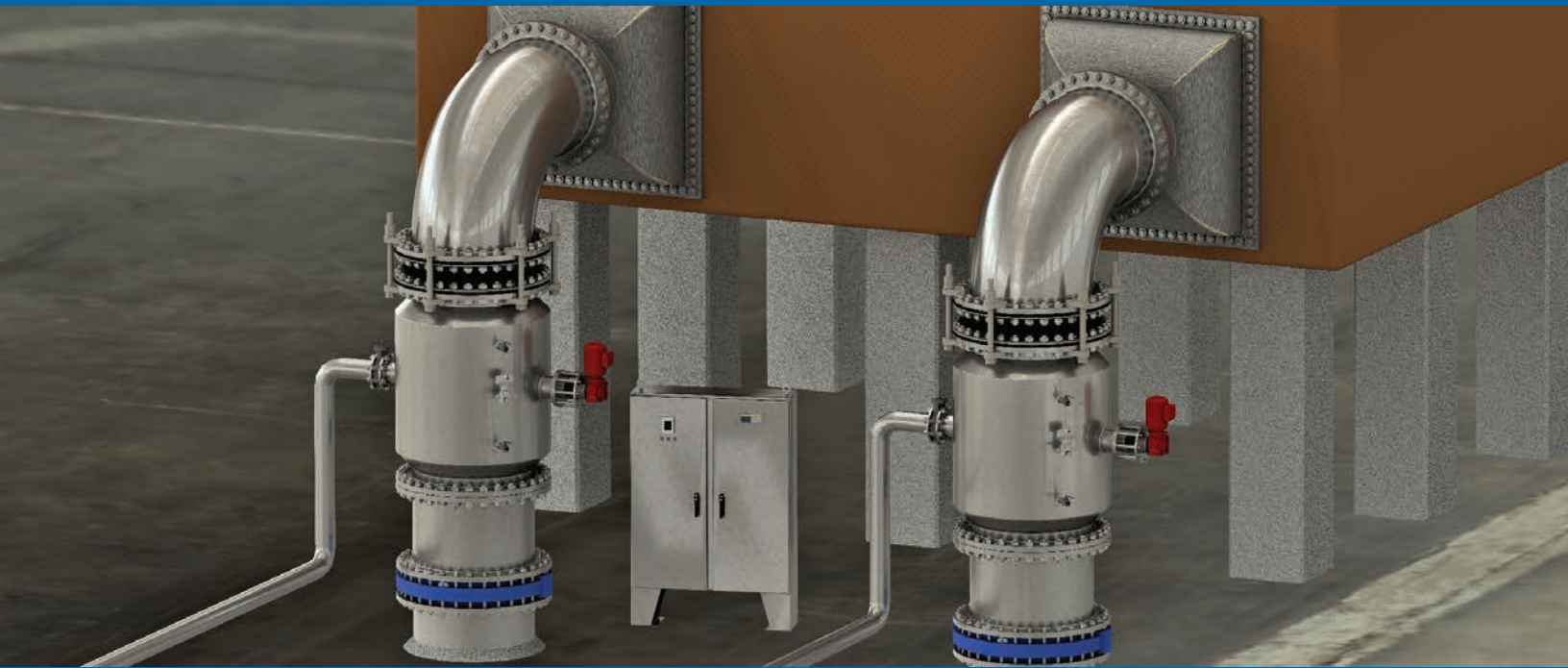


WTR[®] Debris Filter

Condenser, Heat Exchanger & Tower Protection



WTR Debris Filter

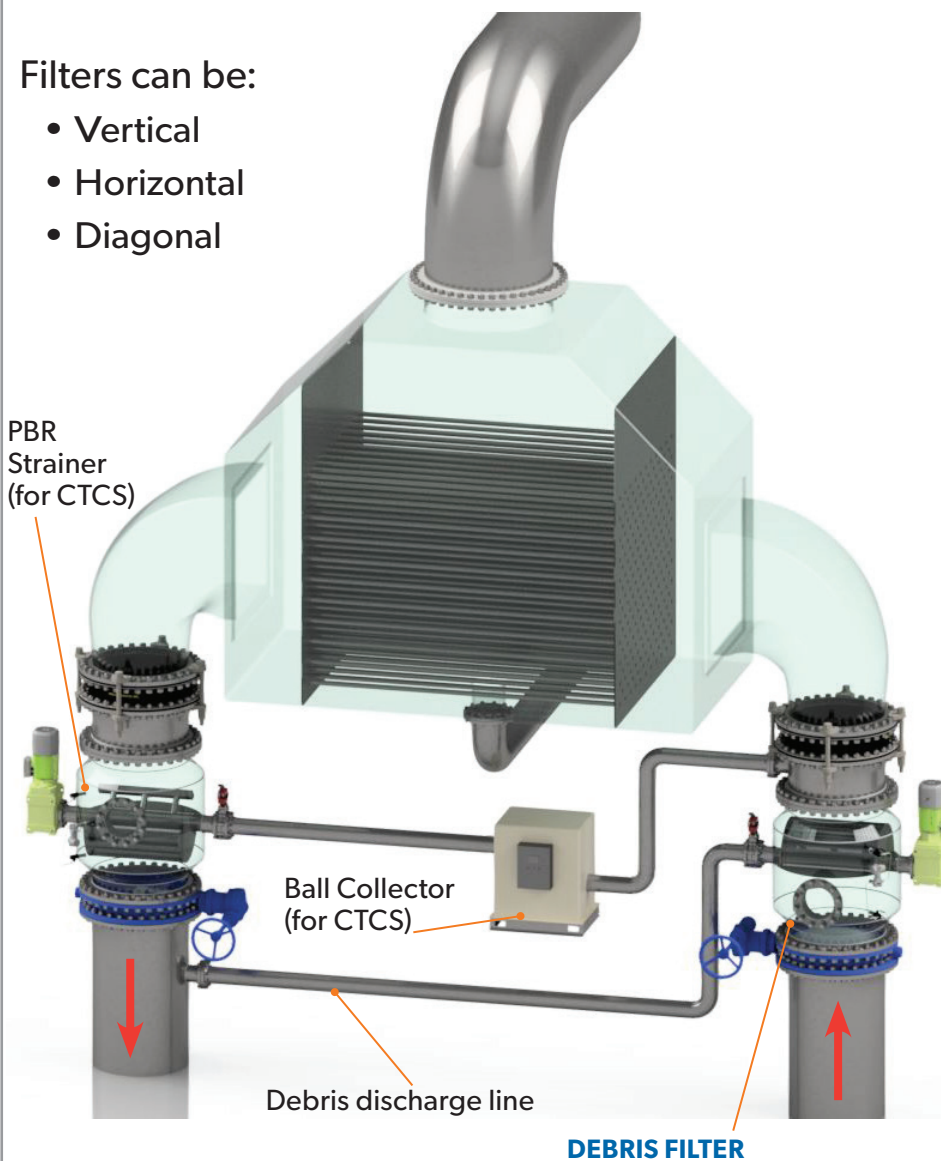
The WTR Debris Filter is vital for the prevention of macro-fouling from debris in cooling water circuits. Debris Filters are used in all types of applications where macro-fouling of the condenser, heat exchanger or cooling tower may occur and protection of downstream equipment is essential. Applications include power plant cooling water (fossil & nuclear), industrial cooling water, petro-chemical process water, irrigation systems, steel mills and numerous other plant types.

Macro-fouling (coarse debris in the flow such as carry over from traveling screens, trash, leaves, weeds, shells, marine life - mussels, clams, crabs, etc.) can blind the condenser / exchanger or other critical equipment, thus losing cooling flow or creating a high differential on downstream equipment. This may result in shut downs, manual removal of debris in confined spaces, rodding out of tube sheets or other unnecessary costly and laborious cleaning methods.

