



Fully Automatic Backflush Filter



Constantly increasing levels of performance and the growing degree of automation in hydraulically operated systems require all components to function perfectly. It is therefore vital, for example, to ensure that control valves work accurately. This has been achieved, among others, by reducing the fit tolerances between housing and piston.

To prevent that impurities in the hydraulic fluid as a result of this development cause functions to

fail in a system an effective filter has been developed:

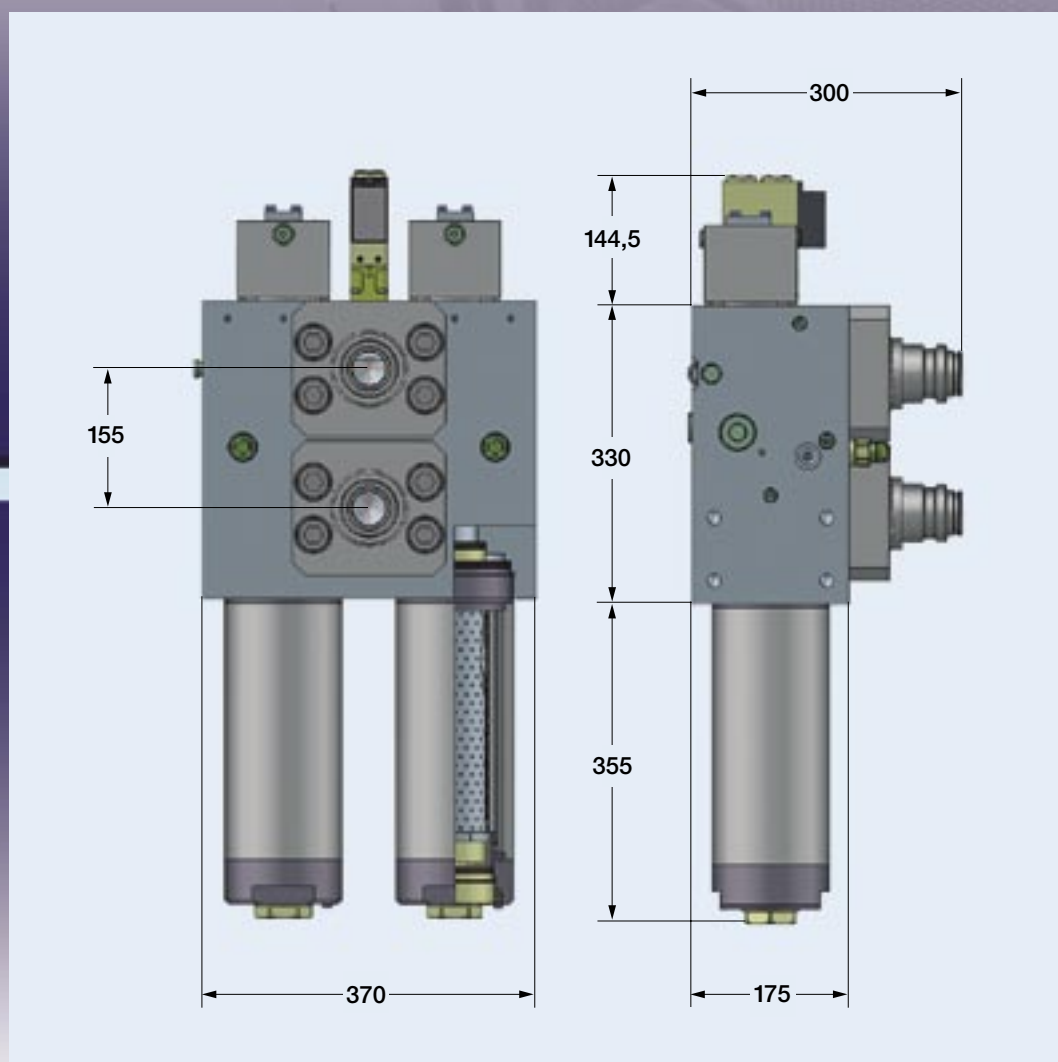
The fully automatic backflush filter.

