Automatic Backflushing Filters

The RF3 Automatic Backflushing Filters are complete filtration systems. These unique products are not only performing the task of filtering low viscosity liquids, but also the cleaning of their array of reusable conical filter elements via PLC controlled mechanism.

Since particles in process fluids have an influence on the quality of the end product and they increase the attrition rate of system components, proper protection through efficient filtration is needed. The RF3 self-cleaning filters provide this protection with uninterrupted operation.

The RF3 automatic self-cleaning filters are used for extracting particulate contaminants. The rugged design and automatic self-cleaning capability give this filter product the ability to make a major contribution to operational reliability, reduction of maintenance costs and overall efficiency in many process systems.

The RF3 filters have a special housing design that incorporates an array of filter elements. The special Slotted Tube and SuperMesh™ elements with pore sizes from 25 to 3000 micron ensure highly effective removal of particulate contamination from the process medium. The adjustable differential pressure switch triggers the self-cleaning function. Each individual filter element is cleaned with filtrate in the reverse flow direction while being totally isolated from the rest of the element array. This is how the RF3 can continue to filter without any interruption of the filtration process during the backflush cycle.

The RF3 filters are a relatively simple mechanical design as illustrated here. Pre-filtered liquid enters the inlet port and exits through the outlet port after passing through the conical element array. The flow direction of the elements is from inside out, and particles are collected on the smooth interior surfaces for easy cleaning. As the level of contamination increases, so does the differential pressure across the filter.

When does the self-cleaning function occur?
As the amount of contamination collected in the elements increases, so does the differential pressure. When the differential pressure reaches the set point, a signal is sent to the PLC inside the control panel, which initiates the backflush cycle. The cleaning cycle can also be started by the adjustable timer located inside the control panel, or by simply pressing the cycle start button located on the front of the control panel.

How does the self-cleaning system operate?
The process starts with the geared motor located on top of the filter positioning the backflush arm beneath the first element to be cleaned. Once in position, the control panel opens the backflush valve, which creates a pressure gradient that reverses the flow of filtrate through this single element. The reverse flow cleans the element of the collected particles. The valve then closes and the motor positions the arm beneath the next element to be cleaned. The backflush cycle is complete when all of the elements in the array have been cleaned.

What about the filter elements?
The conical shaped filter elements used in the RF3 self-cleaning filters are specially designed for isokinetic filtering and backflushing. This tapered design results in an even flow distribution, low pressure drop and a uniform distribution of contaminate inside the elements. The advantages: longer time between backflush cycles, less loss of process fluid and more complete and efficient cleaning of the conical wedge wire elements.

Are there any other unique features?
The PLC control has some benefits that aren’t immediately visible. During the self-cleaning operation, the backflush valve is in position under the element being cleaned for just a few seconds. The backflush valve is opened and closed rapidly, causing a “pulsation” of filtrate through the filter element openings. These pressure surges produce a superior cleaning effect in a shorter time. The result is fewer cleaning cycles, shorter duration and lower consumption of filtrate.
Some of the RF3 Benefits:

- Excellent price to performance ratio
- High filtration quality
- Low occurrence of service staff intervention
- Low operating cost
- Low maintenance cost
- Continuous operation of process
- High flow rate for maximum performance
- Low pressure drop
- Low energy consumption
- Superior self-cleaning functionality
- Application specific design
- Efficient design / small footprint envelope
- Simple installation
- Maximum use of filtration surfaces for best efficiency
- Patented element design
- 25 to 3000 micron filtration

Filter Elements

Installation Guidelines
- Minimum inlet pressure of 35 psi
- Maximum 2 psi clean pressure differential between inlet and outlet
- Minimum 25 psi between the outlet and the backflush line (preferably the backflush line goes to atmospheric pressure)

System Installation Diagram

Industries Served

STEEL MAKING  PULP & PAPER  WASTE WATER TREATMENT  MINING TECHNOLOGY  INDUSTRIAL  POWER GENERATION  MARINE  MACHINE TOOL
## Specifications

### 2.1. STANDARD CONFIGURATIONS

<table>
<thead>
<tr>
<th>2.1. Control Parameters</th>
<th>2.1.9 Internal Corrosion Protection</th>
<th>2.2.3 Flange Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>• EPT: electro-pneumatic cyclic control</td>
<td>• 2K epoxy paint</td>
<td>• ASME Code Design (with or without U-Stamp)</td>
</tr>
<tr>
<td>• EU: electrical circulation control (electric only)</td>
<td>• 2K polyurethane coating</td>
<td>• ANSI</td>
</tr>
<tr>
<td>• PT: pneumatic cyclic control with timer function (pneumatic only)</td>
<td>• rubber lined</td>
<td>• JIS</td>
</tr>
</tbody>
</table>

### 2.2. Connection Voltages

<table>
<thead>
<tr>
<th>2.1.10 Differential Pressure Gauge</th>
<th>2.2.4 Housing Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 3 x 400V / 50 Hz with or without neutral wire</td>
<td>• Duplex</td>
</tr>
<tr>
<td>• 3 x 460V / 60 Hz without neutral wire</td>
<td>• EPT: electro-pneumatic cyclic control</td>
</tr>
<tr>
<td>• 3 x 440V / 60 Hz without neutral wire</td>
<td>• 2K polyurethane coating</td>
</tr>
<tr>
<td>• 3 x 525V / 50 Hz without neutral wire</td>
<td>• JIS</td>
</tr>
<tr>
<td>• 3 x 575V / 60 Hz without neutral wire</td>
<td>• PT: pneumatic cyclic control with timer function (pneumatic only)</td>
</tr>
<tr>
<td>• 3 x 690V / 50 Hz without neutral wire</td>
<td>• 2K epoxy paint</td>
</tr>
</tbody>
</table>

### 2.1.6 Material of Internal Parts and Elements

<table>
<thead>
<tr>
<th>2.1.11 Filtration Ratings</th>
<th>2.2.6 Material of Internal Parts and Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Duplex</td>
<td>• Various qualities of stainless steel</td>
</tr>
<tr>
<td>• Superduplex</td>
<td>• 25 μm, 40 μm and 60 μm Super Mesh</td>
</tr>
<tr>
<td>• Stainless Steel</td>
<td>• 50 μm to 3000 μm slotted tube</td>
</tr>
</tbody>
</table>

### 2.1.8 External Corrosion Protection

<table>
<thead>
<tr>
<th>2.1.12 Electrical Protection Class</th>
<th>2.2.7 External Corrosion Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 6 bar</td>
<td>• Superflush element technology</td>
</tr>
<tr>
<td>• 10 bar</td>
<td>• Multiple layer coatings</td>
</tr>
</tbody>
</table>

### 2.1.3 Housing Calculation / Flange Connections

<table>
<thead>
<tr>
<th>2.1.13 Pressure Ranges</th>
<th>2.2.8 Internal Corrosion Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 1 x 230V / 60 Hz</td>
<td>• Special paints / coatings according to customer specifications</td>
</tr>
<tr>
<td>• 1 x 115V / 60 Hz</td>
<td>• ATEX according to Directive 94/9/EC</td>
</tr>
</tbody>
</table>

### 2.1.5 Housing Materials

<table>
<thead>
<tr>
<th>2.1.7 Material of Elements</th>
<th>2.2.9 Explosion Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Manual version of the AutoFilter® RF3</td>
<td>• Special paints / coatings for offshore use</td>
</tr>
<tr>
<td>• PLC control</td>
<td>• Filter without control for integration into customer’s PLC</td>
</tr>
<tr>
<td>• Manufacturer’s test certificates</td>
<td>• Filter interlocking for parallel operation</td>
</tr>
</tbody>
</table>

### 2.2.10 Documentation

<table>
<thead>
<tr>
<th>2.1.8 External Corrosion Protection</th>
<th>2.2.2 Housing Manufacture</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Welding procedure specifications (WPS) / Procedure Qualification Record (PQR)</td>
<td>• Inspection plan</td>
</tr>
</tbody>
</table>

### 2.2.2 OPTIONAL VERSIONS

There are a range of optional versions available for the AutoFilter® RF3.

- Glass flake lining
- Special paints / coatings according to customer specifications
- ATEX according to Directive 94/9/EC
- Filter interlocking for parallel operation
- Manufacturer’s test certificates
- UL/CSA approved controls and components
- Material certificates 3.1 according to DIN EN 10204
- Safe in tropical conditions
- 3rd parties (TÜV, ABS, Lloyds, etc.)
- Customized special solutions

Many others available on request. Further optional models on request.
Pressure Drop Information Based on Flow Rate and Viscosity

RF3 Flow Curves

Flow Rate (gpm) vs. Pressure drop (psid)
### Backflushing Filter AutoFilt® RF3

#### Model Code

<table>
<thead>
<tr>
<th>Box 1</th>
<th>Box 2</th>
<th>Box 3</th>
<th>Box 4</th>
<th>Box 5</th>
<th>Box 6</th>
<th>Box 7</th>
<th>Box 8</th>
<th>Box 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Example:** RF3 — RF3-8

**NOTES:**

- **Box 3.** Needs to have control type and voltage selected ex. EPT8.
- **Box 4.** Can contain two options ex. NMA.
- **Note.** If ANSI flanges are not specified, DIN style will be provided.

## How to Build a Valid Model Number for a RF3:

**BOX 1**

- **Type**
  - AutoFilt®

**BOX 2**

- **Filter Size**
  - C = [2" (232 psi)]
  - F = [4" (145 psi)]
  - K = [6" (145 psi)]
  - L = [8" (145 psi)]
  - M = [10" (145 psi)]
  - N = [12" (145 psi)]
  - Q = [16" (87 psi)]
  - R = [20" (87 psi)]
  - S = [24" (87 psi)]
  - T = [28" (87 psi)]
  - U = [36" (87 psi)]

**BOX 3**

- **Pressure Ranges**
  - 1 = 87 psi
  - 2 = 145 psi
  - 3 = 232 psi
  - 4 = 363 psi
  - 5 = 580 psi
  - 6 = 914 psi
  - 7 = 1450 psi

**BOX 4**

- **Design Code**
  - S = HYDAC Standard
  - A = ASME VIII Div. 1
  - U = ASME VIII Div. 1
  - E = EN 13445

**BOX 5**

- **Controller**
  - A = Electro-pneumatic cyclic control
  - B = Electrical circulation control
  - C = Electro-pneumatic circulation control
  - D = Pneumatic cyclic control with timer function
  - M = Manual
  - 0 = Without control, all consumers on terminal strip

**BOX 6**

- **Connection Voltage**
  - 1 = 3 x 400V / N / PE 50Hz
  - 2 = 3 x 400V / X / PE 50Hz
  - 3 = 3 x 500V / X / PE 50Hz
  - 4 = 3 x 230V / N / PE 50Hz
  - 5 = 3 x 230V / X / PE 50Hz
  - 6 = 3 x 415V / X / PE 50Hz
  - 7 = 3 x 415V / N / PE 60Hz
  - 8 = 3 x 460V / X / PE 60Hz
  - 9 = 3 x 440V / X / PE 60Hz
  - A = 3 x 525V / X / PE 50Hz
  - B = 3 x 575V / X / PE 60Hz
  - C = 3 x 690V / X / PE 50Hz
  - D = 1 x 230V / N / PE 50Hz
  - E = 1 x 230V / N / PE 60Hz
  - F = 1 x 115V / N / PE 60Hz
  - G = 3 x 415V / N / PE 50Hz
  - H = 3 x 220V / X / PE 60Hz
  - I = 3 x 380V / X / PE 50Hz
  - K = 3 x 480V / X / PE 60Hz

**BOX 7**

- **Housing Material / Corrosion Protection**
  - N = Carbon steel, primed on the outside (RAL 7040)
  - NM = Carbon steel, primed on the outside (RAL 7040), inside 2-comp. epoxy coating
  - NP = Carbon steel, primed on the outside (RAL 7040), inside 2-comp highly cross-linked polyurethane coating
  - NG = Carbon steel, primed on the outside (RAL 7040), rubber lined inside
  - E1 = Stainless steel 1.4301, 1.4541 or similar (group 304/321)
  - E2 = Stainless steel 1.4571 or similar (group 316)
  - A = “A” also added in case of ANSI flange
  - J = “J” also added in case of JIS flange

**BOX 8**

- **Internals/Element Material**
  - E1 = Stainless steel 1.4301, 1.4541 or similar (group 304/321), filter element stainless steel 1.4435 (group 316)
  - E2 = Stainless steel 1.4571 or similar (group 316), filter element stainless steel 1.4435 (group 316)
  - E5 = Stainless steel 1.4571 or similar (group 316), filter element Superduplex (only wedge wire possible)
  - SE = Superduplex, filter element stainless steel 1.4435 (group 316)
  - DE = Duplex, filter element stainless steel 1.4435 (group 316)
  - DS = Duplex, filter element Superduplex (only wedge wire possible)
  - SS = Superduplex, filter element Superduplex (only wedge wire possible)

**BOX 9**

- **Back-Flush Valve**
  - O = None
  - N = Flap: housing coated in spheroidal graphite iron, disc stainless steel, seal NBR (only up to pmax ≤ 16 bar!)
  - B = Flap: housing coated in spheroidal graphite iron, disc bronze, seal NBR (only up to pmax ≤ 16 bar!)
  - M = Flap: housing coated in spheroidal graphite iron, disc Superduplex, seal NBR (only up to pmax ≤ 16 bar!)
  - S = Ball valve: ball stainless steel, housing up to a nominal size of 50 mm carbon steel and from a nominal size of 50 mm coated in spheroidal graphite iron, ball seal PTFE (from pmax > 16 bar!)
  - E = Ball valve: ball stainless steel, housing stainless steel, ball seal PTFE (from pmax > 16 bar!)

