Features and Benefits (QF5i)

- Magnetic filtration protection while filter is in cold start bypass
- Coreless QCL element with inside-out flow for eco-friendly easy disposal
- Efficient means to remove both ferromagnetic and non-ferromagnetic parts from the fluid
- Designed for inside-out flow
- Element changeout from the top minimizes oil spillage
- Offered in pipe, SAE straight thread, and flange porting
- Optional inlet and outlet test points
- Various Dirt Alarm® options

Flow Rating: Up to 120 gpm (454 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: 60 psi (4.1 bar)
              Full Flow: 95 psi (6.6 bar)
Porting Base: Cast Aluminum
Element Case: Steel
Cap: Ductile Iron
Weight of QF5i16: 85 lbs. (39 kg)
Weight of QF5i39: 120 lbs. (55 kg)
Element Change Clearance: 16QCLI 16.0” (407 mm)

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 Z-Media® and ASP® media (synthetic)</td>
</tr>
<tr>
<td>High Water Content</td>
<td>All Z-Media® and ASP® media (synthetic)</td>
</tr>
<tr>
<td>Invert Emulsions</td>
<td>10 and 25 µ Z-Media® and 10 µ ASP® media (synthetic)</td>
</tr>
<tr>
<td>Water Glycols</td>
<td>3, 5, 10 and 25 µ Z-Media® and all ASP® Media (synthetic)</td>
</tr>
</tbody>
</table>
**Cold Start Protection Inside-Out Flow Filter**

**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>$\beta_x \geq 75$</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>
<th>Element</th>
<th>DHC (gm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIZ1</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>
<td>CLIZ1</td>
<td>307</td>
</tr>
<tr>
<td>CLIZ3</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>
<td>CLIZ3</td>
<td>315</td>
</tr>
<tr>
<td>CLIZ5</td>
<td>2.5</td>
<td>3.0</td>
<td>4.0</td>
<td>4.8</td>
<td>6.3</td>
<td>CLIZ5</td>
<td>364</td>
</tr>
<tr>
<td>CLIZ10</td>
<td>7.4</td>
<td>8.2</td>
<td>10.0</td>
<td>8.0</td>
<td>10.0</td>
<td>CLIZ10</td>
<td>306</td>
</tr>
<tr>
<td>CLIZ25</td>
<td>18.0</td>
<td>20.0</td>
<td>22.5</td>
<td>19.0</td>
<td>24.0</td>
<td>CLIZ25</td>
<td>278</td>
</tr>
</tbody>
</table>

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

**Dirt Holding Capacity**

**Element Performance Information & Dirt Holding Capacity**

<table>
<thead>
<tr>
<th>Metric dimensions in ( )</th>
</tr>
</thead>
</table>

**Flow Direction:** Inside-Out

**Element Nominal Dimensions:** 16QCLI: 6.0" (150 mm) O.D. x 17.81" (452 mm) long
Cold Start Protection Inside-Out Flow Filter

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

Exercise:
Determine \( \Delta P_{\text{filter}} \) at 120 gpm (455 L/min) for QF5i16QCLIZ3P32 using 200 SUS (44 cSt) fluid.

Use the housing pressure curve to determine \( \Delta P_{\text{housing}} \) at 120 gpm. In this case, \( \Delta P_{\text{housing}} \) is 3 psi (.21 bar) on the graph for the QF5i housing.

Use the element pressure curve to determine \( \Delta P_{\text{element}} \) at 120 gpm. In this case, \( \Delta P_{\text{element}} \) is 6 psi (.415 bar) according to the graph for the 16QCLIZ3 element.

Because the viscosity in this sample is 200 SUS (44 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:
\( \Delta P_{\text{housing}} = 3 \text{ psi} \times .21 \text{ bar} \) \( \mid \Delta P_{\text{element}} = 6 \text{ psi} \times .415 \text{ bar} \)

\( V_f = 200 \text{ SUS (44 cSt)} / 150 \text{ SUS (32 cSt)} = 1.333 \)
\( \Delta P_{\text{filter}} = 3 \text{ psi} + (6 \text{ psi} \times 1.333) = 11 \text{ psi} \)
**OR**
\( \Delta P_{\text{filter}} = .21 \text{ bar} + (.415 \text{ bar} \times 1.333) = .76 \text{ bar} \)
# Cold Start Protection Inside-Out Flow Filter

**How to Build a Valid Model Number for a Schroeder QF5i:**

<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>QF5i</td>
<td>16</td>
<td>QCLI</td>
<td>Z</td>
<td>3</td>
<td>P32</td>
<td>60</td>
<td>MU</td>
<td>DPG</td>
<td>=QF5i16QCLI3-P3260MUDPG</td>
</tr>
</tbody>
</table>

**Filter Model Number Selection**

<table>
<thead>
<tr>
<th>Filter Series</th>
<th>Element Length (in)</th>
<th>Element Style</th>
<th>Media Type</th>
<th>Micron Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>QF5i</td>
<td>16</td>
<td>QCLI</td>
<td>Z = Excellement® Z-Media® (synthetic)</td>
<td>1 = 1 µm Z-Media®</td>
</tr>
</tbody>
</table>

**BOX 6**

<table>
<thead>
<tr>
<th>Housing Seal Material</th>
<th>Porting</th>
<th>Bypass Setting</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omit = Buna N</td>
<td>P32 = 2” NPTF</td>
<td>60 = 60 psi cracking</td>
<td>Omit = No Magnet</td>
</tr>
<tr>
<td>V = Viton®</td>
<td>F32 = 2” SAE 4-bolt, flange Code 61</td>
<td></td>
<td>M = Magnetic Filter Rod</td>
</tr>
</tbody>
</table>

**BOX 7**

<table>
<thead>
<tr>
<th>Bypass Setting</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 = 60 psi cracking</td>
<td>Omit = No Test point</td>
</tr>
</tbody>
</table>

**BOX 8**

**BOX 9**

<table>
<thead>
<tr>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omit = No Test point</td>
</tr>
</tbody>
</table>

**BOX 10**

**Dirt Alarm® Options**

- Visual: DPG = Standard differential pressure gauge
- Visual with Thermal Lockout: D8 = Visual w/ thermal lockout

**Electrical**

- MSS = Electrical w/ 12 in. 18 gauge 4-conductor cable
- MSSLC = Low current MSS
- 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
- MS16 = Electrical w/ 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) w/ thermal lockout
- MS5TC = Low current MS5T
- MS10T = MS10 (see above) w/ thermal lockout
- MS10TC = Low current MS10T
- MS12T = MS12 (see above) w/ thermal lockout
- MS12TC = Low current MS12T
- MS16T = MS16 (see above) w/ thermal lockout
- MS16TC = Low current MS16T
- MS17TC = Low current MS17T

**Electrical with Visual with Thermal Lockout**

- MS13 = Supplied w/ threaded connector & light
- MS13DCT = MS13 (see above), direct current, w/ thermal lockout
- MS13DCLCT = Low current MS13DCT

**Electrical Visual with Thermal Lockout**

- MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)
- MS14DCT = MS14 (see above), direct current, w/ thermal lockout
- MS14DCLCT = Low current MS14DCT

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**NOTES:**

- Box 2. Replacement element part numbers are a combination of Boxes 2, 3, 4 and 5 plus the letter V. Example: 16QCLI310V
- 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.