The AutoFilt® RF3 automatic back-flushing filter for process technology
The AutoFilt® RF3 automatic back-flushing filter for process technology

Designed for continuous and maintenance-free filtration in all sectors of industry.

The AutoFilt® RF3 automatic back-flushing filter is a self-cleaning system for extracting particles from low-viscosity fluids. Its rugged construction and automatic back-flushing capability make a major contribution to operational reliability and reduce operating and maintenance costs.

The slotted-tube filter elements with filtration rates of 50 to 3,000 µm ensure highly effective separation of contaminating particles from the process medium.

Automatic cleaning starts as soon as the elements become contaminated. The filtrate flow is not interrupted during the back-flushing procedure.

A range of filters of different sizes allows flow rates of up to 10,000 m³ per hour.

Numerous combinations of materials and equipment as well as individually adjustable control parameters allow optimum adaptation of the filter to any application.

Cost-effectiveness of the AutoFilt® RF3

Particle contamination in operating fluids accelerates the rate of wear of system components, pipelines and valves and often leads to their premature failure. In many cases, the use of automatic back-flushing filters leads to a significant increase in service life and maintenance intervals.

Costs for new purchases, maintenance and waste disposal can thus be minimized.

AutoFilt® Type RF3 - some examples of applications

**Power stations**
Treatment of industrial water for cooling generators and filtration of sealing water to increase the service life of the turbine shaft sliding-ring seals in hydroelectric power stations.

**District heat supply**
Protecting heat exchangers from clogging and wear.

**Chemical industry**
Improving product quality by filtering process media.

**Steel industry**
Protection of nozzles and pumps during high-pressure descaling, water treatment for cooling blast furnaces and rolling mills.

**Sewage treatment plants**
During production of industrial water, filtration of a take-off of the clear run can be used to save valuable drinking or well water.

**Environmental technology**
Back-flushing filters are used as pre-filters before waste-water treatment plants (UV treatment, reverse osmosis, membrane filtration...).

**Mining**
By filtering underground, spray water of an even quality is assured. This results in more reliable operation of pumps and disc-cutting machines.

**Paper industry**
For example: the protection of spray nozzles for the screens of paper-making machines. This results in fewer failures caused by clogging and wear.

**Automotive industry**
**Mechanical engineering**
**Machine tools**
Cooling lubricant emulsions can be kept much longer in circulation. This eases the pressure on the environment and reduces waste-disposal and re-purchasing costs. Filtering of cooling and service water protects cooling channels and pipelines from clogging.
Special features of the HYDAC AutoFilt® RF3

Isokinetic filtering and back-flushing
The special shape and configuration of the filter elements
- conical or conical/cylindrical
allows even flow, resulting in low pressure drop and complete cleaning of the elements.
The advantage: fewer back-flushing cycles and lower loss of back-flushing fluid.

Pulse-aided back-flushing
In control modes EPT and PT
the flushing arm remains under each filter element for only a few seconds.
Rapid opening of the pneumatic back-flushing valve generates a pressure surge in the openings of the filter elements that provides an additional cleaning effect to the back-flushing process.

Low back-flushing quantities due to cyclic control
The back-flushing valve opens and closes during back-flushing of each filter element.
The filters are designed specially to ensure good flow conditions and enable **compact dimensions with high filtration performance and low pressure drop.**

**Element opening quotient EFQ_x**

The element opening quotient (EFQ_x) determines even flow without reverse flow through the filter element during filtering and back-flushing. The EFQ_x value is the ratio of the open filtration surface of an element to the cross section of the opening of the element inlet.

\[
EFQ_x = \frac{A_f}{A_e}
\]

\(X = \) Filtration rating in µm

Example: \(EFQ_{100} < 3\) for elements with filtration rating of 100 µm
Freely selectable control parameters
The triggering differential pressure and back-flushing time per element can be adapted to best suit the process conditions. Timer relays can be used to trigger additional cleaning intervals independently of the differential pressure. The control procedure is displayed via LEDs. A second microswitch on the pressure gauge can be used for external filter monitoring.

Variable filter isometry
The inlet and outlet flanges as well as the back-flushing line can be configured in different positions. This means that the filter can be easily integrated into any plant layout.

Ready-to-operate unit
The filter control unit and differential pressure measuring line are already connected. Once the filter has been fitted to the pipework, only the auxiliary power supply needs to be connected.

A static seal between the contaminated and clean sides of the filter makes it impossible for particles to penetrate the filtrate.
### Summary of technical data:

- **Maximum operating pressure:** 10 or 6 bar*
- **Operating temperature:** 90 °C*
- **Filtration rate:** 50 to 3000 µm
- **Power supply:** Electropneumatic, electric or pneumatic
- **Material of filter housing:** Carbon steel or stainless steel
- **Material of filter elements:** Stainless steel
- **Material of internal parts:** Stainless steel
- **Corrosion protection for filter housing made of carbon steel:** Polyurethane or rubber coating

* Other models available on request.

### The advantages of the AutoFilt® RF3...

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<thead>
<tr>
<th>Feature</th>
<th>Benefit to You</th>
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<tbody>
<tr>
<td>Extensive standard features for individual applications</td>
<td>Excellent price/performance ratio</td>
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<tr>
<td>Fully-automatic operation</td>
<td>Reliable and safe No intervention by staff required Low operating costs</td>
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<tr>
<td>Continuous filtrate flow even during back-flushing</td>
<td>No interruption of operation</td>
</tr>
<tr>
<td>Flow rate up to 10,000 m³/h</td>
<td>High process performance</td>
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<tr>
<td>Service-friendly</td>
<td>Low maintenance costs</td>
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<tr>
<td>Isokinetic filtration and back-flushing</td>
<td>Maximum utilisation of filter surface Full filtration performance after back-flushing</td>
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<td>Conical filter elements</td>
<td>Unbeatable $\Delta p$ curve Optimum EFQ×</td>
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<tr>
<td>Slotted-tube filter elements</td>
<td>Long service life Optimum filtration and back-flushing properties</td>
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<td>Pulse-aided back-flushing cleaning</td>
<td>Additional dynamic element with low loss of cleaning fluid</td>
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<td>Individually adjustable control parameters</td>
<td>Customer-specific adaptation to the particular application</td>
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<tr>
<td>Flow-optimised filter</td>
<td>High throughput with compact dimensions</td>
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<td>Static sealing between contaminated and clean sides</td>
<td>Guaranteed high filtrate quality Low maintenance</td>
</tr>
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<td>Variable housing isometry</td>
<td>Reduced costs due to space-saving and simple installation</td>
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<td>Numerous equipment options</td>
<td>Customer-specific adaptation to the particular application</td>
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<td>Ready-to-operate unit</td>
<td>Simple installation and commissioning Guaranteed reliability due to HYDAC system test</td>
</tr>
<tr>
<td>ISO 9001 certification</td>
<td>Consistently high quality</td>
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### Note:
The information in this brochure relates to the operating conditions and applications described. For applications or operating conditions not described, please contact the relevant technical department. Subject to technical modifications.
Automotive industry

Paper industry

Mining

District heat supply

Power stations

Chemical industry

Environmental technology

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