Features and Benefits

- Extremely versatile multiple inlet and outlet ports; can be used alone or in series with another K9
- Top loading for easy access for element change-out
- Allows consolidation of inventoried replacement elements by using K-size elements
- Multiple inlet and outlet porting options reduce the need for additional adaptors on installation
- Can be fitted with test ports for oil sampling
- Small profile allows filter to be mounted in tight areas
- Various Dirt Alarm® options
- Meets HF4 automotive standard

Applications

- Industrial
- Automotive manufacturing
- Machine tool
- Steel making
- Mobile vehicles
- Agriculture
- Power generation
- Pulp & paper

Flow Rating: Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure: 900 psi (60 bar)
Min. Yield Pressure: 3200 psi (220 bar), per NFPA T2.6.1
Rated Fatigue Pressure: 750 psi (52 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: 80 psi (5.5 bar)

Porting Head & Cap: Cast Aluminum
Element Case: Steel
Weight of K9-1K: 19 lbs. (8.6 kg)
Weight of K9-2K: 30 lbs. (13.6 kg)
Weight of K9-3K: 41 lbs. (18.6 kg)
Element Change Clearance: 8.50" (215 mm) for 1K; 17.50" (445 mm) for 2K; 26.5" (673 mm) for 27K
**Medium Pressure Filter**

**Element Performance Information**

<table>
<thead>
<tr>
<th>Element</th>
<th>( \beta_1 \geq 75 )</th>
<th>( \beta_2 &gt; 100 )</th>
<th>( \beta_3 &gt; 200 )</th>
<th>( \beta_4 &gt; 200 )</th>
<th>( \beta_5(c) &gt; 1000 )</th>
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<td>8.0</td>
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**Dirt Holding Capacity**

<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>
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<th>DHC (gm)</th>
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<td>54</td>
<td>K3</td>
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<tr>
<td>K10</td>
<td>44</td>
<td>K10</td>
<td>88</td>
<td>27K10</td>
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<tr>
<td>K2</td>
<td>112</td>
<td>KZ1</td>
<td>224</td>
<td>27KZ1</td>
<td>336</td>
<td>K2W1</td>
<td>61</td>
<td></td>
<td></td>
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<tr>
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<td>115</td>
<td>K23/KAS3</td>
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<td>27K23/27KAS3</td>
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<td>K2W3</td>
<td>64</td>
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<tr>
<td>K25/KAS5</td>
<td>119</td>
<td>K25/KAS5</td>
<td>238</td>
<td>27K25/27KAS5</td>
<td>357</td>
<td>K2W5</td>
<td>63</td>
<td>KKW5</td>
<td>126</td>
</tr>
<tr>
<td>KZ10/KAS10</td>
<td>108</td>
<td>KZ10/KAS10</td>
<td>216</td>
<td>27K10/27KAS10</td>
<td>324</td>
<td>K2W10</td>
<td>57</td>
<td>KKW10</td>
<td>114</td>
</tr>
</tbody>
</table>

**Element Collapse Rating:** 150 psid (10 bar) for standard elements

**Flow Direction:** Outside In

**Element Nominal Dimensions:**

- **K:** 3.9" (99 mm) O.D. x 9.0" (230 mm) long
- **KK:** 3.9" (99 mm) O.D. x 18.0" (460 mm) long
- **27K:** 3.9" (99 mm) O.D. x 27.0" (690 mm) long

This filter is available in additional porting options not explicitly shown here. Contact factory for details.
Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 40 psi (2.8 bar) bypass valve.

### Fluid Compatibility

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

### Element Selection Based on Flow Rate

<table>
<thead>
<tr>
<th>Pressure Series</th>
<th>Part No.</th>
<th>Media</th>
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</thead>
<tbody>
<tr>
<td>To 900 psi (60 bar)</td>
<td>K3</td>
<td>1K3</td>
</tr>
<tr>
<td></td>
<td>K10</td>
<td>1K10</td>
</tr>
<tr>
<td></td>
<td>K25</td>
<td>1K25</td>
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<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>KZ25</td>
<td>1KZ25</td>
</tr>
</tbody>
</table>

† Double and triple stacking of K-size elements can be replaced by single KK & 27K elements, respectively.

