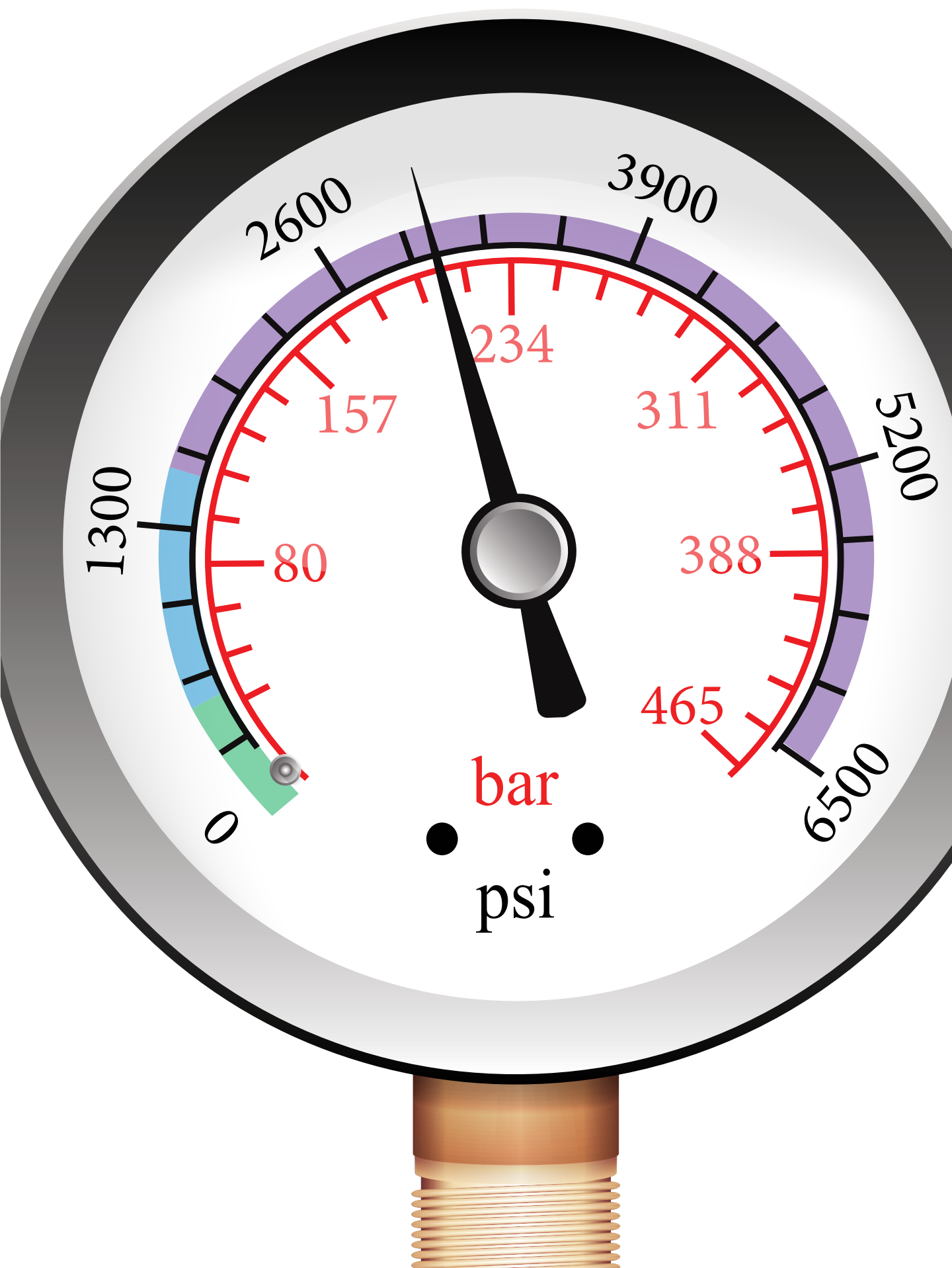


Section 3:
above 1500 psi

HIGH PRESSURE FILTERS



Section 3

High Pressure Filters Selection Guide

High Pressure Filters (1500 - 6500 psi)		Pressure psi (bar)	Flow gpm (L/min)	Element Length/Size	Page
	Top-Ported High Pressure Filters				
	NF30	3000 (210)	20 (75)	N, NN	45
	NFS30	3000 (210)	20 (75)	N, NN	49
	YF30	3000 (210)	25 (100)	4Y, 8Y	53
	CFX30	3000 (210)	30 (115)	CC, DD	57
	PLD	3000 (210)	100 (380)	DV	61
	CF40	4000 (275)	45 (170)	C, CC	65
	DF40	4000 (275)	30 (113)	C, CC	65
	PF40	4000 (275)	50 (190)	5H, 9H	69
	RFS50	5000 (345)	30 (115)	8R	73
	RF60	6000 (415)	30 (115)	8R	77
	CF60	6000 (415)	50 (190)	CC	81
	CTF60	6000 (415)	75 (284)	5CT, 8CT, 14CT	85
	VF60	6000 (415)	70 (265)	9V	89
	LW60	6000 (415)	300 (1135)	39ZP	93
	Base-Ported High Pressure Filters				
	KF30	3000 (210)	100/150 (380/570)	K, KK, 27K	97
	KF50	5000 (345)	100/150 (380/570)	K, KK, 27K	97
	TF50	5000 (345)	40 (150)	A, CC	101
	KC50	5000 (345)	100/150 (380/570)	K, KK, 27K	105
	MKF50	5000 (345)	200 (760)	K, KK, 27K	109
	MKC50	5000 (345)	200 (760)	K, KK, 27K	109
	KC65	6500 (450)	100 (380)	K, KK, 27K	113
	MKC65	6000 (413)	300 (1136)	K, KK, 27K	117
	Hydrostatic (Bidirectional) Flow High Pressure Filters				
	HS60	6000 (415)	100 (380)	13HZ	121
	MHS60	6000 (415)	100 (380)	13HZ	121
	KFH50 (Base-Ported)	5000 (345)	70 (265)	K, KK, 27K	125
	In-Line Filters				
	LC60	6000 (415)	8 (30)	SSD	129
	LC35	3500 (241)	15 (57)	BS	131
	LC50	5000 (345)	9 (35)	5H	133
	Servo Protection (Sandwich) Filters DO7, DO3, Moog, Parker & Vickers				
	NOF30-05	3000 (210)	12 (45)	NN	135
	NOF50-760	5000 (345)	15 (57)	SV	139
	FOF60-03	6000 (415)	12 (45)	F	143
	Manifold Mount Filter Kits (Bowls & Installation Drawings)				
	NMF30	3000 (210)	20 (75)	NN	147
	RMF60	6000 (415)	30 (115)	8R	149
	Cartridge Elements for use in Manifold Applications				
	14-CRZX10	3000 (210)	6 (23)	—	151
	20-CRZX10	3000 (210)	12 (45)	—	152

Top-Ported Pressure Filter

NF30



Features and Benefits

- Top-ported pressure filter
- All aluminum assembly
- Available with non-bypass option with high collapse element
- Offered in pipe, SAE straight thread and ISO 228 porting
- Same day shipment model available

20 gpm
75 L/min
3000 psi
210 bar

NF30

NFS30

YF30

CFX30

PLD

CF40

DF40

PF40

RFS50

RF60

CF60

CTF60

VF60

LW60

KF30

KF50

TF50

KC50

MKF50

MKC50

KC65

MKC65

HS60

MHS60

KFH50

LC60

LC35

LC50

Filter Housing Specifications

Flow Rating:	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)
Min. Yield Pressure:	10,000 psi (690 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	2400 psi (165 bar), per NFPA T2.6.1
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 85 psi (5.9 bar) Non-bypassing model has a blocked bypass.
Porting Head:	Aluminum
Element Case:	Aluminum
Weight of NF30-1N:	3.4 lbs. (1.5 kg)
Weight of NF30-1NN:	4.4 lbs. (2.0 kg)
Element Change Clearance:	4.50" (115 mm)

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® and 10 µ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® and 3, 5 and 10 µ ASP® Media (synthetic)

NOF30-05

NOF-50-760

FOF60-03

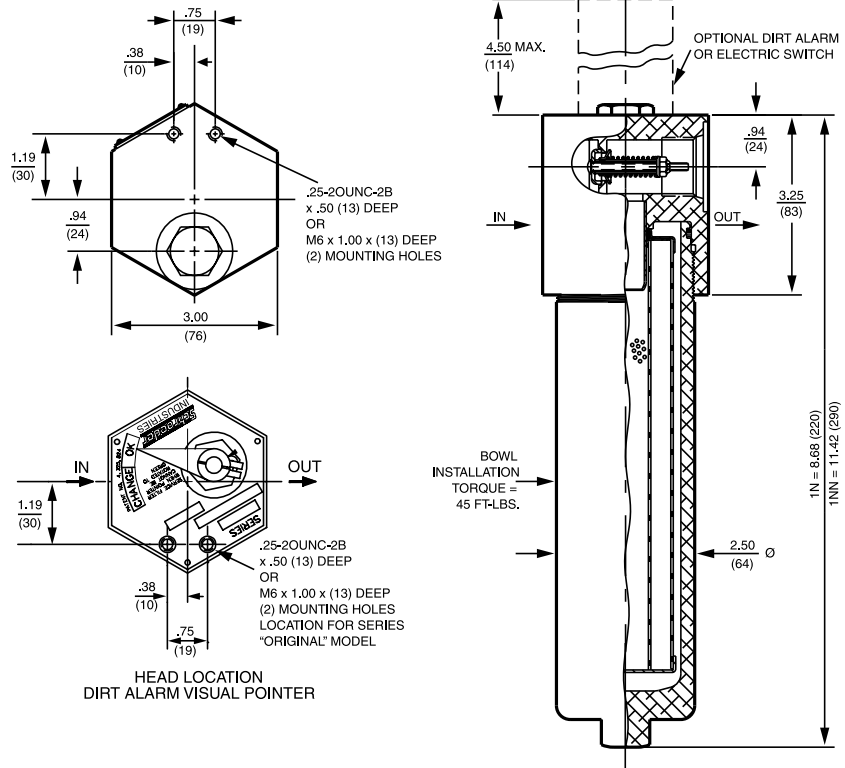
NMF30

RMF60

14-CRZX10

20-CRZX10

Model No. of filter in photograph is NF301NZ10SD5.



