

MAHLE

Industrial Filtration

IN SEARCH OF CLEAR WATER
MODERN SYSTEMS FOR DRINKING WATER



MAHLE AKO: Drinking water filtration solutions

Water companies are legally obliged to ensure the safety of the drinking water supply 24 hours a day. Our fully automatic back-flushing filters provide high cleaning performance on a continuous basis.

Because the back-flushing nozzle is positioned directly on the filter element, our filters enable the targeted removal of dirt with small amounts of back-flushing fluid. This reduces costs and is environmentally friendly. There is no need for manual cleaning and the filters can function without interruption. MAHLE AKO automatic drinking water filters are made of high-grade steel or coated in a substance suitable for plants used to process drinking water. They have a long service life and ensure a low replacement parts requirement.

AUTOMATIC FILTERS: FLEXIBLE MODELS WITH INTELLIGENT TECHNOLOGY



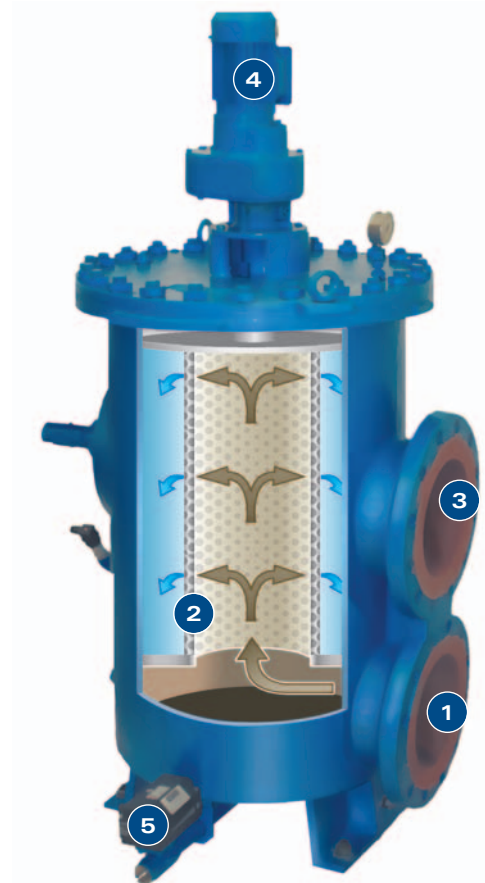
Type series	R5-8	R5-3	R8-30W	Special designs
Description	Variable back-flushing filter with own medium	Variable back-flushing filter with own medium	Compact back-flushing filter with own medium for large flow rates	Back-flushing filter manufactured to your own requirements
Connection	DN 32–DN 200	DN 65–DN 200	DN 125–DN 400	DN 32–DN 800
Material	GGG 40	GGG 40	H II-Steel 1.0425 CrNi-Steel 1.4571	H II-Steel 1.0425 CrNi-Steel 1.4571 Special materials
Operating overpressure	Up to 16 bar	Up to 16 bar	Up to 40 bar	Up to 64 bar
Filter element	Screen basket with wire cloth (smooth or pleated) Screen sieve	Screen basket with wire cloth (smooth or pleated) Screen sieve	Screen basket with wire cloth (smooth or pleated) Screen sieve	Screen basket with wire cloth (smooth or pleated) Screen basket with profiled perforated plate
Fineness of filtration	25–5000 µm (absolute)*	25–5000 µm (absolute)*	25–5000 µm (absolute)*	10–5000 µm (absolute)*
Options	Bypass filter (manual, semi-automatic, fully automatic) with change-over body Internal coating (plastic, rubber) Integrated preliminary sieve	Bypass filter (manual, semi-automatic, fully automatic) with change-over body Internal coating (plastic, rubber) Incl. flushing pump, piping, and overall control unit Integrated preliminary sieve	Step nozzle to reduce flush volume Bypass filter (manual, semi-automatic, fully automatic) with change-over body Internal coating (plastic, rubber) Integrated preliminary sieve	Step nozzle to reduce flush volume Bypass filter (manual, semi-automatic, fully automatic) with change-over body Internal coating (plastic, rubber, special designs) Integrated preliminary sieve