---

**SCHROEDER INDUSTRIES | PROCESS FILTRATION 17**
# How to Build a Valid Model Number for a RF3:

<table>
<thead>
<tr>
<th>BOX 10</th>
<th>BOX 11</th>
<th>BOX 12</th>
<th>BOX 13</th>
<th>BOX 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>SKS1000</td>
</tr>
</tbody>
</table>

**Example:** Note: One option per box

<table>
<thead>
<tr>
<th>BOX 10</th>
<th>BOX 11</th>
<th>BOX 12</th>
<th>BOX 13</th>
<th>BOX 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>SKS1000</td>
</tr>
</tbody>
</table>

- **Pressure Gauge**
  - 0 = None
  - 1 = Differential pressure gauge – aluminum pressure chamber (only up to 25 bar!)
  - 2 = Differential pressure gauge – stainless steel 1.4301 or similar (group 304/321) pressure chamber
  - 3 = Differential pressure gauge – with stainless steel 1.4301 or similar (group 304/321) diaphragm seal
  - 4 = Differential pressure gauge – brass pressure chamber
  - 5 = HDA 4700 stainless steel V2A group
  - 6 = HDA 4300 Duplex

- **Modification Number**
  - 3 = The latest number will be supplied

- **Filter Element Set**
  - **KS** = Conical Wedge wire filter elements (50 - 3000 µm)
  - **KD** = Conical SuperMesh filter elements (25/40/60 µm)
  - **SKS** = Conical wedge wire filter elements with SuperFlush Coating
  - **SKD** = Conical SuperMesh filter elements with SuperFlush Coating

- **Special number**
  - For special models (number is allocated after technical clarification)

- **Flange Position**
  - 1 = Filter outlet opposite filter inlet (Standard)
  - 2 = Filter outlet offset 90° clockwise to default
  - 3 = Filter outlet offset 180° clockwise to default
  - 4 = Filter outlet offset 270° clockwise to default

- **Options**
  - 0 = None
  - **A** = Certificate of conformance CoC 3.1 according to DIN EN 10204 for design, pressure and functional testing
  - **C** = Acceptance test certificate 3.1 according to DIN EN 10204 for design, pressure and functional testing incl. material inspection certificates according to EN 10204, 3.1 for pressure-bearing media-contacting housing parts
  - **D** = Material inspection certificates according to EN 10204, 3.1 for pressure-bearing media-contacting housing parts
  - **E** = Russian equipment pass incl. explanation letter for TRCU 032 / 2013; also declaration of conformity for TRCU 010 / 2011
  - **F** = End position switch position indicator for back-flushing valve (micro)
  - **G** = End position switch position indicator for back-flushing valve (inductive)
  - **H** = RAL 7040 top coat
  - **I** = Davit
  - **K** = Automatic vent valve
  - **L** = PE-UHMW clutch bushing with FKM O-rings
  - **M** = M12 x 1 male connector for electrical connections
  - **N** = Drinking water approval NSF / ANSI 61-G & 372
  - **P** = All seals FKM or FP2000
  - **S** = Seawater version
  - **T** = Marine / ship version
The automatic backflushing filter AutoFilt® RF5 has proven its reliable performance successfully for many years in a wide range of different industries. The new backflushing filter series AutoFilt® RF5 a new budget-priced filter series with a cost-optimized geometry that offers the same reliable filter performance in a variety of applications.

The function of the AutoFilt® RF5 is similar to the AutoFilt® RF3:

The fluid to be filtered flows through the slotted tube filter elements of the backflushing filter, passing from the inside to the outside. Contamination particles then collect on the smooth inside of the filter elements.

As the level of contamination increases, the differential pressure between the contaminated and clean sides of the filter increases. When the differential pressure reaches its pre-set value, backflushing starts automatically.

### Dimensions

<table>
<thead>
<tr>
<th>Size</th>
<th>DN1 in (mm)</th>
<th>DN2 in (mm)</th>
<th>DN3 in (mm)</th>
<th>H1 in (mm)</th>
<th>H2 in (mm)</th>
<th>H3 in (mm)</th>
<th>H4 in (mm)</th>
<th>H5 in (mm)</th>
<th>B1 in (mm)</th>
<th>B2 in (mm)</th>
<th>B3 in (mm)</th>
<th>B4 in (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>9.8 (250)</td>
<td>7.9 (200)</td>
<td>1.6 (40)</td>
<td>47.7 (1212.5)</td>
<td>35.9 (912.5)</td>
<td>24.6 (625)</td>
<td>7.1 (180)</td>
<td>21.7 (550)</td>
<td>11.8 (300)</td>
<td>10.8 (275)</td>
<td>20 (508)</td>
<td>28.7 (728)</td>
</tr>
<tr>
<td>30</td>
<td>11.8 (300)</td>
<td>9.8 (250)</td>
<td>2.6 (65)</td>
<td>51.7 (1313.5)</td>
<td>39.4 (1001.5)</td>
<td>28.1 (715)</td>
<td>8.3 (210)</td>
<td>21.7 (550)</td>
<td>11.8 (300)</td>
<td>12.4 (314)</td>
<td>21 (533)</td>
<td>26.6 (753)</td>
</tr>
<tr>
<td>40</td>
<td>15.7 (400)</td>
<td>11.8 (300)</td>
<td>2.6 (65)</td>
<td>74.4 (1890.5)</td>
<td>62 (1575.5)</td>
<td>40.6 (1030)</td>
<td>7.1 (180)</td>
<td>41.3 (1050)</td>
<td>14.6 (370)</td>
<td>15 (380)</td>
<td>23 (575)</td>
<td>31.3 (795)</td>
</tr>
<tr>
<td>50</td>
<td>19.7 (500)</td>
<td>15.7 (400)</td>
<td>2.6 (65)</td>
<td>74.4 (1888.5)</td>
<td>62.4 (1585.5)</td>
<td>41.3 (1050)</td>
<td>7.5 (190)</td>
<td>41.3 (1050)</td>
<td>17.6 (435)</td>
<td>17.3 (440)</td>
<td>19.1 (485)</td>
<td>27.8 (705)</td>
</tr>
<tr>
<td>60</td>
<td>23.6 (600)</td>
<td>19.7 (500)</td>
<td>3.1 (60)</td>
<td>75 (1905.5)</td>
<td>63.3 (1608.5)</td>
<td>42.1 (1070)</td>
<td>7.9 (200)</td>
<td>41.3 (1050)</td>
<td>19.9 (505)</td>
<td>21 (534)</td>
<td>21.3 (540)</td>
<td>29.9 (760)</td>
</tr>
<tr>
<td>70</td>
<td>27.6 (700)</td>
<td>23.6 (600)</td>
<td>3.1 (60)</td>
<td>88.1 (2238.5)</td>
<td>74.5 (1903.5)</td>
<td>48.6 (1235)</td>
<td>7.9 (200)</td>
<td>53.1 (1350)</td>
<td>22.4 (570)</td>
<td>22.8 (580)</td>
<td>23.3 (593)</td>
<td>32 (813)</td>
</tr>
<tr>
<td>90</td>
<td>35.4 (900)</td>
<td>31.5 (800)</td>
<td>3.9 (100)</td>
<td>91.7 (2328.5)</td>
<td>78.5 (1993.5)</td>
<td>52.2 (1325)</td>
<td>8.9 (225)</td>
<td>53.1 (1350)</td>
<td>27.2 (690)</td>
<td>27.2 (690)</td>
<td>27.5 (698)</td>
<td>36.1 (918)</td>
</tr>
</tbody>
</table>

748-18,480 gpm  
170-4200 L/min  
87-150 psi  
6-10 bar

Backflushing Filter AutoFilt® RF5
## Technical Data

### Filter Model Number Selection

<table>
<thead>
<tr>
<th>Size</th>
<th>Pressure Rating psi / (bar)</th>
<th>Inlet</th>
<th>Outlet</th>
<th>Back flushing</th>
<th>Filtration Area in² / cm²</th>
<th>Flow Range gpm (L/min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>145 (10)</td>
<td>DN 250</td>
<td>DN 200</td>
<td>DN 40</td>
<td>942 (6120)</td>
<td>748-1408 (170-320)</td>
</tr>
<tr>
<td>30</td>
<td>145 (10)</td>
<td>DN 300</td>
<td>DN 250</td>
<td>DN 40</td>
<td>1255 (8160)</td>
<td>1278-1980 (290-450)</td>
</tr>
<tr>
<td>40</td>
<td>87 (6)</td>
<td>DN 400</td>
<td>DN 300</td>
<td>DN 65</td>
<td>2603 (16920)</td>
<td>1780-3302 (6667-12660)</td>
</tr>
<tr>
<td>50</td>
<td>87 (6)</td>
<td>DN 500</td>
<td>DN 400</td>
<td>DN 65</td>
<td>3905 (25380)</td>
<td>2860-5280 (850-1200)</td>
</tr>
<tr>
<td>60</td>
<td>87 (6)</td>
<td>DN 600</td>
<td>DN 500</td>
<td>DN 80</td>
<td>7809 (50760)</td>
<td>4400-8360 (1000-1900)</td>
</tr>
<tr>
<td>70</td>
<td>87 (6)</td>
<td>DN 700</td>
<td>DN 600</td>
<td>DN 80</td>
<td>10920 (70980)</td>
<td>6600-12320 (1500-2800)</td>
</tr>
<tr>
<td>90</td>
<td>87 (6)</td>
<td>DN 900</td>
<td>DN 800</td>
<td>DN 100</td>
<td>18200 (118300)</td>
<td>11440-18480 (2600-4200)</td>
</tr>
</tbody>
</table>

### Box 3: Needs to have control type and voltage selected ex. EPT8.

### Box 4: can contain two options ex. NMA.

### Box 9: If ANSI flanges are not specified DIN style will be provided.

### Box 8: Latest version supplied by factory

### Box 7: Control box offset by 90° clockwise to filter outlet

### Box 6: Differential Pressure Gauge

1. Pressure Chamber Aluminum 3.258302
2. Pressure Chamber Stainless Steel 1.4305
3. With Chemical Seal Stainless Steel 316Ti
4. HDA 4700 Stainless Steel
5. HDA 4300 Duplex Stainless Steel

### Box 10: Size of Element Set

Same as BOX 2 Value

### Box 11: Vessel Certification

<table>
<thead>
<tr>
<th>Vessel Certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omit = Standard Version</td>
</tr>
<tr>
<td>ASME = ASME Version</td>
</tr>
</tbody>
</table>

### How to Build a Valid Model Number for a RF3:

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
<th>BOX 9</th>
<th>BOX 10</th>
<th>BOX 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF5</td>
<td>40</td>
<td>EPT8</td>
<td>NMA</td>
<td>N</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>ES300</td>
<td>40</td>
<td>ASME</td>
</tr>
</tbody>
</table>

Example: NOTE: One option per box

= RF3-40-EPT8-NMA-N-5-3-2/ KS1000-40-ASME

### Filter Series

RF5

### Filter Size

25
30
40
50
60
70
90

### Drive Control / Connecting Voltage

| EPZ = | Electric pneumatic cycle control |
| EZ =  | Electric Control |
| EPT = | Electro-pneumatic cyclic control |
| PT =  | Pneumatic cyclic control |
| PTZ = | Pneumatic cyclic timed control |

- 7 = 3X415/V/NPE 60Hz
- 8 = 3X460/V/XPE 60Hz
- 9 = 3X440/V/XPE 60Hz
- E = 1X230V/NPE 60 Hz
- F = 1X110V/NPE 60Hz

### Housing Material & Coating

N = Standard Steel outside primed
NM = Standard Steel outside primed, inside metallogal painted
E = Stainless Steel with ANSI-flanged, additional A at the end

### Shut Off Valve Material

N = Standard Steel
B = Bronze

### Element Set

<table>
<thead>
<tr>
<th>Element Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES200 = 200µ Conical Slotted Tubes</td>
</tr>
<tr>
<td>ES300 = 300µ Conical Slotted Tubes</td>
</tr>
<tr>
<td>ES400 = 400µ Conical Slotted Tubes</td>
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<tr>
<td>ES500 = 500µ Conical Slotted Tubes</td>
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<td>ES1000 = 1000µ Conical Slotted Tubes</td>
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<tr>
<td>ES1500 = 1500µ Conical Slotted Tubes</td>
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<tr>
<td>ES2000 = 2000µ Conical Slotted Tubes</td>
</tr>
<tr>
<td>ES2500 = 2500µ Conical Slotted Tubes</td>
</tr>
<tr>
<td>ES3000 = 3000µ Conical Slotted Tubes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Modification Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 = Latest version supplied by factory</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Box 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Control box offset by 90° clockwise to filter outlet</td>
</tr>
<tr>
<td>2 = Control box offset by 180° clockwise to filter outlet</td>
</tr>
<tr>
<td>3 = Control box offset by 270° clockwise to filter outlet</td>
</tr>
</tbody>
</table>
The automatic backflushing filter AutoFilt® RF3 has proven its reliable performance successfully for many years in a wide range of different industries. The horizontal backflushing filter AutoFilt® RF7 supplements our backflushing filter family. The AutoFilt® RF7 is a compact model range that is specifically designed for applications with small space and height restrictions.

The working principle and control systems of the AutoFilt® RF7 are identical to those of the AutoFilt® RF3.
# Backflushing Filter AutoFilt® RF7

**RF7**

## How to Build a Valid Model Number for a RF3:

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
<th>BOX 9</th>
<th>BOX 10</th>
<th>BOX 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>RF7</td>
<td></td>
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</tbody>
</table>

**Example:** NOTE: One option per box

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
<th>BOX 9</th>
<th>BOX 10</th>
<th>BOX 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF7</td>
<td>3B</td>
<td>EPT7</td>
<td>NMA</td>
<td>N</td>
<td>5</td>
<td>1A</td>
<td>2</td>
<td>KS100</td>
<td>3B</td>
<td>ASME</td>
</tr>
</tbody>
</table>

**RF7-3B-EPT8-NMA-5-3-2/ KS1000-40-ASME**

---

### BOX 1
**Filter Series**
- RF7

### BOX 2
**Filter Size**
- CC
- 0B
- 1B
- 2B
- 2.5
- 3B
- 4A
- 5A
- 6A
- 7A
- 8A

### BOX 3
**Drive Control / Connecting Voltage**
- EPT = Electro-pneumatic cyclic control, $\Delta p$ dependent Electric Control, $\Delta p$ dependent
- EU = Pneumatic cyclic control
- PT = Pneumatic cyclic timed control
- PTZ = Pneumatic cyclic timed control
  - 7 = 3X1A5V/PE 60Hz
  - 8 = 3X6V60V/XPE 60Hz
  - 9 = 3X440V/XPE 60Hz
  - E = 1X230V/NPE 60Hz
  - F = 1X110V/NPE 60Hz

### BOX 4
**Housing Material & Coating**
- N = Standard Steel 1.0038
- NM = outside primed, inside metallogal painted
- E = Stainless Steel 1.4571
- A = with ANSI-flanged, additional A at the end

### BOX 5
**Shut Off Valve Material**
- N = Butterfly housing
- B = SG cast iron coated, washer
- D = stainless steel
- G = coated, washer

### BOX 6
**Differential Pressure Gauge**
- Pressure Chamber
  - 1 = Aluminum 3.258302
  - 2 = Stainless Steel 1.4305
  - 3 = With Chemical Seal Stainless Steel 316Ti
  - 5 = HDA 4700 Stainless Steel
  - 6 = HDA 4300 Duplex Stainless Steel

### BOX 7
**Flange Setting / Backflushing Line Setting**
- 1 = Outlet to right
- 2 = Outlet up
- 3 = Outlet to left
- A = Backflushing line to left
- B = Backflushing downwards
- C = Backflushing line to right

### BOX 8
**Modification Number**
Latest version supplied by factory

### BOX 9
**Element Set**
- KD25 = Conical SuperMesh™
- K40 = Conical SuperMesh™
- KS50 = Conical Slotted Tubes
- KS100 = Conical Slotted Tubes
- KS200 = Conical Slotted Tubes
- KS300 = Conical Slotted Tubes
- KS400 = Conical Slotted Tubes
- KS500 = Conical Slotted Tubes
- KS1000 = Conical Slotted Tubes
- KS1500 = Conical Slotted Tubes
- KS2000 = Conical Slotted Tubes
- KS2500 = Conical Slotted Tubes
- KS3000 = Conical Slotted Tubes

### BOX 10
**Size of Element Set**
Same as BOX 2 Value (first letter/numbr only)

### BOX 11
**Vessel Certification**
Omit = Standard Version
ASME = ASME Version

---

**NOTES:**
- Box 3: Needs to have control type and voltage specified ex. EPT8.
- Box 4: can contain two options ex. NMA.
- If ANSI flanges are not specified DIN style will be provided.
Traditional Automatic Backwash Filters are designed for high pressure applications with medium to lower loads.