This filter is used as pressure filter in the main flow and in a hydraulic system has the function of filtering and removing the contaminants of a hydraulic fluid. These contaminants mainly occur in the form of metallic abrasions, lacquer, rubbed off seal parts, dust, and scales. When no backflush filters

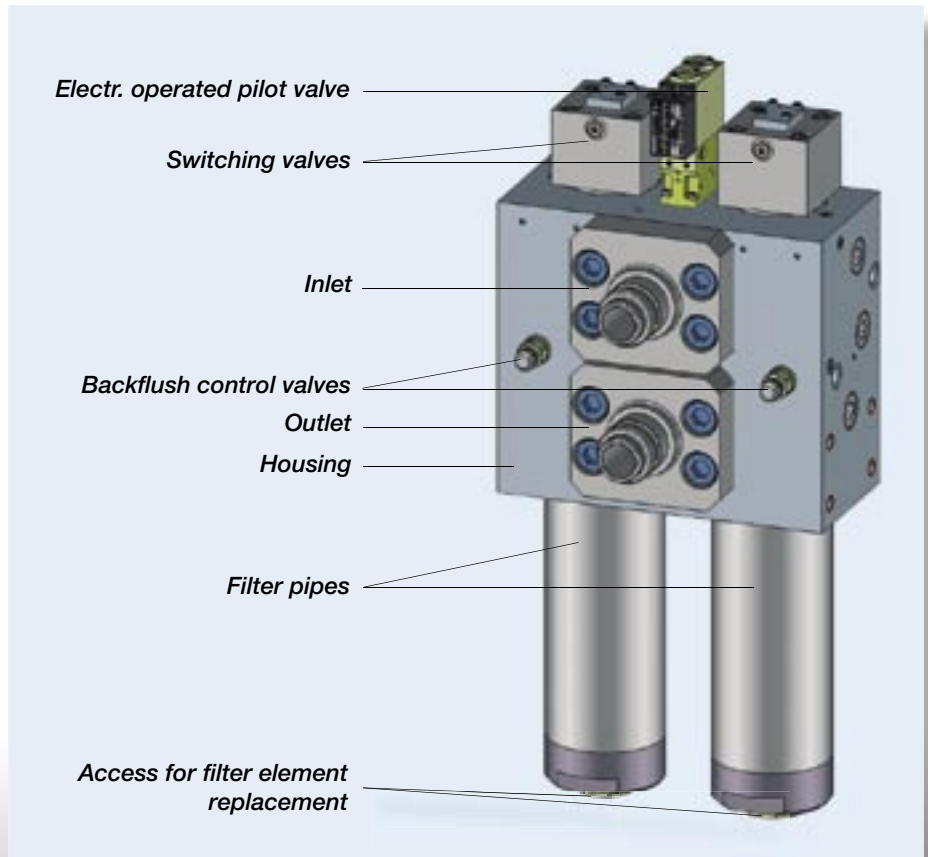
are installed these dirt particles are taken to all points of a hydraulic system and can thus impair the functional reliability of the system.

The backflush filter consists of the filter housing, the filter elements, and the control components.

The standard connection is a flange with nominal width DN51SSO which can be adapted to the individual requirements by means of different fittings.



- *Pressure-resistant backflush filter, nominal pressure up to 350 bar*
- *Fully automatic filter backflushing*
- *Differential pressure or time control, or a combination of the two*
- *Electrohydraulic control*
- *Simple operation thanks to standard control units*
- *Made of special steel*
- *Suitable for all fluids*
- *Extended maintenance intervals*



