

Automatic Back-Flushing Filter AutoFilt® RF12



Specifications

Nominal size:	G 1 1/2"
Q _{max} :	80 l/min
p _{max} :	10 bar
Filtration ratings:	25 - 1000 µm

1. GENERAL

Product description

- Self-cleaning automatic filter
- Separation of solid particles from low viscosity fluids
- Particularly suitable for filtering cooling lubricants in individually supplied machine tools
- Discontinuous filtration

Filter element technology

- Conical filter element
- Wedge wire: 30 to 1000 µm
- SuperMesh wire mesh, sintered: 25 to 60 µm

Product advantages

- Energy-optimised filtration and back-flushing principle
- Not dependent on pressure of filtrate
- Efficient alternative to a cyclone separator
- Compact design
- Simple structure
- Simple integration and flexible adjustment to suit machine tool
- Maintenance-friendly design

Technical data – standard models

Size	Pressure range [bar]	Connection Inlet/outlet	Connection, back-flush line	Weight [kg]	Volume [l]	No. of filter elements	Filtration area [cm²]	Back-flush volume [l]
1	10	G 1 1/2"	G 1"	15	1.8	1	356	3*

Legend

* Back-flush volume at a system pressure of 0.8 bar and a valve opening time of 2s.

2. FUNCTION

FILTRATION

- The medium being filtered enters the filter housing via the filter inlet and flows through the filter element from the inside to the outside
- The filtrate leaves the filter via the filter outlet
- As medium passes through the filter element, particles are deposited on the inner surface of the filter element and the differential pressure between dirt and clean side increases

TRIGGERING BACK-FLUSHING

After the time pre-set on the timer has elapsed, or by means of an optional differential pressure gauge, back-flushing starts automatically

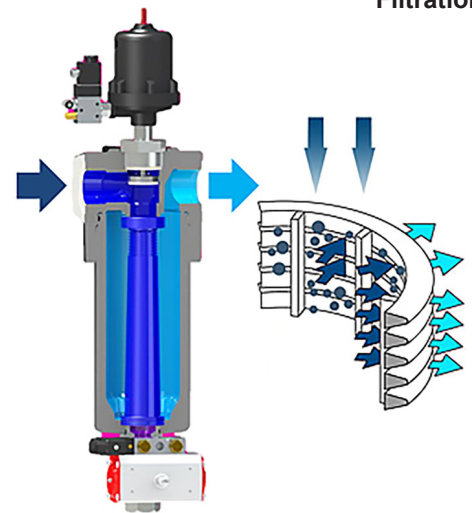
PHASE 1 OF BACK-FLUSHING: STRIPPING AWAY THE CONTAMINATION

- The back-flushing valve is opened
- Unfiltered fluid from the filter inlet above flows into the filter element
- The conical filter element geometry generates a core flow that is mainly fed by the filter inlet
- The core flow is supported by the free jet effect, which draws additional clean fluid from the filtrate side into the inside of the filter element
- This in itself flushes away some of the deposited contamination

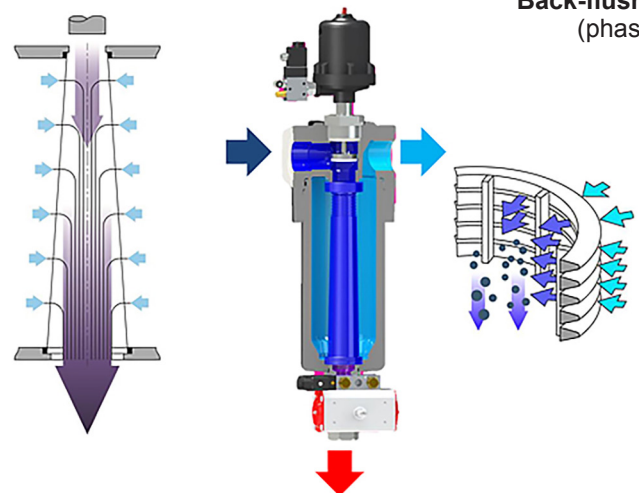
PHASE 2 OF BACK-FLUSHING: DISCHARGING THE CONTAMINATION

