BFTTR Tank-Mounted Return Line Filters

Tank Mounted Return Line Hydraulic Filter Assemblies

Flows to 160 gpm (600 l/min)
Port Sizes to 2-1/2”

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

- Compatible with fluid types HH-HL-HM-HV-HTG (according to ISO 6743/4). Consult factory for other fluids.

- Optional accessories include gauge indicator, electrical indicator, and filling port.

- Filter element top cap includes a handle for easy removal and replacement of filter elements.

Specifications

Recommended Operating Conditions

Type:	Tank Top Return Line Filter
Flow Rate:	up to 160 gpm (605 lpm)
Temperature Range:	-10°F to 230°F (-25°C to 110°C)
Bypass Valve:	25 psid (1.7 bar) ± 10%
Max Working Pressure:	43.5 psi (3 bar)
Test Pressure:	72.5 psi (5 bar)
Burst Pressure: Fatigue	145 psi (10 bar)
Test:	0-43.5 psi (3 bar), 300,000 cycles

Fluid Compatibility

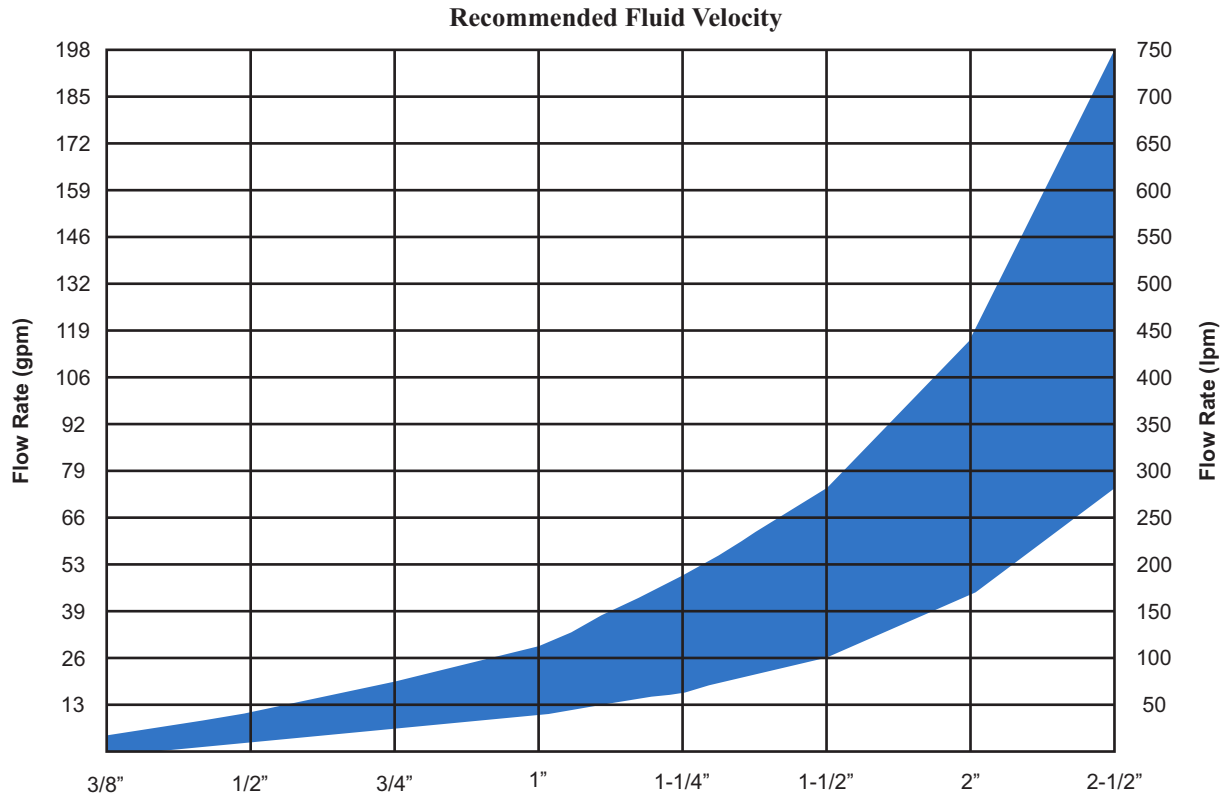
Compatible Fluids:	HH-HL-HM-HV-HTG (ISO 6743/4) (mineral based hydraulic fluids)
Other Fluids:	Contact Behringer for support when using other fluids such as phosphate ester or water glycol.

