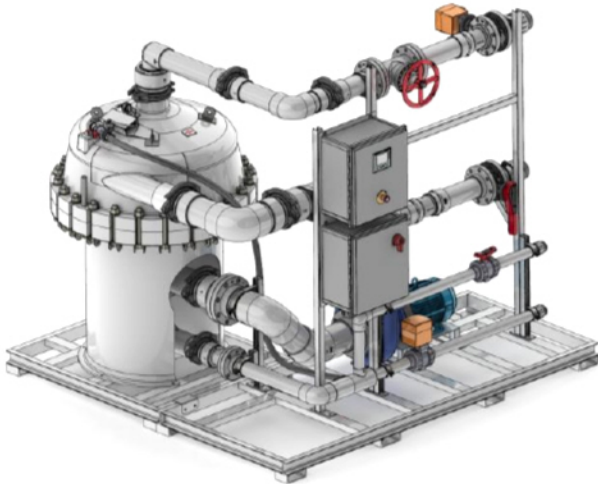




# Water Tech

## 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**

**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
- Ball 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 filter element
- Automatic startup, shutdown, purge and self-cleaning cycles
- Adjustable timers and set points for customization
- Inputs available and preprogrammed for feed pump control
- 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 Specifications<sup>1</sup>**

Item	Value
Max Inlet Pressure, psi (bar)	100 (6.9)
Max Temperature <sup>2</sup>	140°F (60°C)
Min Temperature <sup>2</sup>	45°F (7°C)
pH <sup>3</sup>	5-9 continuous
Max Particle Size	1/16" (2000 microns)
Electrical	440V, 50/60 Hz, 3 ph, 20A
Filter Element	Typical Flow Rates <sup>4</sup> , gpm (m <sup>3</sup> /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)

<sup>1</sup>Based on Arizona Test Dust; ISO 12103-1 A4; 1500 mg/L.

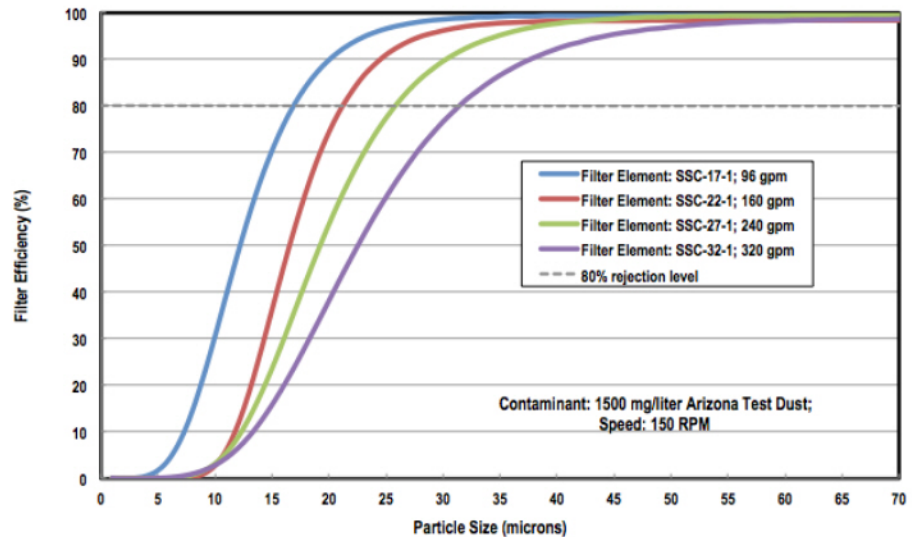
<sup>2</sup>Consult factory for higher temperatures; minimum temperatures dependent on water composition.

<sup>3</sup>Consult factory for pH values outside this range.

<sup>4</sup>Flow rate will vary depending on water quality.

**Filter Performance**

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



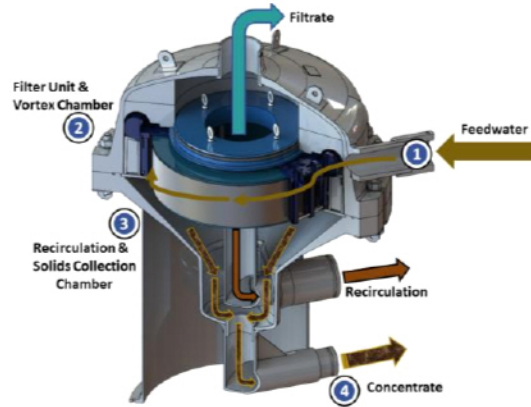
\*HDPE = high density polyethylene, CPVC = chlorinated polyvinyl chloride, PC = polycarbonate, PLC = programmable logic controller, VFD = variable frequency drive, HMI = human machine interface, DP = differential pressure. Viton is a registered trademark of DuPont Performance Elastomers.



