

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, delivers the highest possible flow and maximum solids separation without constant plugging or forming a cake layer. See operational details on page 3.

Other key advantages include:

- Operates consistently and reliably where other filters can 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 99%
 - Energy efficient (0.25-2 psi pressure drop across the 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, B-Series Skid

Equipment

- Chrome-plated 316L stainless steel (SS) filter element
- Fiberglass filter housing
- Corrosion-resistant internal components are HDPE, PC, SS 316, with Viton O-rings
- Advanced polymer cleaning assembly
- Schedule 80 CPVC high-temperature piping
- Powder-coated carbon steel frame
- 10 HP recirculation pump with integrated PLC and VFD
- Automated motor-actuated valves for purge and self-cleaning cycles with open/close feedback relay
- Filtrate flow control valve
- Valves for isolation, drain and maintenance
- Check valves to prevent back flow

Control System

- PLC with touch screen HMI
- Sensor monitoring; brush RPM, inlet pressure, and differential pressure (dP) across the filter element
- Automatic startup, shutdown, purge and self-cleaning cycles - Optional CIP capability for chemically enhanced cleaning
- Adjustable timers and set points for customization
- Start and stop input signals preprogrammed for feed and filtrate tank levels
- Data logging and ethernet communication capabilities
- cULus-listed control panels and components

See details on page 4.

System Specifications¹

Item	Value
Max Inlet Pressure, psi (bar)	80 (5.5)
Max Temperature²	140°F (60°C)
Min Temperature²	45°F (7°C)
pH³	5-9 continuous
Max Particle Size	1/16" (2000 microns)
Max Altitude	6560' (2000 m)
Electrical	380V-480V, 50/60 Hz, 3 ph, 20A
Filter Element	Typical Flow Rates⁴, gpm (m3/hr)
SSC-17-1	80-240 (18.2-54.5)
SSC-22-1	120-280 (27.3-63.6)
SSC-27-1	160-320 (36.3-72.7)
SSC-32-1	200-400 (45.4-90.8)

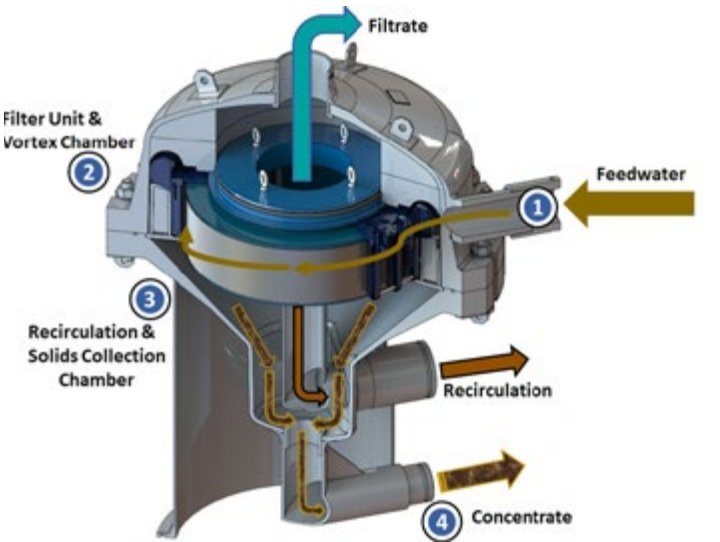
1. Based on Arizona Test Dust; ISO 12103-1 A4; 1500 mg/L.
2. Temperatures are process water temperatures. Higher temperatures may be acceptable. Minimum temperatures are dependent on water composition. Please consult with the factory for further analysis.
3. Consult factory for pH values outside this range.
4. Flow rate will vary depending on water quality.

*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, CIP = clean in place. 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 TEQUATIC™ PLUS F-150 Filters is simple yet effective.

