BFTX Tank-Immersed Return Line Filters

Tank Immersed Return Line Hydraulic Filter Assemblies

Flows to 475 gpm (1800 l/min)
Port Sizes to 4”

- Heavy duty cast aluminum alloy head and cover is rugged and robust.

- Single or dual inlet ports available.

- Optional accessories include gauge indicator, electrical indicator, differential pressure indicator, diffuser, and magnetic core.

- Inside-to-outside flow direction ensures that contamination is trapped in the filter element and also allows for easy reservoir filling or topping-off through the filter element

Specifications

Recommended Operating Conditions

Type:	Tank Immersed Return Line Filter
Flow Rate:	up to 475 gpm (1800 lpm)
Temperature Range[*1]:	-10°F to 230°F (-25°C to 110°C)
Bypass Valve:	22 psid (1.5 bar) ± 10%
Max Working Pressure:	145 psi (10 bar)
Test Pressure:	215 psi (15 bar)
Burst Pressure	435 psi (30 bar)

Fluid Compatibility

Compatible Fluids:	HH-HL-HM-HV-HTG (ISO 6743/4)
Other Fluids:	Contact Behringer for support

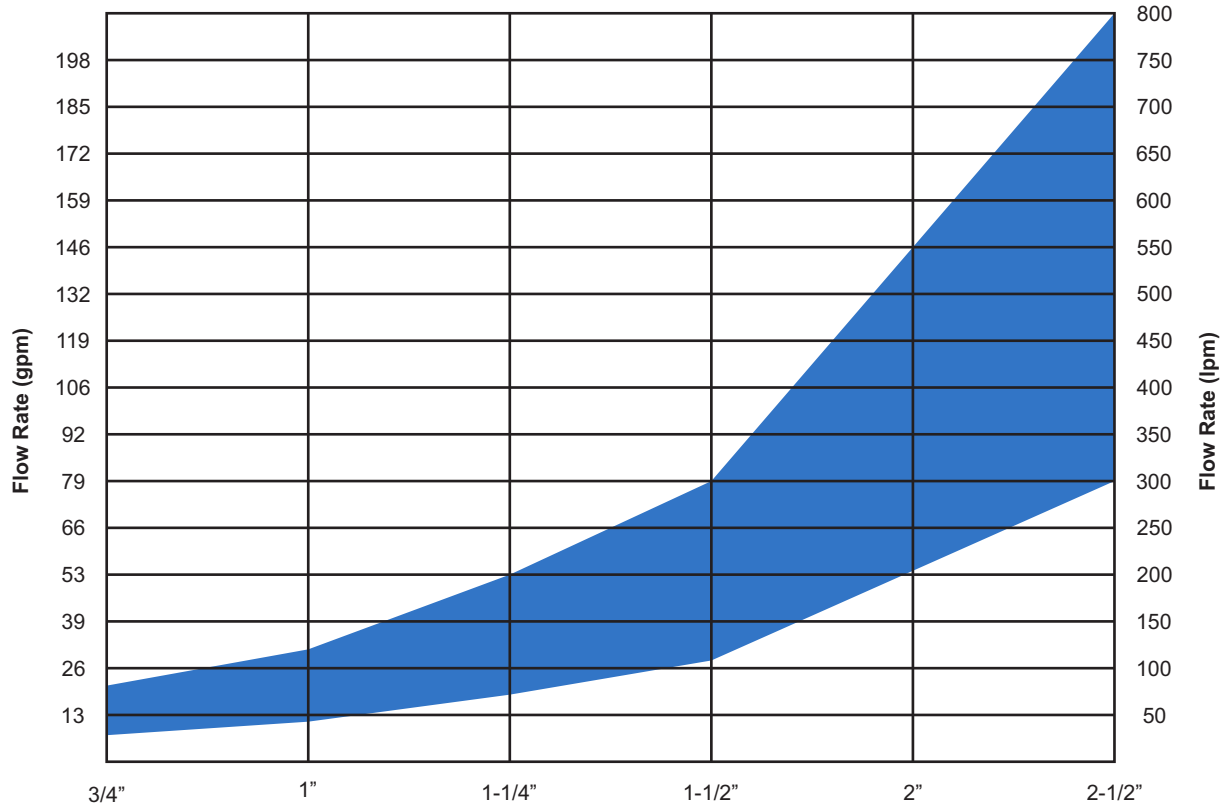
Materials of Construction

Head and Cover:	Aluminum alloy
Diffuser:	Zinc plated steel material
Element Support:	Polyamide material (aluminium alloy for BFTX3 and BFTX4)
Magnetic core:	Synthetic Magnetic Material
Indicator Housing:	Brass Material
Seals:	NBR Nitrile (Standard) FKM Viton (on request)

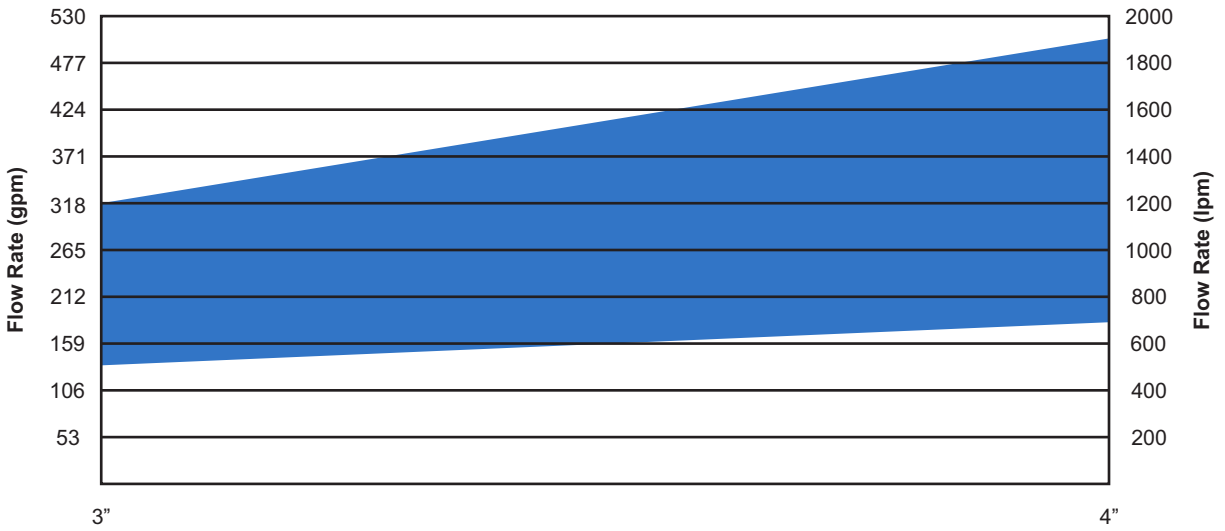
Filter Sizing

When sizing the filter, you must take into consideration both the initial pressure drop (Δp) of the complete filter assembly (filter housing plus the filter element), as well as the fluid velocity through the filter. In return lines, it is recommended that the velocity be in the range of 5 - 13.5 ft/sec. (1.5 - 4 m/sec). The charts below outlines the optimal fluid velocity by connection size.

