Tubular Backwashing Filter

Fabricated Construction | Backwash Cleaned | Permanent Media

F-Series

For liquid filtering that requires unattended operation, maximum uptime, and solids removal from 2 to 1,700 microns, the Eaton F-Series delivers unbeatable performance.

Features/benefits

- Solids removal from 2 to 1,700 microns
- Single system flow rates up to 3,000 gpm (681 m^3/h)
- Smooth pipe and nozzle connection transitions to avoid dead spots in the fluid stream and minimize pressure drop
- Broad selection of filter media materials and retentions suitable for a wide range of applications
- Proprietary 3-way, full-ported valves allow fast, frequent sequencing and maximum cleaning force during backwashing
- Isolated top-to-bottom backwash flow ensures complete and efficient media cleaning while continuing to deliver filtered product downstream
- Numerous automated backwash options for operator-free service and minimal backwash effluent (<2% of system volume)
- Available AccuFlux® media dramatically increases filter surface area in the same footprint

Options

- Internal or external backwashing
- Media-cleaning diffusers for more effective cleaning at low operating pressures or volumes
- Drain header trap
- Quick coupler valve connectors for ease of body tube removal
- 304 stainless steel frame material
- ASME code vessels
- Inclined version available

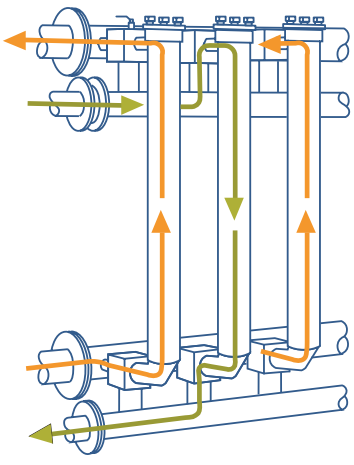
Typical applications

• City water lines • Hot condensate • Chiller water • Fresh water • White water/Shower water • CIP fluids • Papermaking wet end starch • Pelletizer water • Single and duo tubular filters for a wide range of applications up to 1,000 psi (69 bar) and high viscosity applications

Powering Business Worldwide

The key to the F-Series' versatility is its modular design that enables future capacity and configuration flexibility. F-Series systems can include 2 to 24 body tubes on a single framed skid and can be ordered with blank stations to allow low-cost expanded capacity.

The F-Series uses cleanable media. This further reduces life cycle costs and maximizes productivity by eliminating the labor, replacement, and disposal costs of bags and cartridges. Three types of elements are offered: single element with 364 in^2 (2,348 cm^2) of surface area, the TRI-CLUSTER® with 510 in^2 (3,290 cm^2) of surface area, or the AccuFlux 7 with 791 in^2 (5,103 cm^2) of surface area.



The F-Series features 3-way ball valves, automated cleaning with direct mounted actuators and solenoids, and available blank stations for easy future expansion.

How the F-Series works

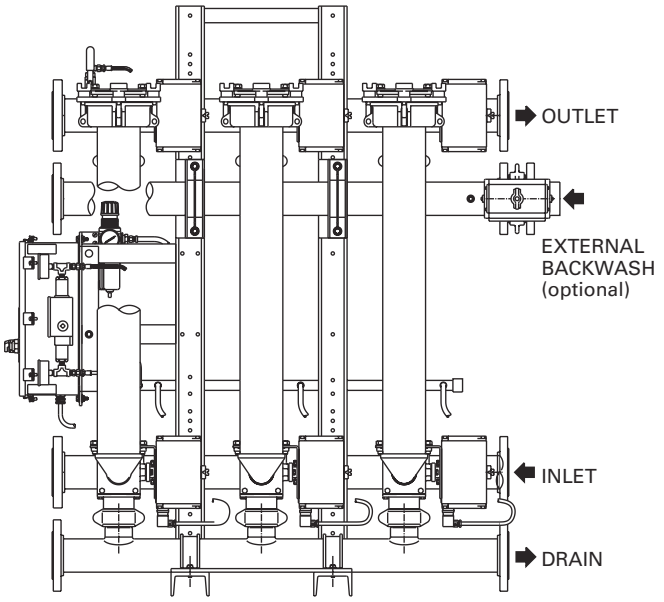
When cleaning is required, triggered by time or pressure differential, a single valve removes the tube to be backwashed from the incoming flow stream. The resulting pressure drop redirects a portion of the clean process flow downward, flushing the contaminants to the drain manifold. When process liquids are highly valuable or hazardous, an external backwash configuration, which uses a small amount of cleaning liquid introduced through a separate manifold, is recommended. External backwashing is also recommended when operating pressures are expected to be less than 45 psi (3.1 bar).