Metric dimensions in ().
 Dimensions shown are inches (millimeters) for general information and overall envelope size only.
 For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
NZ1/NNZ1	<1.0	<1.0	<1.0	<4.0	4.2
NZ3/NNZ3	<1.0	<1.0	<2.0	<4.0	4.8
NZ5/NNZ5	2.5	3.0	4.0	4.8	6.3
NZ10/NNZ10	7.4	8.2	10.0	8.0	10.0
NZ25/NNZ25	18.0	20.0	22.5	19.0	24.0
NNZX3	<1.0	<1.0	<2.0	4.7	5.8
NNZX10	7.4	8.2	10.0	8.0	9.8

Dirt Holding Capacity

Element	DHC (gm)	Element	DHC (gm)
NZ1	12	NNZ3	16
NZ3	12	NNZ5	18
NZ5	12	NNZ10	15
NZ10	11	NNZ25	15
NZ25	11	NNZX3	11*
NNZ1	15	NNZX10	13*

* Based on 100 psi terminal pressure

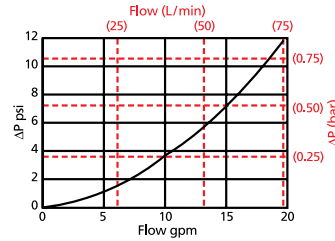
Element Collapse Rating: 150 psid (10 bar) for standard elements
 3000 psid (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

Element Nominal Dimensions: N: 1.75" (45 mm) O.D. x 5.25" (135 mm) long
 NN: 1.75" (45 mm) O.D. x 8.0" (200 mm) long

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

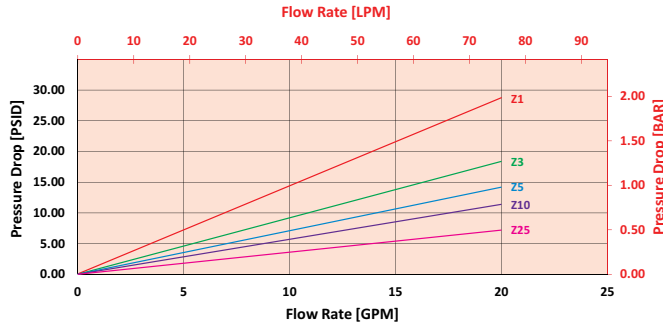
NF30 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

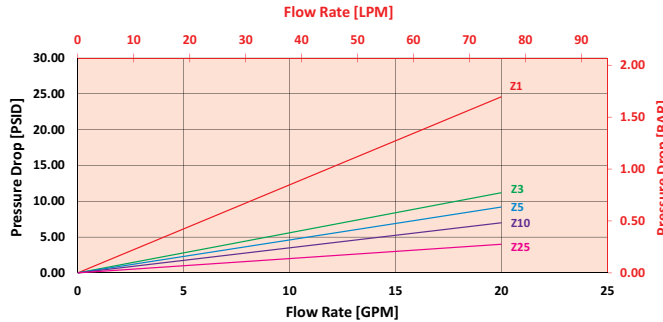
1NZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



1NNZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 15 gpm (57 L/min) for NF301NZ10SD5 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 15 gpm. In this case, $\Delta P_{\text{housing}}$ is 7 psi (.48 bar) according to the graph for an NF30 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 15 gpm. In this case, $\Delta P_{\text{element}}$ is 8 psi (.55 bar) according to the graph for an NZ10 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the Viscosity Factor (V_f) by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 7 \text{ psi [0.48 bar]} \mid \Delta P_{\text{element}} = 8 \text{ psi [0.55 bar]}$$

$$V_f = 160 \text{ SUS (34 cSt)} / 150 \text{ SUS (32 cSt)} = 1.1$$

$$\Delta P_{\text{filter}} = 7 \text{ psi} + (8 \text{ psi} * 1.1) = 15.8 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .48 \text{ bar} + (.55 \text{ bar} * 1.1) = 1.1 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:
If your element is not graphed, use the following equation:
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP
N3	1.10
N10	0.17
N25	0.10
NAS3	0.92
NAS5	0.71
NAS10	0.57

Filter Model Number Selection

BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9
NF30

BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6 BOX 7 BOX 8 BOX 9
NF30 1N Z 10 S D5 = NF301NZ10SD5

BOX 1	BOX 2	BOX 3
Filter Series	Number & Size of Elements	Media Type
NF30	1 N = Single Length NN = Double Length	Omit = E Media (Cellulose) Z = Excellement® Z-Media® (synthetic) AS = Anti-Stat Media (synthetic) ZX = Excellement® Z-Media® (high collapse center tube) M = Media (reusable metal mesh) N size only
NFN30 (Non-bypassing: requires ZX high collapse elements)		

BOX 4	BOX 5	BOX 6	BOX 7
Micron Rating	Seal Material	Porting	Options
1 = 1 Micron (Z, ZX media) 3 = 3 Micron (AS, E, Z, ZX media) 5 = 5 Micron (AS, Z, ZX media) 10 = 10 Micron (AS, E, M, Z, ZX media) 25 = 25 Micron (E, Z, ZX media) 60 = 60 Micron (M media)	Omit = Buna N V = Viton® W = Buna N, Anodized Aluminum parts	B = ISO228 G-¾" P = ¾" NPTF S = SAE-12	Omit = None X = Blocked bypass (N/A with NFN30)

BOX 8	BOX 9
Dirt Alarm® Options	Additional Options
Omit = None D = Pointer D5 = Visual pop-up D8 = Visual w/ thermal lockout MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male connector MSST = 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 MS13DC = Supplied w/ threaded connector & light MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end) 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	Omit = None G792 = 7/16"-20 UNF drain on housing

NOTES:

Box 2. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5.

Box 5. E media (cellulose) elements are only available with Buna N seals. For options V and W, all aluminum parts are anodized. Viton® is a registered trademark of DuPont Dow Elastomers.

Manifold Mounted Pressure Filter

NFS30



Features and Benefits

- Manifold mounted pressure filter
- Offered in square head conventional subplate porting
- Direct mounting to inlet port on customer's manifold

Model No. of filter in photograph is NFS301NZ3OD5.

20 gpm
75 L/min
3000 psi
210 bar

NF30

NFS30

YF30

CFX30

PLD

CF40

DF40

PF40

RFS50

RF60

CF60

CTF60

VF60

LW60

KF30

KF50

TF50

KC50

MKF50

MKC50

KC65

MKC65

HS60

MHS60

KFH50

LC60

LC35

LC50

Filter Housing Specifications

Flow Rating:	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)
Min. Yield Pressure:	10,000 psi (690 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	2400 psi (165 bar), per NFPA T2.6.1
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 85 psi (5.9 bar)
Porting Head:	Aluminum
Element Case:	Aluminum
Weight of NFS30-1N:	3.6 lbs. (1.6 kg)
Weight of NFS30-1NN:	4.3 lbs. (2.0 kg)
Element Change Clearance:	4.50" (115 mm)

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® and 10 µ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® and 3, 5 and 10 µ ASP® Media (synthetic)

NOF30-05

NOF-50-760

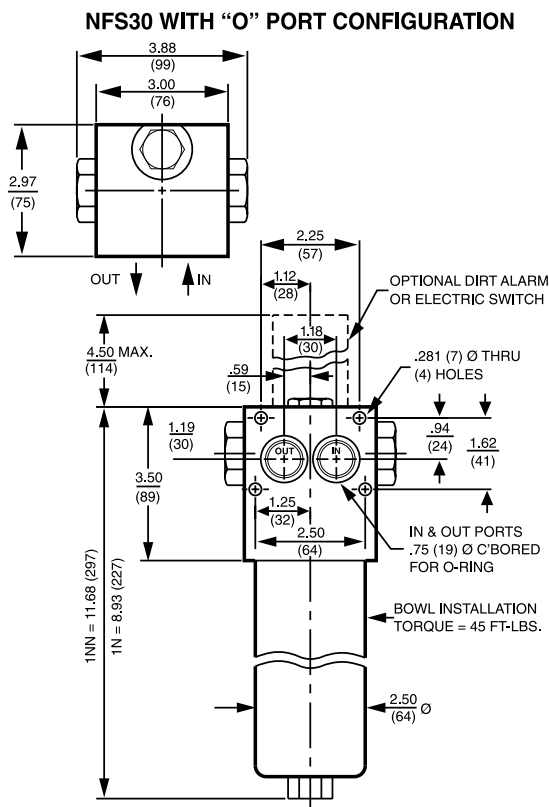
FOF60-03

NMF30

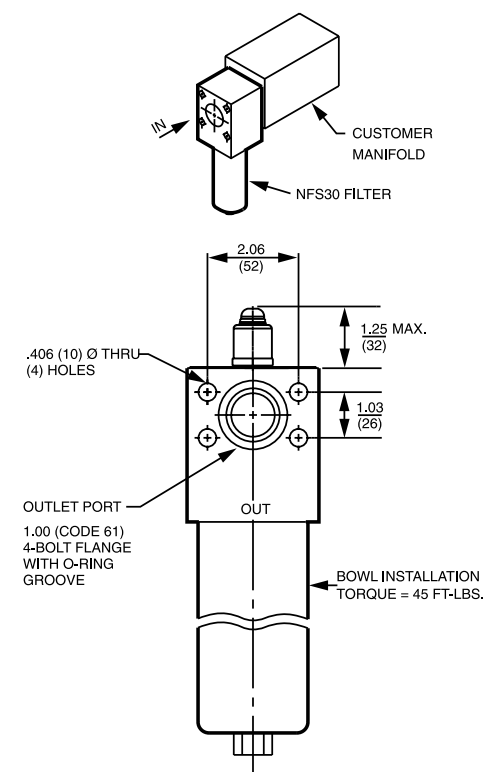
RMF60

14-CRZX10

20-CRZX10



NFS30 WITH PO, SO, FO PORT CONFIGURATIC



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.