Recommended Fluid Velocity



Recommended Fluid Velocity



Flow Curves BFTX1

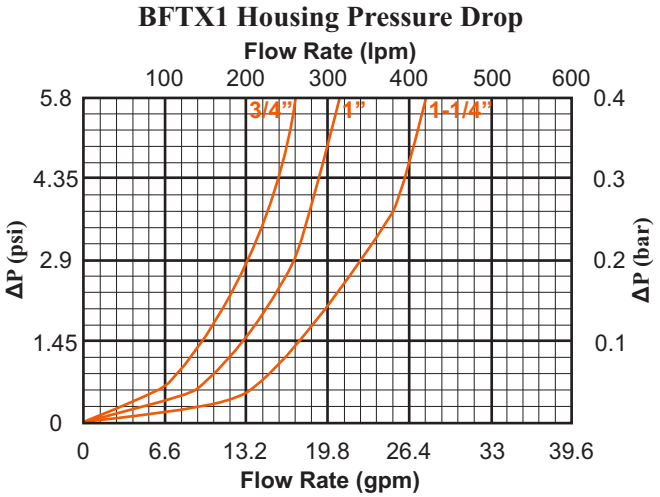
Pressure Drop Calculation

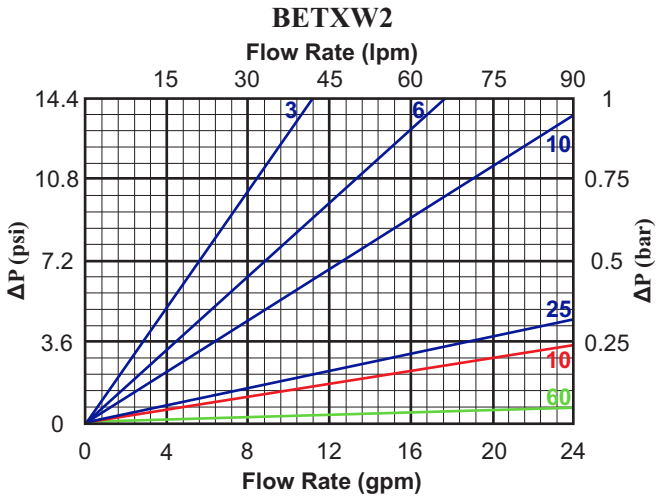
Calculate the complete filter assembly's clean (initial) pressure drop (Δp) by adding the Δp of the filter housing and the Δp of the filter element.

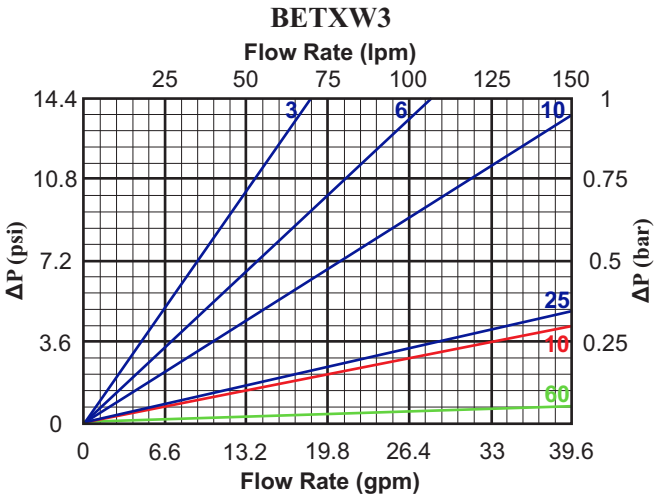
Pressure drop curves are based on fluid with viscosity of 140 SSU (30 cSt), and a specific gravity of 0.9. Δp across the filter is proportionally related to viscosity and specific gravity. The formula for calculating different pressure drops of different viscosities is as follows:

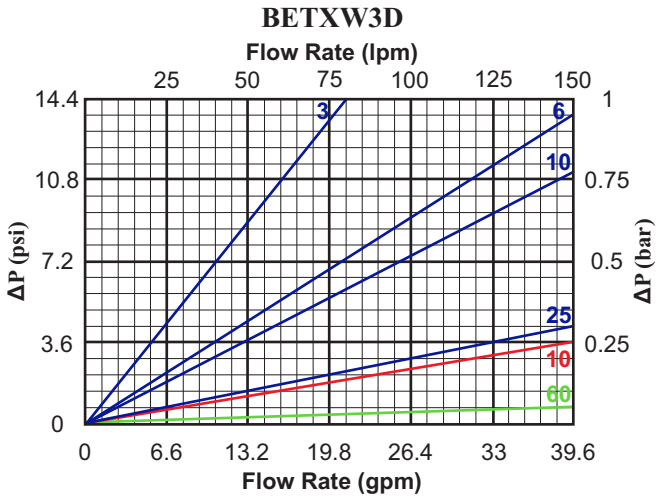
$$\text{New } \Delta p = (\Delta p \text{ Housing} + \Delta p \text{ Element}) \times \frac{\text{Viscosity}}{150} \times \frac{SG}{0.9}$$

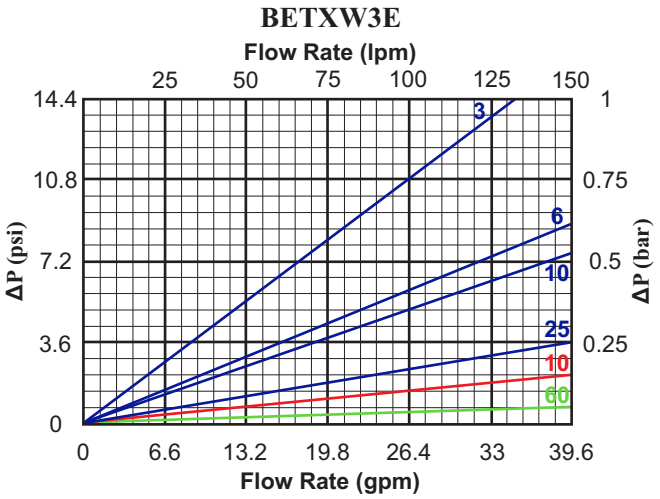
Micro-glass Cellulose Wire Mesh











Flow Curves BFTX2

Pressure Drop Calculation

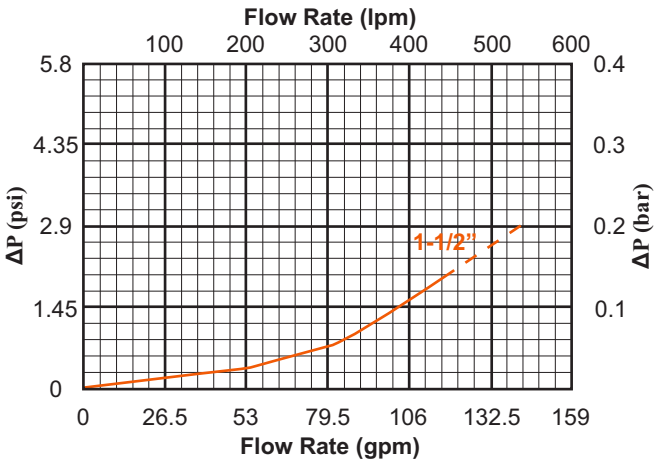
Calculate the complete filter assembly's clean (initial) pressure drop (Δp) by adding the Δp of the filter housing and the Δp of the filter element.