*Other finenesses on request

Filtration

The medium being filtered flows via the inlet tube (1) into the filter housing and into the filter insert, which is open at the bottom (2). The insert consists of a cylindrical body across which the pleated wire cloth cylinder with the specified filtration fineness is stretched. On the outside, a perforated plate cylinder supports the wire cloth cylinder. The medium passes through the filter insert from the inside to the outside. During this process, pollutants are trapped on the inner side of the wire cloth. The cleaned medium leaves the filter

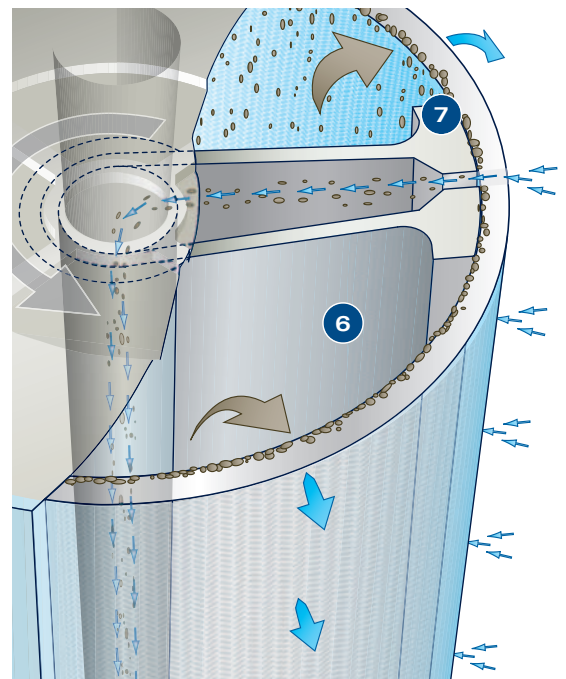
housing via the outlet pipe (3). As the amount of contamination in the wire cloth increases, the difference between the inlet pressure (contaminated medium) and the outlet pressure (cleaned medium) also rises. A pressure transmitter measures the inlet and outlet pressure and transmits the data to the filter control. The PLC module installed there automatically triggers the back-flushing cycle once a predefined pressure difference or time interval is reached.



Back-flushing cycle

In order for the back-flushing process to be efficient, there must be operating overpressure on the outlet side (clean side) of the filter. The level of the operating overpressure depends on the medium being filtered and the filtration fineness. When the back-flushing process is triggered, the gear motor (4) mounted on the filter is activated and the flush valve (5) is opened. The motor turns the flushing nozzle (6) and moves it past the entire filtering surface of the filter insert. Because of the difference between the operating overpressure at the filter outlet (clean side) and the atmospheric pressure in the flushing line, a small quantity of already filtered medium now flows in the

opposite direction and moves at high speed through the wire cloth into the vertical nozzle slot (7). This loosens the pollutants from the wire cloth and carries them out through the flushing line along with the back-flushing fluid. Once the flushing nozzle has turned through approx. 400°, the valve closes and the motor stops. The back-flushing process finishes after a few seconds. The process only cleans the part of the filter insert covered by the flushing nozzle. The rest of the filtering surface remains available for filtration. This ensures a continuous filtration process.

