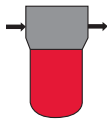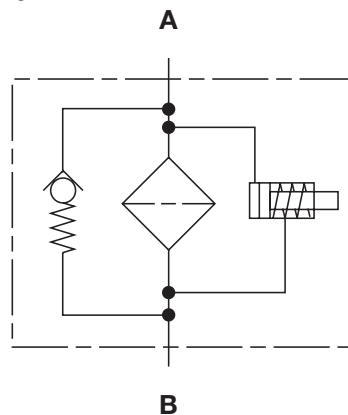# HIGH PRESSURE FILTERS
MFM Series
Inline Filters
4060 PSI • up to 25 GPM

Hydraulic Symbol

A

B

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

Mounting Method	4 mounting holes - filter head
Port Connection	SAE-12, 3/4" BSPP
Flow Direction	Inlet: Side Outlet: Side *(opposite each other)*
Construction Materials	
Head	Ductile iron
Bowl	Steel
Flow Capacity	
35	10 gpm (35 lpm)
55	18 gpm (68 lpm)
75	20 gpm (76 lpm)
95	25 gpm (95 lpm)
Housing Pressure Rating	
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)
Element Collapse Pressure Rating	
ON	290 psid (20 bar)
Fluid Temperature Range	14°F to 212°F (-10°C to 100°C)
Consult HYDAC for applications operating below 14°F (-10°C)	
Fluid Compatibility	
Compatible with all hydrocarbon based, synthetic, water glycol, oil/water emulsion, and high water based fluids when the appropriate seals are selected.	
Indicator Trip Pressure	
ΔP = 72 psid (5 bar) -10%	
Bypass Valve Cracking Pressure	
ΔP = 50.75 psid (3.5 bar) +10% *(optional)*	
ΔP = 100 psid (7 bar) +10% *(standard)*	

Model Code

MFM ON 35 O I 10 C 4 . 0 / V B7 ___

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, see Clogging Indicators section.)*

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
SO376 = Modification of ON and W/HC elements for HFA, HFB, HFC, and HFD flame retardant liquids

Replacement Element Model Code

0035 D 010 ON / V

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)*
SO376 = *(same as above)*
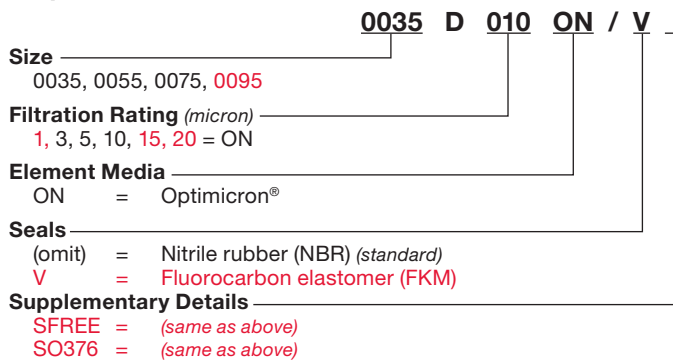
Clogging Indicator Model Code

