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Backflush Filter
R8-10

Nominal pressure up to 40 bar
Connections: DN 40 up to DN 500, welded design

1. Features

Powerful, fully automatic filtration

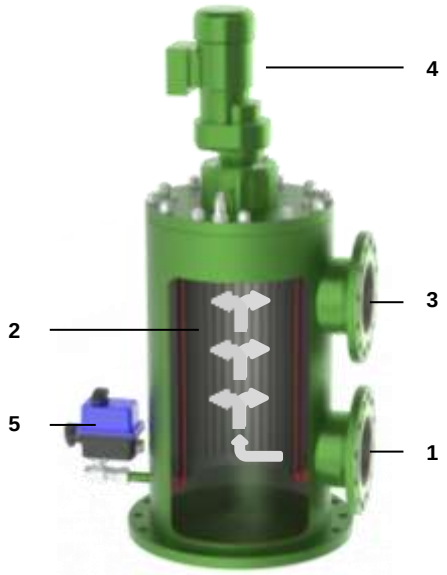
- Used in industry and shipping
- Continuous filtration supports rational production processes
- Low backflush flow rates and optimal cleaning of the filter element improve filtration efficiency
- Backflush nozzle positioned directly on the filter element guarantees maximum cleaning effectiveness
- Perfect 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

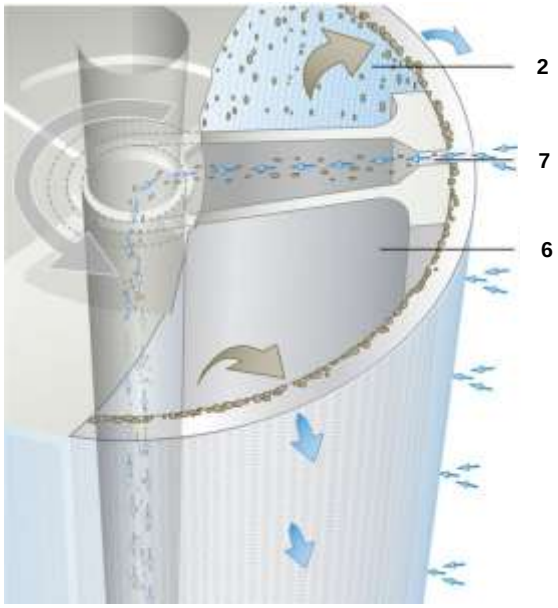
2. Operating principle

- 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 (2).
- 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 whole filter surface (2) bypasses the flushing nozzle.
- 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 (7) are discharged from the system via the flush pipe.
- 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 actuallly cleaned; the remainder can continue to be used for filtratiion → operation is not interrupted.