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

Note: Contact factory regarding use of E media in High Water Content, Invert Emulsion and Water Glycol Applications.

### Pressure Drop Information

\[ \Delta P_{hous} = \Delta P_{hous}^{K9}(\text{sp gr} = 0.86) \times \text{Flow} \times \Delta P_{factor} \times \text{Viscosity factor} \]

**K9** \( \Delta P_{hous}^{K9} \) for fluids with sp gr = 0.86:

- Flow (gpm) | sp gr = 0.50 | sp gr = 0.25 \\
- 10 | (50) | (350) \\
- 8 | (40) | (280) \\
- 6 | (30) | (180) \\
- 4 | (20) | (120) \\
- 2 | (10) | (60) \\
- 1 | (5) | (30) \\

**Element Flow Information**

\[ \Delta P_{element} = \text{Flow} \times \text{Element} \times \Delta P_{factor} \times \text{Viscosity factor} \]

**El. \( \Delta P \) Factors @ 150 SUS (32 cSt):**

<table>
<thead>
<tr>
<th>Element</th>
<th>1K</th>
<th>2K</th>
<th>3K</th>
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</thead>
<tbody>
<tr>
<td>K3</td>
<td>.25</td>
<td>.12</td>
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<td>.05</td>
<td>.03</td>
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<td>K25</td>
<td>.02</td>
<td>.01</td>
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<td>KZ1</td>
<td>.20</td>
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<td>.05</td>
</tr>
<tr>
<td>KZ3/KAS3</td>
<td>.10</td>
<td>.05</td>
<td>.03</td>
</tr>
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<td>KZ5/KAS5</td>
<td>.08</td>
<td>.04</td>
<td>.02</td>
</tr>
<tr>
<td>KZ10/KAS10</td>
<td>.05</td>
<td>.03</td>
<td>.02</td>
</tr>
<tr>
<td>KZ25</td>
<td>.04</td>
<td>.02</td>
<td>.01</td>
</tr>
</tbody>
</table>

### Exercise

Determine \( \Delta P \) at 80 gpm (303 L/min) for K9GK28BP22NP2ND5C using 200 SUS (44 cSt) fluid.

**Solution:**

- \( \Delta P_{hous} = 6.0 \text{ psi} [41 \text{ bar}] \)
- \( \Delta P_{element} = 80 \times .03 \times (200+150) = 3.2 \text{ psi} \)
- or \( = [303 \times (0.3+54.9) \times (44+32)] = .23 \text{ bar} \)
- \( \Delta P_{total} = 6.0 + 3.2 = 9.2 \text{ psi} \)
- or \( = [41 + .23 = .64 \text{ bar}] \)

If working in units of bars & L/min, divide above factor by 54.9.

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).
**Filtroil Filtration Systems**

**Innovative Filtration Solutions**

www.filtroil.com

---

**Single Pass Filter Kit**

**How to Build a Valid Model Number for a Filtroil 2K9:**

**BOX 1**

**Filter Series**

| K9 |

**BOX 2**

**Number & Size of Elements**

| 1 K | 2 K | 3 K |

**BOX 3**

**Media Type**

- Omit = E-media (cellulose)
- Z = Excellement® Z-Media®
- AS = Anti-Stat Pleat media (synthetic)
- ZW = Aqua-Excellelement® ZW media
- ZX = Excellement® Z-Media® (high collapse centertube)
- W = W media (water removal)
- M = media (reusable metal mesh)

**BOX 4**

**Micron Rating**

1 = 1 µ Z, ZW, ZX media
2 = 2 µ AS, E, Z, ZW, ZX media
3 = 3 µ AS, E, Z, ZW, ZX media
4 = 4 µ AS, E, Z, ZW, ZX media
5 = 5 µ AS, Z, ZW, ZX media
10 = 10 µ AS, E, Z, ZW, ZX media
25 = 25 µ E, M, Z, ZW, ZX media
60 = 60 µ M media
150 = 150 µ M media
260 = 260 µ M media

