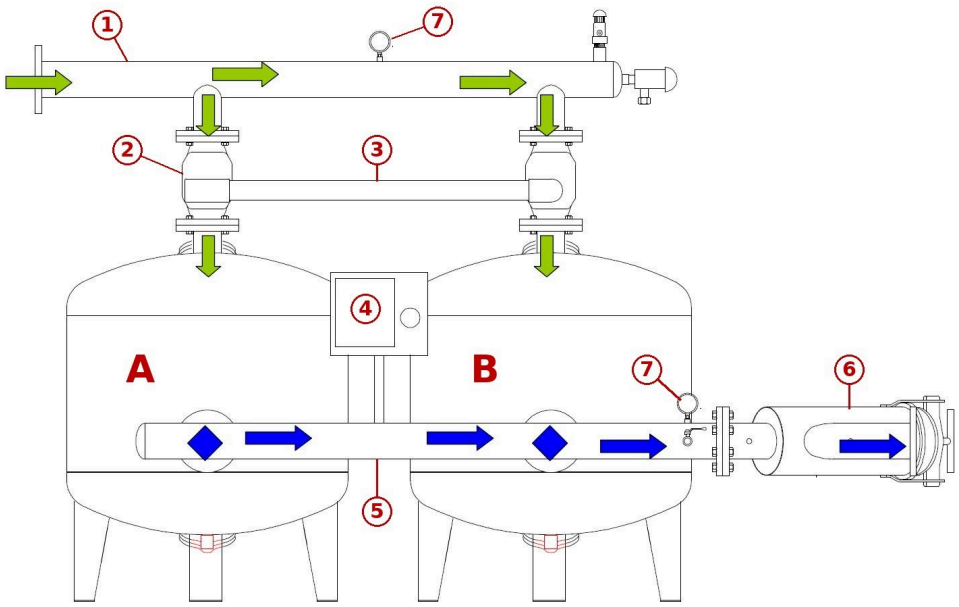
SAND FILTER STATION – OPERATING PRINCIPLE

F03-X-SC-001

Installation diagram · Metal and automatic filters

Operating principle of a station of two X series sand filters, during filtration and during the backwashing of one filter while the other continues to filter.

Diagram



Station of two sand filters in filtration

Key

A and B: sand filters.

1. Inlet manifold (water to be filtered).
2. 3-way backwashing valve, one per filter.
3. Discharge pipeline for backwashing water.
4. Control system.
5. Outlet manifold (filtered water).
6. Safety screen filter.
7. Pressure gauges.

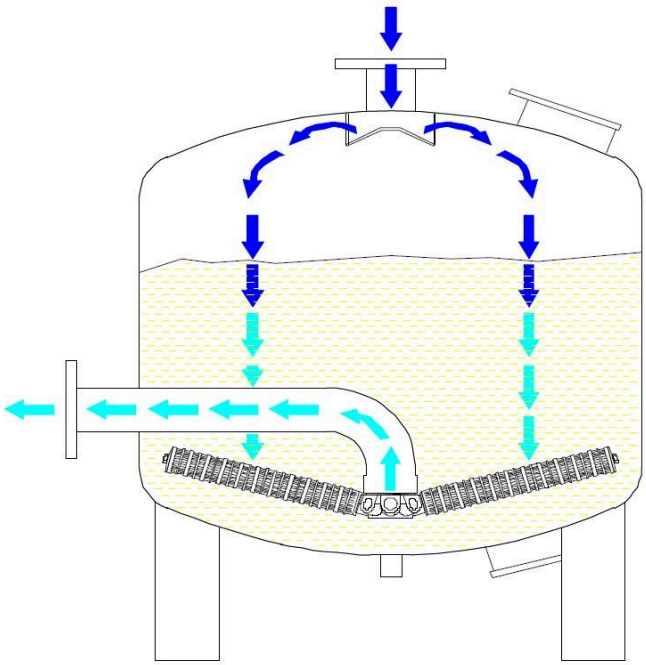
At the end of the inlet manifold: an air valve (vertical device) and a small filter that protects the hydraulic control of the backwashing valves (horizontal device).

Green arrows: water to be filtered. Blue arrows: filtered water. Grey arrows: backwashing water, loaded with the retained particles. Red cross: port closed by the 3-way valve.

