

Spin-On Filter

MAF1



Features and Benefits

- Spin-On with full ported die cast aluminum head for minimal pressure drop
- Offered in pipe, SAE straight thread and ISO 228 porting
- Spin-On thread = 1.50-16UN-2B
- Visual gauge or electrical switch dirt alarms
- Small profile for use in limited space
- Available in 7" and 10" element lengths
- Available with NPTF inlet and outlet female test ports

50 gpm
190 L/min
100 psi
7 bar

Model No. of filter in photograph is MAF17M10S.

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

RT
 RTI

Flow Rating:	Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	200 psi (10 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 & Cap:	Die Cast Aluminum
Element Case:	Steel
Weight of MAF1-7M:	4.2 lbs. (1.9 kg)
Weight of MAF1-10M:	5.0 lbs. (2.3 kg)
Element Change Clearance:	2.50" (65 mm)

Filter Housing Specifications

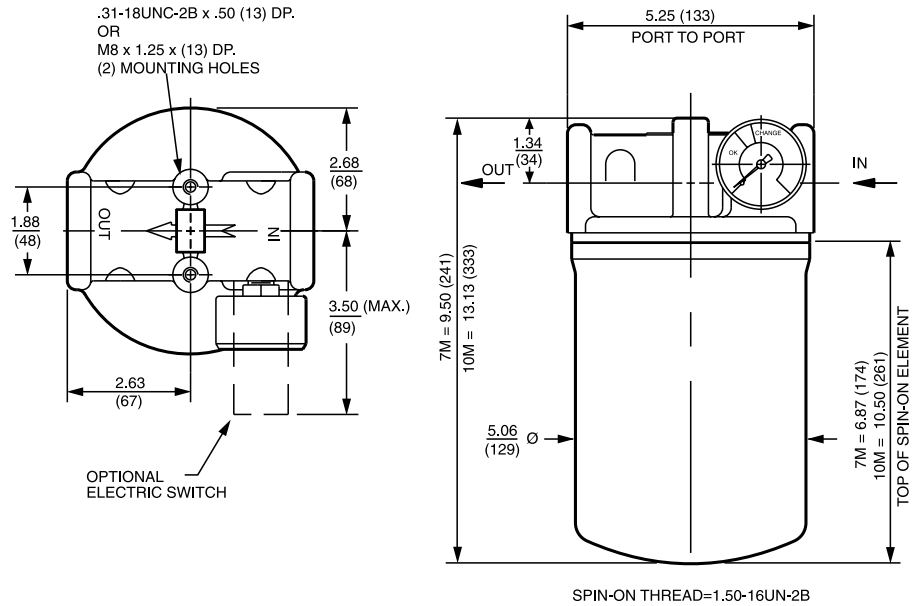
LRT
 ART
 BFT
 QT
 KTK
 LTK
 MRT

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



Installation instructions included on element.

Metric dimensions in ().

Element Performance Information & Dirt Holding Capacity

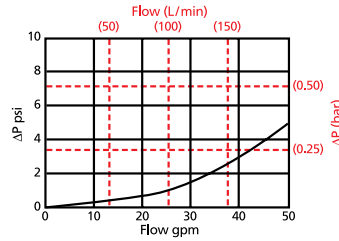
Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(\epsilon) \geq 200$	$\beta_x(\epsilon) \geq 1000$
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		
7MZ10	104	10MZW10	53

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

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

MAF1 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:

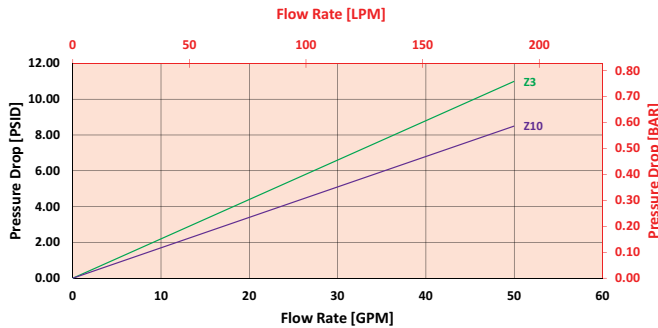


Pressure Drop Information Based on Flow Rate and Viscosity

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

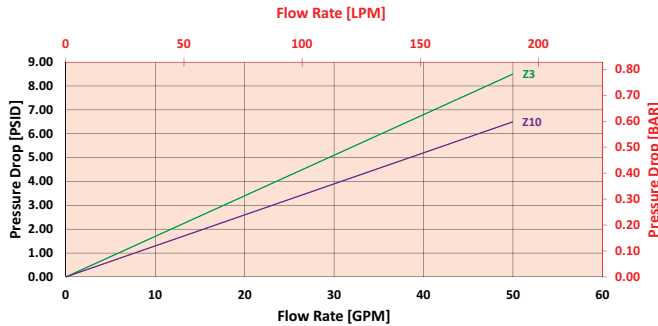
7MZ

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



10MZ

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



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

Exercise:

Determine ΔP_{filter} at 40 gpm (151.6 L/min) for MAF17MZ10PY2 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 3 psi (.21 bar) on the graph for the MAF1 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 7MZ10 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, ΔP_{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:

$$\Delta P_{\text{housing}} = 3 \text{ psi } [.21 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 7 \text{ psi } [.48 \text{ bar}]$$

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

$$\Delta P_{\text{filter}} = 3 \text{ psi } + (7 \text{ psi } * 1.1) = 10.7 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .21 \text{ bar } + (.48 \text{ bar } * 1.1) = .74 \text{ bar}$$

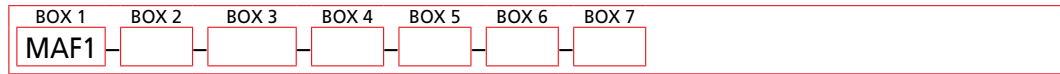
Note:

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.

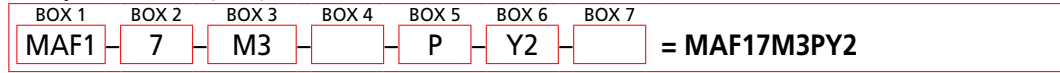
Ele.	ΔP
7M3	0.23
7M10	0.14

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MAF1:



Example: NOTE: One option per box



BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Element Length (in)	Element Size and Media	Seal Material
MAF1	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®

BOX 5	BOX 6	BOX 7
Porting Options	Dirt Alarm® Options	Additional Options
P = 1¼" NPTF S = SAE-20 B = ISO 228 G-1¼"	Omit = None Visual Y2 = Back-mounted tri-color gauge Electrical ES = Electric switch	Omit = None L = Two ½" NPTF inlet and outlet female test ports

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. Examples: M3V; 10MZ3V 10" only available with MZ3 and MZ10.

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

Box 4. For option V, all aluminum parts are anodized. Viton® is a registered trademark of DuPont Dow Elastomers.

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