VD 5 C . X / V

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

  W = "VD…" indicator modified with a brass piston
      for use with high water based emulsions/solutions
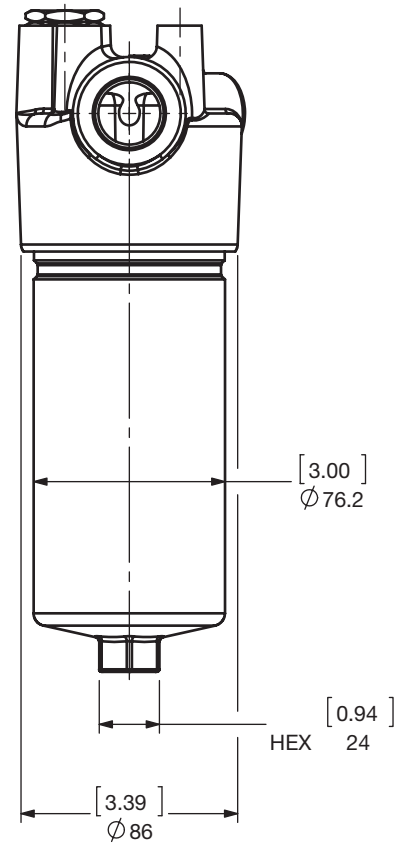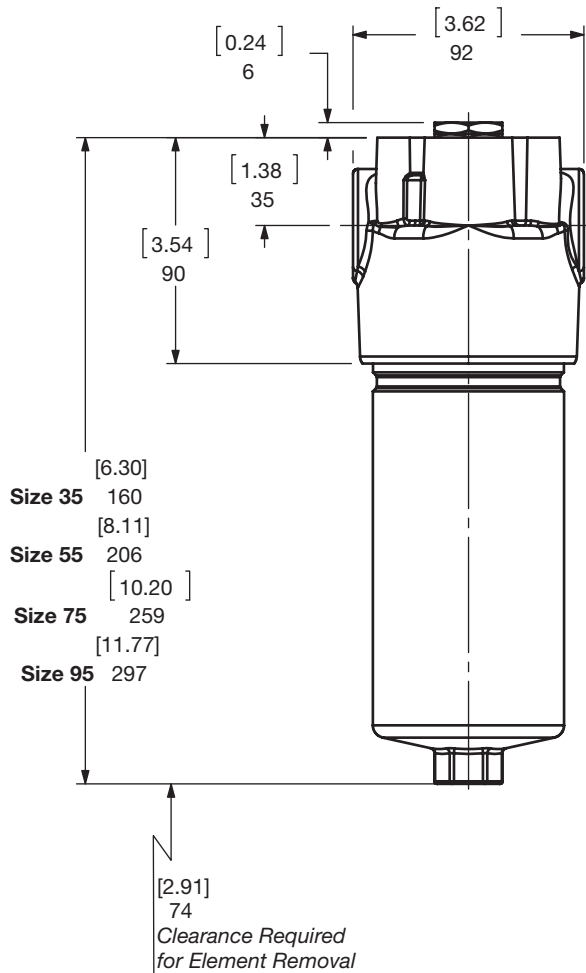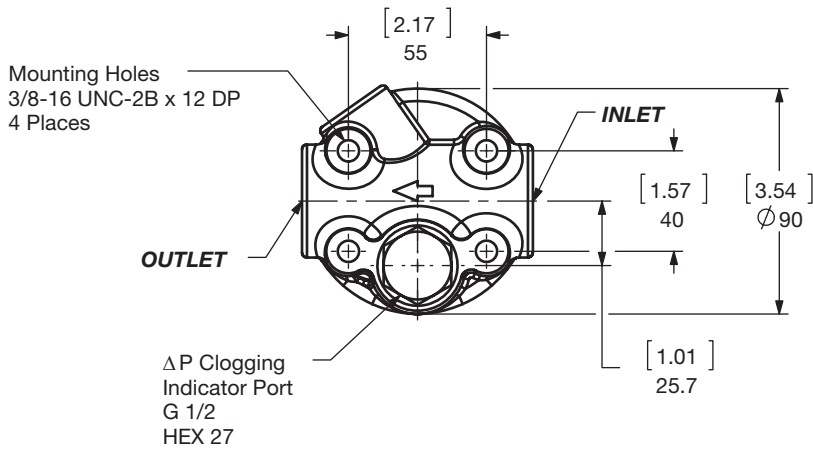   (HFA) & (HFC)

(For additional details and options, see Clogging Indicators section.)

