**In-Line Filter**

**QF5**

**Flow Rating:** Up to 300 gpm (1135 L/min) for 150 SUS (32 cSt) fluids

**Max. Operating Pressure:** 500 psi (35 bar)

**Min. Yield Pressure:** 2500 psi (172 bar), per NFPA T2.6.1-R1-2005

**Rated Fatigue Pressure:** Contact Factory

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

**Bypass Setting:**
- Cracking: 30 psi (2.1 bar)
- Full Flow: 55 psi (3.8 bar)

**Porting Base:** Cast Aluminum

**Element Case:** Steel

**Cap:** Ductile Iron

**Weight of QF516:** 85 lbs. (39 kg)

**Weight of QF539:** 120 lbs. (55 kg)

**Element Change Clearance:** 16Q 12.0" (205 mm)

**39Q 33.8" (859 mm)**

---

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

**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>$\beta_x \geq 75$</td>
<td>$\beta_x \geq 100$</td>
</tr>
<tr>
<td>Z1/CLQFZ1/PMLZ1</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Z3/CLQFZ3/PMLZ3</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Z5/CLQFZ5/PMLZ5</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Z10/CLQFZ10/PMLZ10</td>
<td>7.4</td>
<td>8.2</td>
</tr>
<tr>
<td>Z25/CLQFZ25/PMLZ25</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>
</tr>
</thead>
<tbody>
<tr>
<td>Z1</td>
<td>276</td>
<td>CLQFZ1</td>
<td>307</td>
<td>PMLZ1</td>
<td>307</td>
</tr>
<tr>
<td>Z3</td>
<td>283</td>
<td>CLQFZ3</td>
<td>315</td>
<td>PMLZ3</td>
<td>315</td>
</tr>
<tr>
<td>Z5</td>
<td>351</td>
<td>CLQFZ5</td>
<td>364</td>
<td>PMLZ5</td>
<td>364</td>
</tr>
<tr>
<td>Z10</td>
<td>280</td>
<td>CLQFZ10</td>
<td>306</td>
<td>PMLZ10</td>
<td>306</td>
</tr>
<tr>
<td>Z25</td>
<td>254</td>
<td>CLQFZ25</td>
<td>278</td>
<td>PMLZ25</td>
<td>278</td>
</tr>
<tr>
<td>Z1</td>
<td>974</td>
<td>CLQFZ1</td>
<td>1259</td>
<td>PMLZ1</td>
<td>1485</td>
</tr>
<tr>
<td>Z3</td>
<td>1001</td>
<td>CLQFZ3</td>
<td>1293</td>
<td>PMLZ3</td>
<td>1525</td>
</tr>
<tr>
<td>Z5</td>
<td>954</td>
<td>CLQFZ5</td>
<td>1302</td>
<td>PMLZ5</td>
<td>1235</td>
</tr>
<tr>
<td>Z10</td>
<td>940</td>
<td>CLQFZ10</td>
<td>1214</td>
<td>PMLZ10</td>
<td>1432</td>
</tr>
<tr>
<td>Z25</td>
<td>853</td>
<td>CLQFZ25</td>
<td>1102</td>
<td>PMLZ25</td>
<td>1299</td>
</tr>
</tbody>
</table>

**Element Collapse Rating:** Q and QPML: 150 psid (10 bar), QCLQF: 100 psid (7 bar)

**Flow Direction:** Outside In

**Element Nominal Dimensions:**
- 16Q: 6.0" (150 mm) O.D. x 16.85" (430 mm) long
- 16QCLQF: 6.0" (150 mm) O.D. x 18.21" (463 mm) long
- 16QPML: 6.0" (150 mm) O.D. x 16.00" (405 mm) long
- 39QCLQF: 6.0" (150 mm) O.D. x 40.01" (1016 mm) long
- 39QPML: 6.0" (150 mm) O.D. x 37.80" (960 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.
Pressure Drop Information Based on Flow Rate and Viscosity

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

**Exercise:**
Determine \( \Delta P_{\text{filter}} \) at 100 gpm (379 L/min) for QF539QZ3P32UDPG using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine \( \Delta P_{\text{housing}} \) at 100 gpm. In this case, \( \Delta P_{\text{housing}} \) is 2 psi (.14 bar) on the graph for the QF5 housing.

Use the element pressure curve to determine \( \Delta P_{\text{element}} \) at 100 gpm. In this case, \( \Delta P_{\text{element}} \) is 1 psi (.07 bar) according to the graph for the 39QZ3 element.

