



Continuous Sand Filter





Principal of operation

Continuous sand filtration is performed in a deep sand bed. Upflow inlet water passes through the sand bed, that continuously moves downwards.

Inlet water is partially used for dirty sand washing and regeneration, therefore both operations (feed and backwash) take place at the same time.

The sand bed is completely regenerated 3-4 times a day in order to maintain always good filtration properties; backwash is approximately 5-10% of inlet water.

Continuous self-cleaning sandfilters do not require a stock volume or an over-dimensioning of the section (that is necessary for discontinuous filters) and operate at atmospheric pressure with low energy consume.

AQUA-FILTER® is easy to operate, very reliable for all application below described.



Tertiary filtration plant

Typical application

Surface water filtration

- Algae removal

Drinking-water treatment

Municipal/industrial WWTP:

- Primary filtration
- Tertiary treatment
- Final treatment with activated carbon
- Biological post-denitrification

Reuse pre-treatment:

- Before ultra-filtration membrane
- Before Reverse Osmosis
- Before ozonization

Pre-treatment for cooling tower make-up



Reuse filtration plant

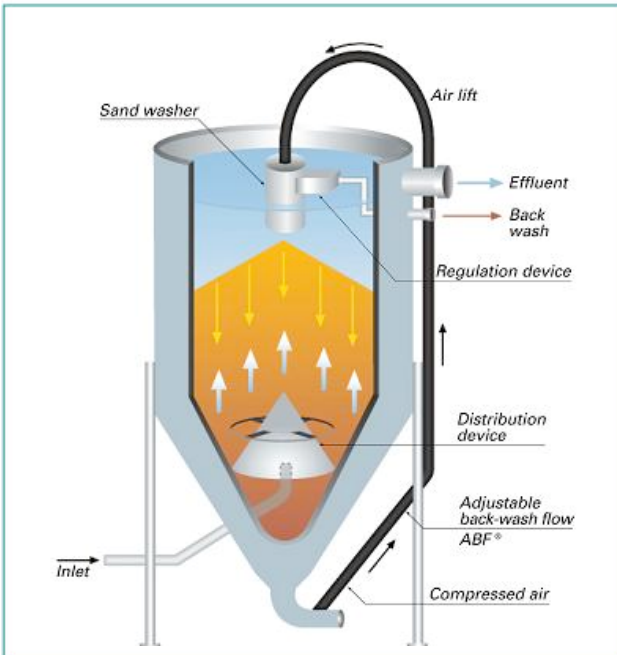
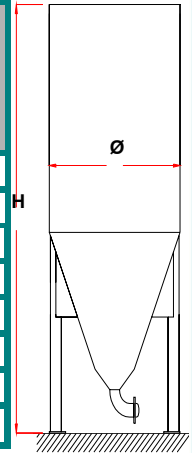
Main benefits

- Unique continuous back-washing system
- High efficiency in fine solids removal, including colloidal particles
- Possible contact filtration thanks to deep sand bed: inline coagulation
- Possible post-denitrification with nutrients dosage control
- Easy maintenance due to the fully external sand air-lift system
- Easy installation
- Very low operational head loss allows gravity feed in many instances
- Low capital and operating costs



Standard Sizes:

MODEL	H (mm)	Ø (mm)	Net filtration area (m ²)	Sand bed height (m)
AQF 1/1	3600	1150	1.00	1.0
AQF 1/1.5	4100	1150	1.00	1.5
AQF 3/1	4700	2000	3.14	1.0
AQF 3/1.5	5200	2000	3.14	1.5
AQF 3/2	5700	2000	3.14	2.0
AQF 5/1	5550	2500	4.9	1.0
AQF 5/1.5	6050	2500	4.9	1.5
AQF 5/2	6550	2500	4.9	2.0



The feed water is fed into the filter at the base of the active sand bed through the distribution ring. It flows upward through the downward moving sand bed where the solids are intercepted.

The clean filtrate exits the filter through the overflow weir.

The dirty sand is continuously removed from the active sand bed thanks to the action of the air-lift pump, which sucks the contaminated sand from the bottom of the filter body. A mixture of sand, dirty particles and water is transported upwards through the air-lift pipe into the washing chamber at the top of the filter. The impurities separation from the sand takes place in the exclusive washing system. This is accomplished thanks to the action of a counter-current stream of water injected at the bottom of the washing chamber through the pipe. The sand is returned by gravity to the top of the active sand bed after being routed downward through a labyrinth of several settling steps. The continuous reject flow of washing water is discharged through a separate outlet.



n°8 AQUA-FILTER HR

Expandable system



AQUA-FILTER Special devices

INTELLI-FILTER®

Automatic headloss control device, it allows to increase the sand-washing when the filter headlosses rise due to progressive suspended solids accumulation.

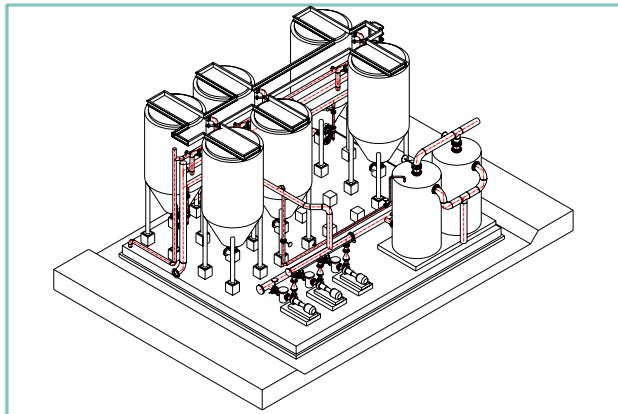
It is recommended for effluents with high variability in suspended solids concentration.

It reduces clogging risks and increases reliability, thanks to the process control.

ABF

Adjustable Back-wash Flow (ABF) is Austep innovative device for a more reliable process control. Thanks to back-wash regulation, effluents with higher suspended solids concentration can be filtered without any problem.

AUSTEP offers its clients full service, single source responsibility to meet the design, engineering, installation, start-up and operating service of any water or wastewater application and with performance guarantees.



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