## 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 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.

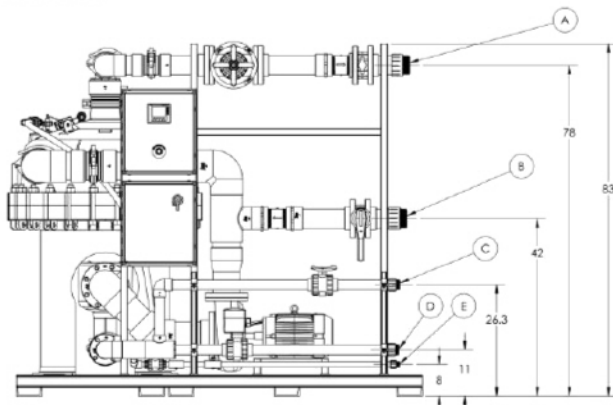


## System Dimensions, TEQUATIC™ PLUS F-150 Filter, B-Series Skid

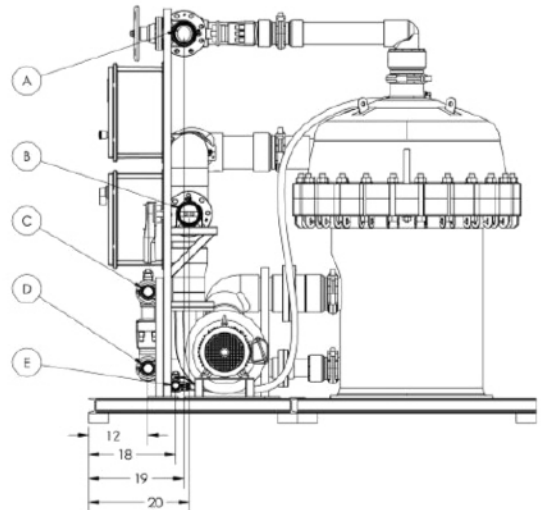
Line Sizes (in)*					Dimensions in (cm)			Weight lb (kg)	
Filtrate (A)	Inlet (B)	Concentrate Return (C)	Concentrate Purge (D)	Service Drain (E)	Length	Width	Height	Dry	Wet
4	4	2	2	1	98 (249)	90 (229)	83 (211)	2330 (1060)	3230 (1470)

\*Male NPT (national pipe thread)

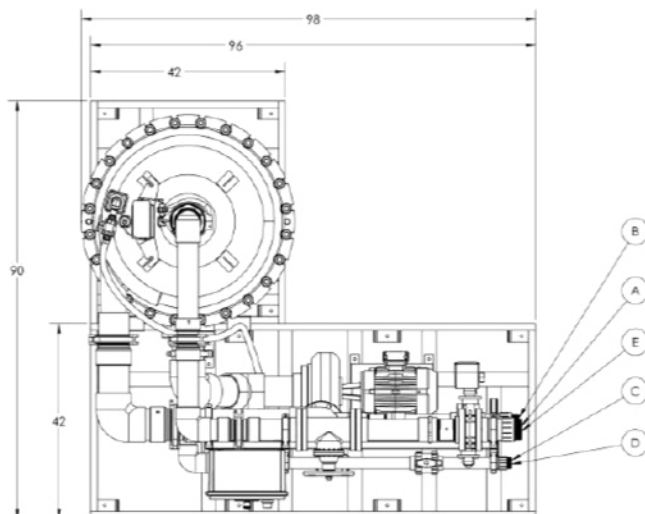
Front View



Side View



Top View

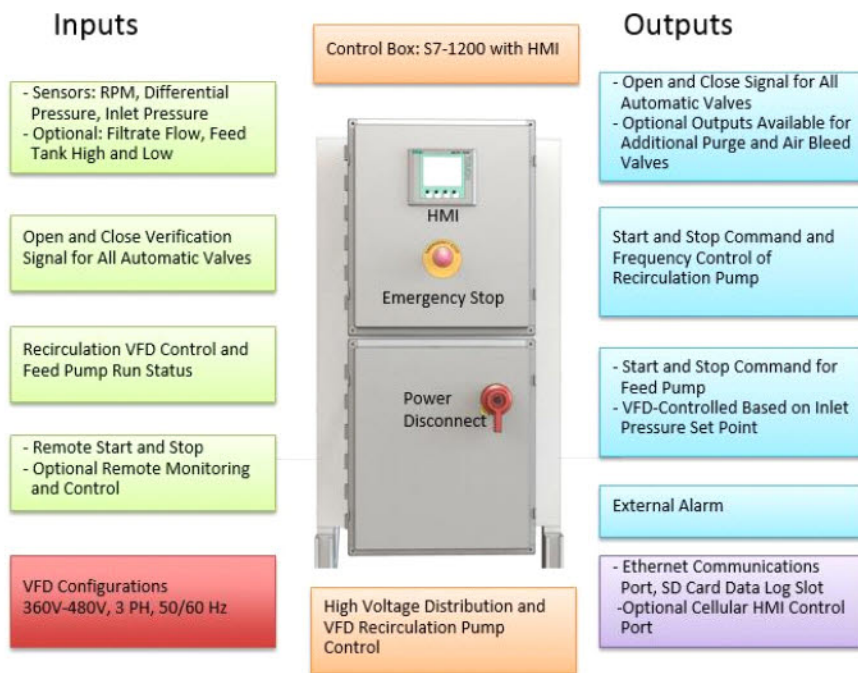






## Control System Capabilities, TEQUATIC™ PLUS F-150 Filter, B-Series Skid

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.



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Form No: 795-50208-0715v2

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