**Element
Performance
Information & Dirt
Holding Capacity**

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8			Filtration Ratio per ISO 16889	
	Using automated particle counter (APC) calibrated per ISO 4402			Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
NZ1/NNZ1	<1.0	<1.0	<1.0	<4.0	4.2
NZ3/NNZ3	<1.0	<1.0	<2.0	<4.0	4.8
NZ5/NNZ5	2.5	3.0	4.0	4.8	6.3
NZ10/NNZ10	7.4	8.2	10.0	8.0	10.0
NZ25/NNZ25	18.0	20.0	22.5	19.0	24.0

Element	DHC (gm)	Element	DHC (gm)
NZ1	12	NNZ1	15
NZ3	12	NNZ3	16
NZ5	12	NNZ5	18
NZ10	11	NNZ10	15
NZ25	11	NNZ25	15

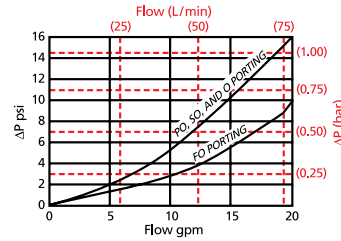
Element Collapse Rating: 150 psid (10 bar) for standard elements
3000 psid (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

Element Nominal Dimensions: N: 1.75" (45 mm) O.D. x 5.25" (135 mm) long
NN: 1.75" (45 mm) O.D. x 8.0" (200 mm) long

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

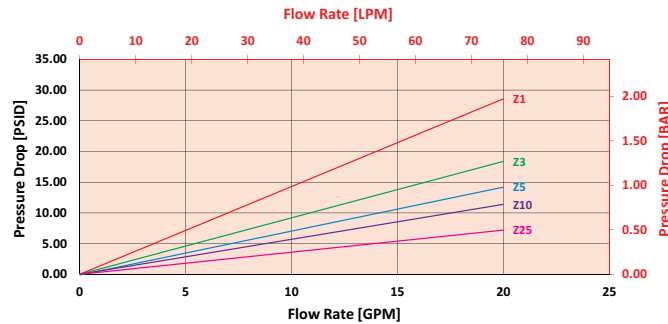
NFS30 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

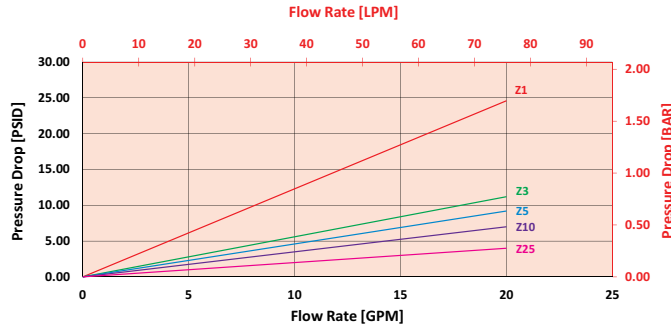
NZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



NNZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 15 gpm (57 L/min) for NFS301NZ10SO using 175 SUS (37.2 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 15 gpm. In this case, $\Delta P_{\text{housing}}$ is 10 psi (.69 bar) on the graph for the NFS30 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 15 gpm. In this case, $\Delta P_{\text{element}}$ is 8 psi (.55 bar) according to the graph for the NZ10 element.

Because the viscosity in this sample is 175 SUS (37.2 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 10 \text{ psi [.69 bar]} \quad | \quad \Delta P_{\text{element}} = 8 \text{ psi [.55 bar]}$$

$$V_f = 175 \text{ SUS (37.2 cSt)} / 150 \text{ SUS (32 cSt)} = 1.2$$

$$\Delta P_{\text{filter}} = 10 \text{ psi} + (8 \text{ psi} * 1.2) = 19.6 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .69 \text{ bar} + (.55 \text{ bar} * 1.2) = 1.35 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:
If your element is not graphed, use the following equation:
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP	Ele.	ΔP
N3	1.10	NN3	0.77
N10	0.17	NN10	0.13
N25	0.10	NN25	0.07
NAS3	0.92	NNAS3	0.56
NAS5	0.71	NNAS5	0.46
NAS10	0.57	NNAS10	0.35

Filter Model Number Selection

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
NFS30							

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	
NFS30	1N	Z	10		SO		D	= NFS301NZ10SOD

BOX 1	BOX 2	BOX 3
Filter Series	Number & Size of Elements	Media Type
NFS30	N = Single Length NN = Double Length	Omit = E Media (Cellulose) Z = Excellement® Z-Media® (synthetic) AS = Anti-Stat Media (synthetic) ZX = Excellement® Z-Media® (high collapse center tube) M = Media (reusable metal mesh) N size only
NFSN30 (Non-bypassing: requires ZX high collapse elements)		

BOX 4	BOX 5	BOX 6	BOX 7
Micron Rating	Seal Material	Porting	Options
1 = 1 Micron (Z, ZX media) 3 = 3 Micron (AS, E, Z, ZX media) 5 = 5 Micron (AS, Z, ZX media) 10 = 10 Micron (AS, E, M, Z, ZX media) 25 = 25 Micron (E, Z, ZX media) 60 = 60 Micron (M media)	Omit = Buna N V = Viton® W = Buna N, <i>Anodized Aluminum parts</i>	SO = SAE-12 PO = 3/4" NPTF FO = 1" SAE 4-bolt flange Code 61 O = Manifold	Omit = None X = Blocked bypass (N/A with NFSN30)

BOX 8	
Dirt Alarm® Options	
Omit = None	
Visual	D = Pointer D5 = Visual pop-up
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout
Electrical	MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male connector
Electrical with Thermal Lockout	MS5T = MS5 (see above) w/ thermal lockout MS5LCT = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout MS12LCT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS17LCT = Low current MS17T
Electrical Visual	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 identical to contents of Boxes 2, 3, 4 and 5.

Box 5. E media (cellulose) elements are only available with Buna N seals. For options V and W, all aluminum parts are anodized. Viton® is a registered trademark of DuPont Dow Elastomers.

Box 6. For option O, O-rings included; fastening hardware not included.

Box 8. For options SO, PO and FO, available dirt alarm is D only.

Top-Ported Pressure Filter

YF30



Features and Benefits

- Top-ported pressure filter
- All aluminum assembly
- Meets HF2 automotive standards
- Offered in straight thread porting
- Optional drain plug in bowl for easy servicing
- Available with non-bypass option

25 gpm
100 L/min
3000 psi
210 bar

NF30

NFS30

YF30

CFX30

PLD

CF40

DF40

PF40

RFS50

RF60

CF60

CTF60

VF60

LW60

KF30

KF50

TF50

KC50

MKF50

MKC50

KC65

MKC65

HS60

MHS60

KFH50

LC60

LC35

LC50

Filter Housing Specifications

Flow Rating:	Up to 25 gpm (100 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)
Min. Yield Pressure:	10,000 psi (690 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	1800 psi (124 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 50 psi (3.4 bar) Non-bypassing model has a blocked bypass.
Porting Head:	Aluminum
Element Case:	Aluminum
Weight of YF30-4Y:	3.75 lbs. (1.70 kg)
Weight of YF30-8Y:	4.25 lbs. (1.93 kg)
Element Change Clearance:	4.50" (115 mm)

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic)

NOF30-05

NOF-50-760

FOF60-03

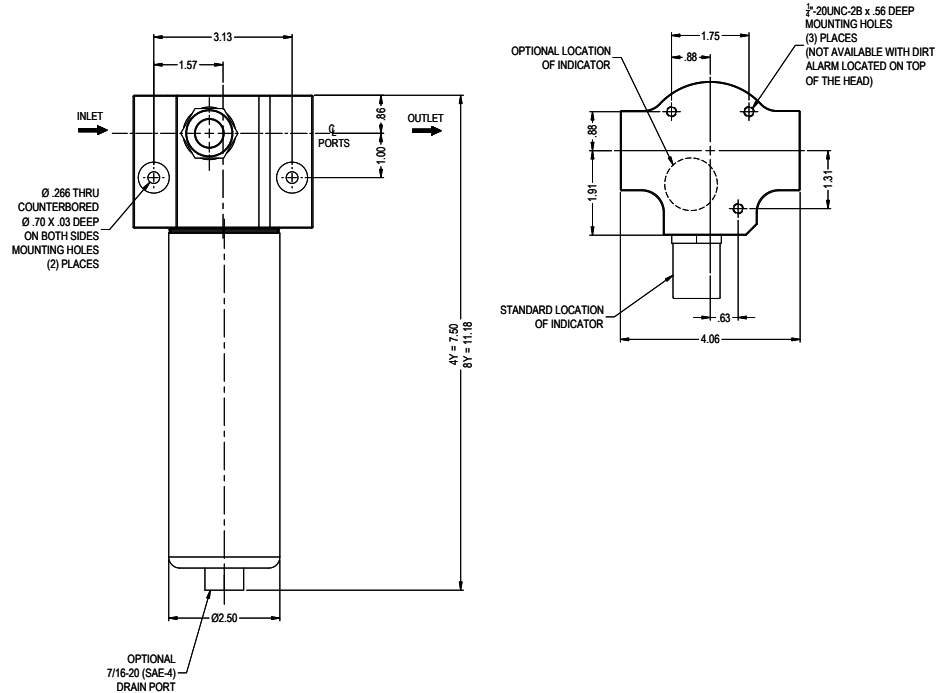
NMF30

RMF60

14-CRZX10

20-CRZX10

Model No. of filter in photograph is YF308YZ10SD5.