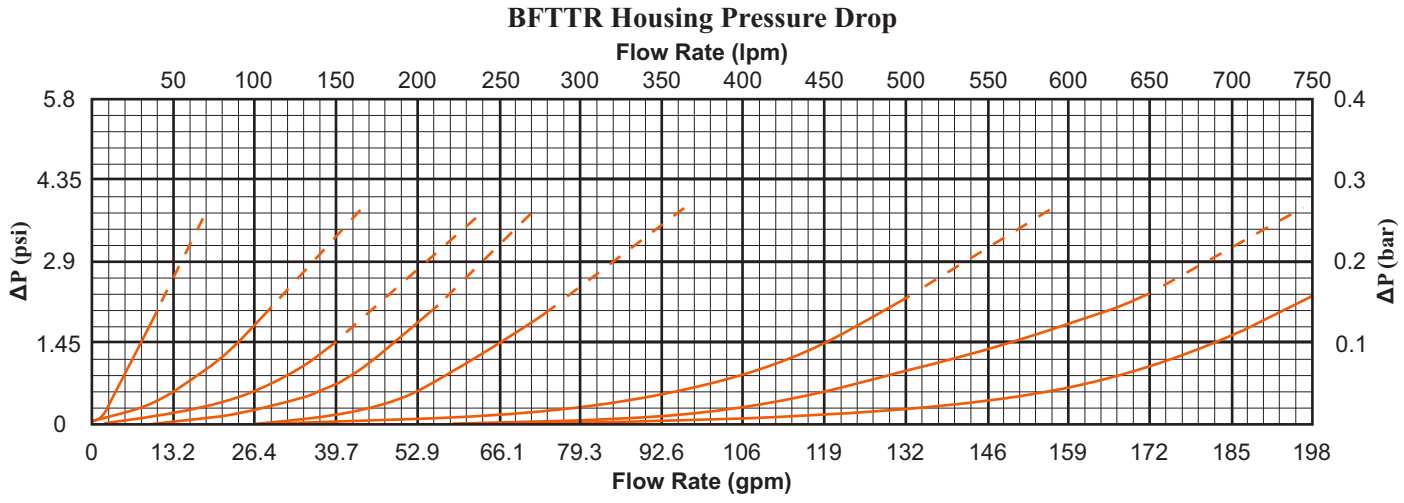
Materials of Construction

Head and Cover:	Aluminum alloy
Filter Bowl:	BFTTR0301, 1001, 1002, 1003, 1801 Polyamide material BFTTR0111, 1801A, 4001, 4002, 4003, 4003A Zinc plated steel material
Bypass Valve:	Polyamide 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 chart below outlines the optimal fluid velocity by connection size.





Flow Curves 011 - 100

Pressure Drop Calculation

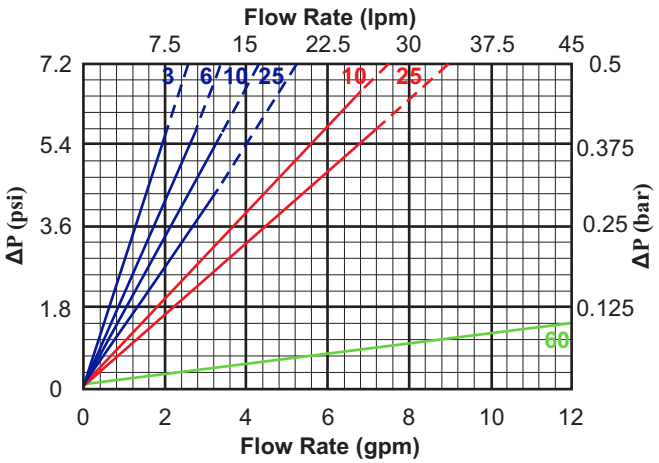
Calculate the complete filter assembly's clean (initial) pressure drop (Δp) by adding the Δp of the filter housing and the Δp of the filter element.

