Manifold Mounted Pressure Filter **RFS50**

Model No. of filter in photograph is RFS508R10O.

Features and Benefits

- Manifold mounted high pressure filter
- Offered in square head conventional subplate porting
- Direct mounting to customer's manifold
- Standard drain plug in bowl for easy servicing
- Various dirt alarm options available

30 gpm
115 L/min
5000 psi
345 bar

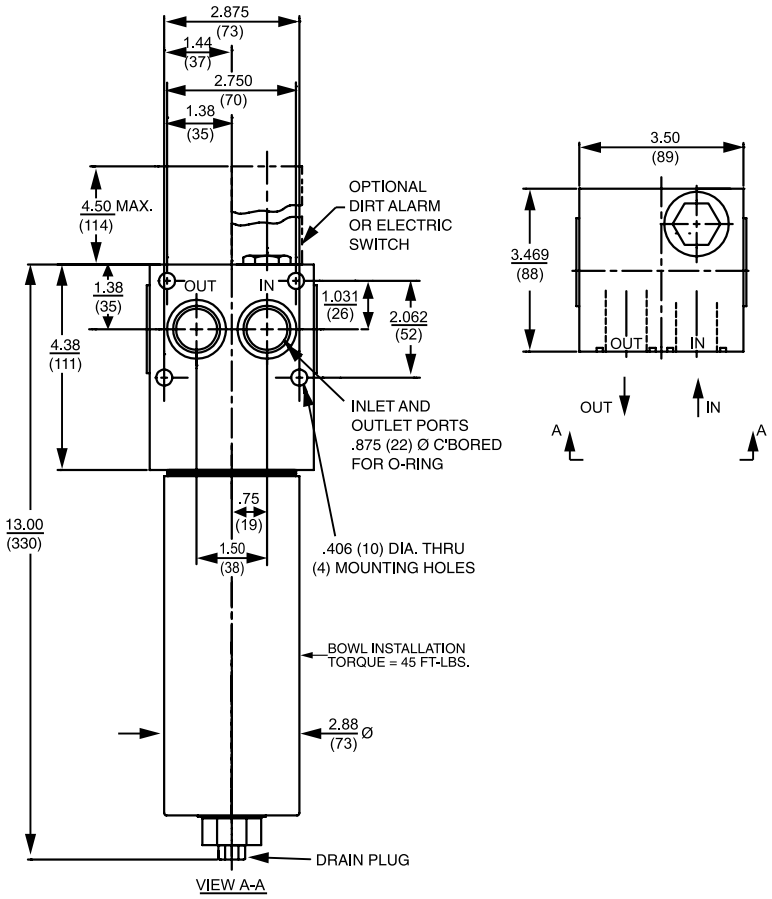
Filter Housing Specifications

Flow Rating:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,500 psi (1070 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: 40 psi (2.8 bar) Full Flow: 56 psi (3.9 bar)
Porting Head: Element Case:	Steel Steel
Weight of RFS50-8R:	16.50 lbs. (7.5 kg)
Element Change Clearance:	3.0" (75 mm)

Fluid Compatibility

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)

RFS50 Manifold Mounted Pressure Filter



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

	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	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
8RZ1	<1.0	<1.0	<1.0	<4.0	4.2
8RZ3	<1.0	<1.0	<2.0	<4.0	4.8
8RZ5	2.5	3.0	4.0	4.8	6.3
8RZ10	7.4	8.2	10.0	8.0	10.0
8RZ25	18.0	20.0	22.5	19.0	24.0

Element	DHC (gm)
8RZ1	33
8RZ3	26
8RZ5	51
8RZ10	29
8RZ25	30

Element Collapse Rating: 150 psid (10 bar) for standard elements

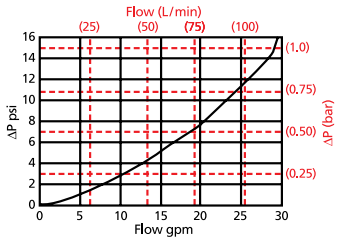
Flow Direction: Outside In

Element Nominal Dimensions: 2.18" (55 mm) O.D. x 8.15" (206 mm) long

Pressure Drop Information
Based on Flow Rate and Viscosity

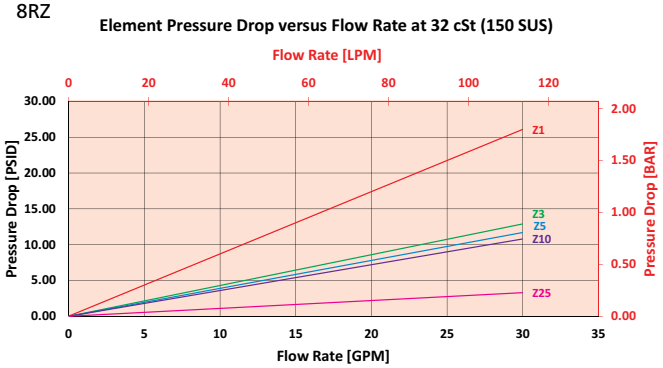
$\Delta P_{housing}$

RFS50 $\Delta P_{housing}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{element}$

8RZ



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

Exercise:

Determine ΔP_{filter} at 15 gpm (57 L/min) for RFS508RZ10VOD5 using 200 SUS (42.6 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{housing}$ at 15 gpm. In this case, $\Delta P_{housing}$ is 5 psi (.34 bar) on the graph for the RFS50 housing.

Use the element pressure curve to determine $\Delta P_{element}$ at 15 gpm. In this case, $\Delta P_{element}$ is 5 psi (.34 bar) according to the graph for the 8RZ10 element.

Because the viscosity in this sample is 200 SUS (42.6 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 $\Delta P_{housing}$ with the true element pressure differential, ($\Delta P_{element} * V_f$). The $\Delta P_{element}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$\Delta P_{housing}$ = 5 psi [.34 bar] | $\Delta P_{element}$ = 5 psi [.34 bar]

V_f = 200 SUS (42.6 cSt) / 150 SUS (32 cSt) = 1.3

ΔP_{filter} = 5 psi + (5 psi * 1.3) = 11.5 psi

OR

ΔP_{filter} = .34 bar + (.34 bar * 1.3) = .78 bar

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

Ele.	ΔP
8R3	0.35
8R10	0.30

RFS50 Manifold Mounted Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder RFS50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
RFS50 –		–		–		–

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5			
RFS50 –	8 –	RZ10 –	V –	O –		– D5	= RFS508RZ10VOD5

BOX 1

Filter Series
RFS50

BOX 2

Element Length (in)
8

BOX 3

Element Size and Media
R3 = R size 3 µ E media (cellulose)
R10 = R size 10 µ E media (cellulose)
RZ1 = R size 1 µ Excellement® Z-Media® (synthetic)
RZ3 = R size 3 µ Excellement® Z-Media® (synthetic)
RZ5 = R size 5 µ Excellement® Z-Media® (synthetic)
RZ10 = R size 10 µ Excellement® Z-Media® (synthetic)
RZ25 = R size 25 µ Excellement® Z-Media® (synthetic)

BOX 4

Seal Material
Omit = Buna N
H = EPR
V = Viton®

BOX 5

Inlet Port
O = Manifold mounting

BOX 6

Options
Omit = None
X = Blocked bypass
50 = 50 psi bypass setting
L = Two ¼" NPTF inlet and outlet female test ports
U = Schroeder Check 7/16"-20 UNF Test Point installation in head (upstream)

BOX 7

	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	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 3. Example: 8RZ1V synthetic media elements are only available with Viton seals.

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

Box 5. For option O, O-rings included, fastening hardware not included.