Pressure drop curves are based on fluid with viscosity of 140 SSU (30 cSt), and a specific gravity of 0.9. Δp across the filter is proportionally related to viscosity and specific gravity. The formula for calculating different pressure drops of different viscosities is as follows:

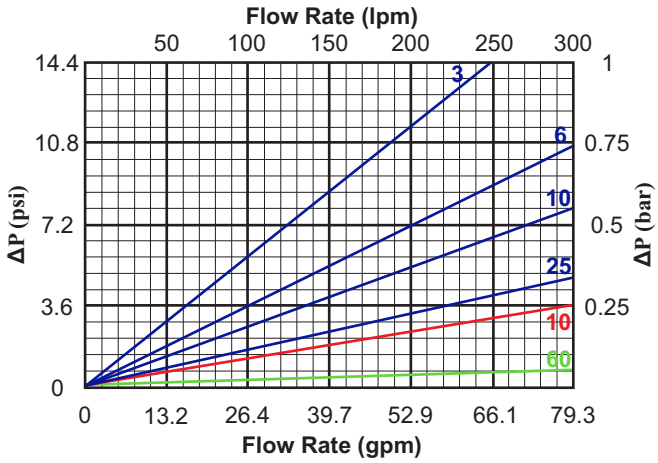
$$\text{New } \Delta p = (\Delta p \text{ Housing} + \Delta p \text{ Element}) \times \frac{\text{Viscosity}}{150} \times \frac{SG}{0.9}$$

Micro-glass Cellulose Wire Mesh

BFTX2 Housing Pressure Drop



BETXW4



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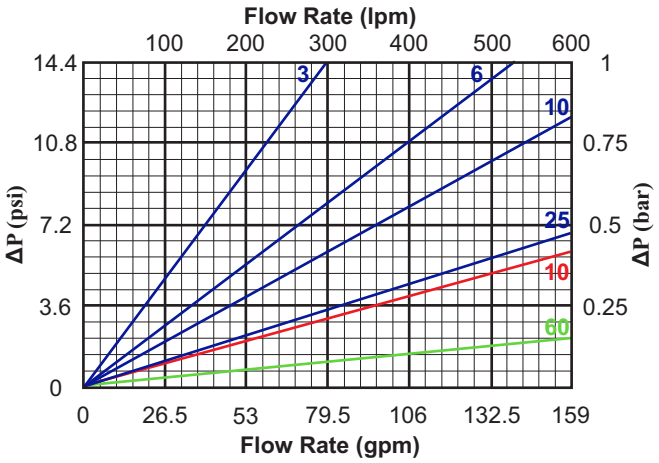

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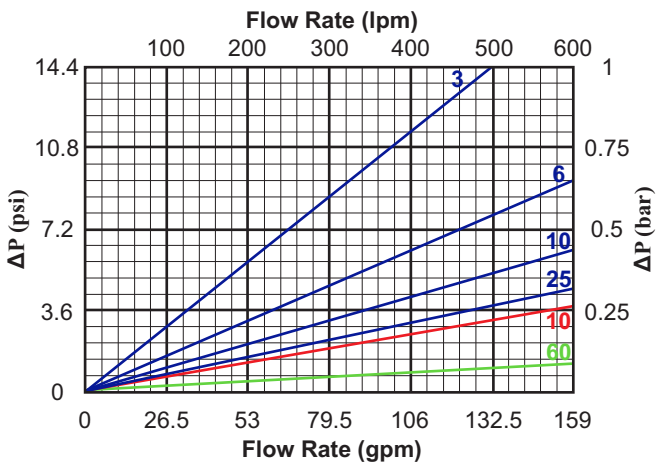


Flow Curves BFTX3

Pressure Drop Calculation

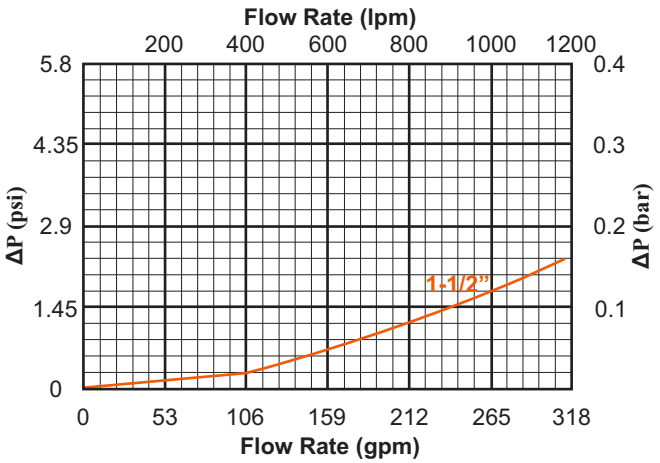
Calculate the complete filter assembly's clean (initial) pressure drop (Δp) by adding the Δp of the filter housing and the Δp of the filter element.

Pressure drop curves are based on fluid with viscosity of 140 SSU (30 cSt), and a specific gravity of 0.9. Δp across the filter is proportionally related to viscosity and specific gravity. The formula for calculating different pressure drops of different viscosities is as follows:

$$\text{New } \Delta p = (\Delta p \text{ Housing} + \Delta p \text{ Element}) \times \frac{\text{Viscosity}}{150} \times \frac{SG}{0.9}$$

Micro-glass Cellulose Wire Mesh

BFTX3 Housing Pressure Drop



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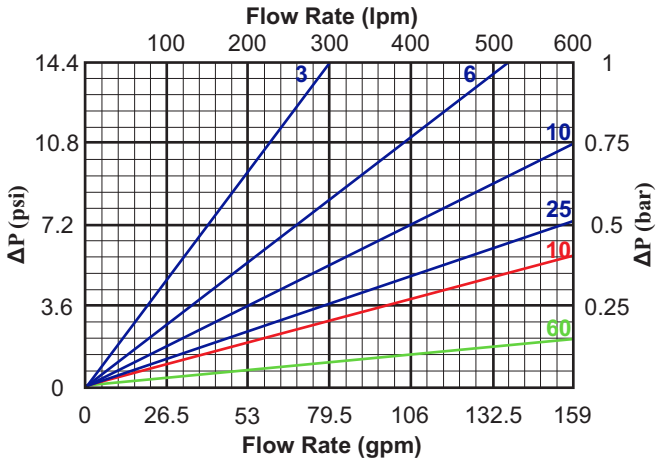

