

# VTE Filter AWF-C



## Automatic Water Filter Candle Type



The Experts in Filtration and Oily Water Separation

VTE-Filter SL | Carrer de la Tecnologia 17 | 08840 Viladecans | Spain | [www.vte.com](http://www.vte.com)



# VTE Filter AWF-C



## Working Principle

### Filter Status

The liquid flows inside from the filter inlet. Part of the liquid flows through the central distribution tube. The liquid enters filter elements from the upper and lower ends at the same time. Through the internal surface of filter element, the liquid goes out from the filter outlet. Contaminants are intercepted by the elements and the filter cake slowly accumulates, which leads to gradual pressure drop increase and flux decrease.

### Back-flushing Status

When the pressure drop or time reaches the preset value, the self-cleaning sequence will be triggered. The gear motor drives the back-flushing rotation arm to aim at the filter element. The upper end of the filter element is covered by the sliding block and the lower end is coupled to the back-flushing nozzle. And then the back-flushing valve opens and connects the filter element and back-flushing pipe. The differential pressure between the element's outside and back-flushing outlet makes the filtrate reversely flush the filter element inner surface. The filter cake is dislodged and purged through the sewage pipe. After back-flushing, the valve closes. And the back-flushing arm cleans the next filter element. After all filter elements have been cleaned, the back-flushing sequence is completed. That is how the impulse back-flushing works. For filtration larger than 200  $\mu\text{m}$ , the back-flushing arm continuously rotates and cleans the filter elements.

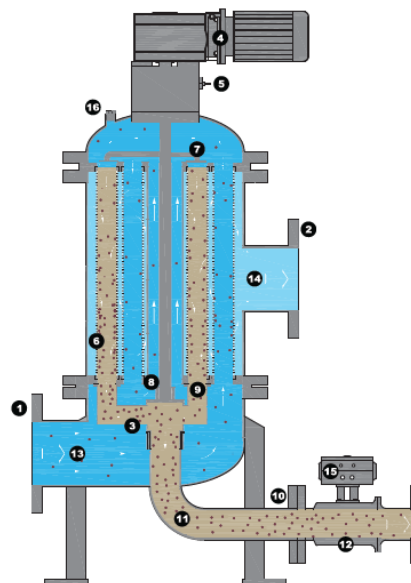
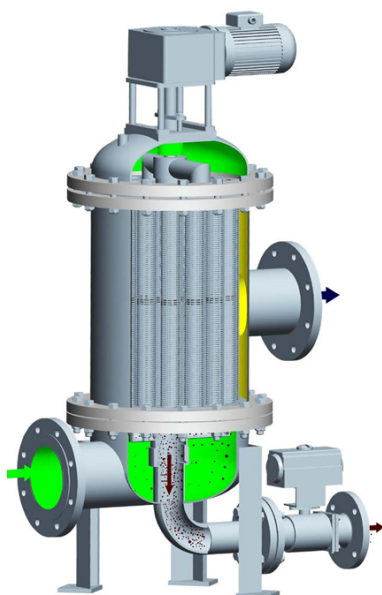
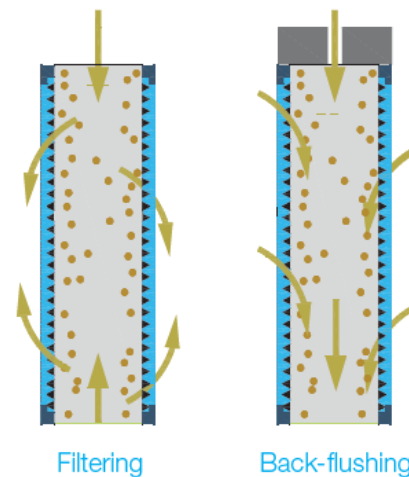
### Impulse Back-flushing Function

For fine filtration ranging 50~175  $\mu\text{m}$ , XF Filter is enhanced with the impulse back-flushing function. The control system controls the gear motor to rotate the back-flushing arm by the positioner, aims at one filter element or one group, quickly opens

and closes the back-flushing valve and completes the back-flushing. And then clean the remaining filter elements one by one or group by group. This impulse back-flushing function delivers high flushing intensity and less water purging and performs better in service conditions such as fine filtration and sticky contaminant. It requires quick valve action and usually adopts the pneumatic back-flushing valve.