3. Technical Data

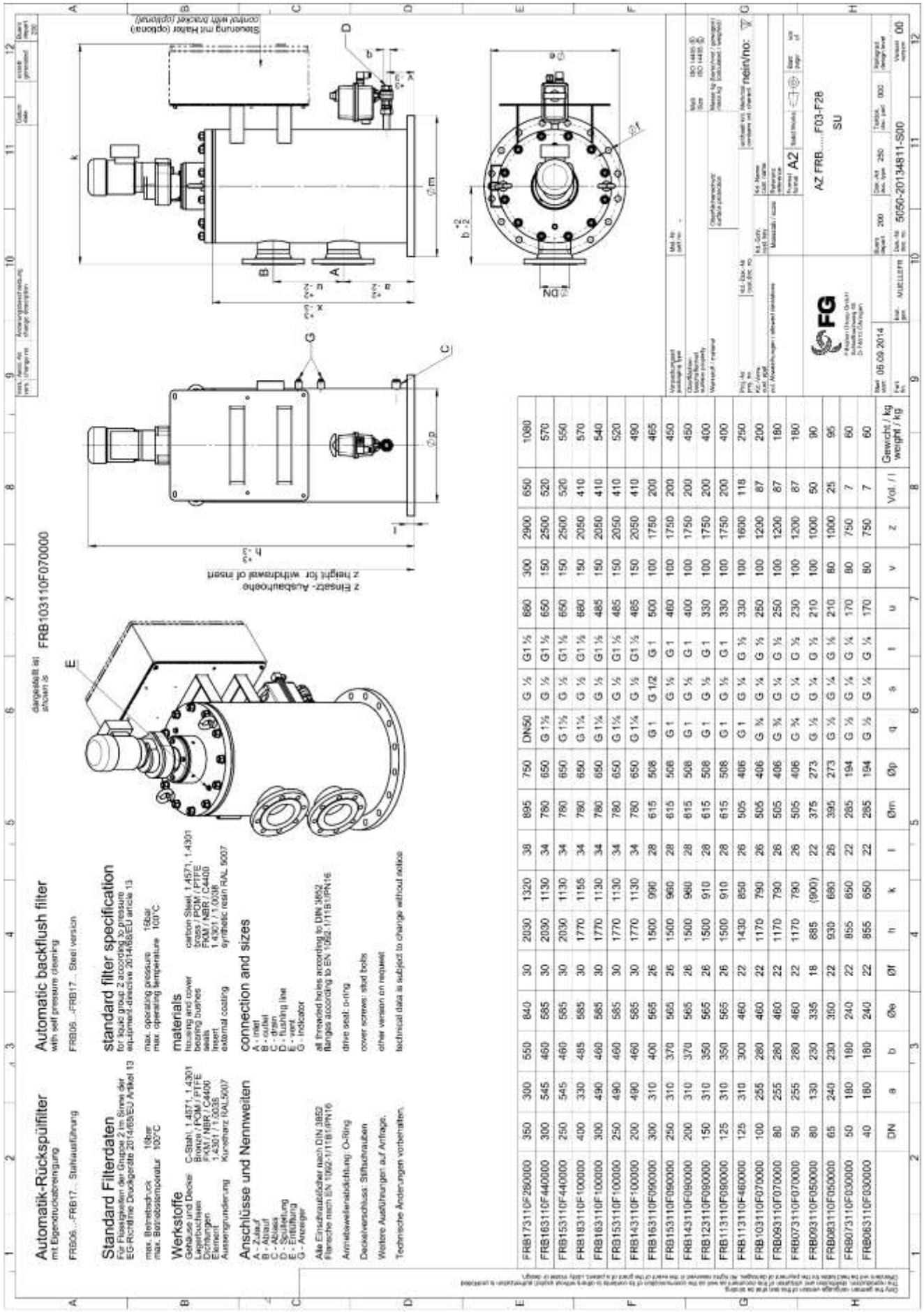
Connection:	DN 40 to DN 500
Flange:	DIN alternative ANSI
Material:	Steel/Stainless steel
Coating (optional):	Rilsan or Epoxy
Max. operating pressure:	16 bar
Optional operating pressure:	6/10/25/40 bar
Max. operating temperature:	100 °C
Filter element:	Screen basket with pleated wire cloth
Filter rating:	25 – 1.000 µm absolute





1 Inlet
2 Filter element
3 Outlet
4 Gear motor
5 Flush valve
6 Internal nozzle
7 Nozzle slot

4. Dimensions



	DN	a	b	Øe	Øf	h	k	l	Øm	Øp	q	s	t	u	v	z	Vol. / l	Gewicht / kg weight / kg
FRB173110F2600000	350	300	550	640	30	2030	1320	38	895	750	DN50	G ½	G1 ½	680	300	2900	650	1080
FRB163110F2440000	300	545	460	585	30	2030	1130	34	780	650	G 1½	G ½	G1 ½	650	150	2500	520	570
FRB153110F2440000	250	545	460	585	30	2030	1130	34	780	650	G 1½	G ½	G1 ½	650	150	2500	520	550
FRB183110F1000000	400	330	485	585	30	1770	1155	34	780	650	G 1¼	G ½	G1 ½	680	150	2050	410	570
FRB163110F1000000	300	490	460	585	30	1770	1130	34	780	650	G 1¼	G ½	G1 ½	485	150	2050	410	540
FRB153110F1000000	250	490	460	585	30	1770	1130	34	780	650	G 1¼	G ½	G1 ½	485	150	2050	410	520
FRB143110F1000000	200	490	460	585	30	1770	1130	34	780	650	G 1¼	G ½	G1 ½	485	150	2050	410	490
FRB163110F0990000	300	310	400	565	26	1500	990	28	615	508	G 1	G 1/2	G 1	500	100	1750	200	465
FRB153110F0990000	250	310	370	565	26	1500	960	28	615	508	G 1	G ½	G 1	460	100	1750	200	450
FRB143110F0980000	200	310	370	565	26	1500	960	28	615	508	G 1	G ½	G 1	400	100	1750	200	450
FRB123110F0980000	150	310	350	565	26	1500	910	28	615	508	G 1	G ½	G 1	330	100	1750	200	400
FRB113110F0980000	125	310	350	565	26	1500	910	28	615	508	G 1	G ½	G 1	330	100	1750	200	400
FRB113110F4600000	125	310	300	460	22	1430	850	26	505	406	G 1	G ¼	G ½	330	100	1600	118	250
FRB103110F0700000	100	255	280	460	22	1170	790	26	505	406	G ¾	G ¾	G ½	250	100	1200	87	200
FRB093110F0700000	80	255	280	460	22	1170	790	26	505	406	G ¾	G ¾	G ½	250	100	1200	87	180
FRB073110F0700000	50	255	280	460	22	1170	790	26	505	406	G ¾	G ¾	G ¾	230	100	1200	87	180
FRB093110F0550000	80	130	230	335	18	885	(900)	22	375	273	G ½	G ¾	G ¾	210	100	1000	50	90
FRB083110F0550000	65	240	230	350	22	930	660	26	395	273	G ¾	G ¾	G ¾	210	80	1000	25	95
FRB073110F0300000	50	180	180	240	22	855	650	22	285	194	G ½	G ¾	G ¾	170	80	750	7	60
FRB063110F0300000	40	180	180	240	22	855	650	22	285	194	G ½	G ¾	G ¾	170	80	750	7	60

