

Top-Ported Pressure Filter

VF60



Features and Benefits

- Top-ported high pressure filter
- Threaded bowl for easy element servicing
- Offered in pipe, SAE straight thread and ISO 228 porting
- Various dirt alarm options available

70 gpm
265 L/min
6000 psi
415 bar

NF30
 NFS30
 YF30
 CFX30
 PLD
 CF40
 DF40
 PF40
 RFS50
 RF60
 CF60
 CTF60
VF60

Model No. of filter in photograph is VF609VZ10SD5.

LW60
 KF30
 KF50
 TF50
 KC50

Flow Rating:	Up to 70 gpm (265 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (415 bar)
Min. Yield Pressure:	15,500 psi (1070 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	3300 psi (230 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 50 psi (3.5 bar) Full Flow: 65 psi (4.5 bar)
Porting Head:	Ductile Iron
Element Case:	Steel
Weight of VF60-9V:	24.0 lbs. (10.9 kg)
Element Change Clearance:	4.0" (103 mm)

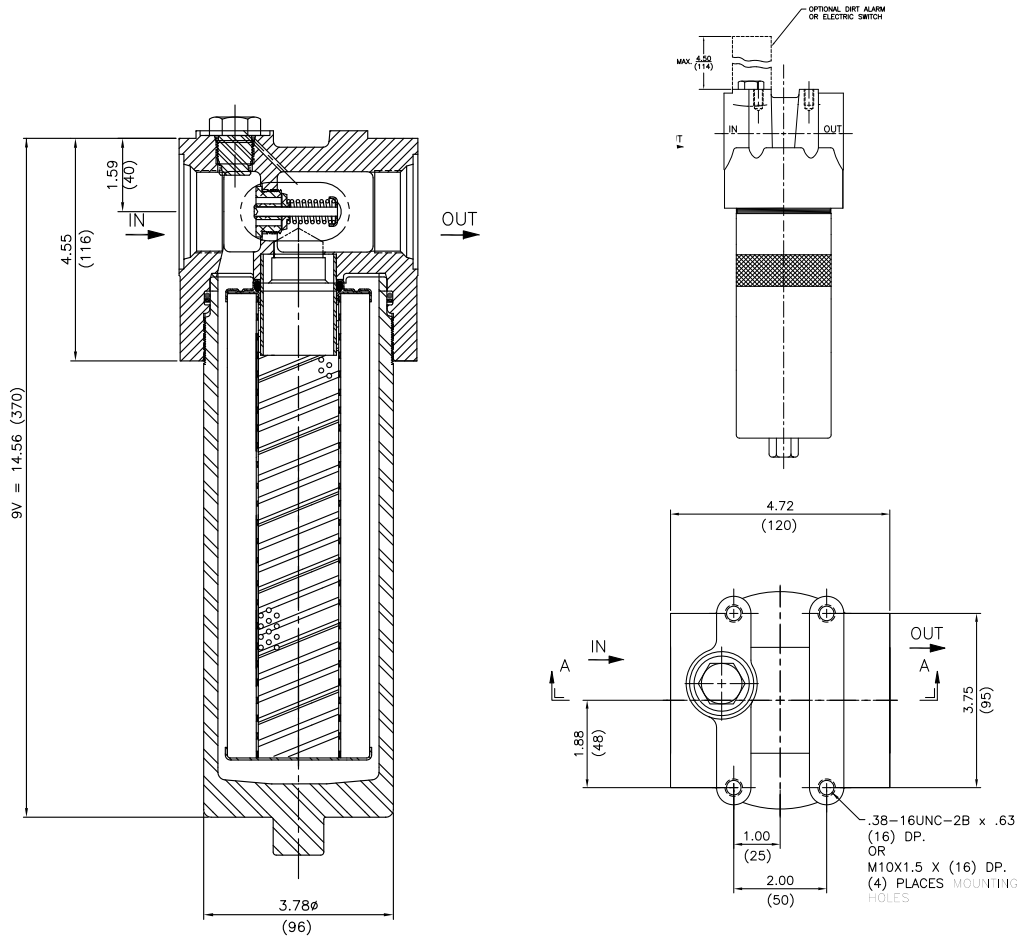
Filter Housing Specifications

MKF50
 MKC50
 KC65
 HS60
 MHS60
 KFH50
 LC60
 LC35
 LC50

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E-Media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Fluid Compatibility

