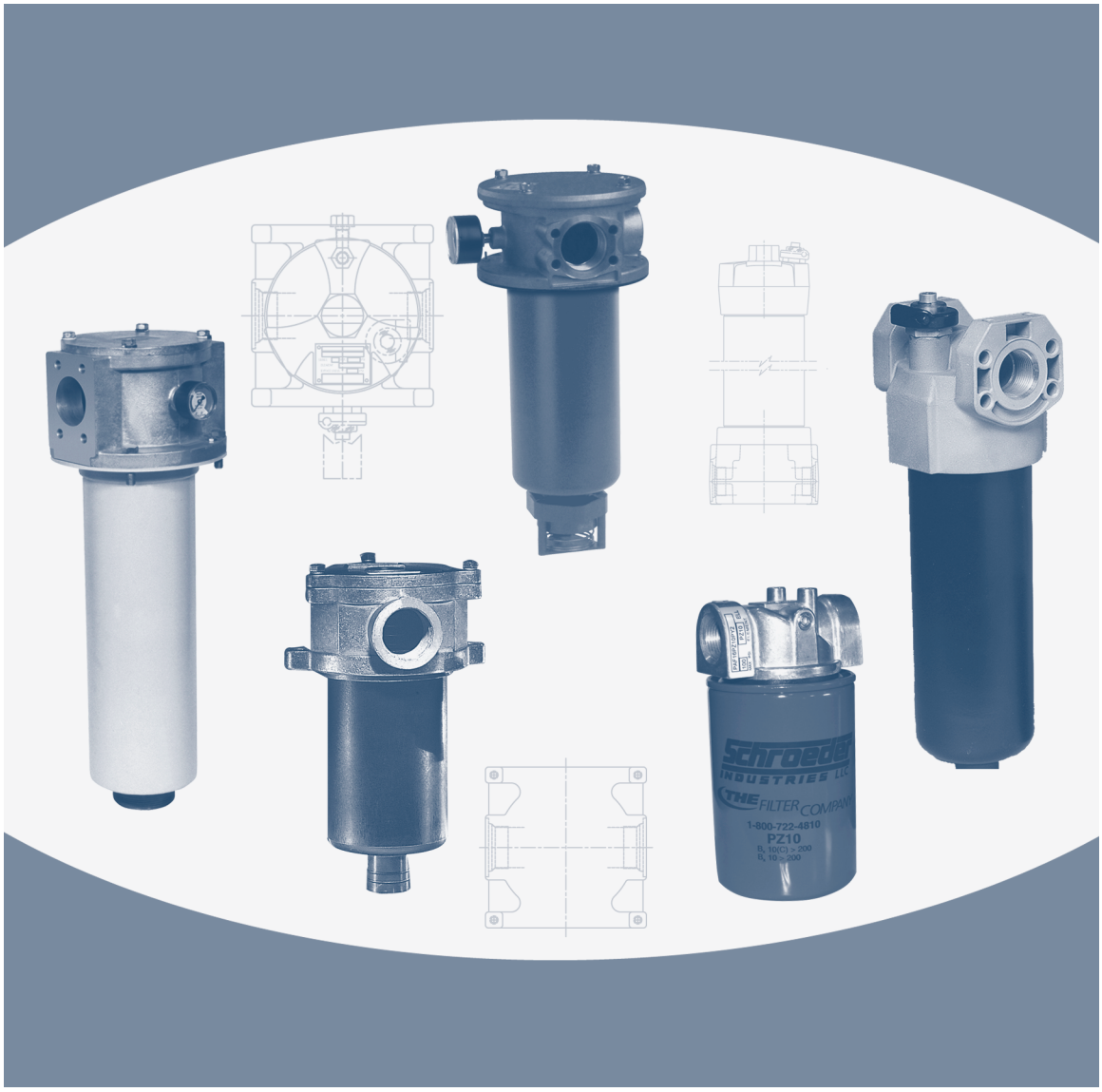
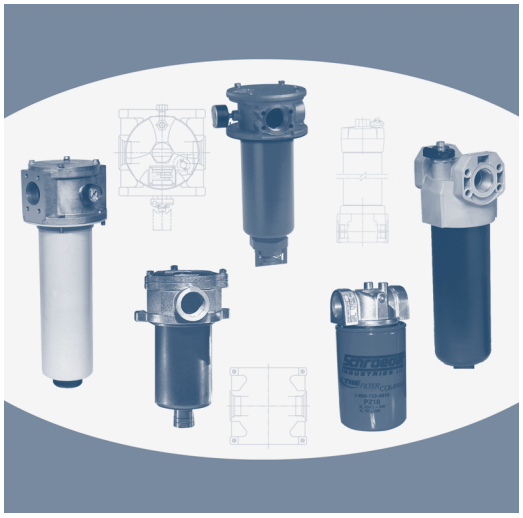
Principles of Filtration
Filter Elements
High Pressure Filters
Section 4
Tank-Mounted, Return Line and Medium Pressure Filters
Water Service Filters
Reservoir Accessories



SCHROEDER INDUSTRIES...THE FILTER COMPANY

Principles of Filtration
Filter Elements
High Pressure Filters
Section 4 **Tank-Mounted, Return Line and Medium Pressure Filter**
Water Service Filters
Reservoir Accessories



	Filter	Flow gpm (L/min)	Pressure psi (bar)	Element Length and/or Size	Page
Suction Filters	ST	20 (75)	—	K, KT	127
	In-Line Magnetic Suction Separators			SKB	131
	Tank-Mounted Magnetic Suction Separators			SKB	132
Tank-Mounted Filters	MTA	15 (55)	100 (7)	3TA	135
	MTB	35 (135)	100 (7)	3TB, 5TB	139
	ZT	40 (150)	100 (7)	8Z	143
	KT	80 (300)	50 (3.5)	KB	147
	RT	100 (380)	100 (7)	K, KK, 27K	151
	RTI	120 (455)	100 (7)	KI, KKI, 27KI	155
	KFT	100 (380)	100 (7)	K, KK, 27K	159
	LRT	150 (570)	100 (7)	18L	163
	BFT	300 (1135)	100 (7)	BB	167
	QT	450 (1700)	100 (7)	16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML	171
	KTK	100 (380)	100 (7)	K, KK, 27K	175
	LTK	150 (570)	100 (7)	18L	179
	Accessories for Tank-Mounted Filters				183
Spin-On Filters	PAF1	20 (75)	100 (7)	6P	185
	MAF1	50 (190)	100 (7)	M, 10M	189
	MF2	60 (230)	150 (10)	M, 10M	193
Return Line and Medium Pressure Filters	TF1	30 (120)	300 (20)	A	197
	KF3	100 (380)	300 (20)	K, KK, 27K	201
	LF1–2"	120 (455)	300 (20)	18LC	205
	MLF1	200 (760)	300 (20)	K	209
	SRLT	25 (100)	1400 (100)	6R	213
	RLT	70 (265)	800 (55)	9V, 14V	217
	KF8	100 (380)	800 (55)	K	221
	K9	100 (380)	900 (60)	K, KK, 27K	225
	2K9	100 (380)	900 (60)	K, KK, 27K	229
	3K9	100 (380)	900 (60)	K, KK, 27K	233
Base-Ported Filters	QF15	450 (1700)	1500 (100)	16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML	237
	QLF15	500 (1900)	1500 (100)	16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML	241
	SSQLF15	500 (1900)	1500 (100)	16Q, 16QPML, 39Q, 39QPML	245
	QFD5	350 (1325)	500 (35)	16Q, 16QCLQF, 16QPML, 39Q, 39QCLQF, 39QPML	249

Tank-Mounted Suction Filter ST

Model No. of filter in photograph is ST1K10SY.

20 gpm *75 L/min*

Features and Benefits

- Tank-mounted suction filter for hydrostatic suction service
- Optional check valve prevents reservoir siphoning
- Easy Element changeout
- Inlet filter protects pump, reduces start-up failures

Applications

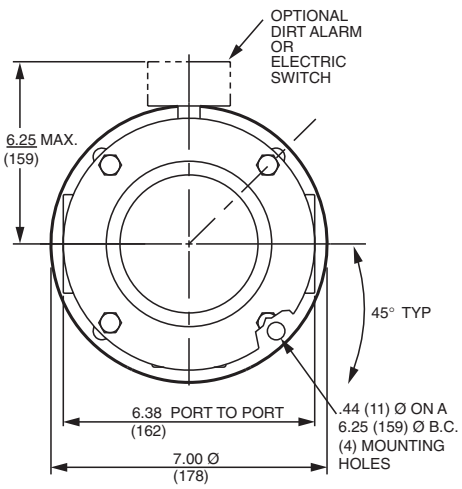
INDUSTRIAL

MOBILE VEHICLES

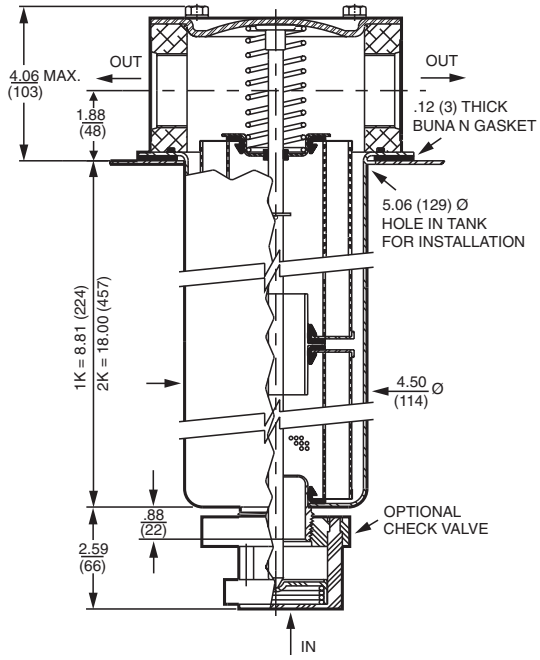
Filter Housing Specifications

Flow Rating:	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	Suction Filter
Min. Yield Pressure:	Not Applicable
Rated Fatigue Pressure:	Not Applicable
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Non-bypassing
Porting Head: Cap: Element Case:	Die Cast Aluminum Steel Steel
Weight of ST-1K: Weight of ST-2K:	11.1 lbs. (5.0 kg) 14.7 lbs. (6.7 kg)
Element Change Clearance:	7.25" (185 mm) for 1K; 17.50" (445 mm) for KK

ST Tank-Mounted Suction Filter



Optional mounting ring (P/N A-LFT-813) available to weld to tank.



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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
K10	15.5	16.2	18.0	N/A	N/A
KTZ10	7.4	8.0	10.0	8.0	10.0

Dirt Holding Capacity

Element	DHC (gm)
K10	44
KTZ10	56

Element Collapse Rating: 150 psid (10 bar)
Flow Direction: Inside Out
Element Nominal Dimensions: 3.9" (99 mm) O.D. x 9.0" (230 mm) long

Tank-Mounted Suction Filter ST

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	10 µ Z (synthetic) media
Invert Emulsions	10 µ Z (synthetic) media
Water Glycols	10 µ Z (synthetic) media
Phosphate Esters	10 µ Z (synthetic) media with H (EPR) seal designation and 10 µ E (cellulose) with H (EPR) seal designation
Skydrol®	10 µ Z (synthetic) media 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

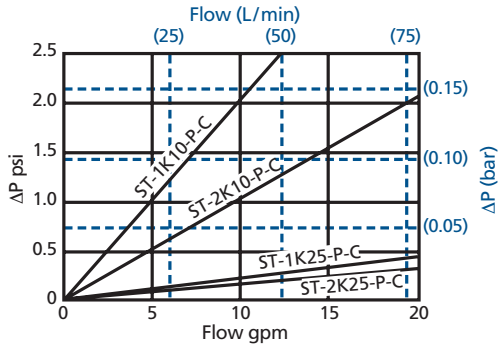
Pressure	Element Series	Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid.
Hydrostatic Suction Service	E Media	K10	1K10 / 2K10†
		K25	1K25 / 2K25†
	Z Media	KTZ10	1KTZ10 / 2KTZ10†
	Flow	gpm	0 5 10 15 20
		(L/min)	0 25 50 75

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

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

Note: Plotted curves shown in graph below include both housing and elements as indicated 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.

Notes

ST Tank-Mounted Suction Filter

Filter Model Number Selection

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
ST							

Example: *NOTE: Only box 8 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
ST	1	K25		P		Y		= **ST1K25PY**

BOX 1

Filter Series
ST

BOX 2

Number of Elements
1
2

BOX 3

Element Part Number
K10 = K size 10 µ E media (cellulose)
K25 = K size 25 µ E media (cellulose)
KTZ3 = K size 3 µ Excellement® Z media (synthetic) inside-out flow
KTZ5 = K size 5 µ Excellement Z media (synthetic) inside-out flow
KTZ10 = K size 10 µ Excellement Z media (synthetic) inside-out flow
KTZ25 = K size 25 µ Excellement Z media (synthetic) inside-out flow

BOX 4

Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® compatibility

BOX 5

Outlet Porting
P = 1½" NPTF
PP = Dual 1½" NPTF
S = SAE-24
SS = Dual SAE-24
B = ISO 228 G-1½"
BB = Dual ISO 228 G-1½"

BOX 6

Optional Check Valve
Omit = None
C = Check valve

BOX 7

Dirt Alarm® Options	
	Omit = None
Visual	Y = Vacuum gauge YR = Vacuum gauge mounted on opposite side of standard location
Electrical	VS = Electric vacuum switch VSR = Electric vacuum switch mounted on opposite side of standard location VS1 = Heavy-duty vacuum switch

BOX 8

Additional Options
Omit = None
G2293 = Cork gasket
G547 = Two ⅛" gauge ports

NOTES:

Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4.

Box 4. For options H and W, 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.
Skydrol is a registered trademark of Solutia Inc.

Box 6. See also "Accessories for Tank-Mounted Filters," page 183.

In-Line Magnetic Suction Separators

In addition to offering our magnetic suction strainer (SKB) as a stand alone product, we also offer the SKB enclosed in a housing, so that it can be used either in-line (TF-SKB or KF3-SKB) or as a reservoir-mounted filter (BFT-SKB). Flow rates and available porting vary—refer to the specifications for each.

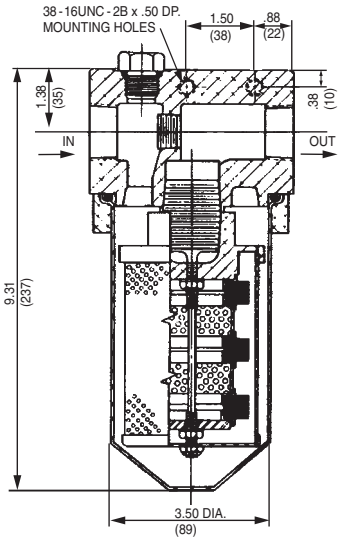
TF-SKB

Features and Benefits

- Protects components downstream by capturing potentially harmful ferrous particles

Specifications

Flow Rating:	12.5 gpm (47 L/min)
Element Replacement Part Number:	SKB-1
Element Change Clearance:	2.5" (65 mm)
Weight of TF-SKB:	5.8 lbs (2.6 kg)



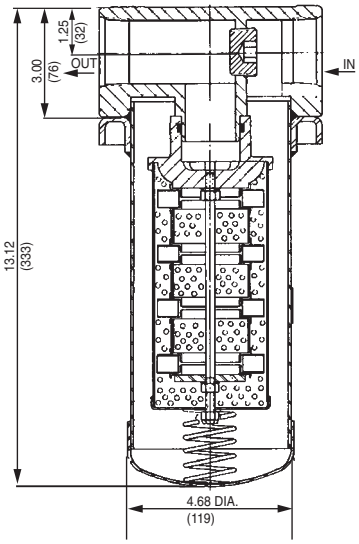
KF3-SKB

Features and Benefits

- Protects components downstream by capturing potentially harmful ferrous particles

Specifications

Flow Rating:	35 gpm (130 L/min)
Element Replacement Part Number:	A-LF-1789
Element Change Clearance:	1.5" (40 mm)
Weight of KF3-SKB:	11.5 lbs (5.2 kg)



Applications

INDUSTRIAL

MOBILE VEHICLES

In-Line Magnetic Suction Separators

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder TF-SKB:

BOX 1	BOX 2	BOX 3	BOX 4
TF-SKB –	–	–	

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	
TF-SKB –	–	P –	Y	= **TF-SKBPY**

BOX 1	BOX 2	BOX 3	BOX 4	
Filter Series	**Seal Material**	**Porting**	**Dirt Alarm® Options**	
TF-SKB	Omit = Buna N	P = 1" NPTF		Omit = None
			Visual	Y = Vacuum gauge
			Electrical	VS = Electric vacuum switch VS1 = Heavy-duty vacuum switch

How to Build a Valid Model Number for a Schroeder KF3-SKB:

BOX 1	BOX 2	BOX 3	BOX 4
KF3-SKB –	–	–	

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	
KF3-SKB –	–	P –	Y	= **KF3-SKBPY**

BOX 1	BOX 2	BOX 3	BOX 4	
Filter Series	**Seal Material**	**Porting**	**Dirt Alarm® Options**	
KF3-SKB	Omit = Buna N	P = 1½" NPTF		Omit = None
			Visual	Y = Vacuum gauge
			Electrical	VS = Electric vacuum switch VS1 = Heavy-duty vacuum switch

Notes

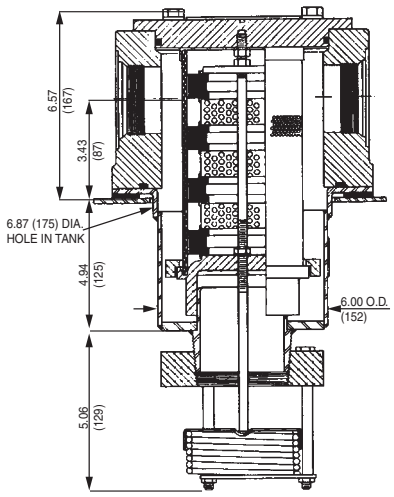
NOTE:

Box 1. See specifications on previous page for element replacement part numbers.

Tank-Mounted Magnetic Suction Separators

Features and Benefits

- Protects components downstream by capturing potentially harmful ferrous particles



BFT-SKB

Specifications

Flow Rating:	75 gpm (285 L/min)
Element Replacement Part Number:	with check valve: A-SKB-3-76 without check valve: SKB-3
Element Change Clearance:	13.5" (345 mm)
Weight of BFT-SKB:	32.0 lbs (14.5 kg)

Applications

INDUSTRIAL

MOBILE VEHICLES

Tank-Mounted Magnetic Suction Separators

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder BFT-SKB:

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5
BFT-SKB	–		–		–			

Example: *NOTE: One option per box*

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5	
BFT-SKB	–		–	P	–		–	Y	= **BFT-SKBPY**

BOX 1

Filter Series
BFT-SKB

BOX 2

Seal Material
Omit = Buna N

BOX 3

Porting
P = 2½" NPTF
PP = Dual 2½" NPTF
F = 2½" SAE 4-bolt flange Code 61
FF = Dual 2½" SAE 4-bolt flange Code 61

BOX 4

Other Options
Omit = None
C = Check valve

BOX 5

Dirt Alarm® Options	
	Omit = None
Visual	Y = Vacuum gauge YR = Vacuum gauge on opposite side of standard location
Electrical	VS = Electric vacuum switch VSR = Electric vacuum switch on opposite side of standard location VS1 = Heavy-duty vacuum switch

Notes

NOTE:

Box 1. See specifications on previous page for element replacement part numbers.

MiniMiser™ Tank-Mounted Filter MTA

Features and Benefits

- Low pressure tank-mounted filter
- Compact size minimizes space requirements
- Minimizer is cost-effective alternative to spin-on filters
- Special filter element design provides aftermarket benefits

15 gpm
55 L/min
100 psi
7 bar

Model No. of filter in photograph is MTA3TAZ10P8.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

PAPER INDUSTRY

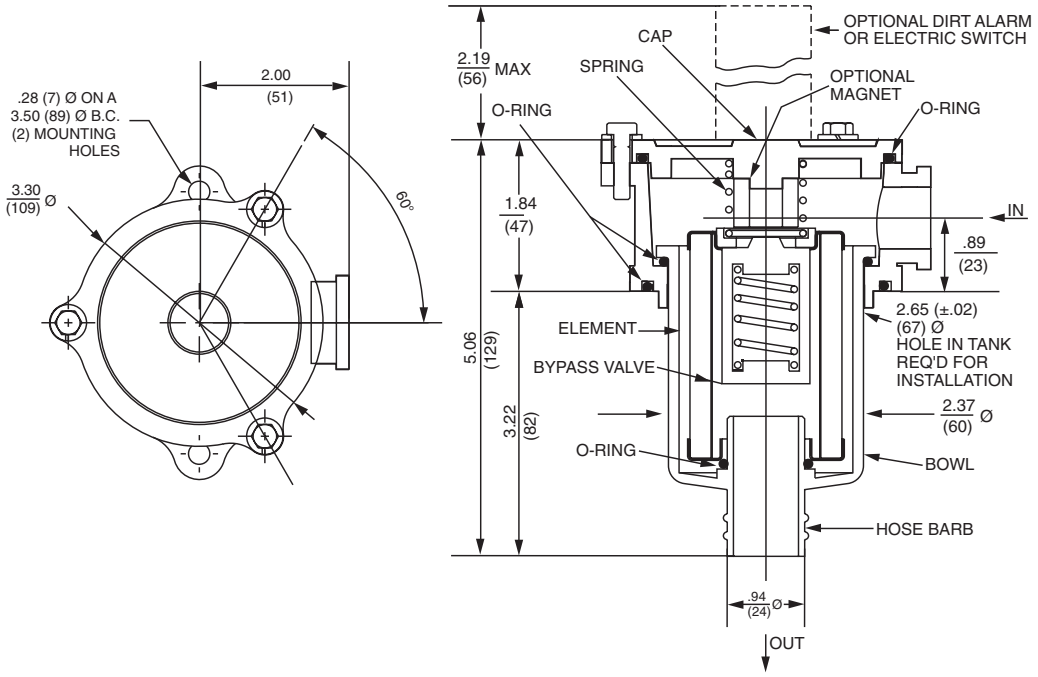
AGRICULTURE

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 15 gpm (55 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	269 psi (18 bar)
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (2 bar) Full Flow: 48 psi (3.3 bar)
Porting Head & Cap: Element Case:	Die Cast Aluminum Glass Filled Nylon
Weight of MTA-3:	1.0 lbs. (0.5 kg)
Element Change Clearance:	3.0" (76 mm)

MTA MiniMiser™ Tank-Mounted Filter



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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
3TA10	15.5	16.2	18.0	N/A	N/A
3TAZ3	<1.0	<1.0	<2.0	<4.0	4.8
3TAZ5	2.5	3.0	4.0	4.8	6.3
3TAZ10	7.4	8.2	10.0	8.0	10.0
3TAZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)
3TA10	N/A
3TAZ3	4
3TAZ5	6
3TAZ10	4
3TAZ25	4

Element Collapse Rating: 150 psid (10 bar)
Flow Direction: Outside In
Element Nominal Dimensions: 2.0" (51 mm) O.D. x 3.0" (76 mm) long

MiniMiser™ Tank-Mounted Filter MTA

Fluid Compatibility

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

Element Selection
Based on Flow Rate

Pressure	Element Series	Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.
Return Line Tank-Mounted	E Media	10	3TA10 | See MTB
		25	3TA25
	Z Media	Z3	3TAZ3 | See MTB
		Z5	3TAZ5 | See MTB
		Z10	3TAZ10 | See MTB
		Z25	3TAZ25 | See MTB
	Flow	gpm	0 5 10 15
		(L/min)	0 (25) (50)

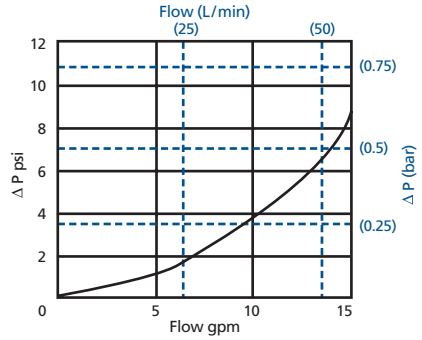
Shown above are the elements most commonly used in this housing.

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.*

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

MTA $\Delta P_{housing}$ 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):

	3TA
3TA10	1.40
3TA25	.33
3TAZ1	4.27
3TAZ3	2.20
3TAZ5	1.73
3TAZ10	1.48
3TAZ25	.68

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 7 gpm (27 L/min) for MTA3TAZ10P8 using 150 SUS (32 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 2.0 psi [.14 bar]

$\Delta P_{element}$ = 7 x 1.48 = 10.3 psi
or
= [27 x (1.48÷54.9) = .73 bar]

ΔP_{total} = 2.0 + 10.3 = 12.3 psi
or
= [.14 + .73 = .87 bar]

MTA MiniMiser™ Tank-Mounted Filter

Filter Model Number Selection

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

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6
MTA	–		–		–		–		–	

Example: *NOTE: One option per box*

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6		
MTA	–	3	–	TA25	–		–	P8	–	Y5	=	**MTA3TA25P8Y5**

BOX 1

Filter Series
MTA

BOX 2

Element Length (in)
3

BOX 3

Element Size and Media
TA10 = TA size 10 µ E media (cellulose)
TA25 = TA size 25 µ E media (cellulose)
TAZ1 = TA size 1 µ Excellement® Z media (synthetic)
TAZ3 = TA size 3 µ Excellement Z media (synthetic)
TAZ5 = TA size 5 µ Excellement Z media (synthetic)
TAZ10 = TA size 10 µ Excellement Z media (synthetic)
TAZ25 = TA size 25 µ Excellement Z media (synthetic)

BOX 4

Optional Magnet
Omit = None
M = Magnet

BOX 5

Porting Options
P8 = ½" NPTF
S8 = SAE-8
B8 = ISO 228 G-½"

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	Y2C = Bottom-mounted gauge in cap Y5 = Back-mounted gauge in cap
Electrical	ESC = Electric pressure switch (2 terminals)

NOTE:

Box 2. Replacement element part numbers are a combination of Boxes 2 and 3.
Example: 3TA10

MiniMiser™ Tank-Mounted Filter MTB

Features and Benefits

- Low pressure tank-mounted filter
- Compact size minimizes space requirements
- Minimizer is cost-effective alternative to spin-on filters
- Special filter element design provides aftermarket benefits

35 gpm
135 L/min
100 psi
7 bar

Model No. of filter in photograph is MTB5TBZ5P16.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

PAPER INDUSTRY

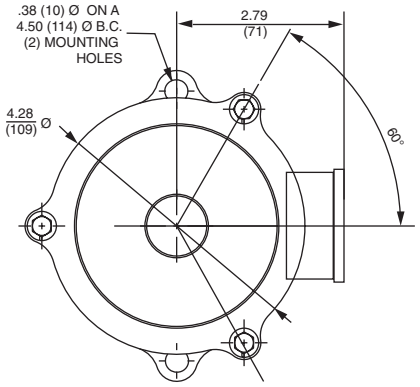
AGRICULTURE

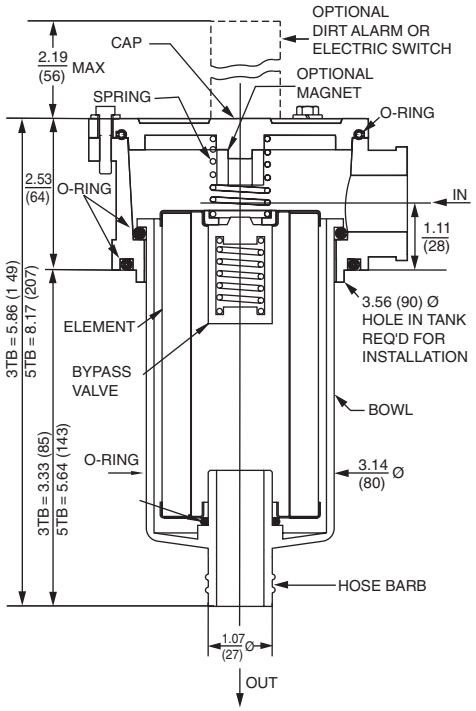
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 25 gpm (95 L/min) for 150 SUS (32 cSt) fluids – MTB-3 Up to 35 gpm (135 L/min) for 150 SUS (32 cSt) fluids – MTB-5
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	229 psi (15 bar)
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (2 bar) Full Flow: 51 psi (3.5 bar)
Porting Head & Cap: Element Case:	Die Cast Aluminum Glass Filled Nylon
Weight of MTB-3: Weight of MTB-5:	1.8 lbs. (0.8 kg) 2.1 lbs. (1.0 kg)
Element Change Clearance:	3.0" (76 mm) MTB-3 5.0" (127 mm) MTB-5

MTB MiniMiser™ Tank-Mounted Filter





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	
	$ß_x \geq 75$	$ß_x \geq 100$	$ß_x \geq 200$	$ß_{x(c)} \geq 200$	$ß_{x(c)} \geq 1000$
3TB10	15.5	16.2	18.0	N/A	N/A
3TBZ3	<1.0	<1.0	<2.0	<4.0	4.8
3TBZ5	2.5	3.0	4.0	4.8	6.3
3TBZ10	7.4	8.2	10.0	8.0	10.0
3TBZ25	18.0	20.0	22.5	19.0	24.0
5TB10	15.5	16.2	18.0	N/A	N/A
5TBZ3	<1.0	<1.0	<2.0	4.7	5.8
5TBZ5	2.5	3.0	4.0	5.6	7.2
5TBZ10	7.4	8.2	10.0	8.0	9.8
5TBZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)
3TB10	N/A
3TBZ3	11
3TBZ5	12
3TBZ10	11
3TBZ25	11
5TB10	N/A
5TBZ3	18
5TBZ5	21
5TBZ10	17
5TBZ25	18

Element Collapse Rating: 150 psid (10 bar)
Flow Direction: Outside In
Element Nominal Dimensions: 3TB: 3.0" (76 mm) O.D. x 3.0" (76 mm) long
5TB: 3.0" (76 mm) O.D. x 5.0" (127 mm) long

MiniMiser™ Tank-Mounted Filter MTB

Fluid Compatibility

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

Element Selection Based on Flow Rate

Pressure	Element Series	Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.
Return Line Tank-Mounted	E	10	See MTA / 3TB / 5TB
		25	See MTA / 3TB / 5TB
	Z	Z3	See MTA / 3TBZ3 / 5TBZ3
		Z5	See MTA / 3TBZ5 / 5TBZ5
		Z10	See MTA / 3TBZ10 / 5TBZ10
		Z25	See MTA / 3TBZ25 / 5TBZ25
	Flow	gpm	0 5 10 15 20 25 30 35
		(L/min)	0 (25) (50) (75) (100) (135)

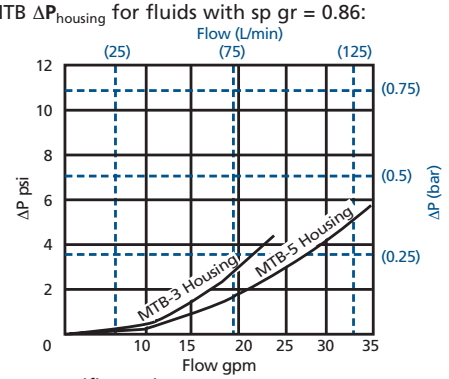
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

MTB $\Delta P_{housing}$ 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):

	3"	5"
TB10	.73	.40
TB25	.10	.08
TBZ1	1.17	.70
TBZ3	.66	.36
TBZ5	.45	.25
TBZ10	.49	.25
TBZ25	.33	.16

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 25 gpm (95 L/min) for MTB5TB25S16Y2C using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3.0 psi [.21 bar]

$\Delta P_{element}$ = 25 x .08 x (200÷150) = 2.6 psi
or
= [95 x (.08÷54.9) x (44÷32) = .19 bar]

ΔP_{total} = 3.0 + 2.6 = 5.6 psi
or
= [.21 + .19 = .40 bar]

MTB MiniMiser™ Tank-Mounted Filter

Filter Model Number Selection

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
MTB –	–	–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	
MTB –	3 –	TB25 –		P12 –	Y5	= **MTB3TB25P12Y5**

BOX 1

Filter Series
MTB

BOX 2

Element Length (in)
3
5

BOX 3

Element Size and Media
TB10 = T size 10 µ E media (cellulose)
TB25 = T size 25 µ E media (cellulose)
TBZ3 = T size 3 µ Excellement® Z media (synthetic)
TBZ5 = T size 5 µ Excellement Z media (synthetic)
TBZ10 = T size 10 µ Excellement Z media (synthetic)
TBZ25 = T size 25 µ Excellement Z media (synthetic)

BOX 4

Optional Magnet
Omit = None
M = Magnet

BOX 5

Porting Options
P12 = ¾" NPTF
P16 = 1" NPTF
S12 = SAE-12
S16 = SAE-16
B12 = ISO 228 G-¾"
B16 = ISO 228 G-1"

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	Y2C = Bottom-mounted gauge in cap Y5 = Back-mounted gauge in cap
Electrical	ESC = Electric pressure switch (2 terminals)

NOTE:

Box 2. Replacement element part numbers are a combination of Boxes 2 and 3. *Example*: 3TB10

SAME DAY SHIPMENT MODEL AVAILABLE!