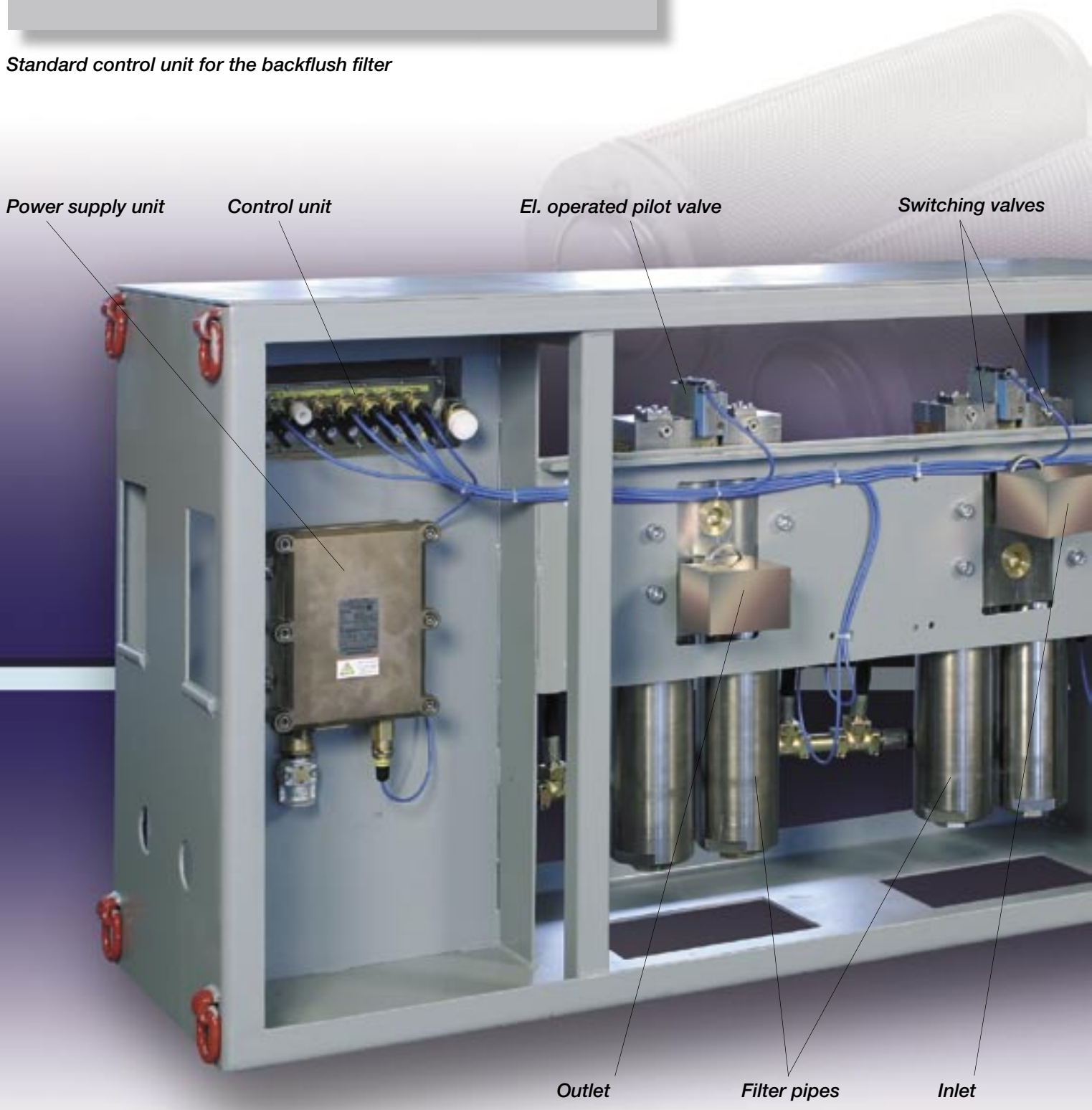


Contaminated pressure fluid enters the filter housing at the inlet. It flows through the filter elements from the outside in. Dirt particles which are larger than the pore size of the filter element are trapped.

The filtered fluid leaves the housing at the outlet. The contaminated filtrate is generally removed via separate lines.

The pilot valves are supplied with the backflushed hydraulic fluid internally.

Standard control unit for the backflush filter



Pressure sensors at the filter inlet and outlet measure the differential pressure. The latter is an indicator of the degree of contamination: Increased contamination of the filter causes the differential pressure to rise. If the pressure difference exceeds a defined value the filter element is automatically cleaned removing dirt particles from the filter element.

Based on preset parameters, the backflush process can be triggered by differential pressure, time or

a combination of the two.

The lower the differential pressure value set at the filter the more often will backflushing be performed. This essentially increases the life of the filter elements.

