

# Base-Ported Pressure Filter

Patent No. 6,843,378 for filter cap seal.

## KC65



### Features and Benefits

- Base-ported high pressure filter
- Patented dirt-tolerant cap design
- Can be installed in vertical or horizontal position
- Meets HF4 automotive standard
- Element changeout from top minimizes oil spillage
- Offered in flanged porting
- 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 element can be replaced by single KK or 27K-size element

**100 gpm**  
**380 L/min**  
**6500 psi**  
**450 bar**

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

Model No. of filter in photograph is KC651K10FD9.



INDUSTRIAL



MINING TECHNOLOGY



AUTOMOTIVE MANUFACTURING



STEEL MAKING



MOBILE VEHICLES



PULP & PAPER



AGRICULTURE



WASTE WATER TREATMENT

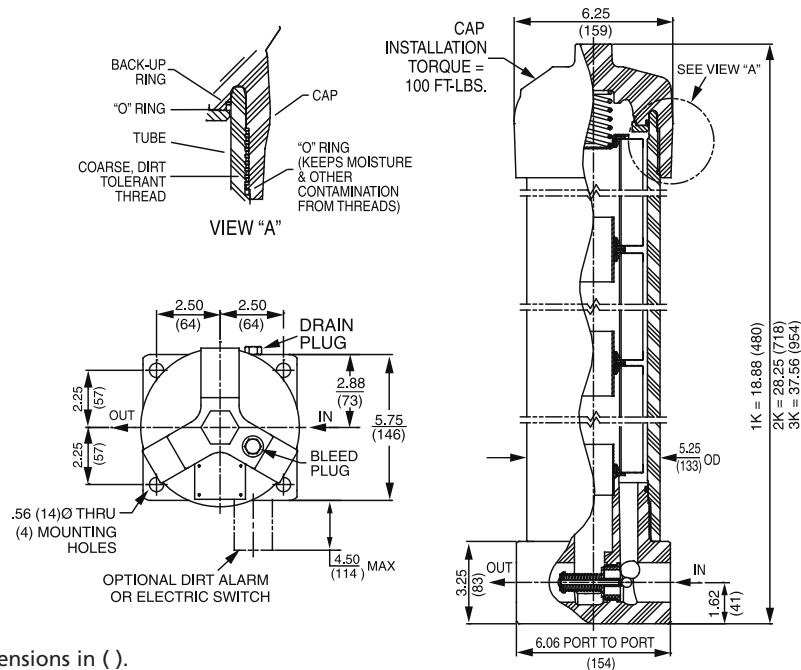
### Applications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6500 psi (450 bar)
Min. Yield Pressure:	19,500 psi (1345 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	5000 psi (345 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: 75 psi (5.2 bar) Non-bypassing model has a blocked bypass.
Porting Base & Cap: Element Case:	Ductile Iron Steel
Weight of KC65-1K:	80 lbs. (36.3 kg)
Weight of KC65-2K:	102 lbs. (46.3 kg)
Weight of KC65-3K:	124 lbs. (56.3 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

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Metric dimensions in ( ).

### Element Performance Information

Element	Filtration Ratio Per ISO 4572/ NFPA T3.10.8.8			Filtration Ratio wrt ISO 16889	
	Using automated particle counter (APC) calibrated per ISO 4402			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				

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

\*Based on 100 psi terminal pressure

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## Type Fluid Appropriate Schroeder Media

<b>Petroleum Based Fluids</b>	All E media (cellulose) and Z-Media® (synthetic)
<b>High Water Content</b>	All Z-Media® and ASP Media (synthetic)
<b>Invert Emulsions</b>	10 and 25 µ Z-Media® (synthetic), 10 µ ASP Media (synthetic)
<b>Water Glycols</b>	3, 5, 10 and 25 µ Z-Media® (synthetic) and all ASP Media (synthetic)
<b>Phosphate Esters</b>	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
<b>Skydrol®</b>	3, 5, 10 and 25 µ Z-Media® (synthetic) and 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

Skydrol® is a registered trademark of Solutia Inc.

## Element Selection Based on Flow Rate

CF40  
PF40  
RFS50  
RF60  
CF60  
CTF60  
VF60  
LW60  
KF30

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.	1K3		2K3†	3K3			
To 6500 psi (450 bar)	E Media	K3	1K3		2K3†	3K3			
		K10	1K10				2K10†	3K10†	
		K25	1K25						
	Z- Media®	KZ1	1KZ1			2KZ1†	3KZ1†		
		KZ3	1KZ3/KAS3/KKAS3/27KAS3				2KZ3†	3KZ3†	
		KZ5	1KZ5/KAS5/KKAS5/27KAS5				2KZ5†	3KZ5†	
KZ10		1KZ10/KAS10/KKAS10/27KAS10				2KZ10†			
KZ25	1KZ25				2KZ25†				
Flow	gpm	0	20	40	60	80	100		
	(L/min)	0		150	250		380		

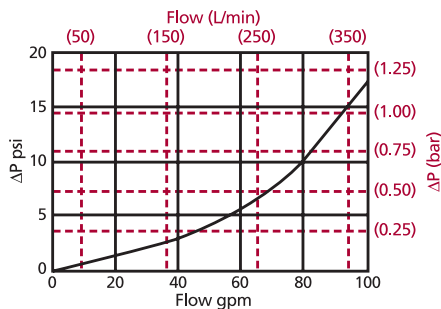
†Double and triple stacking of K-size elements can be replaced by single KK & 27K elements, respectively.

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>

KC65 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.

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

### Exercise:

Determine ΔP at 60 gpm (230 L/min) for KC652KZ3FD9 using 200 SUS (44 cSt) fluid.