Tank-Mounted Filter ZT

Features and Benefits

- Low pressure tank-mounted filter
- Available with dual inlet porting
- Offered in pipe, SAE straight thread and ISO 228 porting
- Various Dirt Alarm® options
- Same day shipment model available

40 gpm
150 L/min
100 psi
7 bar

Model No. of filter in photograph is ZT8ZZ10PY2.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

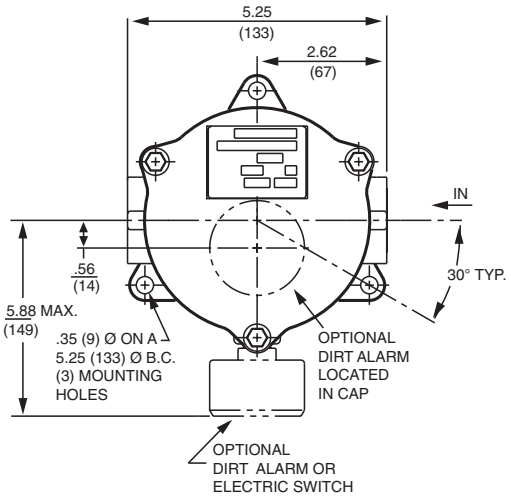
MOBILE VEHICLES

Filter Housing Specifications

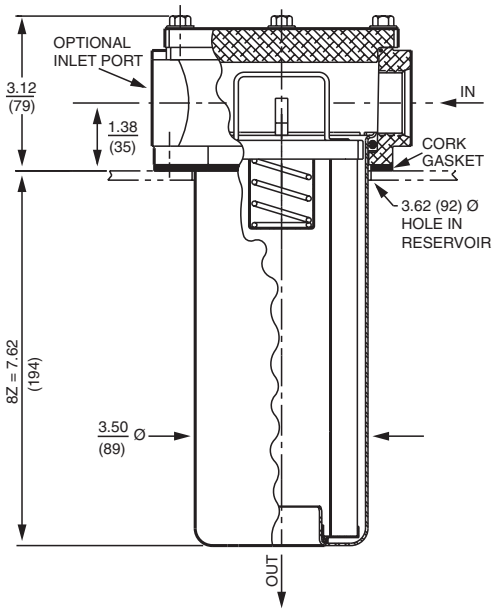
Flow Rating:	Up to 40 gpm (150 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	400 psi (28 bar)
Rated Fatigue Pressure:	90 psi (6 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 39 psi (2.7 bar)
Porting Head & Cap: Element Case:	Die Cast Aluminum Steel
Weight of ZT-8Z:	3.7 lbs. (1.7 kg)
Element Change Clearance:	10.0" (254 mm)

ZT Tank-Mounted Filter

SAME DAY SHIPMENT MODEL AVAILABLE!



Optional mounting ring (P/N A-LFT-1295) available to weld to tank.



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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
8Z3	6.8	7.5	10.0	N/A	N/A
8Z10	15.5	16.2	18.0	N/A	N/A
8ZZ1	<1.0	<1.0	<1.0	<4.0	4.2
8ZZ3	<1.0	<1.0	<2.0	<4.0	4.8
8ZZ5	2.5	3.0	4.0	4.8	6.3
8ZZ10	7.4	8.2	10.0	8.0	10.0
8ZZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)
8Z3	39
8Z10	32
8ZZ1	51
8ZZ3	52
8ZZ5	59
8ZZ10	55
8ZZ25	77

Element Collapse Rating: 150 psid (10 bar)
Flow Direction: Outside In
Element Nominal Dimensions: 3.2" (81 mm) O.D. x 9.25" (235 mm) long

Tank-Mounted Filter ZT

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media 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 25 psi (1.7 bar) bypass valve.
Return Line Tank-Mounted	E Media	8Z3 paper	8Z3 (cellulose media)
		8Z10 paper	8Z10 (cellulose media)
		8Z25 paper	8Z25 (cellulose media)
	Z Media	8ZZ3	8ZZ3
		8ZZ5	8ZZ5
		8ZZ10	8ZZ10
		8ZZ25	8ZZ25
Flow		gpm	0 10 20 30 40
		(L/min)	0 50 100 150

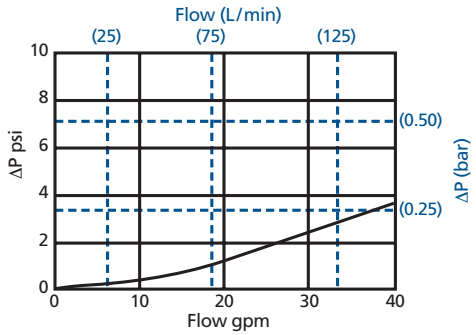
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

ZT $\Delta P_{housing}$ 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):

8Z3	.25
8Z10	.09
8Z25	.02
8ZZ1	.37
8ZZ3	.21
8ZZ5	.13
8ZZ10	.11
8ZZ25	.08

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 20 gpm (76 L/min) for ZT8ZZ1PES using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 1 psi [.07 bar]

$\Delta P_{element}$ = 20 x .37 x (200÷150) = 9.8 psi
or
= [76 x (.37÷54.9) x (44÷32) = 0.7 bar]

ΔP_{total} = 1.0 + 9.8 = 10.8 psi
or
= [.07 + .7 = .77 bar]

ZT Tank-Mounted Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

Filter Model Number Selection

Same Day Shipment Model See Appendix E for details.

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

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

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
ZT	8	Z10		S		Y2	= **ZT8Z10SY2**

BOX 1

Filter Series
ZT

BOX 2

Element Length (in)
8

BOX 3

Element Size and Media
Z3 = Z size 3 µ E media (cellulose)
Z10 = Z size 10 µ E media (cellulose)
Z25 = Z size 25 µ E media (cellulose)
ZZ1 = Z size 1 µ Excellement® Z media (synthetic)
ZZ3 = Z size 3 µ Excellement Z media (synthetic)
ZZ5 = Z size 5 µ Excellement Z media (synthetic)
ZZ10 = Z size 10 µ Excellement Z media (synthetic)
ZZ25 = Z size 25 µ Excellement Z media (synthetic)

BOX 4

Seal Material
Omit = Buna N
H = EPR

BOX 5

Inlet Porting
P = 1" NPTF
PP = Dual 1" NPTF
S = SAE-16
SS = Dual SAE-16
B = ISO 228 G-1"
BB = Dual ISO 228 G-1"

BOX 6

Outlet Porting
Omit = Non-threaded
OP = 1½" NPTF Male

BOX 7

Dirt Alarm® Options	
	Omit = None
Visual	Y2 = Back-mounted tri-color gauge
	Y2C = Bottom-mounted gauge in cap
	Y5 = Back-mounted gauge in cap
Electrical	ES = Electric switch
	ES1 = Heavy-duty electric switch with conduit connection

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. *Example*: 8Z10H

Box 3. E media elements are only available with Buna N seals.

Box 4. For option H, all aluminum parts are anodized.

Tank-Mounted Filter KT

Features and Benefits

- Low pressure tank-mounted filter
- Bypass valve included in the element
- Offered in pipe, SAE straight thread and ISO 228 porting
- Space saver, reduces plumbing
- Visual gauge or electrical switch dirt alarms

80 gpm
300 L/min
50 psi
3.5 bar

Model No. of filter in photograph is KTKBZ01BB20N.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

STEEL MAKING

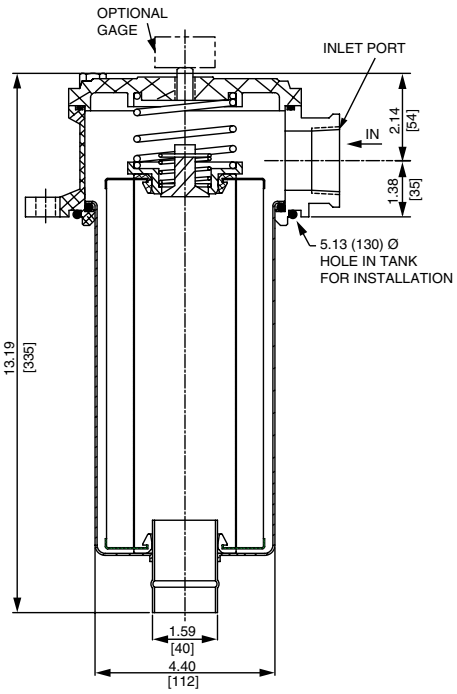
MARINE

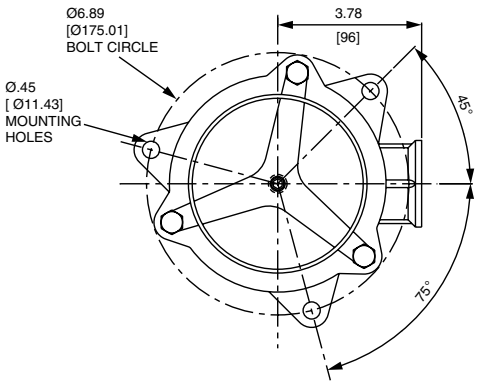
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 80 gpm (300 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	50 psi (3.5 bar)
Min. Yield Pressure:	190 psi (13 bar)
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 42 psi (2.9 bar)
Porting Base & Cap: Element Case:	Die Cast Aluminum Steel
Weight:	5.6 Lbs. (2.5 kg)
Element Change Clearance:	8.0" (203 mm)

KT Tank-Mounted Filter





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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
KBE03B	6.8	7.5	10.0	N/A	N/A
KBE10B	15.5	16.2	18.0	N/A	N/A
KBZ01B	<1.0	<1.0	<1.0	<4.0	4.2
KBZ03B	<1.0	<1.0	<2.0	4.0	4.8
KBZ05B	2.5	3.0	4.0	4.8	6.3
KBZ10B	7.4	8.2	10.0	8.0	10.0
KBZ25B	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)
KBE03B	54
KBE10B	44
KBZ01B	112
KBZ03B	115
KBZ05B	119
KBZ10B	108
KBZ25B	93

Element Collapse Rating: 150 psid (10 bar) for standard elements
Flow Direction: Outside In
Element Nominal Dimensions: 3.9" (99 mm) O.D. x 9.0" (230 mm) long

Fluid Compatibility

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

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 25 psi (1.7 bar) bypass valve.
To 50 psi (3.5 bar)	E Media	KBE03	KBE03
		KBE10	KBE10
		KBE25	KBE25
	Z Media	KBZ01	KBZ01
		KBZ03	KBZ03
		KBZ05	KBZ05
		KBZ10	KBZ10
		KBZ25	KBZ25
Flow		gpm	0 20 40 60 80
		(L/min)	0 50 150 250 300

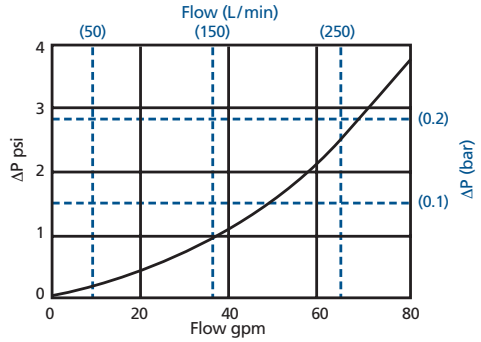
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

KT $\Delta P_{housing}$ 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):

KBE03B	.25
KBE10B	.09
KBE25B	.02
KBZ01B	.20
KBZ03B	.10
KBZ05B	.08
KBZ10B	.05
KBZ25B	.04

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 60 gpm (227 L/min) for KTKBZ05BB20N using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 2.1 psi [.14 bar]

$\Delta P_{element}$ = 60 x .08 x (200÷150) = 6.4 psi
or
= [227 x (.08÷54.9) x (44÷32) = .45 bar]

ΔP_{total} = 2.1 + 6.4 = 8.5 psi
or
= [.14 + .45 = .59 bar]

KT Tank-Mounted Filter

Filter Model Number Selection

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

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5
KT	–		–		–		–	

Example: *NOTE: One option per box*

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5	
KT	–	KBE3	–	B	–	P20	–		= **KTKBE3BP20**

BOX 1

Filter Series
KT

BOX 2

Element Part Number
KBE3 = K size 3 µ E media (cellulose)
KBE10 = K size 10 µ E media (cellulose)
KBE25 = K size 25 µ E media (cellulose)
KBZ01 = K size 1 µ Excellement® Z media (synthetic)
KBZ03 = K size 3 µ Excellement Z media (synthetic)
KBZ05 = K size 5 µ Excellement Z media (synthetic)
KBZ10 = K size 10 µ Excellement Z media (synthetic)
KBZ25 = K size 225 µ Excellement Z media (synthetic)

BOX 3

Seal Material
B = Buna N

BOX 4

Porting
P20 = 1¼" NPTF
S20 = SAE-20
B20 = ISO 228 G-1¼"

BOX 5

Dirt Alarm® Options	
	Omit = None
Visual	Y2C = Bottom-mounted gauge in cap
Electrical	ESC = Electric switch (2 terminals)

NOTE:

Box 2. KB elements have integral bypass valve. Replacement element part numbers are a combination of Boxes 2 and 3.

SAME DAY SHIPMENT MODEL AVAILABLE!

Tank-Mounted Filter RT

Features and Benefits

- Low pressure tank-mounted filter with up to 3 inlet ports
- Meets HF4 automotive standard
- Top, side or bottom mounting
- Optional check valve prevents reservoir siphoning
- RTW model allows filter to be welded to tank, instead of being bolted
- Double and triple stacking of K-size element can be replaced by single KK or 27K-size element
- Also available with new DirtCatcher® elements (KDZ and KKDZ)
- Various Dirt Alarm® options
- Same day shipment model available
- Allows consolidation of inventoried replacement elements by using K-size elements

100 gpm
380 L/min
100 psi
7 bar

Model No. of filter in photograph is RT1K10S24NP16CY2.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

STEEL MAKING

MARINE

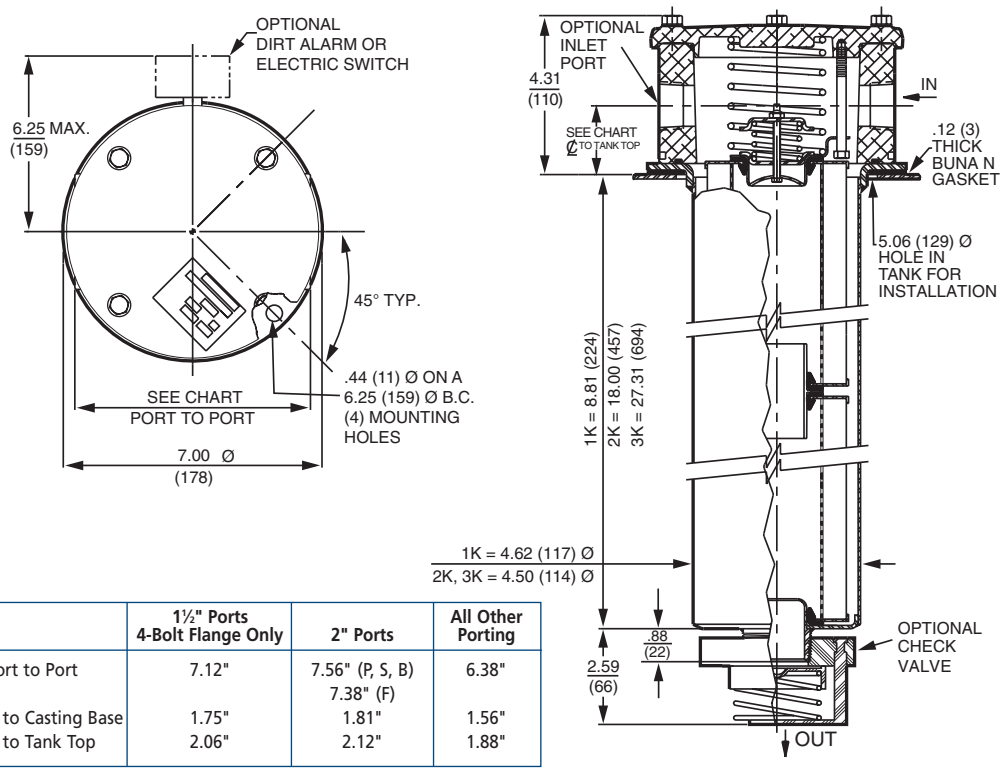
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	400 psi (28 bar)
Rated Fatigue Pressure:	90 psi (6 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 48 psi (3.3 bar)
Porting Head & Cap: Element Case:	Die Cast Aluminum Steel
Weight of RT-1K: Weight of RT-2K:	11.4 lbs. (5.2 kg) 14.5 lbs. (6.6 kg)
Element Change Clearance:	8.0" (205 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

RT Tank-Mounted Filter

SAME DAY SHIPMENT MODEL AVAILABLE!



	1½" Ports 4-Bolt Flange Only	2" Ports	All Other Porting
Port to Port	7.12"	7.56" (P, S, B) 7.38" (F)	6.38"
℄ to Casting Base	1.75"	1.81"	1.56"
℄ to Tank Top	2.06"	2.12"	1.88"

Optional mounting rings (P/N A-LFT-813 and A-LFT-1448; see page 183 for details) available to weld to tank.

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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
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	<1.0	<1.0	<2.0	<4.0	4.8
KZ5	2.5	3.0	4.0	4.8	6.3
KZ10	7.4	8.2	10.0	8.0	10.0
KZ25	18.0	20.0	22.5	19.0	24.0

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	KDZ1	89	KKDZ1	188
KZ3	115	KKZ3	230	27KZ3	345	KDZ3	71	KKDZ3	150
KZ5	119	KKZ5	238	27KZ5	357	KDZ5	100	KKDZ5	210
KZ10	108	KKZ10	216	27KZ10	324	KDZ10	80	KKDZ10	168
KZ25	93	KKZ25	186	27KZ25	279	KDZ25	81	KKDZ25	171

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

Flow Direction: Outside In **See RTI, page 155 for inside out flow version.**

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

Tank-Mounted Filter RT

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation and 3 and 10 µ E (cellulose) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media with H.5 seal designation and W (water removal) media 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 25 psi (1.7 bar) bypass valve.
Return Line Tank-Mounted	E Media	K3	1K3 — 2K3† — 3K3†
		K10	1K10 — 2K10†
		K25	1K25 — 2K25†
	Z Media	KZ1	1KZ1 — 2KZ1†
		KZ3	1KZ3 — 2KZ3†
		KZ5	1KZ5 — 2KZ5†
		KZ10	1KZ10
		KZ25	1KZ25
	Flow	gpm	0 — 40 — 60 — 80 — 100
		(L/min)	0 — 50 — 150 — 250 — 380

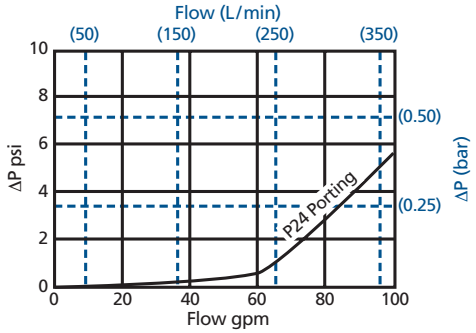
†Double and triple stacking of K-size elements can be replaced by single KK & 27K elements, respectively.
Shown above are the elements most commonly used in this housing.

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.*

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

RT $\Delta P_{housing}$ 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):

	1K	2K	3K		1K	2K
K3	.25	.12	.08			
K10	.09	.05	.03			
K25	.02	.01	.01			
KZ1	.20	.10	.05	**KDZ1**	.24	.12
KZ3	.10	.05	.03	**KDZ3**	.12	.06
KZ5	.08	.04	.02	**KDZ5**	.1	.05
KZ10	.05	.03	.02	**KDZ10**	.06	.03
KZ25	.04	.02	.01	**KDZ25**	.04	.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 80 gpm (300 L/min) for RT1KZ10P24NN using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3.0 psi [.20 bar]

$\Delta P_{element}$ = 80 x .05 x (200÷150) = 5.3 psi
or
= [300 x (.05÷54.9) x (44÷32) = .38 bar]

ΔP_{total} = 3.0 + 5.3 = 8.3 psi
or
= [.20 + .38 = .58 bar]

RT Tank-Mounted Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

Filter Model Number Selection

Same Day Shipment Model See Appendix E for details.

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
RT							

Example: *NOTE: Only box 8 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
RT	1	KZ10		S24 S24 N		Y2		= RT1KZ10S24S24NY2

BOX 1 — Filter Series

Filter Series
RT
RTW

BOX 2 — Number of Elements

Number of Elements
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	KK25	27K25	= 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)
KDZ1	KKDZ1		= DirtCatcher® 1 µ Excellement Z media
KDZ3	KKDZ3		= DirtCatcher 3 µ Excellement Z media
KDZ5	KKDZ5		= DirtCatcher 5 µ Excellement Z media
KDZ10	KKDZ10		= DirtCatcher 10 µ Excellement Z media
KDZ25	KKDZ25		= DirtCatcher 25 µ Excellement Z media
KM60			= 60 µ M media (reusable metal)
KW			= W media (water removal)

BOX 4 — Seal Material

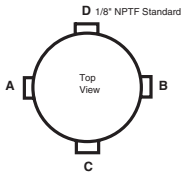
Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® compatibility

BOX 5 — *Specification of all 3 ports is required*

Inlet Porting

Port A	Port B	Port C
	N = None	N = None
P16 = 1" NPTF	P16 = 1" NPTF	P2 = ⅛" NPTF
P20 = 1¼" NPTF	P20 = 1¼" NPTF	P16 = 1" NPTF
P24 = 1½" NPTF	P24 = 1½" NPTF	
P32 = 2" NPTF	P32 = 2" NPTF	S16 = SAE-16
S16 = SAE-16	S16 = SAE-16	
S20 = SAE-20	S20 = SAE-20	
S24 = SAE-24	S24 = SAE-24	
S32 = SAE-32	S32 = SAE-32	
F20 = 1¼" SAE 4-bolt flange Code 61	F20 = 1¼" SAE 4-bolt flange Code 61	
F24 = 1½" SAE 4-bolt flange Code 61	F24 = 1½" SAE 4-bolt flange Code 61	
F32 = 2" SAE 4-bolt flange Code 61	F32 = 2" SAE 4-bolt flange Code 61	
B24 = ISO 228 G-1½"	B24 = ISO 228 G-1½"	

Inlet Porting Location



BOX 6

Outlet Porting Options
Omit = 1½" NPT male
C = Check valve
D = Diffuser
CD = Check valve & diffuser
T = 13" Tube extension
A = Non-threaded outlet

BOX 7

Dirt Alarm® Options		
		Omit = None
Located @ Port D	Visual	Y2 = Back-mounted tri-color gauge
	Electrical	ES = Electric switch ES1 = Heavy-duty electric switch with conduit connector
Located in cap	Visual	Y2C = Bottom-mounted tri-color gauge Y5 = Back-mounted gauge in cap
Located @ Port C	Visual	Y2R = Back-mounted gauge mounted on opposite side of standard location
	Electrical	ESR = Electric switch mounted on opposite side of standard location ES1R = Heavy-duty electric switch with conduit connector

BOX 8

Additional Options
Omit = None
G2293 = Cork gasket
G547 = Two ⅛" gauge ports
G820 = Stamped cap
N = No-Element indicator
M = Metric thread for SAE 4-bolt flange mounting holes (specify after each port designation)

NOTES:

Box 1. RTW allows filter to be welded to tank instead of bolted.

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.

Box 4. For options H, W, 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. Skydrol is a registered trademark of Solutia Inc.

Box 5. If using Port B, Port A & B must always be the same type and size.
Example: (A) P20 (B) P20 (C) P16

To qualify for same day shipment, inlet porting must be S24S24N or S20NN.

Tank-Mounted Filter (Inside Out Flow) RTI

Features and Benefits

- Tank-mounted "Inside Out" flow filter
- Up to 3 inlet ports available
- Offered in pipe, SAE straight thread and flanged porting
- Various Dirt Alarm® options

120 gpm
455 L/min
100 psi
7 bar

Model No. of filter in photograph is RTI3KZ10S24NP16Y2.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

STEEL MAKING

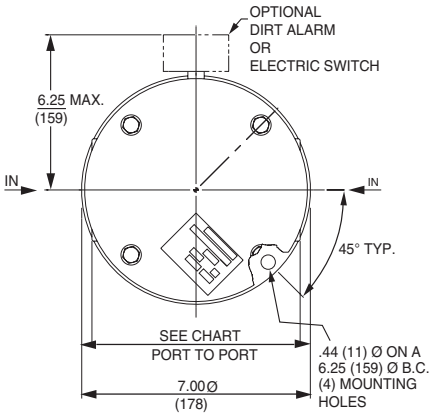
MARINE

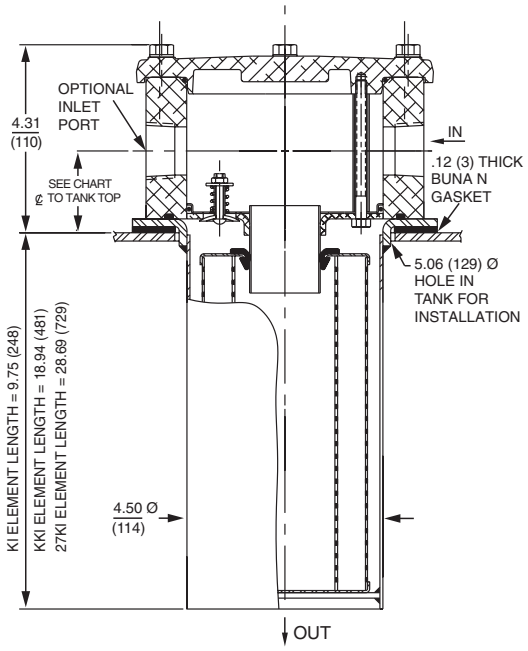
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 120 gpm (455 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	400 psi (28 bar)
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (2 bar) Full Flow: 62 psi (4.3 bar)
Porting Head & Cap: Element Case:	Die Cast Aluminum Steel
Weight of RTI-KI: Weight of RTI-KKI:	11.4 lbs. (5.2 kg) 14.5 lbs. (6.6 kg)
Element Change Clearance:	KI Element = 9.0 (229 mm) KKI Element = 18.0 (457 mm) 27KI Element = 27.0 (686 mm)

RTI Tank-Mounted Filter (Inside Out Flow)





	1¼", 1½" Standard Ports	1½" Ports 4-Bolt Flange Only
Port to Port	6.38"	7.12"
℄ to Casting Base	1.56"	1.75"
℄ to Tank Top	1.88"	2.06"

Optional mounting rings (P/N A-LFT-813 and A-LFT-1448; see page 183 for details) available to weld to tank.

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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
KIZ1	<1.0	<1.0	<1.0	<4.0	4.2
KIZ3	<1.0	<1.0	<2.0	<4.0	4.8
KIZ10	7.4	8.2	10.0	8.0	10.0

Dirt Holding Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
KIZ1	85	KKIZ1	181	27KIZ1	276
KIZ3	88	KKIZ3	185	27KIZ3	283
KIZ10	82	KKIZ10	174	27KIZ10	266

Element Collapse Rating: 100 psid (7 bar)
Flow Direction: Inside Out
Element Nominal Dimensions:
KI: 3.9" (99 mm) O.D. x 9.0" (230 mm) long
KKI: 3.9" (99 mm) O.D. x 18.0" (460 mm) long
27KI: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

Tank-Mounted Filter (Inside Out Flow) RTI

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media 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	Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.			
Return Line Tank-Mounted	Z Media	Z10	KI	KKI	27KI	
Flow		gpm	0	90	105	120
		(L/min)	0	340	400	455

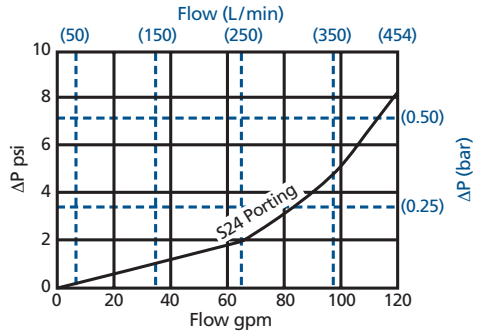
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

RT $\Delta P_{housing}$ 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):

KIZ10	.08
KKIZ10	.05
27KIZ10	.04

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 80 gpm (300 L/min) for RTIKKIZ10P24NN using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3.0 psi [.20 bar]

$\Delta P_{element}$ = 80 x .05 x (200÷150) = 5.3 psi
or
= [300 x (.05÷54.9) x (44÷32) = .38 bar]

ΔP_{total} = 3.0 + 5.3 = 8.3 psi
or
= [.20 + .38 = .58 bar]

RTI Tank-Mounted Filter (Inside Out Flow)

Filter Model Number Selection

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
RTI					

Example: *NOTE: Only box 6 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	
RTI	KIZ10	W	S20 S20 N	Y2		= RTIKIZ10WS20S20NY2

BOX 1

Filter Series
RTI

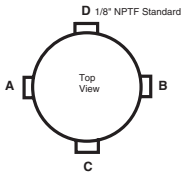
BOX 2

Element Part Number			
K Length	KK Length	27K Length	
KIZ1	KKIZ1	27KIZ1	= 1 µ Excellement® Z media (synthetic)
KIZ3	KKIZ3	27KIZ3	= 3 µ Excellement Z media (synthetic)
KIZ10	KKIZ10	27KIZ10	= 10 µ Excellement Z media (synthetic)

BOX 3

Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® compatibility

Inlet Porting Location



BOX 4

Specification of all 3 ports is required

Inlet Porting		
Port A	Port B	Port C
P16 = 1" NPTF P20 = 1¼" NPTF P24 = 1½" NPTF S16 = SAE-16 S20 = SAE-20 S24 = SAE-24 F20 = 1¼" SAE 4-bolt flange Code 61 F24 = 1½" SAE 4-bolt flange Code 61	N = None P16 = 1" NPTF P20 = 1¼" NPTF P24 = 1½" NPTF S16 = SAE-16 S20 = SAE-20 S24 = SAE-24 F20 = 1¼" SAE 4-bolt flange Code 61 F24 = 1½" SAE 4-bolt flange Code 61	N = None P2 = ⅛" NPTF P16 = 1" NPTF S16 = SAE-16

BOX 5

Dirt Alarm® Options		
		Omit = None
Located @ Port D	Visual	Y2 = Back-mounted tri-color gauge
	Electrical	ES = Electric switch ES1 = Heavy-duty electric switch with conduit connector
Located in cap	Visual	Y2C = Bottom-mounted tri-color gauge Y5 = Back-mounted gauge in cap
Located @ Port C	Visual	Y2R = Back-mounted gauge mounted on opposite side of standard location
	Electrical	ESR = Electric switch mounted on opposite side of standard location ES1R = Heavy-duty electric switch with conduit connector

BOX 6

Additional Options
Omit = None
G547 = Two ⅛" gauge ports
M = Metric thread for SAE 4-bolt flange mounting holes (specify after each port designation)

NOTES:

Box 2. Replacement element part numbers are identical to contents of Boxes 2 and 3.

