

Base-Ported Pressure Filter

MKF50/ MKC50



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
- G** Available with quality-protected GeoSeal® Elements (GMKF50)

200 gpm
760 L/min
5000 psi
345 bar

NF30
NFS30
YF30
CFX30
PLD
CF40
DF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
KF50

Model No. of filter in photograph is MKF504K10PD5 and MKC504K10PD5.

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)
Weight of MKC50-2K:	216.0 lbs. (98.0 kg)
Weight of MKC50-4K:	245.0 lbs. (111.1 kg)
Weight of MKC50-6K:	286.4 lbs. (129.9 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

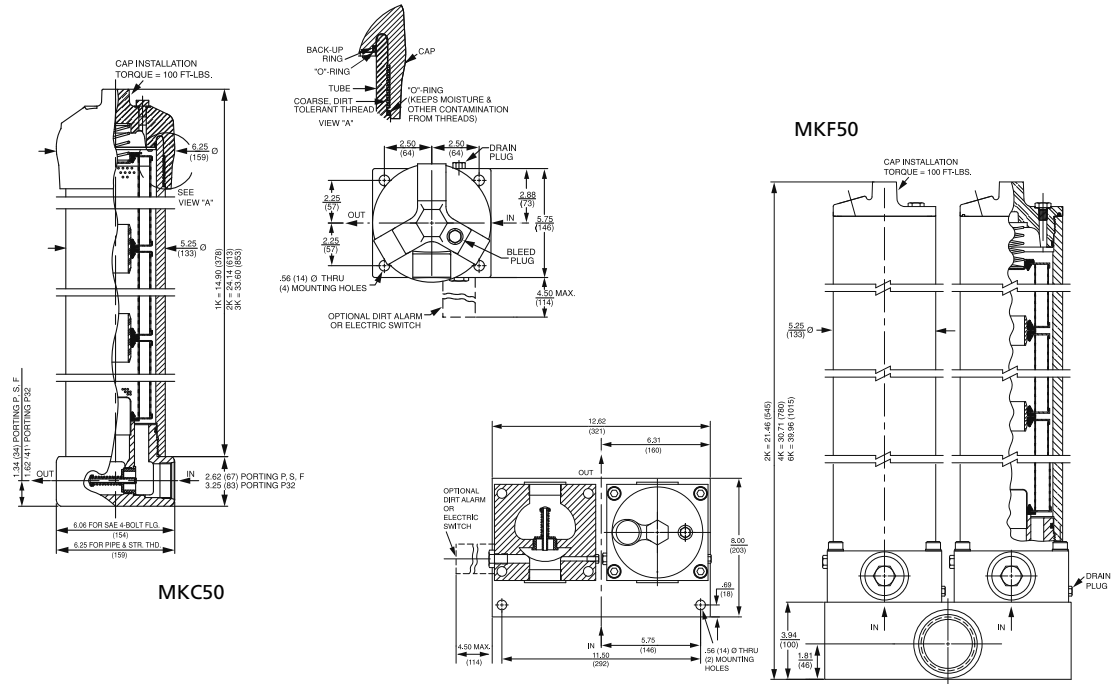
Filter Housing Specifications

MKF50
MKC50
KC65
HS60
MHS60
KFH50
LC60
LC35
LC50
NOF30-05

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E-Media (cellulose) and 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
Phosphate Esters	All Z-Media® and 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 (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Fluid Compatibility

NOF-50-760
FOF60-03
NMF30
RMF60
14-CRZX10
20-CRZX10



Metric dimensions in ().
Dimensions shown are inches (millimeters) for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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
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

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
KZ1	112	KKZ1	224	27KZ1	336	KZW1	61		
KZ3	115	KKZ3	230	27KZ3	345	KZW3	64	KKZW3	128
KZ5	119	KKZ5	238	27KZ5	357	KZW5	63	KKZW5	126
KZ10	108	KKZ10	216	27KZ10	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

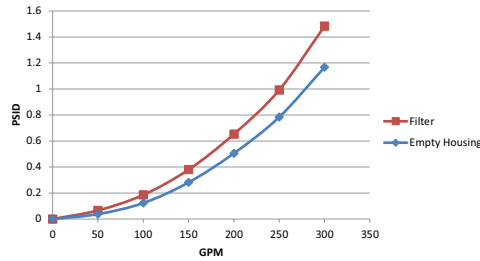
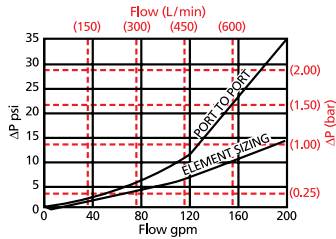
MKF50/ MKC50

Pressure Drop Information Based on Flow Rate and Viscosity

$\Delta P_{\text{housing}}$

MKF50/MKC50 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:

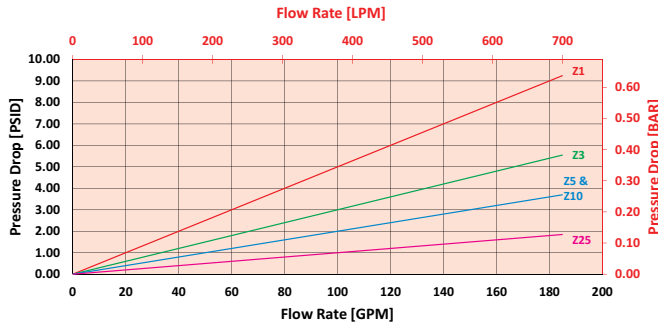
95-5 @ 40C



$\Delta P_{\text{element}}$

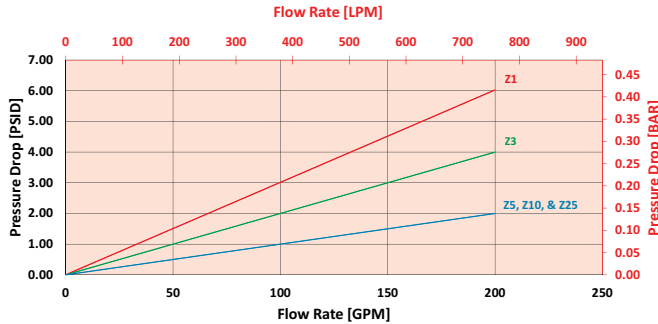
4KZ/2KZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



