

# Base-Ported Pressure Filter

# MKF50



## Features and Benefits

- Base-ported high pressure dual filter manifold mounted
- Meets HF4 automotive standard
- Element changeout from top minimizes oil spillage
- Offered in pipe porting (contact factory for other porting options)
- No-Element indicator option available
- Available with non-bypass option with high collapse element
- Integral inlet and outlet female test points option available
- Double and triple stacking of K-size elements can be replaced by single KK or 27K-size elements

Model No. of filter in photograph is MKF504K10PD5.



INDUSTRIAL



MINING TECHNOLOGY



AUTOMOTIVE MANUFACTURING



STEEL MAKING



MOBILE VEHICLES



WASTE WATER TREATMENT



POWER GENERATION

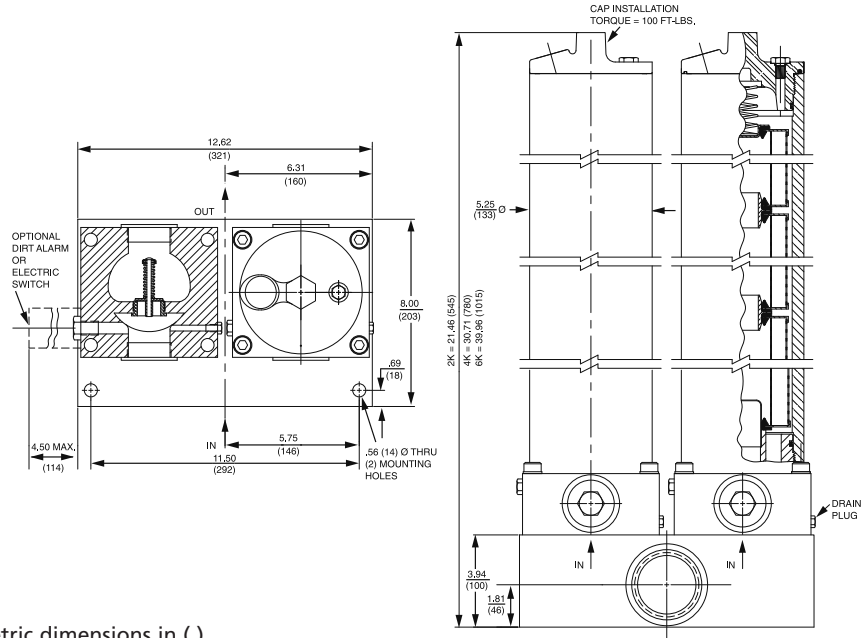
- NF30
- NFS30
- YF30
- CFX30
- PLD
- DF40
- CF40
- PF40
- RFS50
- RF60
- CF60
- CTF60
- VF60
- LW60
- KF30
- TF50
- KF50
- KC50
- MKF50**
- KC65
- NOF30-05
- NOF50-760
- FOF60-03
- NMF30
- RMF60
- Cartridge Elements
- HS60
- MHS60
- KFH50

## Applications

Flow Rating:	Up to 200 gpm (760 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) Optional Cracking: 50 psi (3.5 bar) Full Flow: 61 psi (4.2 bar) Non-bypassing model has a blocked bypass.
Porting Base & Cap:	Ductile Iron
Element Case:	Steel
Weight of MKF50-2K:	214.0 lbs. (97.3 kg)
Weight of MKF50-4K:	243.0 lbs. (110.2 kg)
Weight of MKF50-6K:	284.4 lbs. (129.0 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