Box 4. For options H, W, 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. Skydrol is a registered trademark of Solutia Inc.

Box 5. If using Port B, Port A & B must always be the same type and size. *Example:* (A) P20 (B) P20 (C) P16

Box 6. See also "Accessories for Tank-Mounted Filters," page 183.

Tank-Mounted Filter KFT

Features and Benefits

- Low pressure tank-mounted filter
- Meets HF4 automotive standard
- Multiple inlet/outlet porting options
- Top, side or bottom mounting
- Optional check valve prevents reservoir siphoning
- Can also be used in return line application (contact factory)
- Double and triple stacking of K-size element can be replaced by single KK or 27K-size element
- Allows consolidation of inventoried replacement elements by using K-size elements
- Also available with DirtCatcher® elements (KD & KKD)

100 gpm
380 L/min
100 psi
7 bar

Model No. of filter in photograph is KFT1K10P24P24NBY2.

INDUSTRIAL

MINING TECHNOLOGY

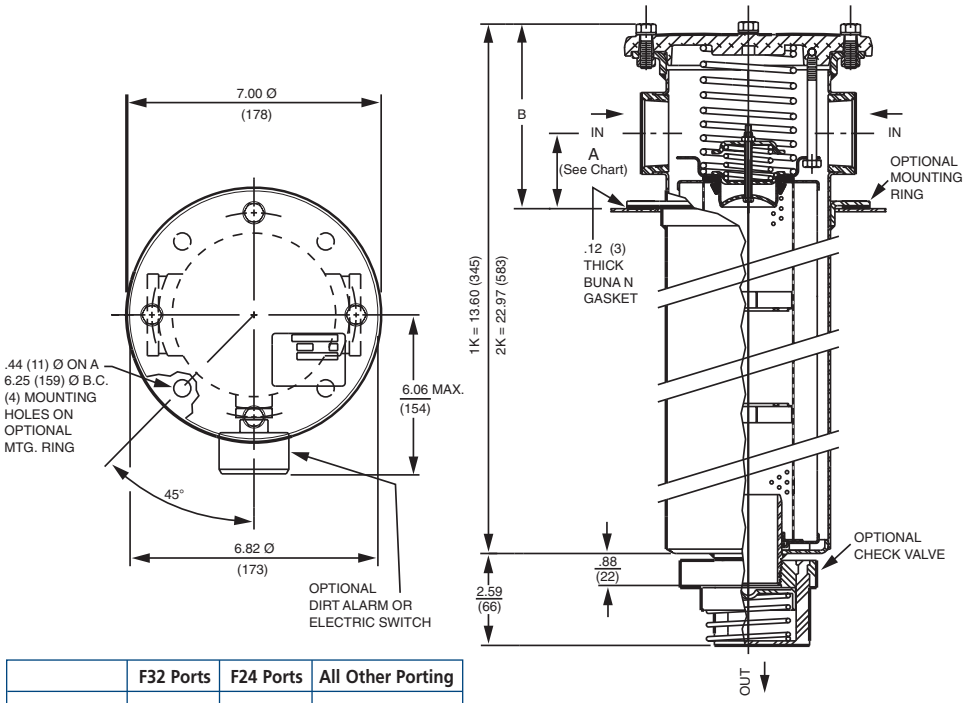
MOBILE VEHICLES

Applications

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	400 psi (27 bar)
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 48 psi (3.3 bar)
Cap: Element Case:	Die Cast Aluminum (standard), Steel (optional) Steel
Weight of KFT-1K: Weight of KFT-2K:	10.0 lbs. (4.5 kg) 13.6 lbs. (6.2 kg)
Element Change Clearance:	8.0" (205 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

KFT Tank-Mounted Filter



	F32 Ports	F24 Ports	All Other Porting
Dimension A	2.12 (54)	3.56 (90)	1.78 (45)
Dimension B	5.46 (1.39)	6.90 (175)	5.12 (130)

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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
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	<1.0	<1.0	<2.0	<4.0	4.8
KZ5	2.5	3.0	4.0	4.8	6.3
KZ10	7.4	8.2	10.0	8.0	10.0
KZ25	18.0	20.0	22.5	19.0	24.0

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	KDZ1	89	KKDZ1	188
KZ3	115	KKZ3	230	27KZ3	345	KDZ3	71	KKDZ3	150
KZ5	119	KKZ5	238	27KZ5	357	KDZ5	100	KKDZ5	210
KZ10	108	KKZ10	216	27KZ10	324	KDZ10	80	KKDZ10	168
KZ25	93	KKZ25	186	27KZ25	279	KDZ25	81	KKDZ25	171

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

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation and 3 and 10 µ E (cellulose) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media with H.5 seal designation and W (water removal) media 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	Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.
Return Line Tank-Mounted	E Media	K3	1K3 / 2K3†
		K10	1K10 / 2K10†
		K25	1K25 / 2K25†
	Z Media	KZ1	1KZ1 / 2KZ1†
		KZ3	1KZ3 / 2KZ3†
		KZ5	1KZ5 / 2KZ5†
		KZ10	1KZ10
		KZ25	1KZ25
Flow		gpm	0 40 60 80 100
		(L/min)	0 50 150 250 380

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

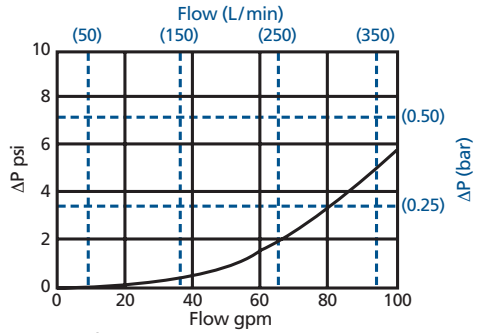
Shown above are the elements most commonly used in this housing.

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.*

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

KFT $\Delta P_{housing}$ 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.

$\Delta P_{element}$

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

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K		1K	2K
K3	.25	.12			
K10	.09	.05			
K25	.02	.01			
KZ1	.20	.10	**KDZ1**	.24	.12
KZ3	.10	.05	**KDZ3**	.12	.06
KZ5	.08	.04	**KDZ5**	.1	.05
KZ10	.05	.03	**KDZ10**	.06	.03
KZ25	.04	.02	**KDZ25**	.04	.02

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

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

Notes

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

Exercise:
Determine ΔP at 80 gpm (300 L/min) for KFT2K10P24 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3 psi [.25 bar]

$\Delta P_{element}$ = 80 x .05 x (200÷150) = 5.3 psi
or
= [300 x (.05÷54.9) x (44÷32) = .37 bar]

ΔP_{total} = 3.0 + 5.3 = 8.3 psi
or
= [.25 + .37 = .62 bar]

KFT Tank-Mounted Filter

Filter Model Number Selection

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

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6		BOX 7		BOX 8		BOX 9
KFT	-		-		-		-		-		-		-		-	

Example: *NOTE: Only box 9 may contain more than one option*

BOX 1		BOX 2		BOX 3		BOX 4		BOX 5		BOX 6		BOX 7		BOX 8		BOX 9	
KFT	-	1	-	KZ10	-	W	-	S20 N S20 N	-	N	-	B	-		-		= KFT1KZ10WS20NS20NNB

BOX 1

Filter Series
KFT

BOX 2

Number of Elements
1
2

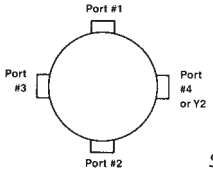
BOX 3

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	KK25	27K25	= 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)
KDZ1	KKDZ1		= DirtCatcher® 1 µ Excellement Z media
KDZ3	KKDZ3		= DirtCatcher 3 µ Excellement Z media
KDZ5	KKDZ5		= DirtCatcher 5 µ Excellement Z media
KDZ10	KKDZ10		= DirtCatcher 10 µ Excellement Z media
KDZ25	KKDZ25		= DirtCatcher 25 µ Excellement Z media

BOX 4

Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® compatibility

Inlet Porting Location



BOX 5

Specification of all 4 ports is required

Inlet Porting			
Port 1 (Standard)	Port 2 (Optional)	Port 3 (Optional)	Port 4 (Optional)
N = None	N = None	N = None	N = None
P2 = ⅛" NPTF	P2 = ⅛" NPTF	P2 = ⅛" NPTF	P2 = ⅛" NPTF
P4 = ¼" NPTF	P4 = ¼" NPTF	P4 = ¼" NPTF	P4 = ¼" NPTF
P8 = ½" NPTF	P8 = ½" NPTF	P8 = ½" NPTF	P8 = ½" NPTF
P12 = ¾" NPTF	P12 = ¾" NPTF	P12 = ¾" NPTF	P12 = ¾" NPTF
P16 = 1" NPTF	P16 = 1" NPTF	P16 = 1" NPTF	P16 = 1" NPTF
P20 = 1¼" NPTF	P20 = 1¼" NPTF	P20 = 1¼" NPTF	P20 = 1¼" NPTF
P24 = 1½" NPTF	P24 = 1½" NPTF	P24 = 1½" NPTF	P24 = 1½" NPTF
S4 = SAE-4	S4 = SAE-4	S4 = SAE-4	S4 = SAE-4
S8 = SAE-8	S8 = SAE-8	S8 = SAE-8	S8 = SAE-8
S12 = SAE-12	S12 = SAE-12	S12 = SAE-12	S12 = SAE-12
S16 = SAE-16	S16 = SAE-16	S16 = SAE-16	S16 = SAE-16
S20 = SAE-20	S20 = SAE-20	S20 = SAE-20	S20 = SAE-20
S24 = SAE-24	S24 = SAE-24	S24 = SAE-24	S24 = SAE-24
F24 = 1½" SAE 4-bolt flange Code 61	F24 = 1½" SAE 4-bolt flange Code 61		
F32 = 2" SAE 4-bolt flange Code 61	F32 = 2" SAE 4-bolt flange Code 61		

BOX 6

Outlet Porting
Omit = 1½" NPTM
N = Non-threaded
T = 13" non-threaded tube
C = Check valve
D = Diffuser
CD = Check valve & diffuser

BOX 7

Optional Mounting Flange
Omit = None
B = Flange with 4 holes
BW = Flange with no holes

BOX 8

Dirt Alarm® Options	
	Omit = None
Visual	Y2 = Back-mounted tri-color gauge (Port 4) (Not available with 4 ports)
	Y2C = Bottom-mounted gauge in cap
	Y5 = Back-mounted gauge in cap
Electrical	ES = Electric switch (located on filter housing – not available with 4 ports)
	ES1 = Heavy-duty electric switch with conduit connection

BOX 9

Additional Options
Omit = None
G2293 = Cork gasket
G820 = Stamped cap
M = Metric thread for SAE 4-bolt flange mounting holes (specify after each F port designation)

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. K specifies one 9" element; KK specifies one 18" element; 27K specifies one 27" element.
Examples: KKZ10; 27KZ3

Box 4. For options H, W, 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.
Skydrol is a registered trademark of Solutia Inc.

Box 6. See also "Accessories for Tank-Mounted Filters," page 183.

SAME DAY SHIPMENT MODEL AVAILABLE!

Tank-Mounted Filter LRT

Features and Benefits

- Low pressure tank-mounted filter
- Multiple inlet/outlet porting options
- Top, side or bottom mounting
- Optional check valve prevents reservoir siphoning
- Can also be used in return line application (contact factory)
- Visual gauge or electrical switch dirt alarms
- Offered in pipe, SAE straight thread, flanged and ISO 228 porting
- Same day shipment model available
- Also available with DirtCatcher® elements (18LD)

150 gpm
570 L/min
100 psi
7 bar

Model No. of filter in photograph is LRT18LZ10S24NP16Y2.

Applications

INDUSTRIAL

MINING TECHNOLOGY

STEEL MAKING

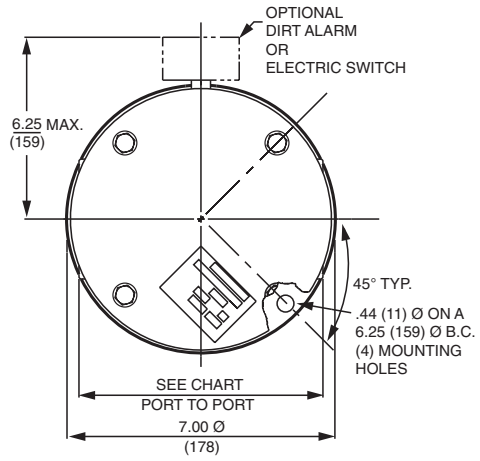
MOBILE VEHICLES

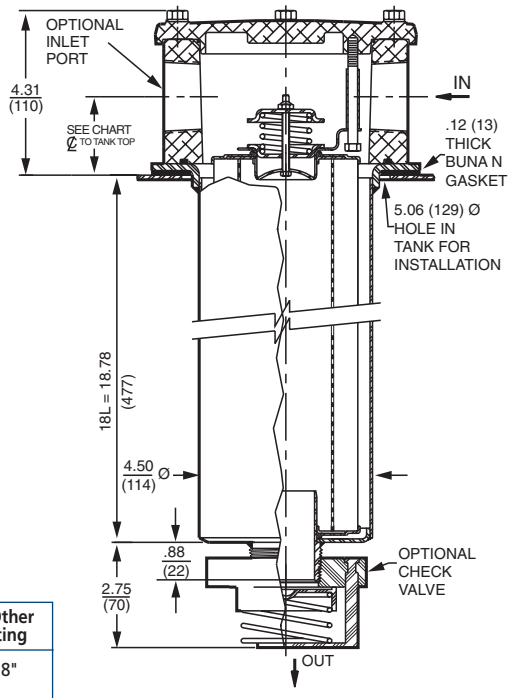
Filter Housing Specifications

Flow Rating:	Up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	400 psi (28 bar)
Rated Fatigue Pressure:	90 psi (6 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 34 psi (2.3 bar)
Porting Head & Cap: Element Case:	Die Cast Aluminum Steel
Weight of LRT-18L:	14.6 lbs. (6.6 kg)
Element Change Clearance:	17.0" (435 mm)

LRT Tank-Mounted Filter

SAME DAY SHIPMENT MODEL AVAILABLE!





	1½" Ports 4-Bolt Flange Only	2" Ports	All Other Porting
Port to Port	7.12"	7.56" (P, S, B) 7.38" (F)	6.38"
℄ to Casting Base	1.75"	1.81"	1.56"
℄ to Tank Top	2.06"	2.12"	1.88"

Optional mounting ring available to weld to tank.

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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
18L3	6.8	7.5	10.0	N/A	N/A
18L10	15.5	16.2	18.0	N/A	N/A
18LZ1	<1.0	<1.0	<1.0	<4.0	4.2
18LZ3	<1.0	<1.0	<2.0	<4.0	4.8
18LZ5	2.5	3.0	4.0	4.8	6.3
18LZ10	7.4	8.2	10.0	8.0	10.0
18LZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)	Element	DHC (gm)
18L3	110		
18L10	88		
18LZ1	200	18LDZ1	150
18LZ3	205	18LDZ3	119
18LZ5	228	18LDZ5	167
18LZ10	203	18LDZ10	133
18LZ25	184	18LDZ25	135

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

Tank-Mounted Filter LRT

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media 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	Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 25 psi (1.7 bar) bypass valve.
Return Line Tank-Mounted	Z Media	18LZ1	18LZ1 — See BFT
		18LZ3	18LZ3
		18LZ5	18LZ5
		18LZ10	18LZ10
		18LZ25	18LSZ25
	Flow	gpm	0 — 25 — 50 — 75 — 100 — 125 — 150
		(L/min)	0 — 100 — 200 — 300 — 400 — 570

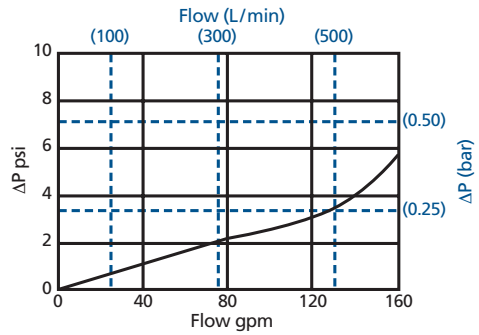
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

LRT $\Delta P_{housing}$ 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):

	18L		18L
18LZ1	.10	**18LDZ1**	.12
18LZ3	.05	**18LDZ3**	.06
18LZ5	.04	**18LDZ5**	.05
18LZ10	.03	**18LDZ10**	.03
18LZ25	.02	**18LDZ25**	.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 120 gpm (455 L/min) for LRT18LZ5P24Y2 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3.0 psi [.20 bar]

$\Delta P_{element}$ = 120 x .04 x (200÷150) = 6.4 psi
or
= [455 x (.04÷54.9) x (44÷32) = .45 bar]

ΔP_{total} = 3.0 + 6.4 = 9.4 psi
or
= [.20 + .45 = .65 bar]

LRT Tank-Mounted Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

Filter Model Number Selection

Same Day Shipment Model See Appendix E for details.

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
LRT							

Example: *NOTE: Only box 8 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
LRT	18	LZ10		S24 S24 N		Y2		= **LRT18LZ10S24S24NY2**

BOX 1

Filter Series
LRT

BOX 2

Element Length (in)
18

BOX 3

Element Size and Media
L3 = L size 3 µ E media (cellulose)
L10 = L size 10 µ E media (cellulose)
LZ1 = L size 1 µ Excellement® Z media (synthetic)
LZ3 = L size 3 µ Excellement Z media (synthetic)
LZ5 = L size 5 µ Excellement Z media (synthetic)
LZ10 = L size 10 µ Excellement Z media (synthetic)
LZ25 = L size 25 µ Excellement Z media (synthetic)
LDZ1 = L size DirtCatcher® 1 µ Excellement Z media
LDZ3 = L size DirtCatcher 3 µ Excellement Z media
LDZ5 = L size DirtCatcher 5 µ Excellement Z media
LDZ10 = L size DirtCatcher 10 µ Excellement Z media
LDZ25 = L size DirtCatcher 25 µ Excellement Z media

BOX 4

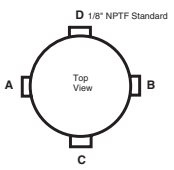
Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® compatibility

BOX 5

Specification of all 3 ports is required

Inlet Porting		
Port A	Port B	Port C
	N = None	N = None
P16 = 1" NPTF	P16 = 1" NPTF	P2 = ⅛" NPTF
P20 = 1¼" NPTF	P20 = 1¼" NPTF	P16 = 1" NPTF
P24 = 1½" NPTF	P24 = 1½" NPTF	
P32 = 2" NPTF	P32 = 2" NPTF	S16 = SAE-16
S16 = SAE-16	S16 = SAE-16	
S20 = SAE-20	S20 = SAE-20	
S24 = SAE-24	S24 = SAE-24	
S32 = SAE-32	S32 = SAE-32	
F20 = 1¼" SAE 4-bolt flange Code 61	F20 = 1¼" SAE 4-bolt flange Code 61	
F24 = 1½" SAE 4-bolt flange Code 61	F24 = 1½" SAE 4-bolt flange Code 61	
F32 = 2" SAE 4-bolt flange Code 61	F32 = 2" SAE 4-bolt flange Code 61	
B24 = ISO 228 G-1½"	B24 = ISO 228 G-1½"	

Inlet Porting Location



BOX 6

Outlet Porting Options
Omit = 2" NPT male
C = Check valve
D = Diffuser
T = 13" Tube extension
A = Non-threaded outlet

BOX 7

Dirt Alarm® Options		
		Omit = None
Located @ Port D	Visual	Y2 = Back-mounted tri-color gauge
	Electrical	ES = Electric switch ES1 = Heavy-duty electric switch with conduit connector
Located in cap	Visual	Y2C = Bottom-mounted tri-color gauge Y5 = Back-mounted gauge in cap
Located @ Port C	Visual	Y2R = Back-mounted gauge mounted on opposite side of standard location
	Electrical	ESR = Electric switch mounted on opposite side of standard location ES1R = Heavy-duty electric switch with conduit connector

BOX 8

Additional Options
Omit = None
G2293 = Cork gasket
G547 = Two ⅛" gauge ports
G820 = Stamped cap
M = Metric thread for SAE 4-bolt flange mounting holes (specify after each F port designation)

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. *Example*: 18L3W

Box 4. For options H, W, 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. Skydrol is a registered trademark of Solutia Inc.

Box 5. If using Port B, Port A & B must always be the same type and size. *Example:* (A) P20 (B) P20 (C) P16

Box 6. See also "Accessories for Tank-Mounted Filters," page 183.

Tank-Mounted Filter BFT

Features and Benefits

- Low pressure tank-mounted filter
- Designed for high return line flows
- Dual inlet porting
- Top, side or bottom mounting
- Optional check valve prevents reservoir siphoning
- Special filter element design provides aftermarket benefits
- Also available with DirtCatcher® element (BBD)

300 gpm
1135 L/min
100 psi
7 bar

Model No. of filter in photograph is BFT1BBZ10FFY2.

Applications

INDUSTRIAL

MINING TECHNOLOGY

STEEL MAKING

PAPER INDUSTRY

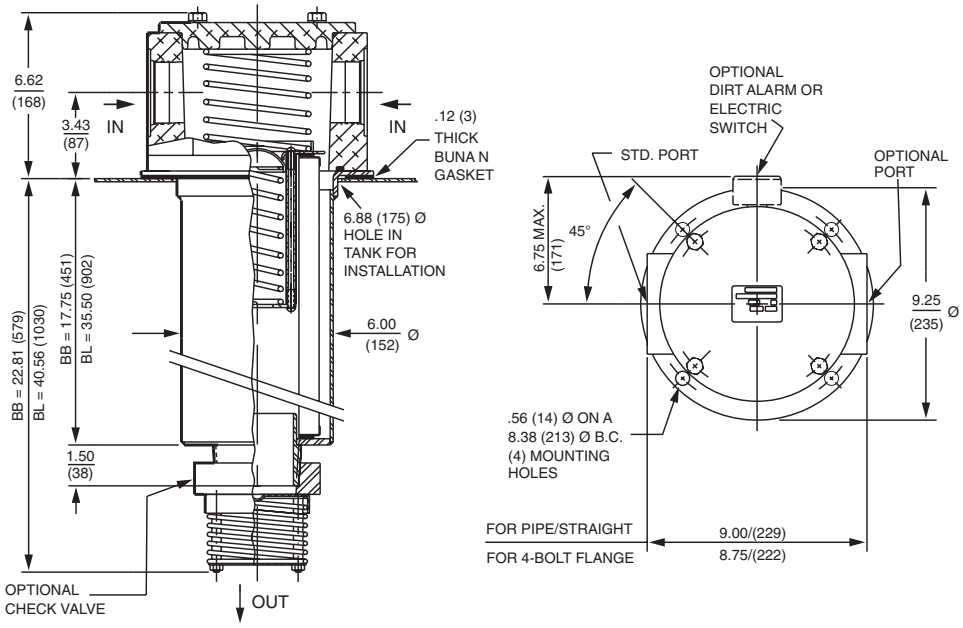
AGRICULTURE

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 300 gpm (1135 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	250 psi (17 bar)
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 52 psi (3.6 bar)
Porting Head & Cap: Element Case:	Aluminum Steel
Weight of BFT-1BB:	36.7 lbs. (16.6 kg)
Element Change Clearance:	14.75" (375 mm)

BFT Tank-Mounted Filter



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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
BB/BL10	15.5	16.2	18.0	N/A	N/A
BB/BLZ1	<1.0	<1.0	<1.0	<4.0	4.2
BB/BLZ3	<1.0	<1.0	<2.0	<4.0	4.8
BB/BLZ5	2.5	3.0	4.0	4.8	6.3
BB/BLZ10	7.4	8.2	10.0	8.0	10.0
BB/BLZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
BB10	132				
BBZ1	268	BBDZ1	205	BLZ1	536
BBZ3	275	BBDZ3	163	BLZ3	550
BBZ5	301	BBDZ5	229	BLZ5	550
BBZ10	272	BBDZ10	183	BLZ10	550
BBZ25	246	BBDZ25	186	BLZ25	550

Element Collapse Rating: 150 psid (10 bar)
Flow Direction: Outside In
Element Nominal Dimensions: BB: 5.0" (125 mm) O.D. x 18.0" (460 mm) long
BL: 5.0" (125 mm) O.D. x 36.0" (920 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media 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 25 psi (1.7 bar) bypass valve (with check valve option).
Return Line Tank-Mounted	E Media	BB10	1BB10 / See MLF1
		BB25	1BB25
	Z Media	BBZ1	BBZ1* / BLZ1
		BBZ3	BBZ3* / BLZ3
		BBZ5	BBZ5
		BBZ10	BBZ10
		BBZ25	BBZ25
Flow		gpm	0 100 150 200 250 300
		(L/min)	0 400 600 800 1000 1150

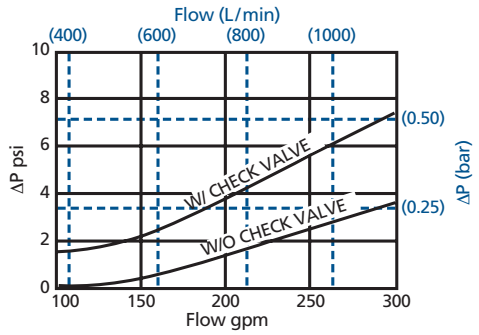
Shown above are the elements most commonly used in this housing.
*Note: Additional per element flow is available up to 300 gpm when using BFT filter without check valve option. See housing pressure drop graph below.

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

$\Delta P_{housing}$

BFT $\Delta P_{housing}$ 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):

	BB	BL		BBD
BB10	.03	.01		
BB25	.01	.01		
BBZ1	.07	.04	BBDZ1	.08
BBZ3	.05	.03	BBDZ3	.06
BBZ5	.04	.02	BBDZ5	.05
BBZ10	.03	.02	BBDZ10	.04
BBZ25	.02	.01	BBDZ25	.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 160 gpm (600 L/min) for BFT1BBZ3PCY2 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 2.5 psi [.20 bar]

$\Delta P_{element}$ = 160 x .05 x (200÷150) = 10.7 psi
or
= [600 x (.05÷54.9) x (44÷32) = .8 bar]

ΔP_{total} = 2.5 + 10.7 = 13.2 psi
or
= [.20 + .8 = 1.0 bar]

BFT Tank-Mounted Filter

Filter Model Number Selection

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
BFT								

Example: *NOTE: Only box 9 may contain more than one option*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
BFT	1	BB10		P			Y2		= **BFT1BB10PY2**

BOX 1

Filter Series
BFT

BOX 2

Number of Elements
1

BOX 3

Element Part Number		
BB Length	BL Length	
BB10		= 10 µ E media (cellulose)
BB25		= 25 µ E media (cellulose)
BBZ1	BLZ1	= 1 µ Excellement® Z media (synthetic)
BBZ3	BLZ3	= 3 µ Excellement Z media (synthetic)
BBZ5	BLZ5	= 5 µ Excellement Z media (synthetic)
BBZ10	BLZ10	= 10 µ Excellement Z media (synthetic)
BBZ25	BLZ25	= 25 µ Excellement Z media (synthetic)
BBDZ1		= BB size DirtCatcher® 1 µ Excellement Z media
BBDZ3		= BB size DirtCatcher 3 µ Excellement Z media
BBDZ5		= BB size DirtCatcher 5 µ Excellement Z media
BBDZ10		= BB size DirtCatcher 10 µ Excellement Z media
BBDZ25		= BB size DirtCatcher 25 µ Excellement Z media

BOX 4

Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® compatibility

BOX 5

Porting
P = 2½" NPTF
PP = Dual 2½" NPTF
S = SAE-32
SS = Dual SAE-32
F = 2½"-12 SAE 4-bolt flange Code 61
FF = Dual 2½"-12 SAE 4-bolt flange Code 61

BOX 6

Outlet Porting
Omit = 3" NPT male
T = 13" Tube extension

BOX 7

Optional Check Valve
Omit = None
C = Check valve

BOX 8

Dirt Alarm® Options	
	Omit = None
Visual	Y2 = Back-mounted tri-color gauge Y2R = Back-mounted gauge mounted on opposite side of standard location
Electrical	ES = Electric switch ESR = Electric switch mounted on opposite side of standard location ES1 = Heavy-duty electric switch with conduit connector ES1R = Heavy-duty electric switch with conduit connector mounted on opposite side of standard location

BOX 9

Additional Options
Omit = None
G547 = Two ⅛" gauge ports
G1476 = Three-terminal electric switch
M = Metric thread for SAE 4-bolt flange mounting holes (specify after each F port designation)
40 = Optional bypass setting

NOTES:

Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4. E media elements are only available with Buna N seals.

Box 4. For options H, W, 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. Skydrol is a registered trademark of Solutia Inc.

Box 7. See also "Accessories for Tank-Mounted Filters," page 183.

Tank-Mounted Filter QT

Model No. of filter in photograph is QT39QZ10P48D5C.

Features and Benefits

- Low pressure tank-mounted filter
- Designed for high return line flows
- Tank-mounted unit saves space, reduces plumbing
- Cap handles provide for easy element changeout
- Offered with standard Q, QW, QPML deep-pleated and QCLQF coreless elements in 16" and 39" lengths with Viton® seals as the standard

450 gpm
1700 L/min
100 psi
7 bar

Viton is a registered trademark of DuPont Dow Elastomers.

Applications

AUTOMOTIVE MANUFACTURING

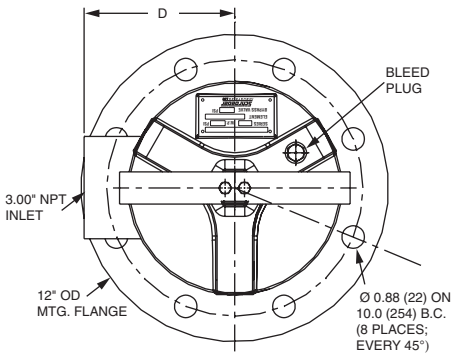
MACHINE TOOL

MINING TECHNOLOGY

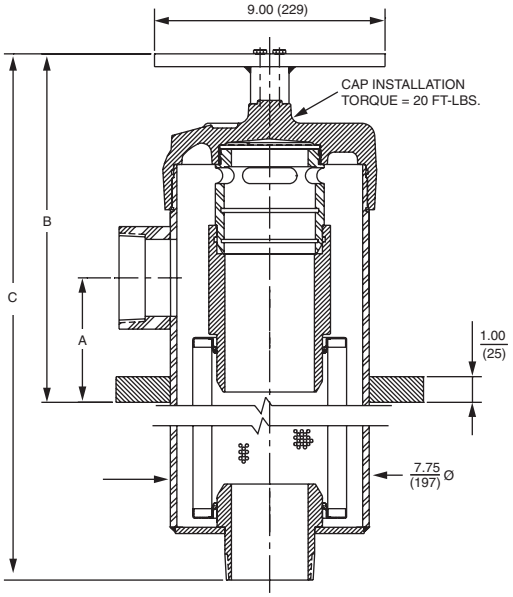
Filter Housing Specifications

Flow Rating:	Up to 450 gpm (1700 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	300 psi (21 bar)
Rated Fatigue Pressure:	100 psi (7 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2.1 bar) Full Flow: 55 psi (3.8 bar)
Porting Head: Element Case:	Steel Steel
Min. Weight of QT-16Q: Min. Weight of QT-39Q:	100.0 lbs. (46 kg) 158.0 lbs. (72 kg)
Element Change Clearance:	16Q 12.0" (305 mm) 39Q 33.8" (859 mm)

QT Tank-Mounted Filter



TOP VIEW



SECTION A-A

INLET PORT SIZE*	DIMENSIONS			
	A	B	C	D
3"	4.85 (123)	14.62 (371)	16Q: 30.43 (773) 39Q: 52.25 (1327)	5.88 (149)
4"	5.75 (146)	16.12 (409)	16Q: 30.43 (773) 39Q: 52.25 (1327)	6.13 (156)

*Outlet port is always 3".

