

# 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  
 MANUFACTURING



MACHINE  
 TOOL



MINING  
 TECHNOLOGY



STEEL  
 MAKING



MOBILE  
 VEHICLES

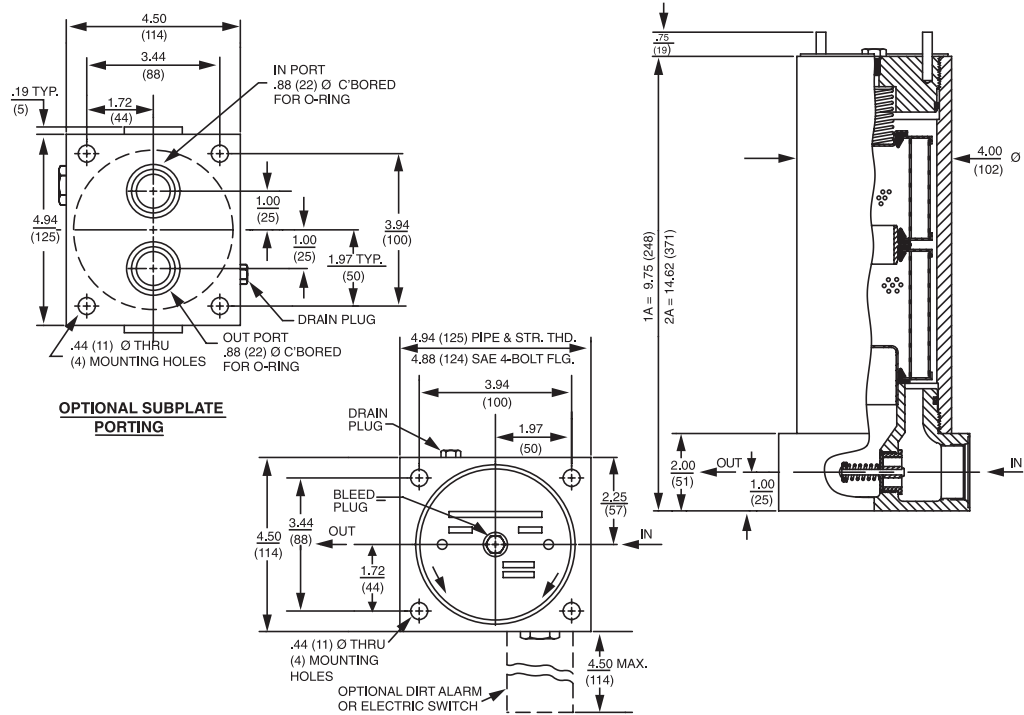
## Applications

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

# Base-Ported Pressure Filter

# TF50

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

Skydrol® is a registered trademark of Solutia Inc.

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**

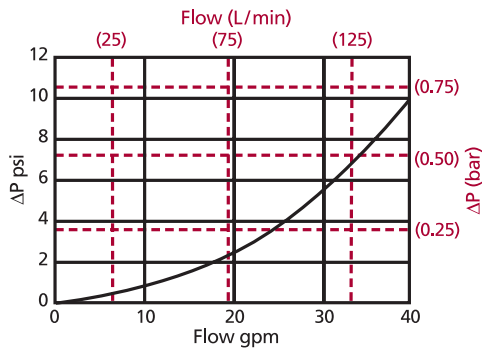
DF40  
CF40  
PF40  
RFS50  
RF60  
CF60  
CTF60  
VF60  
LW60

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<sub>housing</sub>

TF50 ΔP<sub>housing</sub> 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<sub>element</sub>

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

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

### Notes

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

### Exercise:

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

### Solution:

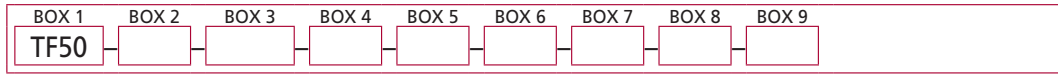
$$\begin{aligned} \Delta P_{\text{housing}} &= 2.5 \text{ psi } [.22 \text{ bar}] \\ \Delta P_{\text{element}} &= 20 \times .25 \times (200 \div 150) = 6.7 \text{ psi} \\ &\text{or} \\ &= [75 \times (.25 \div 54.9) \times (44 \div 32)] = .47 \text{ bar} \\ \Delta P_{\text{total}} &= 2.5 + 6.7 = 9.2 \text{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

**TF50**

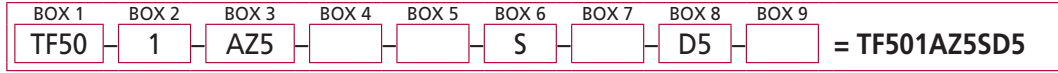
KF30  
KF50  
KC50  
MKF50  
KC65  
NOF30-05  
NOF50-760  
FOF60-03  
NMF30  
RMF60  
Cartridge Elements  
HS60  
MHS60  
KFH50

## 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 V = Viton® H = EPR H.5 = Skydrol® compatibility
	2	A10	= 10 µ E media (cellulose)		
TFN50 (Non-bypassing: requires ZX high collapse elements)		A25	= 25 µ E media (cellulose)		BOX 5 <b>Magnet Option</b> Omit = None M = Magnet inserts (not available w/ indicator in cap or TFN50)
		AZ1	= 1 µ Excellement® Z-Media® (synthetic)		
		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)			

#### 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 7	BOX 8	
Porting	Options	Porting	Dirt Alarm® Options
P = 1" NPTF S = SAE-16 F = 1" SAE 4-bolt flange Code 61 O = Subplate B = ISO 228 G-1"	Omit = None X = Blocked bypass 50 = 50 psi bypass setting (not available w/ TFN50) L = Tw ¼" NPTF inlet and outlet female test ports U = Series 1215 7/16 UNF Schroeder Check Test Point installation in cap (upstream) UU = Series 1215 7/16 UNF Schroeder Check Test Point installation in block (upstream and downstream)	Visual Visual with Thermal Lockout	Omit = None D = Pointer D5 = Visual pop-up D5C = D5 in cap D9 = All stainless D5 D8 = Visual w/ thermal lockout D8C = D8 in cap 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 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
		Electrical Electrical with Thermal Lockout	
		Electrical Visual	
		Electrical Visual with Thermal Lockout	