

## Automatic Backflush Filter R5-8

Variable segment cleaning with internal medium, rated pressure up to 232 psi (16 bar)

Connection sizes: ANSI 1-1/4" to 8", cast design

### 1. Features

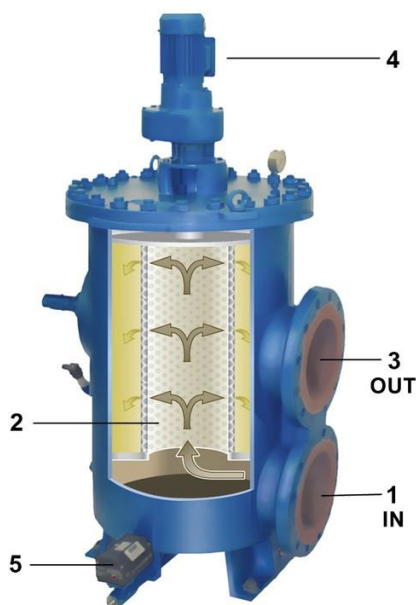
#### Powerful, fully automatic filtration

- Used in multiple liquid/solid separation applications
- Continuous filtration means no process interruption
- Low backflush flow rates and optimal cleaning of the filter element improve filtration efficiency
- Backflush nozzle positioned directly on the filter element provides maximum cleaning effectiveness
- Perfect synthesis of ecology and economy
- Mature engineering and robust design
- Compact design
- Filter ratings from 25 to 1000 µm absolute
- Easy to service
- Worldwide network of distribution and service agents



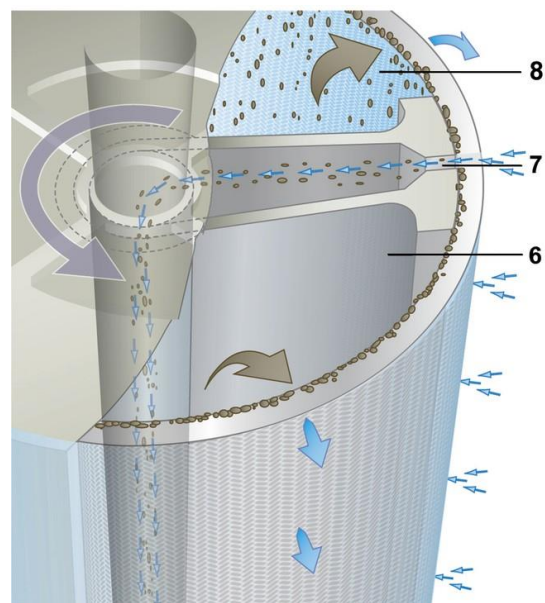
## 2. Operating principle

- 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 medium passes through the filter element from the inside to the outside. During this process, contaminants are trapped on the inner side of the wire cloth.
- The filter housing contains a filter element with pleated wire cloth through which the medium flows and contaminants are trapped (8).
- When a defined differential pressure is reached or after a settable time interval, the fully automatic backflush process starts. In order for the backflushing process to be efficient, there must be operating overpressure on the outlet side (clean side) of the filter.
- When the backflush start time is reached the flush valve opens (5) and the gear motor (4) starts to turn the flushing nozzle (6), which is located in the filter element. Thereby the flushing nozzle passes the entire element surface (2).
- The process medium that has already been filtered flows at high speed in the opposite direction through the vertical slot (7), which is located directly on the filter element. The trapped contaminants are discharged from the system via the flush pipe (5).
- The flush valve closes again when the filter element has been turned approximately 400°, so that the backflush process is completed in only a few seconds.
- Since the element is turned, only the part covered by the cleaning nozzle is actually cleaned; the remainder can continue to be used for filtration → operation is not interrupted.