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:

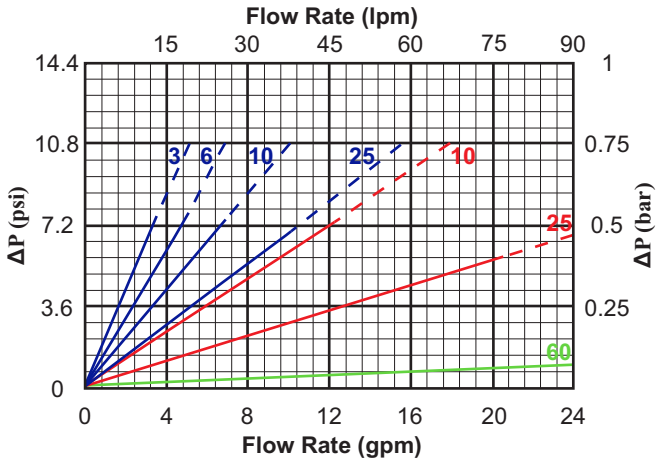
New Δp =(Δp Housing + Δp Element) x $\frac{\text{Viscosity}}{150}$ x $\frac{\text{SG}}{0.9}$

Micro-glass **Cellulose** **Wire Mesh**

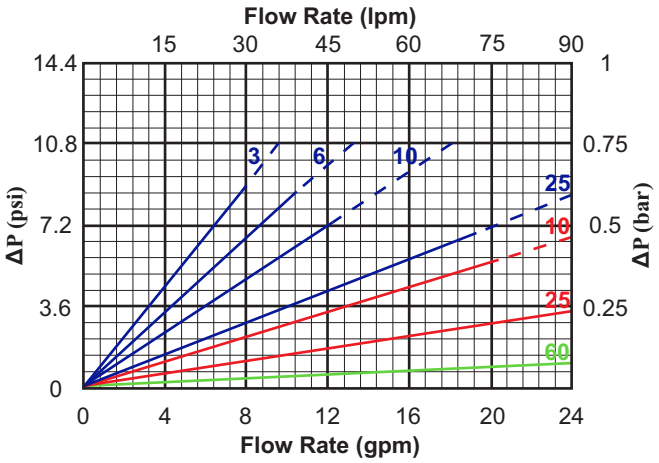
BEF011/1



BEF030/1



BEF100/1



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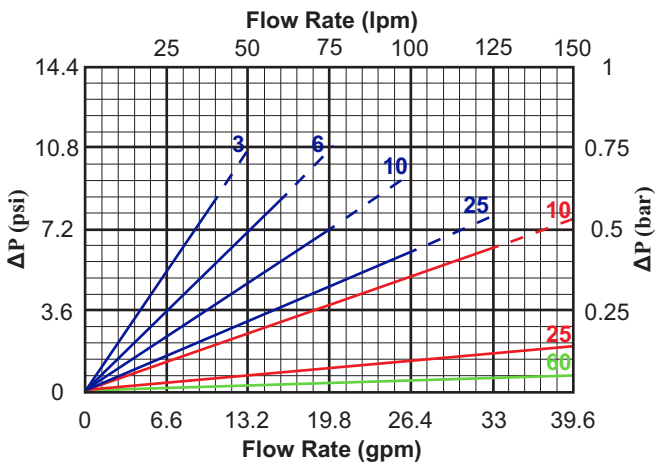