Model Codes Containing RED are non-stock items — Minimum quantities may apply – Contact HYDAC for information and availability
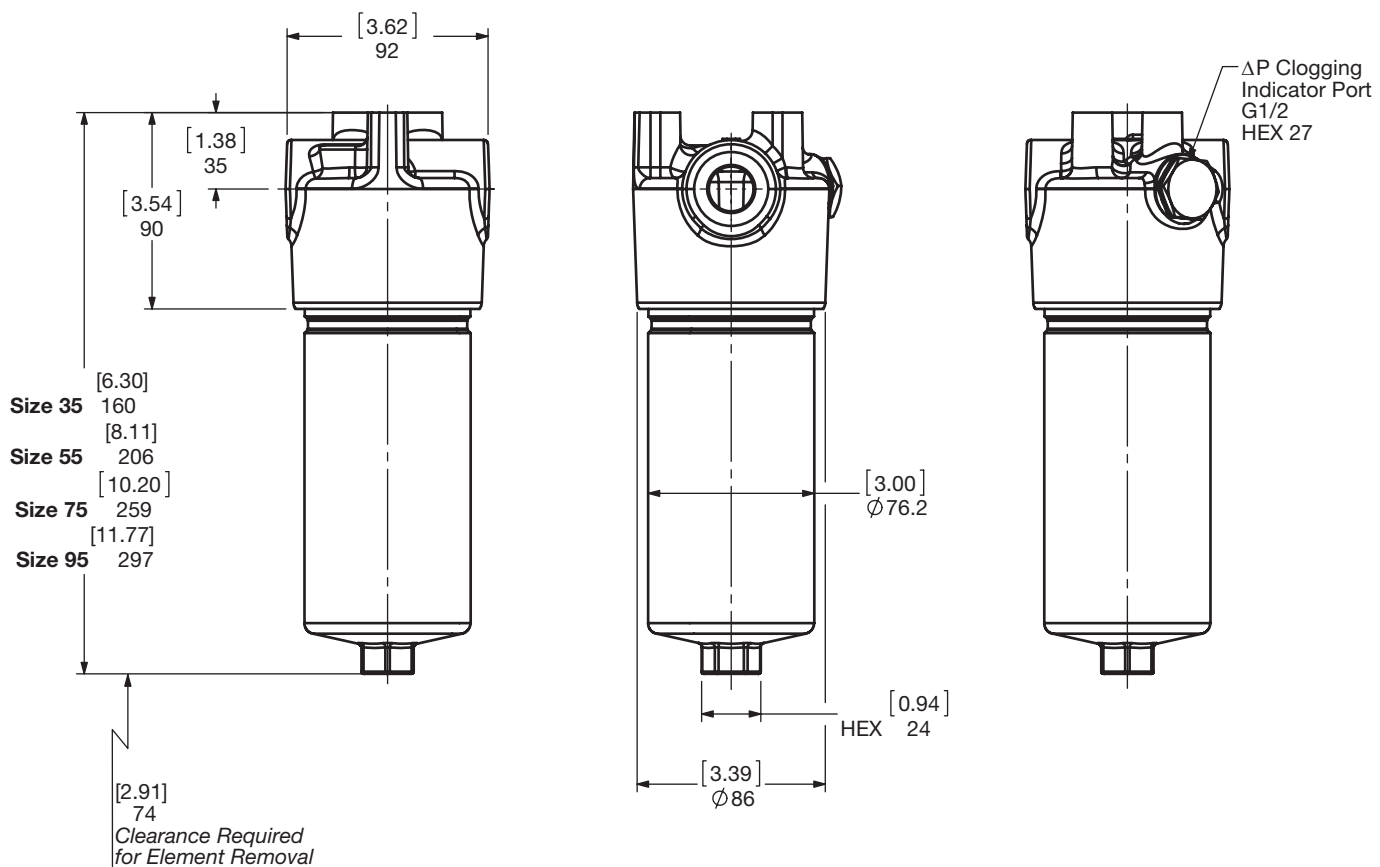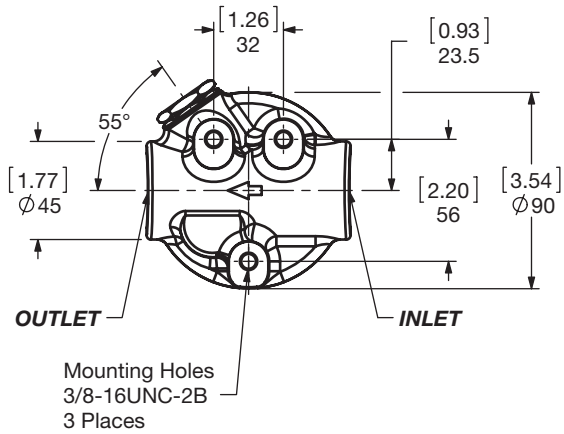
HIGH PRESSURE FILTERS

Dimensions
MFM 4.X Version (Standard)