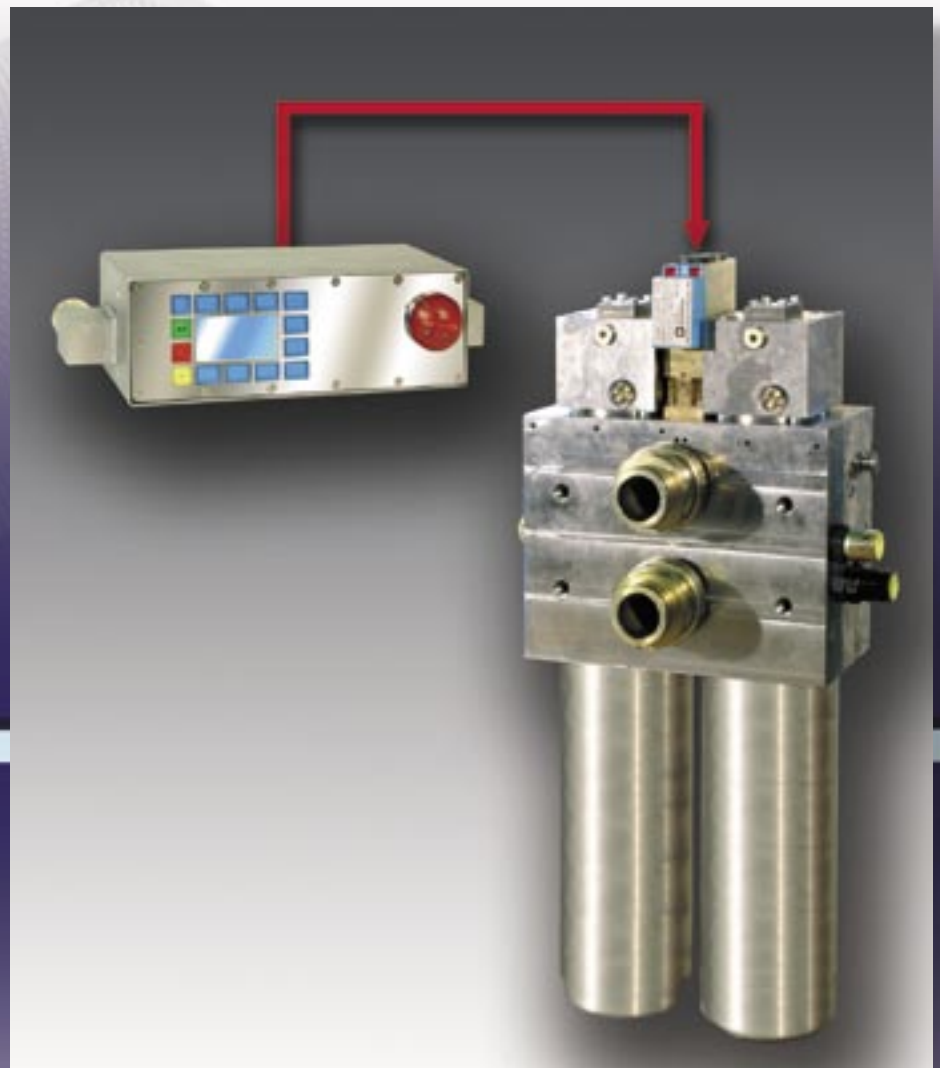
A signal transmitted from the control unit activates the pilot valve which in turn triggers **the backflush process**:

The internal valves are reversed and the pressure fluid flows through the filter element in the

opposite direction for approx. 2 to 3 seconds. The dirt particles are removed from the filter and drained via the leakage port.

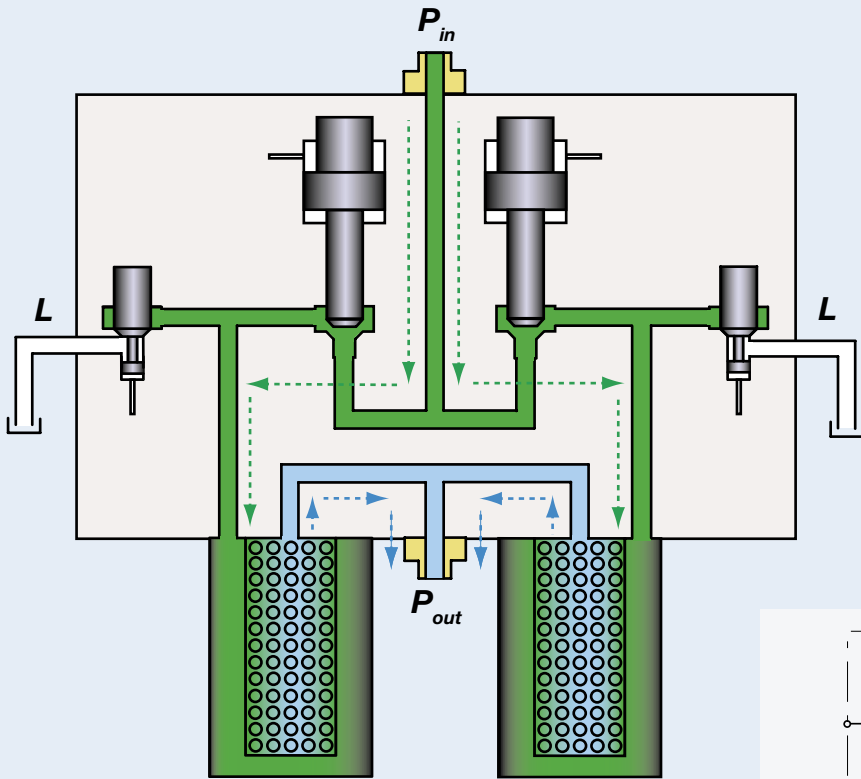
While one filter element is cleaned by backflushing the other element continues filtration to permit troublefree operation.