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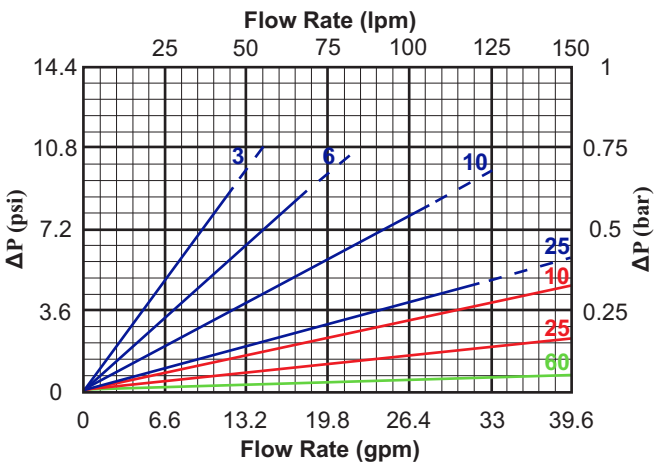
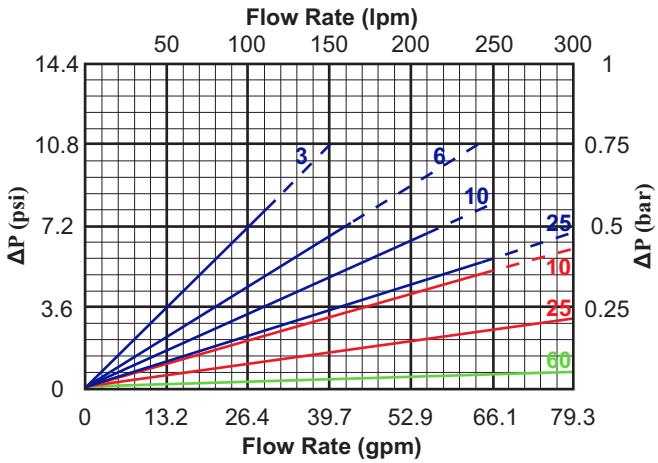
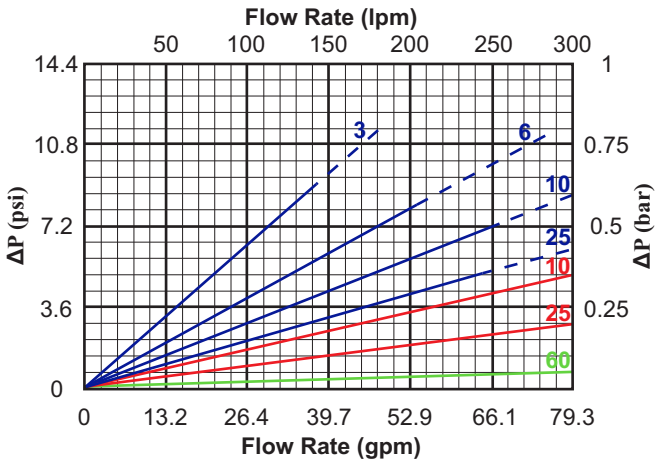