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 $\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	Filtration Ratio wrt ISO 16889 Using APC calibrated per ISO 11171 $\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
16Q	Z1/CLQZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQZ3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/CLQZ5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/CLQZ10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/CLQZ25/PMLZ25	18.0	20.0	22.5	19.0	24.0
39Q	Z1/CLQZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQZ3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/CLQZ5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/CLQZ10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/CLQZ25/PMLZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
16Q	Z1	276	CLQZ1	307	PMLZ1	307
	Z3	283	CLQZ3	315	PMLZ3	315
	Z5	351	CLQZ5	364	PMLZ5	364
	Z10	280	CLQZ10	306	PMLZ10	330
	Z25	254	CLQZ25	278	PMLZ25	299
39Q	Z1	974	CLQZ1	1259	PMLZ1	1485
	Z3	1001	CLQZ3	1293	PMLZ3	1525
	Z5	954	CLQZ5	1199	PMLZ5	1235
	Z10	940	CLQZ10	1214	PMLZ10	1432
	Z25	853	CLQZ25	1102	PMLZ25	1299

Element Collapse Rating: Q and QPML: 150 psid (10 bar)
Flow Direction: Outside In
Element Nominal Dimensions:
16Q: 6.0" (150 mm) O.D. x 16.85" (430 mm) long
16QPML: 6.0" (150 mm) O.D. x 16.00" (405 mm) long
39Q: 6.0" (150 mm) O.D. x 38.70" (985 mm) long
39QPML: 6.0" (150 mm) O.D. x 37.80" (960 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation

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 100 psi (7 bar)	Z Media	16 & 39QZ1	16QZ1 / 39QZ1
		16 & 39QZ3	16QZ3 / 39QZ3
		16 & 39QZ5	16QZ5 / 39QZ5
		16 & 39QZ10	16QZ10 / 39QZ10
		16 & 39QZ25	16QZ25 & 39QZ25
		16 & 39QPMLZ1	16QPMLZ1 / 39QPMLZ1
		16 & 39QPMLZ3	16QPMLZ3 / 39QPMLZ3
		16 & 39QPMLZ5	16QPMLZ5 / 39QPMLZ5
		16 & 39QPMLZ10	16QPMLZ10 / 39QPMLZ10
		16 & 39QPMLZ25	16QPMLZ25 / 39QPMLZ25
	Flow	gpm	0 150 200 300 400 450
		(L/min)	0 500 1000 1500 1700

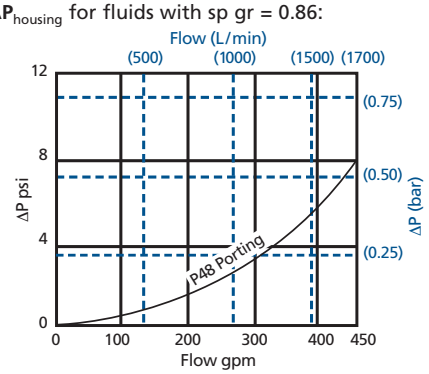
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

QT $\Delta P_{housing}$ 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):

16QZ1	.09	**39QZ1**	.03
16QZ3	.04	**39QZ3**	.02
16QZ5	.04	**39QZ5**	.02
16QZ10	.03	**39QZ10**	.01
16QZ25	.01	**39QZ25**	.01
16QPMLZ1	.08	**39QPMLZ1**	.03
16QPMLZ3	.05	**39QPMLZ3**	.02
16QPMLZ5	.05	**39QPMLZ5**	.02
16QPMLZ10	.04	**39QPMLZ10**	.01
16QPMLZ25	.02	**39QPMLZ25**	.01

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 200 gpm (757 L/min) for QT39QZ3VP48D5C using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 1.5 psi [.10 bar]

$\Delta P_{element}$ = 200 x .04 x (200÷150) = 10.7 psi
or
= [757 x (.04÷54.9) x (44÷32) = .76 bar]

ΔP_{total} = 1.5 + 10.7 = 12.2 psi
or
= [.10 + .76 = .86 bar]

QT Tank-Mounted Filter

Filter Model Number Selection

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
QT								

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	
QT	16	Q	Z3		P48			D5C	= QT16QZ3P48D5C

BOX 1 – Filter Series

QT

BOX 2 – Element Length (in)

16
39

BOX 3 – Element Style

Q
QCLQF
QPML

BOX 4 – Element Media

Z1 = 1 µ Excellement® Z media (synthetic)
Z3 = 3 µ Excellement Z media (synthetic)
Z5 = 5 µ Excellement Z media (synthetic)
Z10 = 10 µ Excellement Z media (synthetic)
Z25 = 25 µ Excellement Z media (synthetic)
W = W media (water removal)

BOX 5 – Housing Seal Material

Omit = Buna N
H = EPR
V = Viton®

BOX 6 – Inlet Porting

P48 = 3" NPTF
P64 = 4" NPTF

BOX 7 – Bypass Setting

Omit = 30 psi cracking
15 = 15 psi cracking
50 = 50 psi cracking
X = Blocked bypass

BOX 8 – Outlet Porting

Omit = 3" NPT male
C = Check valve
D = Diffuser
CD = Check valve and diffuser

BOX 9 – Dirt Alarm® Options

	Omit = None
Visual	D5C = Visual pop-up in cap
Visual with Thermal Lockout	D8C = Visual w/ thermal lockout in cap
Electrical	MS5C = Electrical w/ 12 in. 18 gauge 4-conductor cable in cap MS5LCC = Low current MS5 in cap MS10C = Electrical w/ DIN connector (male end only) in cap MS10LCC = Low current MS10 in cap MS11C = Electrical w/ 12 ft. 4-conductor wire in cap MS12C = Electrical w/ 5 pin Brad Harrison connector (male end only) in cap MS12LCC = Low current MS12 in cap MS16C = Electrical w/ weather-packed sealed connector in cap MS16LCC = Low current MS16 in cap MS17LCC = Electrical w/ 4 pin Brad Harrison male connector in cap
Electrical with Thermal Lockout	MS5T = MS5 (see above) w/ thermal lockout in cap MS5LCT = Low current MS5T in cap MS10TC = MS10 (see above) w/ thermal lockout in cap MS10LCTC = Low current MS10T in cap MS12TC = MS12 (see above) w/ thermal lockout MS12LCTC = Low current MS12T in cap MS16TC = MS16 (see above) w/ thermal lockout in cap MS16LCTC = Low current MS16T in cap MS17LCTC = Low current MS17T in cap
Electrical Visual	MS13C = Supplied w/ threaded connector & light in cap MS14C = Supplied w/ 5 pin Brad Harrison connector & light (male end) in cap
Electrical Visual with Thermal Lockout	MS13DCTC = MS13 (see above), direct current, w/ thermal lockout in cap MS13DCLCTC = Low current MS13DCT in cap MS14DCTC = MS14 (see above), direct current, w/ thermal lockout in cap MS14DCLCTC = Low current MS14DCT in cap

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. *Example*: 16QZ1

Box 3. E-media elements are also available for the QT filter housing. Contact Schroeder for more information. Contact Schroeder for information on the usage of QCLQF coreless elements.

Box 4. For Option W, Box 3 must equal Q.

Box 5. Viton is a registered trademark of DuPont Dow Elastomers. All elements for this filter are supplied with Viton seals. Seal designation in Box 5 applies to housing only.

Tank-Mounted Filter Kit KTK

Model No. of filter in photograph is KTK-KKZ10.

Features and Benefits

- Special tank-mounted filter kit
- Includes: cap assembly, weld ring assembly, element and bushing
- Available with standard K, KK or 27K-size elements
- Bypass valve in cap assembly

100 gpm
380 L/min

100 psi
7 bar

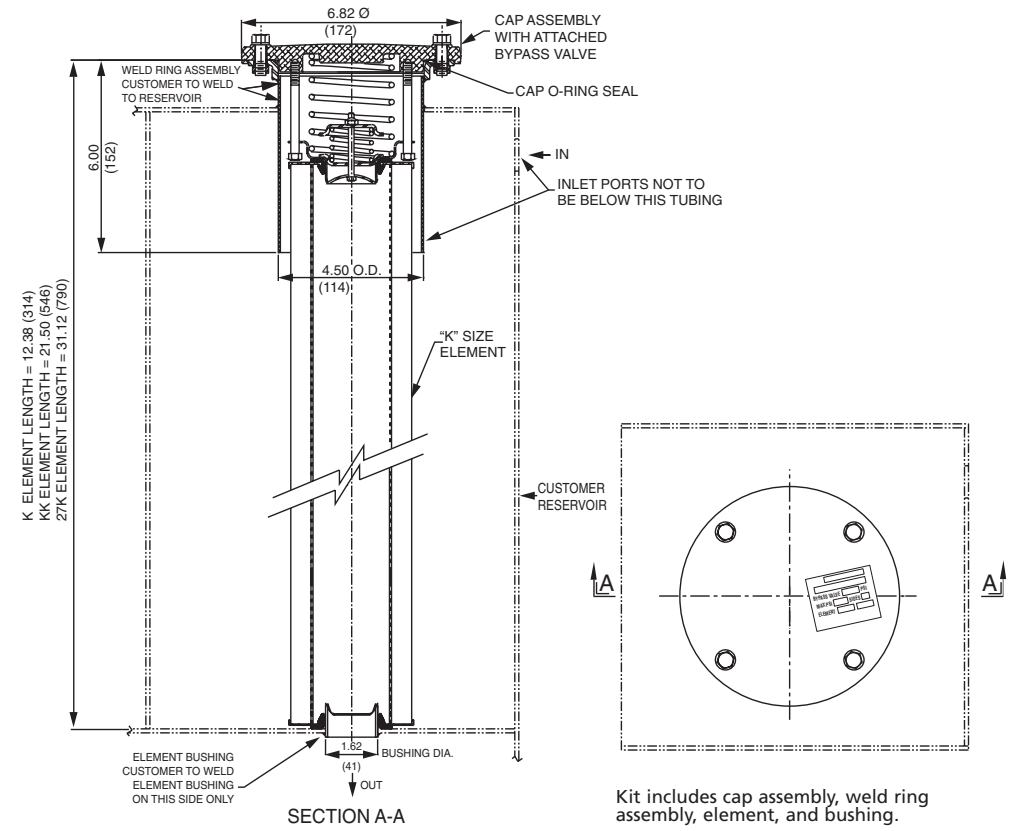
MOBILE VEHICLES

Applications

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar) exclusive of tank design
Min. Yield Pressure:	Contact factory
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 40 psi (2.8 bar)
Porting Cap: Weld Ring:	Die Cast Aluminum Steel
Element Change Clearance:	8.0" (205 mm) for K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

KTK Tank-Mounted Filter Kit



Kit includes cap assembly, weld ring assembly, element, and bushing.

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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
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	<1.0	<1.0	<2.0	<4.0	4.8
KZ5	2.5	3.0	4.0	4.8	6.3
KZ10	7.4	8.2	10.0	8.0	10.0
KZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

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
KZ3	115	KKZ3	230	27KZ3	345
KZ5	119	KKZ5	238	27KZ5	357
KZ10	108	KKZ10	216	27KZ10	324
KZ25	93	KKZ25	186	27KZ25	279

Element Collapse Rating: 150 psid (10 bar) for standard elements
Flow Direction: Outside In
Element Nominal Dimensions: 3.9" (99 mm) O.D. x 9.0" (230 mm) long

Tank-Mounted Filter Kit KTK

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation and 3 and 10 µ E (cellulose) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media 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.

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{element}$

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

El. ΔP factors @ 150 SUS (32 cSt):

	1K	KK	27K
K3	.25	.12	.08
K10	.09	.05	.03
K25	.02	.01	.01
KZ1	.20	.10	.05
KZ3	.10	.05	.03
KZ5	.08	.04	.02
KZ10	.05	.03	.02
KZ25	.04	.02	.01

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

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

Notes

KTK Tank-Mounted Filter Kit

Filter Model Number Selection

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
KTK –	[ ] –	[ ] –	[ ] –	[ ]

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
KTK –	K –	Z3 –	[ ] –	[ ]	= **KTKKZ3**

BOX 1

Filter Series
KTK

BOX 2

Element Length
K
KK
27K

BOX 3

Element Part Number
3 = 3 µ E media (cellulose)
10 = 10 µ E media (cellulose)
25 = 25 µ E media (cellulose)
Z1 = 1 µ Excellement® Z media (synthetic)
Z3 = 3 µ Excellement Z media (synthetic)
Z5 = 5 µ Excellement Z media (synthetic)
Z10 = 10 µ Excellement Z media (synthetic)
Z25 = 25 µ Excellement Z media (synthetic)

BOX 4

Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® compatibility

BOX 5

Dirt Alarm® Options	
	Omit = None
Visual	Y2C = Bottom-mounted gauge in cap

NOTES:

Box 3. Replacement element part numbers are identical to contents of Boxes 2, 3, and 4.

Box 4. For options H and W, cap is anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Skydrol is a registered trademark of Solutia Inc.

Tank-Mounted Filter Kit LTK

Features and Benefits

- Special tank-mounted filter kit
- Includes: cap assembly, weld ring assembly, element and bushing
- Available with standard 18L sized element
- Bypass valve in cap assembly

150 gpm
570 L/min
100 psi
7 bar

Model No. of filter in photograph is LTK-18LZ3.

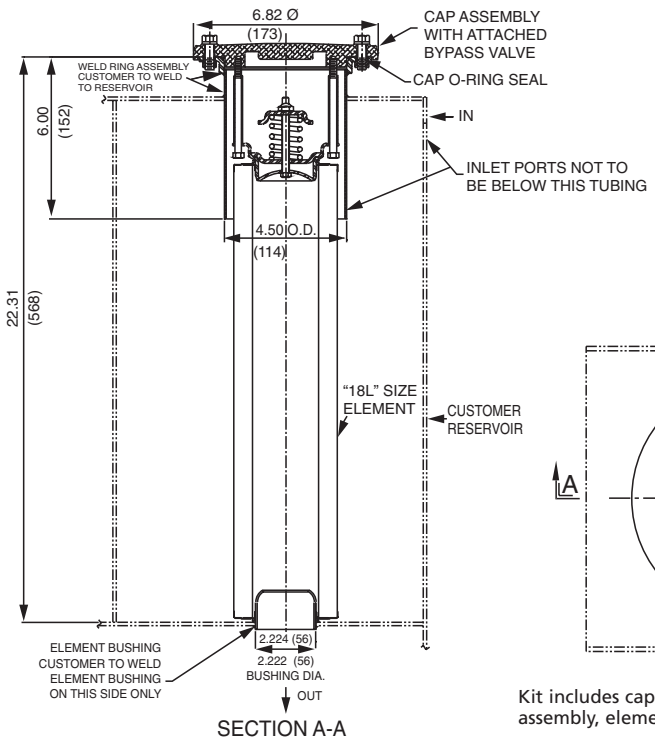
MOBILE VEHICLES

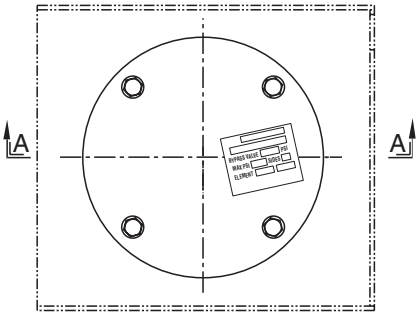
Applications

Filter Housing Specifications

Flow Rating:	Up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar) exclusive of tank design
Min. Yield Pressure:	Contact factory
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 25 psi (1.7 bar) Full Flow: 47 psi (3.2 bar)
Porting Cap: Weld Ring:	Die Cast Aluminum Steel
Element Change Clearance:	17.0" (435 mm)

LTK Tank-Mounted Filter Kit





Kit includes cap assembly, weld ring assembly, element, and bushing.

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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
18L3	6.8	7.5	10.0	N/A	N/A
18L10	15.5	16.2	18.0	N/A	N/A
18LZ1	<1.0	<1.0	<1.0	<4.0	4.2
18LZ3	<1.0	<1.0	<2.0	<4.0	4.8
18LZ5	2.5	3.0	4.0	4.8	6.3
18LZ10	7.4	8.2	10.0	8.0	10.0
18LZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)
18L3	110
18L10	88
18LZ1	200
18LZ3	205
18LZ5	228
18LZ10	203
18LZ25	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

Tank-Mounted Filter Kit LTK

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation and 3 and 10 µ E (cellulose) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media 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.

Pressure Drop Information

Based on Flow Rate and Viscosity

$\Delta P_{element}$

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

El. ΔP factors @ 150 SUS (32 cSt):

	18L
18LZ1	.10
18LZ3	.05
18LZ5	.04
18LZ10	.03
18LZ25	.02

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

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

Notes

LTK Tank-Mounted Filter Kit

Filter Model Number Selection

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
LTK	–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
LTK	– 18	– LZ3	–	–	= **LTK18LZ3**

BOX 1

Filter Series
LTK

BOX 2

Length of Element (in)
18

BOX 3

Element Size and Media
L3 = L size 3 µ E media (cellulose)
L10 = L size 10 µ E media (cellulose)
LZ1 = L size 1 µ Excellement® Z media (synthetic)
LZ3 = L size 3 µ Excellement Z media (synthetic)
LZ5 = L size 5 µ Excellement Z media (synthetic)
LZ10 = L size 10 µ Excellement Z media (synthetic)
LZ25 = L size 25 µ Excellement Z media (synthetic)

BOX 4

Seal Material
Omit = Buna N
H = EPR
W = Buna N
H.5 = Skydrol® compatibility

BOX 5

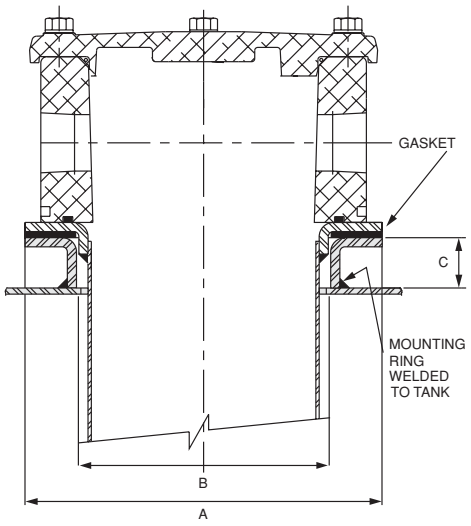
Dirt Alarm® Options	
	Omit = None
Visual	Y2C = Bottom-mounted gauge in cap

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. *Example*: 18LZ3H

Box 4. For options H and W, cap is anodized. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Skydrol is a registered trademark of Solutia Inc.

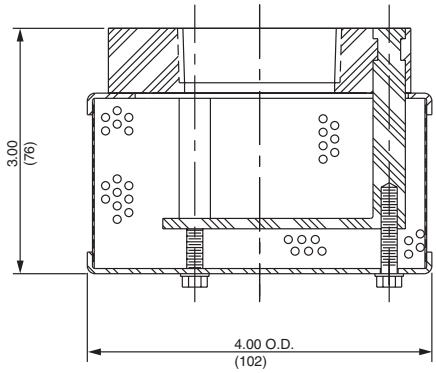
Accessories for Tank-Mounted Filters



Mounting Ring for ST, ZT, RT, RTI and LRT Models

The mounting ring is welded directly to the hydraulic reservoir. The filter is then mounted to the mounting ring with bolts converting the filter to a "weld in" design. The mounting ring eliminates the need to drill and tap the hydraulic reservoir.

Model Number	Part Number	A	B	C
ST, RT, RTI, LRT	A-LFT-813	7.00 (178)	5.00 (127)	1.00 (25)
ST, RT, RTI, LRT High Version	A-LFT-1448	7.00 (178)	5.00 (127)	1.50 (38)
ZT	A-LFT-1295	6.25 (159)	3.62 (92)	.88 (22)

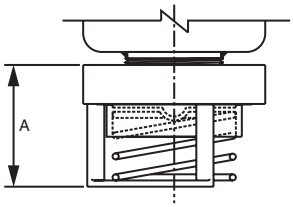


Diffuser for RT, LRT, and KFT Models

The diffuser option (designated as D for outlet porting option in model number) is threaded to the bushing on the filter bowl below the outlet opening to help decrease turbulent flow in the hydraulic reservoir.

No other outlet port options are available if the diffuser is used.

Model Number	Part Number	NPTF
RT, KFT	A-LFT-1506	1½"
LRT	A-LFT-1507	2"



Check Valve for ST, RT, LRT, BFT, and KFT Models

The check valve option (designated as C for outlet porting option in model number) makes it possible to service the filter without draining the oil from the reservoir when the filter is mounted below the oil level. It also prevents reservoir siphoning when system components are serviced.

The check valve can also be used on other reservoir return flow lines, where components upstream of the check valve can be serviced without the loss of reservoir oil. The spring setting is .75-1.00 psi cracking. Order by part number shown in chart.

No other outlet port options are available if the check valve is used.

Model Number	Part Number	NPTF	A
ST, RT, KFT	A-LFT-158Q-1	1½"	2.34 (59)
LRT	A-LFT-880	2"	2.34 (59)
BFT	A-BFT-103	3"	4.50 (114)

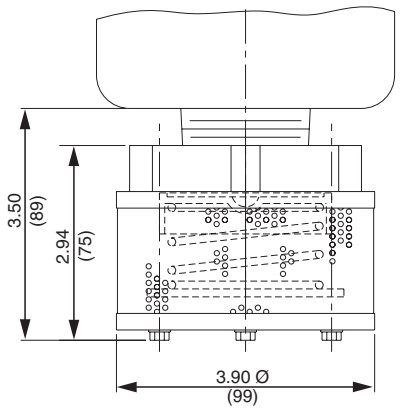
Accessories for Tank-Mounted Filters

Check Valve Diffuser Combination for RT and KFT Models

The diffuser/check valve option (designated as CD for outlet porting option in model number) is threaded on to the outlet port and combines the advantages of both separate options in one assembly.

Available as a separate item with 1½" NPT female threads, order part number A-LFT-1208.

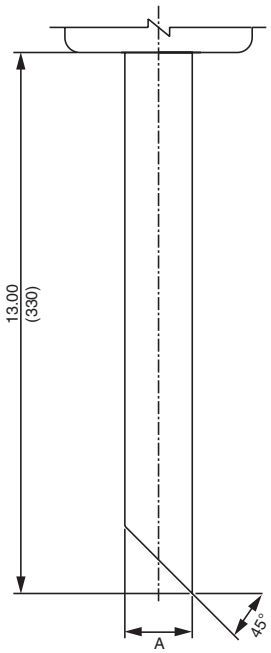
No other outlet port options are available if the check valve/diffuser is used.



Tube Adapter Outlet Port for RT, KFT, LRT and BFT Models

The tube adapter outlet port option (designated as T for outlet porting option in model number) provides the means to direct flow to the bottom of the hydraulic reservoir. Other tube lengths are available for quantity purchases. Contact your Schroeder distributor for details.

Model Number	Dimension A (O.D.) in. (mm)
RT, KFT	1.62 (41)
LRT	2.25 (57)
BFT	3.50 (89)



Note: No other outet port options are available if the tube adapter is used.

Threaded Outlet Port for ZT, RT, LRT, BFT, and KFT Models

The threaded male outlet port is standard on the RT, LRT, BFT, and KFT models, and is available as an option on the ZT filter by designating OP for the outlet porting options in the model number.

- RT is furnished with 1½" NPT Male (standard)
- LRT is furnished with 2" NPT Male (standard)
- BFT is furnished with 3" NPT Male (standard)
- ZT is furnished with 1½" NPT Male (optional)
- KFT is furnished with 1½" NPT Male (standard)

SAME DAY SHIPMENT MODEL AVAILABLE!

Spin-On Filter PAF1

Model No. of filter in photograph is PAF16P10P.

Features and Benefits

- Spin-On with full ported die cast aluminum head for minimal pressure drop
- Offered in pipe and SAE straight thread porting
- Spin-On thread = 1.00-12UNF-2B
- Visual gauge or electrical switch dirt alarms
- Small profile for use in limited space
- Same day shipment model available

20 gpm
75 L/min
100 psi
7 bar

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

STEEL MAKING

OFFSHORE

PAPER INDUSTRY

AGRICULTURE

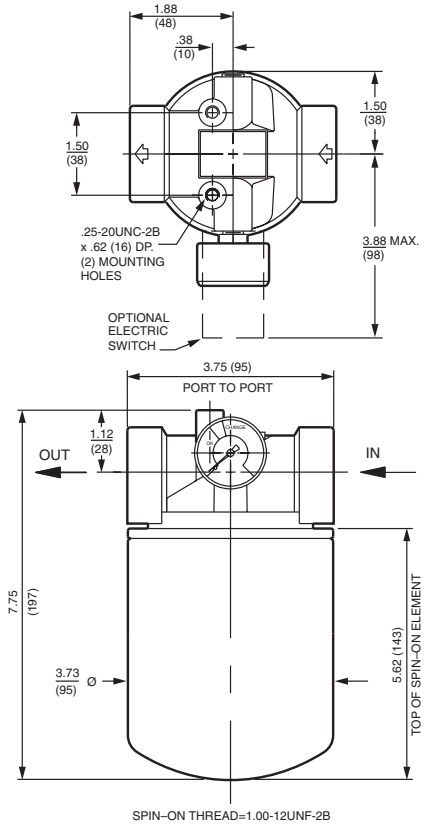
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	150 psi (10 bar)
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2 bar) Full Flow: 36 psi (2 bar)
Porting Head & Cap: Element Case:	Die Cast Aluminum Steel
Weight of PAF1-6P:	1.8 lbs. (0.8 kg)
Element Change Clearance:	2.50" (65 mm)

PAF1 Spin-On Filter

SAME DAY SHIPMENT MODEL AVAILABLE!



Metric dimensions in ( ).

Installation instructions included on element.

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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
P10	15.5	16.2	18.0	N/A	N/A
PZ10	7.4	8.2	10.0	8.0	10.0
PZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)
P10	37
PZ10	N/A
PZ25	N/A

Element Collapse Rating: 100 psid (7 bar)
Flow Direction: Outside In
Element Nominal Dimensions: 3.75" (95 mm) O.D. x 5.5" (140 mm) long

Spin-On Filter PAF1

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	10 µ E (cellulose) and 25 µ Z (synthetic) media
High Water Content	25 µ Z (synthetic) media
Invert Emulsions	25 µ Z (synthetic) media
Water Glycols	25 µ Z (synthetic) media

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 100 psi (7 bar)	E Media	P10	P10
	Z Media	PZ25	PZ25
	Flow	gpm	0 — 10 — 20
		(L/min)	0 — 25 — 50 — 75

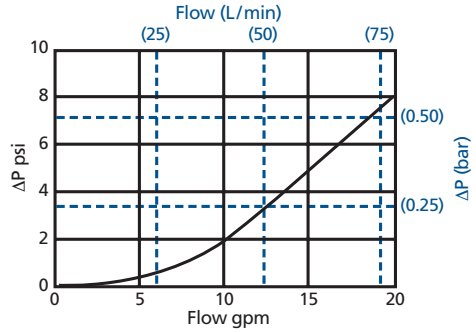
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

PAF1 $\Delta P_{housing}$ 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):

P10	.17
PZ25	.15

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 10 gpm (38 L/min) for PAF16P10SY2 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 2.0 psi [.18 bar]

$\Delta P_{element}$ = 10 x .17 x (200÷150) = 2.3 psi
or
= [38 x (.17÷54.9) x (44÷32) = .16 bar]

ΔP_{total} = 2.0 + 2.3 = 4.3 psi
or
= [.18 + .16 = .34 bar]

PAF1 Spin-On Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

Filter Model Number Selection

Same Day Shipment Model
See Appendix E for details.

How to Build a Valid Model Number for a Schroeder PAF1:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
PAF1 –		–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	
PAF1 –	6 –	P10 –		P –	Y2	= **PAF16P10PY2**

BOX 1

Filter Series
PAF1

BOX 2

Element Length (in)
6

BOX 3

Element Size and Media
P10 = Z size 10 µ Excellement® Z media (synthetic)
PZ10 = ZZ size 10 µ Excellement Z media (synthetic)
PZ25 = ZZ size 25 µ Excellement Z media (synthetic)

BOX 4

Seal Material
Omit = Buna N

BOX 5

Inlet Porting
P = ¾" NPTF
S = SAE-12

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	Y2 = Back-mounted tri-color gauge
Electrical	ES = Electric switch

NOTE:

Box 2. Replacement element part numbers are a combination of Boxes 3 and 4.
Example: P10

Spin-On Filter MAF1

Features and Benefits

- Spin-On with full ported die cast aluminum head for minimal pressure drop
- Offered in pipe, SAE straight thread and ISO 228 porting
- Spin-On thread = 1.50-16UN-2B
- Visual gauge or electrical switch dirt alarms
- Small profile for use in limited space
- Available in 7" and 10" element lengths
- Available with NPTF inlet and outlet female test ports

50 gpm
190 L/min
100 psi
7 bar

Model No. of filter in photograph is MAF17M10S.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

STEEL MAKING

PAPER INDUSTRY

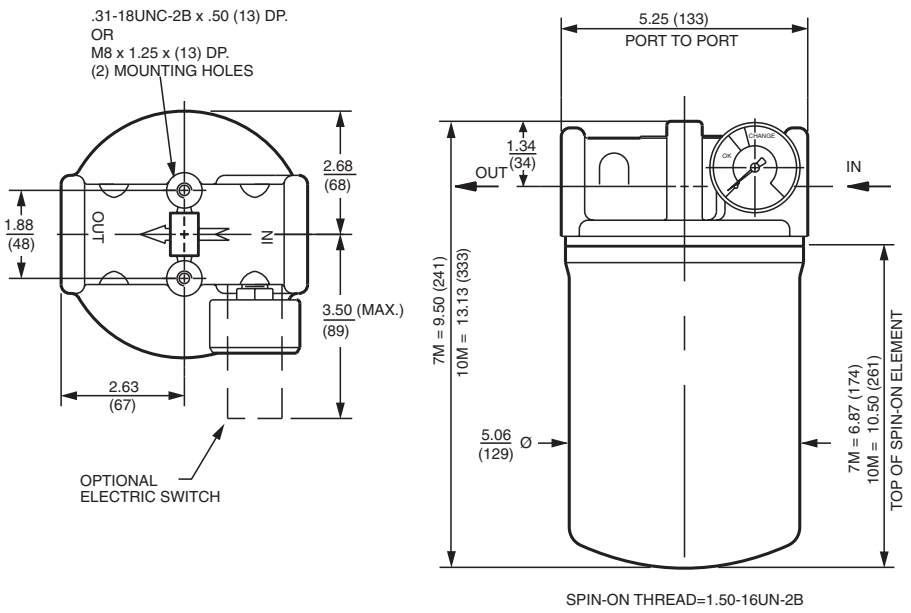
AGRICULTURE

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	100 psi (7 bar)
Min. Yield Pressure:	150 psi (10 bar)
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2 bar) Full Flow: 48 psi (3 bar)
Porting Head & Cap: Element Case:	Die Cast Aluminum Steel
Weight of MAF1-7M: Weight of MAF1-10M:	4.2 lbs. (1.9 kg) 5.0 lbs. (2.3 kg)
Element Change Clearance:	2.50" (65 mm)

MAF1 Spin-On Filter



Installation instructions included on element.

Metric dimensions in ( ).

