

Tank-Mounted Filter

BFT



Features and Benefits

- Low pressure tank-mounted filter
- Designed for high return line flows
- Dual inlet porting
- Top, side or bottom mounting
- Optional check valve prevents reservoir siphoning
- Special filter element design provides aftermarket benefits
- Also available with DirtCatcher® element (BBD)
- Cast iron head available

300 gpm
1135 L/min
100 psi
7 bar

- IRF
- TF1
- KF3
- KL3
- LF1
- MLF1
- RLD
- GRTB
- MTA
- MTB
- ZT
- KFT
- RT
- RTI
- LRT
- ART
- BRT
- BFT**
- QT
- KTK
- LTK
- MRT
- MAF1
- MAF1
- MF2

Model No. of filter in photograph is BFT1BBZ5F.

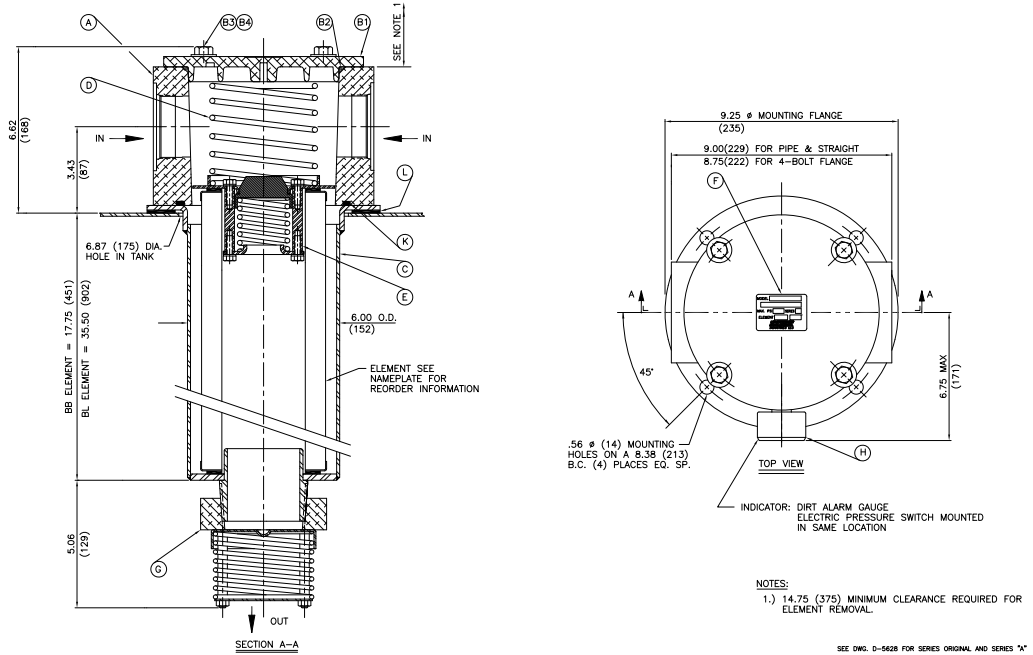
| | |
|---------------------------|---|
| Flow Rating: | Up to 300 gpm (1135 L/min) for 150 SUS (32 cSt) fluids |
| Max. Operating Pressure: | 100 psi (7 bar) |
| Min. Yield Pressure: | 250 psi (17 bar), per NFPA T2.6.1 |
| Rated Fatigue Pressure: | Contact factory, per NFPA T2.6.1 |
| Temp. Range: | -20°F to 225°F (-29°C to 107°C) |
| Bypass Setting: | Cracking: 25 psi (1.7 bar) Full Flow: 52 psi (3.6 bar) |
| Porting Head & Cap: | Aluminum |
| Element Case: | Steel |
| Weight of BFT-1BB: | 36.7 lbs. (16.6 kg) |
| Element Change Clearance: | 14.75" (375 mm) |

Filter Housing Specifications

| | |
|------------------------|--|
| 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 Accessories For Tank-Mounted Filters

- PAF1
- MAF1
- MF2



Metric dimensions in ().