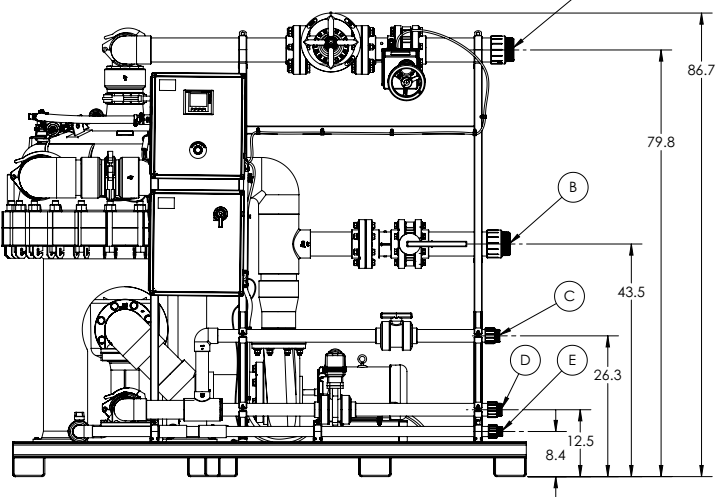
1. Pressure-controlled feedwater enters the unit and the water velocity across the filter screen initiates cross-flow filtration.
2. The feedwater flow drives the cleaning brush assembly, activating the cleaning mechanisms within the filter which continuously clean the filter screen, minimizing cake 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.



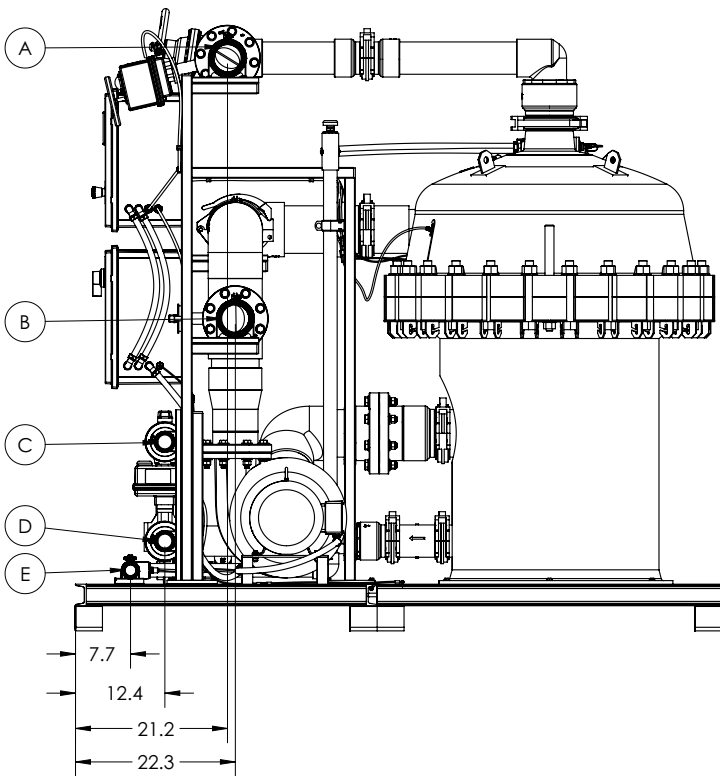
System Dimensions,
TEQUATIC™ PLUS F-150 Filter, B-Series Skid

Line Sizes (in)*					Dimensions in (cm)			Weight lb (kg)	
Filtrate (A)	Inlet (B)	Concentrate Return (C)	Concentrate Purge (D)	Service Drain (E)	Length	Width	Height	Dry	Wet
4	4	2	2	1.5	98 (249)	90 (229)	86.7 (220.2)	2330 (1060)	3230 (1470)