Operation

Filtration

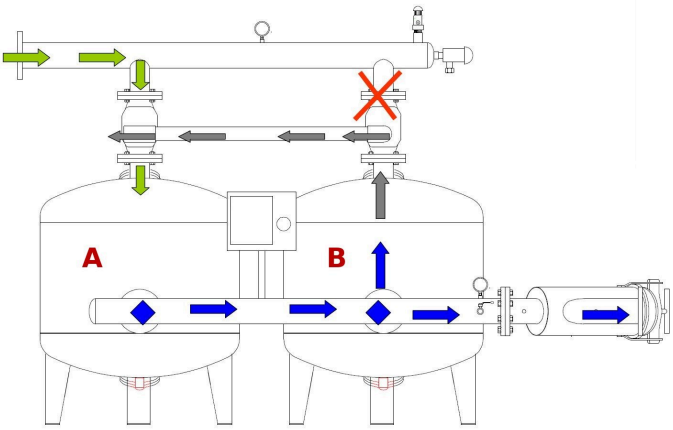
Both filters filter at the same time. Water from the inlet manifold passes through each 3-way valve and enters the top of the filter. It passes through the sand bed from top to bottom, is collected by the diffusers at the bottom, then flows to the outlet manifold and the safety screen filter.



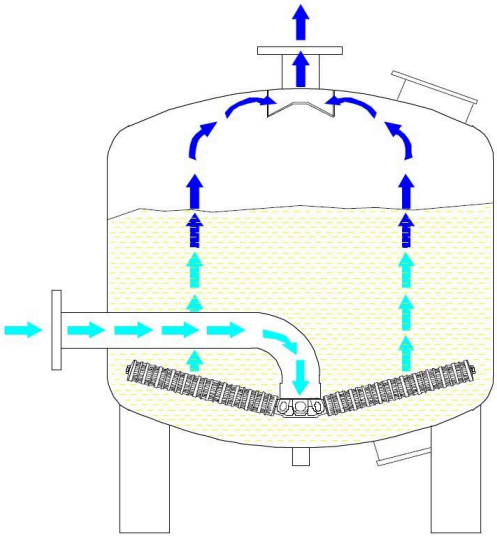
Filtration: water passes through the sand from top to bottom

Backwashing of filter B

Filter A continues to filter. The 3-way valve of filter B closes the inlet of water to be filtered and opens the discharge pipeline. Part of the water filtered by filter A flows up into filter B through the diffusers at the bottom: it lifts the sand, carries away the retained particles and leaves through the top towards the discharge. The rest of the filtered water continues to the station outlet.



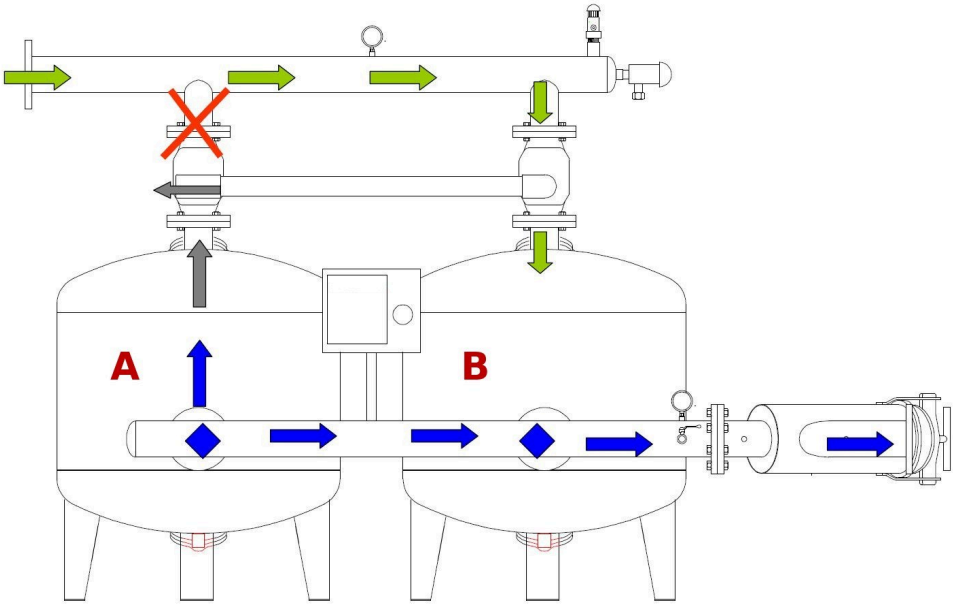
Backwashing of filter B



Backwashing: water passes through the sand from bottom to top

Backwashing of filter A

The principle is the same, with the filters reversed: filter B filters, filter A is being backwashed.



Backwashing of filter A

The filters are thus washed one after the other, without interrupting the supply of filtered water. The specifications of the filters and stations are given in data sheet F03-X-FT-001.

Related documents : F03-X-FT-001