**What if pressure is low and contamination is high?**
The new RF10 takes the best features of the RF3 and marries them with JetFlush technology. The operating principle subdivides the backflushing into two phases.

**Phase One:**
Stripping away the contaminant particles

**Phase Two:**
Discharging the contaminant particles

The new generation is dependent on influent pressure only and does not require the additional back pressure of the effluent to influent differential. With a JetFlush reservoir and internally guided JetFlush valves that can seal the upper lip creating an increased "suction" backflush, the RF10 can handle almost all difficult filtration applications.

**Product Advantages:**
- Back-flushing independent of pressure on clean side of filter
- Dependent only on the inlet pressure
- Highly efficient back-flushing with low pressure conditions and long back-flush lines
- With its highly efficient back-flushing, the filter is suitable for high dirt loads and surges in contamination
- Optional davit
- Variable filter isometry

Here is how the JetFlush Technology improves traditional ABF Technology:

**Filtration**
The medium being filtered enters the filter housing via the filter inlet (A) and flows through the filter elements of the back-flushing filter from the inside to the outside (B) and leaves the filter via the filter outlet (C). During the filtration process, the JetFlush reservoir (D) located above the filter elements fills with and stores medium from the contaminated side. As fluid is filtered, particles collect on the inside of the filter elements. As the level of contamination increases, the differential pressure between the contaminated and clean side of the filter increases. When the differential pressure reaches the pre-set trigger point, back-flushing starts automatically.

**Back-Flushing In General**
Automatic back-flushing is triggered:
- When the differential pressure trigger point is exceeded
- By means of a timer
- By pressing the test button

The gear motor (E) rotates the back-flushing arm (F) to the filter element to be cleaned (G). The back-flush valve (H) opens. The pressure drop between the filter inlet (A) and the back-flush line (I), combined with the conical geometry of the filter element, triggers the special JetFlush effect of the AutoFilt® RF10.

The remaining filter elements continue filtering to ensure uninterrupted filtration.
Back-Flushing Phase I
Phase 1 - Stripping away the contamination
In the first phase, unfiltered fluid from the JetFlush reservoir (J1) above flows into the filter element. The conical filter element geometry produces a core flow here, supplied mainly by the JetFlush reservoir. This core flow is supported by the open JetFlush effect, which also draws water from the filtrate side into the inside of the filter element.

Back-Flushing Phase II
Phase 2 - Discharging the contamination
Once the core flow has developed, the JetFlush reservoir located above the filter element is closed (J2).

When the opening at the top of the filter element closes, the second phase is initiated, namely discharging the contamination:

The moving column of fluid draws water from the filtrate side (K) as soon as the fluid supply stops as a result of the filter element closing at the top.

The conical filter element geometry ensures the whole surface of the filter element is now clean and residue-free. The contamination is discharged via the back-flush line (I). After cleaning the filter element, the back-flushing arm rotates to the next filter element to be cleaned; the process is repeated. When the back-flush cycle is finished, the back-flush valve is closed (H).
RF10 Backflushing Filter AutoFilt® RF10

Specifications

Filter Sizes: 10, 20, 23, 25, 30, 35, 40, 50, 60
Flow Range: 2210-12,940 gpm (580-3420 L/min)
Working Pressure: 87 psi (6 bar)
Max. Working Temperature: 131°F (55°C)
Empty Weight: 10 - 624 lbs. (283 kg), 20 - 981 lbs. (445 kg), 23 - 1021 lbs. (463 kg), 25 - 1213 lbs. (550 kg), 30 - 1560 lbs. (725 kg), 35 - 1934 lbs. (877 kg), 40 - 2619 lbs. (1188 kg), 50 - 2985 lbs. (1354 kg), 60 - 5644 lbs. (2560 kg)
Housing Volume: 10 - 10 gallons (36 L), 20 - 25 gallons (95 L), 23 - 35 gallons (131 L), 25 - 42 gallons (160 L), 30 - 80 gallons (304 L), 35 - 119 gallons (452 L), 40 - 163 gallons (616 L), 50 - 235 gallons (891 L), 60 - 393 gallons (1489 L)
Filter Area: 10 - 558 in.² (3,600 cm²), 20 - 1,105 in.² (7,128 cm²), 23 - 1,868 in.² (12,050 cm²), 25 - 2,241 in.² (14,460 cm²), 30 - 3,362 in.² (21,690 cm²), 35 - 4,109 in.² (26,510 cm²), 40 - 6,724 in.² (43,380 cm²), 50 - 8,965 in.² (57,840 cm²), 60 - 14,942 in.² (96,400 cm²)
No. of Filter Elements: Contact Factory
Backflush Flange Size: Contact Factory
Backflush Volume: Contact Factory

Pressure Drop Information Based on Flow Rate and Viscosity

RF10 Flow Curves
## Backflushing Filter AutoFilt® RF10

### Dimensions

<table>
<thead>
<tr>
<th>Size</th>
<th>RF10-10</th>
<th>RF10-20</th>
<th>RF10-23</th>
<th>RF10-25</th>
<th>RF10-30</th>
<th>RF10-35</th>
<th>RF10-40</th>
<th>RF10-50</th>
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<tbody>
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<td>10 (100)</td>
<td>10 (100)</td>
<td>10 (100)</td>
<td>10 (100)</td>
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<tr>
<td>h1 (mm)</td>
<td>36 (360)</td>
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<td>16 (160)</td>
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</table>

### Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>Pressure Rating psi (bar)</th>
<th>Connection Inlet/Outlet</th>
<th>Connection Backflushing Line</th>
<th>Weight Empty lbs (kg)</th>
<th>Volume Gallons (liters)</th>
<th>Amount of Filter Elements</th>
<th>Filter Area in² (cm²)</th>
<th>Backflushing Amount (liters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>87 (6)</td>
<td>DN 100</td>
<td>40</td>
<td>624 (283)</td>
<td>10 (36)</td>
<td>8</td>
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<td>87 (6)</td>
<td>DN 200</td>
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<td>35 (131)</td>
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<td>2241 (14460)</td>
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<td>9</td>
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<td>40</td>
<td>14942 (96450)</td>
<td>963 (3417)</td>
</tr>
</tbody>
</table>

---

**Note:** The above table provides specifications for RF10-10 to RF10-60 models of the AutoFilt® RF10 filter. The table lists the dimensions for various sizes, including diameter, length, and other key measurements. The technical data section provides additional details such as pressure rating, connection options, weight, volume, and filter area. For more specific information, please refer to the Schreder Industries Process Filtration catalog or contact their support team.
Backflushing Filter AutoFilt® RF10

How to Build a Valid Model Number for a RF10:

**BOX 1**
- Filter Series
  - RF10

**BOX 2**
- Filter Size
  - 10 = DN 100
  - 20 = DN 200
  - 23 = DN 200
  - 25 = DN 250
  - 30 = DN 300

**BOX 3**
- Pressure Range
  - A = PN6
  - B = PN10

**BOX 4**
- Type Of Control
  - 1 = EPP electro-pneumatic control
  - 2 = EPP functional control (triggered by the customer)
  - 3 = Customer-specific version

**BOX 5**
- Voltage Supply
  - 1 = 3 x 400V / N / PE 50Hz
  - 2 = 3 x 400V / x / PE 50Hz
  - 3 = 3 x 500V / x / PE 50Hz
  - 4 = 3 x 415V / x / PE 50Hz
  - 5 = 3 x 415V / N / PE 60Hz
  - 6 = 3 x 460V / x / PE 60Hz
  - 7 = 3 x 440V / x / PE 60Hz
  - 8 = 3 x 525V / x / PE 50Hz
  - 9 = 3 x 575V / x / PE 60Hz
  - 0 = 3 x 575V / x / PE 60Hz
  - Y = Customer-specific version

**BOX 6**
- EX Protection
  - X = EX protection according to ATEX
  - C = EX protection according to IECEx

**BOX 7**
- Housing Material
  - Carbon steel, external primer
  - N = (RAL 9006), no corrosion protection, internal
  - M = (RAL 9006), 2K epoxy paint, internal
  - P = (RAL 9006), 2K polyurethan paint, internal
  - E = Stainless steel AISI 304
  - H = Stainless steel AISI 316

**BOX 8**
- Flange Standard
  - A = ANSI
  - F = DIN/EN
  - J = JIS

**BOX 9**
- Nominal Size
  - C = DIN / EN 50 / ANSI 2" (standard size 25)
  - D = DIN / EN 65 / ANSI 2 1/2" (standard size 30)
  - E = DIN / EN 80 / ANSI 3" (standard size 35)
  - F = DIN / EN 100 / ANSI 4" (standard size 40)
  - H = DIN / EN 125 / ANSI 5" (standard size 50)
  - K = DIN / EN 150 / ANSI 6" (standard size 50)
  - L = DIN / EN 200 / ANSI 8" (standard size 20, 23)
  - S = DIN / EN 600 / ANSI 24" (standard size 60)

**BOX 10**
- Material of Back-Flush Valve: Collar
  - N = NBR (standard)
  - E = EPDM
  - V = KFM (Viton)

**BOX 11**
- Material of Back-Flush Disc
  - N = Stainless Steel
  - B = Bronze
  - D = Duplex

**BOX 12**
- Pressure Transmitter
  - 0 = No pressure transmitter (flange connection on the filter remains)
  - 1 = Pressure transmitter (P-in; P-out and P-rsl) with digital display (type EDS)
  - 2 = Pressure transmitter (P-in; P-out and P-rsl) without digital display on the sensor (type HDA)

**BOX 13**
- Flange Position
  - 1 = Filter outlet opposite filter inlet (standard)
  - 2 = Filter outlet offset by 90° clockwise to standard
  - 3 = Filter outlet offset by 180° clockwise to standard
  - 4 = Filter outlet offset by 270° clockwise to standard

**BOX 14**
- Material of Internal Parts
  - H = Stainless Steel
  - D = Duplex
  - S = Superduplex

**BOX 15**
- Sacrificial Anode
  - 0 = No anode
  - 1 = With sacrificial anode
  - 2 = With flange connection, no sacrificial anode

**BOX 16**
- Cover Plate Lifting Device
  - 0 = No cover plate lifting device
  - 1 = With cover plate lifting device

**NOTES:**
- Box 12: Min. pressure is -15 psi (-1 bar) and max. pressure is 131 psi (9 bar), 218 psi (15 bar) and 334 psi (23 bar) depending on design pressure.

**Example: NOTE: One option per box**

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
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<tbody>
<tr>
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Cont’d on page 45
How to Build a Valid Model Number for a RF10:

<table>
<thead>
<tr>
<th>BOX 18</th>
<th>BOX 19</th>
<th>BOX 20</th>
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<tbody>
<tr>
<td><strong>S</strong></td>
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</table>

Example: NOTE: One option per box

<table>
<thead>
<tr>
<th>BOX 18</th>
<th>BOX 19</th>
<th>BOX 20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>S</strong></td>
<td><strong>H</strong></td>
<td><strong>D</strong></td>
</tr>
</tbody>
</table>


**Coating**

| S = SuperFlush (optional) |

**Material**

| H = Stainless Steel |
| D = Duplex* |
| S = Superduplex |

**Version**

| D = Conical wire mesh elements only available in stainless steel AISI 316 |
| S = Conical slotted tube element |
The automatic backflushing RF4 filter is a self-cleaning system for removing particles from low viscosity fluids. Its robust construction and automatic backflushing capability make a major contribution to operational reliability and reduce operating and maintenance costs. The slotted tube or SuperMesh™ filter elements with filtration rates from 25 to 1000 µm ensure highly effective separation of contaminating particles from the process medium.

Automatic cleaning starts as soon as the elements become contaminated. The flow of filtrate is not interrupted during the backflushing procedure. Two sizes allow flow rates from 10-60 gpm. The RF4 is available as a fully automatic or purely manual version.

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

OPERATION OF THE RF4

Filtration
The fluid to be filtered flows through the slotted tube filter elements of the backflushing filter passing from the inside to the outside. Contamination particles collect on the smooth inside of the filter elements. As the level of the collected contamination increases, the differential pressure between the contaminated and clean sides of the filter increases. When the differential pressure reaches its pre-set value, the backflushing cycle begins.

Triggering Automatic Backflushing
Backflushing is triggered automatically when the differential pressure set point is exceeded. As soon as backflushing has been triggered, the filter starts to clean the filter elements.

Triggering Backflushing on Manual Version
When the differential pressure set point is reached, the visual clogging alarm indicates to an operator or maintenance personnel that a backflush cycle is needed.

Backflushing of the Filter Elements – Backflushing Cycle
The cycle begins with the element plate turning 90°. This brings a clean filter element into filtration, and a contaminated filter element is positioned over the fixed flushing connection.

The backflush valve is opened.
The differential pressure between filtrate side and backflush line causes a small amount of the filtrate to reverse flow through the element to be cleaned. The contamination particles collected on the inside of the filter element are loosened and flushed into the backflush line via the flushing arm. As soon as the "backflushing time per element" has elapsed, the backflushing valve is closed. The backflushing cycle is terminated when all the filter elements have been cleaned. On the RF4 with manual backflushing, the element plate including filter elements, is turned and the backflushing valve is opened by hand. Each filter element is cleaned successively in this manner.

SPECIAL FEATURES OF THE RF4

Isokinetic Filtering and Backflushing
The special conical shape and configuration of the filter elements allows for even flow, resulting in low pressure drop and complete cleaning of the elements. The advantage: fewer backflushing cycles and lower loss of backflushing fluid.