NOTES:
1.) BOWL INSTALLATION TORQUE = 45 FT.LBS.

Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
4YZ1/8YZ1	<1.0	<1.0	<1.0	<4.0	4.2
4YZ3/8YZ3	<1.0	<1.0	<2.0	<4.0	4.8
4YZ5/8YZ5	2.5	3.0	4.0	4.8	6.3
4YZ10/8YZ10	7.4	8.2	10.0	8.0	10.0
4YZ25/8YZ25	18.0	20.0	22.5	19.0	24.0
4YZX5/8YZX5	2.5	3.0	4.0	5.6	7.2
4YZX10/8YZX10	7.4	8.2	10.0	8.0	9.8

Element	DHC (gm)	Element	DHC (gm)
4YZ1	6.3	8YZ1	12.1
4YZ3	5.1	8YZ3	9.9
4YZ5	6.4	8YZ5	12.4
4YZ10	5.4	8YZ10	10.5
4YZ25	4.9	8YZ25	9.4
4YZX5	4.3	8YZX5	8.9
4YZX10	4.3	8YZX10	8.9

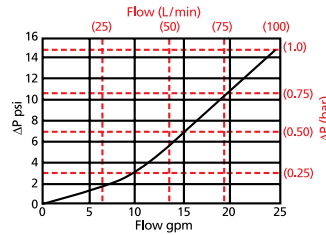
Element Collapse Rating: 150 psid (10 bar) for standard elements
3000 psid (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

Element Nominal Dimensions: 4Y: 1.77" (45 mm) O.D. x 4.50" (114 mm) long
8Y: 1.77" (45 mm) O.D. x 8.21" (209 mm) long

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

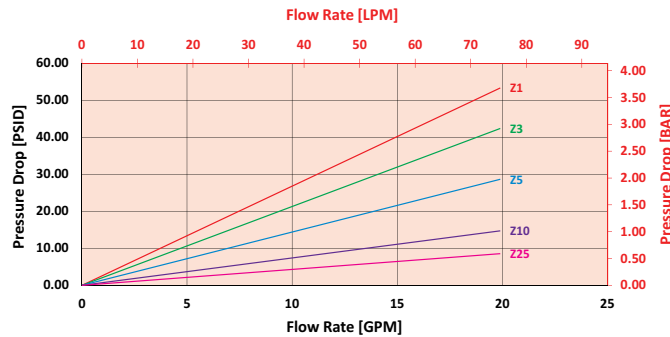
YF30 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

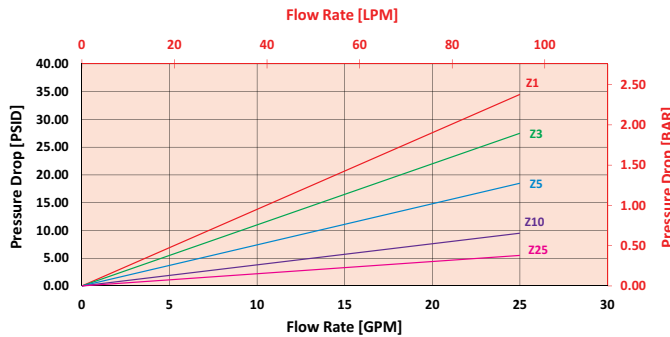
4YZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



8YZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 10 gpm (37.9 L/min) for YF304YZ10WSDRD5 using 200 SUS (42.6 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 10 gpm. In this case, $\Delta P_{\text{housing}}$ is 3 psi (.21 bar) on the graph for the YF30 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 10 gpm. In this case, $\Delta P_{\text{element}}$ is 8 psi (.55 bar) according to the graph for the 4YZ10 element.

Because the viscosity in this sample is 200 SUS (42.6 cSt), we determine the **Viscosity Factor** (V_f) by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, $(\Delta P_{\text{element}} * V_f)$. The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 3 \text{ psi } [.21 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 8 \text{ psi } [.55 \text{ bar}]$$

$$V_f = 200 \text{ SUS (42.6 cSt)} / 150 \text{ SUS (32 cSt)} = 1.3$$

$$\Delta P_{\text{filter}} = 3 \text{ psi} + (8 \text{ psi} * 1.3) = 13.4 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .21 \text{ bar} + (.55 \text{ bar} * 1.3) = .93 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:

If your element is not graphed, use the following equation:
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP	Ele.	ΔP
4YZX5	1.65	8YZX5	0.92
4YZX10	0.09	8YZX10	0.63

Filter
Model
Number
Selection

How to Build a Valid Model Number for a Schroeder YF30:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
YF30							

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
YF30	4	YZ10	W	S		DR	D5

= YF304YZ10WSDRD5

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	Element Length (in)	Element Size and Media	Seal Material	Inlet Port
YF30	4 8	YZ1 = Y size 1 µ Excellement® Z-Media® (synthetic) YZ3 = Y size 3 µ Excellement® Z-Media® (synthetic) YZ5 = Y size 5 µ Excellement® Z-Media® (synthetic) YZ10 = Y size 10 µ Excellement® Z-Media® (synthetic) YZ25 = Y size 25 µ Excellement® Z-Media® (synthetic) YZX5 = Y size 5 µ Excellement® Z-Media® (high collapse center tube) YZX10 = Y size 10 µ Excellement® Z-Media® (high collapse center tube)	Omit = Buna N V = Viton® W = Buna N, <i>Anodized Aluminum parts</i>	S = SAE-12 O = Subplate (contact factory)
YFN30 (Non-bypassing; requires ZX high collapse elements)				

BOX 6	BOX 7	BOX 8
Dirt Alarm® Location	Optional Bowl Drain	Dirt Alarm® Options
Omit = Side of filter head T = Top of filter head	Omit = No drain DR = Drain	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 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 MS13DC = Supplied w/ threaded connector & light MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end)
		Electrical Visual with Thermal Lockout MS13DCT = MS13 (see above), direct current, w/ thermal lockout MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ thermal lockout MS14DCLCT = Low current MS14DCT

NOTES:

Box 2. Replacement element part numbers are combination of Boxes 2,3, and 4.
Example 4YZ10V

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

Box 8. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.

Non-Bypassing Pressure Filter

CFX30



Features and Benefits

- Top-ported non-bypassing pressure filter
- Unique valve eliminates need for high collapse elements, valve begins to close off flow at 50 psi: Differential Pressure and fully closes off flow by 80 psi: DP. This ensures that no un-filtered flow is allowed down stream to critical components.
- Offered in pipe, SAE straight thread and ISO 228 porting
- Integral inlet and outlet female test points option available

30 gpm
115 L/min
3000 psi
210 bar

NF30

NFS30

YF30

CFX30

PLD

CF40

DF40

PF40

RFS50

RF60

CF60

CTF60

VF60

LW60

KF30

KF50

TF50

KC50

MKF50

MKC50

KC65

MKC65

HS60

MHS60

KFH50

LC60

LC35

LC50

NOF30-05

NOF-50-760

FOF60-03

NMF30

RMF60

14-CRZX10

20-CRZX10

Model No. of filter in photograph is CFX301CC10SD5.

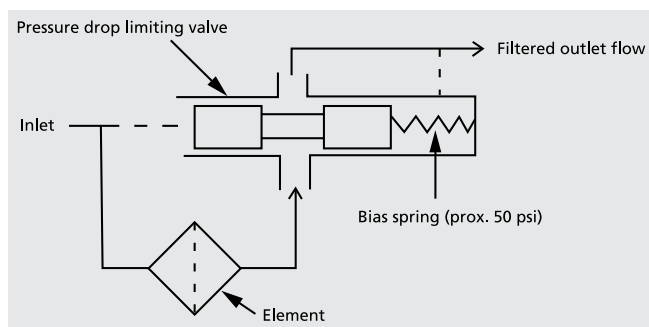
Flow Rating:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)
Min. Yield Pressure:	12,000 psi (828 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	1800 psi (125 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Non-Bypassing
Porting Head:	Aluminum
Element Case:	Steel
Weight of CFX30-1CC:	19.5 lbs. (8.9 kg)
Element Change Clearance:	4.00" (100 mm)

Filter Housing Specifications

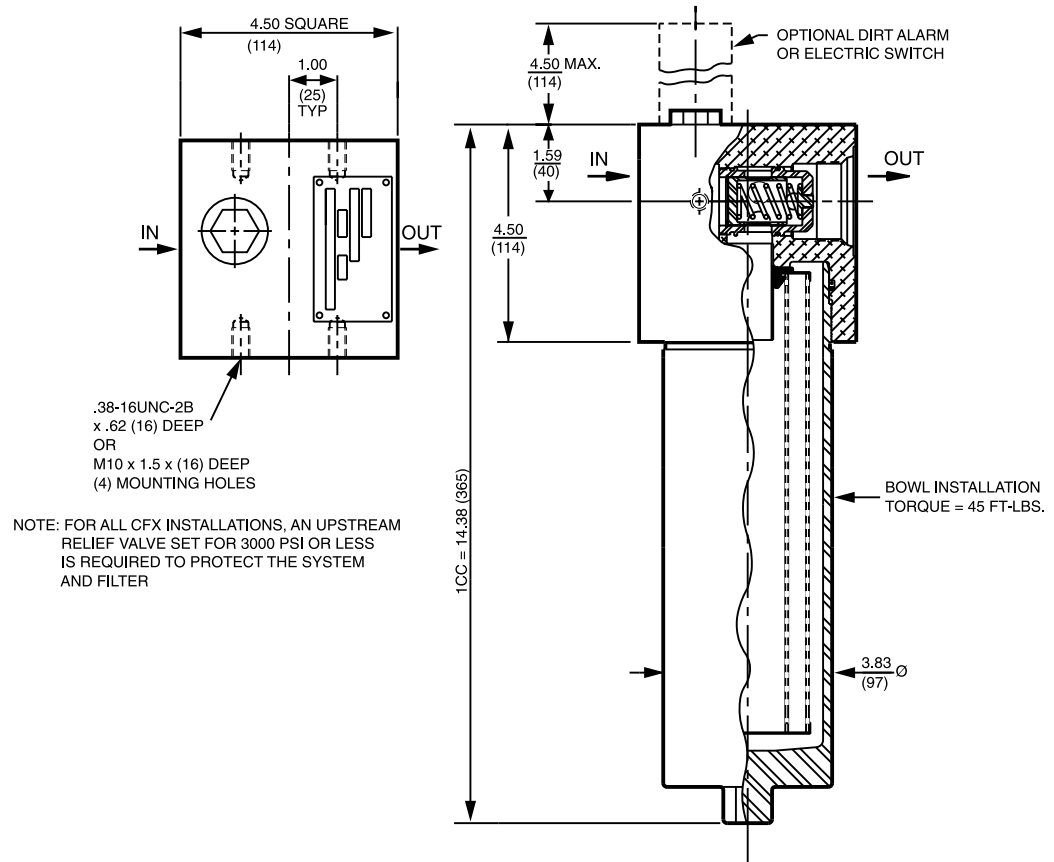
Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® and 10 µ ASP® media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® and 3, 5 and 10 µ ASP® Media (synthetic)
Phosphate Esters	All Z-Media® and ASP® media (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Fluid Compatibility