**BOX 5**

**Seal Material**

- B = Buna N
- V = Viton®
- H = EPR
- H.S. = Skydrol® Compatibility

**BOX 6**

**Specification of all 4 ports is required**

| A | B | C | D |

**BOX 7**

**Porting Options**

- Port 1 (standard)
- Port 2
- Port 3
- Port 4

**BOX 8**

**Dirt Alarm® Options**

- Omit = None
- Visual
  - D5 = Visual pop-up
  - DSC = DSC in cap
- Visual with Thermal Lockout
  - D8 = Visual w/ thermal lockout
  - DSC = D8 in cap
- Electrical
  - MS = Electrical w/ 12 in. 18 gauge 4-conductor cable
  - MS5LC = Low current MS5
  - MS10LC = Electrical w/ DIN connector (male end only)
  - MS15LC = Low current MS15
  - MS16LC = Electrical w/ 4 pin Brad Harrison connector (male end only)
  - MS17LC = Electrical w/ 4 pin Brad Harrison male connector
- Electrical with Thermal Lockout
  - MSLQT = Low current MSLQT
  - MSL6QT = Low current MSL6QT
  - MSL7QT = Low current MSL7QT
  - MSL8QT = Low current MSL8QT
  - MSL9QT = Low current MSL9QT
- Electrical Visual
  - MS13 = Supplied w/ threaded connector & light
  - MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)
- Electrical Visual with Thermal Lockout
  - MS13DCLT = Low current MS13DCLT
  - MS14DCLT = Low current MS14DCLT

**NOTES:**

- Box 2. Double and triple stacking of K-size elements can be replaced by KK or 27K elements, respectively. Number of elements must equal 1 when using KK or 27K elements. Replacement element part numbers are identical to contents of Boxes 2, 3, 4, and 5. 2W media not available in 27K length.
- Box 5. For options H, V, and H.S., all aluminum parts are anodized. H.S. 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 8. If location 1 is used as inlet port, dirt alarm will occupy location 2. If location 2 is used as inlet port, dirt alarm will occupy location 1. If dual inlet ports are specified, the only dirt alarm option is pop-up indicator in cap (DSC).
**Features and Benefits**

- Two patent-pending K9 filters supplied in series as a single filter assembly providing in-line single pass particulate and water filtration
- Meets HF4 automotive standard
- 900 psi rating covers almost all transfer line pressure specs including air driven transfer systems
- Top loading for easy access for element changeout
- Allows consolidation of inventoried elements by using K-size elements
- Can be fitted with test points for oil sampling

**Applications**

- Industrial
- Automotive Manufacturing
- Machine Tool
- Steel Making
- Mobile Vehicles
- Agriculture
- Power Generation
- Pulp & Paper

**Filter Housing Specifications**

- **Flow Rating:** Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
- **Max. Operating Pressure:** 900 psi (60 bar)
- **Min. Yield Pressure:** 3200 psi (220 bar), per NFPA T2.6.1
- **Rated Fatigue Pressure:** 750 psi (52 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) each filter housing
- **Porting Head & Cap:** Cast Aluminum
- **Element Case:** Steel
- **Element Change Clearance:** 8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K
**2K9 Single Pass Filter Kit**

**Element Performance Information**

<table>
<thead>
<tr>
<th></th>
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<tr>
<td>Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171</td>
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<td>$b_x(c) = 1000$</td>
<td>$b_x(c) = 200$</td>
<td>$b_x(c) = 1000$</td>
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<td>$b_x(c) = 1000$</td>
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<td>18.5</td>
<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Dirt Holding Capacity**

| Element | DHC (gm) | Element | DHC (gm) | Element | DHC (gm) | Element | DHC (gm) | Element | DHC (gm) | Element | DHC (gm) |
|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|----------|
| KZ1 | 112 | KKZ1 | 224 | 27KZ1 | 336 | KZW1 | 61 | KKZ25 | 186 | 27KZ25 | 279 | KZW25 | 79 |
| KZ3 | 115 | KKZ3 | 230 | 27KZ3 | 345 | KZW3 | 64 | KKW3 | 128 |
| KAS3 | 119 | KKAS3 | 238 | 27KAS3 | 357 | KZW5 | 63 | KKW5 | 126 |
| KZ5 | 108 | KKZ5 | 216 | 27KZ5 | 324 | KZW10 | 57 | KKW10 | 114 |
| KAS5 | 93 | KKAS5 | 186 | 27KAS5 | 279 | KZW25 | 79 | KKW25 | 158 |

