

Water Treatment



Engineering & Construction

Filtration
FAS – FAS/R – FAC – FAD Mod.

OVERVIEW

First: "to filter". **Filtration** is, undoubtedly, the treatment princeps of water. It is the most important mechanical treatment applied to water. Very often filtration is preceded or followed by many other chemical, physical or biological treatments, which intervene on other characteristics of water. A vast range of examples of filtration exist in nature, from coarse to extra-fine, with diaphragm media that can range from river gravel to cellular membranes.

In this section we deal with the filtration of Suspended Substances and not Dissolved Salts. Dissolved salts constitute water salinity. Suspended substances determine the water turbidity.

Suspended substances can be divided into:

- a) settleable substances
- b) suspended substances.

By virtue of their chemical-physical nature, of specific weight and dimensions, settleable substances tend to separate naturally from water and deposit themselves on the bed in different time.

On the other hand, **suspended substances** are those that cannot separate naturally from water just after very long time or not at all.

Suspended substances are, for example, colloidal substances, fine clay, organic substances generally, soaps, rubber particles, glues etc.

Settleable substances are, for example, sand, earth, coarse clay, metal particles, iron oxide etc.



Filtration is possible via different systems: bag filters, paper filters, cartridge filters, precoat filters, gravity filters etc.

This section deals with filtration of suspended substances through **rapid pressure filters**.

Here follow the main parameters that affect filtration:

- Space dimensions or filtering gaps
- specific weight of the particles to be filtered and filtration media
- contents of suspended substances
- formation, depth and layout of filter beds
- filtration speed
- cycle or duration of operating phase
- filter washing
- speed of backwashing with water
- washing with air, speed of backwashing with air
- requested filtration degree
- filter head loss (with clean filter, with dirty filter)
- filter operating pressure

Our standard filters are designed to treat wellwater, river water, lake water, and any non-brackish water.

Backwashing just with water is usually envisaged.

The filters comprise pressure recipients with a vertical cylindrical form closed at the top and bottom with convex covers. For further details, please refer to the specifications of each filter.

The filters are completely automatic and have been sized and designed according to the best construction standards (for pressure recipients with water) and safety standards, with guaranteed reliability of performance and materials over time.

OUR FILTERS

Designed and constructed in order to guarantee optimal operation, efficiency and reliability over time.

The following models are available:

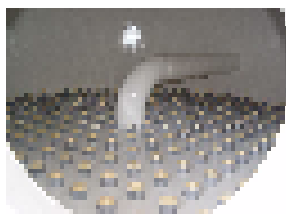
- FAS Mod.** Rapid pressure filters, automatic with differentiated filtration layer. These filters can retain fine non-colloidal suspended solid particles, which cause turbidity, affording to the treated water, the required clarity. They also retain pre-oxidised iron. These filters can retain the fine colloidal substances thanks to the incorporation of an adequate dosage of "in line" flocculent which aids the aggregation of the fine present substances into pinpoint flocs.
- FAS/R Mod.** Rapid pressure filters, automatic with differentiated filtration layer. This kind of filters is perfect for the filtration of clarified wastewater deriving from biological treatment plants (refluent refinement), that can be supplied and constructed on request or on our project. Backwashing with air is also envisaged.
- FAC Mod.** Rapid pressure filters, automatic with active carbon filtration layer. The selected active carbons are featured by an extremely high surface/volume ratio, which through the phenomenon known as 'adsorption' are able to fix some of the components dispersed in the water onto their surface, rendering it odourless, colourless and tasteless. These filters are used to remove chlorine and free ozone, such as unpleasant odours and tastes from the water, adsorb organic macromolecules such as surfactants, tannins, hydrocarbons, solvents, pesticides, and micropollutants present in the water due to man's agricultural or industrial processes.
- FAD Mod.** Rapid automatic pressure filters, to remove iron and manganese. The filtering mineral is a mix of inert materials with catalytic action to oxidise iron and manganese. They are always used with a dose of a product that accelerates the oxidation of iron and manganese



FILTERS FOR OTHER APPLICATIONS

Other filters are available for the treatment of any type of wastewater using materials and constructions designed for specific purposes, on request.

For brackish and sea water, filters with fibreglass containers are envisaged with operating pressure up to 6 bar on request, with or without nozzle plates.



Water distribution system with nozzle plate



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