

# 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



AUTOMOTIVE  
MANUFACTURING



MINING  
TECHNOLOGY



STEEL  
MAKING



MOBILE  
VEHICLES

## Applications

NF30

NFS30

YF30

DF40

CF40

CFX30

RF60

RFS50

CF60

VF60

KF30

TF50

KF50

KC50

KFH50

**MKF50**

KC65

FOF60-03

## Filter Housing Specifications

NOF30-05

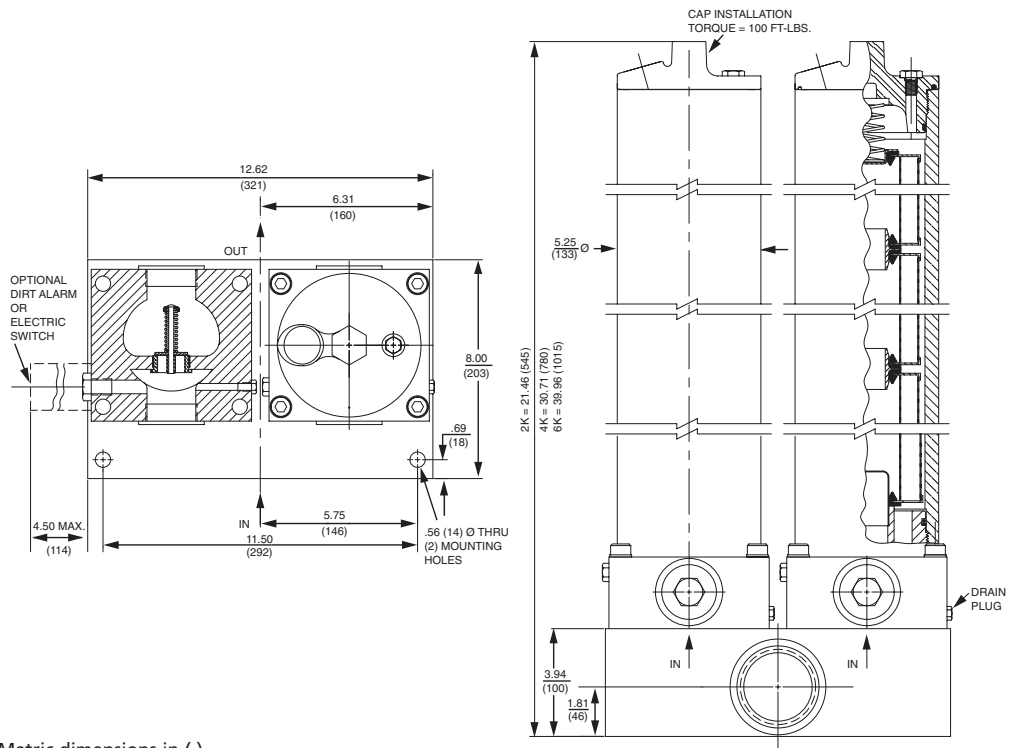
NOF50-760

NMF30

RMF60

Cartridge  
Elements

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)
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: Element Case:	Ductile Iron 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



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/KK3/27K3	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	<1.0	<1.0	<2.0	<4.0	4.8
KZ5/KKZ5/27KZ5	2.5	3.0	4.0	4.8	6.3
KZ10/KKZ10/27KZ10	7.4	8.2	10.0	8.0	10.0
KZ25/KKZ25/27KZ25	18.0	20.0	22.5	19.0	24.0
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)
K3	54	KK3	108	27K3	162
K10	44	KK10	88	27K10	132
KZ1	112	KKZ1	224	27KZ1	336
KZ3	115	KKZ3	230	27KZ3	345
KZ5	119	KKZ5	238	27KZ5	357
KZ10	108	KKZ10	216	27KZ10	324
KZ25	93	KKZ25	186	27KZ25	279
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 (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 μ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 μ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation and 3 and 10 μ E (cellulose) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 μ Z (synthetic) media with H.5 seal designation and W (water removal) media 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
- DF40

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	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	600	600	600	760

## Element Selection

Based on Flow Rate

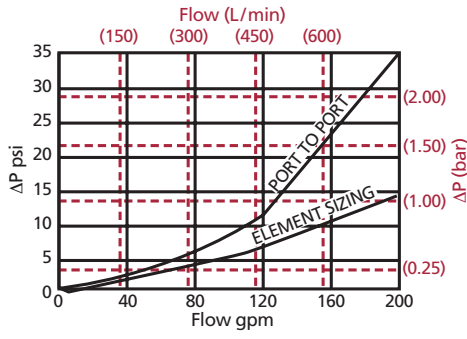
- CF40
- CFX30
- RF60
- RF550
- CF60
- VF60
- KF30

†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.

