Return Line Filter With 2" Ports **LF1**

Features and Benefits

- Offered in pipe, SAE straight thread and ISO 228 porting
- Available in 18" element lengths only
- Various Dirt Alarm® options
- Available with NPTF inlet and outlet female test ports
- Available with 2" porting with "K" size element
- Available with housing drain plug
- WLF1 model for water service also available – refer to Section 7 of this catalog

120 gpm
455 L/min
300 psi
20 bar

Model No. of filter in photograph is LF118LCZ10P32D.

Applications


INDUSTRIAL


AUTOMOTIVE MANUFACTURING

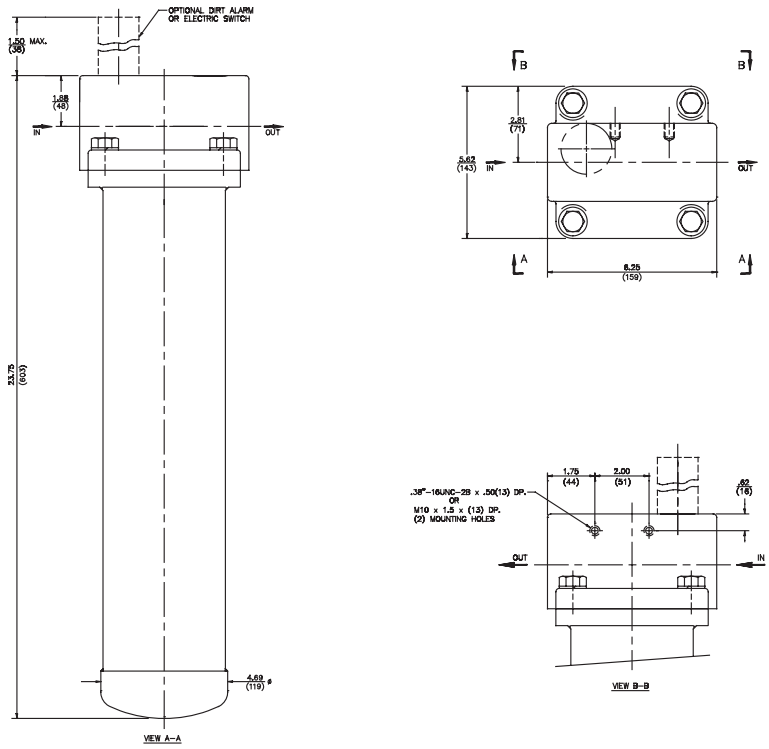

MACHINE TOOL


MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 120 gpm (455 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: 30 psi (2.1 bar) Full Flow: 60 psi (4.1 bar)
Porting Head: Element Case:	Cast Aluminum Steel
Available Porting:	2" NPTF, 2½-12 SAE Straight
Weight of LF1-18LC:	17.5 lbs. (7.9 kg)
Element Change Clearance:	2.0" (55 mm)

LF1 Return Line Filter With 2" Ports



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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
18LC3	6.8	7.5	10.0	N/A	N/A
18LC10	15.5	16.2	18.0	N/A	N/A
18LCZ1	<1.0	<1.0	<1.0	<4.0	4.2
18LCZ3	<1.0	<1.0	<2.0	<4.0	4.8
18LCZ5	2.5	3.0	4.0	4.8	6.3
18LCZ10	7.4	8.2	10.0	8.0	10.0
18LCZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)
18LC3	110
18LC10	88
18LCZ1	200
18LCZ3	205
18LCZ5	228
18LCZ10	203
18LCZ25	184

Element Collapse Rating: 150 psid (10 bar)
Flow Direction: Outside In
Element Nominal Dimensions: 4.0" (100 mm) O.D. x 18.5" (470 mm) long

Return Line Filter With 2" Ports LF1

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-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
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)

Skydrol® is a registered trademark of Solutia Inc.

Element Selection
Based on Flow Rate

Pressure	Element Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 30 psi (2.1 bar) bypass valve.
To 300 psi (20 bar)	Z-Media®	18LCZ1	18LCZ1
		18LCZ3	18LCZ3
		18LCZ5	18LCZ5
		18LCZ10	18LCZ10
		18LCZ25	18LCZ25
	Flow	gpm	0 60 80 100 120
		(L/min)	0 230 300 380 455

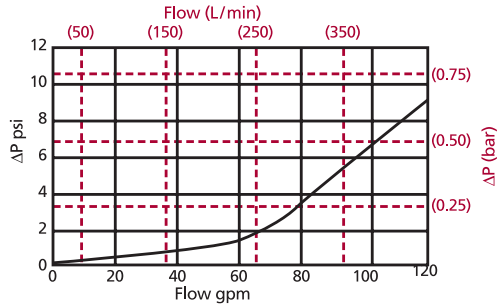
Shown above are the elements most commonly used in this housing.

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.*

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

LF1-2" $\Delta P_{housing}$ for fluids with sp gr = 0.86:



sp gr = specific gravity

$\Delta P_{element}$

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

El. ΔP factors @ 150 SUS (32 cSt):

18LCZ1	.10
18LCZ3	.05
18LCZ5	.04
18LCZ10	.03
18LCZ25	.02

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

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

Sizing of elements should be based on element flow information provided in the Element Selection chart above.

Notes

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

Exercise:

Determine ΔP at 40 gpm (150 L/min) for LF118LCZ10S32D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 1.0 psi [.07 bar]

$\Delta P_{element}$ = 40 x .03 x (200÷150) = 1.6 psi
or
= [150 x (.03÷54.9) x (44÷32) = .11 bar]

ΔP_{total} = 1.0 + 1.6 = 2.6 psi
or
= [.07 + .11 = .18 bar]

LF1 Return Line Filter With 2" Ports

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder LF1:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
LF1						

Example: *NOTE: Only box 7 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
LF1	18	LC3		P32	D5		= LF118LC3P32D5

BOX 1

Filter Series
LF1

BOX 2

Length of Element (in)
18

BOX 3

Element Size and Media
LC3 = LC size 3 µ E media (cellulose)
LC10 = LC size 10 µ E media (cellulose)
LCZ1 = LC size 1 µ Excellement® Z-Media™ (synthetic)
LCZ3 = LC size 3 µ Excellement Z-Media (synthetic)
LCZ5 = LC size 5 µ Excellement Z-Media (synthetic)
LCZ10 = LC size 10 µ Excellement Z-Media (synthetic)
LCZ25 = LC size 25 µ Excellement Z-Media (synthetic)

BOX 4

Seal Material
Omit = Buna N
H = EPR
V = Viton®
H.5 = Skydrol® Compatibility

BOX 5

Porting
P32 = 2" NPTF
S32 = SAE-32
B32 = ISO 228 G-2"

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	D = Pointer
	D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
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 7

Additional Options
Omit = None
L = Two ¼" NPTF inlet and outlet female test ports
G426 = ¾" drain on bottom of housing
G440 = ½" drain on bottom of housing

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4.
Example: 18LCZ3V

Box 4. 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.
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Box 5. B porting option supplied with metric mounting holes.