Top-Ported Pressure Filter

**VF60**

**Features and Benefits**
- Top-ported high pressure filter
- Threaded bowl for easy element servicing
- Offered in pipe, SAE straight thread and ISO 228 porting
- Various dirt alarm options available

Model No. of filter in photograph is VF609VZ10S.

**Applications**
- INDUSTRIAL
- AUTOMOTIVE MANUFACTURING
- MACHINE TOOL
- MINING TECHNOLOGY
- PULP & PAPER
- AGRICULTURE
- MOBILE VEHICLES

**Filter Housing Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Rating:</td>
<td>Up to 70 gpm (265 L/min) for 150 SUS (32 cSt) fluids</td>
</tr>
<tr>
<td>Max. Operating Pressure</td>
<td>6000 psi (415 bar)</td>
</tr>
<tr>
<td>Min. Yield Pressure</td>
<td>15,500 psi (1070 bar), per NFPA T2.6.1</td>
</tr>
<tr>
<td>Rated Fatigue Pressure</td>
<td>3300 psi (230 bar), per NFPA T2.6.1-R1-2005</td>
</tr>
<tr>
<td>Temp. Range:</td>
<td>-20°F to 225°F (-29°C to 107°C)</td>
</tr>
<tr>
<td>Bypass Setting:</td>
<td>Cracking: 50 psi (3.5 bar)</td>
</tr>
<tr>
<td></td>
<td>Full Flow: 65 psi (4.5 bar)</td>
</tr>
<tr>
<td>Porting Head:</td>
<td>Ductile Iron</td>
</tr>
<tr>
<td>Element Case:</td>
<td>Steel</td>
</tr>
<tr>
<td>Weight of VF60-9V:</td>
<td>24.0 lbs. (10.9 kg)</td>
</tr>
<tr>
<td>Element Change Clearance:</td>
<td>4.0” (103 mm)</td>
</tr>
</tbody>
</table>
### Top-Ported Pressure Filter

**Element Nominal Dimensions:**
- 9V: 2.9" (75 mm) O.D. x 9.5" (240 mm) long

### Element Performance Information

<table>
<thead>
<tr>
<th>Element</th>
<th>Filtration Ratio Per ISO 4572/NFPA T3.10.8.8</th>
<th>Filtration Ratio w.r.t ISO 16889</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta_x \geq 75$</td>
<td>$\beta_x \geq 100$</td>
</tr>
<tr>
<td>9V3</td>
<td>6.8</td>
<td>7.5</td>
</tr>
<tr>
<td>9V10</td>
<td>15.5</td>
<td>16.2</td>
</tr>
<tr>
<td>9VZ1</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>9VZ3</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>9VZ5</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>9VZ10</td>
<td>7.4</td>
<td>8.2</td>
</tr>
<tr>
<td>9VZ25</td>
<td>18.0</td>
<td>20.0</td>
</tr>
</tbody>
</table>

### Dirt Holding Capacity

<table>
<thead>
<tr>
<th>Element</th>
<th>DHC (gm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9V3</td>
<td>25</td>
</tr>
<tr>
<td>9V10</td>
<td>12</td>
</tr>
<tr>
<td>9VZ1</td>
<td>55</td>
</tr>
<tr>
<td>9VZ3</td>
<td>57</td>
</tr>
<tr>
<td>9VZ5</td>
<td>62</td>
</tr>
<tr>
<td>9VZ10</td>
<td>60</td>
</tr>
<tr>
<td>9VZ25</td>
<td>61</td>
</tr>
</tbody>
</table>

### Element Collapse Rating:
- 150 psid (10 bar) for standard elements

### Flow Direction:
- Outside In

### Element Nominal Dimensions:
- 9V: 2.9" (75 mm) O.D. x 9.5" (240 mm) long

Metric dimensions in ( ).
**Top-Ported Pressure Filter**

**Type Fluid** | **Appropriate Schroeder Media**
--- | ---
**Petroleum Based Fluids** | All E Media (cellulose) and Z-Media® (synthetic)
**High Water Content** | All Z-Media® (synthetic)
**Invert Emulsions** | 10 and 25 µ Z-Media® (synthetic)
**Water Glycols** | 3, 5, 10 and 25 µ Z-Media® (synthetic)
**Phosphate Esters** | All Z-Media® (synthetic) with H (EPR) seal designation

Skydrol® 3, 5, 10 and 25 µ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

**Element Selection Based on Flow Rate**

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Element Series</th>
<th>Part No.</th>
<th>Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 50 psi (3.5 bar) bypass valve.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To 6000 psi (415 bar)</td>
<td></td>
<td></td>
<td>Contact Factory</td>
<td></td>
</tr>
<tr>
<td>Z-Media®</td>
<td>9VZ1</td>
<td>9VZ1</td>
<td>Contact Factory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9VZ3</td>
<td>9VZ3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9VZ5</td>
<td>9VZ5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9VZ10</td>
<td>9VZ10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9VZ25</td>
<td>9VZ25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Shown above are the elements most commonly used in this housing.