Pulse-aided Backflushing
The filter element to be backflushed remains in the flushing position for only a few seconds. Rapid opening of the pneumatic backflushing valve generates a pressure surge in the openings of the filter elements that provides a pulse-aided cleaning effect to the backflushing process.

Low Backflushing Quantities Due to Cyclic Control
The backflush valve opens and closes during backflushing of each filter element, further minimizing the amount of filtrate needed to effectively clean the element.
Water Applications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Max. Flow Rate gpm (L/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF4-1</td>
<td></td>
</tr>
<tr>
<td>RF4-2</td>
<td></td>
</tr>
</tbody>
</table>

Water

32(120)  60(220)

The flow rate ranges indicated apply to filtration ratings ≥ 100 µm.

Important

The pressure drop curves apply to water and other fluids up to a viscosity of 11 mm²/s.

Cooling Lubricant Applications

<table>
<thead>
<tr>
<th>Material Handling</th>
<th>Type of Machining</th>
<th>RF4-1</th>
<th>RF4-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>Cutting</td>
<td>26 (100)</td>
<td>53 (200)</td>
</tr>
<tr>
<td>Cast Iron</td>
<td>Cutting</td>
<td>18 (70)</td>
<td>42 (160)</td>
</tr>
<tr>
<td>Carbon Steel</td>
<td>Cutting</td>
<td>21 (80)</td>
<td>48 (180)</td>
</tr>
<tr>
<td>Stainless Steel</td>
<td>Cutting</td>
<td>21 (80)</td>
<td>48 (180)</td>
</tr>
<tr>
<td>Aluminum</td>
<td>Grinding</td>
<td>24 (90)</td>
<td>53 (200)</td>
</tr>
<tr>
<td>Cast Iron</td>
<td>Grinding</td>
<td>13 (50)</td>
<td>37 (140)</td>
</tr>
<tr>
<td>Carbon Steel</td>
<td>Grinding</td>
<td>16 (60)</td>
<td>40 (150)</td>
</tr>
<tr>
<td>Stainless Steel</td>
<td>Grinding</td>
<td>16 (60)</td>
<td>40 (150)</td>
</tr>
</tbody>
</table>

Circuit Diagram

Industries Served

SCHROEDER INDUSTRIES | PROCESS FILTRATION
**Backflushing Filter AutoFilt® RF4**

**Specifications**

- **Process Connection:** G 1" Female
- **Max Flow:** 32 gpm (120 L/min)
- **Max. Working Pressure:** 87 psi (6 bar) or 230 psi (16 bar)
- **Max. Working Temperature:** 194°F (90°C)
- **Weight:** 29 lbs. (13 kg) or 33 lbs. (15 kg)
- **Housing Volume:** 0.66 gallons (2.5 L)
- **Filter Area:** 85 in.² (546 cm²)
- **No. of Filter Elements:** 4
- **Backflush Connection:** G ½ Female
- **Backflush Volume:** 1.1 gallons (4 L/cycle)

**NOTES:**
1. Metric dimensions in ( ).
2. Drawings may change without notice. Contact factory for certified drawings.
How to Build a Valid Model Number for a RF4:

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
<th>BOX 9</th>
<th>BOX 10</th>
<th>BOX 11</th>
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<tbody>
<tr>
<td>1</td>
<td>ET</td>
<td>1</td>
<td>A</td>
<td>E</td>
<td>2</td>
<td>16</td>
<td>X</td>
<td>KMS50</td>
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<td></td>
</tr>
</tbody>
</table>

Example: NOTE: One option per box

RF41ET1AAECO216XKMS50 = RF4-1 AA E CO 2 16 X KMS = RF4-1 AA E CO 2 16 X KMS

**Filter Series**
- RF4

**Size**
- 1 = G1"

**Control Type**
- EPT = Electro-pneumatic cyclic control, (including pneumatic drive)
- ET = Electric Control
- M = Manual

**Voltage Type**
- 0 = Without control, without solenoid valve
- 1 = With control* and solenoid valve 230 V AC
- 2 = With control* and solenoid valve 24 V AC
- 3 = Without control, with solenoid valve 24 V AC
- 4 = Without control, with solenoid valve 24 V AC

**Materials**
- AA = Aluminum head & bowl (only RF$, 1, 230 psi)
- EE = Stainless Steel head and bowl (only RF4-1, 87 psi)

**Backflushing Valve**
- 0 = Without backflushing valve
- CO = Coaxial valve, brass
- KN = Ball valve, nickel plated (only on M or EPT control models)
- KE = Ball valve, nickel plated (only on M or EPT control models)

**Differential Pressure Control**
- 0 = Without differential pressure monitoring
- 1 = Fixed value: 7.3 psi (0.5 bar), Type DS 32 N/O contact
- 2 = Adjustable: 1.5 psi (0.1 bar) - 14.5 psi (1 bar), Type DS 31, N/O contact
- *Supply voltage of control is 110-120 V AC, 60 Hz

**Pressure Range**
- 87 psi (6 bar) (housing fastened with clamp), only for housings in stainless steel design
- 16 = 230 psi (16 bar) (filter upper section threaded)

**Modifications No.**
- X = Latest version is always supplied

**Element Type & Size**
- KMS = Slotted Tubes, 30 to 1000μm
- KMD = SuperMesh™ 25μm, 40μm, 60μm
- SKMS = Slotted Tube Superflush 30 μm to 1000 μm
- SKMD = SuperMesh™ Superflush 25μm, 40 μm, 60μm

**NOTES:**
- Box 5. AA only available for 16 bar.
- AP only available for 6 bar.
RF4-2
Backflushing Filter AutoFilt® RF4

60 gpm
220 L/min
87 psi
6 bar
Or
230 psi
16 bar

NOTES:
1. Metric dimensions in ( ).
2. Drawings may change without notice. Contact factory for certified drawings.

Specifications

| Process Connection: | G1½" Female |
| Max Flow: | 60 gpm (220 L/min) |
| Max. Working Pressure: | 87 psi (6 bar) or 230 psi (16 bar) |
| Max. Working Temperature: | 194°F (90°C) |
| Weight: | 71 lbs. (32 kg) or 140 lbs. (63 kg) |
| Housing Volume: | 1.0 gallons (3.7 L) |
| Filter Area: | 220 in.² (1420 cm²) |
| No. of Filter Elements | 4 |
| Backflush Connection: | G¾ Female |
| Backflush Volume: | 3.4 gallons (13 L/cycle) |
## How to Build a Valid Model Number for a RF4:

<table>
<thead>
<tr>
<th>BOX 1</th>
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<th>BOX 8</th>
<th>BOX 9</th>
<th>BOX 10</th>
<th>BOX 11</th>
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**Example:** NOTE: One option per box

<table>
<thead>
<tr>
<th>RF4</th>
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<th>1</th>
<th>NN</th>
<th>E</th>
<th>CO</th>
<th>2</th>
<th>16</th>
<th>X</th>
<th>KMS50</th>
</tr>
</thead>
</table>

= RF42ET1NNCO216XKMS50

### Filter Series
- **RF4**

### Size
- 2 = G1" 1/2

### Control Type
- Electro-pneumatic cyclic, control, (including pneumatic drive)
- ET = Electric Control
- M = Manual

### Voltage Type
- 0 = Without control, without solenoid valve
- 1 = With control* and solenoid valve 230 V AC
- 2 = With control* and solenoid valve 24 V AC
- 3 = Without control, with solenoid valve 24 V AC
- 4 = Without control, with solenoid valve 24 V AC

### Materials
- Carbon Steel, NN = nickel plated (only RF4-2 230 psi)
- Stainless Steel head, EE = bowl (only RF4-2, 87 psi)

### Backflushing Valve
- 0 = Without backflushing valve
- CO = Coaxial valve, brass
- KN = Ball valve, nickel plated brass (only on M or EPT control models)
- KE = Ball valve, nickel plated brass (only on M or EPT control models)

### Differential Pressure Control
- 0 = Without differential pressure monitoring
- 1C = With control*, drive 3 x 400 V/PE, 60 HZ
- 1C = With control*, drive 3 x 400 V/PE, 60 HZ
- *Supply voltage of control is 110-120 V AC, 60 Hz

### Pressure Range
- 06 = 87 psi (6 bar) (housing fastened with clamp), only for housings in stainless steel design
- 16 = 230 psi (16 bar) (filter upper section threaded)

### Modification No.
- X = Latest version is always supplied

### Element Type & Size
- KMS = Slotted Tubes, 30 to 1000μm
- KMD = SuperMesh™ 25μm, 40μm, 60μm
- SKMS = Slotted Tube Superflush 30 μm to 1000 μm
- SKMD = SuperMesh™ Superflush 25μm, 40 μm, 60μm

### NOTES:
- Box 5. AA only available for 16 bar.
- AP only available for 6 bar.
Backflushing Filter AutoFilt® RF4-3

Specifications

| Connection Size: | • Inlet/Outlet: G2”  
|                  | • Back-flush line: G¾ |
| Flow Rate $Q_{max}$: | 450 l/min (120 gpm) |
| Design Pressure $p_{max}$: | 16 bar (232 psi) |
| Design Temperature $T_{max}$: | 80° C (176°F) |
| Filtration Rating: | 25 — 1000 µm |
| Filter Elements / Filter Area: | 4 pieces: 1430 cm² (222 in²) 
|                                 | 6 pieces: 2140 cm² (332 in²) 
|                                 | 7 pieces: 2500 cm² (388 in²) |
| Housing Material: | Stainless steel cast 1.4581 |
| Weight: | 45 kg (99.2 lbs) |

NOTES:
1. Metric dimensions in ( ).
2. Drawings may change without notice. Contact factory for certified drawings.
### How to Build a Valid Model Number for a RF4:

<table>
<thead>
<tr>
<th>BOX 1</th>
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**Example:** NOTE: One option per box

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</tbody>
</table>

#### BOX 1: Filter Type
- RF4WL = Left Filter Inlet - Standard
- RF4WR = Right Filter Inlet

#### BOX 2: Size
- 3 = G2.5

#### BOX 3: Pressure Ranges
- 2 = 10 bar (only for EU)
- 3 = 16 bar (EPT & EU)

#### BOX 4: Number of Filter Elements
- 4 = 4 pieces
- 6 = 6 pieces - Standard
- 7 = 7 pieces - only in case of high dirt load

#### BOX 5: Base Frame / Wall Assembly
- 0 = Without - standard
- 1 = For wall mounting
- 2 = With base frame
- 3 = Air-bleed valve & piping
- 4 = Automatic vent valve (plastic) and piping

#### BOX 6: Control Type
- EPT: Electro-pneumatic cyclic control
- EU: Electrical circulation control - Standard

#### BOX 7: Power Supply Voltage
- D = Supply voltage 230VAC 50Hz/60Hz (EPT & EU) - Standard (= Gear motor, control valve or backflush valve unit 24VDC)
- F = Supply voltage 115VAC 60Hz (EU gear motor) (= Gear motor, control valve or backflush valve unit 24VDC)
- L = Supply voltage 24VDC (only for EPT)

#### BOX 8: Version
- 0 = Without control, loose cable, cable length 5 meters
- 1 = Basic terminal box on filter, actuators & sensors on the terminal strip
- 2 = ACU Basic on Filter - Standard
- 3 = ACU Basic with 5 meters cable for wall mounting
- 4 = ACU (metal control cabinet, with 5 meter cable for wall mounting)

#### BOX 9: Differential Pressure Monitoring
- S = HDA 4700 Stainless steel V2A (4-20 mA), 2 pieces

#### BOX 10: Housing Material / Coating
- Stainless steel casting
- E2 = 1.4581 (Group 316) - Standard

#### BOX 11: Inner Parts
- E1 = Stainless steel 1.4301, 1.4541 or similar (Group 304/321) - Standard
- E2 = Stainless steel 1.4401, 1.4404, 1.4571 or similar (Group 316)

#### BOX 12: End Documentation
- 0 = Standard (Assembly & Operating manual, E plan, Declaration of Incorporation)
- A = Certificate of Conformance CoC + standard
- B = Acceptance test certificate 3.1 according to DIN EN 10204 for design, pressure and function test + standard
- C = Acceptance test certificate 3.1 according to DIN EN 10204 for design, pressure and function test
- D = Material inspection certificates according to EN 10204, 3.1 for pressure-bearing media-contacting housing parts + standard
- E = Russian device pass incl. explanation letter for TRCU 031/2013; additional Declaration of Conformity for TRCU 010/2011 + standard

#### BOX 13: Modification Number
- The latest version is always supplied (currently 2)

#### BOX 14: Filter Elements / Filtration Rating
- S = *S* additionally prefixed for SuperFlush
- KNS = Wedge wire 50 µm up to 1000 µm
- KND = SuperMesh 25 µm, 40 µm, 60 µm (3-layer)
- Filtration: KNS 50 µm, 100 µm, 150 µm, 200 µm, Ratings: 250 µm, 300 µm, 500 µm, 1000 µm
- Filtration: KND 25 µm, 40 µm, 60 µm
- Other filtration rates available on request

### Special Number
For special design (number will be issued after technical clarification in the Head Office)
**Backflushing Filter AutoFilt® RF12**

**Process Connection:**
- G 1\(^{\text{1/2}}\) Female

**Max Flow:**
- 21 gpm (80 L/min)

**Max. Working Pressure:**
- 145 psi (10 bar)

**Weight:**
- 33 lbs. (15 kg)

**Housing Volume:**
- 0.48 gallons (1.8 L)

**Filter Area:**
- 55 in.\(^2\) (356 cm\(^2\))

**No. of Filter Elements:**
- 1

**Backflush Connection:**
- G 1\(^{\text{1/2}}\) Female

**Backflush Volume:**
- 0.79 gallons (3 L/cycle)

**NOTES:**
1. Metric dimensions in ( ).
2. Drawings may change without notice. Contact factory for certified drawings.
## How to Build a Valid Model Number for a RF12:

<table>
<thead>
<tr>
<th>BOX 1</th>
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Example: NOTE: One option per box

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<th>BOX 1</th>
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<tbody>
<tr>
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<td>S</td>
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<td>10</td>
<td>X</td>
<td>KSD25</td>
</tr>
</tbody>
</table>

= RF12-1-EP0-1-S-0-10-X / KSD25

### Filter Series

**RF12**

### Protective Filter

- **EP0** = Electropneumatic control without pilot valves
- **EP1** = Electropneumatic control incl. pilot valve
- **EP2** = Electropneumatic control incl. pilot valve 24 VDC Device connector M12x1 (w/o mating connector)
- **EP3** = Electropneumatic control incl. pilot valve 230 VAC Device connector DIN En 175301-803 / form A (w/o mating connector)
- **EP23** = Electropneumatic control incl. pilot valve 230 VAC, with timer control (1 x 230V/N/PE 50 Hz)
- **EPD3** = Electropneumatic control incl. pilot valve 230 VAC, with differential pressure control (1 x 230V/N/PE 50 Hz)

### Material

Filter housing:
- **1** = aluminum, 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** = 145 psi (10 bar)

### Modification Code

- **X** = Latest version is always supplied

### Filter Elements / Filtration Rating

- **S** = Preceded with an additional “S” for SuperFlush non-sticking coating
- **KSS** = Wedge wire 30μm
- **KSS** = SuperMesh wire mesh, sintered, 25 μm / 40 μm / 60 μm; others on request
The AutoFilt® RF14 is a self-cleaning system for extracting particles from low viscosity fluids. Its robust construction and automatic back-flushing capability make a major contribution to operational reliability and reduce operating and maintenance costs. The slotted or SuperMesh baskets in the filter with filtration rates from 10 to 100μm ensure highly effective filtration of contaminating particles from the process medium.