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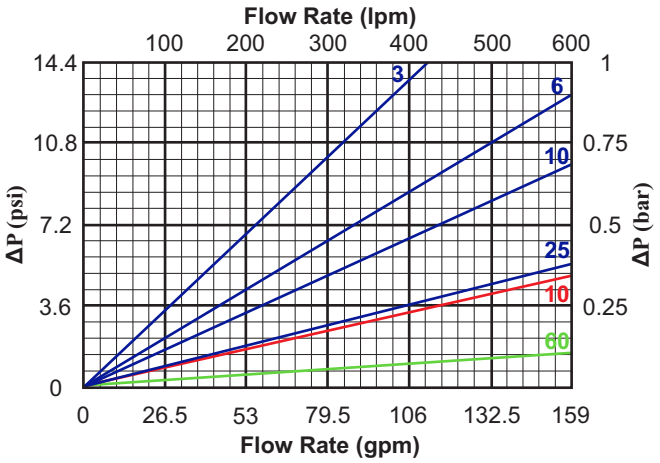

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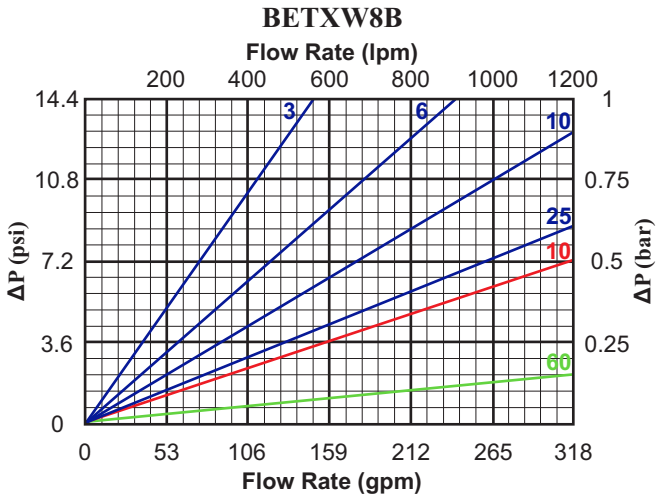

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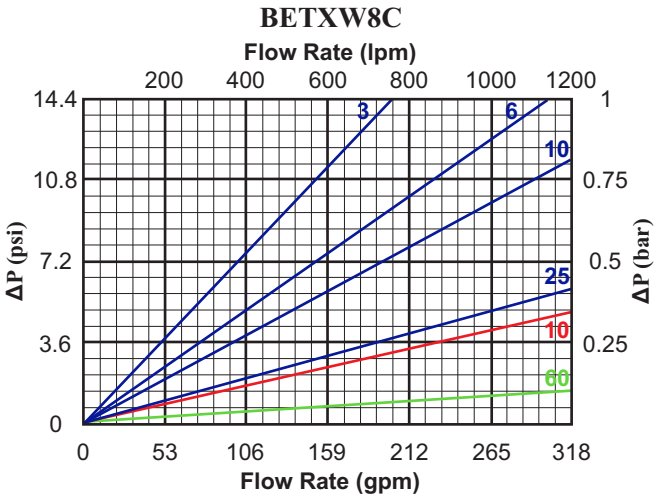


Flow Curves BFTX4

Pressure Drop Calculation

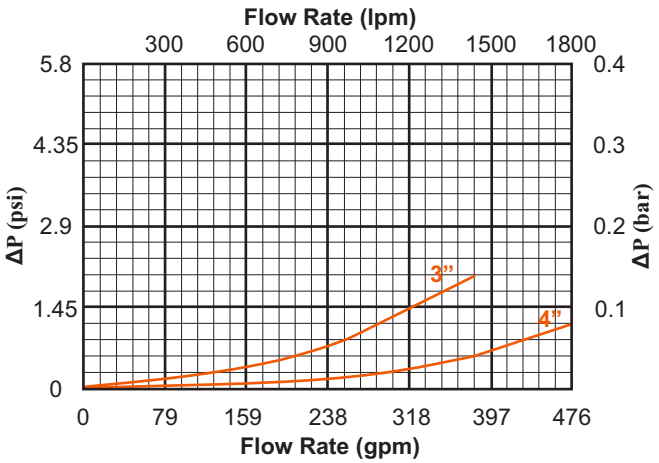
Calculate the complete filter assembly's clean (initial) pressure drop (Δp) by adding the Δp of the filter housing and the Δp of the filter element.

Pressure drop curves are based on fluid with viscosity of 140 SSU (30 cSt), and a specific gravity of 0.9. Δp across the filter is proportionally related to viscosity and specific gravity. The formula for calculating different pressure drops of different viscosities is as follows:

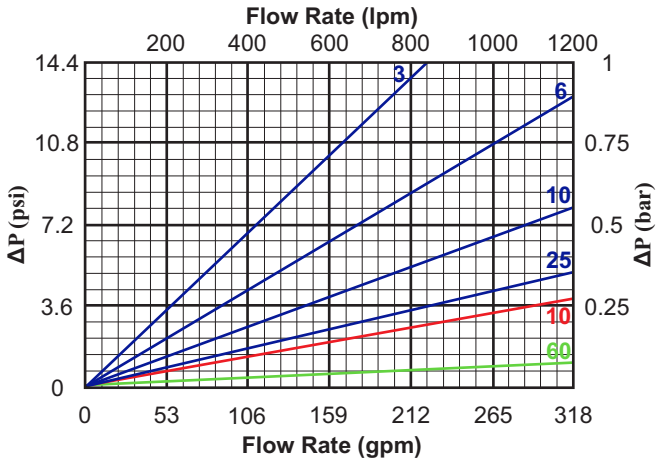
$$\text{New } \Delta p = (\Delta p \text{ Housing} + \Delta p \text{ Element}) \times \frac{\text{Viscosity}}{150} \times \frac{SG}{0.9}$$

Micro-glass Cellulose Wire Mesh

BFTX4 Housing Pressure Drop



BETXW10



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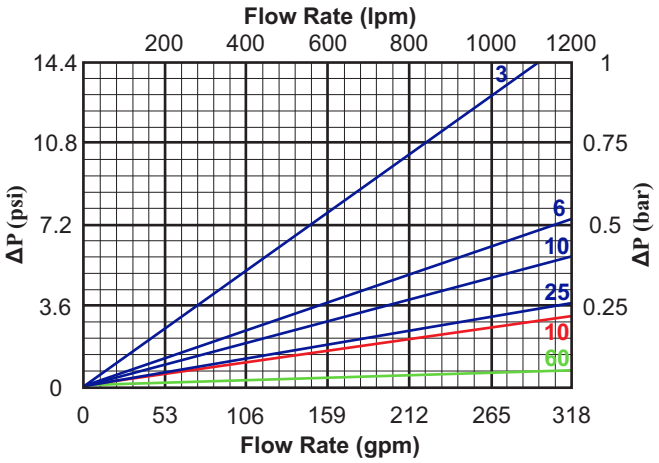

