

Base-Ported Pressure Filter

TF50



Features and Benefits

- Base-ported pressure filter
- Can be installed in vertical or horizontal position
- Element changeout from top minimizes oil spillage
- Offered in pipe, SAE straight thread, flanged and ISO 228 porting
- Available with non-bypass option with high collapse element
- Integral inlet and outlet female test points option available
- Offered in conventional subplate porting

40 gpm
150 L/min
5000 psi
345 bar

NF30
 NFS30
 YF30
 CFX30
 PLD
 DF40
 CF40
 PF40
 RFS50
 RF60
 CF60
 CTF60

Model No. of filter in photograph is TF502A10P.



INDUSTRIAL



AUTOMOTIVE
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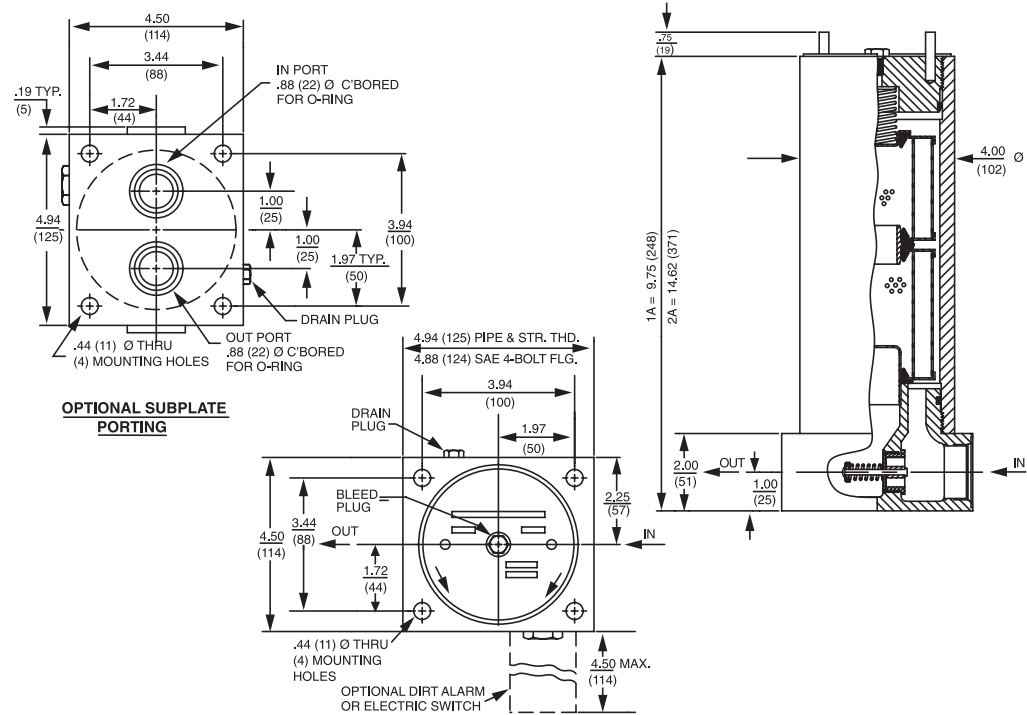
Applications

VF60
 LW60
 KF30
TF50
 KF50
 KC50
 MKF50
 KC65
 NOF30-05
 NOF50-760

Flow Rating:	Up to 40 gpm (150 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,000 psi (1035 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	3500 psi (240 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 69 psi (4.8 bar) Non-bypassing model has a blocked bypass.
Porting Base:	Ductile Iron
Element Case & Cap:	Steel
Weight of TF50-1A:	24.4 lbs. (11.1 kg)
Weight of TF50-2A:	29.8 lbs. (13.5 kg)
Element Change Clearance:	8.50" (215 mm)

Filter Housing Specifications

FOF60-03
 NMF30
 RMF60
 Cartridge Elements
 HS60
 MHS60
 KFH50



Metric dimensions in ().

