

Top-Ported Pressure Filter

NF30



Features and Benefits

- Top-ported pressure filter
- All aluminum assembly
- Available with non-bypass option with high collapse element
- Offered in pipe, SAE straight thread and ISO 228 porting
- Same day shipment model available

20 gpm
75 L/min
3000 psi
210 bar

NF30

NFS30

YF30

CFX30

PLD

CF40

DF40

PF40

RFS50

RF60

CF60

CTF60

VF60

LW60

KF30

KF50

TF50

KC50

MKF50

MKC50

KC65

HS60

MHS60

KFH50

LC60

LC35

LC50

NOF30-05

NOF-50-760

FOF60-03

NMF30

RMF60

14-CRZX10

20-CRZX10

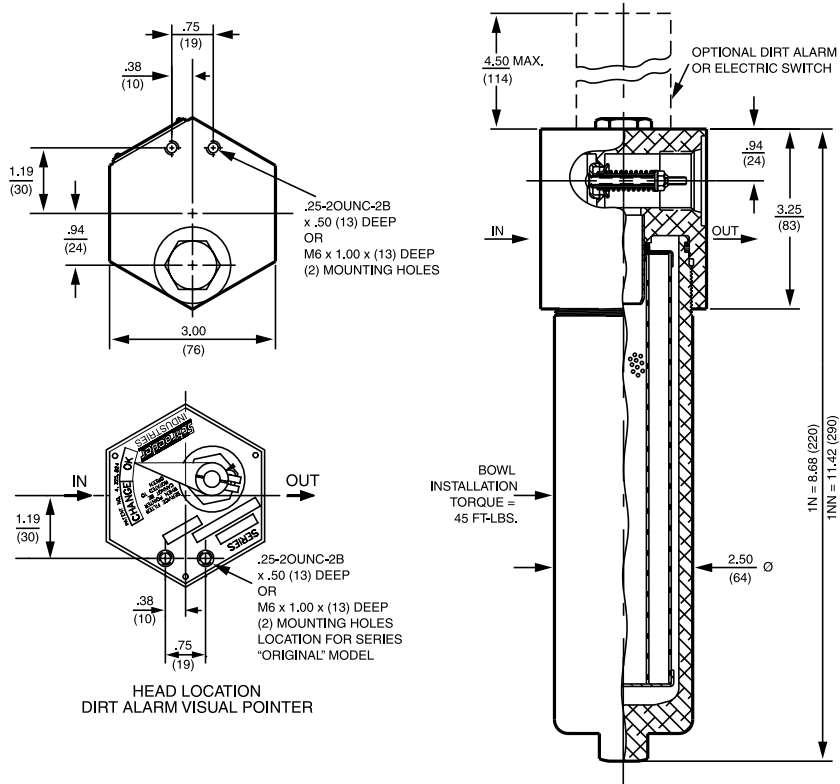
Model No. of filter in photograph is NF301NZ10SD5.

| | |
|---------------------------|--|
| 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) Non-bypassing model has a blocked bypass. |
| Porting Head: | Aluminum |
| Element Case: | Aluminum |
| Weight of NF30-1N: | 3.4 lbs. (1.5 kg) |
| Weight of NF30-1NN: | 4.4 lbs. (2.0 kg) |
| Element Change Clearance: | 4.50" (115 mm) |

Filter Housing Specifications

| 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) |

Fluid Compatibility



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 | |
|------------|--|--------------------|--------------------|--|------------------------|
| | $\beta_x \geq 75$ | $\beta_x \geq 100$ | $\beta_x \geq 200$ | $\beta_x(c) \geq 200$ | $\beta_x(c) \geq 1000$ |
| | NZ1/NNZ1 | <1.0 | <1.0 | <1.0 | <4.0 |
| 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 |
| NNZX3 | <1.0 | <1.0 | <2.0 | 4.7 | 5.8 |
| NNZX10 | 7.4 | 8.2 | 10.0 | 8.0 | 9.8 |

Dirt Holding Capacity

| Element | DHC (gm) | Element | DHC (gm) |
|---------|----------|---------|----------|
| NZ1 | 12 | NNZ3 | 16 |
| NZ3 | 12 | NNZ5 | 18 |
| NZ5 | 12 | NNZ10 | 15 |
| NZ10 | 11 | NNZ25 | 15 |
| NZ25 | 11 | NNZX3 | 11* |
| NNZ1 | 15 | NNZX10 | 13* |

