Manifold Mounted Pressure Filter RFS50

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

Model No. of filter in photograph is RFS508R10OD5.

STEEL MAKING

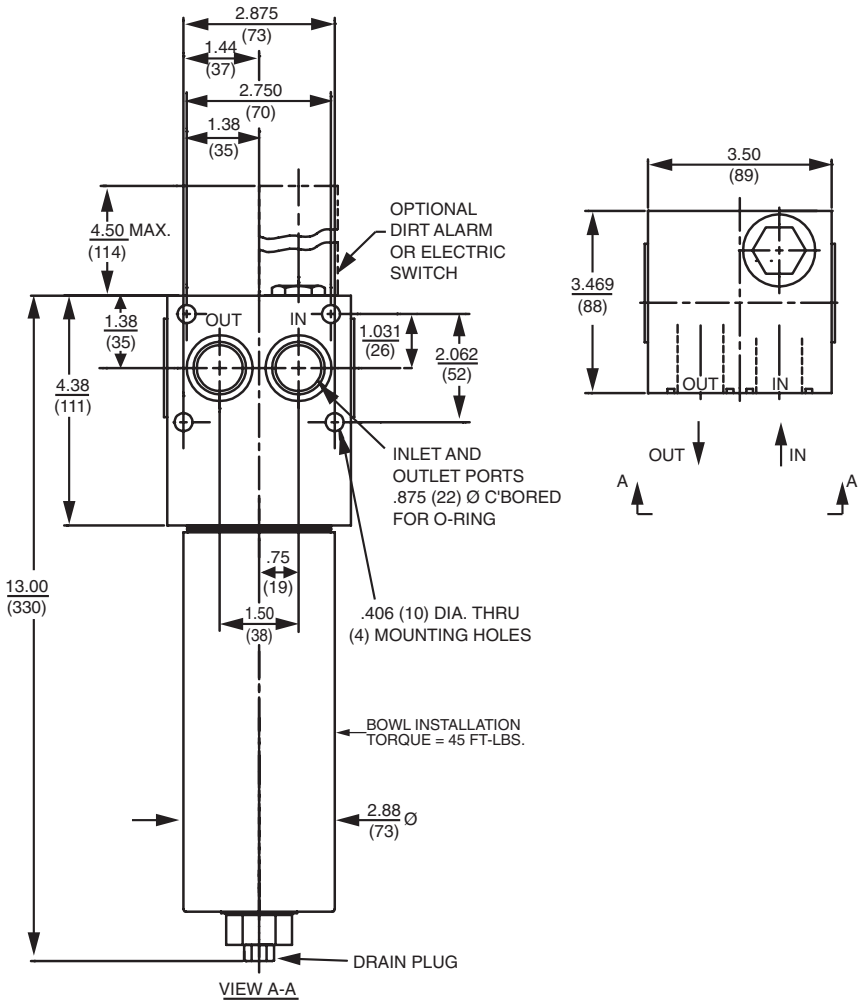
MOBILE VEHICLES

Applications

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)
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)

Filter Housing Specifications

RFS50 Manifold Mounted Pressure Filter



Metric dimensions in ( ).

Element Performance Information

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio wrt ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
8R3	6.8	7.5	10.0	N/A	N/A
8R10	15.5	16.2	18.0	N/A	N/A
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

Dirt Holding Capacity

Element	DHC (gm)
8R3	6
8R10	7
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

Manifold Mounted Pressure Filter RFS50

Fluid Compatibility

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

Skydrol is a registered trademark of Solutia Inc.

Element Selection
Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 40 psi (2.8 bar) bypass valve.
To 5000 psi (345 bar)	E Media	8R3	8R3
		8R10	8R10
	Z Media	8RZ1	8RZ1
		8RZ3	8RZ3
		8RZ5	8RZ5
		8RZ10	8RZ10
		8RZ25	8RZ25
	Flow	gpm	0 10 15 20 25 30
		(L/min)	0 50 75 100 115

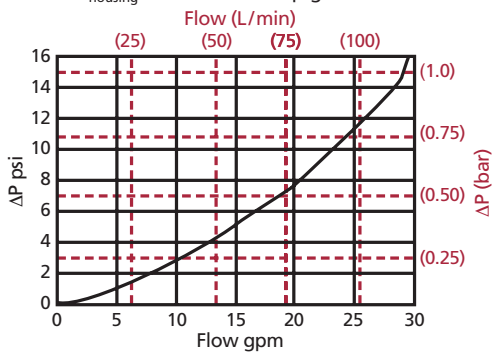
Shown above are the elements most commonly used in this housing.

Note: *Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 19 and 20.*

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

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



sp gr = specific gravity

$\Delta P_{element}$

$\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

8R3	.35
8R10	.30
8RZ1	.87
8RZ3	.43
8RZ5	.39
8RZ10	.36
8RZ25	.11

If working in units of bars & L/min, divide above factor by 54.9.

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

Notes

$\Delta P_{filter} = \Delta P_{housing} + \Delta P_{element}$

Exercise:
Determine ΔP at 15 gpm (57 L/min) for RFS508R10OD5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 5.0 psi [.38 bar]

$\Delta P_{element}$ = 15 x .30 x (200÷150) = 6.0 psi
or
= [57 x (.30÷54.9) x (44÷32) = .41 bar]

ΔP_{total} = 5.0 + 6.0 = 11.0 psi
or
= [.38 + .41 = .79 bar]

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 –		–		–		–		–		–	

Example: *NOTE: Only box 6 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
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® media (synthetic)
RZ3 = R size 3 µ Excellement media (synthetic)
RZ5 = R size 5 µ Excellement media (synthetic)
RZ10 = R size 10 µ Excellement media (synthetic)
RZ25 = R size 25 µ Excellement 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	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. *Example*: 8RZ1V
E media (cellulose) elements are only available with Buna N seals.

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

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