Schroeder's CFX30 series is a non-bypassing filter that incorporates the use of a unique pressure drop limiting valve that maintains the differential pressure across the element below the element's collapse pressure rating. As the element accumulates dirt, the pressure drop increases across the element and, therefore, across the spool of the valve. At 50 psi, the spool begins to move, restricting flow as needed to prevent the pressure drop from increasing further and compromising element integrity. This design allows the CFX30 filters to safely use the lower cost standard elements, eliminating the need for expensive high-crush replacement elements.



Unique Non-Bypassing Filtration:
A Better Way That Does Not Require High Crush Elements



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8			Filtration Ratio per ISO 16889	
	Using automated particle counter (APC) calibrated per ISO 4402			Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
CCZ1	<1.0	<1.0	<1.0	<4.0	4.2
CCZ3	<1.0	<1.0	<2.0	<4.0	4.8
CCZ5	2.5	3.0	4.0	4.8	6.3
CCZ10	7.4	8.2	10.0	8.0	10.0
CCZ25	18.0	20.0	22.5	19.0	24.0

Element	DHC (gm)
CCZ1	57
CCZ3	58
CCZ5	63
CCZ10	62
CCZ25	63

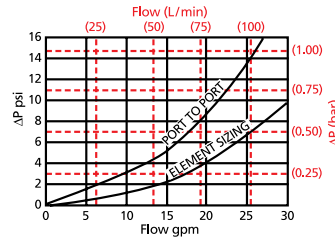
Element Collapse Rating: 150 psid (10 bar) for standard elements

Flow Direction: Outside In

Element Nominal CC: 3.0" (75 mm) O.D. x 9.5" (240 mm) long
Dimensions:

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

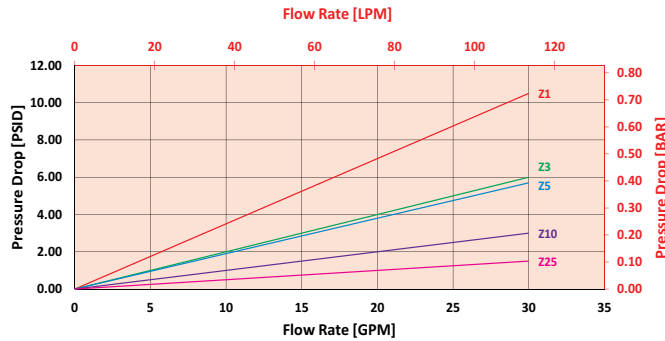
CFX30 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

CCZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 15 gpm (57 L/min) for CFX301CZ5SD5 using 100 SUS (21.3 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 15 gpm. In this case, $\Delta P_{\text{housing}}$ is 5 psi (.34 bar) on the graph for the CFX30 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 15 gpm. In this case, $\Delta P_{\text{element}}$ is 3 psi (.21 bar) according to the graph for the CZ5 element.

Because the viscosity in this sample is 100 SUS (21.3 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 5 \text{ psi } [.34 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 3 \text{ psi } [.21 \text{ bar}]$$

$$V_f = 100 \text{ SUS (21.3 cSt)} / 150 \text{ SUS (32 cSt)} = .67$$

$$\Delta P_{\text{filter}} = .34 \text{ psi} + (.21 \text{ psi} * .67) = .48 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .34 \text{ bar} + (.21 \text{ bar} * .67) = .48 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:
If your element is not graphed, use the following equation:
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP
CC3	0.22
CC10	0.13
CC25	0.03
CAS3/CCAS3	0.20
CAS5/CCAS5	0.19
CAS10/CCAS10	0.35

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder CFX30:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
CFX30							

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
CFX30	CC	Z	5		S		D5

= CFX30CCZ5SD5

BOX 1	BOX 2	BOX 3
Filter Series	Number & Size of Elements	Media Type
CFX30	1 C = Single Length CC = Double Length	Omit = E Media (cellulose) Z = Excellement® Z-Media® (synthetic) AS = Anti-Stat Media (synthetic) M = Media (reusable metal mesh)

BOX 4	BOX 5	BOX 6
Micron Rating	Seal Material	Porting
1 = 1 Micron (Z-Media®) 3 = 3 Micron (E, Z, AS Media) 5 = 5 Micron (Z, AS Media) 10 = 10 Micron (E, M, Z, AS Media) 25 = 25 Micron (E & Z-Media®)	Omit = Buna N V = Viton® W = Buna N, Anodized Aluminum parts H = EPR H.5 = Skydrol® compatibility	S = SAE-20 P = 1¼" NPTF B = ISO 228 G-1¼"

BOX 7	BOX 8
Options	Dirt Alarm® Options
Omit = None L = Two ¼" NPTF inlet and outlet female test ports U = Schroeder Check 7/16"-20 UNF Test Point installation in cap (upstream)	Omit = None D5 = Visual pop-up D8 = Visual w/ thermal lockout MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male connector 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 MS13DC = Supplied w/ threaded connector & light MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end) 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 identical to contents of Boxes 2, 3, 4 and 5. E media (cellulose) elements are only available with Buna N seals.

Box 5. For options H, V, 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. Viton® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 6. B porting option supplied with metric mounting holes.

High Pressure Filter

PLD



Features and Benefits

- Durable carbon steel construction
- Filter housings are designed to withstand pressure surges as well as high static pressure loads
- Screw-in bowl allows the filter element to be easily removed for replacement or cleaning
- Standard model supplied with drain plugs
- Standard Viton® seal on filter housing
- Filter contains an integrated equalization valve
- Pressure is equalized between filters by raising the change-over lever prior to switching it to the relevant filter side

100 gpm
380 L/min
3000 psi
210 bar

NF30

NFS30

YF30

CFX30

PLD

CF40

DF40

PF40

RFS50

RF60

CF60

CTF60

VF60

LW60

KF30

KF50

TF50

KC50

MKF50

MKC50

KC65

MKC65

HS60

MHS60

KFH50

LC60

LC35

LC50

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (207 bar)
Min. Yield Pressure:	10,600 psi (730 bar)
Rated Fatigue Pressure:	3000 psi (207 bar)
Temp. Range:	-22°F to 250°F (-30°C to 121°C)
Bypass Setting:	102 psi (7 bar)
Porting Head:	Ductile Iron
Element Case:	Steel
Weight of PLD-10DV:	97 lbs. (43.9 kg)
Weight of PLD-16DV:	100 lbs. (45.3 kg)
Element Change Clearance:	10DV: 3.5" (89 mm) 16DV: 3.5" (89 mm)

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic)

NOF30-05

NOF-50-760

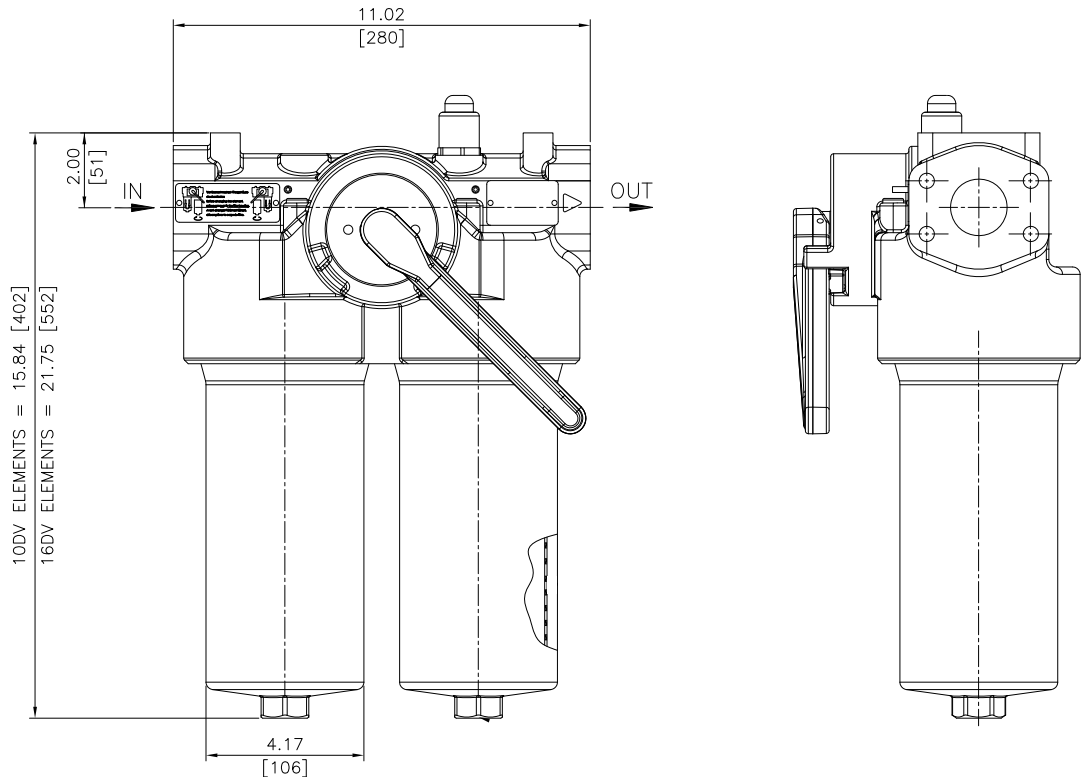
FOF60-03

NMF30

RMF60

14-CRZX10

20-CRZX10



Metric dimensions in ().
 Dimensions shown are inches (millimeters) for general information and overall envelope size only.
 For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
10/16DVZ1	<1.0	<1.0	<1.0	<4.0	4.2
10/16DVZ3	<1.0	<1.0	<2.0	<4.0	4.8
10/16DVZ5	2.5	3.0	4.0	4.8	6.3
10/16DVZ10	7.4	8.2	10.0	8.0	10.0
10/16DVZ25	18.0	20.0	22.5	19.0	24.0

