Top-Ported Pressure Filter

**Features and Benefits**

- Top-ported pressure filter
- Available with non-bypass option with high collapse element
- Offered in pipe, SAE straight thread and ISO 228 porting
- Integral inlet and outlet female test points option available
- No-Element indicator option available

**Flow Rating:**
- CF40 - 45 gpm (170 L/min) for 150 SUS (32 cSt) fluids
- DF40 - 30 gpm (113 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:** 1800 psi (125 bar), per NFPA T2.6.1-2005

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

**Bypass Setting:**
- Cracking: 40 psi (2.8 bar)
- Full Flow: 72 psi (5.0 bar)
- Non-bypassing model has a blocked bypass.

**Porting Head:**
- Element Case: Aluminum
- Steel

**Weight of CF40/DF40-1C:**
- 14.0 lbs. (6.4 kg)
- 19.5 lbs. (8.9 kg)

**Element Change Clearance:**
- 4.00\(\text{"} (100 \text{ mm}) \) for C elements
- 8.75\(\text{"} (219 \text{ mm}) \) for CC elements

**Fluid Compatibility**

- **Petroleum Based Fluids:** All E Media (cellulose), Z-Media\(®\) and ASP\(®\) Media (synthetic)
- **High Water Content:** All Z-Media\(®\) and ASP\(®\) Media (synthetic)
- **Invert Emulsions:** 10 and 25 µ Z-Media\(®\) (synthetic), 10 µ ASP\(®\) Media (synthetic)
- **Water Glycols:** 3, 5, 10 and 25 µ Z-Media\(®\) (synthetic), and all ASP\(®\) Media (synthetic)
- **Phosphate Esters:** All Z-Media\(®\) and ASP\(®\) Media (synthetic) with H (EPR) seal designation
- **Skydrol\(®\):** 3, 5, 10 and 25 µ Z-Media (synthetic) and all ASP Media (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Model No. of filter in photograph is CF401CC10SD5 and DF401CCZ10PD5.
### Top-Ported Pressure Filter

**Element Performance Information & Dirt Holding Capacity**

#### Filtration Ratio Per ISO 4572/NFPA T3.10.8.8
Using automated particle counter (APC) calibrated per ISO 4402

<table>
<thead>
<tr>
<th>Element</th>
<th>Filtration Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta_x \geq 75$</td>
</tr>
<tr>
<td>CZ1/CCZ1</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>CZ3/CCZ3</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>CZ5/CCZ5</td>
<td>2.5</td>
</tr>
<tr>
<td>CZ10/CCZ10</td>
<td>7.4</td>
</tr>
<tr>
<td>CZ25/CCZ25</td>
<td>18.0</td>
</tr>
<tr>
<td>CCZX3</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>CCZX10</td>
<td>7.4</td>
</tr>
</tbody>
</table>

#### Filtration Ratio per ISO 16889
Using APC calibrated per ISO 11171

<table>
<thead>
<tr>
<th>Element</th>
<th>Filtration Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta_x(c) \geq 200$</td>
</tr>
<tr>
<td>CZ1/CCZ1</td>
<td>57</td>
</tr>
<tr>
<td>CZ3/CCZ3</td>
<td>58</td>
</tr>
<tr>
<td>CZ5/CCZ5</td>
<td>63</td>
</tr>
<tr>
<td>CZ10/CCZ10</td>
<td>62</td>
</tr>
<tr>
<td>CZ25/CCZ25</td>
<td>63</td>
</tr>
<tr>
<td>CCZX3</td>
<td>26*</td>
</tr>
<tr>
<td>CCZX10</td>
<td>28*</td>
</tr>
</tbody>
</table>

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

**Flow Direction:** Outside In

**Element Nominal Dimensions:**
- C: 3.0" (75 mm) O.D. x 4.75" (120 mm) long
- CC: 3.0" (75 mm) O.D. x 9.5" (240 mm) long

* Based on 100 psi terminal pressure

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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.
\[ \Delta P_{\text{housing}} \]

CF40/DF40 \( \Delta P_{\text{housing}} \) for fluids with sp gr (specific gravity) = 0.86:

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

Exercise:

Determine \( \Delta P_{\text{filter}} \) at 25 gpm (94.6 L/min) for CF401CZ10SD5 using 200 SUS (42.6 cSt) fluid.

Use the housing pressure curve to determine \( \Delta P_{\text{housing}} \) at 25 gpm. In this case, \( \Delta P_{\text{housing}} \) is 4.5 psi (.31 bar) on the graph for the CF40 housing.

Use the element pressure curve to determine \( \Delta P_{\text{element}} \) at 25 gpm. In this case, \( \Delta P_{\text{element}} \) is 6 psi (.42 bar) according to the graph for the CZ10 element.