## Filter Housing Specifications

- 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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
K3/KK3/27K	6.8	7.5	10.0	N/A	N/A
K10/KK10/27K10	15.5	16.2	18.0	N/A	N/A
KZ1/KKZ1/27KZ1	<1.0	<1.0	<1.0	<4.0	4.2
KZ3/KKZ3/27KZ3/KAS3/KKAS3/27KAS3	<1.0	<1.0	<2.0	<4.0	4.8
KZ5/KKZ5/27KZ5/KAS5/KKAS5/27KAS5	2.5	3.0	4.0	4.8	6.3
KZ10/KKZ10/27KZ10/KAS10/KKAS10/27KAS10	7.4	8.2	10.0	8.0	10.0
KZ25/KKZ25/27KZ25	18.0	20.0	22.5	19.0	24.0
KZW1	N/A	N/A	N/A	<4.0	<4.0
KZW3/KKZW3	N/A	N/A	N/A	4.0	4.8
KZW5/KKZW5	N/A	N/A	N/A	5.1	6.4
KZW10/KKZW10	N/A	N/A	N/A	6.9	8.6
KZW25/KKZW25	N/A	N/A	N/A	15.4	18.5
KZX3/KKZX3/27KZX3	<1.0	<1.0	<2.0	4.7	5.8
KZX10/KKZX10/27KZX10	7.4	8.2	10.0	8.0	9.8

## Dirt Holding Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
K3	54	KK3	108	27K3	162				
K10	44	KK10	88	27K10	132				
KZ1	112	KKZ1	224	27KZ1	336	KZW1	61		
KZ3/KAS3	115	KKZ3/KKAS3	230	27KZ3/27KAS3	345	KZW3	64	KKZW3	128
KZ5/KAS5	119	KKZ5/KKAS5	238	27KZ5/27KAS5	357	KZW5	63	KKZW5	126
KZ10/KAS10	108	KKZ10/KKAS10	216	27KZ10/27KAS10	324	KZW10	57	KKZW10	114
KZ25	93	KKZ25	186	27KZ25	279	KZW25	79	KKZW25	158
KZX3	40*	KKZX3	80	27KZX3	120				
KZX10	49*	KKZX10	98	27KZX10	147				

\*Based on 100 psi terminal pressure

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

Flow Direction: Outside In

Element Nominal Dimensions: K: 3.9" (99 mm) O.D. x 9.0" (230 mm) long  
KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long  
27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

# Base-Ported Pressure Filter

# MKF50

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP Media (synthetic)
High Water Content	All Z-Media® and ASP Media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic), 10 µ ASP Media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic) and all ASP Media (synthetic)
Phosphate Esters	All Z-Media® and all ASP Media (synthetic) with H (EPR) seal designation and 3 and 10 µ E media (cellulose) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media® (synthetic) and all ASP Media (synthetic) with H.5 seal designation and W media (water removal) 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	
DF40	

Element Selection Based on Flow Rate	
CF40	
PF40	
RFS50	
RF60	
CF60	
CTF60	
VF60	
LW60	
KF30	
TF50	

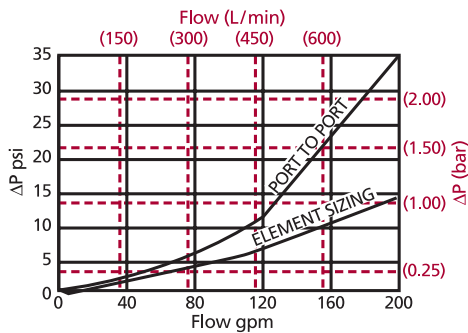
Pressure	Element		Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 40 psi (2.8 bar) bypass valve.						
	Series	Part No.							
To 5000 psi (345 bar)	E Media	K3	4K3†		6K3				
		K10	4K10† & 6K10†						
		K25	4K25†						
	Z- Media®	KZ1	4KZ1†		6KZ1†				
		KZ3	4KZ3†		6KZ3†				
		KZ5	4KZ5†		6KZ5†				
		KZ10	4KZ10†		6KZ10†				
			KZ25	4KZ25†		6KZ25†			
	Flow	gpm	0	100	120	140	160	180	200
		(L/min)	0	400		600			760

†Double and triple stacking of K-size elements can be replaced by single KK & 27K elements, respectively. 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>

MKF50 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.