Element	DHC (gm)	Element	DHC (gm)
10DVZ1	57	16DVZ1	110
10DVZ3	59	16DVZ3	114
10DVZ5	64	16DVZ5	124
10DVZ10	62	16DVZ10	112
10DVZ25	63	16DVZ25	102

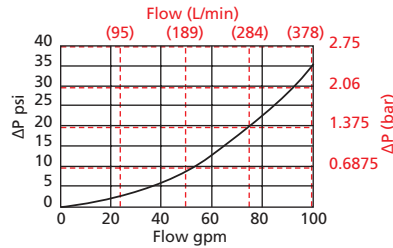
Element Collapse Rating: 290 psid (20 bar)

Flow Direction: Outside In

Element Nominal Dimensions: 3.0" (75 mm) O.D. x 14.5" (370 mm) long

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

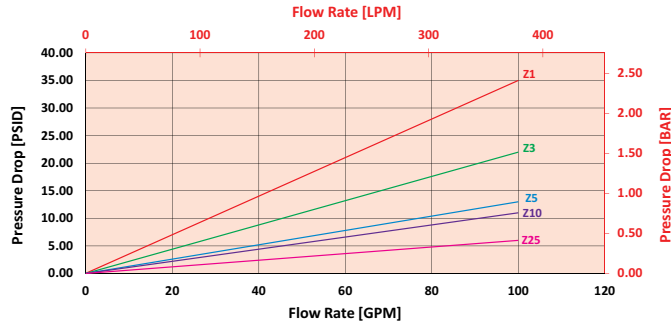
PLD $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

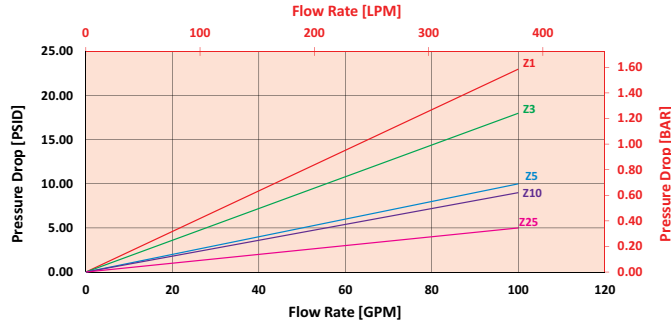
10DVZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



16DVZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 50 gpm (189 L/min) for PLD10DVZ1VF24VM using 200 SUS (42.6 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 50 gpm. In this case, $\Delta P_{\text{housing}}$ is 8 psi (.55 bar) on the graph for the PLD housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 50 gpm. In this case, $\Delta P_{\text{element}}$ is 17.5 psi (1.2 bar) according to the graph for the 10DVZ1 element.

Because the viscosity in this sample is 200 SUS (42.6 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, $(\Delta P_{\text{element}} * V_f)$. The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 8 \text{ psi [.55 bar]} \quad | \quad \Delta P_{\text{element}} = 17.5 \text{ psi [1.2 bar]}$$

$$V_f = 200 \text{ SUS (42.6 cSt)} / 150 \text{ SUS (32 cSt)} = 1.3$$

$$\Delta P_{\text{filter}} = 8 \text{ psi} + (17.5 \text{ psi} * 1.3) = 30.8 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .55 \text{ bar} + (1.2 \text{ bar} * 1.3) = 2.1 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:

If your element is not graphed, use the following equation:

$\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP	Ele.	ΔP	Ele.	ΔP
K3	0.25	KZW25	0.14	2KZW10	0.12
K10	0.09	2K3	0.12	2KZW25	0.07
K25	0.02	2K10	0.05	3K3	0.08
KAS3	0.10	2K25	0.01	3K10	0.03
KAS5	0.08	2KAS3	0.05	3K25	0.01
KAS10	0.05	2KAS5	0.04	3KAS3	0.03
KZX10	0.22	2KAS10	0.03	3KAS5	0.02
KZW1	0.43	2KZX10	0.11	3KAS10	0.02
KZW3	0.32	2KZW1	-	3KZX10	0.07
KZW5	0.28	2KZW3	0.16		
KZW10	0.23	2KZW5	0.14		

Filter Model Number Selection

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

BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6
PLD [] [] [] [] [] []

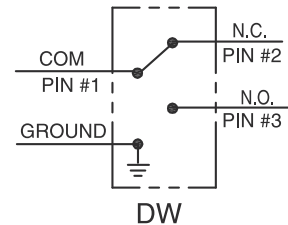
BOX 1 BOX 2 BOX 3 BOX 4 BOX 5 BOX 6
PLD 10 DVZ1 V F24 VM = PLD10DVZ1VF24VM

BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Length of Elements (in)	Element Size and Media	Seal Material
PLD	10 16	DVZ1 = DV size 1 μ synthetic media DVZ3 = DV size 3 μ synthetic media DVZ5 = DV size 5 μ synthetic media DVZ10 = DV size 10 μ synthetic media DVZ25 = DV size 25 μ synthetic media	Omit = Buna N V = Viton®

BOX 5	BOX 6
Porting	Dirt Alarm® Options
F24 = 1½" SAE 4-bolt flange Code 61 S24 = SAE-24 (1½")	Omit = None Visual VM = Visual pop-up w/manual rest Electrical DW = AC/DC 3-wire (NO or NC)



VM = Manual Reset



DW = AC/DC 3-wire
(NO or NC)

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3 and 4.
Example: 16DVZ10

Box 4. Filter housings are supplied with standard Viton seals. Seal designation in Box 4 applies to element only. Viton is a registered trademark of DuPont Dow Elastomers.

Top-Ported Pressure Filter

CF40/DF40



Features and Benefits

- Top-ported pressure filter
- Available with non-bypass option with high collapse element
- Offered in pipe, SAE straight thread and ISO 228 porting
- Integral inlet and outlet female test points option available
- No-Element indicator option available

Up to
45 gpm
170 L/min
4000 psi
275 bar

Model No. of filters in photograph are CF401CC10SD5 and DF401CCZ10PD5.

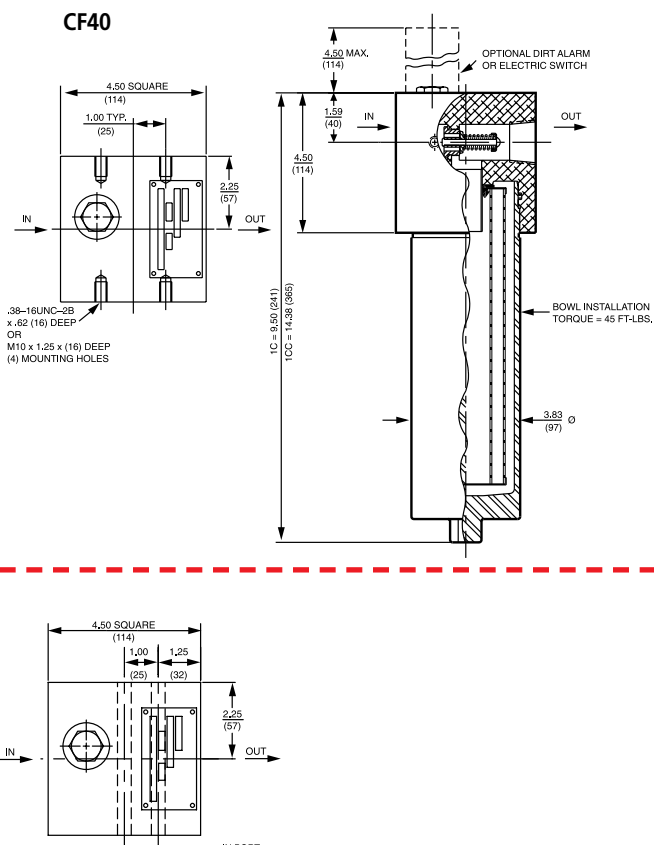
Flow Rating:	CF40 - 45 gpm (170 L/min) for 150 SUS (32 cSt) fluids DF40 - 30 gpm (113 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	4000 psi (275 bar)
Min. Yield Pressure:	12,000 psi (828 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	1800 psi (125 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 72 psi (5.0 bar) Non-bypassing model has a blocked bypass.
Porting Head:	Aluminum
Element Case:	Steel
Weight of CF40/DF40-1C:	14.0 lbs. (6.4 kg)
Weight of CF40/DF40-1CC:	19.5 lbs. (8.9 kg)
Element Change Clearance:	4.00" (100 mm) for C elements 8.75" (219 mm) for CC elements

Filter Housing Specifications

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic), 10 µ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic), and all ASP® Media (synthetic)
Phosphate Esters	All Z-Media® and ASP® Media (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media (synthetic) and all ASP Media (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Fluid Compatibility