Flow Curves 180 - 400

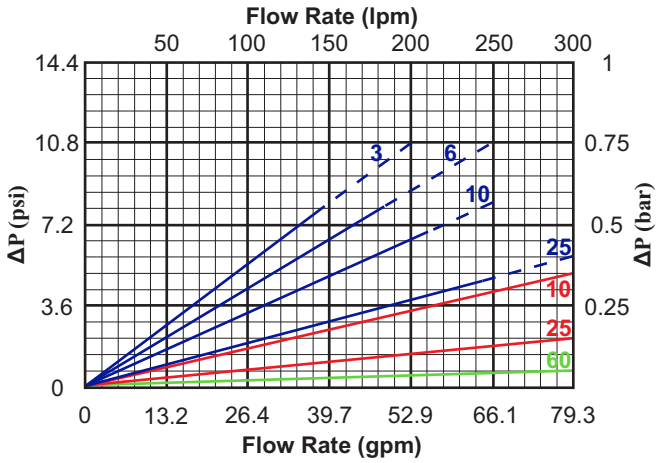
BEF180/1



BEF180/1A



BEF400/1



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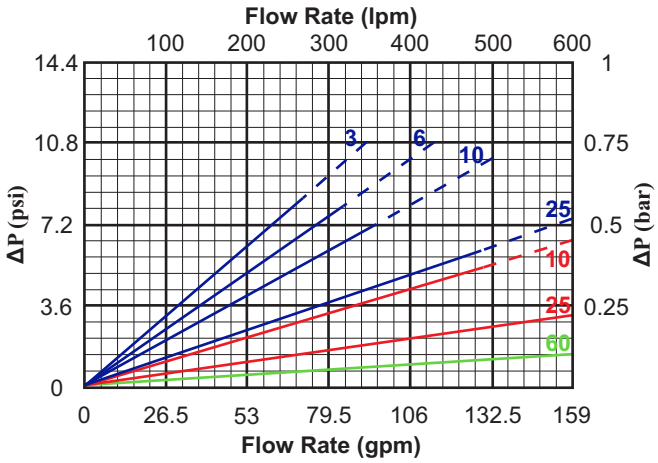

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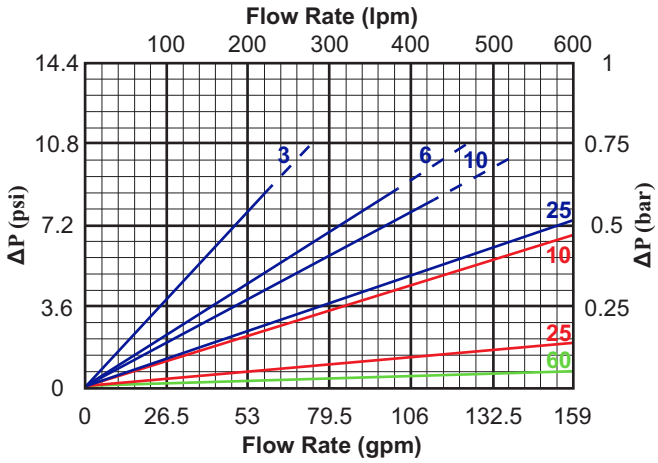

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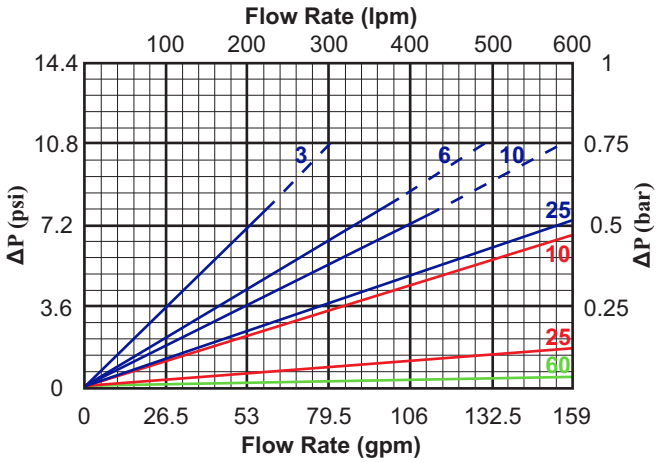
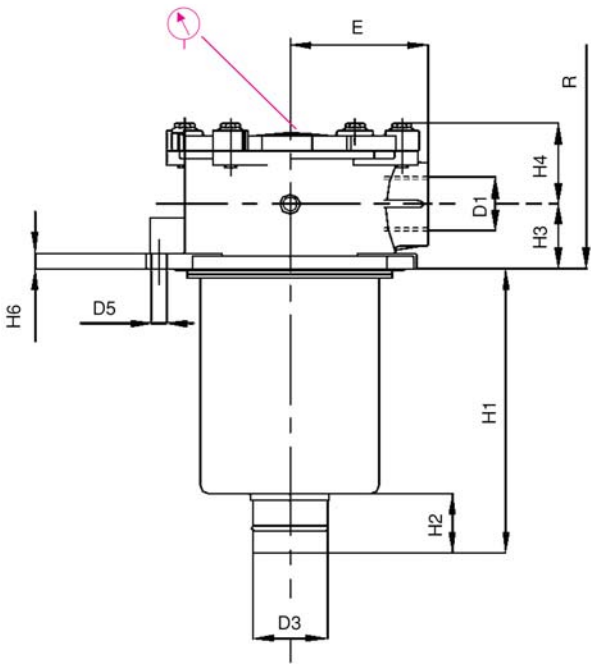
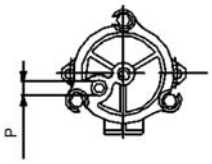