External backwash system shown. Secondary header at the top of the unit introduces cleaning fluid, typically water, (green arrows) to loosen and discharge debris to the drain header at the bottom.

F-Series Tubular Backwashing Filter

Specifications	
Body inlet/outlet size	3" (DN80)
Inlet/outlet header size[1]	3" (DN80), 4" (DN100), 6" (DN150), 8" (DN200), 10" (DN250), 12" (DN300)
Body diameter – in (mm)	4.5 (114.3)
Screen length – in (mm)	36 (914.4)
Element styles available[2] – in (mm)	3.25 (82.8) dia. single, TRI-CLUSTER, AccuFlux 7
Pressure rating[3] – psi (bar)	250 (17.2)
Temperature – °F (°C)	350 (177) system maximum (determined by screen material and elastomer seals)
Air requirement-auto units – psi (bar)	60–120 (4.1-8.3) @ 5 cfm, for sequencing
Electrical requirement	110/220 V, 50/60 Hz, single phase
Backwash minimum flow	90 gpm (340 l/min) for single and TRI-CLUSTER media; 150 gpm (567 l/min) for AccuFlux media

[1] Drain header size 3" (DN80). Consult factory for custom sizes
[2] Consult media availability chart for specific retentions and types available
[3] PTFE gaskets limit pressure maximum to 80 psi (5.5 bar)
ASME code units are limited to 150 psi (10.3 bar)

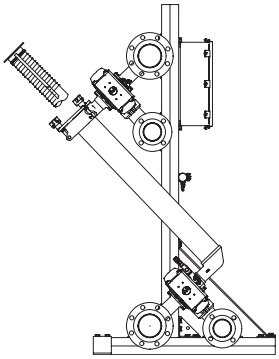


Inclined Design

The F-Series is optionally available in a 45° inclined design. This design offers a dual advantage. First, it improves ergonomics for maintenance personnel when removing filter elements. Second, it reduces the overall height of the system for use in spaces with limited ceiling clearance.
(Available on request)

Header size	Removal height
3"	71 ¼" (1,810 mm)
4"	71 ⅞" (1,826 mm)
6"	73 5/16" (1,862 mm)
8"	74 9/16" (1,894 mm)
10"	76" (1,930 mm)
12"	74 ⅜" (1,894 mm)

Removal height of standard vertical F-Series is 89" (2,261 mm)



Dimensions of Standard Vertical F-Series

Model	Weight (dry) lbs (kg)	Height in (mm)	Footprint w x l in (mm)	Volume gal (l)	Configuration # of tubes
F202	450 (204)	62 (1,575)	28.5 x 45 (725 x 1,145)	18 (68)	2
F203	600 (272)	62 (1,575)	28.5 x 48 (725 x 1,220)	23 (87)	3
F204	750 (340)	62 (1,575)	28.5 x 63 (725 x 1,600)	30 (114)	4
F205	900 (408)	62 (1,575)	28.5 x 78 (725 x 1,980)	37 (140)	5
F206	1,200 (544)	62 (1,575)	28.5 x 93 (725 x 2,360)	65 (246)	6
F207	1,350 (612)	62 (1,575)	28.5 x 108 (725 x 2,745)	75 (284)	7
F208	1,500 (680)	62 (1,575)	28.5 x 123 (725 x 3,125)	85 (322)	8
F209	1,800 (816)	62 (1,575)	28.5 x 138 (725 x 3,505)	124 (470)	9
F210	1,950 (885)	62 (1,575)	28.5 x 153 (725 x 3,885)	138 (522)	10
F211	2,100 (952)	62 (1,575)	28.5 x 168 (725 x 4,265)	151 (572)	11
F212	2,400 (1,089)	62 (1,575)	28.5 x 183 (725 x 4,650)	165 (625)	12

3-way Ball Valves

To ensure positive sealing and maximum flow, our F-Series filters feature the industry's best 3-way ball valves. These important components—designed and manufactured by Eaton, exclusively for Eaton systems—were developed specifically for the demands of industrial filtration. Their full-ported design reduces pressure drop and requires no additional linkages for actuation.

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08-2023

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