Element Performance Information

7" 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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
M3	6.8	7.5	10.0	N/A	N/A
M10	15.5	16.2	18.0	N/A	N/A
MZ3	<1.0	<1.0	<2.0	<4.0	4.8
MZ10	7.4	8.2	10.0	8.0	10.0

Dirt Holding Capacity

7" Element	DHC (gm)
M3	50
M10	37
MZ3	105
MZ10	104

Element Collapse Rating: 100 psid (7 bar)
Flow Direction: Outside In
Element Nominal Dimensions: 7M: 5.0" (125 mm) O.D. x 7.0" (180 mm) long
10M: 5.0" (125 mm) O.D. x 10.5" (261 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	3 and 10 µ Z (synthetic) media
Invert Emulsions	10 µ Z (synthetic) media
Water Glycols	10 µ Z (synthetic) media

Element Selection
Based on Flow Rate

Pressure	Element Series	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 100 psi (7 bar)	E Media	M3	M3 / See RLT
		M10	M10 / See RLT
	Z Media	MZ3	MZ3 / See RLT
		MZ10	MZ10 / See RLT
	Flow	gpm	0 10 20 30 40 50
		(L/min)	0 50 100 150 190

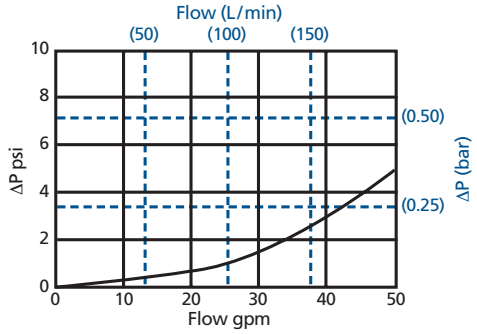
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

MAF1 $\Delta P_{housing}$ 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):

	7"
M3	.23
M10	.14
MZ3	.22
MZ10	.17

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 25 gpm (95 L/min) for MAF17M3P using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 1.0 psi [.08 bar]

$\Delta P_{element}$ = 25 x .23 x (200÷150) = 7.7 psi
or
= [95 x (.23÷54.9) x (44÷32) = .54 bar]

ΔP_{total} = 1.0 + 7.7 = 8.7 psi
or
= [.08 + .54 = .62 bar]

MAF1 Spin-On Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MAF1:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
MAF1 –		–	–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
MAF1 –	7 –	M3 –		P –	Y2 –		= **MAF17M3PY2**

BOX 1

Filter Series
MAF1

BOX 2

Element Length (in)
7
10

BOX 3

Element Size and Media
M3 = M size 3 µ E media (cellulose)
M10 = M size 10 µ E media (cellulose)
MZ3 = M size 3 µ Excellement® Z media (synthetic)
MZ10 = M size 10 µ Excellement Z media (synthetic)
MW = M size W media (water removal)

BOX 4

Optional Magnet
Omit = None
V = Viton®

BOX 5

Porting Options
P = 1¼" NPTF
S = SAE-20
B = ISO 228 G-1¼"

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	Y2 = Back-mounted tri-color gauge
Electrical	ES = Electric switch

BOX 7

Additional Options
Omit = None
L = Two ⅛" NPTF inlet and outlet female test ports

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Replacement element part numbers for 7" length begin with M. Replacement element part numbers for 10" length begin with 10M. *Examples*: M3V; 10MZ3V 10" only available with MZ3 and MZ10.

Box 4. For option V, all aluminum parts are anodized. Viton is a registered trademark of DuPont Dow Elastomers.

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

Spin-On Filter MF2

Features and Benefits

- Spin-On with full ported cast iron head for minimal pressure drop
- Offered in pipe, SAE straight thread and ISO 228 porting
- Spin-On thread = 1.50-16UN-2B
- Various Dirt Alarm® options
- Available in 7" and 10" element lengths

60 gpm
230 L/min
150 psi
10 bar

Model No. of filter in photograph is MF27M10SD5.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

STEEL MAKING

PAPER INDUSTRY

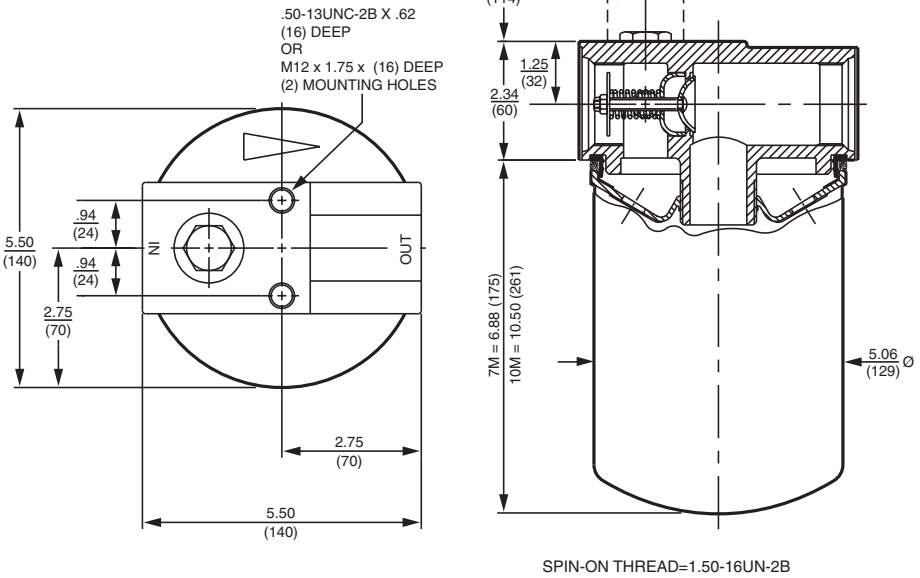
AGRICULTURE

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 60 gpm (230 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	150 psi (10 bar)
Min. Yield Pressure:	250 psi (17 bar)
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2 bar) Full Flow: 48 psi (3 bar)
Porting Head: Element Case:	Cast Iron Steel
Weight of MF2-7M:	8.6 lbs. (3.9 kg)
Element Change Clearance:	1.50" (40 mm)

MF2 Spin-On Filter



Installation instructions included on element.

Metric dimensions in ( ).

Element Performance Information

7" 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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
M3	6.8	7.5	10.0	N/A	N/A
M10	15.5	16.2	18.0	N/A	N/A
MZ3	<1.0	<1.0	<2.0	<4.0	4.8
MZ10	7.4	8.2	10.0	8.0	10.0

Dirt Holding Capacity

7" Element	DHC (gm)
M3	50
M10	37
MZ3	105
MZ10	104

Element Collapse Rating: 100 psid (7 bar)
Flow Direction: Outside In
Element Nominal Dimensions: 7M: 5.0" (125 mm) O.D. x 7.0" (180 mm) long
10M: 5.0" (125 mm) O.D. x 10.5" (261 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	3 and 10 µ Z (synthetic) media
Invert Emulsions	10 µ Z (synthetic) media
Water Glycols	10 µ Z (synthetic) media

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 150 psi (10 bar)	E Media	7M3	7M3 / See RLT
		7M10	7M10 / See RLT
	Z Media	7MZ3	7MZ3 / See RLT
		7MZ10	7MZ10 / See RLT
	Flow	gpm	0 20 30 40 50 60
		(L/min)	0 50 100 150 230

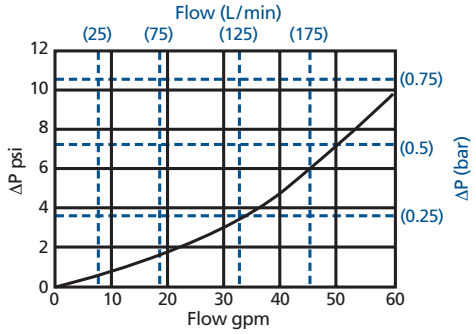
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

MF2 $\Delta P_{housing}$ 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):

	M
M3	.23
M10	.14
MZ3	.22
MZ10	.17

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 30 gpm (115 L/min) for MF27MZ3D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3.0 psi [.22 bar]

$\Delta P_{element}$ = 30 x .22 x (200÷150) = 8.8 psi
or
= [115 x (.22÷54.9) x (44÷32) = .63 bar]

ΔP_{total} = 3.0 + 8.8 = 11.8 psi
or
= [.22 + .63 = .83 bar]

MF2 Spin-On Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MF2:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
MF2					

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	
MF2	7	M3		P	D5	= **MF27M3PD5**

BOX 1

Filter Series
MF2

BOX 2

Element Length (in)
7
10

BOX 3

Element Size and Media
M3 = M size 3 µ E media (cellulose)
M10 = M size 10 µ E media (cellulose)
MZ3 = M size 3 µ Excellement® Z media (synthetic)
MZ10 = M size 10 µ Excellement Z media (synthetic)
MW = M size W media (water removal)

BOX 4

Optional Magnet
Omit = None
V = Viton®

BOX 5

Porting Options
P = 1¼" NPTF
S = SAE-20
B = ISO 228 G-1¼"

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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	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

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. Replacement element part numbers for 7" length begin with M. Replacement element part numbers for 10" length begin with 10M. *Example*: M3; 10MZ3 10" only available with MZ3 and MZ10.

Box 4. Viton is a registered trademark of DuPont Dow Elastomers.

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

Return Line Filter TF1

Features and Benefits

- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- Various Dirt Alarm® options
- Available with No-Element indicator
- Available with NPTF inlet and outlet female test ports
- Available with magnet inserts
- Available with housing drain plug

30 gpm
120 L/min
300 psi
20 bar

Model No. of filter in photograph is TF11AZ10SD5.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

PAPER INDUSTRY

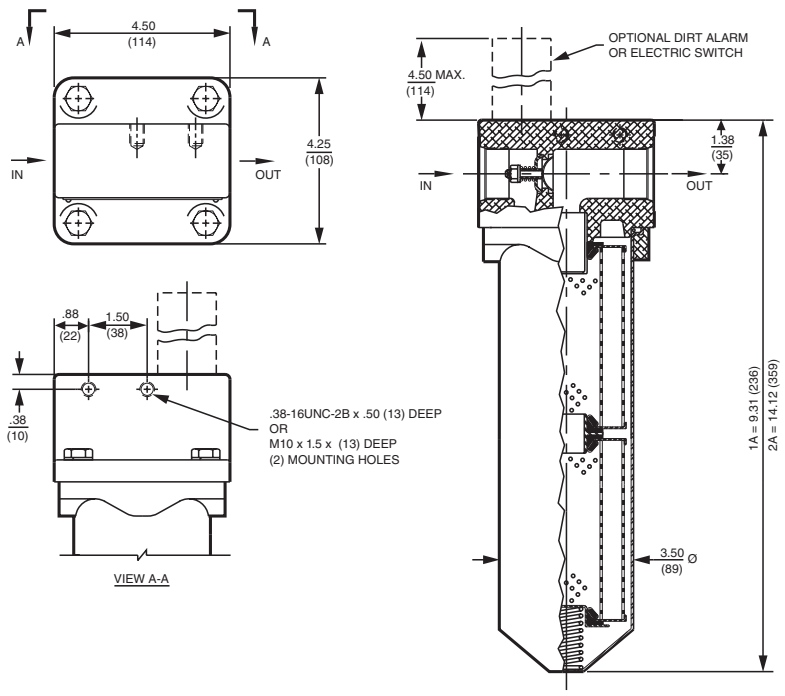
AGRICULTURE

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 30 gpm (120 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	300 psi (20 bar)
Min. Yield Pressure:	1200 psi (80 bar)
Rated Fatigue Pressure:	270 psi (19 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 bar) Full Flow: 51 psi (4 bar)
Porting Head: Element Case:	Cast Aluminum Steel
Weight of TF1-1A: Weight of TF1-2A:	5.1 lbs. (2.3 kg) 6.3 lbs. (2.9 kg)
Element Change Clearance:	3.50" (90 mm)

TF1 Return Line Filter



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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
A3	6.8	7.5	10.0	N/A	N/A
A10	15.5	16.2	18.0	N/A	N/A
AZ1	<1.0	<1.0	<1.0	<4.0	4.2
AZ3	<1.0	<1.0	<2.0	<4.0	4.8
AZ5	2.5	3.0	4.0	4.8	6.3
AZ10	7.4	8.2	10.0	8.0	10.0
AZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)
A3	16
A10	13
AZ1	25
AZ3	26
AZ5	30
AZ10	28
AZ25	28

Element Collapse Rating: 150 psid (10 bar)
Flow Direction: Outside In
Element Nominal Dimensions: 3.0" (75 mm) O.D. x 4.5" (115 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media 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	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)	E Media	A3	1A3 / 2A3
		A10	1A10 / 2A10
		A25	1A25
	Z Media	AZ1	1AZ1 / 2AZ1
		AZ3	1AZ3 / 2AZ3
		AZ5	AZ5
		AZ10	AZ10
		AZ25	AZ25
Flow		gpm	0 10 20 30
		(L/min)	0 25 50 75 100 120

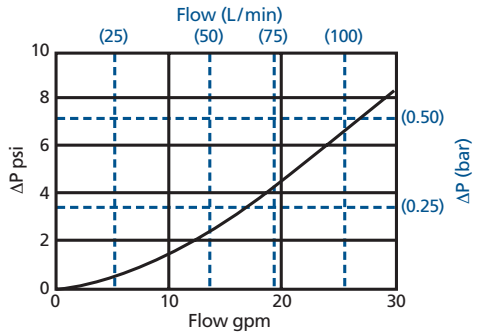
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

TF1 $\Delta P_{housing}$ 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):

	1A	2A
A3	.53	.27
A10	.36	.18
A25	.05	.03
AZ1	.70	.35
AZ3	.50	.25
AZ5	.32	.16
AZ10	.25	.13
AZ25	.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).

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 20 gpm (75 L/min) for TF12AZ3PD using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 4.5 psi [.30 bar]

$\Delta P_{element}$ = 20 x .25 x (200÷150) = 6.7 psi
or
= [75 x (.25÷54.9) x (44÷32) = .47 bar]

ΔP_{total} = 4.5 + 6.7 = 11.2 psi
or
= [.30 + .47 = .77 bar]

TF1 Return Line Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder TF1:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
TF1	–	–	–	–	–	–

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	
TF1	– 1	– A3	–	– P	– D5	–	= **TF11A3PD5**

BOX 1

Filter Series
TF1

BOX 2

Number of Elements
1
2

BOX 3

Element Part Number	
A Length	
A3	= 3 µ E media (cellulose)
A10	= 10 µ E media (cellulose)
A25	= 25 µ E media (cellulose)
AZ1	= 1 µ Excellement® media (synthetic)
AZ3	= 3 µ Excellement media (synthetic)
AZ5	= 5 µ Excellement media (synthetic)
AZ10	= 10 µ Excellement media (synthetic)
AZ25	= 25 µ Excellement media (synthetic)
AM10	= 10 µ M media (reusable metal)
AM25	= 25 µ M media (reusable metal)

BOX 4

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

BOX 5

Porting Options
P = 1" NPTF
S = SAE-16
B = ISO 228 G-1"

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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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 MS2 = Cam operated switch w/ 10" pigtail 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
N = No-Element indicator
G440 = ½" drain on bottom of housing
M = Magnet inserts

NOTES:

Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4. E media elements are only available with Buna N seals.

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

SAME DAY SHIPMENT MODEL AVAILABLE!

Return Line Filter KF3

Features and Benefits

- Meets HF4 automotive standard
- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- Various Dirt Alarm® options
- Available with No-Element indicator
- Available with NPTF inlet and outlet female test ports
- Available with magnet inserts
- Available with housing drain plug
- Takes the standard "K" element in K, KK or 27K lengths
- Same day shipment model available
- Allows consolidation of inventoried replacement elements by using K-size elements
- WKF3 model for water service available – refer to Section 5 of this catalog
- Also available with DirtCatcher® elements (KD & KKD)

Model No. of filter in photograph is KF31K10S.

100 gpm
380 L/min
300 psi
20 bar

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MINING TECHNOLOGY

STEEL MAKING

MOBILE VEHICLES

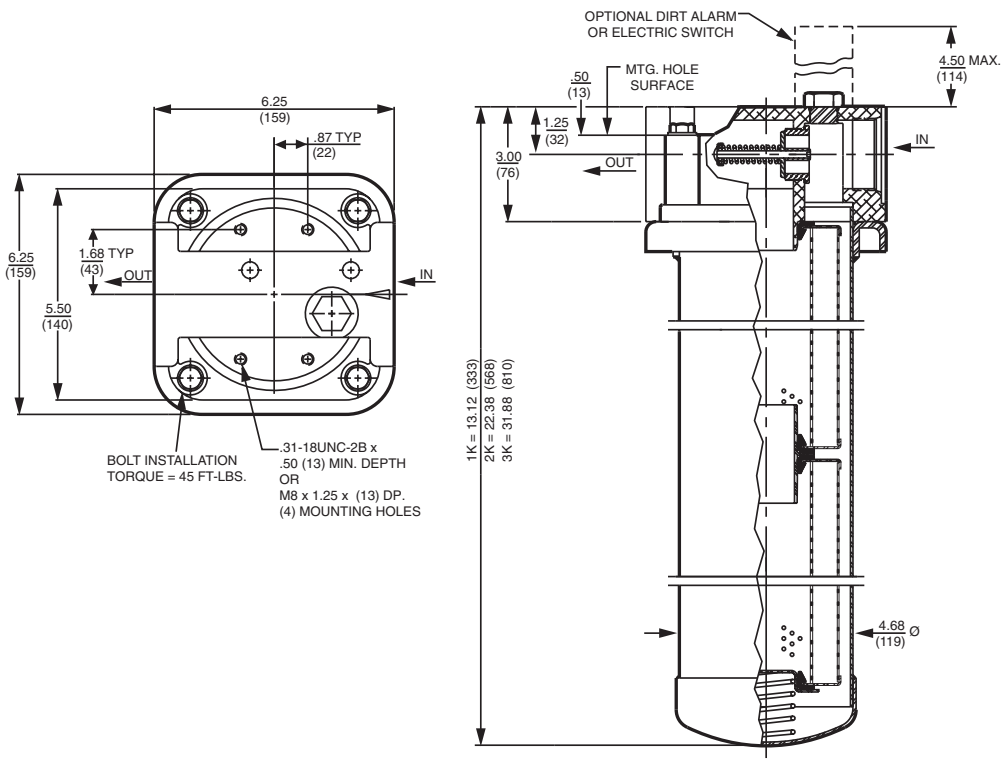
Applications

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	300 psi (20 bar)
Min. Yield Pressure:	1000 psi (70 bar)
Rated Fatigue Pressure:	290 psi (20 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 bar) Full Flow: 51 psi (4 bar)
Porting Head: Element Case:	Die Cast Aluminum Steel
Weight of KF3-1K: Weight of KF3-2K: Weight of KF3-3K:	10.5 lbs. (4.8 kg) 14.2 lbs. (6.4 kg) 18.5 lbs. (8.4 kg)
Element Change Clearance:	1.50" (40 mm) for all lengths

KF3 Return Line Filter

SAME DAY SHIPMENT MODEL AVAILABLE!



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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
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	<1.0	<1.0	<2.0	<4.0	4.8
KZ5	2.5	3.0	4.0	4.8	6.3
KZ10	7.4	8.2	10.0	8.0	10.0
KZ25	18.0	20.0	22.5	19.0	24.0

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	KDZ1	89	KKDZ1	188
KZ3	115	KKZ3	230	27KZ3	345	KDZ3	71	KKDZ3	150
KZ5	119	KKZ5	238	27KZ5	357	KDZ5	100	KKDZ5	210
KZ10	108	KKZ10	216	27KZ10	324	KDZ10	80	KKDZ10	168
KZ25	93	KKZ25	186	27KZ25	279	KDZ25	81	KKDZ25	171

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

Return Line Filter KF3

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation and 3 and 10 µ E (cellulose) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media with H.5 seal designation and W (water removal) media 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	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)	E Media	K3	1K3 — 2K3† — 3K3
		K10	1K10 — 2K10† — 3K10†
		K25	1K25 — 2K25†
	Z Media	KZ1	1KZ1 — 2KZ1† — 3KZ1†
		KZ3	1KZ3 — 2KZ3†
		KZ5	1KZ5 — 2KZ5†
		KZ10	1KZ10
		KZ25	1KZ25
	Flow	gpm	0 — 20 — 40 — 60 — 80 — 100
		(L/min)	0 — 50 — 150 — 250 — 380

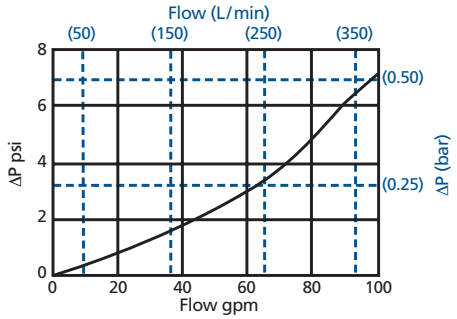
†Double and triple stacking of K-size elements can be replaced by single KK & 27K elements, respectively.
Shown above are the elements most commonly used in this housing.

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.*

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

KF3 $\Delta P_{housing}$ 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):

	1K	2K	3K		1K	2K
K3	.25	.12	.08			
K10	.09	.05	.03			
K25	.02	.01	.01			
KZ1	.20	.10	.05	**KDZ1**	.24	.12
KZ3	.10	.05	.03	**KDZ3**	.12	.06
KZ5	.08	.04	.02	**KDZ5**	.1	.05
KZ10	.05	.03	.02	**KDZ10**	.06	.03
KZ25	.04	.02	.01	**KDZ25**	.04	.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 60 gpm (225 L/min) for KF32KZ5SD5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3.5 psi [.24 bar]

$\Delta P_{element}$ = 60 x .04 x (200÷150) = 3.2 psi
or
= [225 x (.04÷54.9) x (44÷32) = .23 bar]

ΔP_{total} = 3.5 + 3.2 = 6.7 psi
or
= [.24 + .23 = .47 bar]

KF3 Return Line Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

Filter Model Number Selection

Same Day Shipment Model See Appendix E for details.

How to Build a Valid Model Number for a Schroeder KF3:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
KF3						

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	
KF3	1	KZ10		S	D5		= **KF31KZ10SD5**

BOX 1

Filter Series
KF3 (See Section 5 for Water Service version)

BOX 2

Number of Elements
1
2
3

BOX 3

K Length	KK Length	27K Length	
K3	KK3	27K3	= 3 µ E media (cellulose)
K10	KK10	27K10	= 10 µ E media (cellulose)
K25	KK25	27K25	= 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)
KW			= W media (water removal)
KM10			= 10 µ M media (reusable metal)
KM25			= 25 µ M media (reusable metal)
KM60			= 60 µ M media (reusable metal)
KDZ1	KKDZ1		= K size DirtCatcher® 1 µ Excellement Z media
KDZ3	KKDZ3		= K size DirtCatcher 3 µ Excellement Z media
KDZ5	KKDZ5		= K size DirtCatcher 5 µ Excellement Z media
KDZ10	KKDZ10		= K size DirtCatcher 10 µ Excellement Z media
KDZ25	KKDZ25		= K size DirtCatcher 25 µ Excellement Z media

BOX 4

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

BOX 5

Porting
P = 1½" NPTF
S = SAE-24
F = 1½" SAE 4-bolt flange Code 61
B = ISO 228 G-1½"

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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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 MS2 = Cam operated switch w/ 10" pigtail 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
N = No-Element indicator
50 = Optional bypass setting (required for HF4)
G426 = ¾" drain on bottom of housing
G440 = ½" drain on bottom of housing
M = Magnet inserts

NOTES:

Box 2. Double and triple stacking of K-size elements can be replaced by single KK and 27K elements, respectively. 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.

Box 4. For options H, W, 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 5. For option F, bolt thread depth .63" (16 mm).
B porting option supplied with metric mounting holes.

Box 7. Option L not available with MS & MS2 dirt alarm options.

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 5 of this catalog

120 gpm
455 L/min
300 psi
20 bar

Model No. of filter in photograph is LF118LCZ10P32D.

Applications

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

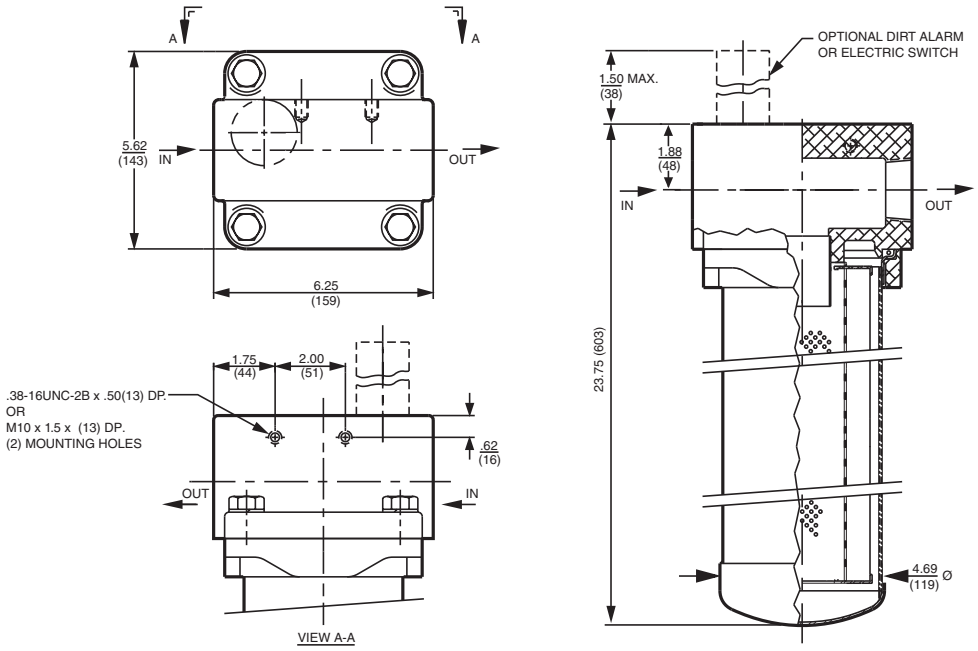
MINING TECHNOLOGY

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)
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 (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media 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	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

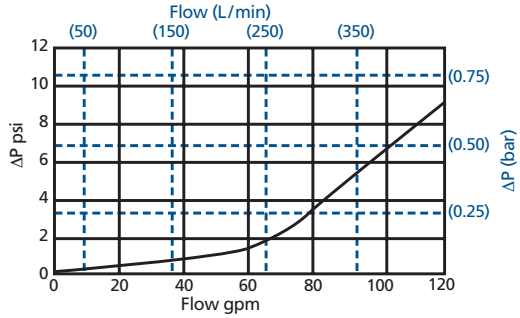
Shown above are the elements most commonly used in this housing.

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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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 MS2 = Cam operated switch w/ 10" pigtail 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*: 18LC3V

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.
Viton is a registered trademark of DuPont Dow Elastomers.
Skydrol is a registered trademark of Solutia Inc.

Box 5. 2" ports are available with K-size elements for up to 100 gpm. Contact factory. B porting option supplied with metric mounting holes.

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

Model No. of filter in photograph is MLF14K10PD.

Applications

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

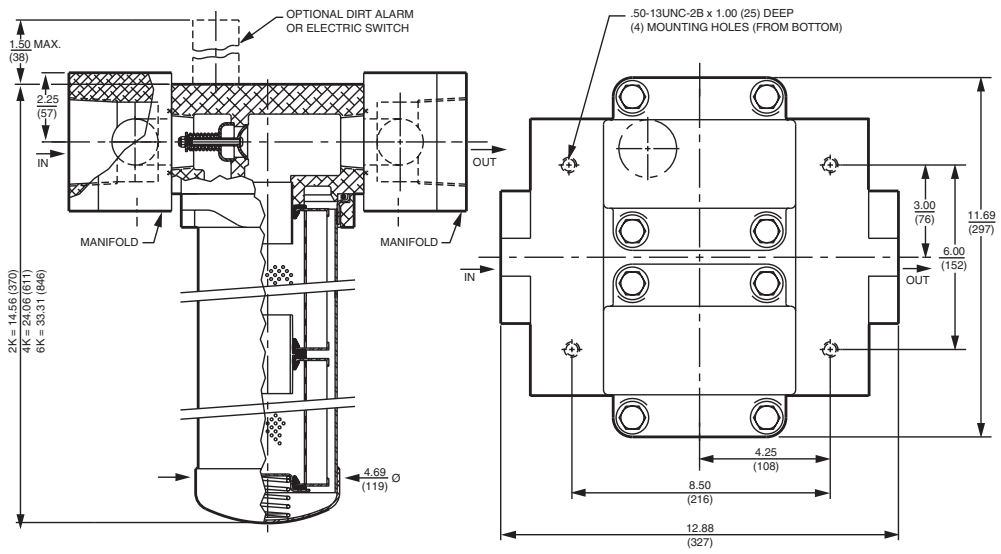
STEEL MAKING

MOBILE VEHICLES

Filter Housing Specifications

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)
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: Element Case:	Anodized Cast Aluminum Steel
Weight of MLF1-2K: Weight of MLF1-4K: Weight of MLF1-6K:	44.0 lbs. (20.0 kg) 50.0 lbs. (23.0 kg) 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

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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
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	<1.0	<1.0	<2.0	<4.0	4.8
KZ5	2.5	3.0	4.0	4.8	6.3
KZ10	7.4	8.2	10.0	8.0	10.0
KZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

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	230	4KZ3	460	6KZ3	690
2KZ5	238	4KZ5	476	6KZ5	714
2KZ10	216	4KZ10	432	6KZ10	648
2KZ25	186	4KZ25	372	6KZ25	558

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

Top-Ported Return Line Filter MLF1

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation and 3 and 10 µ E (cellulose) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media with H.5 seal designation and W (water removal) media 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 25 psi (1.7 bar) bypass valve.
To 300 psi (20 bar)	E Media	K3	4K3 / 6K3
		K10	4K10 / 6K10
		K25	4K25
	Z Media	KZ1	4KZ1 / 6KZ1
		KZ3	2KZ3 / 3KZ3 / 4KZ3
		KZ5	2KZ5 / 4KZ5 / 6KZ5
		KZ10	2KZ10 / 4KZ10
		KZ25	2KZ25 / 4KZ25
Flow		gpm	0 100 120 140 160 180 200
		(L/min)	0 200 400 600 760

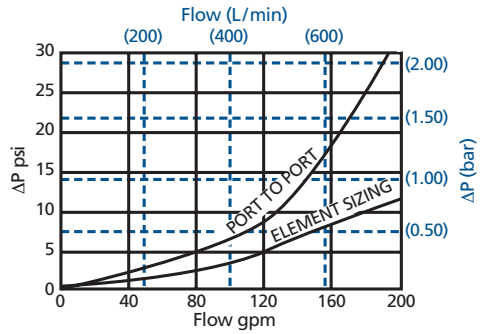
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

MLF1 $\Delta P_{housing}$ 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.

$\Delta P_{element}$

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

El. ΔP factors @ 150 SUS (32 cSt):

	2K	4K/KK	6K/27K
K3	.12	.06	.04
K10	.05	.02	.02
K25	.01	.01	.01
KZ1	.10	.05	.03
KZ3	.05	.03	.02
KZ5	.04	.02	.02
KZ10	.03	.02	.01
KZ25	.02	.01	.01

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

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

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

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.

Notes

MLF1 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
MLF1	–	–	–	–	–	–

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	
MLF1	– 2	– K10	–	– P	– D5	–	= **MLF12K10PD5**

BOX 1

Filter Series
MLF1

BOX 2

Number of Elements
2
4
6

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	KK25	27K25	= 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)
KW			= W media (water removal)
KM60			= 60 µ M media (reusable metal)
KM150			= 150 µ M media (reusable metal)

BOX 4

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

BOX 5

Porting
P = 2½" NPTF
F = 2½" SAE 4-bolt flange Code 61

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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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 MS2 = Cam operated switch w/ 10" pigtail 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:

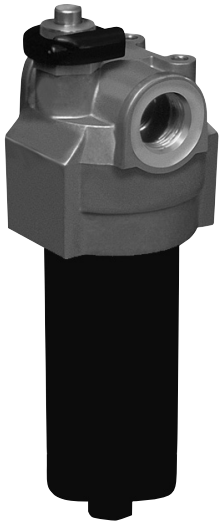
Box 2. Double and triple stacking of K-size elements can be replaced by KK and 27K elements, respectively. Number of elements must equal 2 when using KK or 27K elements.

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

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.
Viton is a registered trademark of DuPont Dow Elastomers.
Skydrol is a registered trademark of Solutia Inc.