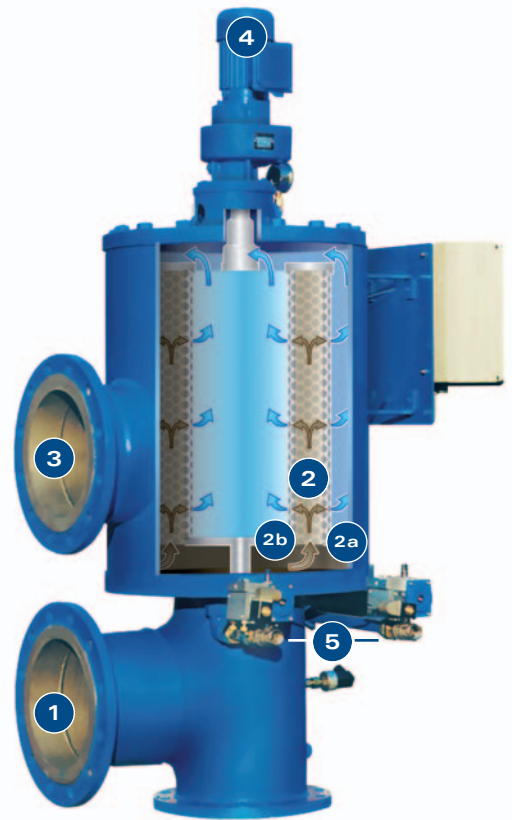


Double back-flushing filters

Filtration

The medium being filtered flows via the inlet tube (1) into the filter housing and into the filter insert, which is open at the bottom (2). This consists of two cylindrical bodies across which the pleated wire cloth cylinders with the specified filtration fineness are stretched. On the outside, a perforated plate cylinder supports the wire cloth cylinder. The medium flows through the outer insert cylinder (2a) from the inside to the outside; it flows through the inner cylinder (2b) in the opposite direction. The contaminants are trapped by the wire cloth. The

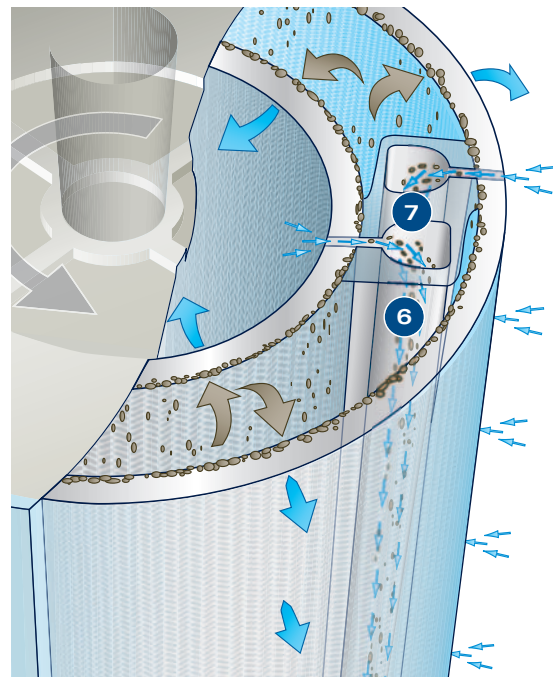
cleaned medium leaves the filter housing via the outlet pipe (3). As the amount of contamination in the wire cloth increases, the difference between the inlet pressure (contaminated medium) and the outlet pressure (cleaned medium) also rises. A pressure transmitter measures the inlet and outlet pressure and transmits the data to the filter control. The PLC module installed there automatically triggers the back-flushing cycle once a predefined pressure difference or time interval is reached.