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

The ΔP housing curve labeled "Element Sizing" is the pressure drop between the inlet and outlet areas of the filter's bypass valve and should be used for filter sizing. The "Port to Port" ΔP takes into consideration the manifold block. This pressure drop can be significantly higher due to these additional flow constrictions. Although this ΔP does not affect the performance of the filter, it should be considered for overall system design.

### 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):

	2K	4K	6K
K3	.12	.06	.04
K10	.05	.02	.02
K25	.01	.01	.01
KZ1	.10	.05	.03
KZ3/KAS3/KKAS3/27KAS3	.05	.03	.02
KZ5/KAS5/KKAS5/27KAS5	.04	.02	.01
KZ10/KAS10/KKAS10/27KAS10	.03	.02	.01
KZ25	.02	.01	.01

	1K	2K
KZW1	.43	
KZW3	.32	.16
KZW5	.28	.14
KZW10	.23	.12
KZW25	.14	.07

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

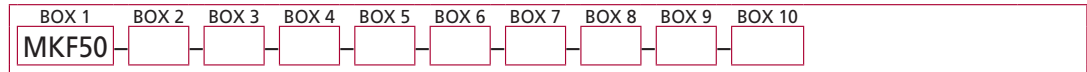
Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

### Pressure Drop Information Based on Flow Rate and Viscosity

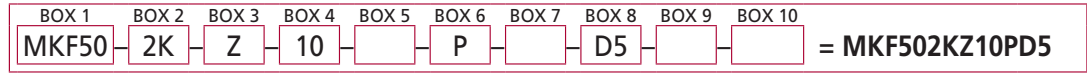
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## Filter Model Number Selection

### How to Build a Valid Model Number for a Schroeder MKF50



**Example:** NOTE: Only box 8 may contain more than one option



BOX 1	BOX 2	BOX 3	BOX 4
<b>Filter Series</b>	<b>Number &amp; Size of Elements</b>	<b>Media Type</b>	<b>Micron Rating</b>
<b>MKF50</b>	2 K, KK, 27K 4 K 6 K	Omit Z AS ZW ZX W M	1 = 1 Micron (Z, ZW, ZX media) 3 = 3 Micron (AS, E, Z, ZW, ZX media) 5 = 5 Micron (AS, Z, ZW, ZX media) 10 = 10 Micron (AS, E, M, Z, ZW, ZX media) 25 = 25 Micron (E, M, Z, ZW, ZX media) 60 = 60 Micron (M media) 150 = 150 Micron (M media) 260 = 260 Micron (M media)
<b>MKFN50</b> (Non-bypassing: requires ZX high collapse elements)		E Media (Cellulose) Excellerment® Z-Media® (synthetic) Anti-Stat Media (synthetic) Aqua-Excellerment™ ZW Media Excellerment® Z-Media® (High Collapse centertube) W Media (water removal) Media (reusable metal mesh)	

BOX 5	BOX 6	BOX 7
<b>Seal Material</b>	<b>Porting</b>	<b>Options</b>
Omit = Buna N V = Viton® H = EPR H.5 = Skydrol® compatibility	P = 2½" NPTF Contact factory for other porting options	Omit = None X = Blocked bypass 50 = 50 psi bypass setting L = Two ¼" NPTF inlet and outlet female test ports U = Series 1215 ¼ UNF Schroeder Check Test Point installed in cap (upstream)

BOX 8	BOX 9
<b>Dirt Alarm® Options</b>	<b>Additional Options</b>
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	Omit = None N = No-Element Indicator (not available w/ KFN30 or housings w/ indicator in cap)

**NOTES:**

- Box 2. Number of elements must equal 2 when using KK or 27K elements. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5. Double and triple stacking of K-size elements can be replaced by single KK and 27K elements, respectively. ZW media not available in 27K length.
- Box 5. 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 7. 50 option is not available with MKFN50.
- Box 8. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.
- Box 9. N option should be used in conjunction with dirt alarm.