**Element Collapse Rating:** 150 psid (10 bar) for standard elements

**Flow Direction:** Outside In

**Element Nominal Dimensions:**
- $K$: 3.9” (99 mm) O.D. x 9.0” (230 mm) long
- $KK$: 3.9” (99 mm) O.D. x 18.0” (460 mm) long
- $27K$: 3.9” (99 mm) O.D. x 27.0” (690 mm) long
### Single Pass Filter Kit

#### Fluid Compatibility

Skydrol® is a registered trademark of Solutia Inc.

#### Element Selection

Based on Flow Rate

#### Pressure Drop Information

Based on Flow Rate and Viscosity

#### ΔPfilter = ΔPhousing + ΔPelement

**Exercise:**

Determine ΔP at 80 gpm (303 L/min) for 2K9DBBP24P24 using 150 SUS (32 cSt) fluid.

**Solution:**

\[
\begin{align*}
\Delta P_{\text{housing}} &= 12.0 \text{ psi} \ [0.8 \text{ bar}] \\
\Delta P_{\text{element1}} &= 80 \times 0.03 = 2.4 \text{ psi} \ [0.2 \text{ bar}] \\
\Delta P_{\text{element2}} &= 80 \times 0.05 = 4.0 \text{ psi} \ [0.3 \text{ bar}] \\
\Delta P_{\text{total}} &= 12.0 + 2.4 + 4.0 = 18.4 \text{ psi} \ [1.3 \text{ bar}] 
\end{align*}
\]
# Single Pass Filter Kit

## How to Build a Valid Model Number for a Filtroil 2K9:

<table>
<thead>
<tr>
<th>Filter Series</th>
<th>Number of Elements</th>
<th>Length of Element</th>
<th>First Housing Element Micron Rating</th>
<th>Second Housing Element Micron Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>2K9</td>
<td>1</td>
<td>09 = K-Sized Element</td>
<td>A = 1 µ Z-Media®</td>
<td>A = 1 µ Z-Media®</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>18 = KK-Sized Element</td>
<td>B = 3 µ Z-Media®</td>
<td>B = 3 µ Z-Media®</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>27 = 2K-Sized Element</td>
<td>C = 5 µ Z-Media®</td>
<td>C = 5 µ Z-Media®</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D = 10 µ Z-Media®</td>
<td>D = 10 µ Z-Media®</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>E = 25 µ Z-Media®</td>
<td>E = 25 µ Z-Media®</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F = W Water Removal</td>
<td>F = W Water Removal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>G = 1 µ ZW-media</td>
<td>G = 1 µ ZW-media</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>H = 3 µ ZW-media</td>
<td>H = 3 µ ZW-media</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>J = 5 µ ZW-media</td>
<td>J = 5 µ ZW-media</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>K = 10 µ ZW-media</td>
<td>K = 10 µ ZW-media</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>L = 25 µ ZW-media</td>
<td>L = 25 µ ZW-media</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M = 3 µ AS-media</td>
<td>M = 3 µ AS-media</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N = 5 µ AS-media</td>
<td>N = 5 µ AS-media</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>O = 10 µ AS-media</td>
<td>O = 10 µ AS-media</td>
</tr>
</tbody>
</table>

### Notes:

- **Box 2**: Double and triple stacking of K-size elements can be replaced by KK and 2K elements, respectively. Number of elements must equal 1 when using KK or 2K elements. ZW media not available in 2K7 length.