### Solution:

$$\begin{aligned} \Delta P_{\text{housing}} &= 8.0 \text{ psi } [.55 \text{ bar}] \\ \Delta P_{\text{element}} &= 60 \times .05 \times (200 \div 150) = 4.0 \text{ psi} \\ &\text{or} \\ &= [230 \times (.05 \div 54.9) \times (44 \div 32) = .29 \text{ bar}] \\ \Delta P_{\text{total}} &= 8.0 + 4.0 = 12.0 \text{ psi} \\ &\text{or} \\ &= [.55 + .29 = .84 \text{ bar}] \end{aligned}$$

## ΔP<sub>element</sub>

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

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K	3K
<b>K3</b>	.25	.12	.08
<b>K10</b>	.09	.05	.03
<b>K25</b>	.02	.01	.01
<b>KZ1</b>	.20	.10	.05
<b>KZ3/KAS3/KKAS3/27KAS3</b>	.10	.05	.03
<b>KZ5/KAS5/KKAS5/27KAS5</b>	.08	.04	.02
<b>KZ10/KAS10/KKAS10/27KAS10</b>	.05	.03	.02
<b>KZ25</b>	.04	.02	.01
	1K	2K	
<b>KZW1</b>	.43		
<b>KZW3</b>	.32	.16	
<b>KZW5</b>	.28	.14	
<b>KZW10</b>	.23	.12	
<b>KZW25</b>	.14	.07	

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

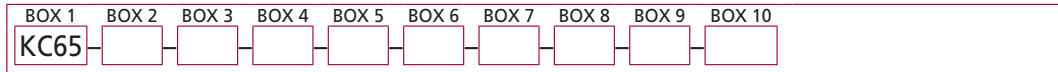
Viscosity factor: Divide viscosity by 150 SUS (32 cSt).

## Pressure Drop Information Based on Flow Rate and Viscosity

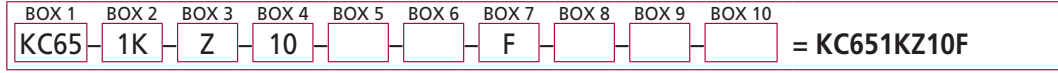
TF50  
KF50  
KC50  
MKF50  
**KC65**  
NOF30-05  
NOF50-760  
FOF60-03  
NMF30  
RMF60  
Cartridge Elements  
HS60  
MHS60  
KFH50

## Filter Model Number Selection

### How to Build a Valid Model Number for a Schroeder KC65:



**Example:** NOTE: Only boxes 8 and 10 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>
KC65	1 K, KK, 27K 2 K 3 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)
KCN65 (Non-bypassing: requires ZX high collapse elements)		Excellement® Z-Media® (synthetic) Anti-Stat Media (synthetic) Aqua-Excellement™ ZW Media Excellement® Z-Media® (High Collapse centertube) W Media (water removal) Media (reusable metal mesh)	

BOX 5	BOX 6	BOX 7	BOX 8
<b>Seal Material</b>	<b>Magnet Options</b>	<b>Porting</b>	<b>Options</b>
Omit = Buna N V = Viton® H = EPR H.5 = Skydrol® compatibility	Omit = None  M = Magnet inserts (not available w/ indicator in cap)	F = 1½" SAE 4-bolt flange Code 62	Omit = None X = Blocked bypass 50 = 50 psi bypass setting L = Two ¼" NPTF inlet and outlet female test ports U = Series 1215 ¾" UNF Schroeder Check Test Point installed in cap (upstream) UU = Series 1215 ¾" UNF Schroeder Check Test Point installed in block (upstream and downstream)

BOX 9	BOX 10
<b>Dirt Alarm® Options</b>	<b>Additional Options</b>
Omit = None	Omit = None
Visual D9 = Visual pop-up	N = No-Element Indicator (not available w/ KCN65)
Electrical MS5SS = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5SSLC = Low current MS5 MS10SS = Electrical w/ DIN connector (male end only) MS10SSLC = Low current MS10 MS11SS = Electrical w/ 12 ft. 4-conductor wire MS12SS = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12SSLC = Low current MS12 MS16SS = Electrical w/ weather-packed sealed connector MS16SSLC = Low current MS16 MS17SSLC = Electrical w/ 4 pin Brad Harrison male connector	G509 = Dirt alarm and drain opposite standard G1906 = KF50 style cap w/ longer thread engagement
Electrical with Thermal Lockout MS5SST = MS5 (see above) w/ thermal lockout MS5SSLCT = Low current MS5T MS10SST = MS10 (see above) w/ thermal lockout MS10SSLCT = Low current MS10T MS12SST = MS12 (see above) w/ thermal lockout MS12SSLCT = Low current MS12T MS16SST = MS16 (see above) w/ thermal lockout MS16SSLCT = Low current MS16T MS17SSLCT = Low current MS17T	
Electrical Visual MS13SS = Supplied w/ threaded connector & light MS14SS = Supplied w/ 5 pin Brad Harrison connector & light (male end)	
Electrical Visual with Thermal Lockout MS13SSDCT = MS13 (see above), direct current, w/ thermal lockout MS13SSDCLCT = Low current MS13DCT MS14SSDCT = MS14 (see above), direct current, w/ thermal lockout MS14SSDCLCT = Low current MS14DCT	

**NOTES:**

- Box 2. Number of elements must equal 1 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. For option F, bolt depth 1.12" (30 mm).
- Box 8. X and 50 options are not available with KCN65.
- Box 9. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.
- Box 10. Options N, G509 and G1906 are not available with KCN65. N option should be used in conjunction with dirt alarm.