TEQUATIC™ PLUS F-150 Filter, B-Series Skid
Product Data Sheet

Industries Served
The TEQUATIC™ PLUS F-150 Filter is an outstanding choice for removing difficult solids in a variety of industrial wastewater treatment and reuse markets, such as:
- Agriculture
- Cooling towers
- Food and beverage, e.g. meat processing, brewery and dairy
- Livestock production
- Municipal wastewater treatment and reuse
- Oil and gas, including refinery water
- Plastics recycling
- Pulp and paper
- Textiles and laundry

Application Examples
- TSS and particulate BOD, COD and TOC* reduction to eliminate or reduce fines and/or surcharges
- Pretreatment or cost-saving alternative to clarification, DAF* and aeration
- Pretreatment to downstream membranes and filters
  - Protects UF, RO* and other membranes
  - Reduces bag and cartridge filter change-outs
  - Decreases backwash cycles in media filters
- TSS reduction in oilfield water applications:
  - Protects disposal wells
  - Facilitates reuse of frack flowback water

Designed for Nasty Water
The TEQUATIC™ PLUS F-150 Filter, with its innovative and patented design, combines the power of continuously cleaning, cross-flow filtration with forced settling and solids collection into a single device. The fouling resistant filter element delivers a consistent level of solids removal down to 15 microns while processing a wide range of extremely nasty, highly loaded, difficult-to-treat water. The unique cross-flow action, combined with an engineered, laser-cut filter element and over 10 unique cleaning mechanisms, delivers the highest possible flow and maximum solids separation without plugging or forming a cake layer. See operational details on page 3.

Other key advantages include:
- Operates consistently and reliably where other filters fail on fluid streams containing some or all of the following:
  - High total suspended solids(TSS), 100-10,000+ mg/L
  - Fats, oils and grease (FOG)
  - Long or short fibers
  - Hair, lint and algae
- Simple, self-cleaning, automatic operation
- Compact footprint (e.g. less space, waste, chemicals, air)
- Operationally efficient:
  - Low maintenance and high uptime – no backwashing or excessive filter changes
  - High water recovery up to or >99%
  - Energy efficient (0.25-2 psi pressure drop across filter)

The B-Series Skid: Proven, Fast, Easy
The TEQUATIC™ PLUS F-150 Filter B-Series Skid is built and tested with your needs in mind. Key benefits include:
- It is designed for fast “out of the box” installation and startup, and easy serviceability.
- Reliable and proven skid design simplifies and optimizes performance in a compact footprint.
- Scalable modular configuration; each skid can connect in parallel to a common feed manifold to meet required flows.
- Innovative control system runs, monitors and logs essential parameters.
- Touch screen interface allows for customization of timers and set points to any industrial setting.

*BOD = biological oxygen demand; COD = chemical oxygen demand; TOC = total organic carbon, DAF = dissolved air flotation, UF = ultrafiltration, RO = reverse osmosis
Standard Features*,
TEQUATIC™ PLUS F-150 Filter, B-Series Skid

**System Specifications**

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Inlet Pressure, psi (bar)</td>
<td>100 (6.9)</td>
</tr>
<tr>
<td>Max Temperature$^2$</td>
<td>140°F (60°C)</td>
</tr>
<tr>
<td>Min Temperature$^2$</td>
<td>45°F (7°C)</td>
</tr>
<tr>
<td>pH$^3$</td>
<td>5-9 continuous</td>
</tr>
<tr>
<td>Max Particle Size</td>
<td>1/16” (2000 microns)</td>
</tr>
<tr>
<td>Electrical</td>
<td>440V, 50/60 Hz, 3 ph, 20A</td>
</tr>
<tr>
<td>Filter Element</td>
<td>Typical Flow Rates$^4$, gpm (m$^3$/hr)</td>
</tr>
<tr>
<td>SSC-17-1</td>
<td>80-240 (18.2-54.5)</td>
</tr>
<tr>
<td>SSC-22-1</td>
<td>120-280 (27.3-63.6)</td>
</tr>
<tr>
<td>SSC-27-1</td>
<td>160-320 (36.3-72.7)</td>
</tr>
<tr>
<td>SSC-32-1</td>
<td>200-400 (45.4-90.8)</td>
</tr>
</tbody>
</table>

$^1$Based on Arizona Test Dust; ISO 12103-1 A4; 1500 mg/L.
$^2$Consult factory for higher temperatures; minimum temperatures dependent on water composition.
$^3$Consult factory for pH values outside this range.
$^4$Flow rate will vary depending on water quality.