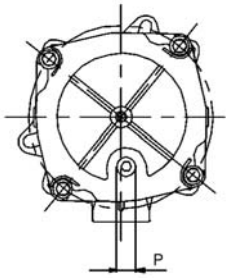
Dimensions



BFTTR011-100



BFTTR180



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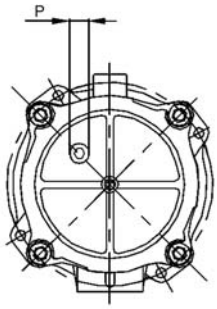
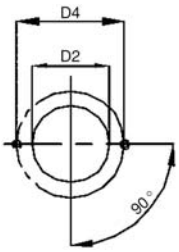
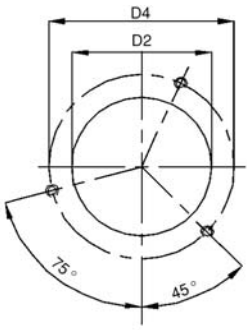
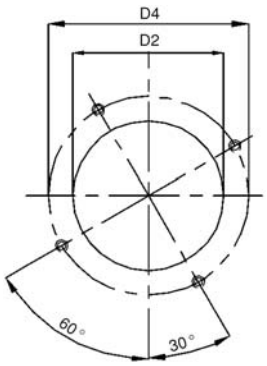