### Optimized Back-flushing Performance

When back-flushing, the liquid is injected into the filter element from the small hole in the top sliding covering block, which generates the longitudinal jet flow and low static pressure due to the Bernoulli effect. The differential pressure in the upper filter element is augmented. The well-distributed differential pressure ensures that the entire filter element is cleaned evenly and improves the back-flushing performance.



### Main Parts

- 1 Filter Inlet
- 2 Filter Outlet
- 3 Back-flushing Arm
- 4 Gear Motor
- 5 Positioner
- 6 V-SLOT Filter Elements
- 7 Sliding Block
- 8 Distribution Tube
- 9 Back-flushing Nozzle
- 10 Back-flushing Outlet
- 11 Back-flushing Pipe
- 12 Back-flushing Valve
- 13 Unfiltered Liquid
- 14 Clean Filtrate
- 15 Valve Actuator
- 16 Vent

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## V-SLOT High Performance Filter Element

AWF-C automatic back-flushing filter adopts high quality V-SLOT slotted SS filter elements featuring the advantages below

- Smooth inner surface, V-shaped opening slot, less clogging chance, easy to be back-flushed clean, steady flowrate.
- Suitable for filtration of inferior liquids containing sticky contaminants like oli sludge, gel and microfiber.
- High opening rate, higher flow rate with same filter area, higher dirt holding capacity, more compact filter structure
- Filtration rating ranges from 50 to 2000  $\mu\text{m}$ , highly uniform filtration slots, precise filtration
- SS 304 / 316L material, excellent corrosion resistance. Duplex SS 2205 / 2507 for sea water applications
- Rigid structure, no deformation when pressure drop rises, stable particle bridging and removal efficiency
- High resistance against the forward and reverse pressure impact, long service life usually over 10 years



Rating	mesh	300	200	150	120	100	75	60	50	37	30	25	20	15	10	7
Convert	$\mu\text{m}$	50	75	100	125	150	200	250	300	400	500	600	750	1000	1500	2000

## Technical Specification

Applicable Liquid	Raw water, cooling water, process water and low viscous liquid(<40cps), TSS<300ppm
Min. Working D.P.	Differential pressure between the outlet and back-flushing outlet >0.15MPa
Filtration Rating	50~2000 $\mu\text{m}$
Standard Design Pressure	0.7MPa/1.0MPa, higher pressure rating available
Housing Standard	Factory standard / ASME / PED / GB150
Fluid Working Temperature	0~95 $^{\circ}\text{C}$
Flowrate Range	17~10560m <sup>3</sup> /h
Self-cleaning D.P.	50~70kPa
Control System	Based on SIEMENS controller, parallel control mode of D.P. and time
Gear Motor	180W/370W, 3 phases, 380V, IP55, CCWU
Inlet and Outlet Size	2"~40" / DN50~DN1000
Connection Standard	Flange, HG20592-2009(DIN compatible) / HG20615-2009(ANSI B16.5 compatible)
Filter Element	V-SLOT Slotted SS filter element, SS 304 / 316L, duplex SS 2205 / 2507
Wet Part Material	304/316L/CS, special material available ( such as duplex SS 2205 / 2507)
Inner Corrosion Protection	Epoxy paint, PA11 or rubber Lining for sea water resistance
Housing Sealing Material	NBR / EPDM / VITON
Back-Flushing Valve	Wafer butterfly valve / full-port ball valve
Valve Actuator	Pneumatic or electric, IP65
Facility Supply	0.4~0.6MPa clean and dry compressed air, 380V AC