## ΔP<sub>element</sub>

ΔP<sub>element</sub> = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	2K	4K	6K
<b>K3</b>	.12	.06	.04
<b>K10</b>	.05	.02	.02
<b>K25</b>	.01	.01	.01
<b>KZ1</b>	.10	.05	.03
<b>KZ3</b>	.05	.03	.02
<b>KZ5</b>	.04	.02	.01
<b>KZ10</b>	.03	.02	.01
<b>KZ25</b>	.02	.01	.01
<b>KZX10</b>	.11	.06	.04

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
- KFH50
- MKF50**

Notes

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

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.

- KC65
- FOF60-03
- NOF30-05
- NOF50-760
- NMF30
- RMF60
- Cartridge Elements

## Filter Model Number Selection

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

BOX 1    BOX 2    BOX 3    BOX 4    BOX 5    BOX 6    BOX 7    BOX 8

MKF50 - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

**Example:** NOTE: Only box 6 may contain more than one option

BOX 1    BOX 2    BOX 3    BOX 4    BOX 5    BOX 6    BOX 7    BOX 8

MKF50 - 2 - KZ5 - [ ] - P - [ ] - D5 - [ ] = MKF502KZ5PD5

Filter Series	Number of Elements	Element Part Number				
MKF50	2	K Length	KK Length	27K Length		
MKFN50 (Non-bypassing: requires ZX high collapse elements)	4 6	K3 K10 K25	KK3 KK10	27K3 27K10	= 3 μ E media (cellulose) = 10 μ E media (cellulose) = 25 μ E media (cellulose)	
		KZ1 KZ3 KZ5 KZ10 KZ25	KKZ1 KKZ3 KKZ5 KKZ10 KKZ25	27KZ1 27KZ3 27KZ5 27KZ10 27KZ25	= 1 μ Excellement® Z media (synthetic) = 3 μ Excellement Z media (synthetic) = 5 μ Excellement Z media (synthetic) = 10 μ Excellement Z media (synthetic) = 25 μ Excellement Z media (synthetic)	
		KZX1 KZX3 KZX5 KZX10 KZX25	KKZX1 KKZX3 KKZX5 KKZX10 KKZX25	27KZX1 27KZX3 27KZX5 27KZX10 27KZX25	= 1 μ Excellement Z media (high collapse center tube) = 3 μ Excellement Z media (high collapse center tube) = 5 μ Excellement Z media (high collapse center tube) = 10 μ Excellement Z media (high collapse center tube) = 25 μ Excellement Z media (high collapse center tube)	
		KW	KKW	27KW	= W media (water removal)	
		KM10 KM25 KM60 KM150 KM260			= K size 10 μ M media (reusable metal) = K size 25 μ M media (reusable metal) = K size 60 μ M media (reusable metal) = K size 150 μ M media (reusable metal) = K size 260 μ M media (reusable metal)	

Seal Material	Porting	Options	Dirt Alarm® Options	
Omit = Buna N  V = Viton®  H = EPR  H.5 = Skydrol® compatibility	P = 2½" NPTF  Contact factory about 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 installation in cap (upstream)	Omit = None	
			Visual	D = Pointer D5 = Visual pop-up D5C = D5 in cap D5R = D5 mounted opposite standard location D9 = All stainless D5
			Visual with Thermal Lockout	D8 = Visual w/ thermal lockout D8C = D8 in cap D8R = D8 opposite standard location
			Electrical	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
			Electrical with Thermal Lockout	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
			Electrical Visual	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)
			Electrical Visual with Thermal Lockout	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

BOX 8

Additional Options
Omit = None N = No-Element indicator

#### NOTES:

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