Manifold Mounted Pressure Filter NFS30

Model No. of filter in photograph is NFS301NZ3OD5.

Features and Benefits

- Manifold mounted pressure filter
- Offered in square head conventional subplate porting
- Direct mounting to inlet port on customer's manifold

20 gpm
75 L/min
3000 psi
210 bar

Filter Housing Specifications

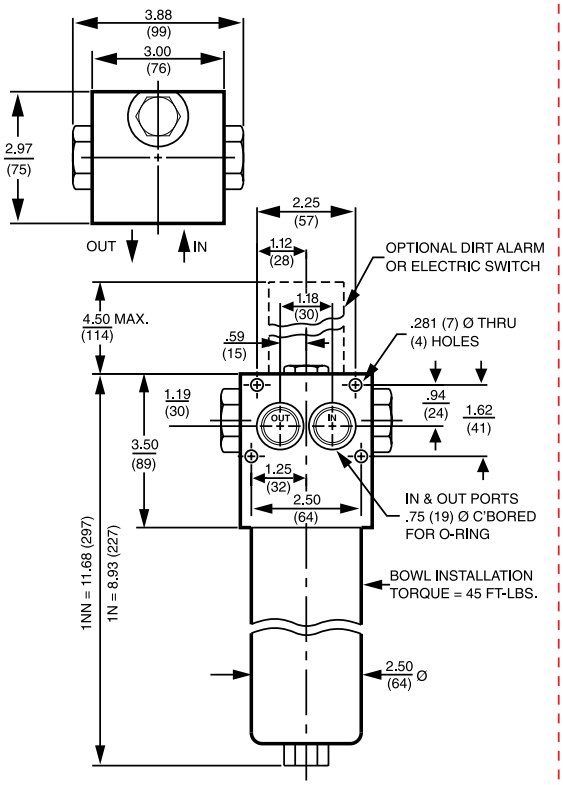
Flow Rating:	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)
Min. Yield Pressure:	10,000 psi (690 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	2400 psi (165 bar), per NFPA T2.6.1
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 85 psi (5.9 bar)
Porting Head: Element Case:	Aluminum Aluminum
Weight of NFS30-1N: Weight of NFS30-1NN:	3.6 lbs. (1.6 kg) 4.3 lbs. (2.0 kg)
Element Change Clearance:	4.50" (115 mm)

Fluid Compatibility

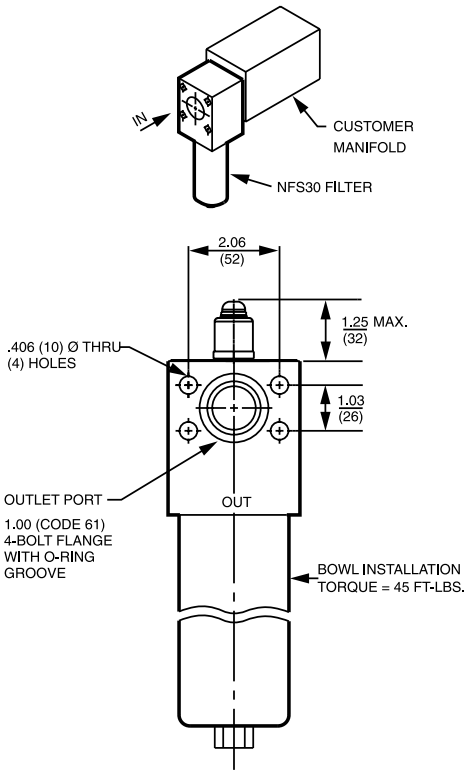
Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® and 10 µ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® and 3, 5 and 10 µ ASP® Media (synthetic)

NFS30 Manifold Mounted Pressure Filter

NFS30 WITH "O" PORT CONFIGURATION



NFS30 WITH PO, SO, FO PORT CONFIGURATIC



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	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
NZ1/NNZ1	<1.0	<1.0	<1.0	<4.0	4.2
NZ3/NNZ3	<1.0	<1.0	<2.0	<4.0	4.8
NZ5/NNZ5	2.5	3.0	4.0	4.8	6.3
NZ10/NNZ10	7.4	8.2	10.0	8.0	10.0
NZ25/NNZ25	18.0	20.0	22.5	19.0	24.0

Element	DHC (gm)	Element	DHC (gm)
NZ1	12	NNZ1	15
NZ3	12	NNZ3	16
NZ5	12	NNZ5	18
NZ10	11	NNZ10	15
NZ25	11	NNZ25	15

Element Collapse Rating: 150 psid (10 bar) for standard elements
3000 psid (210 bar) for high collapse (ZX) versions

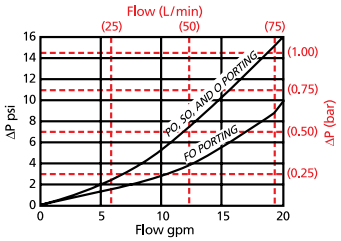
Flow Direction: Outside In

Element Nominal Dimensions: N: 1.75" (45 mm) O.D. x 5.25" (135 mm) long
NN: 1.75" (45 mm) O.D. x 8.0" (200 mm) long