Because the viscosity in this sample is 160 SUS (34 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:**
\begin{align*}
\Delta P_{\text{housing}} &= 2 \text{ psi} \times .14 \text{ bar} = 0.28 \text{ bar} \\
\Delta P_{\text{element}} &= 1 \text{ psi} \times 0.07 = 0.07 \text{ bar} \\
\Delta P_{\text{filter}} &= 0.28 \text{ bar} + (0.07 \times 1.1) = 0.22 \text{ bar}
\end{align*}

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>
<th>Ele.</th>
<th>( \Delta P )</th>
<th>Ele.</th>
<th>( \Delta P )</th>
<th>Ele.</th>
<th>( \Delta P )</th>
</tr>
</thead>
<tbody>
<tr>
<td>16QAS3V</td>
<td>0.04</td>
<td>16QPMZ1</td>
<td>0.08</td>
<td>39QZ21</td>
<td>0.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16QAS5V</td>
<td>0.04</td>
<td>16QPMZ1</td>
<td>0.05</td>
<td>39QZ23</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16QAS10V</td>
<td>0.03</td>
<td>16QPMZ3</td>
<td>0.05</td>
<td>39QZ25</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16QPMLAS3V</td>
<td>0.05</td>
<td>16QPMZ10</td>
<td>0.04</td>
<td>39QPMLZ1</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16QPMLAS5V</td>
<td>0.05</td>
<td>16QPMZ25</td>
<td>0.02</td>
<td>39QPMLZ3</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16QPMLAS10V</td>
<td>0.04</td>
<td>39QAS3V</td>
<td>0.01</td>
<td>39QPMZ1</td>
<td>0.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16QZ1</td>
<td>0.09</td>
<td>39QAS3V</td>
<td>0.01</td>
<td>39QPMZ21</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16QZ3</td>
<td>0.04</td>
<td>39QAS10V</td>
<td>0.01</td>
<td>39QPMZ23</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16QZ5</td>
<td>0.04</td>
<td>39QPMAS3V</td>
<td>0.02</td>
<td>39QPMZ25</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16QZ10</td>
<td>0.03</td>
<td>39QPMAS5V</td>
<td>0.02</td>
<td>39QPMZ10</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16QZ25</td>
<td>0.01</td>
<td>39QPMAS10V</td>
<td>0.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### In-Line Filter

#### How to Build a Valid Model Number for a Schroeder QF5:

<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>
<th>BOX 8</th>
<th>BOX 9</th>
<th>BOX 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>QF5</td>
<td>39</td>
<td>Q</td>
<td>Z</td>
<td>3</td>
<td>P32</td>
<td>U</td>
<td>DPG</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

=QF539QZ3P32UDPG

#### Filter Series
- QF5
- WQF5 (Water)

#### Element Length (in)
- 16
- 39

#### Element Style
- Q
- QCLQF
- QPML

#### Media Type
- Z = Excellelement® Z-Media® (synthetic)
- AS = Anti-Stat Pleat media (synthetic)
- W = W Media (water removal)

#### Micron Rating
- 1 = 1 µ Z-Media®
- 3 = 3 µ AS and Z-Media®
- 5 = 5 µ AS and Z-Media®
- 10 = 10 µ AS and Z-Media®
- 25 = 25 µ Z-Media®

#### Water System Element Options
- QM25 = Q size 25 µ M media (resuable metal)
- QM60 = Q size 60 µ M media (resuable metal)
- QM150 = Q size 150 µ M media (resuable metal)

#### Dirt Alarm® Options
- None
- DPG = Standard differential pressure gauge
- Visual
- D5 = Visual pop-up
- D5C = D5 in cap
- D5R = D5 mounted opposite standard location
- Visual with Thermal Lockout
- D8 = Visual with thermal lockout
- D8C = D8 in cap
- D8R = D8 mounted opposite standard location
- Electrical
- MS5 = Electrical with 12 in. 18 gauge 4-conductor cable
- MS10 = Electrical with DIN connector (male end only)
- MS11 = Electrical with 2 ft. 4-conductor wire
- MS12 = Electrical with 5 pin Brad Harrison connector (male end only)
- MS12LC = Low current MS12
- MS16 = Electrical with 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) with thermal lockout
- MS10T = MS10 (see above) with thermal lockout
- MS12T = MS12 (see above) with thermal lockout
- MS12LCT = Low current MS12T
- MS16T = MS16 (see above) with thermal lockout
- MS16LCT = Low current MS16T
- MS17LCT = Low current MS17T
- Electrical Visual with Thermal Lockout
- MS13 = Supplied with threaded connector & light
- MS14 = Supplied with 5 pin Brad Harrison connector & light (male end)
- Electrical Visual
- MS13DCT = MS13 (see above), direct current, w/ thermal lockout
- MS13DCLCT = Low current MS13DCT

#### Housing Seal Material
- Omit = Buna N
- H = EPR
- V = Viton®

#### Porting
- P32 = Z” NPTF
- P40 = 2½” NPTF
- P48 = 3” NPTF
- S32 = SAE-32

#### Bypass Setting
- Omit = 30 psi cracking
- 50 = 50 psi cracking
- X = Blocked bypass

#### Options
- U = Test point in cap (upstream)
- UU = Test points in block (upstream and downstream)

#### NOTES:
- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, 4 and 5 plus the letter V. Example: 39QZ10V
- Box 3. QCLQF are CoreCentric® coreless elements – housing includes rigid metal core. QPML are deep-pleated elements with more media and higher dirt holding capacity.
- Box 4. For option W, Box 3 must equal Q.
- Box 6. All elements for this filter are supplied with Viton® seals. Seal designation in Box 6 applies to housing only. Viton® is a registered trademark of DuPont Dow Elastomers.