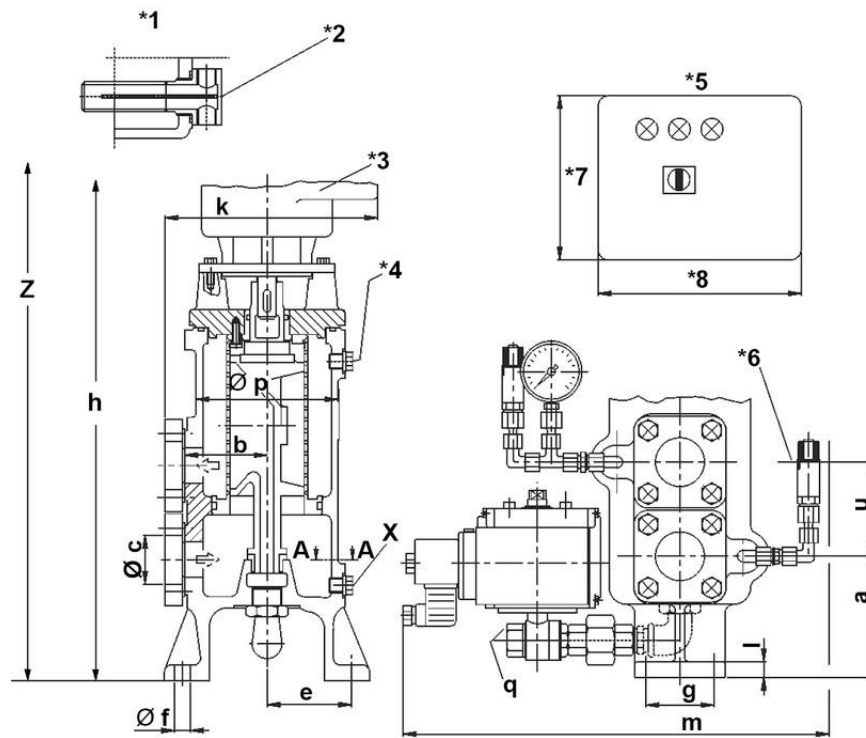


## 3. Technical Data

Connection:	1¼ to 8 inches NPT
Flange:	ANSI 125# flat face
Material:	Nodular cast iron ASTM
Max. operating pressure:	232 psi (16 bar)
Test overpressure:	464 psi (32 bar)
Max. operating temperature:	356 °F (180 °C)
Filter element:	Screen basket with pleated wire cloth
Filter rating:	25 to 1000 µm absolute



## 4. Dimensions



### Models 1¼ to 3 Inches

h = Total height

q = Flush pipe

X = Drain

Z = Required clearance  
for disassembly

\*1 = Section A - A

\*2 = Heating cartridge (optional)

\*3 = Motor

\*4 = Vent ¼" NPT

\*5 = Switch box

\*6 = Pressure transmitter (optional)

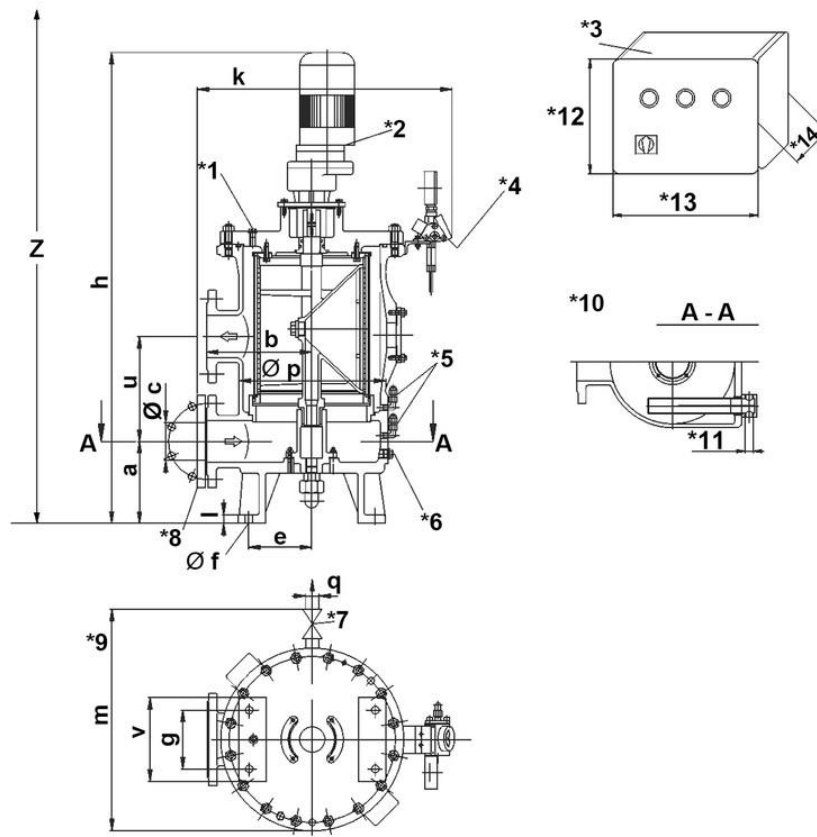
\*7 = 11.8 inches (approx.)