Element Performance Information

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio wrt ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
A3	6.8	7.5	10.0	N/A	N/A
A10	15.5	16.2	18.0	N/A	N/A
AZ1	<1.0	<1.0	<1.0	<4.0	4.2
AZ3	<1.0	<1.0	<2.0	<4.0	4.8
AZ5	2.5	3.0	4.0	4.8	6.3
AZ10	7.4	8.2	10.0	8.0	10.0
AZ25	18.0	20.0	22.5	19.0	24.0
CCZX3	<1.0	<1.0	<2.0	4.7	5.8
CCZX10	7.4	8.2	10.0	8.0	10.0

Dirt Holding Capacity

Element	DHC (gm)
A3	16
A10	13
AZ1	25
AZ3	26
AZ5	30
AZ10	28
AZ25	28
CCZX3	26*
CCZX10	28*

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

*Based on 100 psi terminal pressure

Flow Direction: Outside In

Element Nominal Dimensions: A: 3.0" (75 mm) O.D. x 4.5" (115 mm) long
CC: 3.0" (75 mm) O.D. x 9.5" (240 mm) long

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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	
	NF30
	NFS30
	YF30
	CFX30
	PLD

Pressure	Element		Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 40 psi (2.8 bar) bypass valve.								
	Series	Part No.									
To 5000 psi (345 bar)	E Media	A3	1A3	2A3	See KF50						
		A10	1A10	2A10							
		A25	1A25								
	Z- Media®	AZ1	1AZ1	2AZ1	See KF50						
		AZ3	1AZ3	2AZ3							
		AZ5	1AZ5		2AZ5						
		AZ10	1AZ10 & 2AZ10								
		AZ25	1AZ25 & 2AZ25								
	Flow	gpm	0	5	10	15	20	25	30	35	40
		(L/min)	0	50			100			150	

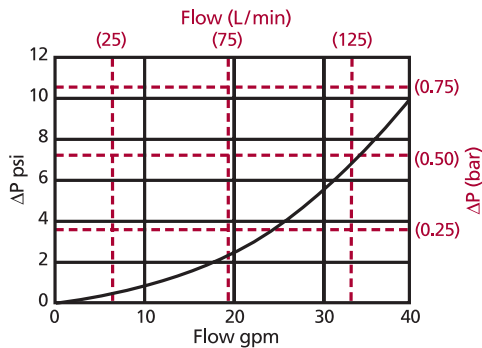
Element Selection Based on Flow Rate	
	DF40
	CF40
	PF40
	RFS50
	RF60
	CF60
	CTF60
	VF60
	LW60

Shown above are the elements most commonly used in this housing.

Note: Contact factory regarding use of E Media in High Water Content, Invert Emulsion and Water Glycol Applications. For more information, refer to Fluid Compatibility: Fire Resistant Fluids, pages 19 and 20.

ΔP_{housing}

TF50 ΔP_{housing} for fluids with sp gr = 0.86:



sp gr = specific gravity

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

ΔP_{element}

$$\Delta P_{\text{element}} = \text{flow} \times \text{element } \Delta P \text{ factor} \times \text{viscosity factor}$$

El. ΔP factors @ 150 SUS (32 cSt):

	1A	2A
A3	.53	.27
A10	.36	.18
A25	.05	.03
AZ1	.70	.35
AZ3	.50	.25
AZ5	.32	.16
AZ10	.25	.13
AZ25	.14	.07
CCZX3	.29	
CCZX10	.26	

If working in units of bars & L/min, divide above factor by 54.9.

Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

Pressure Drop Information Based on Flow Rate and Viscosity

	TF50
	KF50
	KC50
	MKF50
	KC65
	NOF30-05
	NOF50-760
	FOF60-03
	NMF30
	RMF60
	Cartridge Elements
	HS60
	MHS60
	KFH50

Notes

$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + \Delta P_{\text{element}}$$

Exercise:

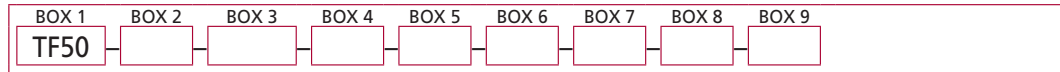
Determine ΔP at 20 gpm (75 L/min) for TF502AZ3SMS using 200 SUS (44 cSt) fluid.

