Medium Pressure Filter

**Features and Benefits**
- Durable, compact design
- Quick and easy cartridge element changeouts
- Available in 9" and 14" element lengths
- Lightweight at 8 pounds
- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- Available with NPTF inlet and outlet female test ports
- Various Dirt Alarm® options
- Same day shipment model available

**Flow Rating:**
- Up to 70 gpm (265 L/min) for 150 SUS (32 cSt) fluids for P20, S20, & B20 porting
- Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids for P16, S16, F16, F20 & B16 porting

**Max. Operating Pressure:**
- 1400 psi (97 bar)

**Min. Yield Pressure:**
- 4200 psi (290 bar), per NFPA T2.6.1

**Rated Fatigue Pressure:**
- 600 psi (41 bar), per NFPA T2.6.1-R1-2005

**Temp. Range:**
- -20°F to 225°F (-29°C to 107°C)

**Bypass Setting:**
- Cracking: 40 psi (2.8 bar) for all porting
- Full Flow: 57 psi (3.9 bar) for P20 & S20 porting
- Full Flow: 75 psi (5.2 bar) for P16, S16, F16 & F20 porting

**Porting Head:**
- Aluminum

**Element Case:**
- Aluminum

**Weight of RLT-9V:**
- 6.7 lbs. (3.0 kg)

**Weight of RLT-14V:**
- 8.0 lbs. (3.6 kg)

**Element Change Clearance:**
- 9V & 14V: 2.75" (70 mm)

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**Filter Housing Specifications**

**Fluid Compatibility**

<table>
<thead>
<tr>
<th>Type Fluid</th>
<th>Appropriate Schroeder Media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum Based Fluids</td>
<td>All E media (cellulose) and Z-Media® (synthetic)</td>
</tr>
<tr>
<td>High Water Content</td>
<td>All Z-Media® (synthetic)</td>
</tr>
<tr>
<td>Invert Emulsions</td>
<td>10 and 25 µ Z-Media® (synthetic)</td>
</tr>
<tr>
<td>Water Glycols</td>
<td>3, 5, 10 and 25 µ Z-Media® (synthetic)</td>
</tr>
<tr>
<td>Phosphate Esters</td>
<td>All Z-Media® (synthetic) with H (EPR) seal designation</td>
</tr>
<tr>
<td>Skydrol®</td>
<td>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)</td>
</tr>
</tbody>
</table>
Filtration Ratio Per ISO 4572/NFPA T3.10.8.8
Using automated particle counter (APC) calibrated per ISO 4402

Filtration Ratio per ISO 16889
Using APC calibrated per ISO 11171

<table>
<thead>
<tr>
<th>Element</th>
<th>$\beta_x \geq 75$</th>
<th>$\beta_x \geq 100$</th>
<th>$\beta_x \geq 200$</th>
<th>$\beta_x(c) \geq 200$</th>
<th>$\beta_x(c) \geq 1000$</th>
</tr>
</thead>
<tbody>
<tr>
<td>9VZ1/14VZ1</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;4.0</td>
<td>4.2</td>
</tr>
<tr>
<td>9VZ3/14VZ3</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;2.0</td>
<td>&lt;4.0</td>
<td>4.8</td>
</tr>
<tr>
<td>9VZ5/14VZ5</td>
<td>2.5</td>
<td>3.0</td>
<td>4.0</td>
<td>4.8</td>
<td>6.3</td>
</tr>
<tr>
<td>9VZ10/14VZ10</td>
<td>7.4</td>
<td>8.2</td>
<td>10.0</td>
<td>8.0</td>
<td>10.0</td>
</tr>
<tr>
<td>9VZ25/14VZ25</td>
<td>18.0</td>
<td>20.0</td>
<td>22.5</td>
<td>19.0</td>
<td>24.0</td>
</tr>
</tbody>
</table>

Element Collapse Rating: 150 psid (10 bar)
500 psid (34.5 bar) for hydrostatic high collapse (9V5Z and 14V5Z) version