Typical Debris Filter Arrangement

Filters can be:

- Vertical
- Horizontal
- Diagonal



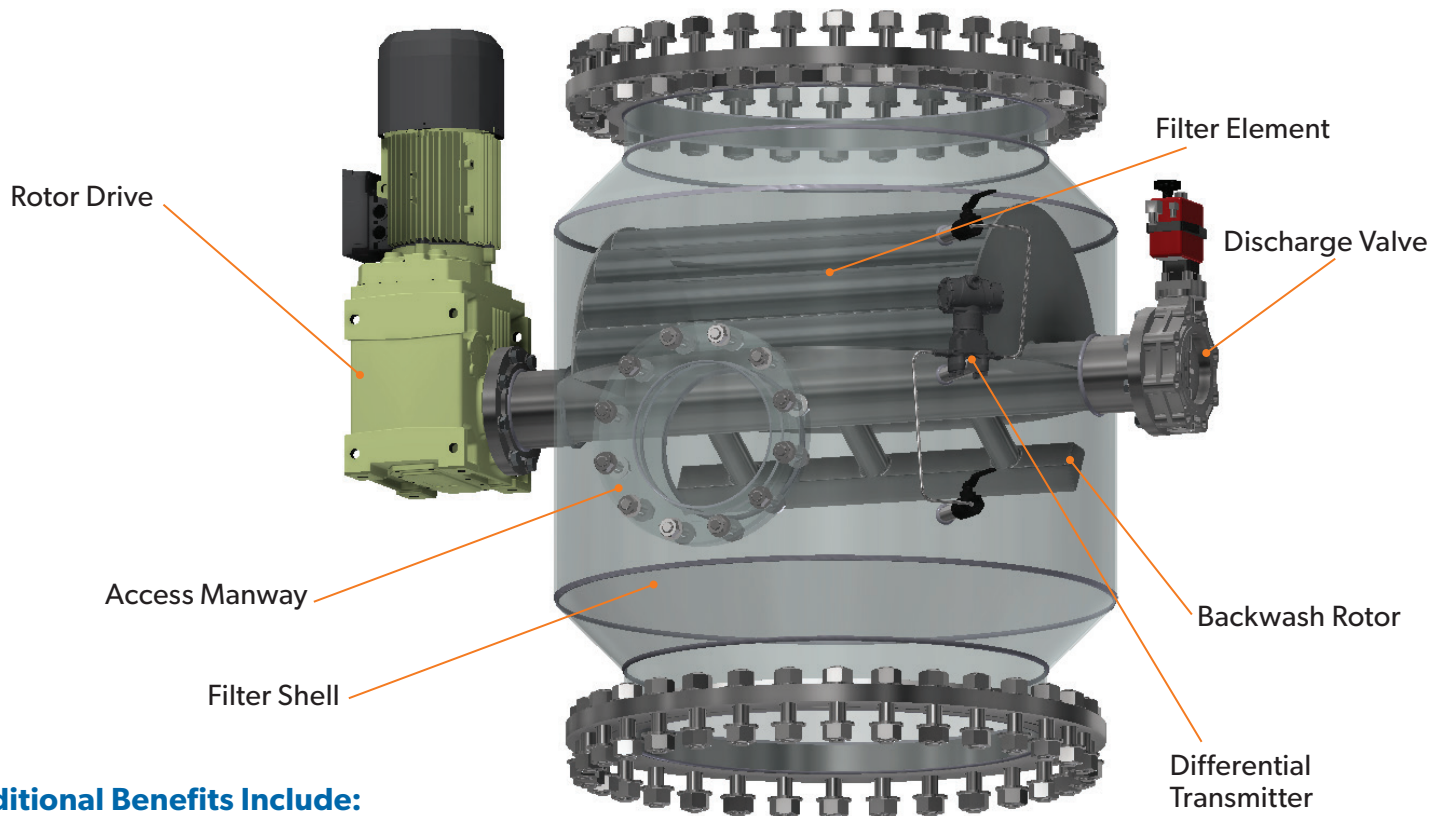
(Above image also displays a Condenser Tube Cleaning System, commonly supplied with Debris Filters)