### Options

- **Omit**: None
- **D5**: Visual pop-up/D5 is in cap
- **D6**: Visual w/ thermal lockout/D6 is in cap
- **Electrical**
  - **MS5**: Electrical w/ 12 ft. 18 gauge 4-conductor cable
  - **MS10**: Electrical w/ DIN connector (male end only)
  - **MS16**: Electrical w/ 12 ft. 4-conductor wire
  - **MS15C**: Electrical w/ 5 pin Brad Harrison connector (male end only)
  - **MS16C**: Electrical w/ weather-sealed connector
  - **MS16LCT**: Electrical w/ 4 pin Brad Harrison connector
  - **MS15LC**: Electrical w/ thermal lockout
  - **MS10LC**: Low current MS10
  - **MS5LC**: Low current MS5
  - **MS10T**: Low current MS10T
  - **MS5T**: Low current MS5T
  - **MS16T**: Low current MS16
  - **MS16CT**: Low current MS16C
  - **MS10CT**: Low current MS10C
  - **MS5CT**: Low current MS5C
  - **MS16LCT**: Low current MS16LCT
  - **MS10LCT**: Low current MS10LCT
  - **MS5LCT**: Low current MS5LCT
  - **MS16LC**: Supplied w/ threaded connector & lock
  - **MS10LC**: Supplied w/ 5 pin Brad Harrison connector & lock
  - **MS5LC**: Supplied w/ 5 pin Brad Harrison connector & lock
- **Electrical with Thermal Lockout**
  - **MS15LC**: MS15LC (see above) w/ thermal lockout
  - **MS10LC**: MS10LC (see above) w/ thermal lockout
  - **MS5LC**: MS5LC (see above) w/ thermal lockout
  - **MS16LC**: MS16LC (see above) w/ thermal lockout
  - **MS10LC**: MS10LC (see above) w/ thermal lockout
  - **MS5LC**: MS5LC (see above) w/ thermal lockout
- **Visual**
  - **MS15**: MS15 (see above)
  - **MS10**: MS10 (see above)
  - **MS5**: MS5 (see above)
  - **MS16**: MS16 (see above)
**Single Pass Filter Kit 3K9**

![Filter Kit Image]

**Features and Benefits**

- Three patent-pending K9 filters supplied in series as a single filter assembly providing in-line single pass particulate and water filtration.
- Meets HF4 automotive standard.
- 900 psi rating covers almost all transfer line pressure specs including air driven transfer systems.
- Top loading for easy access for element changeout.
- Allows consolidation of inventoried elements by using K-size elements.
- Can be fitted with test points for oil sampling.

**Applications**

- Industrial
- Automotive Manufacturing
- Machine Tool
- Steel Making
- Mobile Vehicles
- Agriculture
- Power Generation
- Pulp & Paper

**Filter Housing Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Rating</td>
<td>Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids</td>
</tr>
<tr>
<td>Max. Operating Pressure</td>
<td>900 psi (60 bar)</td>
</tr>
<tr>
<td>Min. Yield Pressure</td>
<td>3200 psi (220 bar), per NFPA T2.6.1</td>
</tr>
<tr>
<td>Rated Fatigue Pressure</td>
<td>750 psi (52 bar) per NFPA T2.6.1-R1-2005</td>
</tr>
<tr>
<td>Temp. Range</td>
<td>-20°F to 225°F (-29°C to 107°C)</td>
</tr>
<tr>
<td>Bypass Setting</td>
<td>Cracking: 40 psi (2.8 bar) each filter housing</td>
</tr>
<tr>
<td>Porting Head &amp; Cap</td>
<td>Cast Aluminum</td>
</tr>
<tr>
<td>Element Case</td>
<td>Steel</td>
</tr>
<tr>
<td>Element Change Clearance</td>
<td>8.50” (215 mm) for 1K; 17.50” (445 mm) for KK; 26.5” (673 mm) for 27K</td>
</tr>
</tbody>
</table>

Model No. of filter in photograph is 3K9127EDBBP20P20UUDG6C.
**3K9 Single Pass Filter Kit**

