Top-Ported Return Line Filter MLF1





Features and Benefits

■ Equipped with inlet and outlet manifolds

- Meets HF4 automotive standard
- Offered in pipe and flange porting
- Available in 2, 4 or 6 element configurations
- Various Dirt Alarm® options
- Available with NPTF inlet and outlet female test ports
- Available with housing drain plugs

200 gpm 760 L/min 300 psi 20 bar

MLF1

Applications

Filter Housing **Specifications Accessories**

Model No. of filter in photograph is MLF14K10PD.



INDUSTRIAL



AUTOMOTIVE MANUFACTURING



MACHINE TOOL



MAKING



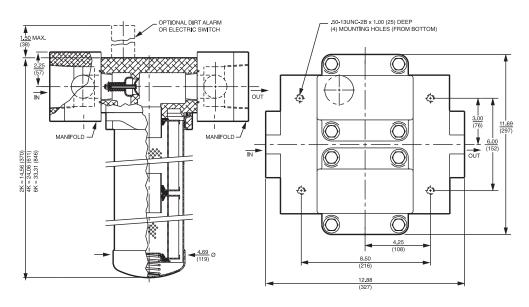
MOBILE **VEHICLES**



RAILROAD

Flow Rating: Up to 200 gpm (760 L/min) for 150 SUS (32 cSt) fluids Max. Operating Pressure: 300 psi (20 bar) Min. Yield Pressure: 1000 psi (70 bar), per NFPA T2.6.1 Rated Fatigue Pressure: 250 psi (17 bar), per NFPA T2.6.1-2005 **Temp. Range:** -20°F to 225°F (-29°C to 107°C) Bypass Setting: Cracking: 25 psi (2 bar) Full Flow: 60 psi (4 bar) Porting Head: Anodized Cast Aluminum Element Case: Steel Weight of MLF1-2K: 44.0 lbs. (20.0 kg) Weight of MLF1-4K: 50.0 lbs. (23.0 kg) Weight of MLF1-6K: 58.0 lbs. (26.0 kg) Element Change Clearance: 2.0" (55 mm)

MLF1 Top-Ported Return Line Filter



Metric dimensions in ().

Element Performance Information

		tio Per ISO 4572/NI article counter (APC) cali		o wrt ISO 16889 ated per ISO 11171	
Element	$B_x \ge 75$	$B_x \ge 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
K3	6.8	7.5	10.0	N/A	N/A
K10	15.5	16.2	18.0	N/A	N/A
KZ1	<1.0	<1.0	<1.0	<4.0	4.2
KZ3/KAS3	<1.0	<1.0	<2.0	<4.0	4.8
KZ5/KAS5	2.5	3.0	4.0	4.8	6.3
KZ10/KAS10	7.4	8.2	10.0	8.0	10.0
KZ25	18.0	20.0	22.5	19.0	24.0
KZW3	N/A	N/A	N/A	<4.0	4.8
KZW5	N/A	N/A	N/A	5.1	6.4
KZW10	N/A	N/A	N/A	6.9	8.6
KZW25	N/A	N/A	N/A	15.4	18.5

Dirt Holding Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
2K3	108	4K3	216	6K3	324		
2K10	88	4K10	176	6K10	264		
2KZ1	224	4KZ1	448	6KZ1	672		
2KZ3/2KAS3	230	4KZ3/4KAS3	460	6KZ3/6KAS3	690	KZW3	64
2KZ5/2KAS5	238	4KZ5/4KAS5	476	6KZ5/6KAS5	714	KZW5	63
2KZ10/2KAS10	216	4KZ10/4KAS10	432	6KZ10/6KAS10	648	KZW10	67
2KZ25	186	4KZ25	372	6KZ25	558	KZW25	79

Element Collapse Rating: 150 psid (10 bar) for standard elements

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

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steel wire mesh in element, and light oil coating on housing exterior) and



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 and all ASP media (synthetic)
Skydrol®	3, 5, 10 and 25 μ Z-Media® (synthetic) with H.5 seal designation and W media (water removal) with H.5 seal designation (EPR seals and stainless

all ASP media (synthetic).

Fluid Compatibility

Skydrol® is a registered trademark of Solutia Inc.