Mounting Patterns

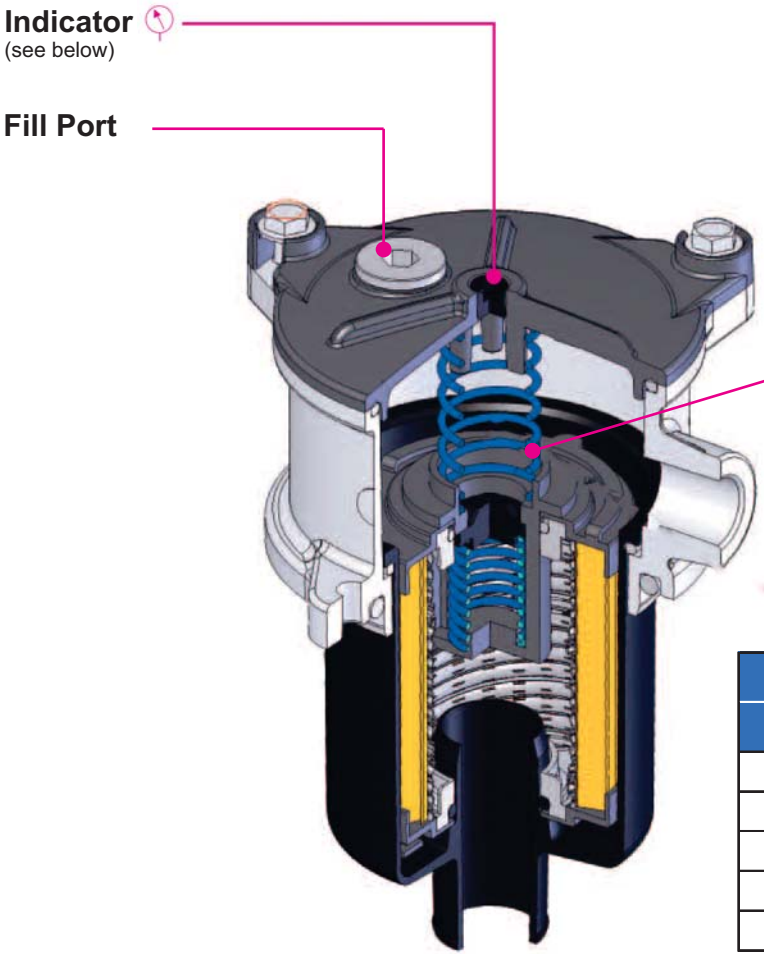






Dimensions															
Series	D1 (Connection Size)	min D2	max D2	D3	D4	D5	E	H1	H2	H3	H4	H6	P	R	kg
BFTTR0111	3/8”	50	50	12	80	65	40	59	16	12	33	9	1/8”	90	0,30
BFTTR0301	1/2”	67	68	24	90	65	50	80	20	22	33	9	3/8”	120	0,45
BFTTR1001	1/2”, 3/4”	89	90	28	115	9	67	102	25	28	47	10	3/8”	150	0,80
BFTTR1002	3/4”, 1”	89	90	28	115	9	67	150	25	28	47	10	3/8”	190	0,95
BFTTR1003	3/4”, 1”	89	90	40	115	9	67	234	30	28	47	10	3/8”	270	1,10
BFTTR1801	1”, 1-1/4, 1-1/2	126	131	40	175	105	95	248	50	35	56	13	1/2”	289	2,10
BFTTR1801A	1”, 1-1/4, 1-1/2	126	131	40	175	105	95	265	30	35	56	13	1/2”	306	2,30
BFTTR4001	1-1/4, 1-1/2, 2”, 2-1/2	174	180	50	220	105	115	178	50	55	69	13	1/2”	250	3,10
BFTTR4002	1-1/4, 1-1/2, 2”, 2-1/3	174	180	635	220	105	115	240	50	55	69	13	1/2”	315	3,60
BFTTR4003	2”, 2-1/2	174	180	635	220	105	115	285	50	55	69	13	1/2”	355	4,10
BFTTR4003A	2”, 2-1/2	174	180	635	220	105	115	300	50	55	69	13	1/2”	370	4,30

Spare Parts and Options



Replacement Spring	
Series	**NBR**
BFTTR011	BFTTR-011-SPRING
BFTTR030	BFTTR-030-SPRING
BFTTR100	BFTTR-100-SPRING
BFTTR180	BFTTR-180-SPRING
BFTTR400	BFTTR-400-SPRING

Seal Kits		
Series	**NBR**	**FKM**
BFTTR011	BFTTR-011-NBR-SK	BFTTR-011-FKM-SK
BFTTR030	BFTTR-030-NBR-SK	BFTTR-030-FKM-SK
BFTTR100	BFTTR-100-NBR-SK	BFTTR-100-FKM-SK
BFTTR180	BFTTR-180-NBR-SK	BFTTR-180-FKM-SK
BFTTR400	BFTTR-400-NBR-SK	BFTTR-400-FKM-SK

Contamination Indicators

Rear Mount Gauge

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

Bottom Mount Gauge

The connection for the contamination indicator is on the bottom of the dial

Electric Pressure Switch

This is an electrical SPDT pressure switch.

Order Code

Complete Filter

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

BFTTR __ __ / __ __ __ __ __ __ - __

Series	Table 1
011	011 Series
030	030 Series
100	100 Series
180	180 Series
400	400 Series

Length	Table 2
1	Single Length
1A	Double (180 series only)
2	Double (100 and 400 series only)
3	Triple (100 and 400 series only)
3A	Quad (400 series only)

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

Port Size	Table 4
3	3/8" (0111 only)
4	1/2" (0301, 1001 only)
5	3/4"
6	1"
7	1-1/4"
8	1-1/2"
9	2"
10	2-1/2"

Indicators	Table 5
P	Gauge port plugged
GR	Pressure Gauge (Rear Mount)
GB	Pressure Gauge (Bottom Mount)
E	Electrical Pressure Switch

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
F	Fill Port

Replacement Elements

Table 1 Table 2 Table 6 Table 7

BEF __ / __ - __ __

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