6KZ/2-27KZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 100 gpm (379 L/min) for MKF504KZ10PD5 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 100 gpm. In this case, $\Delta P_{\text{housing}}$ is 8 psi (.55 bar) on the graph for the MKF50 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 100 gpm. In this case, $\Delta P_{\text{element}}$ is 2 psi (.14 bar) according to the graph for the KZ10 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, $(\Delta P_{\text{element}} * V_f)$. The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 8 \text{ psi } [.55 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 2 \text{ psi } [.14 \text{ bar}]$$

$$V_f = 160 \text{ SUS } (34 \text{ cSt}) / 150 \text{ SUS } (32 \text{ cSt}) = 1.1$$

$$\Delta P_{\text{filter}} = 8 \text{ psi } + (2 \text{ psi } * 1.1) = 10.2 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .55 \text{ bar } + (.14 \text{ bar } * 1.1) = .70 \text{ bar}$$

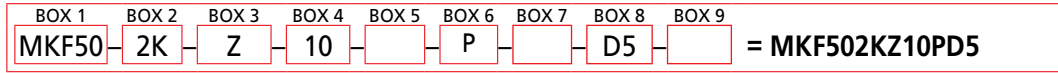
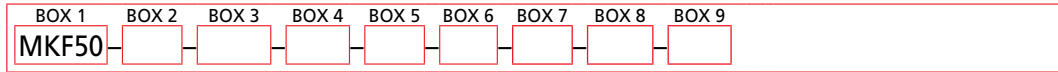
Note:

If your element is not graphed, use the following equation:
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$
 Plug this variable into the overall pressure drop equation.

Ele.	ΔP	Ele.	ΔP	Ele.	ΔP
2KZ1	0.10	2K3	0.12	4K3/ KK3	0.06
2KZ3	0.05	2K10	0.05	4K10/ KK10	0.02
2KZ5	0.04	2K25	0.01	4K25/ KK25	0.01
2KZ10	0.03	2KAS3	0.05	4KAS3/ KKAS3	0.03
2KZ25	0.02	2KAS5	0.04	4KAS5/ KKAS5	0.02
KZW1	0.43	2KAS10	0.03	4KAS10/ KKAS10	0.02
KZW3	0.32	2KZX10	0.11	4KZX10	0.06
KZX5	0.28	2KZW3	0.16	6KAS3/ 27KAS3	0.02
KZW10	0.23	2KZW5	0.14	6KAS5/ 27KAS5	0.01
KZW25	0.14	2KZW10	0.12	6KAS10/ 27KAS10	0.01
		2KZW25	0.07	6KZX10	0.04

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MFK50:



BOX 1	BOX 2	BOX 3
Filter Series	Number & Size of Elements	Media Type
MKF50	2 K, KK, 27K	Omit = E Media (Cellulose) (MKF50 only)
MKFN50 (Non-bypassing: requires ZX high collapse elements)	4 K	AS = Anti-Stat Media (synthetic)
GMKF50 (GeoSeal®)	6 K	Z = Excellerment® Z-Media® (synthetic)
MKC50	GeoSeal® Options	ZX = Excellerment® Z-Media® (High Collapse centertube) (MKFN50 Only)
MKCN50 (Non-bypassing: requires ZX high collapse elements)	2 KG, KKG, 27KG	ZW = Aqua-Excellerment ZW Media (MKF50 Only)
WK50	4 KG	W = W Media (water removal)
WKC50 (Water)	6 KG	M = Media (reusable metal mesh) (MKF50 & MKFN50 Only)

BOX 4	BOX 5	BOX 6	BOX 7
Micron Rating	Seal Material	Porting Option	Porting
1 = 1 Micron (DZ, Z, ZW, ZX media)	Omit = Buna N	P = 2½" NPTF	Omit = None
3 = 3 Micron (AS,DZ, E, Z, ZW, ZX media)	V = Viton®		X = Blocked bypass
5 = 5 Micron (AS, DZ, Z, ZW, ZX media)	H = EPR		50 = EPR
10 = 10 Micron (AS, DZ, E, M, Z, ZW, ZX media)	H.5 = Skydrol® compatibility		L = Two ¼" NPTF inlet and outlet female test ports
25 = 25 Micron (E, DZ, M, Z, ZW, ZX media)			U = Series 1215 7/16 UNF Schroeder Check Test Point installed in cap (upstream)
60 = 60 Micron (M media)			
150 = 150 Micron (M media)			
260 = 260 Micron (M media)			

BOX 8	
Dirt Alarm® Options	
None	Omit = None
Visual	D = Pointer
	D5 = Visual pop-up
	D5C = D5 in cap
Visual with Thermal Lockout	D9 = All stainless D5
	D8 = Visual w/ thermal lockout
Electrical	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
	Electrical with 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 9
Additional Options
Omit = None
N = No-Element Indicator (not available w/ MKFN30/ MKCN50 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. For standard elements, a plastic connector SAP P/N: 7630900 (LF-1997) is used to connect two or three K elements. For high collapse, a steel connector is required SAP P/N: 7608360 (LF-3255C).
- 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.