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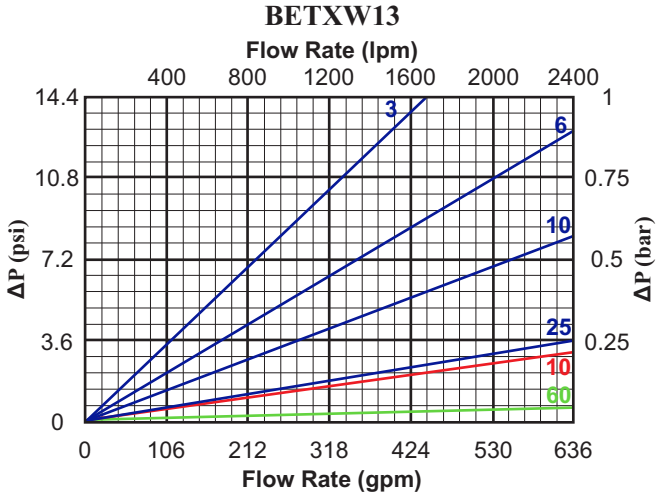

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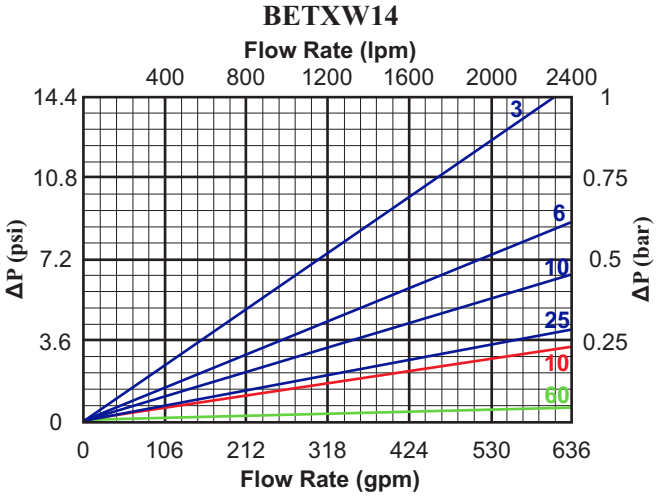
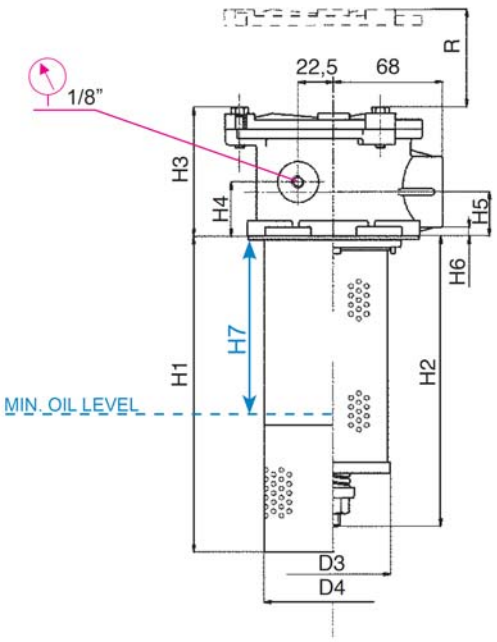
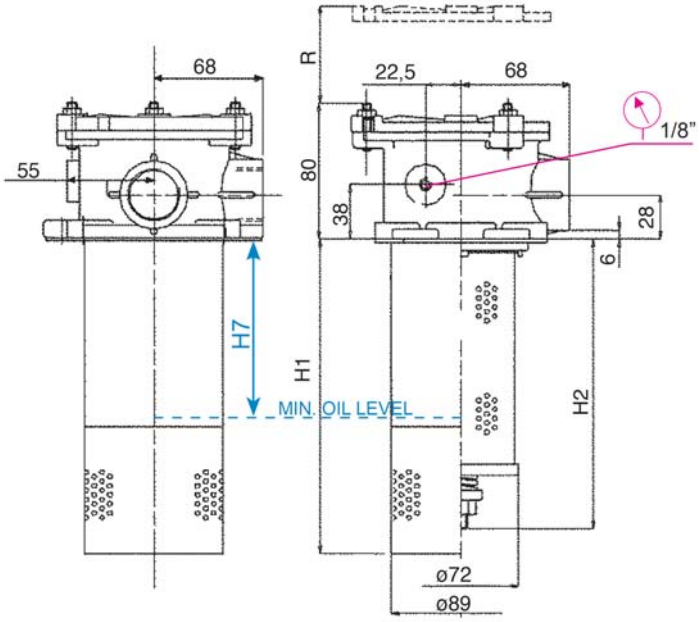