Automatic cleaning starts as soon as the elements become contaminated. The flow of filtrate is not interrupted during the back-flushing procedure. A range of filters of different sizes allow flow rates of up to 15,400 gpm. Numerous combinations of materials and equipment as well as individually adjustable control parameters allow optimum adaptation of the filter to any application.

This type of fully automatic self-cleaning screen filter has been used for decades in applications wherever suspended solids need to be removed from a pressurized water stream. They are used to remove sand, silt and algae from raw water taken from lakes, ponds, rivers and canals. Such filters provide pretreatment before membrane filtration systems for potable water supply. Other installations include pretreatment for reverse osmosis and other desalination systems. Many municipal and industrial wastewater treatment plants use these filters to prepare secondary effluent for reuse in cooling, irrigation and aquifer recharge systems. Applications in steel mills filtering grimy, oily cooling water are common as are those in the automotive and plastics industries. Cement plants and mining operations use this type of filter for removing solids from tailings. They are found on deep-sea oil platforms for filtering flood water and on ships before portable desalination systems and ballast systems.

**Filtration**

A back-flushing cycle is complete once the basket element has been cleaned. Filter continues to filter and forward flow is not impeded by backwash cycle.

**Special Features of the AutoFilt® Iso kinetic Filtering and Back-Flushing**

The special configuration of the filter basket elements allows even flow, resulting in low pressure drops and complete cleaning of the elements. The advantage: fewer back-flushing cycles and reduced loss of back-flushing fluid.

**Pulse-aided Back-Flushing** on the control types EPT and PT; the filter basket to be backflushed remains in the flushing position for only a few seconds. Rapid opening of the pneumatic back-flushing valve generates a pressure surge in the filter nozzle openings, providing an additional cleaning effect to the back-flushing process as it cleans the basket as it rotates around the basket area.

**Low Back-Flushing Quantities** due to cyclic control the back-flushing valve opens and closes during back-flushing. The filter, which produces particularly good flow rates, is of a compact construction with high filtration performance and low pressure drops. The RF14 will use less than 0.5% of the forward flow for backwash.

The fluid to be filtered flows through the slotted filter basket element of the back-flushing filter, passing from the inside to the outside. Contamination particles then collect on the smooth inside of the filter basket elements. As the level of contamination increases, the differential pressure between the contaminated and clean sides of the filter increases. When the differential pressure reaches its preset value, back-flushing starts automatically.

**Triggering Automatic Back-Flushing**

Back-flushing is triggered automatically: when the triggering differential pressure is exceeded. **Back-flushing can also be started:**

- By means of an adjustable timer (optional)
- By pressing the TEST key
- As soon as back-flushing has been triggered, the filter starts to clean the filter basket

**Back-Flushing of the Filter Basket Elements - Back-Flushing Cycle**

- The gear motor rotates the nozzles around the interior of the basket
- The back-flushing valve is opened
- The pressure drop between the filtrate side and the back-flushing line rinses a small partial flow of the filtrate in the opposite direction into the filter elements to be cleaned. The contamination particles deposited on the inside of the filter basket element are detached and carried out via the nozzles into the back-flushing line.
After the back-flushing time is complete, the back-flushing valve is closed. In this way, the nozzles have cleaned all areas of the filter basket. Initiating the most effective and instantaneous back-flush differential at all areas of the basket filter.

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 lay-out.

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.

### Specifications

<table>
<thead>
<tr>
<th></th>
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<table>
<thead>
<tr>
<th>Filter Size</th>
<th>Min. Backwash Volume (gal.)</th>
<th>Min. Flow (gpm)</th>
<th>Max Flow (gpm) w/ Delta Mesh 40 micron</th>
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<tbody>
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## RF14 Backflushing Filter AutoFilt® RF14

### How to Build a Valid Model Number for a RF14:

<table>
<thead>
<tr>
<th>Box 1</th>
<th>Box 2</th>
<th>Box 3</th>
<th>Box 4</th>
<th>Box 5</th>
<th>Box 6</th>
<th>Box 7</th>
<th>Box 8</th>
<th>Box 9</th>
<th>Box 10</th>
<th>Box 11</th>
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</thead>
<tbody>
<tr>
<td>RF14M</td>
<td></td>
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**Example:** NOTE: One option per box

<table>
<thead>
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<th>Box 1</th>
<th>Box 2</th>
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<th>Box 4</th>
<th>Box 5</th>
<th>Box 6</th>
<th>Box 7</th>
<th>Box 8</th>
<th>Box 9</th>
<th>Box 10</th>
<th>Box 11</th>
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</thead>
<tbody>
<tr>
<td>RF14M</td>
<td>252</td>
<td>F</td>
<td>S</td>
<td>X</td>
<td>P</td>
<td>J</td>
<td>K</td>
<td>VN</td>
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</tbody>
</table>

### Filter Model Number Selection

#### Filter Type
- RF14M = Marine Model
- RF14J = Industry model*

#### Design Code
- S = HYDAC Standard
- A = ASME VIII Div. 1
- U = ASME VIII Div. 1
- E = EN 13445

#### Connection

<table>
<thead>
<tr>
<th>Box 2</th>
<th>Box 3</th>
<th>Box 4</th>
<th>Box 5</th>
<th>Box 6</th>
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<th>Box 9</th>
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<td>RF14 Size</td>
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<td></td>
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</tbody>
</table>

#### Control Type
- 0 = Without control, with terminal box
- 1 = without terminal box, cable loose
- 2 = EPS Electro-pneumatic control with AutoFilt® ACU
- Y = Customer-specific model

#### Connection Voltage

<table>
<thead>
<tr>
<th>Box 8</th>
<th>Box 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = 3 x 400V / N / PE 50 Hz</td>
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</tr>
<tr>
<td>1 = 3 x 400V / X / PE 50 Hz</td>
<td></td>
</tr>
<tr>
<td>2 = 3 x 500V / X / PE 50 Hz</td>
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</tr>
<tr>
<td>3 = 3 x 230V / N / PE 50 Hz</td>
<td></td>
</tr>
<tr>
<td>4 = 3 x 230V / X / PE 50 Hz</td>
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<tr>
<td>5 = 3 x 415V / X / PE 50 Hz</td>
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</tr>
<tr>
<td>Y = Customer-specific model</td>
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</tr>
</tbody>
</table>

#### Flange
- A = ANSI
- F = DIN / EN
- J = JIS

### Pressure Range

<table>
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<th>Box 1</th>
<th>Box 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A = PN 6</td>
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</tr>
<tr>
<td>B = PN 10</td>
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</tbody>
</table>

### Explosion Protection

<table>
<thead>
<tr>
<th>Box 7</th>
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<tbody>
<tr>
<td>X = EX-protection according to ATEX</td>
</tr>
<tr>
<td>C = EX-protection according to IECEX</td>
</tr>
<tr>
<td>Specification omitted, if not applicable</td>
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</tbody>
</table>

#### Housing / Corrosion Protection Material

<table>
<thead>
<tr>
<th>Box 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = Carbon steel, primer (RAL 7040), inside without corrosion protection</td>
</tr>
<tr>
<td>M = Carbon steel, primer (RAL 7040), inside 2-comp. epoxy coating</td>
</tr>
<tr>
<td>P = Carbon steel, primer (RAL 7040), inside 2-comp. Highly cross-linked PU-lining</td>
</tr>
<tr>
<td>E = Stainless steel 1.4301, 1.4541 or similar (Group 304/321)</td>
</tr>
<tr>
<td>H = Stainless steel 1.4571 or similar (group 316)</td>
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</table>

### Material Back-Flush Valve Unit

<table>
<thead>
<tr>
<th>Box 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = Butterfly valve: spheroidal graphite cast iron-coated housing, stainless steel disc and shaft, NBR seal</td>
</tr>
<tr>
<td>B = Butterfly valve: spheroidal graphite cast iron-coated housing, bronze disc and shaft, NBR seal</td>
</tr>
<tr>
<td>M = Butterfly valve: spheroidal graphite cast iron-coated housing, Super-Duplex disc and shaft, NBR seal</td>
</tr>
<tr>
<td>V = Butterfly valve: spheroidal graphite cast iron-coated housing, stainless steel disc and shaft, FKM/FPM seal</td>
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</table>

#### Pressure Transmitter

<table>
<thead>
<tr>
<th>Box 11</th>
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<tbody>
<tr>
<td>0 = Without pressure transmitter (Pressure measurement connection to the filter is retained)</td>
</tr>
<tr>
<td>5 = HDA 4700 stainless steel V2A group (not for filter model M - marine)</td>
</tr>
<tr>
<td>6 = HDA 4300 Duplex</td>
</tr>
</tbody>
</table>

*cont. on next page*
### How to Build a Valid Model Number for a RF14:

**Example:**
```
1 H 345P 0 M H A 40 = RF14M252FS21XPAN51H345P0MHA40
```

### Flange Position
- **1:** Filter outlet opposite filter inlet (Standard)
- **2:** Filter outlet offset 90° clockwise to default
- **3:** Filter outlet offset 180° clockwise to default
- **4:** Filter outlet offset 270° clockwise to default

### Internal Parts
- **H:** Stainless steel 1.4404 or similar (group 316)
- **E:** Stainless steel 1.4301, 1.4541 or similar material (group 304/x321)
- **D:** Duplex
- **S:** SuperDuplex

### Options
- **0:** Without
- **1:** Without integrated protection basket
- **2:** With davit
- **3:** Pressure transmitter in back-flush line
- **4:** Top coat RAL 7040
- **5:** Automatic vent valve (plastic)
- **6:** Automatic vent valve (stainless steel/SuperDuplex)
- **7:** With sacrificial anode (O-ring material made of silicone element, conductive)
- **A:** Certificate of Conformance CoC
- **B:** Acceptance test certificate 3.1 acc. to DIN EN 10204 for design, pressure and function test
- **C:** Acceptance test certificate 3.1 acc. to DIN EN 10204 for design, pressure and function test incl. material cert. acc. to EN 10204, 3.1 for the pressure bearing vessel parts in contact with media
- **D:** Material products to EN 10204, 3.1 for pressurized vessel parts that come into contact with media
- **P:** With back-flush pump

### Nominal Filtration Rating

<table>
<thead>
<tr>
<th>Filtration Ratings</th>
<th>Filter Model</th>
<th>(\rightarrow) Recommended Flange Sizes*</th>
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<tr>
<td>10μm</td>
<td>- X</td>
<td>4 5</td>
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<tr>
<td>20μm</td>
<td>X X</td>
<td>3 4 5</td>
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<tr>
<td>30μm</td>
<td>- X</td>
<td>3 4</td>
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<tr>
<td>40μm</td>
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<td>2 3</td>
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<tr>
<td>50μm</td>
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<tr>
<td>70μm</td>
<td>- X</td>
<td>1 2</td>
</tr>
<tr>
<td>90μm</td>
<td>- X</td>
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</table>

* Model recommendation based on experiences with sea-water and serves only as orientation

Seal material of filter element without anode is identical to seal material of the butterfly valve
Seal material of filter element with anode is always silicone
Backflush Treatment Unit

The BTU unit with integral backflushing filter is a turnkey automatic filtration unit for watermiscible cooling lubricants, oils or washing water which continuously filters solid particles, such as very fine magnetic and non-magnetic metal particles, corundum, sand particles etc. It provides long-term filtration producing reduced-particle filtrate. The quality of the filtrate is dependent on the separation limit of the filter used.

A BTU unit generally consists of:
- Backflushing filter for the main filtration
- Process twist sieve (PTS) to treat the backflushed volume
- Buffer tank with components (only BTU1)
- Control

The process twist sieve (PTS) is a component which is fitted downstream from the backflushing filter to filter the backflushed volume. In this way, with the help of the twist sieve, a further filtration process is carried out via the backflushing line.

The solid particles from the backflushing volume are collected in a bag filter which is suspended under the twist sieve. When this is full, it is easy to dispose of by pulling open the drawer.

The fluid filtered by the twist sieve or the bag flows back to the buffer tank (BTU1). As soon as the fluid level in the buffer tank reaches the upper switch point of the level gauge (optional), the tank pump (optional) empties the tank.

Due to the short-term pressure shock when backflushing the automatic filter and due to the tangential inlet flow, the fluid is filtered by the wire mesh inside the twist sieve. Approx. 70 % of the backflushing volume passes through the twist sieve and is therefore already filtered when it flows into the buffer tank below the filter via the channel on one side of the twist sieve.

