Medium Pressure Filter

**Features and Benefits**

- Meets HF4 automotive standard
- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- Available with NPTF inlet and outlet female test ports
- KFN5 non-bypass version with high collapse elements also available
- WKF5 model for water service also available – refer to Section 7 of this catalog
- Various Dirt Alarm® options
- Allows consolidation of inventoried replacement elements by using K-size elements
- Also available with DirtCatcher® elements (KD & KKD)

Model No. of filter in photograph is KF51KZ10SD5.

**Applications**

- Industrial
- Automotive Manufacturing
- Mining Technology
- Steel Making
- Mobile Vehicles

**Filter Housing Specifications**

| Flow Rating: | Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids |
| Max. Operating Pressure: | 500 psi (35 bar) |
| Min. Yield Pressure: | 1500 psi (100 bar), per NFPA T2.6.1 |
| Rated Fatigue Pressure: | 300 psi (35 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: 61 psi (4.2 bar) |
| Porting Head: | Grey Cast Iron |
| Element Case: | Steel |
| Weight of KF5-1K: | 23.2 lbs. (10.5 kg) |
| Element Change Clearance: | 2.0” (51 mm) |

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Medium Pressure Filter

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>K3</td>
<td>$\beta_x \geq 75$</td>
<td>$\beta_x \geq 100$</td>
</tr>
<tr>
<td>K10</td>
<td>6.8</td>
<td>7.5</td>
</tr>
<tr>
<td>KZ1</td>
<td>$&lt;1.0$</td>
<td>$&lt;1.0$</td>
</tr>
<tr>
<td>KZ3/KAS3</td>
<td>$&lt;1.0$</td>
<td>$&lt;1.0$</td>
</tr>
<tr>
<td>KZ5/KAS5</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>KZ10/KAS10</td>
<td>7.4</td>
<td>8.2</td>
</tr>
<tr>
<td>KZ25</td>
<td>18.0</td>
<td>20.0</td>
</tr>
<tr>
<td>KZW1</td>
<td>N/A</td>
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<tr>
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<td>N/A</td>
</tr>
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<td>KZW10</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>KZW25</td>
<td>N/A</td>
<td>N/A</td>
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</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>
</tr>
</thead>
<tbody>
<tr>
<td>K3</td>
<td>54</td>
<td>K3</td>
<td>54</td>
<td>KDZ1</td>
<td>89</td>
</tr>
<tr>
<td>K10</td>
<td>44</td>
<td>KZ1</td>
<td>112</td>
<td>KZW1</td>
<td>61</td>
</tr>
<tr>
<td>KZ1</td>
<td>112</td>
<td>KZ3/KAS3</td>
<td>115</td>
<td>KZW3</td>
<td>64</td>
</tr>
<tr>
<td>KZ5/KAS5</td>
<td>119</td>
<td>KZ5/KAS5</td>
<td>119</td>
<td>KZW5</td>
<td>63</td>
</tr>
<tr>
<td>KZ10/KAS10</td>
<td>108</td>
<td>KZ10/KAS10</td>
<td>108</td>
<td>KZW10</td>
<td>67</td>
</tr>
<tr>
<td>KZ25</td>
<td>93</td>
<td>KZ25</td>
<td>93</td>
<td>KDZ25</td>
<td>81</td>
</tr>
</tbody>
</table>

Element Collapse Rating: 150 psid (10 bar) for standard elements
Flow Direction: Outside In
Element Nominal Dimensions: 3.9" (99 mm) O.D. x 9.0" (230 mm) long
### Medium Pressure Filter

**Type Fluid** | **Appropriate Schroeder Media**
--- | ---
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 and 10 µ E media (cellulose) with H (EPR) seal designation, 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 & stainless steel wire mesh in element, and light oil coating on housing exterior), 3, 5 and 10 µ ASP media (synthetic)

**Fluid Compatibility**

**Pressure Drop Information**

Based on Flow Rate and Viscosity

**Notes**

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

**Exercise:**

Determine ΔP at 50 gpm (189 L/min) for KF51KZ10P24DS using 200 SUS (44 cSt) fluid.

**Solution:**

\[
\Delta P_{\text{housing}} = 3.0 \text{ psi} \quad \Delta P_{\text{element}} = 50 \times .05 \times (200+150) = 3.3 \text{ psi}
\]

or

\[
= [189 \times (.05+54.9) \times (44+32)] = .24 \text{ bar}
\]

\[
\Delta P_{\text{total}} = 3.0 + 3.3 = 6.3 \text{ psi}
\]

or

\[
= [.20 + .24 = .44 \text{ bar}]
\]
### Medium Pressure Filter

**Model Selection**

**Box 1:** Filter Series
- KF5 (See Section 7 for Water Service version)
- KFN5 (Non-bypassing requires ZK or MXX high collapse elements)

**Box 2:** Number & Size of Elements
- 1K

**Box 3:** Media Type
- Omit = E media (Cellulose)
- ASP = Anti-Static Pleated media
- Z = Excellement® Z-Media® (Synthetic)
- ZW = Aqua-Excellement® ZW media
- W = Water Removal media
- M = M media (Reusable Metal)
- DZ = DirtCatcher® Excellement® Z-Media®

**Box 4:** Micron Rating
- 1 = 1 μ (Z, ZW and DZ media)
- 3 = 3 μ (E, AS, Z, ZW and DZ media)
- 5 = 5 μ (AS, Z, ZW and DZ media)
- 10 = 10 μ (E, AS, Z, ZW, M and DZ media)
- 25 = 25 μ (E, Z, ZW, M and DZ media)
- 60 = 60 μ (M media)

**Box 5:** Seal Material
- Omit = Buna N
- H = EPR
- V = Viton®
- H.5 = Skydrol® Compatibility

**Box 6:** Magnetic Option
- Omit = None
- M = Magnet Inserts

**Box 7:** Porting Options
- P24 = 1 1⁄2 NPTF
- P32 = 2” NPTF
- S24 = SAE-24
- S32 = SAE-32
- F24 = 1 1⁄2” SAE split 4-bolt flange Code 61
- B24 = ISO 228 G-1 1⁄2

**Box 8:** Test Port Options
- Omit = None
- L = Two ¼” NPTF inlet and outlet female test ports

**Box 9:** Dirt Alarm® Options
- D = Pointer
- D5 = Visual pop-up
- D8 = Visual w/ thermal lockout
- MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable
- MS5LC = Low current MS5
- 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
- MS5T = MS5 (see above) w/ thermal lockout
- MS5LCT = Low current MS5T
- MS10T = MS10 (see above) w/ thermal lockout
- MS10LCT = Low current MS10T
- MS12T = MS12 (see above) w/ thermal lockout
- MS12LCT = Low current MS12T
- MS16T = MS16 (see above) w/ thermal lockout
- MS16LCT = Low current MS16T
- MS17CT = Low current MS17T
- MS5 = Cam operated switch w/ 1⁄2” conduit female connection
- MS13 = Supplied w/ threaded connector & light
- MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)
- MS13DCT = MS13 (see above), direct current, w/ thermal lockout
- MS13DCLCT = Low current MS13DCT
- MS14DCT = MS14 (see above), direct current, w/ thermal lockout
- MS14DCLCT = Low current MS14DCT

**Example:**

- KF5
- 1K
- Z
- 10
- S24
- D5

**Model Number Selection**

- Example: KF51KZ10S24D5

**NOTES:**

- Box 2: Replacement element part numbers are a combination of Boxes 2, 3, 4 and 5.
- Example: KZ10V
  - High collapse media only available with KFNS.
- Box 5: For options H, V, 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 7: B porting supplied with metric mounting holes.