HIGH PRESSURE FILTERS

MFM Series
Inline Filters
4060 PSI • up to 25 GPM

Features

- Because of their efficient design and construction, MFM filters are considered a cost effective solution for new equipment, or as a replacement for filters already specified on existing equipment.
- The MFM filter is available in 4 sizes comprised of four different bowl and element lengths. The models 35, 55, 75, and 95, provide maximum flow rates of 10, 18, 20, and 25 GPM respectively.
- A quick-response bypass valve located in filter head protects against high differential pressures caused by cold startups, flow surges and pressure spikes.
- The high bypass pressure setting (100 psid) minimizes the possibility of contamination due to premature bypassing.
- Filter materials are compatible with all mineral, lubricating oils, and commonly used fire retardant fluids per ISO 2943.
- Fatigue pressure rating equals maximum allowable working pressure rating.

Applications

- Agricultural
- Automotive
- Construction
- Gearboxes
- Industrial
- Commercial
- Municipal

Technical Specifications

<table>
<thead>
<tr>
<th>Mounting Method</th>
<th>4 mounting holes - filter head</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Connection</td>
<td>SAE-12, 3/4&quot; BSPP</td>
</tr>
<tr>
<td>Flow Direction</td>
<td>Inlet: Side Outlet: Side (opposite each other)</td>
</tr>
<tr>
<td>Flow Capacity</td>
<td>35 10 gpm (35 lpm) 55 18 gpm (68 lpm) 75 20 gpm (76 lpm) 95 25 gpm (95 lpm)</td>
</tr>
<tr>
<td>Housing Pressure Rating</td>
<td>Max. Allowable Working Pressure 4060 psi (280 bar) Fatigue Pressure 4060 psi (280 bar) @ 1 million cycles 4641 psi (320 bar) @ 100,000 cycles Burst Pressure 13,920 psi (960 bar)</td>
</tr>
<tr>
<td>Element Collapse Pressure Rating</td>
<td>ON 290 psid (20 bar)</td>
</tr>
<tr>
<td>Fluid Temperature Range</td>
<td>14°F to 212°F (-10°C to 100°C) Consult HYDAC for applications operating below 14°F (-10°C)</td>
</tr>
<tr>
<td>Fluid Compatibility</td>
<td>Compatible with all hydrocarbon based, synthetic, water glycol, oil/water emulsion, and high water based fluids when the appropriate seals are selected.</td>
</tr>
<tr>
<td>Indicator Trip Pressure</td>
<td>$\Delta P = 72$ psid (5 bar) -10%</td>
</tr>
<tr>
<td>Bypass Valve Cracking Pressure</td>
<td>$\Delta P = 50.75$ psid (3.5 bar) +10% (optional) $\Delta P = 100$ psid (7 bar) +10% (standard)</td>
</tr>
</tbody>
</table>
### Model Code

**Filter Type**
- MFM = In-Line High Pressure Filter

**Element Media**
- ON = Optimicron® (Low Collapse)

**Size**
- 35 = 10 gpm
- 55 = 18 gpm
- 75 = 20 gpm
- 95 = 25 gpm

**Operating Pressure**
- O = 4000 psi (280 bar)

**Type of Connection**
- I = 3/4” Threaded SAE 12 (1-1/16-12UN-2B)
- H = 3/4” Threaded G 3/4 (BSPP)

**Filtration Rating (microns)**
- 1, 3, 5, 10, 15, 20 = ON

**Type of Clogging Indicator**
- A, B, BM, C, D (Others available upon request)

**Type Number**
- 4 = Indicator port on top of head - 4 mounting holes (standard)
- 3 = Indicator port on side of head - 3 mounting holes

**Type Modification Number (latest version always supplied)**

**Seals**
- (omit) = Nitrile rubber (NBR) (standard)
- V = Fluorocarbon elastomer (FKM)

**Bypass Valve**
- B3.5 = 50.75 psid (3.5 bar) - Optional
- B7 = 101.5 psid (7 bar) - Standard

**Supplementary Details**
- W = “VD...” indicator modified with a brass piston for use with high water based emulsions/solutions (HFA) & (HFC)
- L24, L48, L110, L220 = Lamp for D-type clogging indicator (LXX, XX = voltage)
- LED = 2 LEDs up to a voltage of 24 Volt
- T100 = Indicator Thermal Lockout, 100°F (C and D indicators only)
- SFREE = Element specially designed to minimize electrostatic charge generation
- cRUus = Electrical Indicator with underwriter’s recognition