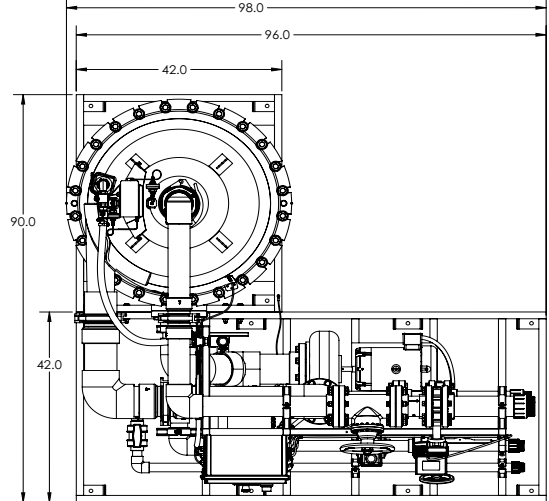
Front View



Side View

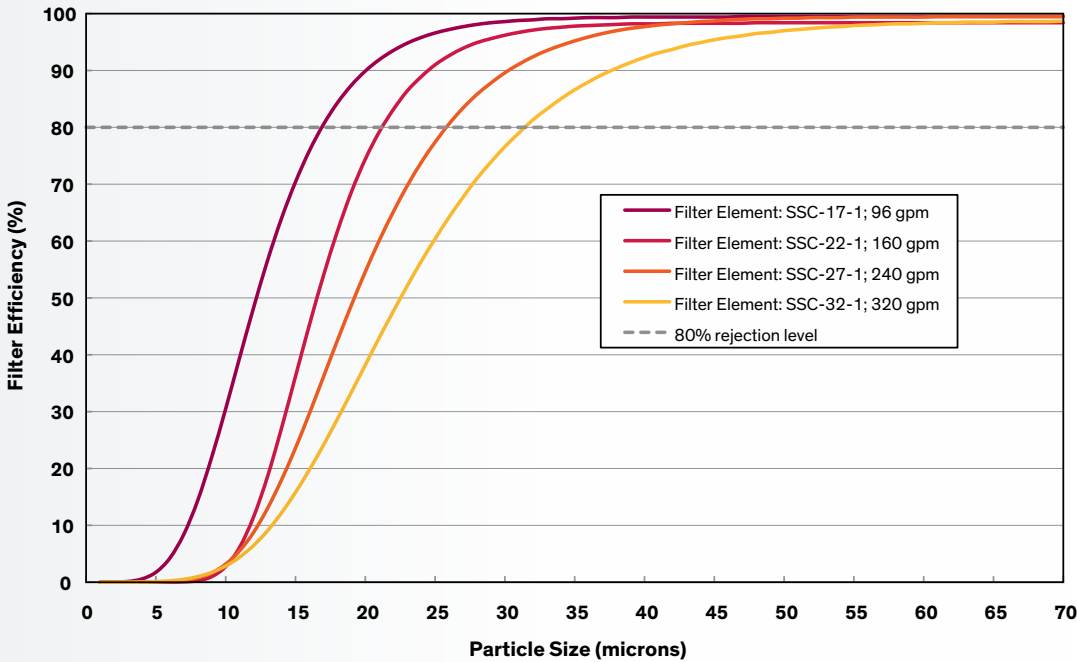


Top View



Filter Performance

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



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.

Control Box: S7-1200 with HMI



Inputs

- Sensors: RPM, Differential Pressure, Inlet Pressure
 - Optional: Filtrate Flow, Feed Tank High and Low
- Open and Close Verification Signal for All Automatic Valves
- Recirculation VFD Control and Feed Pump Run Status
- Remote Start and Stop
 - Optional Remote Monitoring and Control
- VFD Configurations: 380V-480V, 3 PH, 50/60Hz

Outputs

- Open and Close Signal for All Automatic Valves
 - Optional Outputs Available for Additional Purge and Air Bleed Valves
- Start and Stop Command and Frequency Control of Recirculation Pump
- Start and Stop Command for Feed Pump
- External Alarm
- Ethernet Communications Port, SD Card Data Log Slot
 - Optional Cellular HMI Control Port

High Voltage Distribution and VFD Recirculation Pump Control

Contact our Amiad team for further information



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