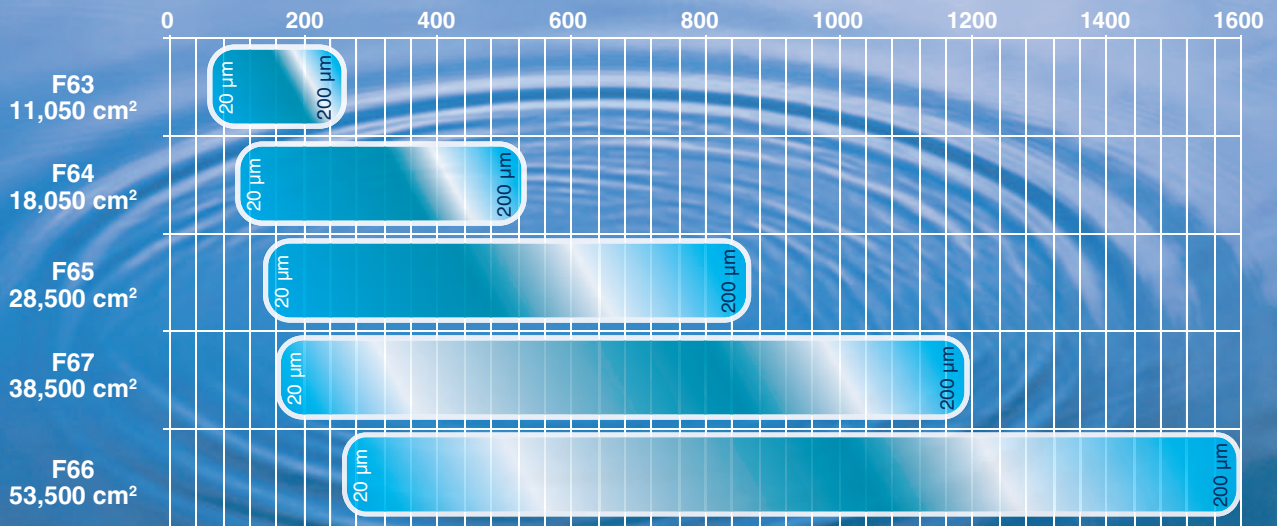
Back-flushing cycle

In order for the back-flushing process to be efficient, there must be operating overpressure on the outlet side (clean side) of the filter. The level of the operating overpressure depends on the medium being filtered and the filtration fineness. When the back-flushing process is triggered, the gear motor (4) mounted on the filter is activated and one of the flush valves (5) is opened. The motor turns the entire 2-cylinder filter insert. This moves the entire filtering surface past the flushing nozzle (6) that is positioned between the two insert cylinders. The flushing nozzle has two flushing channels, each of which is connected to one flushing line and one flush valve. The flush valves are opened one after the other, so that the entire back-flushing process takes place in two steps. Because of the difference between the operating overpressure at the filter outlet

(clean side) and the atmospheric pressure in the flushing line, a small quantity of already filtered medium now flows in the opposite direction and moves at high speed through the wire cloth into the vertical nozzle slot (7), which is positioned directly on the filter insert. This loosens the pollutants from the wire cloth and carries them out through the flushing line along with the back-flushing fluid. Once the filter insert has turned through approx. 400°, the first flush valve closes and the second flush valve opens. The second flush valve then cleans the inner insert cylinder in the same way. The back-flushing process finishes after a few seconds. The process only cleans the part of the filter insert covered by the flushing nozzle. The rest of the filtering surface remains available for filtration. This ensures a continuous filtration process.



Volume flow (m³/h) for water



Clean water – the element we can provide

Water is absolutely necessary to life. The Greek thinker Thales of Miletas taught that "water is the principle of all things. All things are water. All things return to water". It is certainly true that drinking water is indispensable to humans – without this valuable element, we could survive no longer than four days. Although two thirds of the surface of the Earth are covered with water, less than one percent of its total volume is suitable for drinking water – and only once it's clean! This is where we are in our element: For over 70 years, MAHLE AKO has been supplying filtration tech-

nology for cleaning drinking water. The company has specialized in automatic filters for the last 30 years. Our experience and know-how is reflected in our wide range of technologically mature, innovative products that prove their efficiency on a daily basis in thousands of installations. Our standard products provide filtration finenesses of between 25 and 5000 µm with maximum flow rates of up to 5000 m³/h. We also develop special designs in accordance with customers' requirements.



GUARANTEED AND CONTINUOUS HIGH CLEANING PERFORMANCE MAHLE AKO DRINKING WATER FILTERS

Over 70 years of filtration expertise

Protection in the form of reliable filtration is an important prerequisite for system safety. Only the highest reliability and quality standards can satisfy the constantly rising demands. MAHLE AKO has been developing and producing innovative and high quality filters for over 70 years.

MAHLE AKO filters are used in all industry sectors including water supply and distribution, the chemical industry, process engineering, air conditioning, refrigeration, mechanical engineering,

power stations, the automotive industry, food-stuffs, and shipping.

We supply proven and reliable standard solutions as well as special designs that are suitable for extreme process conditions with extremely high safety requirements. All MAHLE AKO products are extremely robust and durable, require very low levels of maintenance, and have a compact design. In addition, we provide comprehensive servicing.



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