### Replacement Element Model Code

**Size**
- 0035, 0055, 0075, 0095

**Filtration Rating (micron)**
- 1, 3, 5, 10, 15, 20 = ON

**Element Media**
- ON = Optimicron®

**Seals**
- (omit) = Nitrile rubber (NBR) (standard)
- V = Fluorocarbon elastomer (FKM)

**Supplementary Details**
- SFREE = (same as above)

### Clogging Indicator Model Code

**Indicator Prefix**
- VD = G 1/2 6000 psi

**Trip Pressure**
- 2 = 29 psid (2 bar) (option)
- 5 = 72 psid (5 bar) (standard)

**Type of Indicator**
- A = no indicator, plugged port
- B = Pop-up indicator (auto reset) - top mount only
- BM = Pop-up indicator (manual reset)
- C = Electric switch - SPDT
- D = Electric switch and LED light - SPDT

**Modification Number**

**Supplementary Details**
- Seals
  - (omit) = Nitrile rubber (NBR) (standard)
  - V = Fluorocarbon elastomer (FKM)
- Light Voltage (D type indicators only)
  - L24 = 24V
  - L110 = 110V
- Thermal Lockout (VM, VD types C, D, J, and J4 only)
  - T100 = Lockout below 100°F
- Underwriters Recognition (VM, VD types C, D, J, and J4 only)
  - cRUus = Electrical Indicator with underwriter’s recognition

(For additional details and options, see Section H - Clogging Indicators.)
**High Pressure Filters**

**PN#02081318**  
07.19 / FIL1907-2109

### Size and Weight

<table>
<thead>
<tr>
<th>Size</th>
<th>Weight (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>8.2</td>
</tr>
<tr>
<td>55</td>
<td>9.3</td>
</tr>
<tr>
<td>75</td>
<td>10.4</td>
</tr>
<tr>
<td>95</td>
<td>11.3</td>
</tr>
</tbody>
</table>

Dimensions shown are in inches and millimeters for general information and overall envelope size only. Weights listed include element. For complete dimensions please contact HYDAC to request a certified print.
Dimensions
MFM 3.X Version

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<th>Size</th>
<th>35</th>
<th>55</th>
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Dimensions shown are [inches] millimeters for general information and overall envelope size only. Weights listed include element.
For complete dimensions please contact HYDAC to request a certified print.
**Sizing Information**

Total pressure loss through the filter is as follows:

Assembly $\Delta P = \text{Housing } \Delta P + \text{Element } \Delta P$

**Housing Curve:**

Pressure loss through housing is as follows:

Housing $\Delta P = \text{Housing Curve } \Delta P \times \frac{\text{Actual Specific Gravity}}{0.86}$

Adjustments must be made for viscosity & specific gravity of the fluid to be used! (see “Sizing HYDAC Filter Assemblies” in Section B - Overview)

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**Element K Factors**

$\Delta P \text{ Elements} = \text{Elements (K) Flow Factor} \times \text{Flow Rate (gpm)} \times \frac{\text{Actual Viscosity (SUS)}}{141} \times \frac{\text{Actual Specific Gravity}}{0.86}$

(From Tables Below)

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<table>
<thead>
<tr>
<th>Optimicron</th>
<th>1 µm</th>
<th>3 µm</th>
<th>5 µm</th>
<th>10 µm</th>
<th>15 µm</th>
<th>20 µm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0035 D XXX ON</td>
<td>2.755</td>
<td>1.169</td>
<td>0.938</td>
<td>0.752</td>
<td>0.549</td>
<td>0.408</td>
</tr>
<tr>
<td>0055 D XXX ON</td>
<td>1.427</td>
<td>0.675</td>
<td>0.543</td>
<td>0.434</td>
<td>0.284</td>
<td>0.211</td>
</tr>
<tr>
<td>0075 D XXX ON</td>
<td>0.916</td>
<td>0.461</td>
<td>0.37</td>
<td>0.296</td>
<td>0.183</td>
<td>0.136</td>
</tr>
<tr>
<td>0095 D XXX ON</td>
<td>0.724</td>
<td>0.37</td>
<td>0.296</td>
<td>0.238</td>
<td>0.144</td>
<td>0.105</td>
</tr>
</tbody>
</table>

All Element K Factors in psi / gpm.