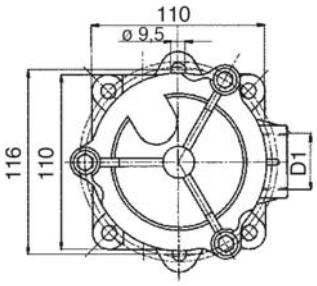
Dimensions BFTX1

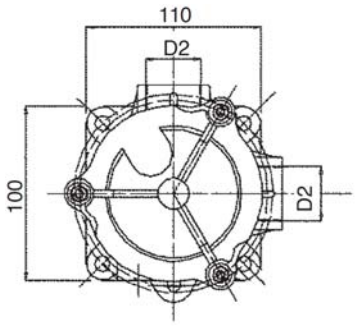
Single Inlet



Dual Inlet

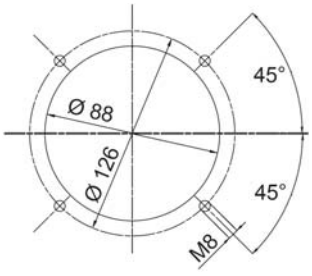




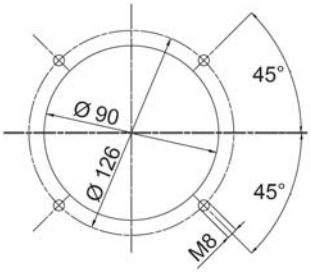


Mounting Pattern

Without Diffuser



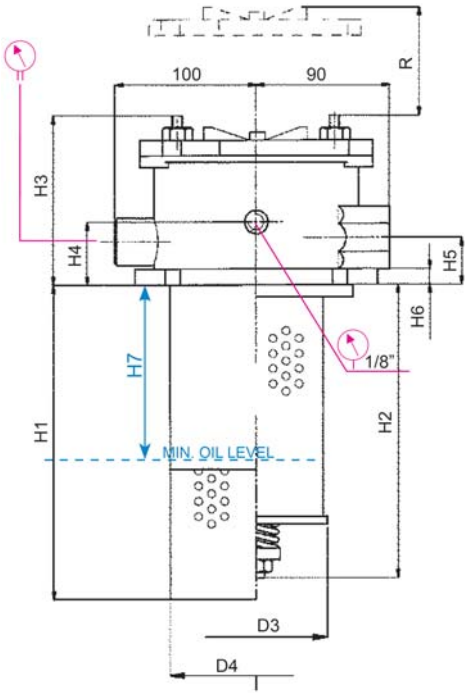
With Diffuser



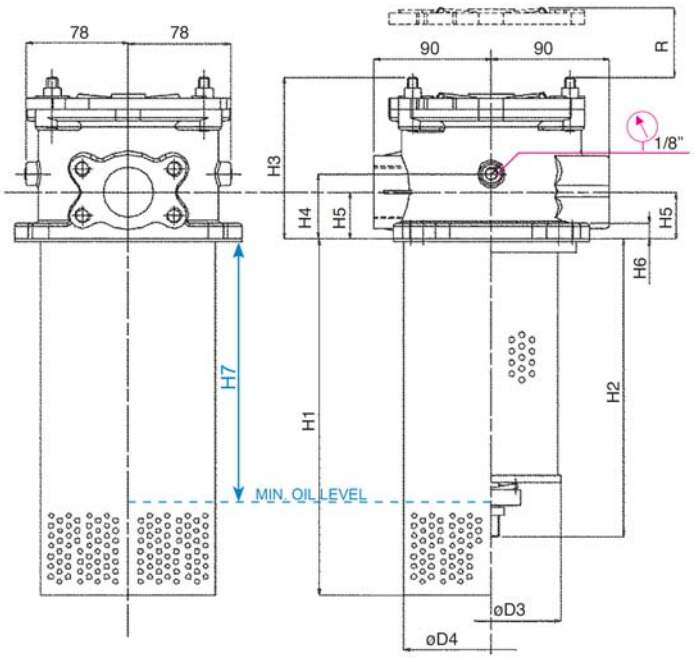
Dimensions														
Series	D1 (Connection Size)	D2	D3	D4	D5	H1	H2	H3	H4	H5	H6	H7	R	kg
BFTX1/2	3/4", 1", 1-1/2"	1"	72	89	9	198	140	90	38	28-32	6	118	230	1,2
BFTX1/3	3/4", 1", 1-1/2"	1"	72	89	9	198	185	90	38	28-32	6	118	275	1,4
BFTX1/3D	3/4", 1", 1-1/2"	1"	72	89	9	250	235	90	38	28-32	6	170	325	1,5
BFTX1/3E	3/4", 1", 1-1/2"	1"	72	89	9	350	335	90	38	28-32	6	270	445	1,7

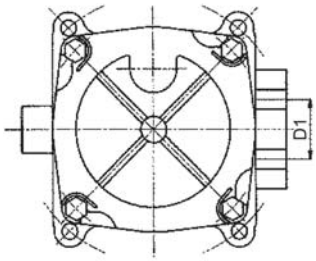
Dimensions BFTX2

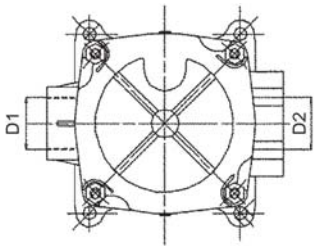
Single Inlet



Dual Inlet

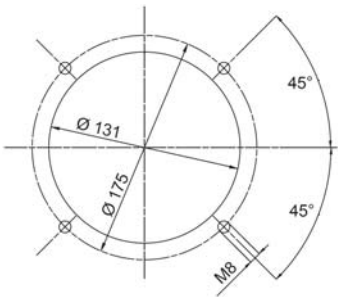




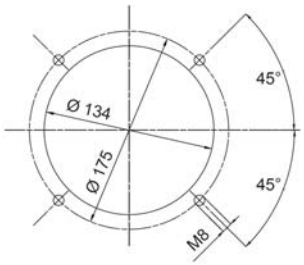


Mounting Pattern

Without Diffuser

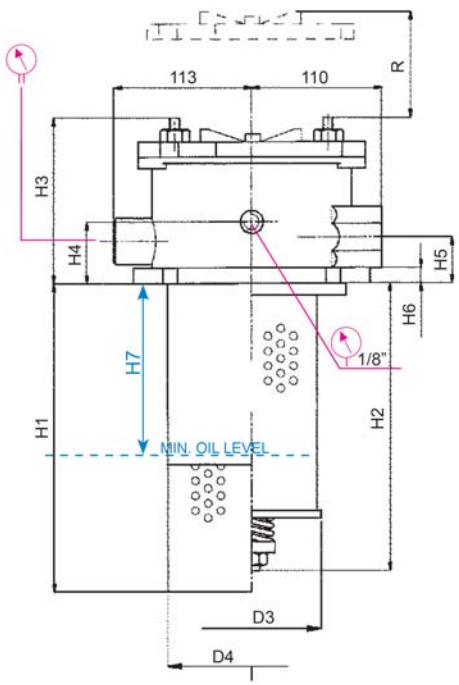


With Diffuser

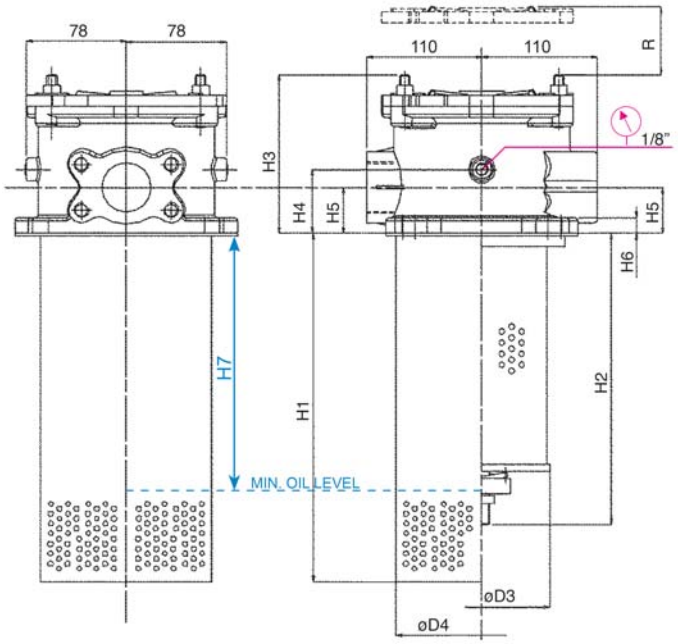


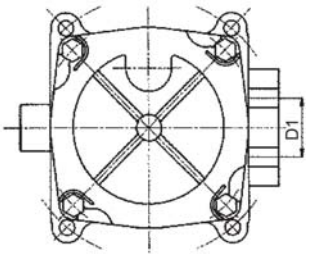
Dimensions													
Series	D1	D2	D3	D4	H1	H2	H3	H4	H5	H6	H7	R	kg
BFTX2/4	1-1/2"	1-1/4", 1-1/2"	106	133	250	225	129	50	36	12	150	310	4,2
BFTX2/5	1-1/2"	1-1/4", 1-1/2"	106	133	320	295	129	50	36	12	220	380	4,7
BFTX2/5A	1-1/2"	1-1/4", 1-1/2"	106	133	525	500	129	50	36	12	425	580	5,0

