

# Spin-On Filter

# MF2



### Features and Benefits

- Spin-On with full ported cast iron head for minimal pressure drop
- Offered in pipe, SAE straight thread and ISO 228 porting
- Spin-On thread = 1.50-16UN-2B
- Various Dirt Alarm® options
- Available in 7" and 10" element lengths

**60 gpm**  
**230 L/min**  
**150 psi**  
**10 bar**

IRF  
 TF1  
 KF3  
 KL3  
 LF1  
 MLF1  
 RLD  
 GRTB  
 MTA  
 MTB  
 ZT  
 KFT

Model No. of filter in photograph is MF27M10SD5.

Flow Rating:	Up to 60 gpm (230 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	150 psi (10 bar)
Min. Yield Pressure:	250 psi (17 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2 bar) Full Flow: 48 psi (3 bar)
Porting Head:	Cast Iron
Element Case:	Steel
Weight of MF2-7M:	8.6 lbs. (3.9 kg)
Element Change Clearance:	1.50" (40 mm)

### Filter Housing Specifications

RT  
 RTI  
 LRT  
 ART  
 BFT  
 QT  
 KTK  
 LTK  
 MRT

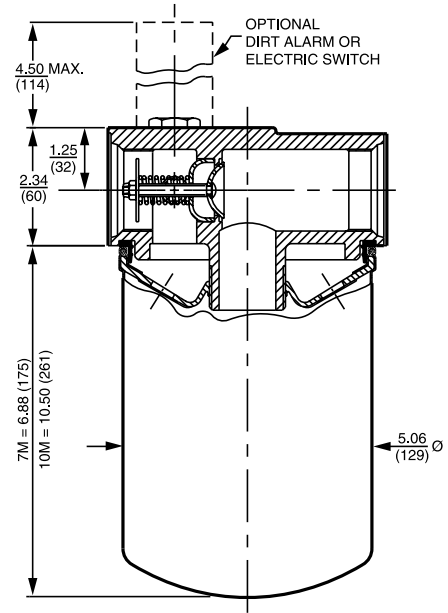
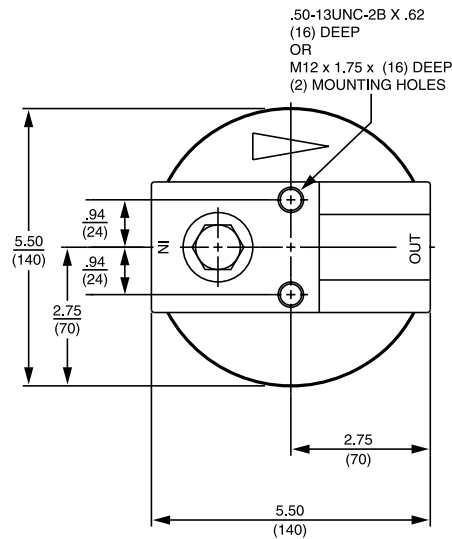
Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	3 and 10 μ Z-Media® (synthetic)
Invert Emulsions	10 μ Z-Media® (synthetic)
Water Glycols	3 and 10 μ Z-Media® (synthetic)

### Fluid Compatibility

### Accessories For Tank-Mounted Filters

PAF1  
 MAF1

**MF2**



SPIN-ON THREAD=1.50-16UN-2B

Installation instructions included on element.

Metric dimensions in ( ).

## Element Performance Information & Dirt Holding Capacity

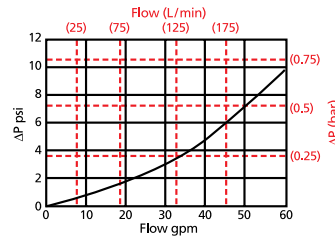
Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
7MZ3/10MZ3	<1.0	<1.0	<2.0	<4.0	4.8
7MZ10/10MZ10	7.4	8.2	10.0	8.0	10.0
10MZW10	N/A	N/A	N/A	6.9	8.6

Element	DHC (gm)	Element	DHC (gm)
7MZ3	105	10MZW10	53
7MZ10	104		

Element Collapse Rating: 100 psid (7 bar)  
 Flow Direction: Outside In  
 Element Nominal Dimensions: 7M: 5.0" (125 mm) O.D. x 7.0" (180 mm) long  
 10M: 5.0" (125 mm) O.D. x 10.5" (261 mm) long