5. Design and application

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

The task can be optimised with the freely variable 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.
- Control
  Control by means of a switch box with a programmable automation module.
  Easy parameterising with buttons and display.
  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: 100 °C
  *Max. operating pressure: 16 bar
  Measuring tolerance: 0.3 %
- Bypass filter
  Manual, semi-automatic, fully automatic with change-over unit (manual, fully automatic).
- Step nozzle
  To reduce flush volume.

  *other temperature and pressure range on request

Backflush filters are not at all complicated to use and they guarantee continuous filtration. The necessary steps are described in the following:

- The filter comprises 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 and vented before it is put into service. It must not be operated with the full pump flow when 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 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, 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. Pretreat 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 R8-10 backflush filter

Main product group

R

Series

B R 8-10 series (welded design)

Inlet and outlet connections

- **06** Flange DN 40
- **07** Flange DN 50
- **08** Flange DN 65
- **09** Flange DN 80
- **10** Flange DN 100
- **11** Flange DN 125
- **12** Flange DN 150
- **14** Flange DN 200
- **15** Flange DN 250
- **16** Flange DN 300
- **17** Flange DN 350
- **18** Flange DN 400
- **19** Flange DN 450/500

Rated pressure + filter connection standard

Flange acc. to DIN EN 1092-1

- **1** PN 6
- **2** PN 10
- **3** **PN 16**
- **4** PN 25
- **5** PN 40

Flange acc. to ANSI

- **A** 150 lbs
- **B** 300 lbs
- **C** 400 lbs
- **D** 600 lbs

Position of main connections

- **1** above one another on the same side
- **2** opposed, same height
- **3** same height, inlet 9 o'clock position, outlet 12 o'clock position
- **4** same height, inlet 9 o'clock position, outlet 6 o'clock position
- **5** opposed, different height
- **6** different height, outlet 12 o'clock position, inlet 3 o'clock position
- **7** different height, outlet 6 o'clock position, inlet 3 o'clock position
- **9** Other position of main connections

Cover fastening

- **1** Stift- oder Dehnschrauben

Options

- **0** Standard version
- **2** Electric cartridge heater
- **3** Steam/thermal cartridge heater
- **7** Version without non-ferrous metals
- **R** Rilsan coating
- **D** Step nozzle

Type of inner assembly

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

Inner assembly size

- **03** 1.310 (1.530*) cm²
- **05** 3.100 (3.750*) cm²
- **07** 6.280 (8.074*) cm²
- **09** 14.750 (19.175*) cm²
- **10** 21.200 (30.285*) cm²
- **28** 37.500 (53.000*) cm²
- **44** 28.000 (41.250*) cm²
- **46** 10.390 (14.800*) cm²

Housing version

- **9** Special material
- **B** Coated
- **C** Steel
- **E** CrNi

Nozzle material

- **4** Cast bronze
- **2** GGG 40

Number for special types or design features

xx

R

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