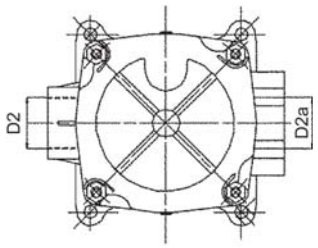
Dimensions BFTX3



Dual Inlet

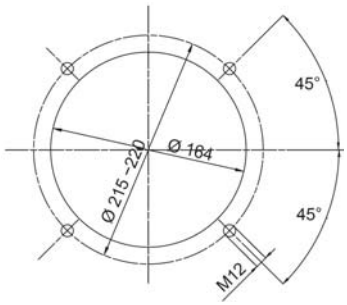




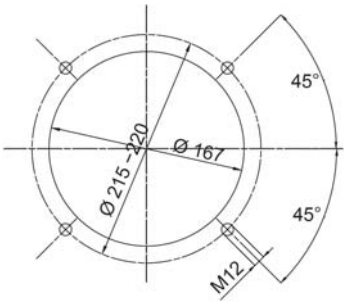


Mounting Pattern

Without Diffuser

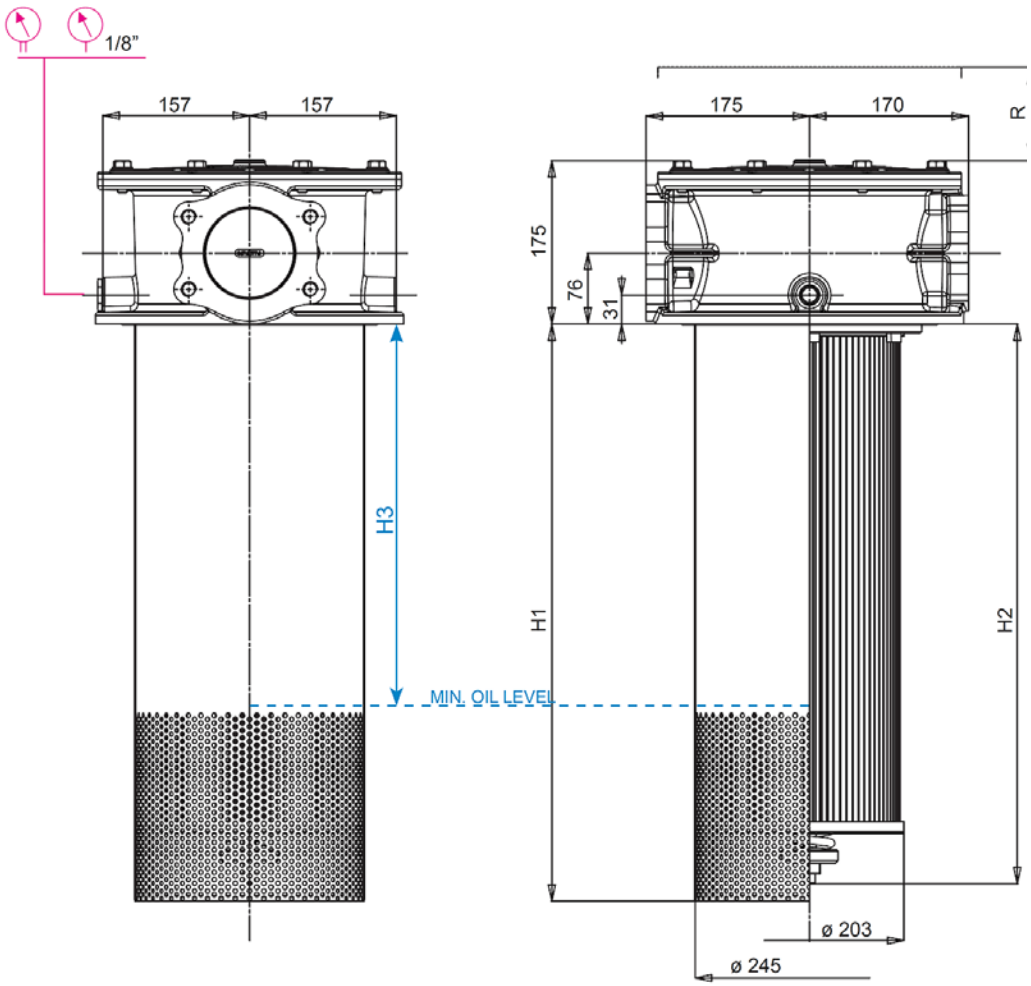


With Diffuser

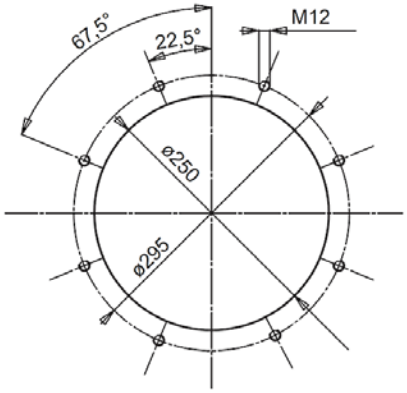


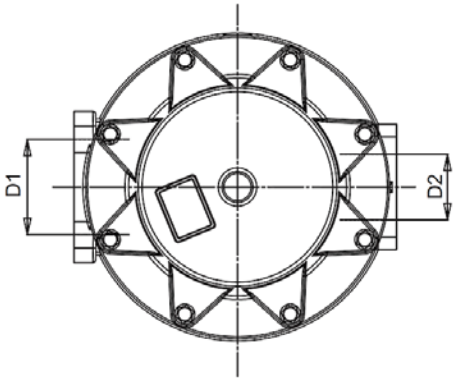
Dimensions														
Series	D1	D2	D2a	D3	D4	H1	H2	H3	H4	H5	H6	H7	R	kg
BFTX3/6A	2-1/2"	2", 2-1/2"	1-1/2", 2"	126	165.5	290	260	155	55	55	14	190	350	8,0
BFTX3/8A	2-1/2"	2", 2-1/2"	1-1/2", 2"	126	165.5	370	340	155	55	55	14	270	430	8,4
BFTX3/8B	2-1/2"	2", 2-1/2"	1-1/2", 2"	126	165.5	470	440	155	55	55	14	370	580	8,6
BFTX3/8C	2-1/2"	2", 2-1/2"	1-1/2", 2"	126	165.5	560	530	155	55	55	14	460	620	9,1