Pressure Drop Information
Based on Flow Rate and Viscosity

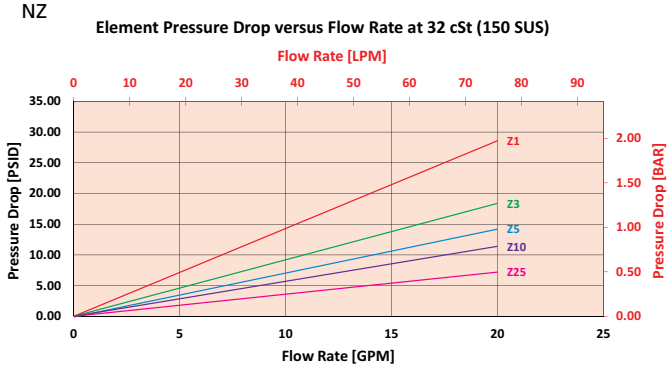
$\Delta P_{housing}$

NFS30 $\Delta P_{housing}$ for fluids with sp gr (specific gravity) = 0.86:

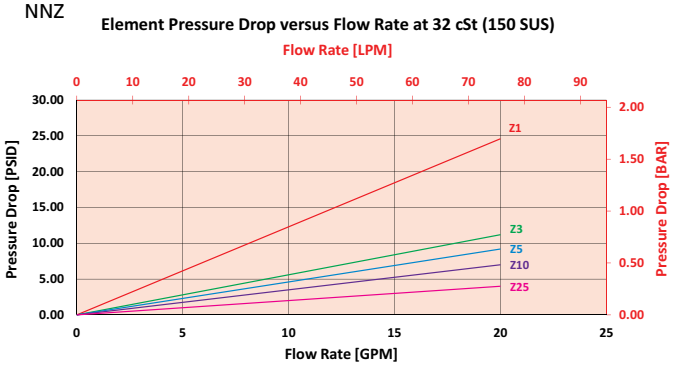


$\Delta P_{element}$

NZ



NNZ



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

Exercise:

Determine ΔP_{filter} at 15 gpm (57 L/min) for NFS301NZ10SO using 175 SUS (37.2 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{housing}$ at 15 gpm. In this case, $\Delta P_{housing}$ is 10 psi (.69 bar) on the graph for the NFS30 housing.

Use the element pressure curve to determine $\Delta P_{element}$ at 15 gpm. In this case, $\Delta P_{element}$ is 8 psi (.55 bar) according to the graph for the NZ10 element.

Because the viscosity in this sample is 175 SUS (37.2 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:

$\Delta P_{housing}$ = 10 psi [.69 bar] | $\Delta P_{element}$ = 8 psi [.55 bar]

V_f = 175 SUS (37.2 cSt) / 150 SUS (32 cSt) = 1.2

ΔP_{filter} = 10 psi + (8 psi * 1.2) = 19.6 psi

OR

ΔP_{filter} = .69 bar + (.55 bar * 1.2) = 1.35 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	Ele.	ΔP
N3	1.10	NN3	0.77
N10	0.17	NN10	0.13
N25	0.10	NN25	0.07
NAS3	0.92	NNAS3	0.56
NAS5	0.71	NNAS5	0.46
NAS10	0.57	NNAS10	0.35

NFS30 Manifold Mounted Pressure Filter

Filter Model Number Selection

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
NFS30 –		–		–		–	

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
NFS30 –	1N –	Z –	10 –		SO –		D	= NFS301NZ10SOD

BOX 1 — Filter Series

NFS30
NFSN30 (Non-bypassing: requires ZX high collapse elements)

BOX 2 — Number & Size of Elements

1	N = Single Length
	NN = Double Length

BOX 3 — Media Type

Omit	= E Media (Cellulose)
Z	= Excellement® Z-Media® (synthetic)
AS	= Anti-Stat Media (synthetic)
ZX	= Excellement® Z-Media® (high collapse center tube)
M	= Media (reusable metal mesh) N size only

BOX 4 — Micron Rating

1	= 1 Micron (Z, ZX media)
3	= 3 Micron (AS,E, Z, ZX media)
5	= 5 Micron (AS, Z, ZX media)
10	= 10 Micron (AS,E,M, Z, ZX media)
25	= 25 Micron (E, Z, ZX media)
60	= 60 Micron (M media)

BOX 5 — Seal Material

Omit	= Buna N
V	= Viton®
W	= Buna N, *Anodized Aluminum parts*

BOX 6 — Porting

SO	= SAE-12
PO	= ¾" NPTF
FO	= 1" SAE 4-bolt flange Code 61
O	= Manifold

BOX 7 — Options

Omit	= None
X	= Blocked bypass (N/A with NFSN30)

BOX 8 — Dirt Alarm® Options

	Omit =	None
Visual	D =	Pointer
	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 identical to contents of Boxes 2, 3, 4 and 5.

Box 5. E media (cellulose) elements are only available with Buna N seals. For options V and W, all aluminum parts are anodized. Viton® is a registered trademark of DuPont Dow Elastomers.

Box 6. For option O, O-rings included; fastening hardware not included.

Box 8. For options SO, PO and FO, available dirt alarm is D only.