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 | |
|----------|--|--------------------|--------------------|--|------------------------|
| | $\beta_x \geq 75$ | $\beta_x \geq 100$ | $\beta_x \geq 200$ | $\beta_x(c) \geq 200$ | $\beta_x(c) \geq 1000$ |
| BB/BLZ1 | <1.0 | <1.0 | <1.0 | <4.0 | 4.2 |
| BB/BLZ3 | <1.0 | <1.0 | <2.0 | <4.0 | 4.8 |
| BB/BLZ5 | 2.5 | 3.0 | 4.0 | 4.8 | 6.3 |
| BB/BLZ10 | 7.4 | 8.2 | 10.0 | 8.0 | 10.0 |
| BB/BLZ25 | 18.0 | 20.0 | 22.5 | 19.0 | 24.0 |

| Element | DHC (gm) | Element | DHC (gm) | Element | DHC (gm) |
|---------|----------|---------|----------|---------|----------|
| BBZ1 | 268 | BBDZ1 | 205 | BLZ1 | 536 |
| BBZ3 | 275 | BBDZ3 | 163 | BLZ3 | 550 |
| BBZ5 | 301 | BBDZ5 | 229 | BLZ5 | 550 |
| BBZ10 | 272 | BBDZ10 | 183 | BLZ10 | 550 |
| BBZ25 | 246 | BBDZ25 | 186 | BLZ25 | 550 |

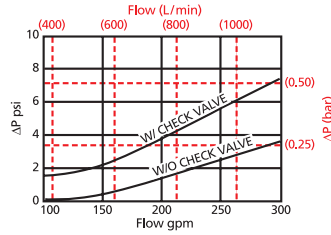
Element Collapse Rating: 150 psid (10 bar)

Flow Direction: Outside In

Element Nominal Dimensions: BB: 5.0" (125 mm) O.D. x 18.0" (460 mm) long
BL: 5.0" (125 mm) O.D. x 36.0" (920 mm) long

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

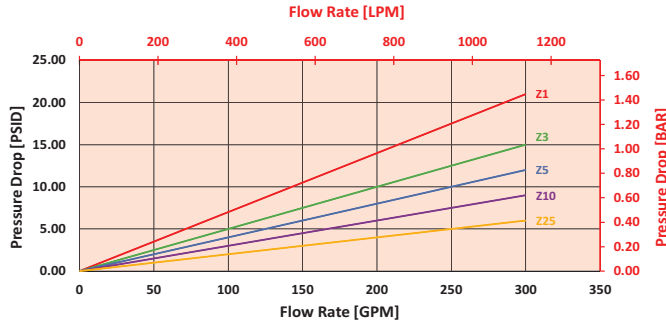
BFT $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



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

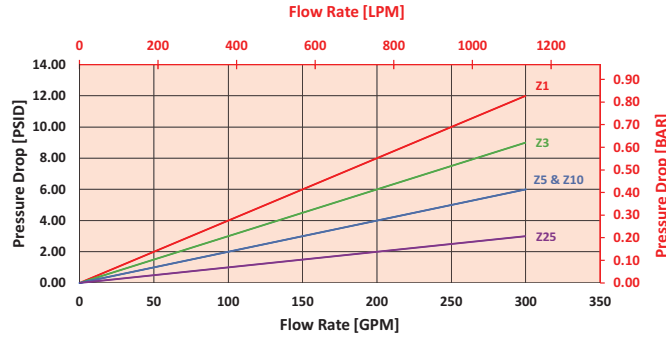
BBZ

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



BLZ

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 200 gpm (758 L/min) for BFT1BBZ10PY2 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 200 gpm. In this case, $\Delta P_{\text{housing}}$ is 1.5 psi (.10 bar) on the graph for the BFT housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 200 gpm. In this case, $\Delta P_{\text{element}}$ is 6 psi (.41 bar) according to the graph for the BBZ10 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:

$$\Delta P_{\text{housing}} = 1.5 \text{ psi } [.10 \text{ bar}] \mid \Delta P_{\text{element}} = 6 \text{ psi } [.41 \text{ bar}]$$

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

$$\Delta P_{\text{filter}} = 1.5 \text{ psi} + (6 \text{ psi} * 1.1) = 8.1 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .10 \text{ bar} + (.41 \text{ bar} * 1.1) = .55 \text{ bar}$$

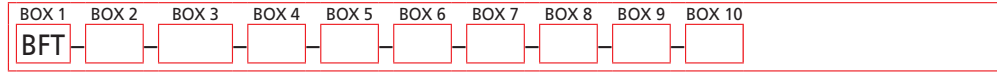
Pressure Drop Information Based on Flow Rate and Viscosity

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.