Flow Direction: Outside In

Element Nominal Dimensions:
9V: 3.0" (75 mm) O.D. x 9.5" (240 mm) long
14V: 3.0" (75 mm) O.D. x 14.5" (370 mm) long

Metric dimensions in ( ).
Dimensions shown are inches (millimeters) for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.
**Exercise:**

Determine $\Delta P_{\text{filter}}$ at 40 gpm (151.6 L/min) for RLT9VZ10S20D5 using 175 SUS (37.2 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 40 gpm. In this case, $\Delta P_{\text{housing}}$ is 4.5 psi (.31 bar) on the graph for the RLT housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 40 gpm. In this case, $\Delta P_{\text{element}}$ is 6 psi (.415 bar) according to the graph for the 9VZ10 element.

Because the viscosity in this sample is 175 SUS (37.2 cSt), we determine the Viscosity Factor ($\nu_f$) by dividing the Operating Fluid Viscosity with the Standard Viscosity of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, $\Delta P_{\text{filter}}$, is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} \times \nu_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

**Solution:**

- $\Delta P_{\text{housing}} = 4.5 \text{ psi} (.31 \text{ bar})$  
- $\Delta P_{\text{element}} = 4 \text{ psi} (.27 \text{ bar})$

$\nu_f = 175 \text{ SUS (37.2 cSt) } / 150 \text{ SUS (32 cSt)} = 1.2$

$\Delta P_{\text{filter}} = 4.5 \text{ psi} + (4 \text{ psi} \times 1.2) = 9.3 \text{ psi}$

OR

$\Delta P_{\text{filter}} = .31 \text{ bar} + (.27 \text{ bar} \times 1.2) = .63 \text{ bar}$
### How to Build a Valid Model Number for a Schroeder RLT:

<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>
</tr>
</thead>
<tbody>
<tr>
<td>RLT</td>
<td>9</td>
<td>VZ10</td>
<td>S20</td>
<td>D5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

= RLT9VZ10S20D5

#### Filter Series

<table>
<thead>
<tr>
<th>Filter Series</th>
<th>Element Length (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RLT</td>
<td>9</td>
</tr>
<tr>
<td>RLTN (Non-bypassing: requires V5Z high collapse elements)</td>
<td>14</td>
</tr>
<tr>
<td>WRTL (Water)</td>
<td></td>
</tr>
</tbody>
</table>

#### Element Size and Media

- 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)
- VW = V size W media (water removal)
- V5Z = V size 3 µ Excellement® media, 500 psid collapse
- V5Z3 = V size 3 µ Excellement® media, 500 psid collapse
- V5Z5 = V size 5 µ Excellement® media, 500 psid collapse
- V5Z10 = V size 10 µ Excellement® media, 500 psid collapse
- V5Z25 = V size 25 µ Excellement® media, 500 psid collapse

#### Water Service Element Options

- VM60 = V size 60 µ M media (reusable metal)
- VM150 = V size 150 µ M media (reusable metal)
- VM260 = V size 260 µ M media (reusable metal)

#### Porting Options

- P16 = 1” NPTF
- P20 = 1¼” NPTF
- S16 = SAE-16
- S20 = SAE-20
- F20 = 1¼” SAE 4-bolt flange Code 61
- B16 = ISO 228 G-1”
- B20 = ISO 228 G-1¼”

#### Dirt Alarm® Options

- None
- Omit = None
- Visual
  - D5 = Visual pop-up
- Electrical
  - D8 = Visual w/ thermal lockout
  - 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
  - MS16LC = Low current MS16
  - MS17LC = Electrical w/ 4 pin Brad Harrison male connector

#### Additional Options

- Omit = None
- L = Two ¼” NPTF inlet and outlet female test ports

#### Notes:

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Example: 9VZ210V
- Box 3. E media elements are only available with Buna N seals. VSZ10 and VSZ25 are only available with RLTN 9”.
- Box 4. For options H, V, and H.5, all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.
- Box 5. B porting supplied with metric mounting holes.