The remaining 30 % of fluid which is heavily contaminated with particles is forced by the centrifugal force and gravity through an opening in the floor of the twist sieve down into a bag filter. The fluid is filtered through the bag from the inside to the outside. Particles are retained and the cleaned emulsion flows into the buffer tank. The pressure shock ensures that the wire mesh (TopMesh) is flushed at every backflushing process, i.e. the twist sieve is self-cleaning and practically maintenance-free.
**How to Build a Valid Model Number for a BTU:**

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
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</thead>
<tbody>
<tr>
<td><strong>Unit Type</strong></td>
<td><strong>Filtration Rating</strong></td>
<td><strong>Bag Filter Material</strong></td>
<td><strong>Bag Filter Filtration Rating</strong></td>
<td><strong>Twist Sieve Housing/ Buffer Tank Material</strong></td>
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<td></td>
</tr>
<tr>
<td>BTU1 = Add-on unit</td>
<td>25 = D25</td>
<td>PE = Polyester</td>
<td>25 = 25 µm</td>
<td>EE = Housing and buffer tank: stainless steel</td>
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<tr>
<td>BTU3 = Tank-top unit</td>
<td>40 = D40</td>
<td>PP = Polypropylene</td>
<td>50 = 50 µm</td>
<td>EN = Housing: stainless steel; buffer tank: carbon steel</td>
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<td></td>
<td>60 = D60</td>
<td>N = Nylon</td>
<td>100 = 100 µm</td>
<td>NN = Housing and buffer tank: carbon steel</td>
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<tr>
<td></td>
<td>80 = D80</td>
<td></td>
<td>150 = 150 µm</td>
<td>NE = Housing: carbon steel; buffer tank: stainless steel</td>
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</tr>
<tr>
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<td>100 = D100</td>
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<td></td>
<td>EEE = Housing, buffer tank, filter frame: stainless steel</td>
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</tr>
<tr>
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<td>150 = D150</td>
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</tbody>
</table>

**Control Functions**

- 0 = Unit without control function
- N1 = Level monitoring of buffer tank
- N2 = Level monitoring of bag filter
- N3 = Level monitoring of buffer tank and bag filter
- S = Control complete

**Pump**

- 0 = 150 psi (10 bar)
- T = Return pump in buffer tank (only possible with BTU1)

**Modification Number**

- X = The latest version is always supplied

**Example:**

NOTE: One option per box

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTU1</td>
<td>80</td>
<td>PP</td>
<td>50</td>
<td>EE</td>
<td>S</td>
<td>T</td>
<td>X</td>
</tr>
</tbody>
</table>

= BTU1-80-P-50-EE-S-T-X
**How to Build a Valid Model Number for an AutoFilt® for BTU:**

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>E</td>
<td>1</td>
<td>E</td>
<td>E</td>
<td>2</td>
<td>L</td>
<td></td>
</tr>
</tbody>
</table>

Example: NOTE: One option per box

A-E-1-E-E-2-L

**BOX 1**

**AutoFilt®**

| A = RF3-C | B = RF3-CG | D = RF3-0 | E = RF3-0G | F = RF3-1 | G = RF4-1 | H = RF4-2 |

**BOX 2**

**Control**

| 0 = w/o control | E = EPT |

**BOX 3**

**Voltage**

| RF3 | RF4 |

**BOX 4**

**Materials Of Housing (RF3 Only)**

| 0 = Carbon steel, external primer (“N”) |
| 1 = Carbon steel, external primer, internal coating (“NM”) |
| 3 = Stainless steel (“E”) |

**Materials Of Housing (RF4 Only)**

| AA = Configuration (AAE): aluminum, aluminum, stainless steel |
| EE = Configuration (EEE): stainless steel, stainless steel, stainless steel |

**Materials Of Housing (RF4-1 Only)**

| NN = Configuration (NNE): carbon steel, carbon steel, stainless steel |
| EE = Configuration (EEE): stainless steel, stainless steel, stainless steel |

**BOX 5**

**Materials Of Backflushing Valve**

| RF3 | RF4 |

| N = Carbon Steel | E = Stainless Steel |

| 1 = Coaxial Valve | 2 = Ball Valve |

**BOX 6**

**Differential Pressure Gauge**

| RF3 | RF4 |

| 1 = Pressure Chamber Aluminum |
| 2 = Pressure Chamber Stainless Steel |

| A = Adjustable: 0.1 - 1.0 bar | G = GW indicator, N/C |

| F = Fixed value: 0.5 bar |

**BOX 7**

**Flange Options (RF3 only)**

| 1 = Filter outlet opposite filter inlet (standard) (not for RF3-C) |
| 2 = Filter outlet offset by 90° clockwise to standard |
| 3 = Filter outlet offset by 180° clockwise to standard |

**BOX 8**

**Filter Elements (RF3)**

| 8 = KD25 | 9 = KD40 | D = KD60 | E = KD80 | L = KS50 | M = KS100 | N = KS150 |

**Filter Elements (RF4-1)**

| 8 = KD25 | 9 = KD40 | D = KD60 | E = KD80 | L = KS50 | M = KS100 | N = KS150 |

**Filter Elements (RF4-2)**

| 8 = KD25 | 9 = KD40 | D = KD60 | E = KD80 | L = KS50 | M = KS100 | N = KS150 |
**How to Build a Valid Model Number for a Process Twist Sieve:**

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
<th>BOX 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Example:** \[PTS-40-250-E-L-2-50\]

1. **PTS**
   - **Unit Type**
     - **PTS** = Process twist sieve
2. **Filtration Rating**
   - 25 = D25
   - 40 = D40
   - 60 = D60
   - 80 = D80
   - 100 = D100
   - 150 = D150
3. **Diameter**
   - 180 = Ø 180 mm (only for RF4, without)
   - 180/1 = Ø 180 mm (only for RF4-1, with bracket)
   - 180/2 = Ø 180 mm (only for RF4-2, with bracket)
   - 250 = Ø 250 mm (only for RF3-C and RF3-0)
   - 450 = Ø 450 mm (only for RF3-1)
4. **Housing Material**
   - N = Carbon steel, primed
   - E = Stainless steel
5. **Housing Length**
   - K = Short (standard for PTS-180)
   - L = Long (standard for PTS-250/-450)
6. **Level Switch**
   - 0 = Without
   - 1 = With level switch, stainless steel (only for diameters 250 mm, 450 mm)
7. **Bag Filter Material**
   - PE = Polyester
   - PP = Polypropylene
   - N = Nylon
8. **Bag Filtration Rating**
   - 25 = 25 µm
   - 50 = 50 µm
   - 100 = 100 µm
   - 150 = 150 µm
9. **Modification Number**
   - X = The latest version is always supplied
Automatic Twist Flow Strainer ATF

Automatic Twist Flow Strainer

The Schroeder Automatic Twist Flow Strainer (ATF) is designed for the filtration of solid particles from water or fluids similar to water. With filtration ratings between 200 μm and 3,000 μm, the ATF is particularly well suited for separating suspended solid particles, up to several grams per liter, from low-viscosity fluids. In order to filter higher flow rates, the ATF can be supplied as a skid solution (call factory for details).

Construction and Function

This filter is a hybrid system consisting of a centrifugal separator and an inline filter. The fluid to be cleaned enters the housing tangentially, similar to a centrifugal separator, and accelerates down as a result of the tapered housing. The resulting spiral flow with its centrifugal force carries the coarsest contamination first (its density is obviously higher than that of the fluid) to the inner wall of the housing.

Filtration

When pressed against the filter wall, the higher density particles settle at a higher rate in the lower part of the filter, where they are finally carried out. The remaining smaller, less dense particles are filtered as the fluid passes through the element and exits the filter.

The conical filter element ensures optimum flow characteristics. On one hand it makes possible continual self-cleaning of the filter during operation. While on the other, it makes the pressure drop of the whole filter much lower than compared with a centrifugal separator of a similar size.

Cleaning Procedure

Both the sediment particles and those separated by the filter element finally collect at the bottom of the housing and are discharged periodically from the system by opening the contamination flap. During this cleaning procedure (depending on the installation of the ATF), part of the untreated fluid flow is used for a few seconds to flush the elements and clean the filter. Because partial flow is used, continuous filtration occurs.

In addition, the ATF is an excellent choice for bypass flow applications which are able to do without a partial flow for short periods of time.

Depending on the application and the amount of solid particles, the cleaning function can be adjusted via a timer function.

Special Features of the ATF

The ATF is well suited to high levels of contamination and large fluctuations in the solid particle content of the untreated water.

Due to the use of conical slotted tube and sintered wire meshes, a precise selectivity and therefore a constant filtrate quality is ensured – independent of fluctuations in operating pressure or flow rate.

Due to special flow conditions resulting from the element geometry and their arrangement, the pressure drop on the overall unit is relatively low at < 14.5 psi (1.0 bar).

The pre-filtration of solid particles of a higher density implies that the filter surface area can take a correspondingly higher load and the filter size can therefore be comparatively smaller.
The filter elements are cleaned solely by flushing with untreated fluid.

The ATF saves on space in comparison to conventional separating units, such as lamellar separators or sand filters.

Several ATF’s can be integrated into systems, and as a result, can adapt to the required flow rates.

The filter element of the ATF is maintenance-friendly, as it is equipped with a flange cover. On sizes 2 to 4, it is also possible to replace the filter element without needing to open the filter.

The ATF is sized based on the pressure drop curve. A further factor in the calculation is the flow velocity through the inlet flange. It should not exceed 13.12 feet/minute (4 m/s).

In order to be able to size the ATF correctly, the following design data should be available:
- Flow rate
- Type of medium
- Materials / resistance
- Viscosity
- Required filtration rating
- Particulate loading in the fluid
- Solid particle type and density / densities
- Operating pressure
- Operating temperature
Automatic Twist Flow Strainer ATF-1

Filtration Rate: 200-3000 μm slotted tube only
Operating Rate: 32°F - 194°F (0°C - 90°C)
Housing Material: Stainless Steel or Carbon Steel
Size: 1
Flow Rate: 8-35 gpm (30-132 L/m)
Pressure Rating: 230 psi (16 bar)
Connections Inlet/Outlet: 1” NPT (G 1")
Connection Discharge Line: 1” NPT (G 1")
Filter Area: 23 in² (150 cm²)
Weight: 33 lbs (15 kg)
Volume: 0.5 gal (1.8 L)

Filter Specifications

<table>
<thead>
<tr>
<th>Filter Size</th>
<th>NW in (mm)</th>
<th>H Max in (mm)</th>
<th>h1 in (mm)</th>
<th>h2 in (mm)</th>
<th>h3 in (mm)</th>
<th>b2 in (mm)</th>
<th>D in (mm)</th>
<th>d1 in (mm)</th>
<th>Installation Height in (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATF 1</td>
<td>0.04 (1)</td>
<td>19.29 (490)</td>
<td>17.52 (445)</td>
<td>18.50 (470)</td>
<td>4.06 (103)</td>
<td>4.92 (125)</td>
<td>8.27 (210)</td>
<td>3.00 (76.1)</td>
<td>13.78 (350)</td>
</tr>
</tbody>
</table>

35 gpm
132 L/min
230 psi
16 bar
### Automatic Twist Flow Strainer ATF-1

#### How to Build a Valid Model Number for an ATF-1:

- **Filter Series**: ATF
- **Size**: 1 = Inlet/Outlet 1” NPT
- **Control Type**: 0 = No controls/No valves
  - M = Manual valve
  - EP = Electro-pneumatic discharge valve, with timer control
  - EPZ = Electro-pneumatic discharge valve, with timer control
  - E = Electric discharge valve, without timer control
  - EZ = Electric discharge valve, with timer control
- **Voltage**: 1 = 230 VAC, 60 Hz, Single Phase
  - 2 = 110 VAC, 60 Hz, Single Phase
  - 3 = 24 VAC, 60 Hz, Single Phase
  - 4 = 24 VDC
- **Discharge Valve**: 0 = None
  - NN = Butterfly valve, cast housing coated, disc Stainless Steel, cuff BR (not available on size 1)
  - NE = Butterfly valve, cast housing coated, disc Stainless Steel, cuff EPDM (not available on size 1)
  - NV = Butterfly valve, cast housing coated disc Stainless Steel, cuff Viton (not available on size 1)
  - BN = Butterfly valve, cast housing coated, disc Bronze, cuff NBR (not available on size 1)
  - BE = Butterfly valve, cast housing coated, disc Bronze, cuff EPDM (not available on size 1)
  - BV = Butterfly valve, cast housing coated, disc Bronze, cuff Viton (not available on size 1)
  - E = Ball valve Stainless Steel (size 1 only)
  - M = Ball valve brass (size 1 only)
- **Housing Material**: N = Carbon Steel
  - E = Stainless Steel for ANSI flanges, also add A
  - J = Stainless Steel for JIS flanges, also add J
  - T = NPT thread (size 1 only), also add T
  - P = 2-K polyurethane paint, also add P
- **Pressure Rating**: 10 = 145 psi (10 bar)
  - 16 = 230 psi (16 bar)
- **Accessories**: 0 = None
  - 1 = Base frame (size 2, 2.5, and 3 only)
  - 2 = Mounting clips (size 2, 2.5, and 3 only)
  - 3 = Aluminum differential pressure gauge
  - 4 = Stainless steel differential pressure gauge
- **Element Set**: UKS1 = Conical Slotted Tube for size 1
  - UKS2 = Conical Slotted Tube for size 2
  - UKS2.5 = Conical Slotted Tube for size 2.5
  - UKS3 = Conical Slotted Tube for size 3
  - UKS3.5 = Conical Slotted Tube for size 3.5
  - UKS4 = Conical Slotted Tube for size 4
- **Filtration Rating**: 200 = 200 μm (not for size 4)
  - 300 = 300 μm (not for size 4)
  - 500 = 500 μm
  - 1000 = 1000 μm
  - 2000 = 2000 μm
  - 3000 = 3000 μm

**Example**: Note: One option per box

- **BOX 1**: ATF
- **BOX 2**: 1
- **BOX 3**: EPZ
- **BOX 4**: E
- **BOX 5**: NN
- **BOX 6**: 10
- **BOX 7**: 0
- **BOX 8**: X
- **BOX 9**: UKS2
- **BOX 10**: 200
- **BOX 11**: = ATF1EPZ1ENN100X-UKS2200
### Automatic Twist Flow Strainer ATF-2, ATF-2.5, ATF-3

**Filtration Rate:** 200-3000 μm slotted tube only

**Operating Rate:** 32°F - 194°F (0°C - 90°C)

**Housing Material:** Stainless Steel or Carbon Steel

#### Specifications

<table>
<thead>
<tr>
<th>Filter Size</th>
<th>NW (in)</th>
<th>H Max. (in)</th>
<th>h1 (in)</th>
<th>h2 (in)</th>
<th>h3 (in)</th>
<th>b1 (in)</th>
<th>b2 (in)</th>
<th>D (in)</th>
<th>d1 (in)</th>
<th>Installation Height (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(50)</td>
<td>(1160)</td>
<td>(925)</td>
<td>(995)</td>
<td>(235)</td>
<td>(270)</td>
<td>(243)</td>
<td>(340)</td>
<td>(114.3)</td>
<td>(500)</td>
</tr>
<tr>
<td>ATF 2.5</td>
<td>3.15</td>
<td>56.50</td>
<td>44.88</td>
<td>48.62</td>
<td>12.40</td>
<td>8.66</td>
<td>11.02</td>
<td>15.55</td>
<td>5.50</td>
<td>25.59</td>
</tr>
<tr>
<td></td>
<td>(80)</td>
<td>(1435)</td>
<td>(1140)</td>
<td>(1235)</td>
<td>(315)</td>
<td>(10.24)</td>
<td>(280)</td>
<td>(395)</td>
<td>(139.7)</td>
<td>(650)</td>
</tr>
<tr>
<td>ATF 3</td>
<td>3.94</td>
<td>68.90</td>
<td>55.12</td>
<td>59.06</td>
<td>13.78</td>
<td>10.24</td>
<td>12.68</td>
<td>17.52</td>
<td>8.63</td>
<td>39.37</td>
</tr>
<tr>
<td></td>
<td>(100)</td>
<td>(1750)</td>
<td>(1400)</td>
<td>(1500)</td>
<td>(350)</td>
<td>(260)</td>
<td>(322)</td>
<td>(445)</td>
<td>(219.1)</td>
<td>(1000)</td>
</tr>
</tbody>
</table>