Control of the backflush filter via a solenoid valve (pilot valve)

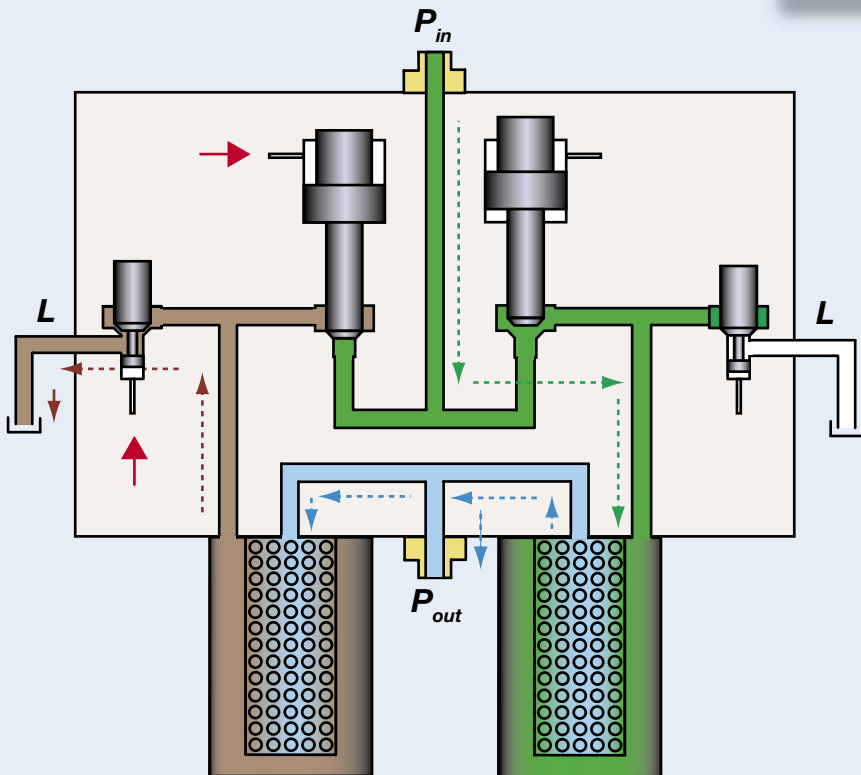


Backflush process:

In normal operation, the switching valves are open; the hydraulic fluid flows through the filters and is being cleaned.

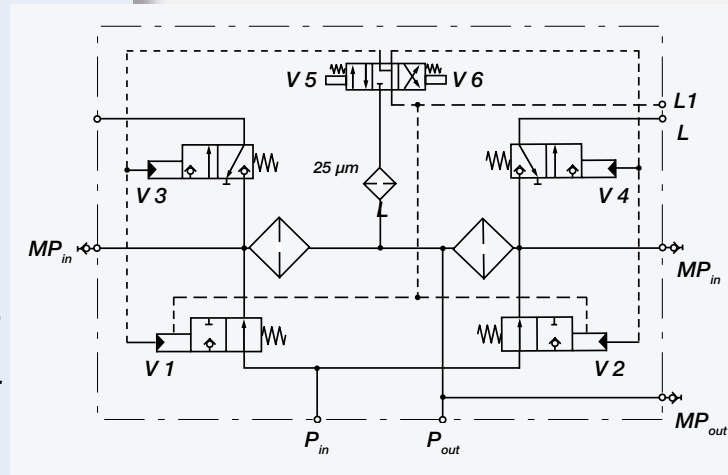


If the pressure difference measurement reveals that the filter elements need cleaning, the master control unit will transmit a signal to close the switching valve and to open the respective backflush control valve. The hydraulic fluid flows through the filter in the opposite direction for a short while flushing out the impurities which are then drained via the leakage line. While this happens, the second filter continues operation. It will afterwards be cleaned the same way.



