Hydrostatic Base-Ported Filter `KFH50`

Model No. of filter in photograph is KFH501K10SD5.

Features and Benefits

- Base-ported Hydrostatic high pressure filter
- Hydrostatic transmission filter for reversing loop systems
- Filters in the "in to out" direction, bypasses in reverse direction
- Element changeout from top minimizes oil spillage
- Offered in pipe, SAE straight thread, flanged   and ISO 228 porting
- Integral inlet and outlet female test points option available
- Offered in conventional subplate porting
- Completion of application questionnaire a requirement L-2549 (contact factory)
- Double and triple stacking of K-size elements can be replaced by single KK or 27K-size elements

70 gpm
265 L/min
5000 psi
345 bar

Filter Housing Specifications

Flow Rating:	Up to 70 gpm (265 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: 61 psi (4.2 bar)
Porting Base & Cap: Element Case:	Ductile Iron Steel
Weight of KFH50-1K: Weight of KFH50-2K: Weight of KFH50-3K:	60.0 lbs. (27.2 kg) 80.3 lbs. (36.4 kg) 100.5 lbs. (45.6 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® 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 and 3 and 10 µ E media (cellulose) 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)
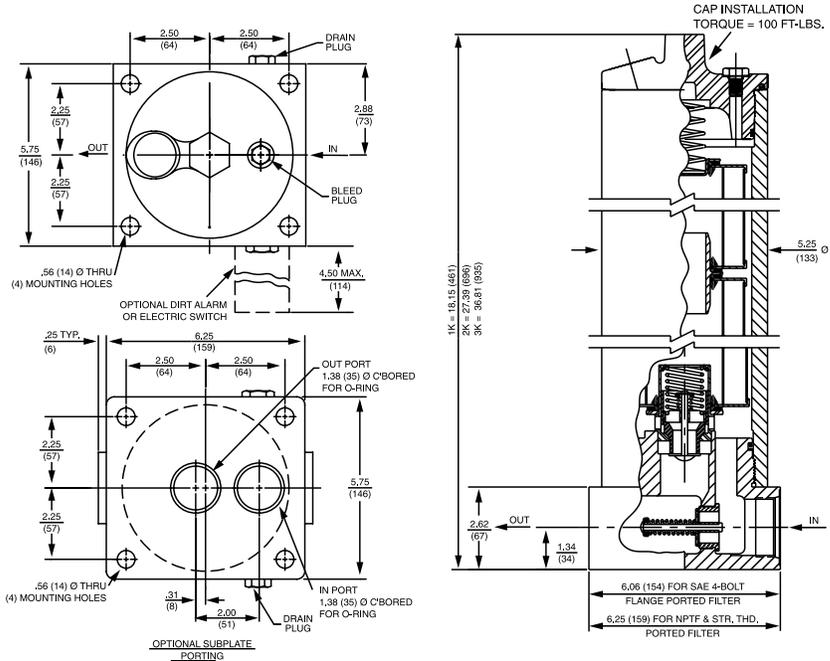
Metric dimensions in ( ).
Dimensions shown are inches (millimeters) for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.

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				

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

$\triangle$**P**$_{housing}$

KFH50 $\triangle$P$_{housing}$ for fluids with sp gr (specific gravity) = 0.86:
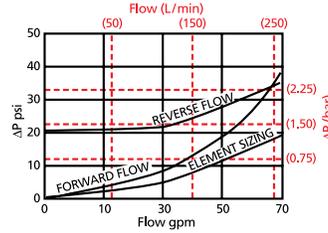
$\triangle$**P**$_{element}$

KZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)
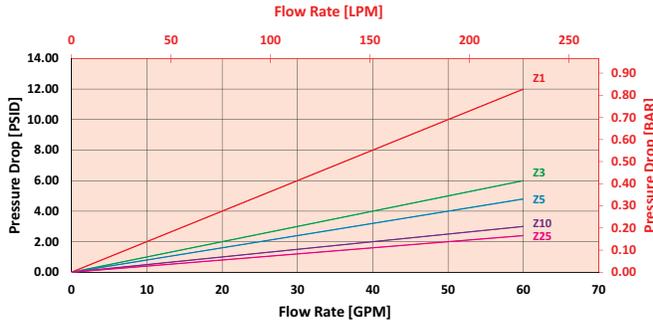
2KZ/KKZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)
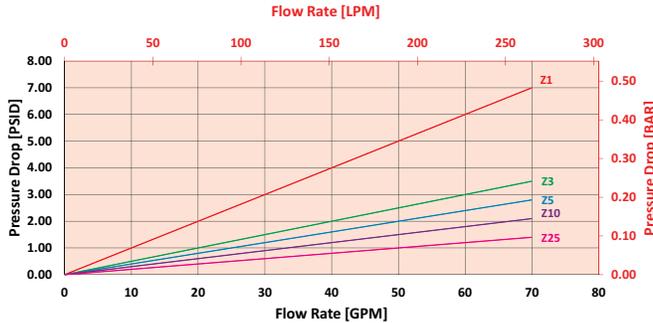
$$\triangle\mathbf{P}_{filter} = \triangle\mathbf{P}_{housing} + (\triangle\mathbf{P}_{element} * V_f)$$

Exercise:

Determine $\triangle$**P**$_{filter}$ at 30 gpm (113.7 L/min) for KFH501KZ10SD5 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\triangle$**P**$_{housing}$ at 30 gpm. In this case, $\triangle$**P**$_{housing}$ is 9 psi (.62 bar) on the graph for the KFH50 housing.