SAME DAY SHIPMENT MODEL AVAILABLE!

Medium Pressure Filter SRLT



Features and Benefits

- Smaller, compact version of the RLT
- Quick and easy cartridge element changeouts
- Lightweight at 3 pounds
- Offered in pipe, SAE straight thread and ISO 228 porting
- Available with NPTF inlet and outlet female test ports
- Various Dirt Alarm® options
- Same day shipment model available

25 gpm
100 L/min

1400 psi
100 bar

Model No. of filter in photograph is SRLT6RZ10S12D5.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

STEEL MAKING

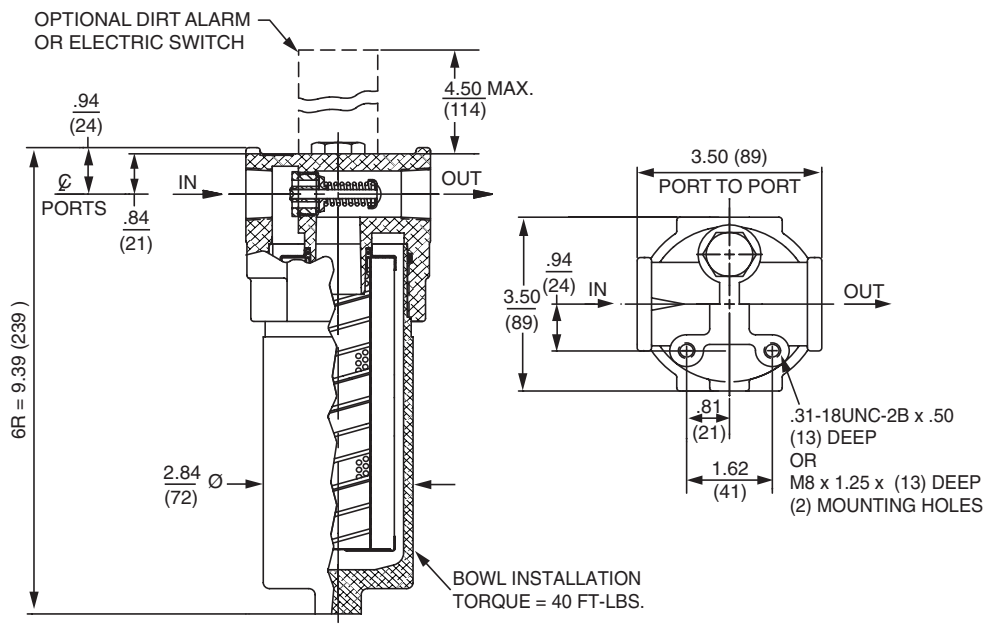
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 25 gpm (100 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	1400 psi (100 bar)
Min. Yield Pressure:	4000 psi (276 bar)
Rated Fatigue Pressure:	750 psi (52 bar) per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 55 psi (3.8 bar)
Porting Head: Element Case:	Aluminum Aluminum
Weight of SRLT-6R:	3.0 lbs. (1.4 kg)
Element Change Clearance:	2.75" (70 mm)

SRLT Medium Pressure Filter

SAME DAY SHIPMENT MODEL AVAILABLE!



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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
6R3	6.8	7.5	10.0	N/A	N/A
6R10	15.5	16.2	18.0	N/A	N/A
6RZ1	<1.0	<1.0	<1.0	<4.0	4.2
6RZ3	<1.0	<1.0	<2.0	<4.0	4.8
6RZ5	2.5	3.0	4.0	4.8	6.3
6RZ10	7.4	8.2	10.0	8.0	10.0
6RZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)
6R3	5
6R10	6
6RZ1	15
6RZ3	15
6RZ5	17
6RZ10	14
6RZ25	25

Element Collapse Rating: 150 psid (10 bar)
Flow Direction: Outside In
Element Nominal Dimensions: 2.0" (50 mm) O.D. x 6.0" (150 mm) long

Medium Pressure Filter SRLT

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media 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 40 psi (2.8 bar) bypass valve.
To 1400 psi (100 bar)	E Media	6R3	6R3 — See RLT
		6R10	6R10 — See RLT
	Z Media	6RZ1	6RZ1 — See RLT
		6RZ3	6RZ3 — See RLT
		6RZ5	6RZ5 — See RLT
		6RZ10	6RZ10 — See RLT
		6RZ25	6RZ25
	Flow	gpm	0 5 10 15 20 25
		(L/min)	0 25 50 75 100

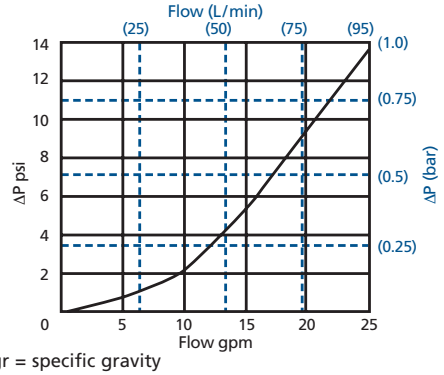
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

SRLT $\Delta P_{housing}$ 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):

6R3	.45
6R10	.38
6RZ1	1.11
6RZ3	.55
6RZ5	.50
6RZ10	.46
6RZ25	.14

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 15 gpm (57 L/min) for SRLT6R3P12D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 5.0 psi [.37 bar]

$\Delta P_{element}$ = 15 x .45 x (200÷150) = 9 psi
or
= [57 x (.45÷54.9) x (44÷32) = .64 bar]

ΔP_{total} = 5.0 + 9.0 = 14.0 psi
or
= [.37 + .64 = 1.01 bar]

SRLT Medium Pressure Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

Filter Model Number Selection

Same Day Shipment Model See Appendix E for details.

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

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

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
SRLT	6	RZ10		S12		D5	= **SRLT6RZ10S12D5**

BOX 1

Filter Series
SRLT

BOX 2

Length of Element (in)
6

BOX 3

Element Size and Media
R3 = R size 3 µ E media (cellulose)
R10 = R size 10 µ E media (cellulose)
RZ1 = R size 1 µ Excellement® Z media (synthetic)
RZ3 = R size 3 µ Excellement Z media (synthetic)
RZ5 = R size 5 µ Excellement Z media (synthetic)
RZ10 = R size 10 µ Excellement Z media (synthetic)
RZ25 = R size 25 µ Excellement Z media (synthetic)
RW = R size W media (water removal)

BOX 4

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

BOX 5

Porting
P12 = ¾" NPTF
S12 = SAE-12
B12 = ISO 228 G-¾"

BOX 6

Additional Options
Omit = None
L = Two ⅛" NPTF inlet and outlet female test ports

BOX 7

Dirt Alarm® Options	
	Omit = None
Visual	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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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 MS16LC = Low current MS16T MS17LCT = Low current MS17T
Electrical Visual	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

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. *Example*: 6R3V

Box 3. E media elements are only available with Buna N seals.

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.
Viton is a registered trademark of DuPont Dow Elastomers.
Skydrol is a registered trademark of Solutia Inc.

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

SAME DAY SHIPMENT MODEL AVAILABLE!

Medium Pressure Filter RLT

Features and Benefits

- Durable, compact design
- Quick and easy cartridge element changeouts
- Available in 9" and 14" element lengths
- Lightweight at 8 pounds
- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- Available with NPTF inlet and outlet female test ports
- WRLT model for water service also available – refer to Section 5 of this catalog
- Various Dirt Alarm® options
- Same day shipment model available

70 gpm
265 L/min
800 psi
55 bar

Model No. of filter in photograph is RLT9VZ10P20D5.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

STEEL MAKING

PAPER INDUSTRY

AGRICULTURE

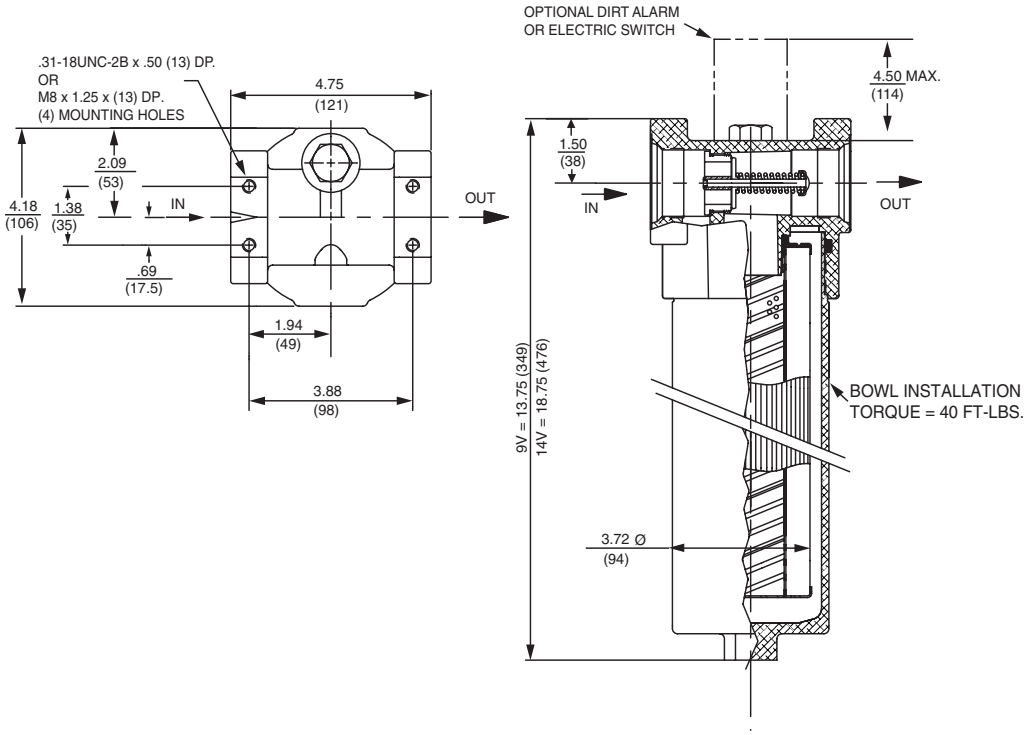
MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 70 gpm (265 L/min) for 150 SUS (32 cSt) fluids for P20, S20, & B20 porting Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids for P16, S16, F16, F20 & B16 porting
Max. Operating Pressure:	800 psi (55 bar)
Min. Yield Pressure:	2400 psi (165 bar)
Rated Fatigue Pressure:	415 psi (29 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) for all porting Full Flow: 57 psi (3.9 bar) for P20 & S20 porting Full Flow: 75 psi (5.2 bar) for P16, S16, F16 & F20 porting
Porting Head: Element Case:	Aluminum Aluminum
Weight of RLT-9V: Weight of RLT-14V:	6.7 lbs. (3.0 kg) 8.0 lbs. (3.6 kg)
Element Change Clearance:	9V & 14V: 2.75" (70 mm)

RLT Medium Pressure Filter

SAME DAY SHIPMENT MODEL AVAILABLE!



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 $\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	Filtration Ratio wrt ISO 16889 Using APC calibrated per ISO 11171 $\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
9V3/14V3	6.8	7.5	10.0	N/A	N/A
9V10/14V10	15.5	16.2	18.0	N/A	N/A
9VZ1/14VZ1	<1.0	<1.0	<1.0	<4.0	4.2
9VZ3/14VZ3	<1.0	<1.0	<2.0	<4.0	4.8
9VZ5/14VZ5	2.5	3.0	4.0	4.8	6.3
9VZ10/14VZ10	7.4	8.2	10.0	8.0	10.0
9VZ25/14VZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)	Element	DHC (gm)
9V3	25	14V3	38
9V10	12	14V10	25
9VZ1	55	14VZ1	102
9VZ3	57	14VZ3	105
9VZ5	62	14VZ5	115
9VZ10	52	14VZ10	104
9VZ25	48	14VZ25	94

Element Collapse Rating: 150 psid (10 bar)
500 psid (34.5 bar) for hydrostatic high collapse (9V5Z10 element) version

Flow Direction: Outside In

Element Nominal Dimensions: 9V: 3.0" (75 mm) O.D. x 9.5" (240 mm) long
14V: 3.0" (75 mm) O.D. x 14.5" (370 mm) long

Medium Pressure Filter RLT

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media 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 40 psi (2.8 bar) bypass valve.
To 800 psi (55 bar)	E Media	9V3 & 14V3	9V3 / 14V3 / Contact Factory
		9V10 & 14V10	9V10 / 14V10 / Contact Factory
	Z Media	9VZ1 & 14VZ1	9VZ1 / 14VZ1 / Contact Factory
		9VZ3 & 14VZ3	9VZ3 / 14VZ3 / Contact Factory
		9VZ5 & 14VZ5	9VZ5 / 14VZ5
		9VZ10 & 14VZ10	9VZ10 & 14VZ10
		9VZ25 & 14VZ25	9VZ25 & 14VZ25
	Flow	gpm	0 10 20 30 40 50 60 70
		(L/min)	0 50 100 150 200 270

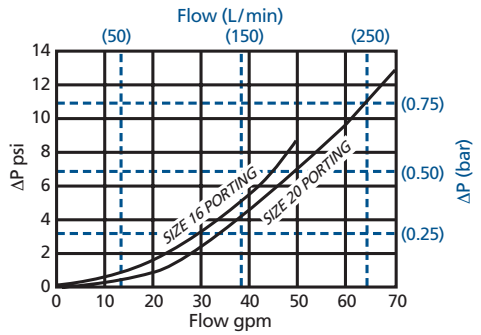
Shown above are the elements most commonly used in this housing. **requires size 20 porting**

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

$\Delta P_{housing}$

RLT $\Delta P_{housing}$ 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):

9V		14V	
9V3	.32	**14V3**	.19
9V10	.24	**14V10**	.15
9VZ1	.34	**14VZ1**	.21
9VZ3	.21	**14VZ3**	.17
9VZ5	.13	**14VZ5**	.09
9VZ10	.11	**14VZ10**	.08
9VZ25	.06	**14VZ25**	.05

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 RLT9VZ5S16D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 5.5 psi [.35 bar]

$\Delta P_{element}$ = 40 x .13 x (200÷150) = 6.9 psi
or
= [150 x (.13÷54.9) x (44÷32) = .49 bar]

ΔP_{total} = 5.5 + 6.9 = 12.4 psi
or
= [.35 + .49 = .84 bar]

RLT Medium Pressure Filter

SAME DAY SHIPMENT MODEL AVAILABLE!

Filter Model Number Selection

Same Day Shipment Model See Appendix E for details.

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

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

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
RLT	9	VZ10		S20	D5		= **RLT9VZ10S20D5**

BOX 1

Filter Series
RLT (See Section 5 for Water Service version)
RLTN (Non-bypassing: requires V5Z high collapse elements)

BOX 2

Element Length (in)
9
14

BOX 3

Element Size and Media
V3 = V size 3 µ E media (cellulose)
V10 = V size 10 µ E media (cellulose)
VZ1 = V size 1 µ Excellement® Z media (synthetic)
VZ3 = V size 3 µ Excellement Z media (synthetic)
VZ5 = V size 5 µ Excellement Z media (synthetic)
VZ10 = V size 10 µ Excellement Z media (synthetic)
VZ25 = V size 25 µ Excellement Z media (synthetic)
VW = V size W media (water removal)
V5Z10 = V size 10 µ Excellement media, 500 psid collapse
V5Z25 = V size 25 µ Excellement media, 500 psid collapse

BOX 4

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

BOX 5

Porting Options
P16 = 1" NPTF
P20 = 1¼" NPTF
S16 = SAE-16
S20 = SAE-20
F20 = 1¼" SAE 4-bolt flange Code 61
B16 = ISO 228 G-1"
B20 = ISO 228 G-1¼"

BOX 6

Dirt Alarm® Options	
	Omit = None
Visual	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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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	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

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4. *Example*: 9VZ10V

Box 3. E media elements are only available with Buna N seals. V5Z10 and V5Z25 are only available with RLTN 9".

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. Viton is a registered trademark of DuPont Dow Elastomers. Skydrol is a registered trademark of Solutia Inc.

Box 5. B porting supplied with metric mounting holes.

Medium Pressure Filter KF8

Features and Benefits

- Meets HF4 automotive standard
- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- Available with NPTF inlet and outlet female test ports
- KFN8 non-bypass version with high collapse elements also available
- WKF8 model for water service also available – refer to Section 5 of this catalog
- Various Dirt Alarm® options
- Allows consolidation of inventoried replacement elements by using K-size elements
- Also available with DirtCatcher® elements (KD & KKD)

100 gpm
380 L/min
800 psi
55 bar

Model No. of filter in photograph is KF81KZ10SD5.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MINING TECHNOLOGY

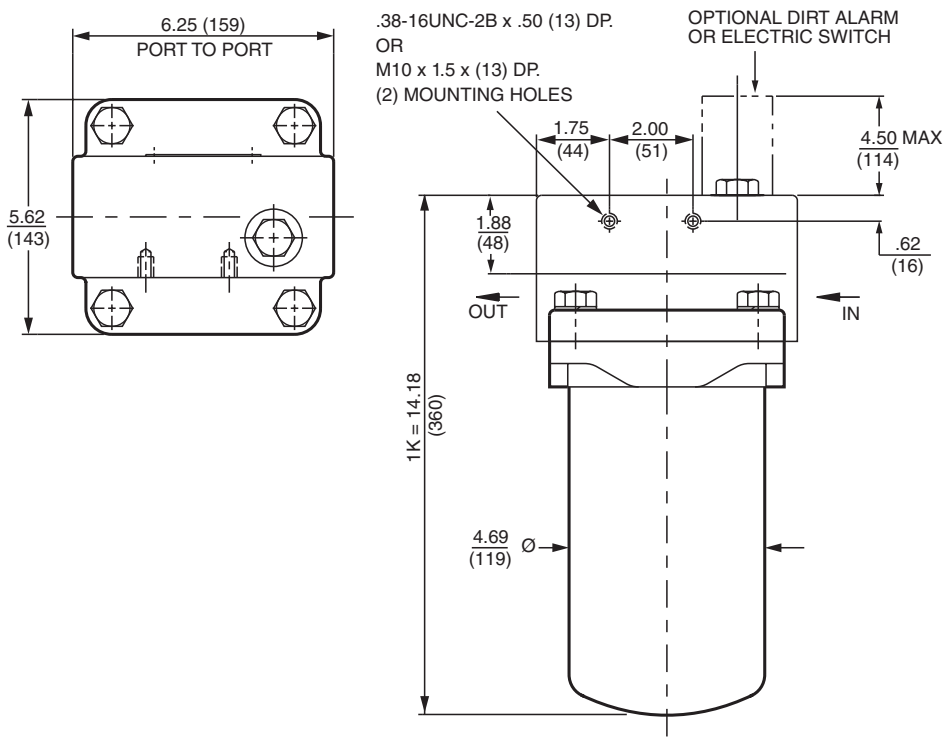
STEEL MAKING

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	800 psi (55 bar)
Min. Yield Pressure:	2600 psi (179 bar)
Rated Fatigue Pressure:	500 psi (35 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 Head: Element Case:	Grey Cast Iron Steel
Weight of KF8-1K:	23.2 lbs. (10.5 kg)
Element Change Clearance:	2.0" (51 mm)

KF8 Medium Pressure Filter



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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
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	<1.0	<1.0	<2.0	<4.0	4.8
KZ5	2.5	3.0	4.0	4.8	6.3
KZ10	7.4	8.2	10.0	8.0	10.0
KZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)	Element	DHC (gm)
K3	54	–	–
K10	44	–	–
KZ1	112	KDZ1	89
KZ3	115	KDZ3	71
KZ5	119	KDZ5	100
KZ10	108	KDZ10	80
KZ25	93	KDZ25	81

Element Collapse Rating: 150 psid (10 bar) for standard elements
3000 psid (210 bar) for high collapse (ZX) elements
5000 psid (350 bar) for high collapse (MXX) elements

Flow Direction: Outside In

Element Nominal Dimensions: 3.9" (99 mm) O.D. x 9.0" (230 mm) long

Medium Pressure Filter KF8

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation and 3 and 10 µ E (cellulose) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media with H.5 seal designation and W (water removal) media 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	Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and a 40 psi (2.8 bar) bypass valve.
To 800 psi (55 bar)	E Media	K3	1K3 — KF8 housing uses only one K-size element.
		K10	1K10
		K25	1K25
	Z Media	KZ1	1KZ1
		KZ3	1KZ3
		KZ5	1KZ5
		KZ10	1KZ10
		KZ25	1KZ25
	Flow	gpm	0 20 40 60 80 100
		(L/min)	0 50 150 250 380

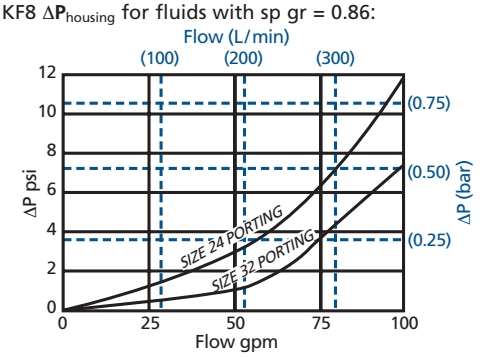
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

KF8 $\Delta P_{housing}$ 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):

K3	.25		
K10	.09		
K25	.02		
KZ1	.20	**KDZ1**	.24
KZ3	.10	**KDZ3**	.12
KZ5	.08	**KDZ5**	.1
KZ10	.05	**KDZ10**	.06
KZ25	.04	**KDZ25**	.04

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 50 gpm (189 L/min) for KF81KZ10P24D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 3.0 psi [.20 bar]

$\Delta P_{element}$ = 50 x .05 x (200÷150) = 3.3 psi
or
= [189 x (.05÷54.9) x (44÷32) = .24 bar]

ΔP_{total} = 3.0 + 3.3 = 6.3 psi
or
= [.20 + .24 = .44 bar]

KF8 Medium Pressure Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KF8:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
KF8	–	–	–	–	–	–

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	
KF8	1	KZ10		S24		D5	= **KF81KZ10S24D5**

BOX 1

Filter Series
KF8 (See Section 5 for Water Service version)
KFN8 (Non-bypassing: requires ZX or MXX high collapse elements)

BOX 2

No. of Elements
1

BOX 3

Element Part Number	
K Length	
K3	= 3 µ E media (cellulose)
K10	= 10 µ E media (cellulose)
K25	= 25 µ E media (cellulose)
KZ1	= 1 µ Excellement® Z media (synthetic)
KZ3	= 3 µ Excellement Z media (synthetic)
KZ5	= 5 µ Excellement Z media (synthetic)
KZ10	= 10 µ Excellement Z media (synthetic)
KZ25	= 25 µ Excellement Z media (synthetic)
KW	= W media (water removal)
KZX3	= 3 µ Excellement Z media (high collapse center tube)
KZX10	= 10 µ Excellement Z media (high collapse center tube)
KZX25	= 25 µ Excellement Z media (high collapse center tube)
KMXX25	= 10 µ M media (reusable metal; high collapse center tube)
KDZ1	= DirtCatcher® 1 µ Excellement Z media
KDZ3	= DirtCatcher 3 µ Excellement Z media
KDZ5	= DirtCatcher 5 µ Excellement Z media
KDZ10	= DirtCatcher 10 µ Excellement Z media
KDZ25	= DirtCatcher 25 µ Excellement Z media

BOX 4

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

BOX 5

Porting Options
P24 = 1½" NPTF
P32 = 2" NPTF
S24 = SAE-24
S32 = SAE-32
F24 = 1½" SAE split 4-bolt flange Code 61
B24 = ISO 228 G-1½"

BOX 6

Additional Options
Omit = None
L = Two ¼" NPTF inlet and outlet female test ports

BOX 7

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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 3 and 4. *Example*: KZ10V

Box 3. High collapse media only available with KFN8.

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.
Viton is a registered trademark of DuPont Dow Elastomers.
Skydrol is a registered trademark of Solutia Inc.

Box 5. B porting supplied with metric mounting holes.

Patent Pending

Medium Pressure Filter K9

Features and Benefits

- Extremely versatile multiple inlet and outlet ports; can be used alone or in series with another K9
- Top loading for easy access for element change-out
- Allows consolidation of inventoried replacement elements by using K-size elements
- Multiple inlet and outlet porting options reduce the need for additional adaptors on installation
- Can be fitted with test ports for oil sampling
- Small profile allows filter to be mounted in tight areas
- Various Dirt Alarm® options
- Meets HF4 automotive standard

100 gpm
380 L/min
900 psi
60 bar

Model No. of filter in photograph is K91KZ5BP20NP20ND5C.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

POWER GENERATION

STEEL MAKING

PAPER INDUSTRY

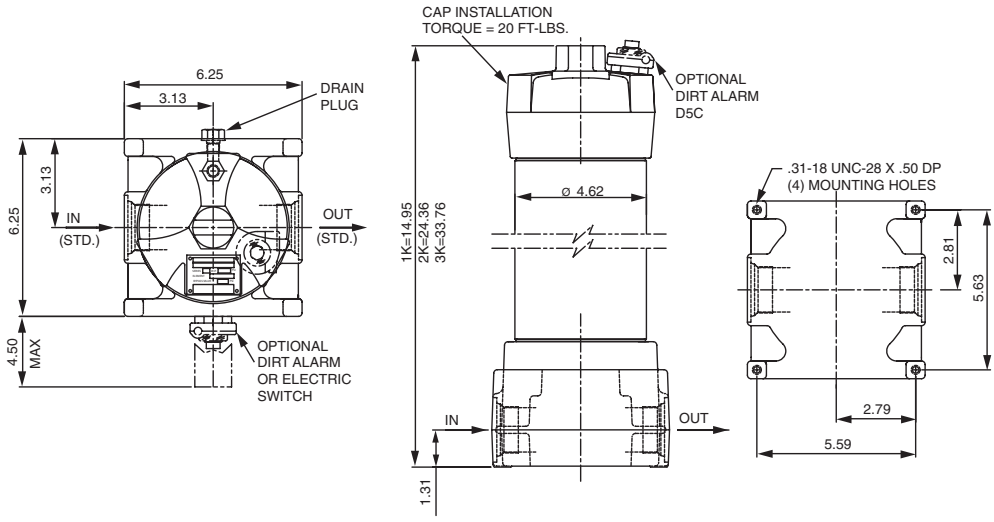
AGRICULTURE

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	900 psi (60 bar)
Min. Yield Pressure:	3200 psi (220 bar)
Rated Fatigue Pressure:	750 psi (52 bar) per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 80 psi (5.5 bar)
Porting Base & Cap:	Cast Aluminum
Element Case:	Steel
Weight of K9-1K:	19 lbs. (8.6 kg)
Weight of K9-2K:	30 lbs. (13.6 kg)
Weight of K9-3K:	41 lbs. (18.6 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

K9 Medium Pressure Filter Patent Pending



This filter is available in additional porting options not explicitly shown here. Contact factory for details.

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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
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	<1.0	<1.0	<2.0	<4.0	4.8
KZ5	2.5	3.0	4.0	4.8	6.3
KZ10	7.4	8.2	10.0	8.0	10.0
KZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

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
KZ3	115	KKZ3	230	27KZ3	345
KZ5	119	KKZ5	238	27KZ5	357
KZ10	108	KKZ10	216	27KZ10	324
KZ25	93	KKZ25	186	27KZ25	279

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

Patent Pending

Medium Pressure Filter K9

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation and 3 and 10 µ E (cellulose) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media with H.5 seal designation and W (water removal) media 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 40 psi (2.8 bar) bypass valve.
To 900 psi (60 bar)	E Media	K3	1K3 / 2K3† / 3K3
		K10	1K10
		K25	1K25
	Z Media	KZ1	1KZ1 / 2KZ1†
		KZ3	1KZ3
		KZ5	1KZ5
		KZ10	1KZ10
		KZ25	1KZ25
	Flow	gpm	0 20 40 60 80 100
		(L/min)	0 50 150 250 380

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

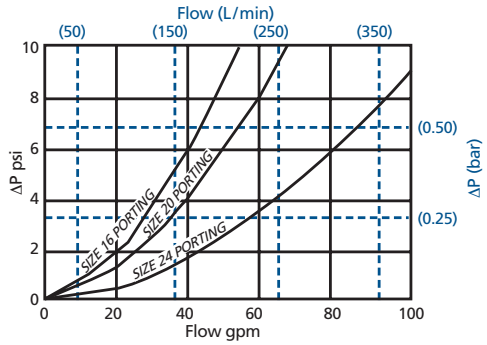
Shown above are the elements most commonly used in this housing.

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.*

Pressure Drop Information
Based on Flow Rate and Viscosity

$\Delta P_{housing}$

K9 $\Delta P_{housing}$ 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.

$\Delta P_{element}$

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

El. ΔP factors @ 150 SUS (32 cSt):

	1K	2K	3K
K3	.25	.12	.08
K10	.09	.05	.03
K25	.02	.01	.01
KZ1	.20	.10	.05
KZ3	.10	.05	.03
KZ5	.08	.04	.02
KZ10	.05	.03	.02
KZ25	.04	.02	.01

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

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

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

Exercise:
Determine ΔP at 80 gpm (303 L/min) for K93KZ3BP20NP20ND5C using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 6.0 psi [.41 bar]

$\Delta P_{element}$ = 80 x .03 x (200÷150) = 3.2 psi
or
= [303 x (.03÷54.9) x (44÷32) = .23 bar]

ΔP_{total} = 6.0 + 3.2 = 9.2 psi
or
= [.41 + .23 = .64 bar]

Notes

K9 Medium Pressure Filter Patent Pending

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder K9:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
K9	-	-	-	-	-	-

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	
K9	- 1 -	KZ3	- B -	S20 N S20 N	-	D5C	= K91KZ3BS20NS20ND5C

BOX 1 — Filter Series

Filter Series
K9

BOX 2 — Number of Elements

Number of Elements
1
2
3

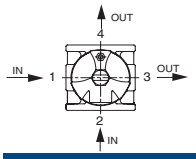
BOX 3 — Element Part Number

K Length	KK Length	27K Length	
K3	KK3	27K3	= 3 µ E media (cellulose)
K10	KK10	27K10	= 10 µ E media (cellulose)
K25	KK25	27K25	= 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)
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)
KW			= K size W media (water removal)

BOX 4 — Seal Material

Seal Material
B = Buna N
V = Viton®
H = EPR
H.5 = Skydrol® compatibility

Porting Options



BOX 5 — Porting

Specification of all 4 ports is required

Port 1 (Standard)	Port 2	Port 3	Port 4
N = None	N = None	N = None	N = None
P16 = 1" NPTF	P16 = 1" NPTF	P16 = 1" NPTF	P16 = 1" NPTF
P20 = 1¼" NPTF	P20 = 1¼" NPTF	P20 = 1¼" NPTF	P20 = 1¼" NPTF
P24 = 1½" NPTF	P24 = 1½" NPTF	P24 = 1½" NPTF	P24 = 1½" NPTF
S16 = SAE-16	F16 = 1" SAE 4-bolt flange Code 61	S16 = SAE-16	F16 = 1" SAE 4-bolt flange Code 61
S20 = SAE-20	F20 = 1¼" SAE 4-bolt flange Code 61	S20 = SAE-20	F20 = 1¼" SAE 4-bolt flange Code 61
S24 = SAE-24	F24 = 1½" SAE 4-bolt flange Code 61	S24 = SAE-24	F24 = 1½" SAE 4-bolt flange Code 61
B16 = ISO 228 G-1"	S16 = SAE-16	B16 = ISO 228 G-1"	S16 = SAE-16
B20 = ISO 228 G-1¼"	S20 = SAE-20	B20 = ISO 228 G-1¼"	S20 = SAE-20
B24 = ISO 228 G-1½"	S24 = SAE-24	B24 = ISO 228 G-1½"	S24 = SAE-24
	B16 = ISO 228 G-1"		B16 = ISO 228 G-1"
	B20 = ISO 228 G-1¼"		B20 = ISO 228 G-1¼"
	B24 = ISO 228 G-1½"		B24 = ISO 228 G-1½"

BOX 6 — Options

Options
Omit = None
U = Test point in cap (upstream)
UU = Test point in head (upstream and downstream)
X = Blocked by-pass

BOX 7 — Dirt Alarm® Options

	Omit = None
Visual	D5 = Visual pop-up D5C = D5 in cap
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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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	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

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 3 and 4.