Mounting Holes
3/8-16 UNC-2B x 12 DP
4 Places

INLET

OUTLET

$\left[\dfrac{2.17}{55}\right]$

$\left[\dfrac{1.57}{40}\right]$

$\left[\dfrac{3.54}{\varnothing 90}\right]$

$\left[\dfrac{1.01}{25.7}\right]$

Δ P Clogging
Indicator Port
G 1/2
HEX 27

$\left[\dfrac{0.24}{6}\right]$

$\left[\dfrac{3.62}{92}\right]$

$\left[\dfrac{1.38}{35}\right]$

$\left[\dfrac{3.54}{90}\right]$

Size 35 [6.30] 160

Size 55 [8.11] 206

Size 75 $\left[\dfrac{10.20}{259}\right]$

Size 95 [11.77] 297

[2.91]
74
Clearance Required
for Element Removal

$\left[\dfrac{3.00}{\varnothing 76.2}\right]$

$\left[\dfrac{0.94}{24}\right]$ HEX

$\left[\dfrac{3.39}{\varnothing 86}\right]$

Size	35	55	75	95
Weight (lbs.)	8.2	9.3	10.4	11.3

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

55°

[1.26] 32
[0.93] 23.5
[1.77] Ø45
[2.20] 56
[3.54] Ø90

OUTLET   **INLET**

Mounting Holes
3/8-16UNC-2B
3 Places

[3.62] 92
[1.38] 35
[3.54] 90

Size 35 [6.30] 160
Size 55 [8.11] 206
Size 75 [10.20] 259
Size 95 [11.77] 297

[2.91] 74
*Clearance Required
for Element Removal*

[3.00] Ø76.2
[0.94] HEX 24
[3.39] Ø86

ΔP Clogging
Indicator Port
G1/2
HEX 27

Size	35	55	75	95
Weight (lbs.)	8.2	9.3	10.4	11.3

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.

HIGH PRESSURE FILTERS

Sizing Information

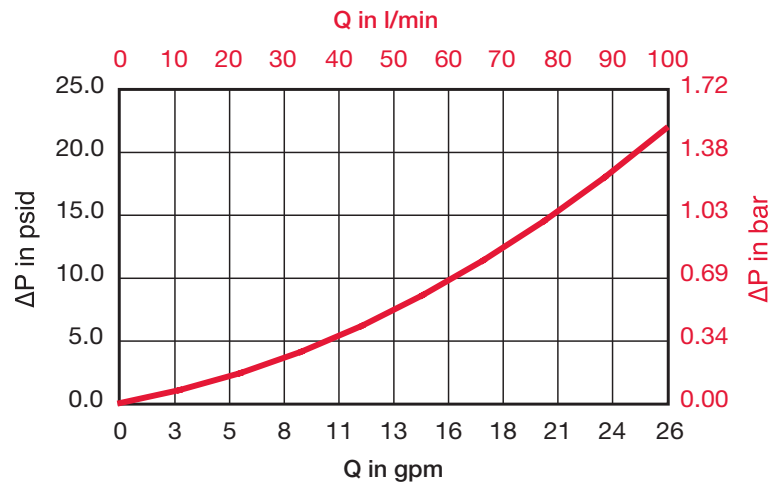Total pressure loss through the filter is as follows:

Assembly ΔP = Housing ΔP + Element ΔP

Housing Curve:

Pressure loss through housing is as follows:

Housing ΔP = Housing Curve ΔP x $\dfrac{\text{Actual Specific Gravity}}{0.86}$

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

Element K Factors

ΔP Elements = Elements (K) Flow Factor x Flow Rate (gpm) x $\dfrac{\text{Actual Viscosity (SUS)}}{141 \text{ SUS}}$ x $\dfrac{\text{Actual Specific Gravity}}{0.86}$
(From Tables Below)

Optimicron	...D...ON (Pressure Elements)					
Size	1 µm	3 µm	5 µm	10 µm	15 µm	20 µm
0035 D XXX ON	2.755	1.169	0.938	0.752	0.549	0.408
0055 D XXX ON	1.427	0.675	0.543	0.434	0.284	0.211
0075 D XXX ON	0.916	0.461	0.37	0.296	0.183	0.136
0095 D XXX ON	0.724	0.37	0.296	0.238	0.144	0.105

All Element K Factors in psi / gpm.

HYDAC

Notes