High Pressure Filter

Features and Benefits

- Durable carbon steel construction
- Filter housings are designed to withstand pressure surges as well as high static pressure loads
- Screw-in bowl allows the filter element to be easily removed for replacement or cleaning
- Standard model supplied with upstream and downstream pressure ports and drain plugs
- Standard Viton® seal on filter housing
- Filter contains an integrated equalization valve
- Pressure is equalized between filters by raising the change-over lever prior to switching it to the relevant filter side

Model No. of filter in photograph is PLD10DVZ3VF24VM.

Applications

Flow Rating: Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure: 3000 psi (207 bar)
Min. Yield Pressure: 10,600 psi (730 bar)
Rated Fatigue Pressure: 3000 psi (207 bar)
Temp. Range: -22°F to 250°F (-30°C to 121°C)
Bypass Setting: 102 psi (7 bar)
Porting Head: Ductile Iron
Element Case: Steel
Weight of PLD-10DV: 97 lbs. (43.9 kg)
Weight of PLD-16DV: 100 lbs. (45.3 kg)
Element Change Clearance: 10DV: 3.5” (89 mm)
16DV: 3.5” (89 mm)
**Element Performance Information**

<table>
<thead>
<tr>
<th>Element</th>
<th>Filtration Ratio Per ISO 4572/NFPA T3.10.8.8</th>
<th>Filtration Ratio wrt 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>β_x ≥ 75</td>
<td>β_x ≥ 100</td>
<td>β_x ≥ 200</td>
</tr>
<tr>
<td>10/16DVZ1</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>10/16DVZ3</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>10/16DVZ5</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>10/16DVZ10</td>
<td>7.4</td>
<td>8.2</td>
</tr>
<tr>
<td>10/16DVZ25</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>
<th>Element</th>
<th>DHC (gm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10DVZ1</td>
<td>57</td>
<td>16DVZ1</td>
<td>110</td>
</tr>
<tr>
<td>10DVZ3</td>
<td>59</td>
<td>16DVZ3</td>
<td>114</td>
</tr>
<tr>
<td>10DVZ5</td>
<td>64</td>
<td>16DVZ5</td>
<td>124</td>
</tr>
<tr>
<td>10DVZ10</td>
<td>62</td>
<td>16DVZ10</td>
<td>112</td>
</tr>
<tr>
<td>10DVZ25</td>
<td>63</td>
<td>16DVZ25</td>
<td>102</td>
</tr>
</tbody>
</table>

**Element Collapse Rating:** 290 psid (20 bar)

**Flow Direction:** Outside In

**Element Nominal Dimensions:** 3.0” (75 mm) O.D. x 14.5” (370 mm) long
High Pressure Filter

Type Fluid | Appropriate Schroeder Media
---|---
Petroleum Based Fluids | All Z-Media® (synthetic)
Invert Emulsions | 10 and 25 µ Z-Media® (synthetic)
Water Glycols | 3, 6, 10 and 25 µ Z-Media® (synthetic)

Element Selection Based on Flow Rate

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Series</th>
<th>Element</th>
<th>Part No.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>To 350 psi (24 bar)</td>
<td>Z-Media®</td>
<td>10DVZ1 &amp; 16DVZ1</td>
<td>10DVZ1</td>
<td>Contact Factory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10DVZ3 &amp; 16DVZ3</td>
<td>10DVZ3 or 16DVZ3</td>
<td>Contact Factory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10DVZ5 &amp; 16DVZ5</td>
<td>10DVZ5</td>
<td>Contact Factory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10DVZ10 &amp; 16DVZ10</td>
<td>10DVZ10</td>
<td>Contact Factory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10DVZ25 &amp; 16DVZ25</td>
<td>10DVZ25</td>
<td>Contact Factory</td>
</tr>
</tbody>
</table>

Flow gpm

<table>
<thead>
<tr>
<th>Flow (gpm)</th>
<th>0</th>
<th>20</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (L/min)</td>
<td>0</td>
<td>50</td>
<td>100</td>
<td>150</td>
<td>250</td>
<td>380</td>
</tr>
</tbody>
</table>

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

\[ \Delta P_{\text{housing}} = \Delta P_{\text{housing}} \text{ for fluids with sp gr = 0.86:} \]

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

Exercise: PLD16DVZ23F24VM

Determine \( \Delta P \) at 75 gpm (284 L/min) for 16DVZ3 using 200 SUS (44 cSt) fluid.

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

Notes

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

Notes

Exercise: PLD16DVZ23F24VM

Determine \( \Delta P \) at 75 gpm (284 L/min) for 16DVZ3 using 200 SUS (44 cSt) fluid.

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

Solution:

\[ \Delta P_{\text{housing}} = 20 \text{ psi} \times 1.38 \text{ bar} \]
\[ \Delta P_{\text{element}} = 75 \times 0.18 \times (200+150) = 18 \text{ psi} \]
\[ \Delta P_{\text{total}} = 20 + 18 = 38 \text{ psi} \]

or

\[ \Delta P_{\text{housing}} = [284 \times (0.18+54.9) \times (44+32)] = 1.24 \text{ bar} \]
\[ \Delta P_{\text{element}} = 75 \times 0.18 \times (200+150) = 18 \text{ psi} \]
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# High Pressure Filter

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

<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>PLD</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>PLD</td>
<td>10</td>
<td>DVZ1</td>
<td>V</td>
<td>F24</td>
<td>VM</td>
</tr>
</tbody>
</table>

= PLD10DVZ1VF24VM

## Filter Model Number Selection

### BOX 1
- **Filter Series**
  - PLD

### BOX 2
- **Length of Elements (in)**
  - 10
  - 16

### BOX 3
- **Element Size and Media**
  - DVZ1 = DV size 1 \( \mu \) synthetic media
  - DVZ3 = DV size 3 \( \mu \) synthetic media
  - DVZ5 = DV size 5 \( \mu \) synthetic media
  - DVZ10 = DV size 10 \( \mu \) synthetic media
  - DVZ25 = DV size 25 \( \mu \) synthetic media

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

### BOX 5
- **Porting**
  - F24 = 1/2" SAE 4-bolt flange Code 61
  - S24 = SAE-24 (1 1/2"")

### BOX 6
- **Dirt Alarm® Options**
  - Omit = None
  - Visual = Visual pop-up w/manual rest
  - Electrical = AC/DC 3-wire (NO or NC)

## Notes:
- Box 2. Replacement element part numbers are a combination of Boxes 2, 3 and 4. Example: 16DVZ10
- Box 4. Filter housings are supplied with standard Viton seals. Seal designation in Box 4 applies to element only. Viton is a registered trademark of DuPont Dow Elastomers.