Top-Ported Pressure Filter

Flow Rating: Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure: 4000 psi (275 bar)
Min. Yield Pressure: 12,000 psi (828 bar), per NFPA T2.6.1
Rated Fatigue Pressure: 2500 psi (173 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)
  - Full Flow: 75 psi (5.2 bar)
Porting Head: Steel
Element Case: Steel
Weight of PF40-5H: 21.8 lbs. (9.9 kg)
Weight of PF40-9H: 25.5 lbs. (11.6 kg)
Element Change Clearance: 3.25" (83 mm)

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 Fluids</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>
</tbody>
</table>
**Element Performance Information & Dirt Holding Capacity**

<table>
<thead>
<tr>
<th>Element</th>
<th>Filtration Ratio Per ISO 4572/NFPA T3.10.8.8</th>
<th>Filtration Ratio per ISO 16889</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Using automated particle counter (APC) calibrated per ISO 4402</td>
<td>Using APC calibrated per ISO 11171</td>
</tr>
<tr>
<td></td>
<td>$\beta_v \geq 75$</td>
<td>$\beta_v \geq 100$</td>
</tr>
<tr>
<td>5HZ1/9HZ1</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>5HZ3/9HZ3</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>5HZ5/9HZ5</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>5HZ10/9HZ10</td>
<td>7.4</td>
<td>8.2</td>
</tr>
<tr>
<td>5HZ25/9HZ25</td>
<td>18.0</td>
<td>20.0</td>
</tr>
<tr>
<td>5HZX1/9HZX1</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>5HZX3/9HZX3</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>5HZX5/9HZX5</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>5HZX10/9HZX10</td>
<td>7.4</td>
<td>8.2</td>
</tr>
<tr>
<td>5HZX25/9HZX25</td>
<td>18.0</td>
<td>20.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element</th>
<th>DHC (gm)</th>
<th>Element</th>
<th>DHC (gm)</th>
<th>Element</th>
<th>DHC (gm)</th>
<th>Element</th>
<th>DHC (gm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5HZ1</td>
<td>26</td>
<td>9HZ1</td>
<td>51</td>
<td>5HZX1</td>
<td>14</td>
<td>9HZX1</td>
<td>29</td>
</tr>
<tr>
<td>5HZ3</td>
<td>28</td>
<td>9HZ3</td>
<td>42</td>
<td>5HZX3</td>
<td>14</td>
<td>9HZX3</td>
<td>29</td>
</tr>
<tr>
<td>5HZ5</td>
<td>39</td>
<td>9HZ5</td>
<td>59</td>
<td>5HZX5</td>
<td>15</td>
<td>9HZX5</td>
<td>31</td>
</tr>
<tr>
<td>5HZ10</td>
<td>31</td>
<td>9HZ10</td>
<td>47</td>
<td>5HZX10</td>
<td>15</td>
<td>9HZX10</td>
<td>31</td>
</tr>
<tr>
<td>5HZ25</td>
<td>32</td>
<td>9HZ25</td>
<td>48</td>
<td>5HZX25</td>
<td>16</td>
<td>9HZX25</td>
<td>33</td>
</tr>
</tbody>
</table>

**Element Collapse Rating:**
150 psid (10 bar) for standard elements
3000 psid (210 bar) for high collapse elements

**Flow Direction:** Outside In

**Element Nominal Dimensions:**
5H: 2.5” (100 mm) O.D. x 5.36” (136 mm) long
9H: 2.5” (100 mm) O.D. x 9.63” (244 mm) long

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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.
\( \Delta P_{\text{housing}} \)

PF40 \( \Delta P_{\text{housing}} \) for fluids with sp gr (specific gravity) = 0.86:

\[
\Delta P_{\text{housing}} = \Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} \times \nu_f)
\]

Exercise:
Determine \( \Delta P_{\text{filter}} \) at 20 gpm (75.7 L/min) for PF405HZ3SD5S using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine \( \Delta P_{\text{housing}} \) at 20 gpm. In this case, \( \Delta P_{\text{housing}} \) is 2.5 psi (.17 bar)

Use the element pressure curve to determine \( \Delta P_{\text{element}} \) at 20 gpm. In this case, \( \Delta P_{\text{element}} \) is 15 psi (1 bar)

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the Viscoisty 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:
\( \Delta P_{\text{housing}} = 2.5 \text{ psi} \times 0.17 \text{ bar} \) \( \Delta P_{\text{element}} = 15 \text{ psi} \times 1 \text{ bar} \)

\( \nu_f = 160 \text{ SUS} \times 34 \text{ cSt} / 150 \text{ SUS} \times 32 \text{ cSt} = 1.1 \)
\( \Delta P_{\text{filter}} = 2.5 \text{ psi} \times 15 \text{ psi} \times 1.1 = 19 \text{ psi} \)

OR
\( \Delta P_{\text{filter}} = .17 \text{ bar} \times 1 \text{ bar} \times 1.1 = 1.3 \text{ bar} \)

Note:
If your element is not graphed, use the following equation:
\( \Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f \) Plug this variable into the overall pressure drop equation.

<table>
<thead>
<tr>
<th>Ele.</th>
<th>( \Delta P )</th>
</tr>
</thead>
<tbody>
<tr>
<td>5HZX3</td>
<td>1.17</td>
</tr>
<tr>
<td>5HZX10</td>
<td>0.50</td>
</tr>
<tr>
<td>5HZX25</td>
<td>0.27</td>
</tr>
<tr>
<td>9HZX3</td>
<td>0.62</td>
</tr>
<tr>
<td>9HZX10</td>
<td>0.26</td>
</tr>
<tr>
<td>9HZX25</td>
<td>0.14</td>
</tr>
</tbody>
</table>
### How to Build a Valid Model Number for a Schroeder PF40:

**Filter Series**
- PF40
- PFN40 (Non-bypassing: requires ZX high collapse elements)

**Element Length (in)**
- 5
- 9

**Element Part Number**
- HZ1 = H size 1 \(\mu\) Excellement® Z-Media® (synthetic)
- HZ3 = H size 3 \(\mu\) Excellement® Z-Media® (synthetic)
- HZ5 = H size 5 \(\mu\) Excellement® Z-Media® (synthetic)
- HZ10 = H size 10 \(\mu\) Excellement® Z-Media® (synthetic)
- HZ25 = H size 25 \(\mu\) Excellement® Z-Media® (synthetic)
- HZX3 = H size 3 \(\mu\) Excellement® Z-Media® (high collapse center tube)
- HZX10 = H size 10 \(\mu\) Excellement® Z-Media® (high collapse center tube)
- HZX25 = H size 25 \(\mu\) Excellement® Z-Media® (high collapse center tube)

### Seal Material
- Omit = Buna N
- H = EPR
- V = Viton®
- H.5 = Skydrol® compatibility

### Porting
- O = Manifold Mounting (Contact factory)
- S = SAE-16
- B = ISO 228 G-1

### Options
- Omit = None
- H = EPR
- L = Two ¼" NPTF inlet & outlet female test ports
- V = Viton®
- S = SAE-16
- U = Schroeder Check 7/16-20 UNF test point installation in head (upstream)

### Dirt Alarm® Options
- Omit = None
- Visual
- D5 = Visual pop-up
- Visual with Thermal Lockout
- D8 = Visual w/ thermal lockout

### Bowl Drain Options
- Omit = None
- DR = Drain 7/16-20