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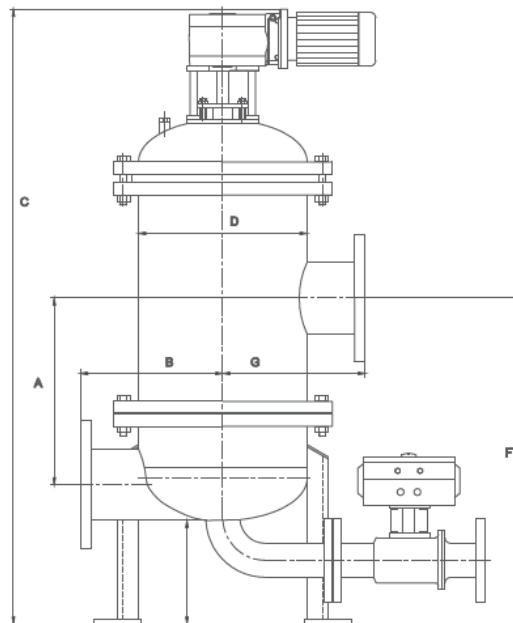
## Filter Selection Chart

Filter Model	Max. Inlet Outlet	Back-flushing Outlet	Design Pressure MPa	50 µm	75 µm	100 µm	125 µm	150 µm	175 µm	200 µm	250 µm	300 µm	400 µm	500 µm
XF200	DN100	DN50	1.0	18	30	44	60	80	97	110	110	110	110	110
XF250M	DN125	DN50	1.0	30	49	74	100	133	161	180	180	180	180	180
XF300M	DN150	DN50	1.0	42	69	103	141	186	226	250	250	250	250	250
XF250	DN125	DN50	1.0	60	99	148	180	180	180	180	180	180	180	180
XF300	DN150	DN50	1.0	83	138	207	250	250	250	250	250	250	250	250
XF400	DN200	DN50	1.0	107	178	266	362	477	510	510	510	510	510	510
XF500	DN300	DN65	1.0	191	316	473	643	760	760	760	760	760	760	760
XF600	DN400	DN65	1.0	286	474	709	964	1270	1270	1270	1270	1270	1270	1270
XF700	DN500	DN80	1.0	357	592	886	1205	1592	1935	2030	2030	2030	2030	2030
XF800	DN500	DN80	1.0	476	790	1182	1607	2122	2580	2800	2800	2800	2800	2800
XF1000	DN600	DN100	0.7	756	1254	1876	2551	3369	4030	4030	4030	4030	4030	4030
XF1200	DN800	DN100	0.7	1258	2085	3120	4243	5604	6480	6480	6480	6480	6480	6480
XF1500	DN1000	DN150	0.7	2224	3687	5517	7501	8630	8630	8630	8630	8630	8630	8630
XF1700	DN1000	DN150	0.7	2867	4753	7112	9670	10560	10560	10560	10560	10560	10560	10560

NOTE Flowrate Unit m<sup>3</sup>/h. The water flowrate above is for basic reference when selecting the filter for the clean water and the initial pressure drop is less than 10 kPa. Practical selection should

## Dimension

Filter Model	Max. Inlet Outlet	Back-flushing Outlet	A	B/G	C	D	F
XF200	DN100	DN50	360	210	1100	219	600
XF250M	DN125	DN50	395	255	1160	273	645
XF300M	DN150	DN50	415	280	1270	325	650
XF250	DN125	DN50	560	255	1540	273	800
XF300	DN150	DN50	585	280	1615	325	860
XF400	DN200	DN50	615	320	1650	400	855
XF500	DN300	DN65	660	370	2000	500	1200
XF600	DN400	DN65	700	420	2290	600	1425
XF700	DN500	DN80	770	475	2480	700	1570
XF800	DN500	DN80	840	525	2725	800	1810
XF1000	DN600	DN100	900	625	2950	1000	1960
XF1200	DN800	DN100	1250	755	3795	1200	2510
XF1500	DN1000	DN150	1450	905	4390	1500	2925
XF1700	DN1000	DN150	1500	1010	4490	1700	3125



Unit mm The dimension above is only for reference. Please refer to the detailed drawing for the exact dimension.