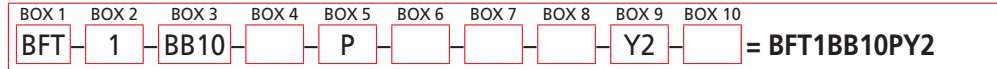
| Ele. | ΔP | Ele. | ΔP |
|--------|------------|--------|------------|
| BB10 | 0.03 | BL10 | 0.01 |
| BB25 | 0.01 | BL25 | 0.01 |
| BBDZ1 | 0.08 | BLDZ1 | 0.16 |
| BBDZ3 | 0.06 | BLDZ3 | 0.12 |
| BBDZ5 | 0.05 | BLDZ5 | 0.10 |
| BBDZ10 | 0.04 | BLDZ10 | 0.08 |
| BBDZ25 | 0.02 | BLDZ25 | 0.04 |

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KF3:



Example: NOTE: Only box 10 may contain more than one option



| BOX 1 | BOX 2 | BOX 3 | | | BOX 4 |
|---------------|--------------------|------------------------|-----------|---|---|
| Filter Series | Number of Elements | Element Size and Media | | | Seal Material |
| BFT | 1 | BB Length | BL Length | | Omit = Buna N H = EPR W = Anodized Aluminum Parts H.5 = Skydrol® compatibility |
| | | BB3 | | = 3 μ E media (cellulose) | |
| | | BB10 | | = 10 μ E media (cellulose) | |
| | | BB25 | | = 25 μ E media (cellulose) | |
| | | BBZ1 | BLZ1 | = 1 μ Excellement® Z-Media® (synthetic) | |
| | | BBZ3 | BLZ3 | = 3 μ Excellement® Z-Media® (synthetic) | |
| | | BBZ5 | BLZ5 | = 5 μ Excellement® Z-Media® (synthetic) | |
| | | BBZ10 | BLZ10 | = 10 μ Excellement® Z-Media® (synthetic) | |
| | | BBZ25 | BLZ25 | = 25 μ Excellement® Z-Media® (synthetic) | |
| | | BBDZ1 | | = BB size DirtCatcher® 1 μ Excellement® Z-Media® | |
| | | BBDZ3 | | = BB size DirtCatcher® 3 μ Excellement® Z-Media® | |
| | | BBDZ5 | | = BB size DirtCatcher® 5 μ Excellement® Z-Media® | |
| | | BBDZ10 | | = BB size DirtCatcher® 10 μ Excellement® Z-Media® | |
| | | BBDZ25 | | = BB size DirtCatcher® 25 μ Excellement® Z-Media® | |

| BOX 5 |
|---|
| Porting |
| P = 2½" NPTF |
| PP = Dual 2½" NPTF |
| S = SAE-32 |
| SS = Dual SAE-32 |
| F = 2½" SAE 4-bolt flange Code 61 |
| FF = Dual 2½" SAE 4-bolt flange Code 61 |

| BOX 6 |
|------------------------|
| Bypass Setting |
| Omit = 25 psi cracking |
| 40 = 40 psi cracking |

| BOX 7 |
|------------------------|
| Outlet Porting |
| Omit = 3" NPT male |
| T = 13" Tube extension |

| BOX 8 |
|----------------------|
| Optional Check Valve |
| Omit = None |
| C = Check valve |

| BOX 9 | |
|---------------------|--|
| Dirt Alarm® Options | |
| Omit = None | |
| Visual | Y2 = Back-mounted tri-color gauge Y2R = Back-mounted gauge mounted on opposite side of standard location |
| Electrical | ES = Electric switch ESR = Electric switch mounted on opposite side of standard location ES1 = Heavy-duty electric switch with conduit connector ES1R = Heavy-duty electric switch with conduit connector mounted on opposite side of standard location |

| BOX 10 |
|--|
| Additional Options |
| Omit = None |
| G547 = Two ½" gauge ports |
| G1476 = Three-terminal electric switch |
| M = Metric thread for SAE 4-bolt flange mounting holes (specify after each port designation) |
| 40 = 40 psi bypass setting |

NOTES:

Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4. E media elements are only available with Buna N seals.

Box 4. For options H, W, and H.5 all aluminum parts are anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Skydrol® is a registered trademark of Solutia Inc.

Box 8. See also "Accessories for Tank-Mounted Filters," page 307.