\*8 = 15 inches (approx.)

All dimensions in inches except where noted.

Model Type	I/O	a	b	Ø c	e	Ø f	g	h	k	l	m	Ø p	q NPT	u	X NPT	Z	Capacity [US gal]	Weight [lbs]
RA05W110F02	1¼	4.25	2.87	1.69	2.95	0.55	1.97	29.13	7.48	0.55	14.84	4.96	½	3.30	¼	25	0.55	86
RA06W110F03	1½	4.45	4.72	1.93	2.95	0.55	3.54	31.89	11.22	0.51	16.14	6.93	½	4.53	¼	29.5	1.45	119
RA07W110F03	2	4.45	4.72	2.40	2.95	0.55	3.54	31.89	11.22	0.51	16.14	6.93	½	4.53	¼	29.5	1.45	119
RR08W110F05	2½	5.12	6.30	3.03	4.86	0.55	3.94	36.93	13.78	0.47	21.65	10.63	½	7.48	½	35.5	5.02	214
RR09W110F05	3	5.12	6.30	3.54	4.86	0.55	3.94	36.93	13.78	0.47	21.65	10.63	½	7.43	½	35.5	5.02	214

Dimensions are for reference only and subject to change without notice.



#### Models 3 to 8 Inches

- \*1 = Vent 1/4" NPT
- \*2 = Motor
- \*3 = Switch box
- \*4 = Differential pressure indicator (optional)
- \*5 = Pressure transmitter (optional)
- \*6 = Drain 1/2" NPT
- \*7 = Flush pipe
- \*8 = Reducing mating flange
- \*9 = Graph without motor
- \*10 = Heating cartridge (optional)
- \*11 = 1/2" NPT
- \*12 = 11.8 inches (approx.)
- \*13 = 15 inches (approx.)
- \*14 = 6.1 inches (approx.)
- Z = Required clearance for disassembly

All dimensions in inches except where noted.

Model Type	I/O	a	b	Ø c	e	Ø f	g	h	k	l	m	Ø p	q NPT	u	v	Z	Capacity [US gal]	Weight [lbs]
RR093110F07	3*	7.7	9.84	3.54	5.91	0.71	5.51	44.29	25.59	0.79	22.1	13.62	¾	9.84	7.87	46.5	11.9	452
RR103110F07	4	7.7	9.84	3.94	5.91	0.71	5.51	44.29	25.59	0.79	22.1	13.62	¾	9.84	7.87	46.5	11.9	452
RR113110F46	5	9.3	11.02	4.92	6.89	0.91	7.87	51.18	29.92	0.79	25.6	15.75	1	10.63	10.24	63.0	21.1	552
RR113110F09	5*	10.9	13.78	5.55	8.86	0.91	7.87	55.94	32.28	0.79	29.1	20.31	1	13.78	11.02	66.2	40.7	1092
RR123110F09	6*	10.9	13.78	6.65	8.86	0.91	7.87	55.94	32.28	0.79	29.1	20.31	1	13.78	11.02	66.2	40.7	1092
RR143110F09	8	10.9	13.78	7.87	8.86	0.91	7.87	55.94	32.28	0.79	29.1	20.31	1	13.78	11.02	66.2	40.7	1092

\* with mating reducing flange by others.

Dimensions are for reference only and subject to change without notice.

## 5. Design and application

The design of the backflush filter is based on the respective customer's requirements. The material, type of construction, filter surface and rating are expertly adapted to the specific filtration needs based on the medium and capacity.

The housing can be optimized with multiple options available for the backflush filters.