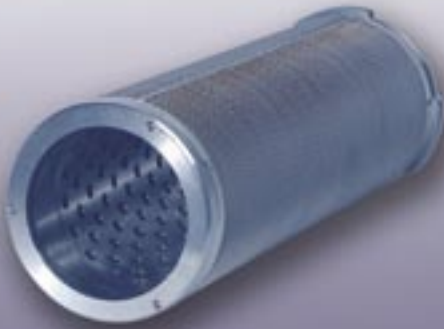
The filter elements are always flushed **one after the other**. The control unit prevents that both elements are flushed at the same time.

Irrespective of automatic back-flushing based on differential pressure, the filter elements should be backflushed at least once every shift.

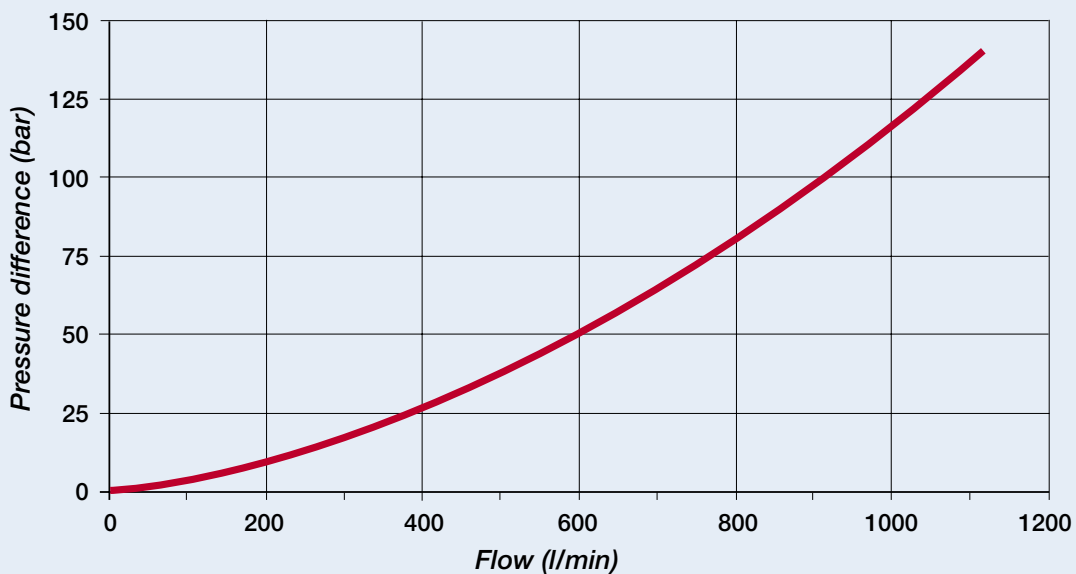


Technical data

Max. perm. operating pressure:	350 bar
Min. perm. operating pressure:	100 bar
Test pressure:	700 bar
Differential pressure for backflushing:	adjustable from 1 bar to 40 bar
Time intervals for backflushing	adjustable from 1 min to 600 mins
Type of filter:	Pressure filter
Mesh size:	As requested by customer
Filter element:	Slotted pipes or fabric cylinders
Mesh size pilot control	25 μ m
Flow rate:	1000 l/min
Ports:	
Inlet P_{in} / Outlet P_{out}	Flange DN51 SSO
Leakage L / L1	Thread G1/2
Pressure indicator MP_{in}	Thread G3/4
Pressure indicator MP_{out}	Thread G1
Housing material:	Special steel
Fitting position	Any, cartridge length to be considered
Weight	approx. 220 kg
Supply voltage (supply voltage power supply unit)	24/36/42/110/127/230 V AC
Output voltage U_i	13.5 V
Output current I_i (intrinsically safe)	1.55 A
Type of protection	Ex I M2 EEx d [ib] I



Characteristic line of filter during the backflush process of a filter element





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