* Based on 100 psi terminal pressure

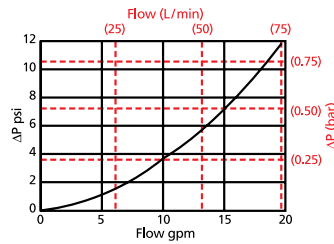
Element Collapse Rating: 150 psid (10 bar) for standard elements
 3000 psid (210 bar) for high collapse (ZX) versions

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

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

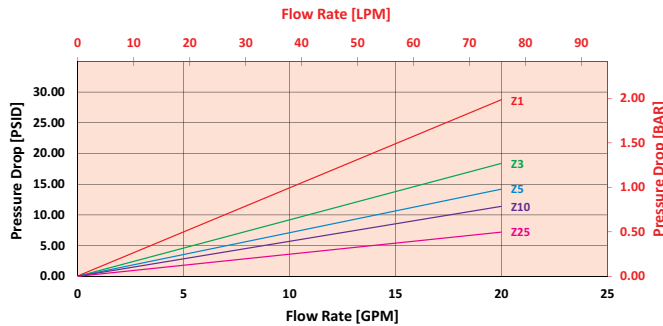
NF30 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



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

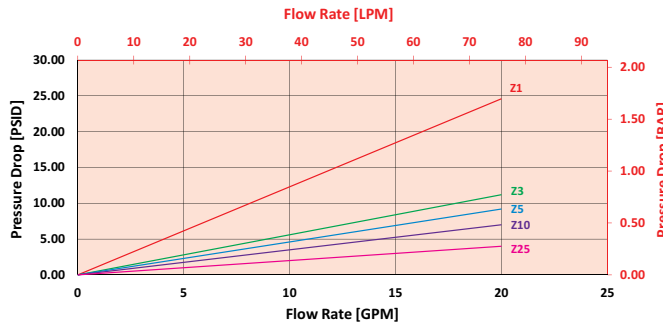
1NZ

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



1NNZ

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 15 gpm (57 L/min) for NF301NZ10SD5 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 15 gpm. In this case, $\Delta P_{\text{housing}}$ is 7 psi (.48 bar) according to the graph for an NF30 housing.

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

$$\Delta P_{\text{housing}} = 7 \text{ psi [0.48 bar]} \quad | \quad \Delta P_{\text{element}} = 8 \text{ psi [0.55 bar]}$$

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

$$\Delta P_{\text{filter}} = 7 \text{ psi} + (8 \text{ psi} * 1.1) = 15.8 \text{ psi}$$

OR

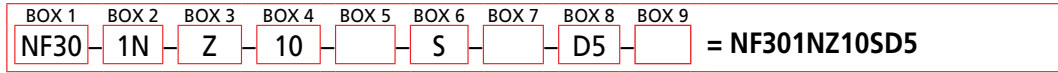
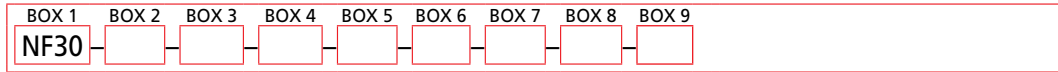
$$\Delta P_{\text{filter}} = .48 \text{ bar} + (.55 \text{ bar} * 1.1) = 1.1 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

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 |
|-------|------------|
| N3 | 1.10 |
| N10 | 0.17 |
| N25 | 0.10 |
| NAS3 | 0.92 |
| NAS5 | 0.71 |
| NAS10 | 0.57 |

Filter Model Number Selection



| BOX 1 | BOX 2 | BOX 3 |
|---|--|--|
| Filter Series | Number & Size of Elements | Media Type |
| NF30 NFN30 <small>(Non-bypassing: requires ZX high collapse elements)</small> | 1 N = Single Length NN = Double Length | 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 | BOX 5 | BOX 6 | BOX 7 |
|---|--|--|--|
| Micron Rating | Seal Material | Porting | Options |
| 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) | Omit = Buna N V = Viton® W = Buna N, <i>Anodized Aluminum parts</i> | B = ISO228 G-¾" P = ¾" NPTF S = SAE-12 | Omit = None X = Blocked bypass (N/A with NFN30) |

| 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 | 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 |

| BOX 9 |
|--|
| Additional Options |
| Omit = None G792 = 7/16" -20 UNF drain on housing |

- 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.