HIGH PRESSURE FILTERS

MFM Series
Inline Filters
4060 PSI • up to 25 GPM

Hydraulic Symbol

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” BSPP</td>
</tr>
<tr>
<td>Flow Direction</td>
<td>Inlet: Side</td>
</tr>
<tr>
<td></td>
<td>Outlet: Side (opposite each other)</td>
</tr>
<tr>
<td>Construction Materials</td>
<td>Head: Ductile iron</td>
</tr>
<tr>
<td></td>
<td>Bowl: Steel</td>
</tr>
<tr>
<td>Flow Capacity</td>
<td>35 gpm (35 lpm)</td>
</tr>
<tr>
<td></td>
<td>55 gpm (68 lpm)</td>
</tr>
<tr>
<td></td>
<td>75 gpm (76 lpm)</td>
</tr>
<tr>
<td></td>
<td>95 gpm (95 lpm)</td>
</tr>
<tr>
<td>Housing Pressure Rating</td>
<td>Max. Allowable Working Pressure</td>
</tr>
<tr>
<td></td>
<td>4060 psi (280 bar)</td>
</tr>
<tr>
<td>Fatigue Pressure</td>
<td>4060 psi (280 bar) @ 1 million cycles</td>
</tr>
<tr>
<td>Burst Pressure</td>
<td>4641 psi (320 bar) @ 100,000 cycles</td>
</tr>
<tr>
<td>13,920 psi (960 bar)</td>
<td></td>
</tr>
<tr>
<td>Element Collapse Pressure Rating</td>
<td>ON: 290 psi (20 bar)</td>
</tr>
<tr>
<td>Fluid Temperature Range</td>
<td>14°F to 212°F (-10°C to 100°C)</td>
</tr>
<tr>
<td>Fluid Compatibility</td>
<td>Consult HYDAC for applications operating below 14°F (-10°C)</td>
</tr>
<tr>
<td>Indicator Trip Pressure</td>
<td>ΔP = 72 psid (5 bar) -10%</td>
</tr>
<tr>
<td>Bypass Valve Cracking Pressure</td>
<td>ΔP = 50.75 psid (3.5 bar) +10% (optional)</td>
</tr>
<tr>
<td></td>
<td>ΔP = 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)
  
  *(Other connections available on request)*

**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

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# 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)*

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# 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)*
- **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
- **W** = “VD...” indicator modified with a brass piston
  - for use with high water based emulsions/solutions (HFA) & (HFC)

*(For additional details and options, see Section H - Clogging Indicators.)*
### Dimensions

#### MFM 4.X Version (Standard)

<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 [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.
Dimensions
MFM 3.X Version

<table>
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<th>75</th>
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</table>

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

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>...D...ON (Pressure Elements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>1 µm</td>
</tr>
<tr>
<td>0035 D XXX ON</td>
<td>2.755</td>
</tr>
<tr>
<td>0055 D XXX ON</td>
<td>1.427</td>
</tr>
<tr>
<td>0075 D XXX ON</td>
<td>0.916</td>
</tr>
<tr>
<td>0095 D XXX ON</td>
<td>0.724</td>
</tr>
</tbody>
</table>

All Element K Factors in psi / gpm.