Dimensions BFTX4



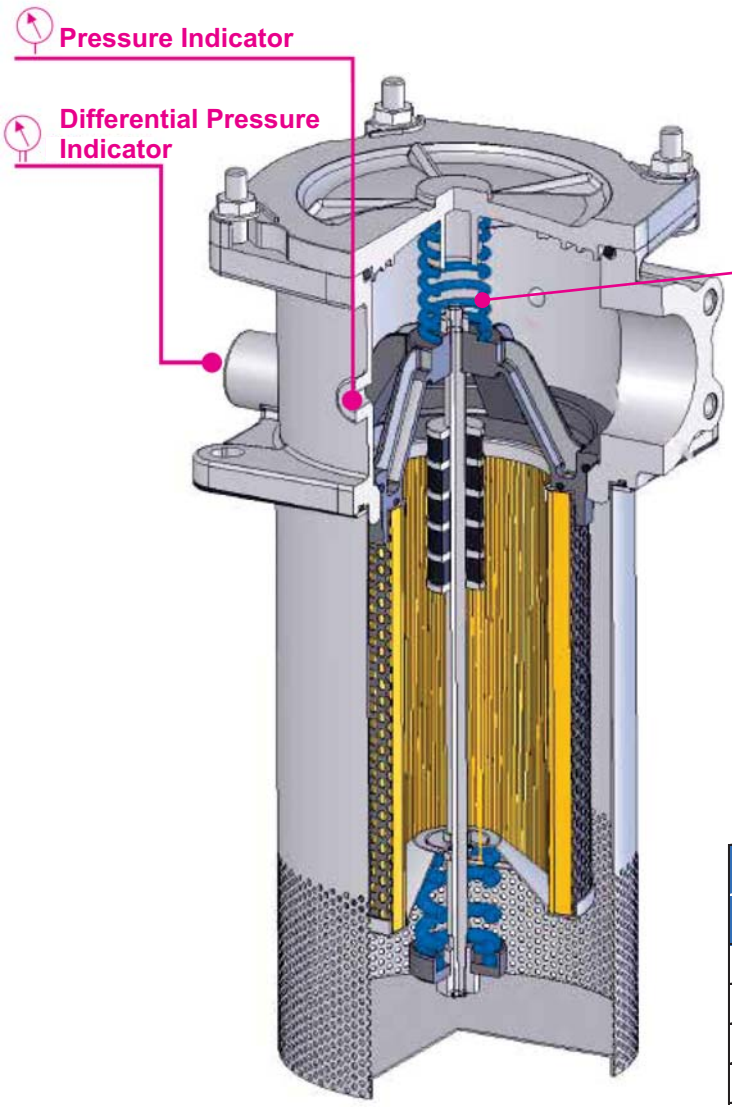
Mounting Pattern





Dimensions							
Series	D1	D2	H1	H2	H3	R	kg
BFTX4/10	3"	4"	405	396	205	600	
BFTX4/12	3"	4"	620	611	420	810	
BFTX4/13	3"	4"	900	891	700	1090	
BFTX4/14	3"	4"	1165	1156	965	1360	

Spare Parts and Options



Replacement Spring	
Series	**NBR**
BFTX1	BFTX1-SPRING
BFTX2	BFTX2-SPRING
BFTX3	BFTX3-SPRING
BFTX4	BFTX4-SPRING

Seal Kits		
Series	**NBR**	**FKM**
BFTX1	BFTX1-NBR-SK	BFTX1-FKM-SK
BFTX2	BFTX2-NBR-SK	BFTX2-FKM-SK
BFTX3	BFTX3-NBR-SK	BFTX3-FKM-SK
BFTX4	BFTX4-NBR-SK	BFTX4-FKM-SK

Contamination Indicators

Rear Mount Gauge
The connection for the contamination indicator is on the back side of the dial

Electric Pressure Switch
This is an electrical SPDT pressure switch.

Visual Differential
The visual indicator is tripped by differential pressure. Set point is 20 psid (1.3 bar)

Electrical Differential
Differential pressure SPDT switch. Set point is 20 psid (1.3 bar). Available with or without LED (24V) for visual indication

Electrical Differential With Thermal Lockout
Differential pressure SPDT switch. 20 psid (1.3 bar). Thermostat locks out signals under 86 deg. F. (30 deg. C.)

Order Code

Complete Filter

Table 1 Table 2 Table 3 Table 4 Table 5 Table 6 Table 7 Table 8 Table 9

BFTX __ / __ __ __ __ __ __ __ - __

Series	Table 1
1	BFTX1 Series
2	BFTX2 Series
3	BFTX3 Series
4	BFTX4 Series

Length	Table 2	
Code	Series	Length
2	BFTX1 Only	Single Length
3		Double Length
3D		Triple Length
3E		Quad Length
4	BFTX2 Only	Single Length
5		Double Length
5A		Triple Length
6A	BFTX3 Only	Single Length
8A		Double Length
8B		Triple Length
8C		Quad Length
10	BFTX4 Only	Single Length
12		Double Length
13		Triple Length
14		Quad Length

Connection	Table 3
T	NPT Thread
O	SAE O-Ring Thread
B	BSP Thread
F	SAE C.61 Flange

Port Size	Table 4	
Code	Series	Length
5	BFTX1 Only	3/4" Size
6		1" Size
6D		Dual 1-1/4" (Code B Only)
7		1-1/4" Size
8	BFTX2 Only	1-1/2" Size
8D		Dual 1-1/2" (Code O only)
87D		1-1/2"BSP + 1-1/4" FL (BF)
98D	BFTX3 Only	2" + 1-1/2"C.61 FL (Code F)
10		2-1/2" (Code O or F only)
109D		2-1/2" + 2" C.61 FL (Code F)
11	BFTX4 Only	3" (Code O or F Only)
1112D		4" SAE Thread + 3" FL (OF)
12		4" (Code O or F Only)

Indicators	Table 5
GP	Gauge port plugged
DP	Differential port plugged
GB	Pressure Gauge (Bottom Mount)
E	Electrical Pressure Switch
DV	Visual Differential
DE	Electrical Differential
DEV	Electrical Differential w/ LED
DET	Electrical Differential w/Thermal

Filtration	Table 6
03A	$B_3 = 200$ ($B_{5[c]} = 1000$)
06A	$B_6 = 200$ ($B_{7[c]} = 1000$)
10A	$B_{10} = 200$ ($B_{12[c]} = 1000$)
25A	$B_{25} = 200$ ($B_{22[c]} = 1000$)
10N	10 micron nominal paper
25N	25 micron nominal paper
60W	60 micron wire mesh

Seals	Table 7
blank	NBR (Nitrile)
V	FKM (Viton)

Bypass	Table 8
25	25 psid

Options	Table 9
blank	None
D	Diffuser
M	Magnetic Core
DM	Diffuser + Magnets

Replacement Elements

Table 2 Table 6 Table 7

BETXW __ - __ __

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