**Metric dimensions in ( ).**

**Element Performance Information**

<table>
<thead>
<tr>
<th>Element</th>
<th>( \beta_x = 75 )</th>
<th>( \beta_x = 100 )</th>
<th>( \beta_x = 200 )</th>
<th>( \beta_y(c) = 200 )</th>
<th>( \beta_y(c) = 1000 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>KZ1/KKZ1/27KZ1</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>
</tr>
<tr>
<td>KZ3/KKZ3/27KZ3/KAS3/ KKAS3/27KAS3</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>
</tr>
<tr>
<td>KZ5/KKZ5/27KZ5/KAS5/ KKAS5/27KAS5</td>
<td>2.5</td>
<td>3.0</td>
<td>4.0</td>
<td>4.8</td>
<td>6.3</td>
</tr>
<tr>
<td>KZ10/KKZ10/27KZ10/KAS10/ KKAS10/27KAS10</td>
<td>7.4</td>
<td>8.2</td>
<td>10.0</td>
<td>8.0</td>
<td>10.0</td>
</tr>
<tr>
<td>KZ25/KKZ25/27KZ25</td>
<td>18.0</td>
<td>20.0</td>
<td>22.5</td>
<td>19.0</td>
<td>24.0</td>
</tr>
<tr>
<td>KZW1</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>&lt;4.0</td>
<td>&lt;4.0</td>
</tr>
<tr>
<td>KZW3/KKZW3</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>4.0</td>
<td>4.8</td>
</tr>
<tr>
<td>KZW5/KKZW5</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>5.1</td>
<td>6.4</td>
</tr>
<tr>
<td>KZW10/KKZW10</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>6.9</td>
<td>8.6</td>
</tr>
<tr>
<td>KZW25/KKZW25</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>15.4</td>
<td>18.5</td>
</tr>
</tbody>
</table>

**Dirt Holding Capacity**

<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>
<th>Element</th>
<th>DHC (gm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KZ1</td>
<td>112</td>
<td>KKZ1</td>
<td>224</td>
<td>27KZ1</td>
<td>336</td>
<td>KZW1</td>
<td>61</td>
<td>KZW25</td>
<td>158</td>
</tr>
<tr>
<td>KZ1/3</td>
<td>115</td>
<td>KKZ3/3</td>
<td>230</td>
<td>27KZ3/3</td>
<td>345</td>
<td>KZW3</td>
<td>64</td>
<td>KZW25</td>
<td>158</td>
</tr>
<tr>
<td>KZ5</td>
<td>119</td>
<td>KKZ5/5</td>
<td>238</td>
<td>27KZ5/5</td>
<td>357</td>
<td>KZW5</td>
<td>63</td>
<td>KZW25</td>
<td>158</td>
</tr>
<tr>
<td>KZ10</td>
<td>108</td>
<td>KKZ10/10</td>
<td>216</td>
<td>27KZ10/10</td>
<td>324</td>
<td>KZW10</td>
<td>57</td>
<td>KZW25</td>
<td>158</td>
</tr>
<tr>
<td>KZ25</td>
<td>93</td>
<td>KKZ25</td>
<td>186</td>
<td>27KZ25</td>
<td>279</td>
<td>KZW25</td>
<td>79</td>
<td>KZW25</td>
<td>158</td>
</tr>
</tbody>
</table>

Element Collapse Rating: 150 psid (10 bar) for standard elements

Flow Direction: Outside In

Element Nominal Dimensions:

- K: 3.9" (99 mm) O.D. x 9.0" (230 mm) long
- KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long
- 27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

**Filtration Ratio Per ISO 4572/NFPA T3.10.8.8**

Using automated particle counter (APC) calibrated per ISO 4402

**Filtration Ratio per ISO 16889**

Using APC calibrated per ISO 11171

www.filtroil.com
Exercise:
Determine $\Delta P$ at 80 gpm (303 L/min) for 2K90206EBP24P24 using 150 SUS (32 cSt) fluid.