NOF30-05
 NOF-50-760
 FOF60-03
 NMF30
 RMF60
 14-CRZX10
 20-CRZX10



Metric dimensions in ().
 Dimensions shown are inches (millimeters) for general information and overall envelope size only.
 For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

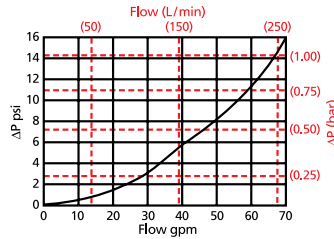
Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(\alpha) \geq 200$	$\beta_x(\alpha) \geq 1000$
9VZ1	<1.0	<1.0	<1.0	<4.0	4.2
9VZ3	<1.0	<1.0	<2.0	<4.0	4.8
9VZ5	2.5	3.0	4.0	4.8	6.3
9VZ10	7.4	8.2	10.0	8.0	10.0
9VZ25	18.0	20.0	22.5	19.0	24.0

Element	DHC (gm)
9VZ1	55
9VZ3	57
9VZ5	62
9VZ10	60
9VZ25	61

Element Collapse Rating: 150 psid (10 bar) for standard elements
 Flow Direction: Outside In
 Element Nominal Dimensions: 9V: 2.9" (75 mm) O.D. x 9.5" (240 mm) long

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

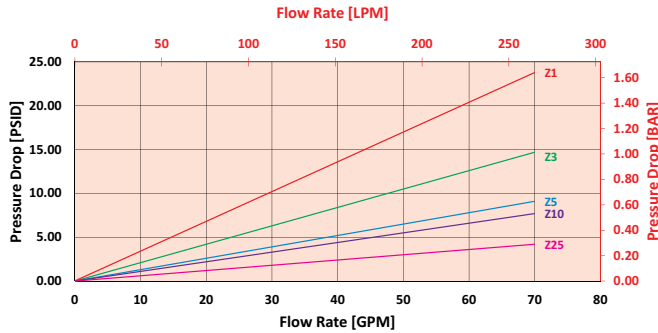
VF60 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



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

9VZ

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 ΔP_{filter} at 40 gpm (151 L/min) for VF609VZ15 using 120 SUS (25.5 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 40 gpm. In this case, $\Delta P_{\text{housing}}$ is 6 psi (.42 bar) on the graph for the VF60 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 40 gpm. In this case, $\Delta P_{\text{element}}$ is 13 psi (.90 bar) according to the graph for the 9VZ1 element.

Because the viscosity in this sample is 120 SUS (25.5 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:

$$\Delta P_{\text{housing}} = 6 \text{ psi } [.42 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 13 \text{ psi } [.90 \text{ bar}]$$

$$V_f = 120 \text{ SUS } (25.5 \text{ cSt}) / 150 \text{ SUS } (32 \text{ cSt}) = .80$$

$$\Delta P_{\text{filter}} = 6 \text{ psi } + (13 \text{ psi } * .80) = 16.4 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .42 \text{ bar } + (.90 \text{ bar } * .80) = 1.14 \text{ bar}$$

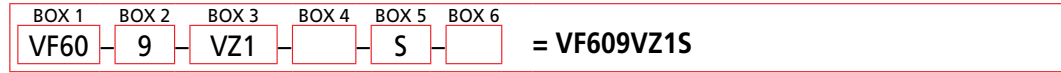
Note:

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
9V3	0.32
9V10	0.24

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder VF60:



BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Element Length (in)	Element Size and Media	Seal Material
VF60	9	V3 = V size 3 μ E media (cellulose) V10 = V size 10 μ E media (cellulose) VZ1 = V size 1 μ Excellement® Z-Media® (synthetic) VZ3 = V size 3 μ Excellement® Z-Media® (synthetic) VZ5 = V size 5 μ Excellement® Z-Media® (synthetic) VZ10 = V size 10 μ Excellement® Z-Media® (synthetic) VZ25 = V size 25 μ Excellement® Z-Media® (synthetic) VM150 = V size 150 μ M media (reusable metal)	Omit = Buna N V = Viton® H = EPR

BOX 5	BOX 6
Inlet Port	Dirt Alarm® Options
P = 1¼" NPTF S = SAE-20 B = ISO 228 G-1¼"	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 MS13DC = Supplied w/ threaded connector & light MS14DC = 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.

Box 2. Example: 9VZ1V synthetic media elements are only available with Viton seals.

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

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