The WTR Debris Filter utilizes the existing systems own pressure to self-flush when required. When debris fouls the Filter Element, this creates a higher differential. The integrated Differential Transmitters detect this rise in differential pressure and initiate a cleaning cycle. When the cleaning cycle is initiated, the Discharge Valve will open. Since the system line pressure is greater than the Discharge Line pressure, a reverse pressure or vacuum is created. The Rotor Drive cycles the Backwash Rotor over the face of the Filter Element and debris is vacuumed through the Backwash Rotor and out the Debris Discharge line. Debris is routinely conveyed to the plant main discharge or to secondary strainers for separation.

The Debris Filter is housed in a Filter Shell, flanged to mate with the cooling water lines. Custom lengths, flanges and arrangements are common (i.e. within an elbow, downstream of pumps, etc.). The Debris Filter utilizes an HMI touch screen control interface, allowing for easy monitoring. Individual or multiple filters may be controlled from a common panel. Other options such as plant DCS control is available. Controls and Drives can be supplied for hazardous locations.

Features:

- Filter Element provides superior filtration area with minimal pressure loss across the element.
- Continuous, Online, Self-Flushing without interruption to cooling or process water flows.
- Filter Element apertures: 1/8" to 3/8" (3mm to 10mm).
- Pipe Connection sizes: 24" to 120" (600mm to 3,000mm).
- Flow Rates: 10 to 250 K GPM (0.63 to 15.7 m³/sec) depending on aperture.
- Heavy wall carbon steel Filter Shell, typically internally rubber lined or epoxy coated.
- Exterior coating per customer requirements.
- Filter Shell of standard or customized length for new plant or retrofit into existing plant piping scheme.
- Filter Element and Backwash Rotor typically of 316L SS, Duplex 2205, Super Duplex 2507, (other specialized materials available per customer requirements).
- Discharge Valve is normally a full port ball valve or knife gate with internals to match requirements.
- Rotor Drive is an industrial rated heavy duty gear unit with reversing capabilities for continuous operation.
- Rotor will automatically reverse if oversized debris is encountered.
- Access manway for removal of unforeseen or oversized debris.
- Advanced controls via HMI touch screen interface with PLC to provide instant change of various control settings (times on/off, cycle time, etc.), viewing of component status, run times, maintenance requirements and faults.
- Design codes to ASME, Nuclear or Petro-Chemical industry standards.
- Optional emergency by-pass is available.



Additional Benefits Include:

- Extended tube life by prevention of macro-fouling
- Lower operating differential
- Minimization of flush water discharge
- External access to drive components
- No internal lubricants or contaminants in contact with flow

Debris Filter Sizing Data

Plant / Site Name _____

Site Location _____ (City, State, Country)

Water Source _____ Fresh _____ Brackish _____ Sea

Once Thru or Tower _____ Thru _____ Tower

Site Conditions _____ New _____ Existing

Water Boxes _____ Single _____ Multiple

Number of Lines _____

Flow Rate per Line _____ GPM _____ M3/sec _____ MGD

Max Flow per Line _____ GPM _____ M3/sec _____ MGD

Line Diameter (each) _____ Inch _____ mm

Line Pressure _____ PSIG _____ kPa

Clear Install Distance _____ Inch _____ mm

Desired Aperture _____ Inch _____ mm

Desired Internal Coating _____ Rubber Lined _____ Epoxy

Desired Screen / Rotor _____ 316L SS _____ Duplex 2205 _____ Super Duplex 2507

Typical Debris Expected _____

Type of Pre-Screen _____ (i.e. bar, thru flow, dual flow or drum screen)

Pre-Screen Aperture _____ Inch _____ mm

Main Power _____ Voltage _____ Phase _____ Hertz

Special Options _____

CONTACT DETAILS

Company Name _____

Contact Person Name _____

Email and Phone Number _____



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