Solution:

$\Delta P_{\text{housing}} = 18.0 \text{ psi} [1.2 \text{ bar}]$

$\Delta P_{\text{element1}} = 80 \times 0.02 = 1.6 \text{ psi} [0.1 \text{ bar}]$

$\Delta P_{\text{element2}} = 80 \times 0.03 = 2.4 \text{ psi} [0.2 \text{ bar}]$

$\Delta P_{\text{element3}} = 80 \times 0.05 = 4.0 \text{ psi} [0.3 \text{ bar}]$

$\Delta P_{\text{total}} = 18.0 + 1.6 + 2.4 + 4.0 = 26.0 \text{ psi} [1.8 \text{ bar}]$
How to Build a Valid Model Number for a Filtroil 3K9:

**BOX 1**: 3K9

**Filter Model Number Selection**

<table>
<thead>
<tr>
<th>Filter Series</th>
<th>No. of Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>3K9</td>
<td>1, 2, 3</td>
</tr>
</tbody>
</table>

**Length of Elements**

- 09 = K Size Element
- 18 = KK Size Element
- 27 = 27K Size Element

**First Housing**

A = 1 µ Z-Media
B = 3 µ Z-Media
C = 5 µ Z-Media
D = 10 µ Z-Media
E = 25 µ Z-Media
F = W media (water removal)
G = 1 µ ZW-media
H = 3 µ ZW-media
J = 5 µ ZW-media
K = 10 µ ZW-media
L = 25 µ ZW-media
M = 3 µ AS-media
N = 5 µ AS-media
O = 10 µ AS-media

**Second Housing**

A = 1 µ Z-Media
B = 3 µ Z-Media
C = 5 µ Z-Media
D = 10 µ Z-Media
E = 25 µ Z-Media
F = W media (water removal)
G = 1 µ ZW-media
H = 3 µ ZW-media
J = 5 µ ZW-media
K = 10 µ ZW-media
L = 25 µ ZW-media
M = 3 µ AS-media
N = 5 µ AS-media
O = 10 µ AS-media

**Third Housing**

- A = 1 µ Z-Media
- B = 3 µ Z-Media
- C = 5 µ Z-Media
- D = 10 µ Z-Media
- E = 25 µ Z-Media
- F = W media (water removal)
- G = 1 µ ZW-media
- H = 3 µ ZW-media
- J = 5 µ ZW-media
- K = 10 µ ZW-media
- L = 25 µ ZW-media
- M = 3 µ AS-media
- N = 5 µ AS-media
- O = 10 µ AS-media

**Seal Material**

- B = Buna N
- V = Viton®
- E = EPDM
- H = Sylgard®
- L = Viton®
- F = EPR
- M = Nitrile
- K = Viton®
- G = Viton®
- O = Viton®

**In Porting**

- P16 = 1” NPTF
- P20 = 1” SAE 4-bolt
- P24 = 1” SAE 4-bolt
- F20 = 1” NPTF
- F16 = 1” AN 4-bolt
- F24 = 1” AN 4-bolt
- S16 = AN 16
- S20 = AN 20
- S24 = AN 24

**Out Porting**

- P16 = 1” NPTF
- P20 = 1” SAE 4-bolt
- P24 = 1” SAE 4-bolt
- F16 = 1” AN 4-bolt
- F24 = 1” AN 4-bolt
- S16 = AN 16
- S20 = AN 20
- S24 = AN 24

**Dirt Alarm® Options**

- Visual: D5 = Visual pop-up
- Visual with Thermal Lockout: D6 = Visual with thermal lockout

**Options**

- Omit = None
- U = Test point in block
- UU = Test points in block

**Notes:**

- Box 2: Double and triple stacking of K-size elements can be replaced by K and 27K elements, respectively.
- Number of elements must equal 1 when using K or 27K elements.
- Water media not available in 27K length.
- Box 4: Replacement part number is identical to K9 replacement parts. Please reference page 172.
- Box 7: For options H, V, and H.S, all aluminum parts are anodized. H.S 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. Sylgard® is a registered trademark of Dow Corning Corporation. EPR seals are standard for 3K9 and 3K10.
- Box 11: Option UU not available in combination with indicator in block.