- The JetFlush valve is closed above the filter element
- The moving column of fluid draws water from the filtrate side as soon as the water supply stops as a result of the JetFlush reservoir closing
- This causes even firmly attached particles to be stripped away effectively
- The filtrate flow is interrupted during the cleaning process for roughly 3 seconds
- After the JetFlush valve is opened, dirt is removed by means of unfiltered-fluid flow via the back-flush line
- Once the back-flushing valve has closed, the filter returns to filtration operation

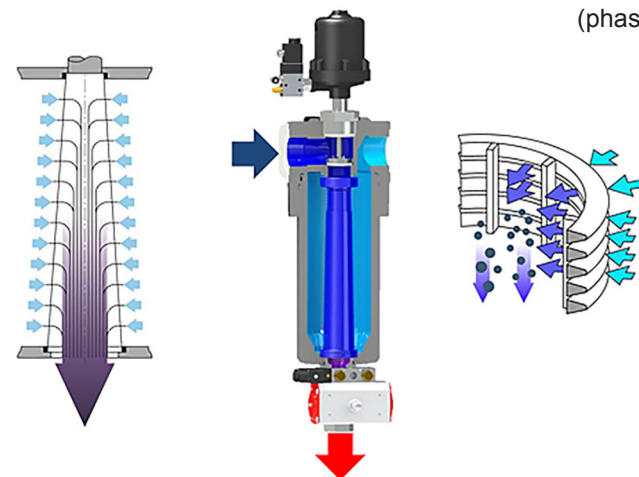
Filtration



Back-flushing
(phase 1)



Back-flushing
(phase 2)



3. FILTER CALCULATION*

Maximum flow rate	80 l/min
Inlet pressure	not less than 0.7 bar

Application requirements

Filtration rating	> 25 µm (nominal)
Pre-filtration	< 1000 µm
Contamination load	< 200 mg/l
Viscosity	< 10 cSt

Integration

The back-flush line of the filter must have a minimum length of 1 m. It must not have any kind of elevations / lifts and no back-pressure.

The outlet of the filter must be open, no non-return valve allowed and filtrate must be able to flow back.

Medium	Type of contamination	Type of machining	Max. flow rate [l/min]
Emulsion	Aluminium	Turning / drilling / milling	80
Emulsion	Cast iron	Turning / drilling / milling	60
Emulsion	Steel	Turning / drilling / milling	70
Emulsion	Stainless steel	Turning / drilling / milling	70

4. FILTER CONFIGURATION*

	Standard	Optional
Control variant	Electro-pneumatic	
Material of filter housing	Aluminium	
Material of filter elements	Austenitic Cr-Ni-Mo steel	Filter elements with SuperFlush non-stick coating
Material of internal parts	Austenitic Cr-Ni steel	
Measurement of pressure difference		2 x HDA 4700 stainless steel (4–20mA) - VL1 GW.0
Documentation	- Operating instructions - Declaration of incorporation in accordance with Machinery Directive	- Manufacturer's test certificates - Circuit diagram - Inspection plan

Other versions and customised special solutions after consultation with our Head Office.

* Please contact our Head Office if you have any queries regarding filter calculation.

5. MODEL CODE

MODEL CODE AutoFilt® RF12

RF12-1 – EP0 – 1 – S – 0 – 10 – X / KSD 25 – 1234567

Filter type

RF12-1 = AutoFilt® RF12 size 1

Protective filter

- EP0 = electropneumatic control without pilot valves
- EP1 = electropneumatic control incl. pilot valve 24V DC
Device connector DIN EN 175301-803 / form A (w/o mating connector)
- EP2 = electropneumatic control incl. pilot valve 24V DC
Device connector M12x1 (w/o mating connector)
- EP3 = electropneumatic control incl. pilot valve 230V AC
Device connector DIN EN 175301-803/form A (w/o mating connector)
- EPZ3 = electropneumatic control incl. pilot valve 230V AC,
with timer control (1 x 230V/N/PE 50 Hz)
- EPD3 = electropneumatic control incl. pilot valve 230V AC,
with differential pressure control (1 x 230V/N/PE 50 Hz)

Material

- 1 = filter housing: aluminium, internal parts: stainless steel

Back-flushing valve

- 0 = without, G1" connection
- CO = coaxial valve, brass
- KN = ball valve, brass, nickel-plated
- S = piston control valve, brass

Differential pressure monitoring

- 0 = without differential pressure monitoring
- 5 = 2x HDA 4700 stainless steel (4 – 20 mA)
- 7 = fixed value 0.5 bar. Type GW, n.c. contact