$\Delta P_{\text{housing}}$

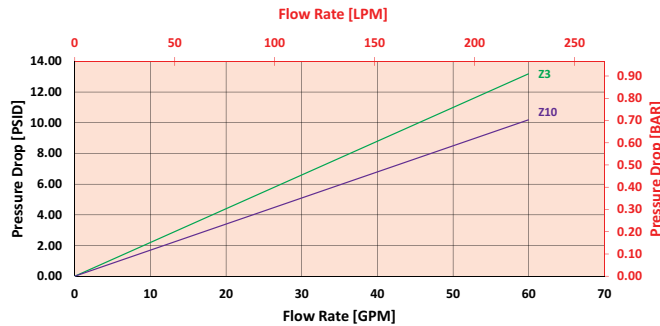
MF2  $\Delta P_{\text{housing}}$  for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

7MZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



**Pressure Drop Information Based on Flow Rate and Viscosity**

$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

**Exercise:**

Determine  $\Delta P_{\text{filter}}$  at 40 gpm (151.6 L/min) for MF27MZ10PD5 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine  $\Delta P_{\text{housing}}$  at 40 gpm. In this case,  $\Delta P_{\text{housing}}$  is 5 psi (.34 bar) on the graph for the MF2 housing.

Use the element pressure curve to determine  $\Delta P_{\text{element}}$  at 40 gpm. In this case,  $\Delta P_{\text{element}}$  is 7 psi (.48 bar) according to the graph for the 7M210 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the **Viscosity Factor ( $V_f$ )** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential,  $\Delta P_{\text{filter}}$ , is calculated by adding  $\Delta P_{\text{housing}}$  with the true element pressure differential, ( $\Delta P_{\text{element}} * V_f$ ). The  $\Delta P_{\text{element}}$  from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

**Solution:**

$\Delta P_{\text{housing}} = 5 \text{ psi } [.34 \text{ bar}] \mid \Delta P_{\text{element}} = 7 \text{ psi } [.48 \text{ bar}]$

$V_f = 160 \text{ SUS } (34 \text{ cSt}) / 150 \text{ SUS } (32 \text{ cSt}) = 1.1$

$\Delta P_{\text{filter}} = 5 \text{ psi } + (7 \text{ psi } * 1.1) = 12.7 \text{ psi}$

**OR**

$\Delta P_{\text{filter}} = .34 \text{ bar } + (.48 \text{ bar } * 1.1) = .87 \text{ bar}$

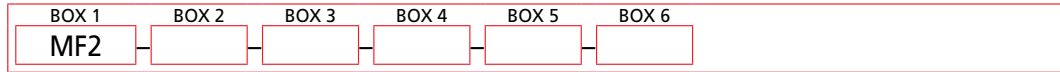
Note:

If your element is not graphed, use the following equation:  
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$  Plug this variable into the overall pressure drop equation.

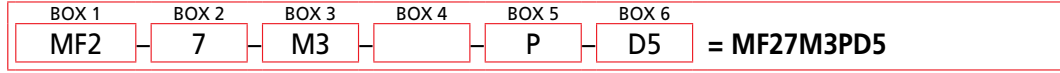
Ele.	$\Delta P$
7M3	0.23
7M10	0.14

## Filter Model Number Selection

### How to Build a Valid Model Number for a Schroeder MF2:



Example: Option 1 *NOTE: One option per box*



BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
<b>Filter Series</b>	<b>Element Length (in)</b>	<b>Element Size and Media</b>	<b>Seal Material</b>	<b>Porting Options</b>
MF2	7 10	M3 = M size 3 μ E media (cellulose) M10 = M size 10 μ E media (cellulose) MZ3 = M size 3 μ Excellement® Z-Media® (synthetic) MZ10 = M size 10 μ Excellement® Z-Media® (synthetic) MZW10 = M size 10 μ Aqua-Excellement™ ZW media MW = M size W media (water removal)	Omit = Buna N V = Viton®	P = 1¼" NPTF S = SAE-20 B = ISO 228 G-1¼"

BOX 6	
Dirt Alarm® Options	
	Omit = None
Visual	D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
Electrical	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
Electrical with Thermal Lockout	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 MS17LCT = Low current MS17T
Electrical Visual	MS13 = Supplied w/ threaded connector & light MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)
Electrical Visual with Thermal Lockout	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

**NOTES:**

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Replacement element part numbers for 7" length begin with M. Replacement element part numbers for 10" length begin with 10M.  
*Example:* M3; 10MZ3  
 10" only available with MZ3 and MZ10.

Box 3. ZW media only available for 10" element.

Box 4. Viton® is a registered trademark of DuPont Dow Elastomers.

Box 5. B porting option supplied with metric mounting holes.