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.
Viton is a registered trademark of DuPont Dow Elastomers.
Skydrol is a registered trademark of Solutia Inc.

Box 7. If location 1 is used as inlet port, dirt alarm will occupy location 2. If location 2 is used as inlet port, dirt alarm will occupy location 1. If dual inlet ports are specified, the only dirt alarm option is pop-up indicator in cap (D5C).

Single Pass Filter Kit 2K9

Features and Benefits

- Two patent-pending K9 filters supplied in series as a single filter assembly providing in-line single pass particulate and water filtration
- Meets HF4 automotive standard
- 900 psi rating covers almost all transfer line pressure specs including air driven transfer systems
- Top loading for easy access for element changeout
- Allows consolidation of inventoried elements by using K-size elements
- Can be fitted with test points for oil sampling

100 gpm
380 L/min
900 psi
60 bar

Custom 2K9, contact factory for details.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

POWER GENERATION

STEEL MAKING

PAPER INDUSTRY

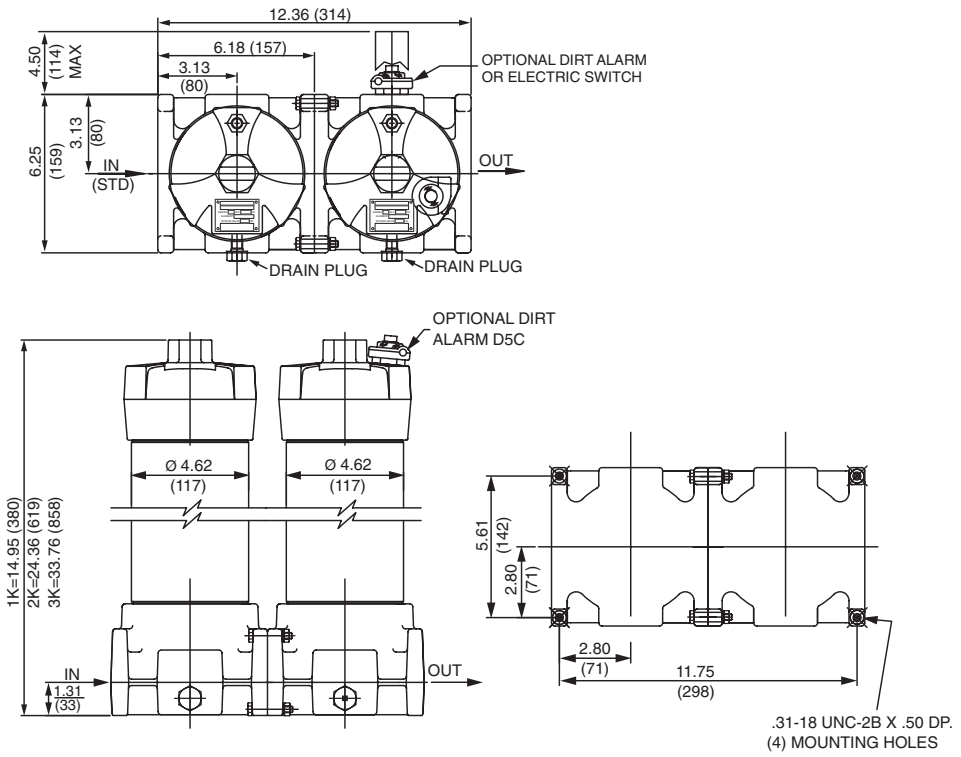
AGRICULTURE

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	900 psi (60 bar)
Min. Yield Pressure:	3200 psi (220 bar)
Rated Fatigue Pressure:	750 psi (52 bar) per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) each filter housing
Porting Base & Cap:	Cast Aluminum
Element Case:	Steel
Element Change Clearance:	8.50" (215 mm) for 1K; 17.5" (445 mm) for KK; 26.5" (673 mm) for 27K

2K9 Single Pass Filter Kit



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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
KZ1	<1.0	<1.0	<1.0	<4.0	4.2
KZ3	<1.0	<1.0	<2.0	<4.0	4.8
KZ5	2.5	3.0	4.0	4.8	6.3
KZ10	7.4	8.2	10.0	8.0	10.0
KZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
KZ1	112	KKZ1	224	27KZ1	336
KZ3	115	KKZ3	230	27KZ3	345
KZ5	119	KKZ5	238	27KZ5	357
KZ10	108	KKZ10	216	27KZ10	324
KZ25	93	KKZ25	186	27KZ25	279

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

Single Pass Filter Kit 2K9

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation and 3 and 10 µ E (cellulose) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media with H.5 seal designation and W (water removal) media 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 40 psi (2.8 bar) bypass valve.
To 900 psi (60 bar)	Z Media	KZ1	1KZ1 / 2KZ1†
		KZ3	1KZ3
		KZ5	1KZ5
		KZ10	1KZ10
		KZ25	1KZ25
	Flow	gpm	0 20 40 60 80 100
		(L/min)	0 50 150 250 380

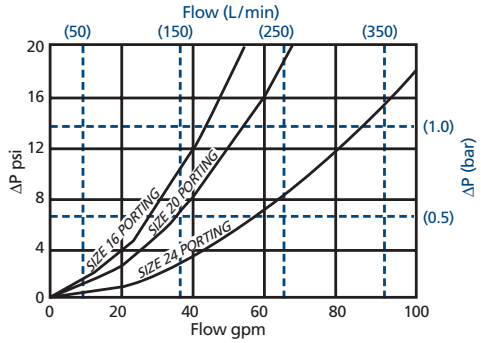
†Double and triple stacking of K-size elements can be replaced by single KK & 27K elements, respectively.

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

$\Delta P_{housing}$

2K9 $\Delta P_{housing}$ 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):

	1K	2K/KK	3K/27K
KZ1	.20	.10	.05
KZ3	.10	.05	.03
KZ5	.08	.04	.02
KZ10	.05	.03	.02
KZ25	.04	.02	.01

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 80 gpm (303 L/min) for 2K9209DBBP24P24 using 150 SUS (32 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 12.0 psi [0.8 bar]

$\Delta P_{element1}$ = 80 x .03 = 2.4 psi [0.2 bar]

$\Delta P_{element2}$ = 80 x .05 = 4.0 psi [0.3 bar]

ΔP_{total} = 12.0 + 2.4 + 4.0 = 18.4 psi [1.3 bar]

2K9 Single Pass Filter Kit

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder 2K9:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
2K9									

Example: *NOTE: Only one option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	
2K9	1	09	B	B	V	P16	P16	D5		= 2K9109BBVP16P16D5

BOX 1

Filter Series
2K9

BOX 2

Number of Elements
1
2
3

BOX 3

Length of Elements
09 = K size element
18 = KK size element
27 = 27K size element

BOX 4

First Housing
A = 1 µ Excellement® Z media (synthetic)
B = 3 µ Excellement Z media (synthetic)
C = 5 µ Excellement Z media (synthetic)
D = 10 µ Excellement Z media (synthetic)
E = 25 µ Excellement Z media (synthetic)
F = W media (water removal)

BOX 5

Second Housing
A = 1 µ Excellement® Z media (synthetic)
B = 3 µ Excellement Z media (synthetic)
C = 5 µ Excellement Z media (synthetic)
D = 10 µ Excellement Z media (synthetic)
E = 25 µ Excellement Z media (synthetic)
F = W media (water removal)

BOX 6

Seal Material
B = Buna N
V = Viton®
H = EPR
H.5 = Skydrol® compatibility

BOX 7

"In" Porting
P16 = 1" NPTF
P20 = 1¼" NPTF
P24 = 1½" NPTF
B16 = ISO 228 G-1"
B20 = ISO 228 G-1¼"
B24 = ISO 228 G-1½"
F16 = 1" SAE 4-bolt flange Code 61
F20 = 1¼" SAE 4-bolt flange Code 61
F24 = 1½" SAE 4-bolt flange Code 61
S16 = SAE-16
S20 = SAE-20
S24 = SAE-24

BOX 8

"Out" Porting
P16 = 1" NPTF
P20 = 1¼" NPTF
P24 = 1½" NPTF
B16 = ISO 228 G-1"
B20 = ISO 228 G-1¼"
B24 = ISO 228 G-1½"
F16 = 1" SAE 4-bolt flange Code 61
F20 = 1¼" SAE 4-bolt flange Code 61
F24 = 1½" SAE 4-bolt flange Code 61
S16 = SAE-16
S20 = SAE-20
S24 = SAE-24

BOX 9

Dirt Alarm® Options	
	Omit = None
Visual	D5 = Visual pop-up D5C = D5 in cap
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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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	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 10

Options
Omit = None
U = Test point in cap (upstream)
UU = Test point in head (upstream and downstream)

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 1 when using KK or 27K elements.

Box 4. Replacement element part numbers are identical to K9 replacement parts. Please reference page 228.

Box 5. Replacement element part numbers are identical to K9 replacement parts. Please reference page 228.

Box 6. 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 10. Option UU not available in combination with indicator in block.

Single Pass Filter Kit 3K9

Features and Benefits

- Three patent-pending K9 filters supplied in series as a single filter assembly providing in-line single pass particulate and water filtration
- Meets HF4 automotive standard
- 900 psi rating covers almost all transfer line pressure specs including air driven transfer systems
- Top loading for easy access for element changeout
- Allows consolidation of inventoried elements by using K-size elements
- Can be fitted with test points for oil sampling

100 gpm
380 L/min
900 psi
60 bar

Model No. of filter in photograph is 3K9127EDBBP20P20UUD5C.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

POWER GENERATION

STEEL MAKING

PAPER INDUSTRY

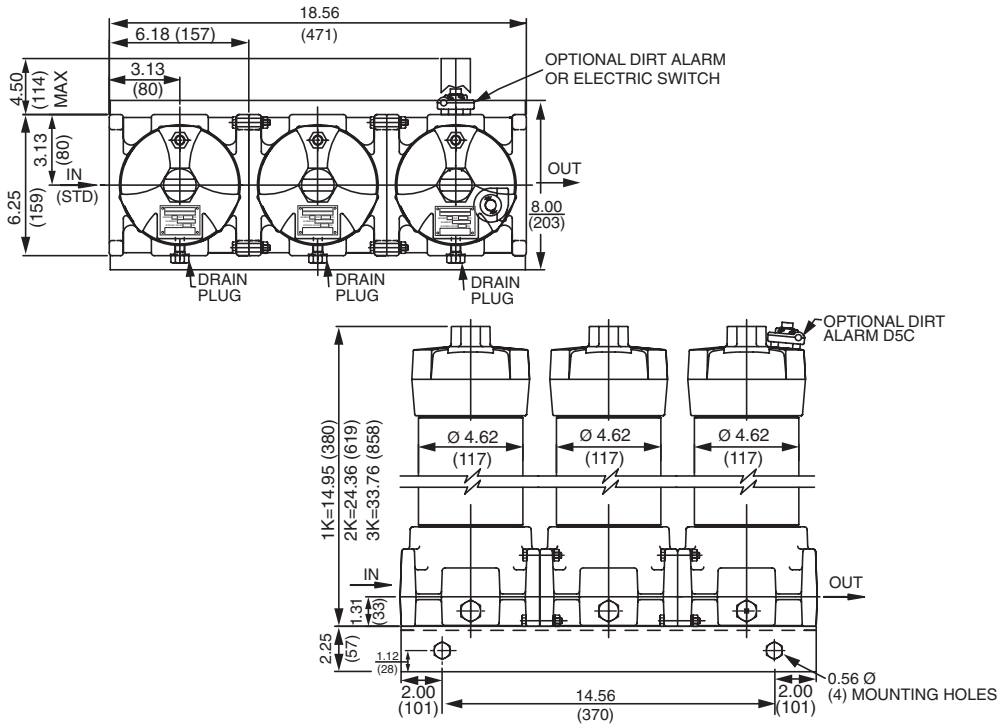
AGRICULTURE

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	900 psi (60 bar)
Min. Yield Pressure:	3200 psi (220 bar)
Rated Fatigue Pressure:	750 psi (52 bar) per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar)
Porting Base & Cap:	Cast Aluminum
Element Case:	Steel
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

3K9 Single Pass Filter Kit



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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
KZ1	<1.0	<1.0	<1.0	<4.0	4.2
KZ3	<1.0	<1.0	<2.0	<4.0	4.8
KZ5	2.5	3.0	4.0	4.8	6.3
KZ10	7.4	8.2	10.0	8.0	10.0
KZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
KZ1	112	KKZ1	224	27KZ1	336
KZ3	115	KKZ3	230	27KZ3	345
KZ5	119	KKZ5	238	27KZ5	357
KZ10	108	KKZ10	216	27KZ10	324
KZ25	93	KKZ25	186	27KZ25	279

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

Single Pass Filter Kit 3K9

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation and 3 and 10 µ E (cellulose) media with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z (synthetic) media with H.5 seal designation and W (water removal) media 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 40 psi (2.8 bar) bypass valve.
To 900 psi (60 bar)	Z Media	KZ1	1KZ1 / 2KZ1†
		KZ3	1KZ3
		KZ5	1KZ5
		KZ10	1KZ10
		KZ25	1KZ25
	Flow	gpm	0 20 40 60 80 100
		(L/min)	0 50 150 250 380

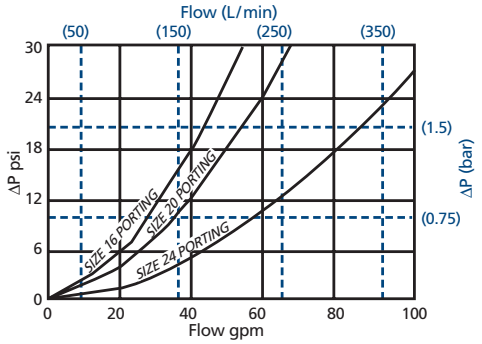
†Double and triple stacking of K-size elements can be replaced by single KK & 27K elements, respectively.

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

$\Delta P_{housing}$

K9 $\Delta P_{housing}$ 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):

	1K	2K/KK	3K/27K
KZ1	.20	.10	.05
KZ3	.10	.05	.03
KZ5	.08	.04	.02
KZ10	.05	.03	.02
KZ25	.04	.02	.01

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 80 gpm (303 L/min) for 3K9209EDBBP24P24 using 150 SUS (32 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 18.0 psi [1.2 bar]

$\Delta P_{element1}$ = 80 x .02 = 1.6 psi [0.1 bar]

$\Delta P_{element2}$ = 80 x .03 = 2.4 psi [0.2 bar]

$\Delta P_{element3}$ = 80 x .05 = 4.0 psi [0.3 bar]

ΔP_{total} = 18.0 + 1.6 + 2.4 + 4.0 = 26.0 psi [1.8 bar]

3K9 Single Pass Filter Kit

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder 3K9:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
3K9 -	-	-	-	-	-	-	-	-	-	

Example: *NOTE: Only one option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11	
3K9 -	1 -	09 -	E -	C -	A -	B -	P16 -	P16 -	D5 -		= 3K9109ECABP16P16D5

BOX 1 — Filter Series

3K9

BOX 2 — Number of Elements

1
2
3

BOX 3 — Length of Elements

09 = K size element
18 = KK size element
27 = 27K size element

BOX 4 — First Housing

A = 1 µ Excellement® Z media (synthetic)
B = 3 µ Excellement Z media (synthetic)
C = 5 µ Excellement Z media (synthetic)
D = 10 µ Excellement Z media (synthetic)
E = 25 µ Excellement Z media (synthetic)
F = W media (water removal)

BOX 5 — Second Housing

A = 1 µ Excellement® Z media (synthetic)
B = 3 µ Excellement Z media (synthetic)
C = 5 µ Excellement Z media (synthetic)
D = 10 µ Excellement Z media (synthetic)
E = 25 µ Excellement Z media (synthetic)
F = W media (water removal)

BOX 6 — Third Housing

A = 1 µ Excellement® Z media (synthetic)
B = 3 µ Excellement Z media (synthetic)
C = 5 µ Excellement Z media (synthetic)
D = 10 µ Excellement Z media (synthetic)
E = 25 µ Excellement Z media (synthetic)
F = W media (water removal)

BOX 7 — Seal Material

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

BOX 8 — "In" Porting

P16 = 1" NPTF
P20 = 1¼" NPTF
P24 = 1½" NPTF

B16 = ISO 228 G-1"
B20 = ISO 228 G-1¼"
B24 = ISO 228 G-1½"

F16 = 1" SAE 4-bolt flange Code 61
F20 = 1¼" SAE 4-bolt flange Code 61
F24 = 1½" SAE 4-bolt flange Code 61

S16 = SAE-16
S20 = SAE-20
S24 = SAE-24

BOX 9 — "Out" Porting

P16 = 1" NPTF
P20 = 1¼" NPTF
P24 = 1½" NPTF

B16 = ISO 228 G-1"
B20 = ISO 228 G-1¼"
B24 = ISO 228 G-1½"

F16 = 1" SAE 4-bolt flange Code 61
F20 = 1¼" SAE 4-bolt flange Code 61
F24 = 1½" SAE 4-bolt flange Code 61

S16 = SAE-16
S20 = SAE-20
S24 = SAE-24

BOX 10 — Dirt Alarm® Options

	Omit = None
Visual	D5 = Visual pop-up D5C = D5 in cap
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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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	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 11 — Options

Omit = None
U = Test point in cap (upstream)
UU = Test point in head (upstream and downstream)

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 1 when using KK or 27K elements.

Box 4. Replacement element part numbers are identical to K9 replacement parts. Please reference page 228.

Box 5. Replacement element part numbers are identical to K9 replacement parts. Please reference page 228.

Box 6. 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 10. Option UU not available in combination with indicator in block.

In-Line Filter QF15

Features and Benefits

- Also available in L-ported version
- Element changeout from the top minimizes oil spillage
- Available with optional core assembly to accommodate coreless elements
- Offered with standard Q, QPML deep-pleated and QCLQF coreless elements in 16" and 39" lengths with Viton® seals as the standard
- Offered in pipe, SAE straight thread, and flange porting
- Integral inlet and outlet test points are standard on all models
- WQF15 model for water service also available – refer to Section 5 of this catalog
- Various Dirt Alarm® options

450 gpm
1700 L/min
1500 psi
100 bar

Viton is a registered trademark of DuPont Dow Elastomers.

Model No. of filter in photograph is QF1516QZ10P24MS10AC.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

POWER GENERATION

STEEL MAKING

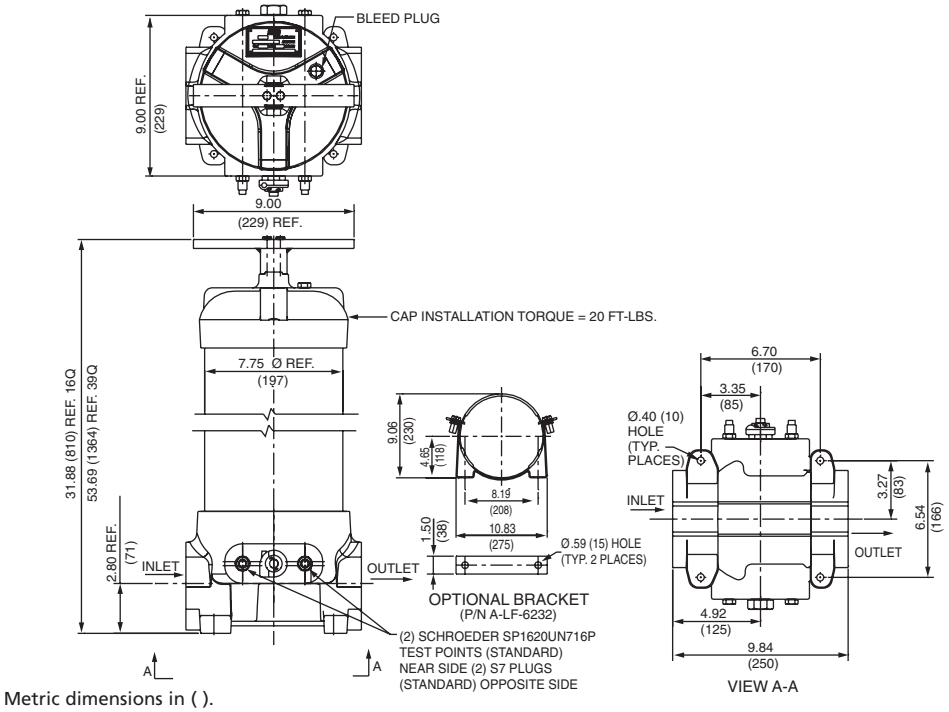
PAPER INDUSTRY

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 450 gpm (1700 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	1500 psi (100 bar)
Min. Yield Pressure:	4900 psi (340 bar)
Rated Fatigue Pressure:	800 psi (55 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2.1 bar) Full Flow: 55 psi (3.8 bar)
Porting Base & Cap: Element Case:	Ductile Iron Steel
Weight of QF15-16Q: Weight of QF15-39Q:	139.0 lbs. (63.0 kg) 198.0 lbs. (90.0 kg)
Element Change Clearance:	16Q 12.0" (305 mm) 39Q 33.8" (859 mm)

QF15 In-Line Filter



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 $\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	Filtration Ratio wrt ISO 16889 Using APC calibrated per ISO 11171 $\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
16Q	Z1/CLQFZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQFZ3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/CLQFZ5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/CLQFZ10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/CLQFZ25/PMLZ25	18.0	20.0	22.5	19.0	24.0
39Q	Z1/CLQFZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQFZ3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/CLQFZ5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/CLQFZ10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/CLQFZ25/PMLZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
16Q	Z1	276	CLQFZ1	307	PMLZ1	307
	Z3	283	CLQFZ3	315	PMLZ3	315
	Z5	351	CLQFZ5	364	PMLZ5	364
	Z10	280	CLQFZ10	306	PMLZ10	330
	Z25	254	CLQFZ25	278	PMLZ25	299
39Q	Z1	974	CLQFZ1	1259	PMLZ1	1485
	Z3	1001	CLQFZ3	1293	PMLZ3	1525
	Z5	954	CLQFZ5	1302	PMLZ5	1235
	Z10	940	CLQFZ10	1214	PMLZ10	1432
	Z25	853	CLQFZ25	1102	PMLZ25	1299

Element Collapse Rating: Q and QPML: 150 psid (10 bar), QCLQF: 100 psid (7 bar)

Flow Direction: Outside In

Element Nominal Dimensions:

16Q:	6.0" (150 mm) O.D. x 16.85" (430 mm) long
16QCLQF:	6.0" (150 mm) O.D. x 18.21" (463 mm) long
16QPML:	6.0" (150 mm) O.D. x 16.00" (405 mm) long
39Q:	6.0" (150 mm) O.D. x 38.70" (985 mm) long
39QCLQF:	6.0" (150 mm) O.D. x 40.01" (1016 mm) long
39QPML:	6.0" (150 mm) O.D. x 37.80" (960 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation

Element Selection
Based on Flow Rate

Pressure	Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and 3" flange porting with a 30 psi (2.1 bar) bypass valve.
To 1500 psi (100 bar)	Z Media	16 & 39QZ1	16QZ1 / 39QZ1
		16 & 39QZ3	16QZ3 / 39QZ3
		16 & 39QZ5	16QZ5 / 39QZ5
		16 & 39QZ10	16QZ10 / 39QZ10
		16 & 39QZ25	16QZ25 & 39QZ25
		16 & 39QCLQFZ1	16QCLQFZ1 / 39QCLQFZ1
		16 & 39QCLQFZ3	16QCLQFZ3 / 39QCLQFZ3
		16 & 39QCLQFZ5	16QCLQFZ5 / 39QCLQFZ5
		16 & 39QCLQFZ10	16QCLQFZ10 / 39QCLQFZ10
		16 & 39QCLQFZ25	16QCLQFZ25 / 39QCLQFZ25
		16 & 39QPMLZ1	16QPMLZ1 / 39QPMLZ1
		16 & 39QPMLZ3	16QPMLZ3 / 39QPMLZ3
		16 & 39QPMLZ5	16QPMLZ5 / 39QPMLZ5
		16 & 39QPMLZ10	16QPMLZ10 / 39QPMLZ10
		16 & 39QPMLZ25	16QPMLZ25 / 39QPMLZ25
	Flow	gpm	0 100 200 300 400 450
		(L/min)	0 500 1000 1500 1700

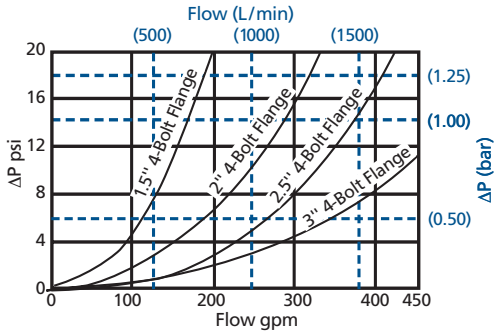
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

QF15 $\Delta P_{housing}$ 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):

16QZ1	.09	**39QZ1**	.03
16QZ3	.04	**39QZ3**	.01
16QZ5	.04	**39QZ5**	.01
16QZ10	.03	**39QZ10**	.01
16QZ25	.01	**39QZ25**	.01
16QCLQFZ1	.07	**39QCLQFZ1**	.03
16QCLQFZ3	.05	**39QCLQFZ3**	.02
16QCLQFZ5	.05	**39QCLQFZ5**	.02
16QCLQFZ10	.04	**39QCLQFZ10**	.01
16QCLQFZ25	.03	**39QCLQFZ25**	.01
16QPMLZ1	.08	**39QPMLZ1**	.03
16QPMLZ3	.05	**39QPMLZ3**	.02
16QPMLZ5	.05	**39QPMLZ5**	.02
16QPMLZ10	.04	**39QPMLZ10**	.01
16QPMLZ25	.02	**39QPMLZ25**	.01

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 150 gpm (570 L/min) for QF1516QZ3VF40D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 1 psi [.07 bar]

$\Delta P_{element}$ = 150 x .04 x (200÷150) = 8.0 psi
or
= [570 x (.04÷54.9) x (44÷32) = .57 bar]

ΔP_{total} = 1.0 + 8.0 = 9.0 psi
or
= [.07 + .57 = .64 bar]

QF15 In-Line Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder QF15:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
QF15							

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
QF15	16	Q	Z3		P48		D5C	= **QF1516QZ3P48D5C**

BOX 1

Filter Series
QF15

BOX 2

Element Length (in)
16
39

BOX 3

Element Style
Q
QCLQF
QPML

BOX 4

Element Media
Z1 = 1 µ Excellement® Z media (synthetic)
Z3 = 3 µ Excellement Z media (synthetic)
Z5 = 5 µ Excellement Z media (synthetic)
Z10 = 10 µ Excellement Z media (synthetic)
Z25 = 25 µ Excellement Z media (synthetic)
W = W media (water removal)

BOX 5

Housing Seal Material
Omit = Buna N
H = EPR
V = Viton®

BOX 6

Porting	
P24 = 1½" NPTF	F24 = 1½" SAE 4-bolt flange Code 61
P32 = 2" NPTF	F32 = 2" SAE 4-bolt flange Code 61
P40 = 2½" NPTF	F40 = 2½" SAE 4-bolt flange Code 61
P48 = 3" NPTF	F48 = 3" SAE 4-bolt flange Code 61
S24 = SAE-24	F24M = 1½" SAE 4-bolt flange Code 61
S32 = SAE-32	F32M = 2" SAE 4-bolt flange Code 61
B24 = ISO 228 G-1½"	F40M = 2½" SAE 4-bolt flange Code 61
B32 = ISO 228 G-2	F48M = 3" SAE 4-bolt flange Code 61
B40 = ISO 228 G-2½"	
B48 = ISO 228 G-3"	

BOX 7

Bypass Setting
Omit = 30 psi cracking
50 = 50 psi cracking
X = Blocked bypass

BOX 8

Dirt Alarm® Options	
	Omit = None
Visual	DPG = Standard differential pressure gauge D5 = Visual pop-up D5C = D5 in cap D5R = D5 mounted opposite standard location
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout D8C = D8 in cap D8R = D8 mounted opposite standard location
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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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	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

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4, plus the letter V.
Example: 16QZ1V

Box 3. QCLQF are CoreCentric® coreless elements – housing includes rigid metal core. QPML are deep-pleated elements with more media and higher dirt holding capacity.

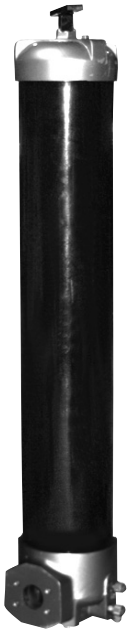
Box 4. For option W, Box 3 must equal Q.

Box 5. All elements for this filter are supplied with Viton seals. Seal designation in Box 5 applies to housing only.
Viton is a registered trademark of DuPont Dow Elastomers.

Box 6. F24M, F32M, F40M and F48M are supplied with metric flange mounting holes.

Integral inlet and outlet test points are standard on all models.

Base-Ported Filter QLF15



Model No. of filter in photograph is QLF1539QZ5F4850D5.