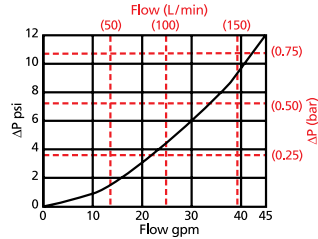
NF30
NFS30
YF30
CFX30
PLD
CF40
DF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
KF50
TF50
KC50
MKF50
MKC50
KC65
MKC65
HS60
MHS60
KFH50
LC60
LC35
LC50
NOF30-05
NOF-50-760
FOF60-03
NMF30
RMF60
14-CRZX10
20-CRZX10



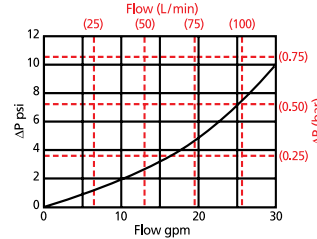
$\Delta P_{\text{housing}}$

CF40/DF40 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:

CF40- 1-1/4" Porting



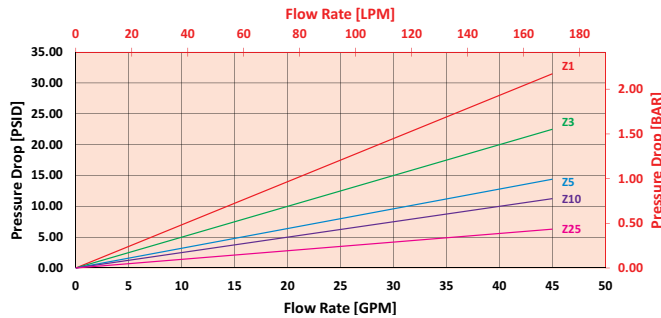
DF40- 1" Porting



$\Delta P_{\text{element}}$

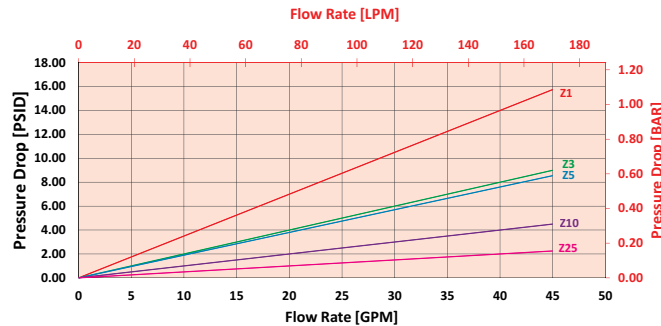
CZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



CCZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 25 gpm (94.6 L/min) for CF401CZ10SD5 using 200 SUS (42.6 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 25 gpm. In this case, $\Delta P_{\text{housing}}$ is 4.5 psi (.31 bar) on the graph for the CF40 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 25 gpm. In this case, $\Delta P_{\text{element}}$ is 6 psi (.42 bar) according to the graph for the CZ10 element.

Because the viscosity in this sample is 200 SUS (42.6 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, $(\Delta P_{\text{element}} * V_f)$. The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 4.5 \text{ psi } [.31 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 6 \text{ psi } [.42 \text{ bar}]$$

$$V_f = 200 \text{ SUS (42.6 cSt)} / 150 \text{ SUS (32 cSt)} = 1.3$$

$$\Delta P_{\text{filter}} = 4.5 \text{ psi} + (6 \text{ psi} * 1.3) = 12.3 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .31 \text{ bar} + (.42 \text{ bar} * 1.3) = .86 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:
If your element is not graphed, use the following equation:
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP	Ele.	ΔP
C3	0.50	CC3	0.22
C10	0.19	CC10	0.13
C25	0.09	CC25	0.03
CAS3	0.50	CCAS3	0.20
CAS5	0.32	CCAS5	0.19
CAS10	0.25	CCAS10	0.10
		CCZX3	0.29
		CCZX10	0.26

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder CF40:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
CF40								

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
CF40	1C	Z	10		S		D5	

= CF401CZ10SD5

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
Filter Series	Number and Size of Elements	Media Type		Seal Material	Porting
CF40	1 C CC	Omit = E Media(Cellulose) Z = Excellement® Z-Media® (synthetic) ZX = Excellement® Z-Media® (high collapse center tube) AS = Anti-Stat Media (synthetic) M = Media (reusable metal mesh) D size only			S = SAE-20" P = 1 1/4" NPTF B = ISO 228 G-1 1/4"
CFN40 (Non-bypassing: requires ZX high collapse elements)					
DF40					
DFN40 (Non-bypassing: requires ZX high collapse elements)					
			Micron Rating		Porting
			1 = 1 Micron (Z, ZX media) 3 = 3 Micron (AS, E, Z, ZX media) 5 = 5 Micron (AS, Z, ZX media) 10 = 10 Micron (AS, E, M, Z, ZX media) 25 = 25 Micron (E & Z media®)	Omit = Buna N V = Viton® W = Buna N, Anodized Aluminum parts H = EPR H.5 = Skydrol® compatibility	O = Manifold mounting S = SAE-16 P = 1" NPTF B = ISO 228 G-1

BOX 7	BOX 8
Options	Dirt Alarm® Options
Omit = None X = Blocked bypass 25 = 25 psi bypass setting 30 = 30 psi bypass setting 50 = 50 psi bypass setting 60 = 60 psi bypass setting 75 = 75 psi bypass setting L = Two 1/4" NPTF inlet and outlet female test ports	Omit = None D = Pointer D5 = Visual pop-up D8 = Visual w/ thermal lockout
	MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male connector
	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
	MS = Cam operated switch w/ 1/2" conduit female connection MS13DC = Supplied w/ threaded connector & light MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end)
	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 9
Additional Options
Omit = None N = No-Element Indicator (CF40 or DF40)

NOTES:

Box 2. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5.

Box 5. For options H, V, 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. Viton® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 6. B porting option supplied with metric mounting holes.

Box 7. Options X and 50 are not available with CFN40 or DFN40.

Box 8. Standard indicator setting for non-bypassing model is 50 psi unless otherwise noted.

Box 9. N option is not available with CFN40 or DFN40. N option should be used in conjunction with dirt alarm.

Top-Ported Pressure Filter

PF40



Features and Benefits

- Top-ported pressure filter
- All steel housing offers unparalleled fatigue rating
- Available with non-bypass option with high collapse element
- Two bowl lengths provide optimal sizing for the application
- Offered in conventional sub-plate, SAE straight thread, and ISO 228 porting

50 gpm
190 L/min
4000 psi
275 bar

Model No. of filter in photograph is PF409HZ10S.

NF30

NFS30

YF30

CFX30

PLD

CF40

DF40

PF40

RFS50

RF60

CF60

CTF60

VF60

LW60

KF30

KF50

TF50

KC50

MKF50

MKC50

KC65

MKC65

HS60

MHS60

KFH50

LC60

LC35

LC50

Filter Housing Specifications

Flow Rating:	Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	4000 psi (275 bar)
Min. Yield Pressure:	12,000 psi (828 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	2500 psi (173 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: 75 psi (5.2 bar)
Porting Head:	Steel
Element Case:	Steel
Weight of PF40-5H:	21.8 lbs. (9.9 kg)
Weight of PF40-9H:	25.5 lbs. (11.6 kg)
Element Change Clearance:	3.25" (83 mm)

Fluid Compatibility

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

NOF30-05

NOF-50-760

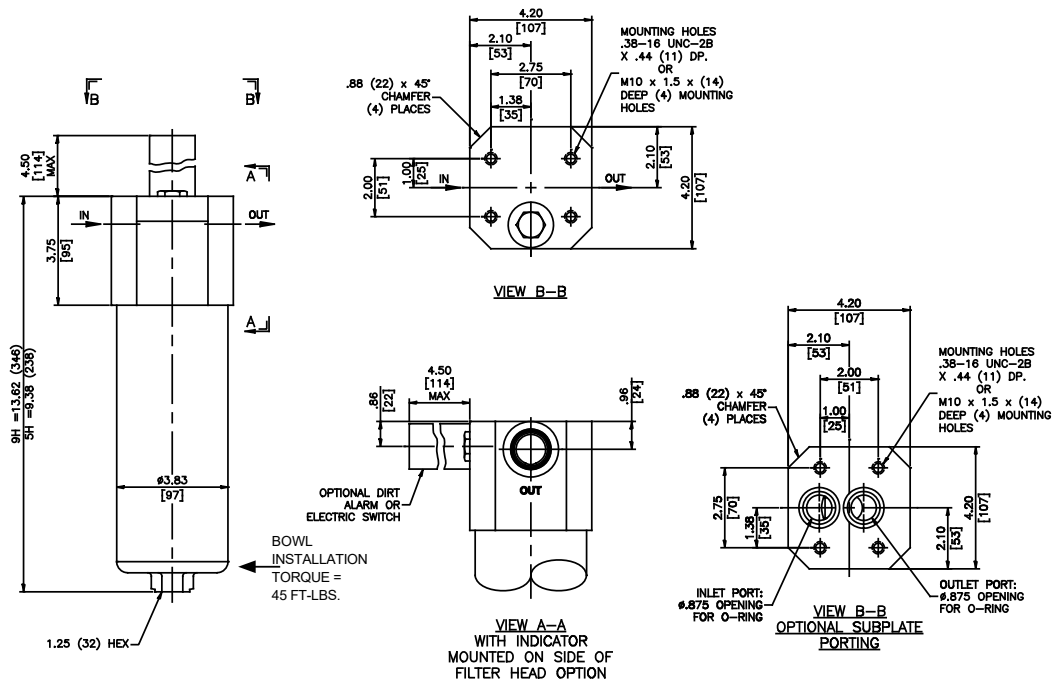
FOF60-03

NMF30

RMF60

14-CRZX10

20-CRZX10



Metric dimensions in ().
 Dimensions shown are inches (millimeters) for general information and overall envelope size only.
 For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
5HZ1/9HZ1	<1.0	<1.0	<1.0	<4.0	4.2
5HZ3/9HZ3	<1.0	<1.0	<2.0	<1.0	4.8
5HZ5/9HZ5	2.5	3.0	4.0	4.8	6.3
5HZ10/9HZ10	7.4	8.2	10.0	8.0	10.0
5HZ25/9HZ25	18.0	20.0	22.5	19.0	24.0
5HZX1/9HZX1	<1.0	<1.0	<1.0	<4.0	4.2
5HZX3/9HZX3	<1.0	<1.0	<2.0	<1.0	4.8
5HZX5/9HZX5	2.5	3.0	4.0	4.8	6.3
5HZX10/9HZX10	7.4	8.2	10.0	8.0	10.0
5HZX25/9HZX25	18.0	20.0	22.5	19.0	24.0