MLF1

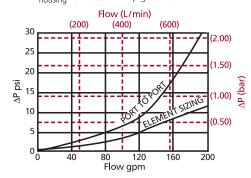
	Elei	ment	Element selections are predicated on the use of 150 SUS (32 cSt) petroleu							
Pressure	Series	Part No.	based fluid a	pased fluid and a 25 psi (1.7 bar) bypass valve.						
	_	K3		4K3 6K3						
	E Media	K10	4K10				6K10			
	ivicula	K25		4K25						
To	Z- Media®	KZ1			6KZ1					
300 psi (20 bar)		KZ3	2KZ3	4KZ3	3		6KZ3			
,		KZ5	2KZ5		4KZ5		6KZ5			
	ivicala	KZ10		2KZ10		4KZ10				
		KZ25		2KZ25			4KZ25			
	Flow	gpm	100	120	140	160	180	20	00	
	FIOW	(L/min)	200	400	6	00		76	50	

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.

$\triangle \boldsymbol{P}_{\text{housing}}$

MLF1 $\Delta P_{\text{housing}}$ 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.

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

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 inlet and outlet manifolds. 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.

$\triangle \mathbf{P}_{\mathsf{element}}$

 $\Delta P_{element}$ = flow x element ΔP factor x viscosity factor

El. ΔP factors @ 150 SUS (32 cSt):

	2K	4K/KK	6K/27K	_	1K	2K
K3	.12	.06	.04			
K10	.05	.02	.02			
K25	.01	.01	.01			
KZ1	.10	.05	.03			
KZ3/				KZW3	.32	.16
KAS3	.05	.03	.02			
KZ5/				KZW5	.28	.14
KAS5	.04	.02	.02			
KZ10/				KZW10	.12	
KAS10	.03	.02	.01			
KZ25	.02	.01	.01	KZW25	.07	

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

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

Element Selection Based on Flow Rate

Pressure

Information

Drop

Based on

Flow Rate

and Viscosity



Top-Ported Return Line Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MLF1:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
MLF1								
Fxample: NOTE: Only hav 9 may contain more than one ontion								

1	_BOX 1_	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
	MLF1	2K	<u>-</u> -	10			_ P	_ D5 _	-	= MLF12K10PD5

BOX 1	1 BOX 2 BOX 3		BOX 4
Filter Series	Number and Size of Elements	Media Type	Micron Rating
	2K, KK, 27K	Omit = E media (cellulose)	1 = 1 μ Z, ZW, and DZ media
MLF1	4 K	Z = Excellement® Z-Media® (synthetic)	$3 = 3 \mu$ AS,E, Z, ZW, and DZ media
	6 K	AS = Anti-Stat Pleat media (synthetic)	5 = 5 μ AS, Z, ZW, DZ media
		ZW = Aqua-Excellement™ ZW media	$10 = 10 \mu$ AS, E, M, Z, ZW, and DZ media
		DZ = Dirtcatcher® with Excellement® Z-Media®	25 = 25 μ E, M, Z, ZW and DZ media
		W = W media (water removal)	60 = 60 μ M media
		M – M media (reusable metal mesh)	150 = 150 µ M media

BOX 5 BOX 6 BOX 7 **Seal Material Magnet Option Porting** Omit = Buna N Omit = None $P = 2\frac{1}{2}$ " NPTF H = EPR $F = 2\frac{1}{2}$ " SAE 4-bolt flange Code 61 M = Magnet inserts $V = Viton^{®}$

NOTES:

Box 2. Double and triple stacking of K-size elements can be replaced by KK and 27K elements, respectively. Number of elements must equal 2 when using KK or 27K elements.

Box 3. Replacement element part numbers are identical to contents of Boxes 2, 3, 4, and 5. K25 is not available with EPR seals.

Box 5. For options H, V, and H.5, all aluminum parts are anodized. 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 8	BOX 9
		Dirt Alarm® Options	Additional Options
	Omit =	None	Omit = None
	D=	Pointer	L = Two ¼" NPTF inlet and outlet
Visual	D5 =	Visual pop-up	female test ports $G426 = \frac{3}{4}$ " drain on bottom of housing
Visual with		Visual w/ thermal lockout	
Thermal Lockout			G440 = ½" drain on bottom of housing
	MS5 =	Electrical w/ 12 in. 18 gauge 4-conductor cable	
	MS5LC =	Low current MS5	
		Electrical w/ DIN connector (male end only)	
	MS10LC =	Low current MS10	
Electrical	MS11 =	Electrical w/ 12 ft. 4-conductor wire	
Electrical	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	
=1	MS10LCT =	Low current MS10T	
Electrical with Thermal Lockout	MS12T =	MS12 (see above) w/ thermal lockout	
THEITHAI LOCKOUL	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	
Electrical Visual		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	
Electrical Visual with	MS13DCLCT =	Low current MS13DCT	
Thermal Lockout	MS14DCT =	MS14 (see above), direct current, w/ thermal lockout	
	MS14DCLCT =	Low current MS14DCT	

H.5 = Skydrol® Compatibility