Features and Benefits

- In-line version also available
- Element changeout from the top minimizes oil spillage
- Available with optional core assembly to accommodate coreless elements
- Offered with standard Q, QPML deep-pleated and QCLQF coreless elements in 16" and 39" lengths with Viton® seals as the standard
- Offered in pipe, SAE straight thread, and flange porting
- Integral inlet and outlet test points are standard on all models
- WQLF15 model for water service also available – refer to Section 5 of this catalog
- Various Dirt Alarm® options

500 gpm
1900 L/min

1500 psi
100 bar

Viton is a registered trademark of DuPont Dow Elastomers.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

POWER GENERATION

STEEL MAKING

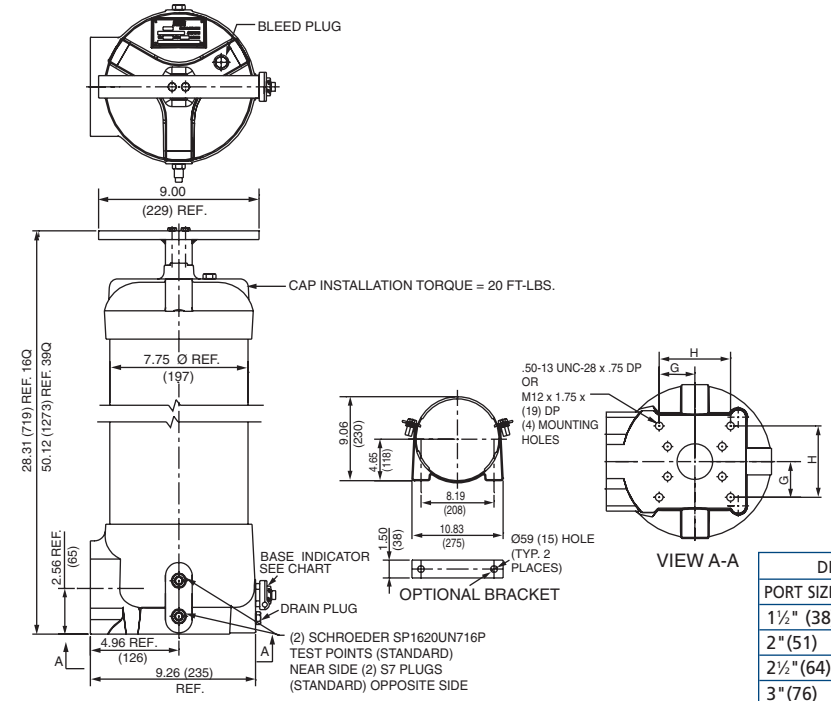
PAPER INDUSTRY

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 500 gpm (1900 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	1500 psi (100 bar)
Min. Yield Pressure:	4900 psi (340 bar)
Rated Fatigue Pressure:	800 psi (55 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2 bar) Full Flow: 55 psi (4 bar)
Porting Base & Cap: Element Case:	Ductile Iron Steel
Weight of QLF15-16Q: Weight of QLF15-39Q:	121.0 lbs. (55.0 kg) 180.0 lbs. (82.0 kg)
Element Change Clearance:	16Q 12.00" (305 mm) 39Q 33.80" (859 mm)

QLF15 Base-Ported Filter



DIMENSIONAL DATA		
PORT SIZE	DIM G	DIM H
1½" (38)	2.00 (51)	4.00 (102)
2"(51)	2.00 (51)	4.00 (102)
2½"(64)	2.00 (51)	4.00 (102)
3"(76)	2.00 (51)	4.00 (102)

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 $\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	Filtration Ratio wrt ISO 16889 Using APC calibrated per ISO 11171 $\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
16Q	Z1/CLQFZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQFZ3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/CLQFZ5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/CLQFZ10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/CLQFZ25/PMLZ25	18.0	20.0	22.5	19.0	24.0
39Q	Z1/CLQFZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQFZ3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/CLQFZ5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/CLQFZ10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/CLQFZ25/PMLZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
16Q	Z1	276	CLQFZ1	307	PMLZ1	307
	Z3	283	CLQFZ3	315	PMLZ3	315
	Z5	351	CLQFZ5	364	PMLZ5	364
	Z10	280	CLQFZ10	306	PMLZ10	330
	Z25	254	CLQFZ25	278	PMLZ25	299
39Q	Z1	974	CLQFZ1	1259	PMLZ1	1485
	Z3	1001	CLQFZ3	1293	PMLZ3	1525
	Z5	954	CLQFZ5	1302	PMLZ5	1235
	Z10	940	CLQFZ10	1214	PMLZ10	1432
	Z25	853	CLQFZ25	1102	PMLZ25	1299

Element Collapse Rating: Q and QPML: 150 psid (10 bar), QCLQF: 100 psid (7 bar)
Flow Direction: Outside In
Element Nominal Dimensions:
16Q: 6.0" (150 mm) O.D. x 16.85" (430 mm) long
16QCLQF: 6.0" (150 mm) O.D. x 18.21" (463 mm) long
16QPML: 6.0" (150 mm) O.D. x 16.00" (405 mm) long
39Q: 6.0" (150 mm) O.D. x 38.70" (985 mm) long
39QCLQF: 6.0" (150 mm) O.D. x 40.01" (1016 mm) long
39QPML: 6.0" (150 mm) O.D. x 37.80" (960 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation

Element Selection
Based on Flow Rate

Pressure	Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and 3" flange porting with a 30 psi (2.1 bar) bypass.
To 1500 psi (100 bar)	Z Media	16 & 39QZ1	16QZ1 / 39QZ1
		16 & 39QZ3	16QZ3 / 39QZ3
		16 & 39QZ5	16QZ5 / 39QZ5
		16 & 39QZ10	16QZ10 / 39QZ10
		16 & 39QZ25	16QZ25 & 39QZ25
		16 & 39QCLQFZ1	16QCLQFZ1 / 39QCLQFZ1
		16 & 39QCLQFZ3	16QCLQFZ3 / 39QCLQFZ3
		16 & 39QCLQFZ5	16QCLQFZ5 / 39QCLQFZ5
		16 & 39QCLQFZ10	16QCLQFZ10 / 39QCLQFZ10
		16 & 39QCLQFZ25	16QCLQFZ25 / 39QCLQFZ25
		16 & 39QPMLZ1	16QPMLZ1 / 39QPMLZ1
		16 & 39QPMLZ3	16QPMLZ3 / 39QPMLZ3
		16 & 39QPMLZ5	16QPMLZ5 / 39QPMLZ5
		16 & 39QPMLZ10	16QPMLZ10 / 39QPMLZ10
		16 & 39QPMLZ25	16QPMLZ25 / 39QPMLZ25
	Flow	gpm	0 100 200 300 400 500
		(L/min)	0 500 1000 1500 1900

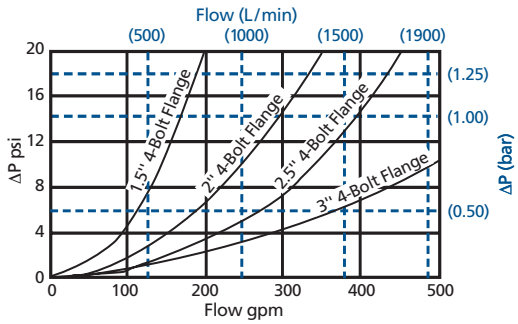
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

QLF15 $\Delta P_{housing}$ 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):

16QZ1	.09	**39QZ1**	.03
16QZ3	.04	**39QZ3**	.01
16QZ5	.04	**39QZ5**	.01
16QZ10	.03	**39QZ10**	.01
16QZ25	.01	**39QZ25**	.01
16QCLQFZ1	.07	**39QCLQFZ1**	.03
16QCLQFZ3	.05	**39QCLQFZ3**	.02
16QCLQFZ5	.05	**39QCLQFZ5**	.02
16QCLQFZ10	.04	**39QCLQFZ10**	.01
16QCLQFZ25	.03	**39QCLQFZ25**	.01
16QPMLZ1	.08	**39QPMLZ1**	.03
16QPMLZ3	.05	**39QPMLZ3**	.02
16QPMLZ5	.05	**39QPMLZ5**	.02
16QPMLZ10	.04	**39QPMLZ10**	.01
16QPMLZ25	.02	**39QPMLZ25**	.01

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 150 gpm (570 L/min) for QLF1516QZ3VF40D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 1 psi [.07 bar]

$\Delta P_{element}$ = 150 x .04 x (200÷150) = 8.0 psi
or
= [570 x (.04÷54.9) x (44÷32) = .57 bar]

ΔP_{total} = 1.0 + 8.0 = 9.0 psi
or
= [.07 + .57 = .64 bar]

QLF15 Base-Ported Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder QLF15:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
QLF15 -		-	-	-	-	-	-

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
QLF15 -	16 -	Q -	Z3 -		- P48 -		- D5C	= **QLF1516QZ3P48D5C**

BOX 1

Filter Series
QLF15

BOX 2

Element Length (in)
16
39

BOX 3

Element Style
Q
QCLQF
QPML

BOX 4

Element Media
Z1 = 1 µ Excellement® Z media (synthetic)
Z3 = 3 µ Excellement Z media (synthetic)
Z5 = 5 µ Excellement Z media (synthetic)
Z10 = 10 µ Excellement Z media (synthetic)
Z25 = 25 µ Excellement Z media (synthetic)
W = W media (water removal)

BOX 5

Housing Seal Material
Omit = Buna N
H = EPR
V = Viton®

BOX 6

Porting	
P24 = 1½" NPTF	F24 = 1½" SAE 4-bolt flange Code 61
P32 = 2" NPTF	F32 = 2" SAE 4-bolt flange Code 61
P40 = 2½" NPTF	F40 = 2½" SAE 4-bolt flange Code 61
P48 = 3" NPTF	F48 = 3" SAE 4-bolt flange Code 61
S24 = SAE-24	F24M = 1½" SAE 4-bolt flange Code 61
S32 = SAE-32	F32M = 2" SAE 4-bolt flange Code 61
B24 = ISO 228 G-1½"	F40M = 2½" SAE 4-bolt flange Code 61
B32 = ISO 228 G-2	F48M = 3" SAE 4-bolt flange Code 61
B40 = ISO 228 G-2½"	
B48 = ISO 228 G-3"	

BOX 7

Bypass Setting
Omit = 30 psi cracking
50 = 50 psi cracking
X = Blocked bypass

BOX 8

Dirt Alarm® Options	
	Omit = None
Visual	DPG = Standard differential pressure gauge D5 = Visual pop-up D5C = D5 in cap
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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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	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

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4, plus the letter V.
Example: 16QZ1V

Box 3. QCLQF are CoreCentric® coreless elements – housing includes rigid metal core. QPML are deep-pleated elements with more media and higher dirt holding capacity.

Box 4. For option W, Box 3 must equal Q.

Box 5. All elements for this filter are supplied with Viton seals. Seal designation in Box 5 applies to housing only.
Viton is a registered trademark of DuPont Dow Elastomers.

Box 6. B24, B32 and B40 are supplied with metric mounting holes.
F24M, F32M, F40M and F48M are supplied with metric flange mounting holes.

Integral inlet and outlet test points are standard on all models.

Stainless Steel Base-Ported Filter SSQLF15

Features and Benefits

- In-line version also available
- Element changeout from the top minimizes oil spillage
- Offered with standard Q and QPML deep-pleated coreless elements in 16" and 39" lengths with Viton® seals as the standard
- Offered in pipe, SAE straight thread, and flange porting
- Integral inlet and outlet test points are standard on all models
- Various Dirt Alarm® options
- All stainless steel provides capability with water-based fluids

Model No. of filter in photograph is SSQLF1539QZ5F4850D5.

500 gpm
1900 L/min
1500 psi
100 bar

Viton is a registered trademark of DuPont Dow Elastomers.

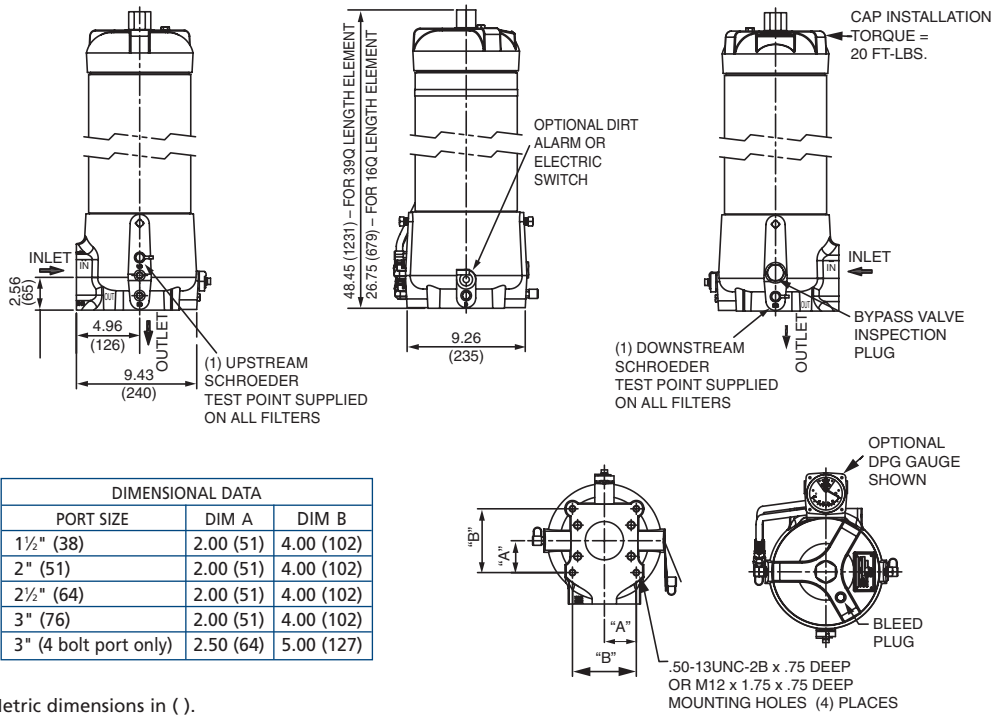
MINING TECHNOLOGY

Applications

Filter Housing Specifications

Flow Rating:	Up to 500 gpm (1900 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	1500 psi (100 bar)
Min. Yield Pressure:	4500 psi (310 bar)
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 30 psi (2 bar) Full Flow: 55 psi (4 bar)
Porting Base & Cap: Element Case:	Stainless Steel Stainless Steel
Weight of SSQLF15-16Q: Weight of SSQLF15-39Q:	163.0 lbs. (74.0 kg) 240.0 lbs. (109.0 kg)
Element Change Clearance:	16Q 12.00" (305 mm) 39Q 33.80" (859 mm)

SSQLF15 Stainless Steel Base-Ported Filter



DIMENSIONAL DATA		
PORT SIZE	DIM A	DIM B
1½" (38)	2.00 (51)	4.00 (102)
2" (51)	2.00 (51)	4.00 (102)
2½" (64)	2.00 (51)	4.00 (102)
3" (76)	2.00 (51)	4.00 (102)
3" (4 bolt port only)	2.50 (64)	5.00 (127)

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 $\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	Filtration Ratio wrt ISO 16889 Using APC calibrated per ISO 11171 $\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
16Q	Z1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/PMLZ25	18.0	20.0	22.5	19.0	24.0
39Q	Z1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/PMLZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

	Element	DHC (gm)	Element	DHC (gm)
16Q	Z1	276	PMLZ1	307
	Z3	283	PMLZ3	315
	Z5	351	PMLZ5	364
	Z10	280	PMLZ10	330
	Z25	254	PMLZ25	299
39Q	Z1	974	PMLZ1	1485
	Z3	1001	PMLZ3	1525
	Z5	954	PMLZ5	1235
	Z10	940	PMLZ10	1432
	Z25	853	PMLZ25	1299

Element Collapse Rating: Q and QPML: 150 psid (10 bar)
Flow Direction: Outside In
Element Nominal Dimensions:
16Q: 6.0" (150 mm) O.D. x 16.85" (430 mm) long
16QPML: 6.0" (150 mm) O.D. x 16.00" (405 mm) long
39Q: 6.0" (150 mm) O.D. x 38.70" (985 mm) long
39QPML: 6.0" (150 mm) O.D. x 37.80" (960 mm) long

Stainless Steel Base-Ported Filter SSQLF15

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation

Element Selection
Based on Flow Rate

Pressure	Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and 3" flange porting with a 30 psi (2.1 bar) bypass.
To 1500 psi (100 bar)	Z Media	16 & 39QZ1	16QZ1 / 39QZ1
		16 & 39QZ3	16QZ3 / 39QZ3
		16 & 39QZ5	16QZ5 / 39QZ5
		16 & 39QZ10	16QZ10 / 39QZ10
		16 & 39QZ25	16QZ25 & 39QZ25
		16 & 39QPMLZ1	16QPMLZ1 / 39QPMLZ1
		16 & 39QPMLZ3	16QPMLZ3 / 39QPMLZ3
		16 & 39QPMLZ5	16QPMLZ5 / 39QPMLZ5
		16 & 39QPMLZ10	16QPMLZ10 / 39QPMLZ10
		16 & 39QPMLZ25	16QPMLZ25 / 39QPMLZ25
	Flow	gpm	0 100 200 300 400 500
		(L/min)	0 500 1000 1500 1900

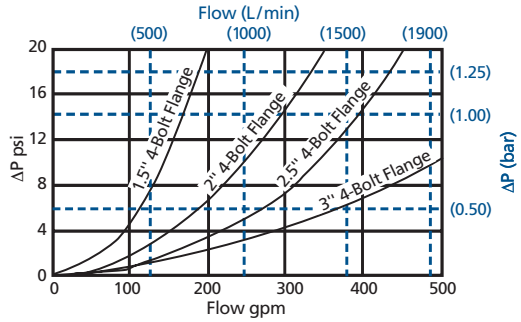
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

SSQLF15 $\Delta P_{housing}$ 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):

16QZ1	.09	**39QZ1**	.03
16QZ3	.04	**39QZ3**	.01
16QZ5	.04	**39QZ5**	.01
16QZ10	.03	**39QZ10**	.01
16QZ25	.01	**39QZ25**	.01
16QPMLZ1	.08	**39QPMLZ1**	.03
16QPMLZ3	.05	**39QPMLZ3**	.02
16QPMLZ5	.05	**39QPMLZ5**	.02
16QPMLZ10	.04	**39QPMLZ10**	.01
16QPMLZ25	.02	**39QPMLZ25**	.01

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. Please note that water has a lower viscosity than 150 SUS fluid and therefore pressure drops for water will be lower.

Notes

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

Exercise:
Determine ΔP at 150 gpm (570 L/min) for SSQLF1516QZ3VF40D9 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 2 psi [.14 bar]

$\Delta P_{element}$ = 150 x .04 x (200÷150) = 8.0 psi
or
= [570 x (.04÷54.9) x (44÷32) = .57 bar]

ΔP_{total} = 2.0 + 8.0 = 10.0 psi
or
= [.14 + .57 = .71 bar]

SSQLF15 Stainless Steel Base-Ported Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder SSQLF15:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
SSQLF15 -	-	-	-	-	-	-	-

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
SSQLF15 -	16 -	Q -	Z3 -	-	P48 -	-	D5C	= **SSQLF1516QZ3P48D5C**

BOX 1

Filter Series
SSQLF15

BOX 2

Element Length (in)
16
39

BOX 3

Element Style
Q
QPML

BOX 4

Element Media
Z1 = 1 µ Excellement® Z media (synthetic)
Z3 = 3 µ Excellement Z media (synthetic)
Z5 = 5 µ Excellement Z media (synthetic)
Z10 = 10 µ Excellement Z media (synthetic)
Z25 = 25 µ Excellement Z media (synthetic)
W = W media (water removal)
150PSV = 150 µ nominal synthetic media with plastic outer wrap
M25 = 25 µ M media (reusable metal)
M60 = 60 µ M media (reusable metal)
M150 = 150 µ M media (reusable metal)

BOX 5

Housing Seal Material
Omit = Buna N
H = EPR
V = Viton®

BOX 6

Porting	
P24 = 1½" NPTF	F24 = 1½" SAE 4-bolt flange Code 61
P32 = 2" NPTF	F32 = 2" SAE 4-bolt flange Code 61
P40 = 2½" NPTF	F40 = 2½" SAE 4-bolt flange Code 61
P48 = 3" NPTF	F48 = 3" SAE 4-bolt flange Code 61
S24 = SAE-24	F24M = 1½" SAE 4-bolt flange Code 61
S32 = SAE-32	F32M = 2" SAE 4-bolt flange Code 61
B24 = ISO 228 G-1½"	F40M = 2½" SAE 4-bolt flange Code 61
B32 = ISO 228 G-2	F48M = 3" SAE 4-bolt flange Code 61
B40 = ISO 228 G-2½"	
B48 = ISO 228 G-3"	

BOX 7

Bypass Setting
Omit = 30 psi cracking
50 = 50 psi cracking
X = Blocked bypass

BOX 8

Dirt Alarm® Options	
	Omit = None
Visual	DPG = Standard differential pressure gauge
	D9 = Visual pop-up in base (stainless steel)
	D9C = D9 in cap (stainless steel)

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3, and 4, plus the letter V.
Example: 16QZ1V

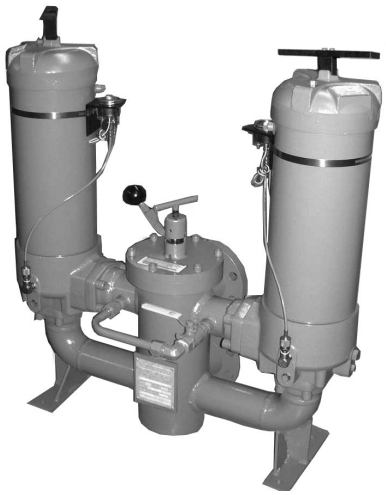
Box 4. For options W, 150PSV, M25, M60, and M150, Box 3 must equal Q.

Box 5. All elements for this filter are supplied with Viton seals. Seal designation in Box 5 applies to housing only.
Viton is a registered trademark of DuPont Dow Elastomers.

Box 6. B24, B32 and B40 are supplied with metric mounting holes.
F24M, F32M, F40M and F48M are supplied with metric flange mounting holes.

Integral inlet and outlet test points are standard on all models.

In-Line Filter QFD5



Features and Benefits

- Duplex filter design
- Approved for API 5L use
- Element changeout from the top minimizes oil spillage
- Available with optional core assembly to accommodate coreless elements
- Offered with standard Q, QPML deep-pleated and QCLQF coreless elements in 16" and 39" lengths with Viton® seals as the standard
- Offered in 2" and 3" SAE J518 4-bolt flange Code 61 and ANSI 300# flange porting
- Integral inlet and outlet test points are standard on all models
- WQLF15 model for water service also available
- Various Dirt Alarm® options
- Also available in 4, 6 or 8 housing modular designs

Model No. of filter in photograph is QFD516QZ10F48DPG.

350 gpm
1325 L/min
500 psi
35 bar

Viton is a registered trademark of DuPont Dow Elastomers.

Applications

INDUSTRIAL

AUTOMOTIVE MANUFACTURING

MACHINE TOOL

MINING TECHNOLOGY

POWER GENERATION

STEEL MAKING

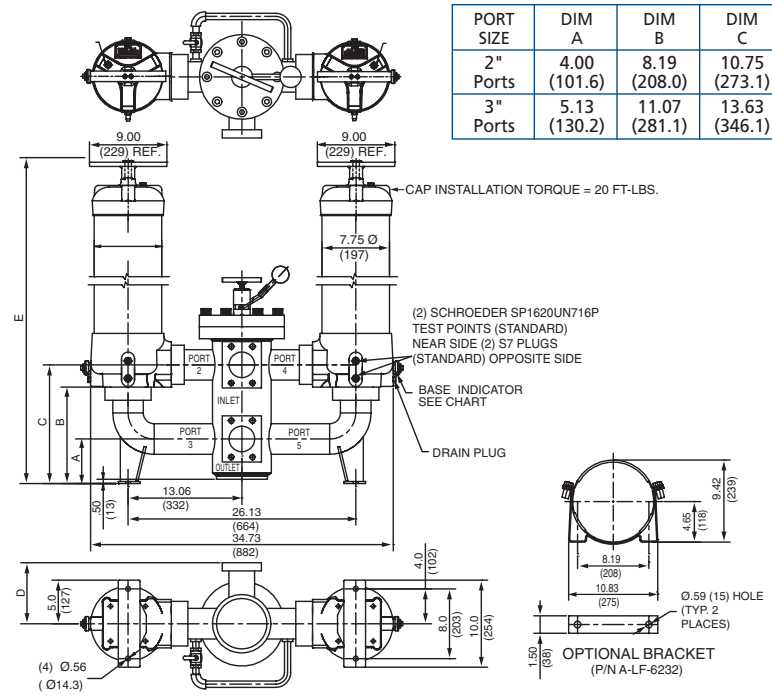
PAPER INDUSTRY

MOBILE VEHICLES

Filter Housing Specifications

Flow Rating:	Up to 175 gpm (675 L/min) for 2"; 350 gpm (1325 L/min) for 3" for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	500 psi (34.5 bar)
Min. Yield Pressure:	Contact factory
Rated Fatigue Pressure:	Contact factory
Temp. Range:	-15°F to 200°F (-26°C to 93°C)
Bypass Setting:	Cracking: 30 psi (2.1 bar) Full Flow: 33 psi (2.3 bar) for 2"; 38 psi (2.6 bar) for 3"
Porting Base & Cap: Element Case & Transfer Valve:	Ductile Iron Steel
Weight of QFD5-16Q: Weight of QFD5-39Q:	410.0 lbs. (186.0 kg) for 2"; 455.0 (206.0 kg) for 3" 562.0 lbs. (255.0 kg) for 2"; 607.0 (275.0 kg) for 3"
Element Change Clearance:	16Q 12.00" (305 mm) 39Q 33.80" (859 mm)

QFD5 In-Line Filter



PORT SIZE	DIM A	DIM B	DIM C	DIM D	DIM E	
					16Q	39Q
2" Ports	4.00 (101.6)	8.19 (208.0)	10.75 (273.1)	4.80 (121.9)	36.50 (927)	58.31 (1481)
3" Ports	5.13 (130.2)	11.07 (281.1)	13.63 (346.1)	7.00 (177.8)	39.38 (1000)	61.19 (1559)

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 $\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	Filtration Ratio wrt ISO 16889 Using APC calibrated per ISO 11171 $\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
16Q	Z1/CLQFZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQFZ3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/CLQFZ5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/CLQFZ10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/CLQFZ25/PMLZ25	18.0	20.0	22.5	19.0	24.0
39Q	Z1/CLQFZ1/PMLZ1	<1.0	<1.0	<1.0	<4.0	4.2
	Z3/CLQFZ3/PMLZ3	<1.0	<1.0	<2.0	<4.0	4.8
	Z5/CLQFZ5/PMLZ5	2.5	3.0	4.0	4.8	6.3
	Z10/CLQFZ10/PMLZ10	7.4	8.2	10.0	8.0	10.0
	Z25/CLQFZ25/PMLZ25	18.0	20.0	22.5	19.0	24.0

Dirt Holding Capacity

	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
16Q	Z1	276	CLQFZ1	307	PMLZ1	307
	Z3	283	CLQFZ3	315	PMLZ3	315
	Z5	351	CLQFZ5	364	PMLZ5	364
	Z10	280	CLQFZ10	306	PMLZ10	330
	Z25	254	CLQFZ25	278	PMLZ25	299
39Q	Z1	974	CLQFZ1	1259	PMLZ1	1485
	Z3	1001	CLQFZ3	1293	PMLZ3	1525
	Z5	954	CLQFZ5	1302	PMLZ5	1235
	Z10	940	CLQFZ10	1214	PMLZ10	1432
	Z25	853	CLQFZ25	1102	PMLZ25	1299

Element Collapse Rating: Q and QPML: 150 psid (10 bar), QCLQF: 100 psid (7 bar)

Flow Direction: Outside In

Element Nominal Dimensions:
16Q: 6.0" (150 mm) O.D. x 16.85" (430 mm) long
16QCLQF: 6.0" (150 mm) O.D. x 18.21" (463 mm) long
16QPML: 6.0" (150 mm) O.D. x 16.00" (405 mm) long
39Q: 6.0" (150 mm) O.D. x 38.70" (985 mm) long
39QCLQF: 6.0" (150 mm) O.D. x 40.01" (1016 mm) long
39QPML: 6.0" (150 mm) O.D. x 37.80" (960 mm) long

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E (cellulose) and Z (synthetic) media
High Water Content	All Z (synthetic) media
Invert Emulsions	10 and 25 µ Z (synthetic) media
Water Glycols	3, 5, 10 and 25 µ Z (synthetic) media
Phosphate Esters	All Z (synthetic) media with H (EPR) seal designation

Element Selection
Based on Flow Rate

Pressure	Series	Element Part No.	Element selections are predicated on the use of 150 SUS (32 cSt) petroleum based fluid and 3" flange porting with a 30 psi (2.1 bar) bypass.
To 500 psi (35 bar)	Z Media	16 & 39QZ1	16QZ1 / 39QZ1
		16 & 39QZ3	16QZ3 / 39QZ3
		16 & 39QZ5	16QZ5 / 39QZ5
		16 & 39QZ10	16QZ10 / 39QZ10
		16 & 39QZ25	16QZ25 & 39QZ25
		16 & 39QCLQFZ1	16QCLQFZ1 / 39QCLQFZ1
		16 & 39QCLQFZ3	16QCLQFZ3 / 39QCLQFZ3
		16 & 39QCLQFZ5	16QCLQFZ5 / 39QCLQFZ5
		16 & 39QCLQFZ10	16QCLQFZ10 / 39QCLQFZ10
		16 & 39QCLQFZ25	16QCLQFZ25 / 39QCLQFZ25
		16 & 39QPMLZ1	16QPMLZ1 / 39QPMLZ1
		16 & 39QPMLZ3	16QPMLZ3 / 39QPMLZ3
		16 & 39QPMLZ5	16QPMLZ5 / 39QPMLZ5
		16 & 39QPMLZ10	16QPMLZ10 / 39QPMLZ10
		16 & 39QPMLZ25	16QPMLZ25
	Flow	gpm	0 — 200 — 300 — 350
		(L/min)	0 — 500 — 1000

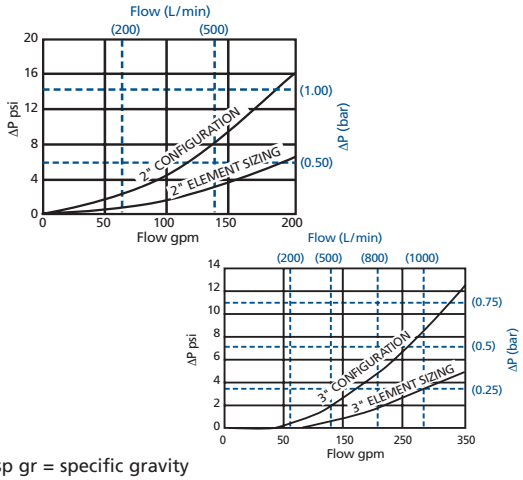
Shown above are the elements most commonly used in this housing.

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

$\Delta P_{housing}$

QFD5 $\Delta P_{housing}$ 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.

$\Delta P_{element}$

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

El. ΔP factors @ 150 SUS (32 cSt):

16QZ1	.09	**39QZ1**	.03
16QZ3	.04	**39QZ3**	.01
16QZ5	.04	**39QZ5**	.01
16QZ10	.03	**39QZ10**	.01
16QZ25	.01	**39QZ25**	.01
16QCLQFZ1	.07	**39QCLQFZ1**	.03
16QCLQFZ3	.05	**39QCLQFZ3**	.02
16QCLQFZ5	.05	**39QCLQFZ5**	.02
16QCLQFZ10	.04	**39QCLQFZ10**	.01
16QCLQFZ25	.03	**39QCLQFZ25**	.01
16QPMLZ1	.08	**39QPMLZ1**	.03
16QPMLZ3	.05	**39QPMLZ3**	.02
16QPMLZ5	.05	**39QPMLZ5**	.02
16QPMLZ10	.04	**39QPMLZ10**	.01
16QPMLZ25	.02	**39QPMLZ25**	.01

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

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

Notes

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

Exercise:
Determine ΔP at 150 gpm (570 L/min) for QFD516QZ3VF48D5 using 200 SUS (44 cSt) fluid.

Solution:

$\Delta P_{housing}$ = 2.5 psi [.17 bar]

$\Delta P_{element}$ = 150 x .04 x (200÷150) = 8.0 psi
or
= [570 x (.04÷54.9) x (44÷32) = .57 bar]

ΔP_{total} = 2.5 + 8.0 = 10.5 psi
or
= [.17 + .57 = .74 bar]

QFD5 In-Line Filter

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder QFD5:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
QFD5							

Example: *NOTE: One option per box*

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
QFD5	16	Q	Z3		F48		D5C	= **QFD516QZ3F48D5C**

BOX 1

Filter Series
QFD5

BOX 2

Element Length (in)
16
39

BOX 3

Element Style
Q
QCLQF
QPML

BOX 4

Element Media
Z1 = 1 µ Excellement® Z media (synthetic)
Z3 = 3 µ Excellement Z media (synthetic)
Z5 = 5 µ Excellement Z media (synthetic)
Z10 = 10 µ Excellement Z media (synthetic)
Z25 = 25 µ Excellement Z media (synthetic)
W = W media (water removal)

BOX 5

Housing Seal Material
Omit = Buna N/ Polyurethane
V = Viton®

BOX 6

Porting	
F32 = 2" SAE 4-bolt flange Code 61	F48 = 3" SAE 4-bolt flange Code 61
F32M = 2" SAE 4-bolt flange Code 61	F48M = 3" SAE 4-bolt flange Code 61
FA32 = 2" ANSI 300# flange	FA48 = 3" ANSI 300# flange

BOX 7

Bypass Setting
Omit = 30 psi cracking
50 = 50 psi cracking
X = Blocked bypass

BOX 8

Dirt Alarm® Options	
	Omit = None
Visual	DPG = Standard differential pressure gauge D5 = Visual pop-up D5C = D5 in cap
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 MS15DC = Electrical, direct current normally open, for DC use only MS15DCNC = Electrical, direct current normally closed, for DC use only 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	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

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3 and 4, plus the letter V.
Example: 16QZ1V

Box 3. QCLQFZ are coreless elements – housing includes rigid metal core.
QPML are deep-pleated elements with more media and higher dirt holding capacity.

Box 4. For option W, Box 3 must equal Q.

Box 5. All elements for this filter are supplied with Viton seals. Seal designation in Box 5 applies to housing only.
Viton is a registered trademark of DuPont Dow Elastomers.

Box 6. F32M and F48M are supplied with metric flange mounting holes.

Integral inlet and outlet test points are standard on all models.