Note: Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 19 and 20.

**Pressure Drop Information Based on Flow Rate and Viscosity**

\[ \Delta P_{\text{housing}} = \text{flow} \times \Delta P_{\text{factor}} \times \text{viscosity factor} \]

\[ \Delta P_{\text{filter}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}} \]

**Exercise:**
Determine \( \Delta P \) at 40 gpm (150 L/min) for VF609VZ3SD5 using 200 SUS (44 cSt) fluid.

**Solution:**
\[ \Delta P_{\text{housing}} = 6.0 \text{ psi} \]
\[ \Delta P_{\text{element}} = 40 \times .21 \times (200+150) = 11.2 \text{ psi} \]
\[ \Delta P_{\text{total}} = 6.0 + 11.2 = 17.2 \text{ psi} \]

\[ \text{If working in units of bars & L/min, divide above factor by 54.9.} \]

**Notes**

sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.
# Top-Ported Pressure Filter

**How to Build a Valid Model Number for a Schroeder VF60:**

<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>
</tr>
</thead>
<tbody>
<tr>
<td>VF60</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>
</tr>
</thead>
<tbody>
<tr>
<td>VF60</td>
<td>9</td>
<td>VZ1</td>
<td></td>
<td>S</td>
<td></td>
</tr>
</tbody>
</table>

**VF609VZ1S**

**BOX 1**
- **Filter Series:** VF60

**BOX 2**
- **Element Length (in):** 9

**BOX 3**
- **Element Size and Media**
  - V3 = V size 3 µ E media (cellulose)
  - V10 = V size 10 µ E media (cellulose)
  - VZ1 = V size 1 µ Excellement® Z-Media® (synthetic)
  - VZ3 = V size 3 µ Excellement® Z-Media® (synthetic)
  - VZ5 = V size 5 µ Excellement® Z-Media® (synthetic)
  - VZ10 = V size 10 µ Excellement® Z-Media® (synthetic)
  - VZ25 = V size 25 µ Excellement® Z-Media® (synthetic)
  - VM150 = V size 150 µ M media (reusable metal)

**BOX 4**
- **Seal Material**
  - Omit = Buna N
  - V = Viton®
  - H = EPR

**BOX 5**
- **Inlet Port**
  - P = 1¼" NPTF
  - S = SAE-20
  - B = ISO 228 G-1¼"

**BOX 6**
- **Dirt Alarm® Options**
  - Omit = None
  - Visual = D5 = Visual pop-up
  - Visual with Thermal Lockout = D8 = Visual w/ thermal lockout
  - Electrical = MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable
  - MS5LC = Low current MS5
  - MS10 = Electrical w/ DIN connector (male end only)
  - MS10LC = Low current MS10
  - MS11 = Electrical w/ 12 ft. 4-conductor wire
  - MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)
  - MS12LC = Low current MS12
  - MS16 = Electrical w/ weather-packed sealed connector
  - MS16LC = Low current MS16
  - MS17LC = Electrical w/ 4 pin Brad Harrison male connector
  - Electrical with Thermal Lockout = MS5T = MS5 (see above) w/ thermal lockout
  - MS5LCT = Low current MS5T
  - MS10T = MS10 (see above) w/ thermal lockout
  - MS10LCT = Low current MS10T
  - MS12T = MS12 (see above) w/ thermal lockout
  - MS12LCT = Low current MS12T
  - MS16T = MS16 (see above) w/ thermal lockout
  - MS16LCT = Low current MS16T
  - MS17LCT = Low current MS17T
  - Electrical Visual = MS13 = Supplied w/ threaded connector & light
  - MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)
  - Electrical Visual with Thermal Lockout = MS13DCT = MS13 (see above), direct current, w/ thermal lockout
  - MS13DCLCT = Low current MS13DCT
  - MS14DCT = MS14 (see above), direct current, w/ thermal lockout
  - MS14DCLCT = Low current MS14DCT

### NOTES:

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Example: 9V21V. E media (cellulose) elements are only available with Buna N seals.
- Box 4. Viton® is a registered trademark of DuPont Dow Elastomers.
- Box 5. B porting option supplied with metric mounting holes.