Pressure range

- 10 = 10 bar

Modification code

- X = the latest version is always supplied

Filter elements / filtration rating

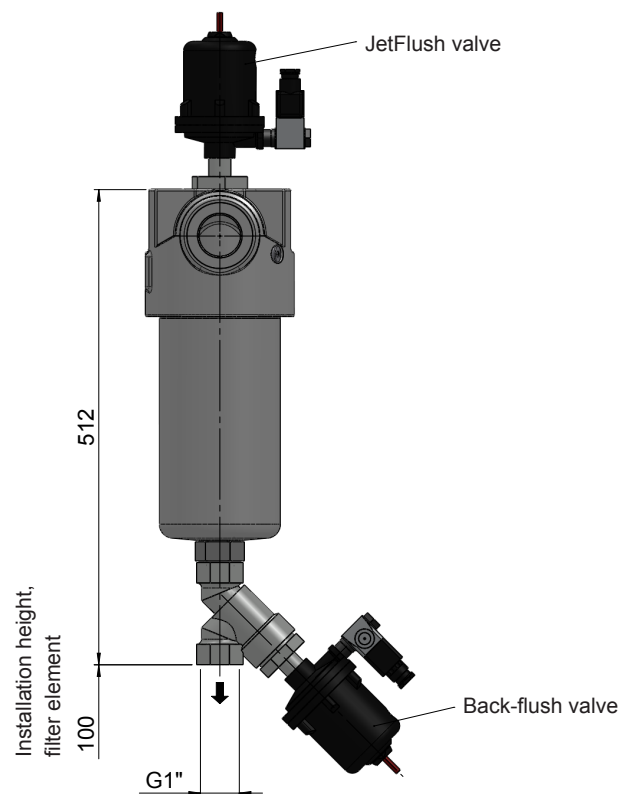
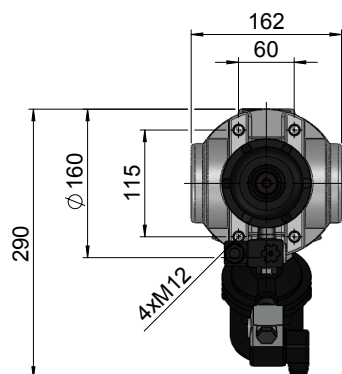
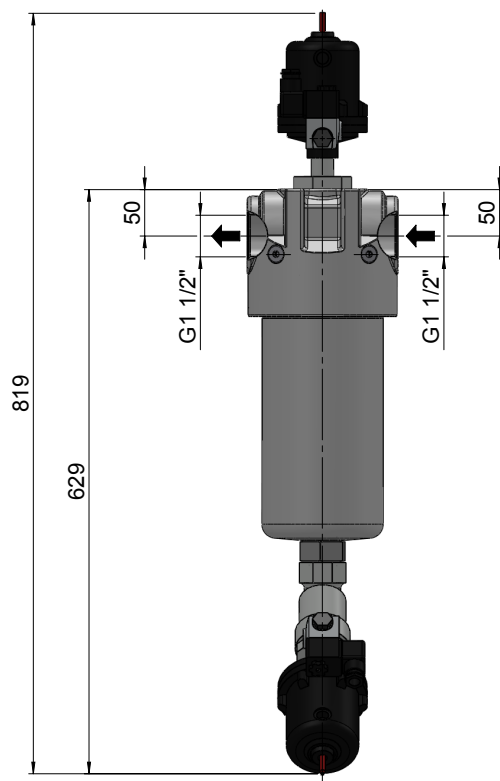
- S = preceded with an additional "S" for SuperFlush non-stick coating
- KSS = wedge wire 30 µm to 1000 µm
- KSD = SuperMesh wire mesh, sintered, 25 µm / 40 µm / 60 µm; others on request

Drawing number

For special designs

Preferred variants highlighted in grey!

6. DIMENSIONS



The dimensions indicated have ± 10 mm tolerances.
Subject to technical modifications.

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.

HYDAC Process Technology GmbH
Am Wrangelflöz 1
D-66538 Neunkirchen
Tel.: +49 (0)6897 - 509-1241
Fax: +49 (0)6897 - 509-1278
Internet: www.hydac.com
E-mail: prozess-technik@hydac.com