#### Flow Rate
- **2:** 20-110 gpm (75-416 L/m)
- **2.5:** 65-260 gpm (246-984 L/m)
- **3:** 85-480 gpm (321-1816 L/m)

#### Pressure Rating
- **2:** 145 or 230 psi (10 or 16 bar)
- **2.5:** 145 or 230 psi (10 or 16 bar)
- **3:** 145 or 230 psi (10 or 16 bar)

#### Connections
- **Outlet:** 2” Flange (DN 50)
- **Outlet:** 3” Flange (DN 80)
- **Outlet:** 4” Flange (DN 100)

#### Connection Discharge Line
- **2:** 2” Flange (DN 50)
- **2.5:** 3” Flange (DN 80)
- **3:** 4” Flange (DN 100)

#### Filter Area
- **2:** 55 in² (360 cm²)
- **2.5:** 150 in² (966 cm²)
- **3:** 266 in² (1720 cm²)

#### Weight
- **2:** 132 lbs (60 kg)
- **2.5:** 297 lbs (135 kg)
- **3:** 440 lbs (200 kg)

#### Volume
- **2:** 3.5 gal (13.5 L)
- **2.5:** 7.4 gal (28 L)
- **3:** 14.5 gal (55 L)
How to Build a Valid Model Number for a ATF-2, ATF-2.5 and 3:

Example: NOTE: One option per box

ATF 2 EPZ 1 E NN 10 0 X UKS2 200 = ATF2EPZ1ENN100X-UKS2200

Filter Series

ATF

Size

2 = Inlet/outlet 2” ANSI flange
2.5 = Inlet/outlet 3” ANSI flange
3 = Inlet/outlet 4” ANSI flange

Control Type

0 = No controls/No valves
M = Manual valve
EP = Electro-pneumatic discharge valve, with timer control
EPZ = Electro-pneumatic discharge valve, without timer control
E = Electric discharge valve, without timer control
EZ = Electric discharge valve, with timer control

Voltage

1 = 230 VAC, 60 Hz, Single Phase
2 = 110VAC, 60 Hz, Single Phase
3 = 24VAC, 60 Hz, Single Phase
4 = 24VDC
Omit if no control type specified

Discharge Valve

0 = None
NN = Butterfly valve, cast housing coated, disc Stainless Steel, cuff BR (not available on size 1)
NE = Butterfly valve, cast housing coated, disc Stainless Steel, cuff EPDM (not available on size 1)
NV = Butterfly valve, cast housing coated, disc Stainless Steel, cuff Viton (not available on size 1)
BN = Butterfly valve, cast housing coated, disc Bronze, cuff NBR (not available on size 1)
BE = Butterfly valve, cast housing coated, disc Bronze, cuff EPDM (not available on size 1)
BV = Butterfly valve, cast housing coated, disc Bronze, cuff Viton (not available on size 1)
E = Ball valve Stainless Steel (size 1 only)
M = Ball valve brass (size 1 only)

Pressure Rating

10 = 145 psi (10 bar)
16 = 230 psi (16 bar)

Accessories

0 = None
1 = Base frame (size 2, 2.5 and 3 only)
2 = Mounting clips (size 2, 2.5 and 3 only)
3 = Differential pressure gauge in aluminum (fitted to customer’s equipment)
4 = Differential pressure gauge in stainless steel (fitted to customer’s equipment)
5 = Differential pressure gauge in brass (fitted to customer’s equipment)

Modification Number

X = Latest version supplied by factory

Housing Material

N = Carbon Steel
E = Stainless Steel
A = for ANSI flanges, also add A
J = for JIS flanges, also add J
T = NPT thread (size 1 only), also add T
P = 2-K polyurethane paint, also add P

Element Set

UKS1 = Conical Slotted Tube for size 1
UKS2 = Conical Slotted Tube for size 2
UKS2.5 = Conical Slotted Tube for size 2.5
UKS3 = Conical Slotted Tube for size 3
UKS3.5 = Conical Slotted Tube for size 3.5
UKS4 = Conical Slotted Tube for size 4

Filtration Rating

200 = 200 μm (not for size 4)
300 = 300 μm (not for size 4)
500 = 500 μm
1000 = 1000 μm
2000 = 2000 μm
3000 = 3000 μm
### Automatic Twist Flow Strainer ATF-3.5, ATF-4

**Filtration Rate:** 200-3000 μm slotted tube only  

**Operating Rate:** 32°F - 194°F (0°C - 90°C)  

**Housing Material:** Stainless Steel or Carbon Steel

<table>
<thead>
<tr>
<th>Filter Size</th>
<th>NW1 (in) (mm)</th>
<th>NW2 (in) (mm)</th>
<th>H Max. (in) (mm)</th>
<th>h1 (in) (mm)</th>
<th>h2 (in) (mm)</th>
<th>h3 (in) (mm)</th>
<th>b1 (in) (mm)</th>
<th>b2 (in) (mm)</th>
<th>D (in) (mm)</th>
<th>d1 (in) (mm)</th>
<th>Installation Height (in) (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATF 3.5</td>
<td>5.91 (150)</td>
<td>3.94 (100)</td>
<td>88.98 (2260)</td>
<td>70.28 (17.85)</td>
<td>77.95 (1980)</td>
<td>18.82 (478)</td>
<td>11.18 (284)</td>
<td>17.13 (435)</td>
<td>22.24 (565)</td>
<td>10.75 (273)</td>
<td>51.18 (1300)</td>
</tr>
<tr>
<td>ATF 4</td>
<td>7.87 (200)</td>
<td>5.91 (150)</td>
<td>101.77 (2585)</td>
<td>78.94 (2005)</td>
<td>88.19 (2240)</td>
<td>22.91 (582)</td>
<td>14.45 (367)</td>
<td>20.24 (514)</td>
<td>26.38 (670)</td>
<td>12.75 (323.9)</td>
<td>40.06 (1170)</td>
</tr>
</tbody>
</table>

**Flow Rate:**  
- **ATF 3.5:** 350-965 gpm (1324-3652 L/m)  
- **ATF 4:** 440-1760 gpm (1665-6662 L/m)  

**Pressure Rating:**  
- **ATF 3.5:** 145 or 230 psi (10 or 16 bar)  
- **ATF 4:** 145 or 230 psi (10 or 16 bar)  

**Connections Inlet/Outlet:**  
- **ATF 3.5:** 6" Flange (DN 150)  
- **ATF 4:** 8" Flange (DN 200)  

**Connection Discharge Line:**  
- **ATF 3.5:** 4" Flange (DN 100)  
- **ATF 4:** 6" Flange (DN 150)  

**Filter Area:**  
- **ATF 3.5:** 540 in² (3500 cm²)  
- **ATF 4:** 605 in² (3900 cm²)  

**Weight:**  
- **ATF 3.5:** 578 lbs (263 kg)  
- **ATF 4:** 920 lbs (418 kg)  

**Volume:**  
- **ATF 3.5:** 34 gal (130 L)  
- **ATF 4:** 60 gal (230 L)
How to Build a Valid Model Number for a ATF-3.5, 4:

Example: NOTE: One option per box

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
<th>BOX 9</th>
<th>BOX 10</th>
<th>BOX 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATF</td>
<td>3.5</td>
<td>EPZ</td>
<td>1</td>
<td>E</td>
<td>NN</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>X</td>
<td>UKS2</td>
</tr>
</tbody>
</table>

=ATF3.5EPZ1ENN100X-UKS2200

Filter Series

ATF 3.5

Size

3.5 = Inlet/outlet 6"

4 = Inlet/outlet 8"

Housing Material

N = Carbon Steel

E = Stainless Steel

A = for ANSI flanges, also add A

for JIS flanges, also add J

J = NPT thread (size 1 only), also add T

Internal Coating with 2-K polyurethane paint, also add P

Control Type

0 = No controls/No valves

M = Manual valve

EP = Electro-pneumatic discharge valve, with timer control

EPZ = Electro-pneumatic discharge valve, with timer control

E = Electric discharge valve, without timer control

EZ = Electric discharge valve, with timer control

Discharge Valve

0 = None

NN = Butterfly valve, cast housing coated, disc Stainless Steel, cuff BR (not available on size 1)

NE = Butterfly valve, cast housing coated, disc Stainless Steel, cuff EPDM (not available on size 1)

NV = Butterfly valve, cast housing coated disc Stainless Steel, cuff Viton (not available on size 1)

BE = Butterfly valve, cast housing coated, disc Bronze, cuff EPDM (not available on size 1)

BV = Butterfly valve, cast housing coated, disc Bronze, cuff Viton (not available on size 1)

E = Ball valve Stainless Steel (size 1 only)

M = Ball valve brass (size 1 only)

Pressure Rating

10 = 145 psi (10 bar)

16 = 230 psi (16 bar)

Accessories

0 = None

1 = Base frame (size 2, 2.5 and 3 only)

2 = Mounting clips (size 2, 2.5 and 3 only)

3 = Differential pressure gauge in stainless steel (fitted to customer’s equipment)

4 = Differential pressure gauge in brass (fitted to customer’s equipment)

Filtration Rating

200 = 200 μm (not for size 4)

300 = 300 μm (not for size 4)

500 = 500 μm

1000 = 1000 μm

2000 = 2000 μm

3000 = 3000 μm

SCHROEDER INDUSTRIES | PROCESS FILTRATION 55
Process Inline Filter

145 psi
10 bar
Or
230 psi
16 bar

Filter Housing Specifications

<table>
<thead>
<tr>
<th>Filter Size</th>
<th>NW1 in (mm)</th>
<th>NW2 in (mm)</th>
<th>H Max. in (mm)</th>
<th>h1 in (mm)</th>
<th>h2 in (mm)</th>
<th>h3 in (mm)</th>
<th>b1 in (mm)</th>
<th>b2 in (mm)</th>
<th>D in (mm)</th>
<th>d1 in (mm)</th>
<th>Installation Height in (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-stage</td>
<td>5.91 (150)</td>
<td>3.94 (100)</td>
<td>88.98 (2260)</td>
<td>70.28 (17.85)</td>
<td>77.95 (1980)</td>
<td>18.82 (478)</td>
<td>11.18 (284)</td>
<td>17.13 (435)</td>
<td>22.24 (565)</td>
<td>10.75 (273)</td>
<td>51.18 (1300)</td>
</tr>
<tr>
<td>2-stage</td>
<td>7.87 (200)</td>
<td>5.91 (150)</td>
<td>101.77 (2585)</td>
<td>78.94 (2005)</td>
<td>88.19 (2240)</td>
<td>22.91 (582)</td>
<td>14.45 (367)</td>
<td>20.24 (514)</td>
<td>26.38 (670)</td>
<td>12.75 (323.9)</td>
<td>40.06 (1170)</td>
</tr>
</tbody>
</table>

Filtration Rate: 1-90 μm

Operating Rate: 32°F - 194°F (0°C - 90°C)

Housing Material: Stainless Steel - E1 and E2

Flow Rate: 881 gpm (4003 L/min)

Pressure Rating: 145 or 230 psi (10 or 16 bar)

Connections Inlet/Outlet: 6" Flange (DN 150)

Connection Discharge Line: G1" In-Line Version
G1/2" Outlet Version Downward

Filter Area: Contact Factory

Weight: 132 lbs (60 kg)

Volume: 13 gal (50 L)

NOTES:
1. Top row represents the 10 bar version | In-line (1-stage). Bottom row represents the 10 bar version | In-line (2-stage).
2. Drawings of the 16 bar versions, both 1-stage and 2-stage, are also available upon request.
### How to Build a Valid Model Number for a PLF1:

**Example:** NOTE: One option per box

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
<th>BOX 9</th>
<th>BOX 10</th>
<th>BOX 11</th>
<th>BOX 12</th>
<th>BOX 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLF1</td>
<td>1</td>
<td>2</td>
<td>9HF</td>
<td>V</td>
<td>E1</td>
<td>S</td>
<td>C</td>
<td>E1</td>
<td>10</td>
<td>N</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

=PLF1-129HF-VE1SCE110N10

### For 9" High Flow or 1 = High Load Cascade filter elements

2 = For High Flow filter elements

### Element Type

- **6HF =** 6" Filter element diameter
- **9HF =** 9" Filter element diameter

### Housing Material

- **E1 =** Stainless Steel 1.4301
- **E2 =** Stainless Steel 1.4571
- **SD =** Superduplex
- **D =** Duplex
- **A = w/ ANSI flanges "A" - readjusted additionally**
- **J = w/ JIS flanges "J" - readjusted additionally**

### Internal Parts

- Stainless steel 1.4301 or similar material (group 304)
- Stainless steel 1.4571 or similar material (group 316)
- **SD =** Superduplex (on request)
- **D =** Duplex (on request)

### Pressure Ranges

- **10 = PN 10**
- **16 = PN 16**

### Seal Material

- **N =** NBR
- **V =** FPM (Viton)
- **E =** EPDM

### Connection Code

- **G2 =** Thread G2* (size 2 only)
- **C =** DIN DN 50 / 2" ANSI
- **E =** DIN DN 80 / 3" ANSI (size 1 only)
- **F =** DIN DN 100 / 4" ANSI (size 1 only)
- **K =** DIN DN 150 / 6" ANSI (size 1 only)

### Accessories

- **0 =** w/o
- **1 =** w/ visual CI (PVD 2B.1)
- **2 =** w/ visual-electric CI (PVD 2D.0/-L24)
- **3 =** V01
- **4 =** Differential pressure gauge aluminum w/ 2 adjustable switching contacts
- **5 =** Differential pressure gauge stainless steel w/ 2 adjustable switching contacts
- **6 =** w/ electric CI (PVD 2C.0_)
- **7 =** PVL2GW.0/V-110
- **8 =** PVL2GW.0/V-120

### Optional Fitting

- **3 =** Air-bleed valve made of stainless steel
- **4 =** Ball valve for draining
- **5 =** Flange
- **6 =** Clamp connection
- **7 =** Special industrial part washers design (TRA)
- **8 =** Including solenoid technology
- **9 =** Height adjustable 3 legged base design for PLF1-2-6HF TRA (Option 7)

---

1. For reservoirs made of stainless steel 1.4571 or similar material (group 316), use NBR or EPDM sealing material preferably

---

**SCHROEDER INDUSTRIES | PROCESS FILTRATION**
Filter Housing Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filtration Rate</td>
<td>1-90 μm</td>
</tr>
<tr>
<td>Operating Rate</td>
<td>Carbon 33°F - 140°F (1°C - 60°C)</td>
</tr>
<tr>
<td></td>
<td>Stainless 33°F - 194°F (1°C - 90°C)</td>
</tr>
<tr>
<td>Housing Material</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td></td>
<td>Carbon Steel</td>
</tr>
<tr>
<td>Flow Rate Q max</td>
<td>5150 gpm (1170 m³/h)</td>
</tr>
<tr>
<td>Pressure Rating</td>
<td>87 or 145 or 230 psi</td>
</tr>
<tr>
<td></td>
<td>(6 or 10 or 16 bar)</td>
</tr>
<tr>
<td>Connections Inlet/Outlet</td>
<td>6” - 16” Flange</td>
</tr>
<tr>
<td></td>
<td>(150-400 DIN)</td>
</tr>
<tr>
<td>Connection Discharge Line</td>
<td>G1” In-Line Version</td>
</tr>
<tr>
<td></td>
<td>G1/2 Outlet Version Downward</td>
</tr>
<tr>
<td></td>
<td>2” (DN50)</td>
</tr>
<tr>
<td>Filter Area</td>
<td>Contact Factory</td>
</tr>
<tr>
<td>Weight</td>
<td>Contact Factory</td>
</tr>
<tr>
<td>Volume</td>
<td>Up to 350 gal (1330 L)</td>
</tr>
</tbody>
</table>

NOTES:
1. The dimensions indicated have ± 10 mm tolerances.
2. Subject to technical modifications.