Solution:

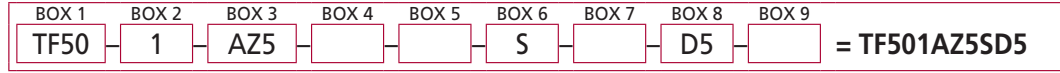
$$\begin{aligned} \Delta P_{\text{housing}} &= 2.5 \text{ psi } [.22 \text{ bar}] \\ \Delta P_{\text{element}} &= 20 \times .25 \times (200 \div 150) = 6.7 \text{ psi} \\ &\text{or} \\ &= [75 \times (.25 \div 54.9) \times (44 \div 32)] = .47 \text{ bar} \\ \Delta P_{\text{total}} &= 2.5 + 6.7 = 9.2 \text{ psi} \\ &\text{or} \\ &= [.22 + .47] = .69 \text{ bar} \end{aligned}$$

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder TF50:



Example: NOTE: Only boxes 7 and 9 may contain more than one option



BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Number of Elements	Element Part Number	Seal Material
TF50	1	A3 = 3 µ E media (cellulose)	Omit = Buna N
	2	A10 = 10 µ E media (cellulose)	V = Viton®
TFN50 (Non-bypassing: requires ZX high collapse elements)		A25 = 25 µ E media (cellulose)	H = EPR
		AZ1 = 1 µ Excellement® Z-Media® (synthetic)	H.5 = Skydrol® compatibility
		AZ3 = 3 µ Excellement® Z-Media® (synthetic)	
		AZ5 = 5 µ Excellement® Z-Media® (synthetic)	
		AZ10 = 10 µ Excellement® Z-Media® (synthetic)	
		AZ25 = 25 µ Excellement® Z-Media® (synthetic)	
		AM10 = 10 µ M media (reusable metal)	
		AM25 = 25 µ M media (reusable metal)	
		AM60 = 60 µ M media (reusable metal)	
		AM150 = 150 µ M media (reusable metal)	
		CCZX1 = 1 µ Excellement® Z-Media® (high collapse center tube)	
		CCZX3 = 3 µ Excellement® Z-Media® (high collapse center tube)	
		CCZX10 = 10 µ Excellement® Z-Media® (high collapse center tube)	

BOX 5
Magnet Option
Omit = None
M = Magnet inserts (not available w/ indicator in cap or TFN50)

NOTES:

Box 2. Number of elements must be 1 when using CC elements.

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

Box 4. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 6. For option F, bolt depth .75" (19 mm). For option O, O-rings included; hardware not included.

Box 8. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.

Box 9. Options N, G509 and G588 are not available with TFN50. N option should be used in conjunction with dirt alarm.

BOX 6	BOX 8
Porting	Dirt Alarm® Options
P = 1" NPTF	Omit = None
S = SAE-16	D = Pointer
F = 1" SAE 4-bolt flange Code 61	D5 = Visual pop-up
O = Subplate	D5C = D5 in cap
B = ISO 228 G-1"	D9 = All stainless D5
BOX 7	Visual with Thermal Lockout
Options	D8 = Visual w/ thermal lockout
Omit = None	D8C = D8 in cap
X = Blocked bypass	Electrical
50 = 50 psi bypass setting (not available w/ TFN50)	MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable
L = Tw ¼" NPTF inlet and outlet female test ports	MS5LC = Low current MS5
U = Series 1215 7/16 UNF Schroeder Check Test Point installation in cap (upstream)	MS10 = Electrical w/ DIN connector (male end only)
UU = Series 1215 7/16 UNF Schroeder Check Test Point installation in block (upstream and downstream)	MS10LC = Low current MS10
BOX 9	MS11 = Electrical w/ 12 ft. 4-conductor wire
Additional Options	MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)
Omit = None	MS12LC = Low current MS12
N = No-Element indicator (not available with TFN50)	MS16 = Electrical w/ weather-packed sealed connector
G509 = Dirt alarm and drain opposite standard	MS16LC = Low current MS16
G588 = Electrical switch and drain opposite standard	MS17LC = Electrical w/ 4 pin Brad Harrison male connector
	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
	MS = Cam operated switch w/ ½" conduit female connection
	MS13 = Supplied w/ threaded connector & light
	MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)
	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