Because the viscosity in this sample is 200 SUS (42.6 cSt), we determine the Viscosity Factor \( V_f \) 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, \( \Delta P_{\text{element}} \times V_f \). 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 bar] \( \Delta P_{\text{element}} = 6 \text{ psi} \) [.42 bar]

\( V_f = 200 \text{ SUS} (42.6 \text{ cSt}) / 150 \text{ SUS} (32 \text{ cSt}) = 1.3 \)

\( \Delta P_{\text{filter}} = 4.5 \text{ psi} + (6 \text{ psi} \times 1.3) = 12.3 \text{ psi} \)

OR

\( \Delta P_{\text{filter}} = .31 \text{ bar} + (.42 \text{ bar} \times 1.3) = .86 \text{ bar} \)

\( \Delta P_{\text{housing}} = 4.5 \text{ psi} \)

\( \Delta P_{\text{element}} = 6 \text{ psi} \)

\( \Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} \times V_f) \)

Exercise:

Determine \( \Delta P_{\text{filter}} \) at 25 gpm (94.6 L/min) for CF401CZ10SD5 using 200 SUS (42.6 cSt) fluid.

Use the housing pressure curve to determine \( \Delta P_{\text{housing}} \) at 25 gpm. In this case, \( \Delta P_{\text{housing}} \) is 4.5 psi (.31 bar) on the graph for the CF40 housing.

Use the element pressure curve to determine \( \Delta P_{\text{element}} \) at 25 gpm. In this case, \( \Delta P_{\text{element}} \) is 6 psi (.42 bar) according to the graph for the CZ10 element.

Because the viscosity in this sample is 200 SUS (42.6 cSt), we determine the Viscosity Factor \( V_f \) 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.

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OR

\( \Delta P_{\text{filter}} = .31 \text{ bar} + (.42 \text{ bar} \times 1.3) = .86 \text{ bar} \)
# Top-Ported Pressure Filter

## Filter Model Number Selection

### BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9

**CF40**

### BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9

**CF40**

### BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9

**CF40 - 1C - Z - 10 - S - D5**

### BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9

**CF40**

### BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9

**CF40 - - - - - - - -**

### BOX 7

**Options**

- Omit = None
- X = Blocked bypass
- 25 = 25 psi bypass setting
- 30 = 30 psi bypass setting
- 50 = 50 psi bypass setting
- 60 = 60 psi bypass setting
- 75 = 75 psi bypass setting
- L = Two ¼" NPTF inlet and outlet female test ports

### BOX 8

**Dirt Alarm® Options**

- Omit = None
- Visual D = Pointer
- Visual D5 = Visual pop-up
- Visual with Thermal Lockout
  - D8 = Visual w/ thermal lockout

### BOX 9

**Additional Options**

- Omit = None
- N = No-Element Indicator (CF40 or DF40)

### NOTES:

- Box 2. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5.
- Box 5. For options H, V, W, 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 6. B porting option supplied with metric mounting holes.
- Box 7. Options X and 50 are not available with CFN40 or DFN40.
- Box 8. Standard indicator setting for non-bypassing model is 50 psi unless otherwise noted.
- Box 9. N option is not available with CFN40 or DFN40. N option should be used in conjunction with dirt alarm.

## How to Build a Valid Model Number for a Schroeder CF40:

1. **BOX 1**
   - **Filter Series**: CF40, CFN40 (Non-bypassing: requires Z high collapse elements), DF40, DFN40 (Non-bypassing: requires Z high collapse elements)

2. **BOX 2**
   - **Number and Size of Elements**: 1 C Omit E Media (Cellulose), Z = Excellement® Z-Media® (synthetic), ZX = Excellement® Z-Media® (high collapse center tube), AS = Anti-Stat Media (synthetic), M = Media (reusable metal mesh) D size only

3. **BOX 3**
   - **Media Type**: Omit E Media (Cellulose), Z = Excellement® Z-Media® (synthetic), ZX = Excellement® Z-Media® (high collapse center tube), AS = Anti-Stat Media (synthetic), M = Media (reusable metal mesh) D size only

4. **BOX 4**
   - **Micron Rating**: 1 = 1 Micron (Z, ZX media), 3 = 3 Micron (AS, E, Z, ZX media), 5 = 5 Micron (AS, Z, ZX media), 10 = 10 Micron (AS, E, M, Z, ZX media), 25 = 25 Micron (E & Z media®)

5. **BOX 5**
   - **Seal Material**: Omit = Buna N, V = Viton®, W = Buna N, Anodized Aluminum parts, H = EPR, H.5 = Skydrol® compatibility

6. **BOX 6**
   - **Porting**: S = SAE-20*, P = 1¼" NPTF, B = ISO 228 G-1¼ *

7. **BOX 7**
   - **Options**: Omit = None, X = Blocked bypass, 25 = 25 psi bypass setting, 30 = 30 psi bypass setting, 50 = 50 psi bypass setting, 60 = 60 psi bypass setting, 75 = 75 psi bypass setting, L = Two ¼" NPTF inlet and outlet female test ports

8. **BOX 8**
   - **Dirt Alarm® Options**: Omit = None, Visual D = Pointer, Visual D5 = Visual pop-up
   - **Visual with Thermal Lockout**
     - D8 = Visual w/ thermal lockout

9. **BOX 9**
   - **Additional Options**: Omit = None, N = No-Element Indicator (CF40 or DF40)