**Filter Performance**

The curve below shows the removal efficiency versus particle size rejection at indicated conditions.

*HDPE = high density polyethylene, CPVC = chlorinated polyvinyl chloride, PC = polycarbonate, PLC = programmable logic controller, VFD = variable frequency drive, HMI = human machine interface, DP = differential pressure. Viton is a registered trademark of DuPont Performance Elastomers.
TEQUATIC™ PLUS F-150 Filter Operation

As shown in the illustration to the right, operation of the TEQUATIC™ PLUS F-150 Filter is simple yet effective.

1) Pressure-controlled feedwater enters the unit and the water velocity across the filter screen initiates cross-flow filtration.
2) The feedwater flow drives the cleaning brush assembly, activating the cleaning mechanisms within the filter which continuously clean the filter screen, eliminating cake buildup.
3) Solids enter the recirculation and solids collection chamber. Heavy solids remain in the collection chamber while other particles flow into the recirculation pipe which feeds back into the feed inlet feedwater flow.
4) Concentrated solids are purged periodically for disposal or further processing.

System Dimensions,
TEQUATIC™ PLUS F-150 Filter, B-Series Skid

<table>
<thead>
<tr>
<th>Line Sizes (in)*</th>
<th>Dimensions in (cm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filtrate (A)</td>
<td>Inlet (B)</td>
<td>Concentrate Return (C)</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

*Male NPT (national pipe thread)
Control System Capabilities, 
**TEQUATIC™ PLUS F-150 Filter, B-Series Skid**

The control system for the TEQUATIC™ PLUS F-150 Filter B-Series Skid is a PLC-based processor (Siemens S7-1200) which automatically manages and monitors all critical system functionality. The HMI (Siemens KTP400) touch screen allows for simple customization of timers and set points to specific needs, and controlled access to set points is operator level and passcode protected. Automatic control, shutdowns and alarms are incorporated. Equipment includes ethernet communication hardware capabilities to communicate with plant SCADA systems or to set up remote monitoring/control. Operating data is recorded on an SD memory card. The controller and components are cULus-listed. Optional inputs and outputs are available to add sensors or to control additional valves and pumps.

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Outputs</th>
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<tbody>
<tr>
<td>- Sensors: RPM, Differential Pressure, Inlet Pressure</td>
<td>- Open and Close Signal for All Automatic Valves</td>
</tr>
<tr>
<td>- Optional: Filtrate Flow, Feed Tank High and Low</td>
<td>- Optional Outputs Available for Additional Purge and Air Bleed Valves</td>
</tr>
<tr>
<td>Open and Close Verification Signal for All Automatic Valves</td>
<td>Start and Stop Command and Frequency Control of Recirculation Pump</td>
</tr>
<tr>
<td>Recirculation VFD Control and Feed Pump Run Status</td>
<td>- Start and Stop Command for Feed Pump</td>
</tr>
<tr>
<td>- Remote Start and Stop</td>
<td>- VFD-Controlled Based on Inlet Pressure Set Point</td>
</tr>
<tr>
<td>- Optional Remote Monitoring and Control</td>
<td>External Alarm</td>
</tr>
<tr>
<td>VFD Configurations 3600V-480V, 3 PH, 50/60 Hz</td>
<td>- Ethernet Communications Port, SD Card Data Log Slot</td>
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<tr>
<td></td>
<td>- Optional Cellular HMI Control Port</td>
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Control Box: S7-1200 with HMI

To reach an expert, call us **direct** at 1-800-648-9260 for North America or at 650-800-7818 internationally. Or call our Customer Information Group at 1-800-447-4369 for North America, +800-3 694-6367 for Europe, 400-889-0789 for China, or +0800-0474714 for Latin America.

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