Use the element pressure curve to determine $\triangle$**P**$_{element}$ at 30 gpm. In this case, $\triangle$**P**$_{element}$ is 1.5 psi (.10 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, $\triangle$**P**$_{filter}$, is calculated by adding $\triangle$**P**$_{housing}$ with the true element pressure differential, ($\triangle$**P**$_{element}$*V$_f$). The $\triangle$**P**$_{element}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$\triangle$**P**$_{housing}$ = 9 psi [.62 bar] | $\triangle$**P**$_{element}$ = 1.5 psi [.10 bar]

V_f = 160 SUS (34 cSt) / 150 SUS (32 cSt) = 1.1

$\triangle$**P**$_{filter}$ = 9 psi + (1.5 psi * 1.1) = 10.7 psi

    OR

$\triangle$**P**$_{filter}$ = .62 bar + (.10 bar * 1.1) = .73 bar

Pressure Drop Information
Based on Flow Rate and Viscosity

Note:
If your element is not graphed, use the following equation:
$\triangle$P$_{element}$ = Flow Rate x $\triangle$P$_f$. Plug this variable into the overall pressure drop equation.

Ele.	$\triangle$P	Ele.	$\triangle$P	Ele.	$\triangle$P
K3	0.25	2K3/KK3	0.12	3KZ1/27KZ1	0.05
K10	0.09	2K10/KK10	0.05	3KZ3/27KZ3	0.03
K25	0.02	2K25/KK25	0.01	3KZ5/27KZ5	0.02
KAS3	0.10	2KAS3/KKAS3	0.05	3KZ10/27KZ10	0.02
KAS5	0.08	2KAS5/KKAS5	0.04	3KZ25/27KZ25	0.01
KAS10	0.05	2KAS10/KKAS10	0.03	3K3	0.08
KZX10	0.22	2KZX10/KKZX10	0.11	3K10	0.03
KZW1	0.43	2KZW1	-	3K25	0.01
KZW3	0.32	2KZW3/KKZW3	0.16	3KAS3/27KAS3	0.03
KZW5	0.28	2KZW5/KKZW5	0.14	3KAS5/27KAS5	0.02
KZW10	0.23	2KZW10/KKZW10	0.12	3KAS10/27KAS10	0.02
KZW25	0.14	2KZW25/KKZW25	0.07	3KAS25/27KAS25	0.07

KFH50 Hydrostatic Base-Ported Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KFH50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
KFH50		—			—		
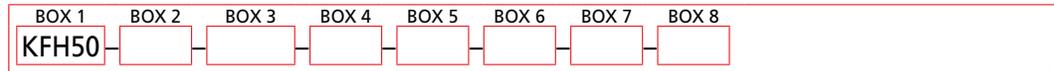
Example: *NOTE: Only box 6 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
KFH50	1	KZ5	—	S	—	D5	G509	= KFH501KZ5SD5G509
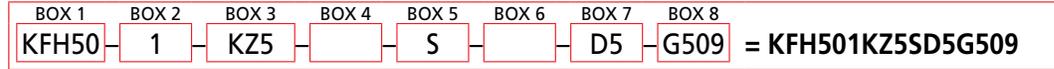
BOX 1	BOX 2
Filter Series	**Number of Elements**
KFH50	1
	2
	3

BOX 3 — Element Part Number

K Length	KK Length	27K Length	
K3	KK3	27K3	= 3 µ E media (cellulose)
K10	KK10	27K10	= 10 µ E media (cellulose)
K25			= 25 µ E media (cellulose)
KZ1	KKZ1	27KZ1	= 1 µ Excellement® Z-Media® (synthetic)
KZ3	KKZ3	27KZ3	= 3 µ Excellement® Z-Media® (synthetic)
KZ5	KKZ5	27KZ5	= 5 µ Excellement® Z-Media® (synthetic)
KZ10	KKZ10	27KZ10	= 10 µ Excellement® Z-Media® (synthetic)
KZ25	KKZ25	27KZ25	= 25 µ Excellement® Z-Media® (synthetic)
KZW1			= 1 µ Aqua-Excellement™ ZW media
KZW3	KKZW3		= 3 µ Aqua-Excellement™ ZW media
KZW5	KKZW5		= 5 µ Aqua-Excellement™ ZW media
KZW10	KKZW10		= 10 µ Aqua-Excellement™ ZW media
KZW25	KKZW25		= 25 µ Aqua-Excellement™ ZW media
KW	KKW	27KW	= W media (water removal)
KM10			= K size 10 µ M media (reusable metal)
KM25			= K size 25 µ M media (reusable metal)
KM60			= K size 60 µ M media (reusable metal)
KM150			= K size 150 µ M media (reusable metal)
KM260			= K size 260 µ M media (reusable metal)

BOX 4 — Seal Material

Omit	= Buna N
V	= Viton®
H	= EPR
H.5	= Skydrol® compatibility

BOX 5 — Porting

P	= 1½" NPTF
S	= SAE-24
F	= 1½" SAE 4-bolt flange Code 62
O	= Subplate
B	= ISO 228 G-1½"

BOX 6 — Options

Omit	= None
L	= Two 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)

BOX 7 — Dirt Alarm® Options

None	Omit =	None
Visual	D =	Pointer
	D5 =	Visual pop-up
	D5C =	D5 in cap
	D9 =	All stainless D5
Visual with Thermal Lockout	D8 =	Visual w/ thermal lockout
	D8C =	D8 in cap
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
	MS13DC =	Supplied w/ threaded connector & light
	MS14DC =	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
G509	= Dirt alarm and drain opposite standard

NOTES:

Box 2. Number of elements must equal 1 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. ZW media not available in 27K length.

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 5. For option F, bolt depth .75" (19 mm). For option O, O-rings included; hardware not included.