Contact Factory for Dimensional Drawing.
How to Build a Valid Model Number for a PLF2:

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
<th>BOX 9</th>
<th>BOX 10</th>
<th>BOX 11</th>
<th>BOX 12</th>
<th>BOX 13</th>
<th>BOX 14</th>
<th>BOX 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLF2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Example:** NOTE: One option per box

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
<th>BOX 6</th>
<th>BOX 7</th>
<th>BOX 8</th>
<th>BOX 9</th>
<th>BOX 10</th>
<th>BOX 11</th>
<th>BOX 12</th>
<th>BOX 13</th>
<th>BOX 14</th>
<th>BOX 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLF2</td>
<td>3</td>
<td>3</td>
<td>6HF</td>
<td>H</td>
<td>E1</td>
<td>S</td>
<td>L</td>
<td>E1</td>
<td>10</td>
<td>C</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>So</td>
</tr>
</tbody>
</table>

**PLF2-336HF-HE1SL-E1SLE10-C100-So**

### BOX 1
**Indicator Code**
- PLF2 = Multiple-place filter housing

### BOX 2
**Size of Filter**
- 3 = 3 Support Tubes
- 5 = 5 Support Tubes
- 7 = 7 Support Tubes
- 10 = 10 Support Tubes
- 13 = 13 Support Tubes

### BOX 3
**Length of Filter Housing**
- 1 = 1-stage (on request)
- 2 = 2-stage (on request)
- 3 = 3-stage

### BOX 4
**Filter Element Diameter and Filter Element Type**
- 6HF = 6" filter element diameter HighFlow (HF)

### BOX 5
**Filter Alignment**
- H = Horizontal
- V = Vertical (on request)

### BOX 6
**Housing Material**
- NP = Carbon steel, 2-comp. PUR internal coating
- V = Carbon steel, 3 mm rubber lining (on request)
- E1 = Stainless steel 1.4301 / 1.4541 or similar (Group 304 / 321)
- E2 = Stainless steel 1.4571 or similar (Group 316)
- SD = Super Duplex (on request)
- D = Duplex (on request)
- A = For ANSI flanges, add suffix "A"*
- J = For JIS flanges, add suffix "J"*

### BOX 7
**Design Code**
- S = HYDAC Standard (AD 2000)
- A = ASME VIII Div. 1
- U = ASME VIII Div. 1 Stamped
- E = EN 13445

### BOX 8
**Type of Connection**
- L = DIN DN 200 / 8" ASME
- M = DIN DN 250 / 10" ASME
- N = DIN DN 300 / 12" ASME
- Q = DIN DN 400 / 16" ASME
- 6" = 6" Connection Size

### BOX 9
**Material of Internal Parts**
- E1 = stainless steel 1.4301 or similar (Group 304)
- E2 = stainless steel 1.4571 or similar (Group 316)
- SD = Super Duplex (on request)
- D = Duplex (on request)

### BOX 10
**Pressure Ranges**
- 6 = PN 6
- 10 = PN 10
- 16 = PN 16

### BOX 11
**Sealing Material**
- C = Asbestos-free gasket
- N = NBR
- V = FKM (Viton)
- E = EPDM

### BOX 12
**Clogging Indicator**
- 0 = Without clogging indicator
- 1 = Visual indicator (PVD 2B.1)
- 2 = Visual-electrical indicator (PVD 2D.0/-L24)
- 3 = V01
- 4 = Differential pressure gauge in aluminum with 2 adjustable switching contacts
- 5 = Differential pressure gauge in stainless steel with 2 adjustable switching contacts
- 6 = Electrical indicator (PVD 2C.0)
- 7 = PVL2GW.0/V-110
- 8 = PVL2GW.0/V-120

### BOX 13
**Optional Equipment**
- 1 = Pivoting lid device (only for horizontal variant) / davit (only for vertical variant)
- 2 = Toggle screws
- 3 = Stainless steel air vent ball valve
- 4 = Drain flap DN 50

*For reservoirs made of stainless steel 1.4571 or similar material (group 316), use NBR or EPDM sealing material preferably*
Clogging Indicators for Process Filters

General
The PVD Clogging Indicators for Process Filters are designed to indicate visually and/or electronically when the filter elements must be cleaned or changed. The use of clogging indicators guarantees both the operational safety of the system and the efficient utilization of the filter elements.

Seals
V (=Viton) or T (=FEP encapsulated)

Construction
Differential pressure indicators are used on all process filters. They react to the pressure differential between the filter inlet and filter outlet, which rises as the level of contamination in the element increases.

Simplest fitting of the differential pressure indicator:
G1/2” cavity
(acc. Schroeder's works standard HN 28-22)

The differential pressure indicator type V01 is piped up separately.

For duplex filter housings, the differential pressure indicators and connected using an adapter block.

Special Indicators
Electrical ATEX indicators:
Optional: electrical indicator for process filters for use in potentially explosive atmospheres subject to the ATEX equipment directive 94/9/EC and the ATEX operator directive 1999/92/EC.

Torque Values - Differential Pressure Indicators
Note: The clogging indicators must only be tightened or adjusted on the spanner flats.

- PVD..B.1: SW27
- PVD..C.0: SW30
- PVD..D.0/L....: SW30
max. torque value: 100 Nm

Clogging Indicators According To Filter Type

<table>
<thead>
<tr>
<th>Type</th>
<th>PRFL</th>
<th>PRFD</th>
<th>PFM</th>
<th>EDF</th>
<th>PMRF</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVD ..B</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>PVD ..C</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>PVD ..D</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>V01 ..VZ</td>
<td>•</td>
<td>•</td>
<td>On Request</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Differential Pressure Gauge</td>
<td>•</td>
<td>•</td>
<td>On Request</td>
<td>•</td>
<td></td>
</tr>
</tbody>
</table>
## Clogging Indicators for Process Filters

| Type Of Indication: Visual, red/green band, Automatic reset |
| Weight: 110 g |
| Cracking Pressure Or Indication Range: 1 bar ± 10% 3 bar ± 10% 1.5 bar ± 10% 5 bar ± 10% 2 bar ± 10% 8 bar ± 10% |
| Perm. Operating Pressure: 6092 psi (420 bar) |
| Perm. Temperature Range: -20°C to 100°C |
| Thread: G 1/2 |
| Max. Torque Value: 100 Nm |

| Type Of Indication: Electrical switch |
| Weight: 220 g |
| Cracking Pressure Or Indication Range: 1 bar ± 10% 3 bar ± 10% 1.5 bar ± 10% 5 bar ± 10% 2 bar ± 10% 8 bar ± 10% |
| Perm. Operating Pressure: 6092 psi (420 bar) |
| Perm. Temperature Range: -20°C to 100°C |
| Thread: G 1/2 |
| Max. Torque Value: 100 Nm |

| Type Of Indication: Visual indicator and electrical switch |
| Weight: 250 g |
| Cracking Pressure Or Indication Range: 1 bar ± 10% 3 bar ± 10% 1.5 bar ± 10% 5 bar ± 10% 2 bar ± 10% 8 bar ± 10% |
| Perm. Operating Pressure: 6092 psi (420 bar) |
| Perm. Temperature Range: -20°C to 100°C |
| Thread: G 1/2 |
| Max. Torque Value: 100 Nm |

---

**Protective Class Acc. DIN 40050:**
- Only if the connector is wired and fitted correctly

---

**PVD x B.x**
- **RF3**
- **RF3-8**
- **RF5**
- **RF7**
- **RF10**
- **RF4-1**
- **RF4-2**
- **RF4-3**
- **RF12**

**PVD x C.x**
- **RF14**
- **BTU**
- **ATF-1**
- **ATF-2**
- **ATF-2.5**
- **ATF-3**
- **ATF-3.5**
- **ATF-4**
- **PLF1**

**PVD x D.x / -L**
- **PVD**
- **PVD**

---

**Schroeder Industries | Process Filtration**
# Clogging Indicators for Process Filters

<table>
<thead>
<tr>
<th>Type Of Indication:</th>
<th>Visual/analogue indicator and 1 electrical switching contact at 75% and 100% of the cracking pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight:</td>
<td>650 g</td>
</tr>
<tr>
<td>Cracking Pressure Or Indication Range:</td>
<td>0.8 bar ± 10% [2.0\ bar ± 10% [4.3\ bar ± 10%</td>
</tr>
<tr>
<td>Perm. Operating Pressure:</td>
<td>2321 psi (160 bar)</td>
</tr>
<tr>
<td>Perm. Temperature Range:</td>
<td>-20°C to 100°C</td>
</tr>
<tr>
<td>Thread:</td>
<td>G 1/4</td>
</tr>
<tr>
<td>Max. Torque Value:</td>
<td>-</td>
</tr>
<tr>
<td>Switching Type:</td>
<td>75% - N/O contact [100% - N/C contact</td>
</tr>
<tr>
<td>Max. Switching Voltage:</td>
<td>250 V</td>
</tr>
<tr>
<td>Electrical Connection:</td>
<td>Threaded connection M20x1.5 acc. EN 50262</td>
</tr>
<tr>
<td>Max. Switching Voltage At Resistive Load:</td>
<td>75% contact 120 W = 30 W = 120 VA ~ 100% contact 30 W = 60 VA ~</td>
</tr>
<tr>
<td>Switching Capacity:</td>
<td>Ohmic 2.5 A at 24 V [Ohmic 1 A at 250 V</td>
</tr>
<tr>
<td>Protective Class Acc. DIN 40050:</td>
<td>IP 55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type Of Indication:</th>
<th>2 microswitches, 1-pole change-over contacts, can be adjusted manually to recommended set values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight:</td>
<td>1.2 - 3.5 kg</td>
</tr>
<tr>
<td>Cracking Pressure Or Indication Range:</td>
<td>0 - 1.6 bar [0 - 4 bar on request</td>
</tr>
<tr>
<td>Perm. Operating Pressure:</td>
<td>363 psi (25 bar); 580 psi (40 bar) on request</td>
</tr>
<tr>
<td>Perm. Temperature Range:</td>
<td>-10°C to 100°C</td>
</tr>
<tr>
<td>Thread:</td>
<td>G 1/4</td>
</tr>
<tr>
<td>Max. Torque Value:</td>
<td>-</td>
</tr>
<tr>
<td>Switching Type:</td>
<td>Change-over contacts</td>
</tr>
<tr>
<td>Max. Switching Voltage:</td>
<td>U(<em>{\text{max}}) = 250 V AC [U(</em>{\text{max}}) = 3- V DC</td>
</tr>
<tr>
<td>Electrical Connection:</td>
<td>Hard-wired numbered cable, cable connector, 7 pole plug-in connection</td>
</tr>
<tr>
<td>Max. Switching Voltage At Resistive Load:</td>
<td>Imax = 5 A, Pmax = 250VA, Imax = 0.4 A, Pmax = 10 W</td>
</tr>
<tr>
<td>Switching Capacity:</td>
<td>-</td>
</tr>
<tr>
<td>Protective Class Acc. DIN 40050:</td>
<td>IP 55</td>
</tr>
</tbody>
</table>
## Clogging Indicators for Process Filters

**How to Build a Valid Model Number for a BTU:**

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PVD</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Example: NOTE: One option per box*

<table>
<thead>
<tr>
<th>BOX 1</th>
<th>BOX 2</th>
<th>BOX 3</th>
<th>BOX 4</th>
<th>BOX 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PVD</strong></td>
<td><strong>2</strong></td>
<td><strong>D.</strong></td>
<td><strong>0</strong></td>
<td><strong>-L24</strong></td>
</tr>
</tbody>
</table>

= PVD-2-D.-0 / -L24

### BOX 1
- **Unit Type**
  - PVD = Clogging indicator
  - V01 = Clogging indicator

### BOX 2
- **Cracking Pressure**
  - 0.8 = +0.8 bar (only for V01 indicator)
  - 1 = +1 bar (PVD indicator)
  - 1.5 = +1.5 bar (PVD indicator)
  - 2 = +2 bar (all clogging indicators)
  - 3 = +3 bar (PVD indicator)
  - 4.3 = +4.3 bar (only for V01 indicator)
  - 5 = +5 bar (only for PVD indicator)
  - 8 = +8 bar (only for PVD indicator)

### BOX 3
- **Clogging Indicator**
  - B. = Visual indicator with automatic reset
  - C. = Electrical indicator
  - D. = Visual/electrical indicator
  - VZ. = Visual/anologue indicator with 75% and 100% switch contacts

### BOX 4
- **Modification Number**
  - 0 = All clogging indicators
  - 1 = Only B. type

### BOX 5
- **Supplementary Details (only PVD)**
  - -L24 = Light with 24 V
  - -L48 = Light with 48 V
  - -L110 = Light with 110 V
  - -L220 = Light with 220 V