### Options:

- **Heater:**  
Capacity and size optimally matched to filter sizes.  
Steam and electric versions available.
- **Magnetic elements:**  
Strong permanent magnets can be used.
- **Controls:**  
Control by means of a switch box with a programmable automation module.  
User friendly control panel makes programming easy.  
Programming and simulation on a PC.
- **Pressure transmitter:**  
Differential pressure monitored with a pressure transmitter.  
This permits precise monitoring of the differential pressure using the PLC module in the switch box.  
Max. temperature: 302 °F (150 °C)  
Max. operating pressure: 580 psi (40 bar)  
Measuring tolerance: 0.3 %
- **Bypass filter:**  
Manual, semi-automatic, and fully automatic with change-over unit (manual, fully automatic).
- **Step nozzle:**  
To reduce flush volume.

Backflush filters are not at all complicated to use plus, they allow for continuous filtration. The necessary steps are described in the following:

- The filter is comprised of a bowl with a cover and a gear motor.
- The bowl contains a vent port, a drain port and a filter element.
- The filter must be filled slowly and vented before it is put into service. It must not be subjected to full pump flow when the unit is empty.
- Switch on the filter controller and start a flushing process with the hand release. If the viscosity of the medium is very sensitive to temperature, the filter controller should not be switched on until the filter reaches its normal service temperature.
- The filter controller must be switched off if the plant is not in service.
- In order for the backflushing process to be efficient, there must be operating overpressure during the flushing process on the outlet side of the filter.
- Backflushing starts automatically after a defined time or when the maximum differential pressure is reached. If the differential pressure exceeds 44 psi (3 bar), the filter must be removed from service or changed over to bypass. Then dismantle the filter and clean the wire cloth cylinder (refer to "Cleaning").
- When a flushing process is tripped, the gear motor is switched on and the flush valve for the flushing medium outlet opens. The medium flows from the clean side through the filter element and into the internal nozzle as the flushing nozzle is turned by the gear motor.
- The flushing medium flows through the wire cloth at high speed, so that the contaminants trapped in the filter are detached and discharged via the flushing outlet and the flush pipe connected to it.
- The filter controller is programmed so that the flush valve closes and the gear motor is switched off after approximately 1¼ turns of the flushing nozzle.
- To clean the filter, isolate the unit by closing upstream and downstream valves, open vent and drain valves, switch off the filter controller, dismantle the gear motor, loosen the cover fixing screws and remove the cover. The complete filter element can now be lifted vertically out of the filter. To clean the filter element manually, spray it with steam, compressed air or water from the outside towards the inside. Pre-treat the element with a suitable solvent if the dirt cannot be removed easily. It may be necessary to dismantle the pleated wire cloth cylinder.

## 6. Type number key

Type number key with selection example for R5-8 backflush filters ANSI 1-1/4" to 8" inlet & outlet

### Main product group

**R** Automatic filter

#### Series

**R** Cast design

**A** For nominal diameters 1-1/4" to 2"

#### Inlet and outlet connections

**05** Flange ANSI 125# flat face, 1-1/4 inches

**06** Flange ANSI 125# flat face, 1-1/2 inches

**07** Flange ANSI 125# flat face, 2 inches

**08** Flange ANSI 125# flat face, 2-1/2 inches

**09** Flange ANSI 125# flat face, 3 inches

**10** Flange ANSI 125# flat face, 4 inches

**11** Flange ANSI 125# flat face, 5 inches

**12** Flange ANSI 125# flat face, 6 inches

**14** Flange ANSI 125# flat face, 8 inches

#### Filter connection standard + rated pressure

**3** ANSI 125# flat face, 232 psi (16 bar)

**W** Factory standard

#### Position of main connections

**1** Above one another on the same side

#### Cover fastening

**1** Stud bolts or hexagon screws

#### Options

**0** Standard version

**2** Electric cartridge heater

**3** Steam/thermal cartridge heater

**7** Version without non-ferrous metals

**G** Rubber coating

#### Type of inner assembly

**F** Inner assemblies for automatic filter with internal medium

#### Inner assembly size

**XX**

#### Housing version

**B** Coated

#### Nozzle material

**4** Cast bronze

#### Number for special types or design features

**XX**

**10** Nominal diameter ANSI 6" or 8"

**R R 10 3 1 1 G F 07 B 4 10**

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