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
5HZ1	26	9HZ1	51	5HZX1	14	9HZX1	29
5HZ3	28	9HZ3	42	5HZX3	14	9HZX3	29
5HZ5	39	9HZ5	59	5HZX5	15	9HZX5	31
5HZ10	31	9HZ10	47	5HZX10	15	9HZX10	31
5HZ25	32	9HZ25	48	5HZX25	16	9HZX25	33

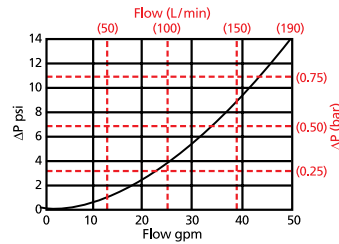
Element Collapse Rating: 150 psid (10 bar) for standard elements
 3000 psid (210 bar) for high collapse elements

Flow Direction: Outside In

Element Nominal Dimensions: 5H: 2.5" (100 mm) O.D. x 5.36" (136 mm) long
 9H: 2.5" (100 mm) O.D. x 9.63" (244 mm) long

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

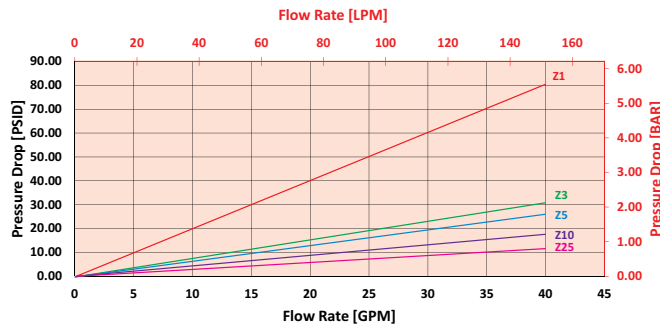
PF40 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

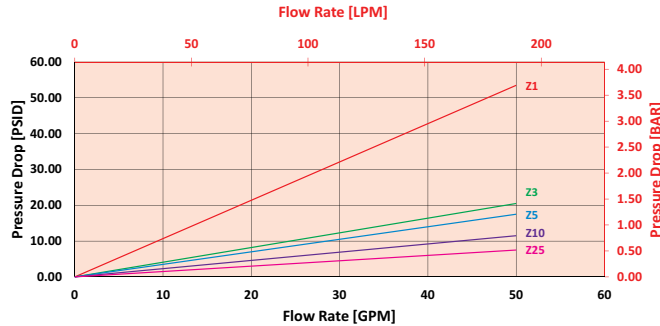
5HZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



9HZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 20 gpm (75.7 L/min) for PF405HZ3SD5S using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 20 gpm. In this case, $\Delta P_{\text{housing}}$ is 2.5 psi (.17 bar) on the graph for the PF40 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 20 gpm. In this case, $\Delta P_{\text{element}}$ is 15 psi (1 bar) according to the graph for the 5HZ3 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, $(\Delta P_{\text{element}} * V_f)$. The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 2.5 \text{ psi [.17 bar]} \quad \Delta P_{\text{element}} = 15 \text{ psi [1 bar]}$$

$$V_f = 160 \text{ SUS (34 cSt)} / 150 \text{ SUS (32 cSt)} = 1.1$$

$$\Delta P_{\text{filter}} = 2.5 \text{ psi} + (15 \text{ psi} * 1.1) = 19 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .17 \text{ bar} + (1 \text{ bar} * 1.1) = 1.3 \text{ bar}$$

Pressure Drop Information
Based on
Flow Rate
and Viscosity

Note:
If your element is not graphed, use the following equation:
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP
5HZX3	1.17
5HZX10	0.50
5HZX25	0.27
9HZX3	0.62
9HZX10	0.26
9HZX25	0.14

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder PF40:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
PF40								

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
PF40	5	HZ3		S		D5	S	

= PF405HZ3SD5S

BOX 1	BOX 2	BOX 3
Filter Series	Element Length (in)	Element Part Number
PF40	5	HZ1 = H size 1 μ Excellement® Z-Media® (synthetic) HZ3 = H size 3 μ Excellement® Z-Media® (synthetic) HZ5 = H size 5 μ Excellement® Z-Media® (synthetic) HZ10 = H size 10 μ Excellement® Z-Media® (synthetic) HZ25 = H size 25 μ Excellement® Z-Media® (synthetic) HZX3 = H size 3 μ Excellement® Z-Media® (high collapse center tube) HZX10 = H size 10 μ Excellement® Z-Media® (high collapse center tube) HZX25 = H size 25 μ Excellement® Z-Media® (high collapse center tube)
PFN40 (Non-bypassing: requires ZX high collapse elements)	9	

BOX 4	BOX 5	BOX 6
Seal Material	Porting	Options
Omit = Buna N H = EPR V = Viton® H.5 = Skydrol® compatibility	O = Manifold S = SAE-16 B = ISO 228 G-1"	Omit = None L = Two ¼" NPTF inlet & outlet female test ports U = Schroeder Check ⅞"-20 UNF test point installation in head (upstream)

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 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	MS13DC = Supplied w/ threaded connector & light MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end)
Electrical Visual with Thermal Lockout	MS13DCT = MS13 (see above), direct current, w/ thermal lockout MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ thermal lockout MS14DCLCT = Low current MS14DCT

BOX 8

Dirt Alarm® Location
Omit = Top mounted S = Side mounted

BOX 9

Bowl Drain Options
Omit = None DR = Drain 7/16" -20

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3 and 4.
Example: 5HZ10V

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.

Box 7. Standard indicator setting for non-bypassing model is 50 psi unless otherwise noted.

Manifold Mounted Pressure Filter

RFS50



Features and Benefits

- Manifold mounted high pressure filter
- Offered in square head conventional subplate porting
- Direct mounting to customer's manifold
- Standard drain plug in bowl for easy servicing
- Various dirt alarm options available

30 gpm
115 L/min
5000 psi
345 bar

NF30

NFS30

YF30

CFX30

PLD

CF40

DF40

PF40

RFS50

RF60

CF60

CTF60

VF60

LW60

KF30

KF50

TF50

KC50

MKF50

MKC50

KC65

MKC65

HS60

MHS60

KFH50

LC60

LC35

LC50

Model No. of filter in photograph is RFS508R100.

Flow Rating:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,500 psi (1070 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	Contact Factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 56 psi (3.9 bar)
Porting Head:	Steel
Element Case:	Steel
Weight of RFS50-8R:	16.50 lbs. (7.5 kg)
Element Change Clearance:	3.0" (75 mm)

Filter Housing Specifications

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Fluid Compatibility

NOF30-05

NOF-50-760

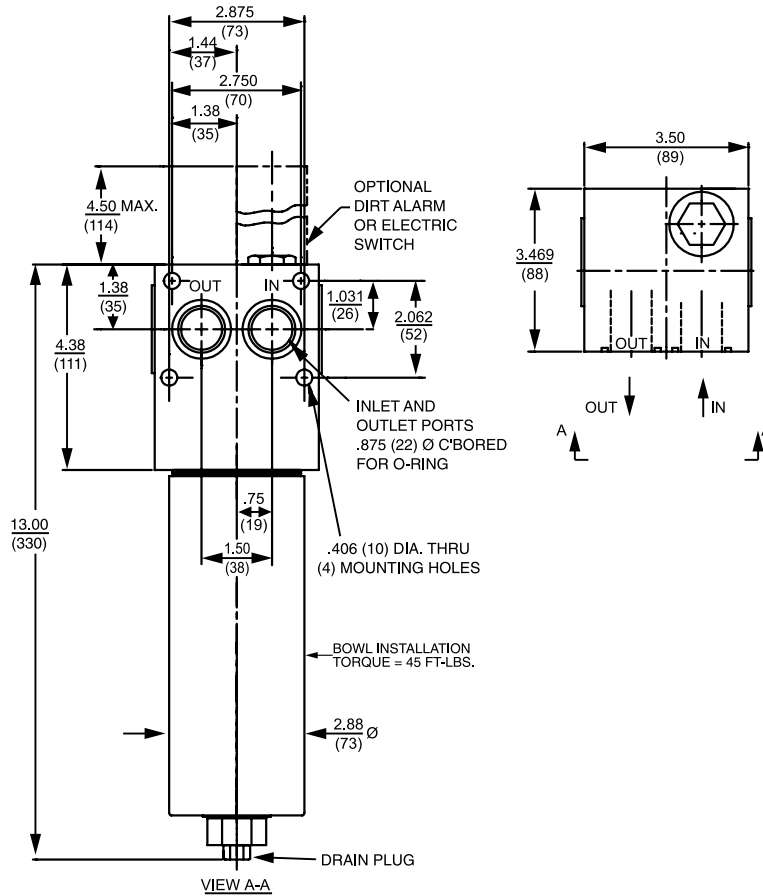
FOF60-03

NMF30

RMF60

14-CRZX10

20-CRZX10



Element Performance Information & Dirt Holding Capacity

Metric dimensions in ().
Dimensions shown are inches (millimeters) for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
8RZ1	<1.0	<1.0	<1.0	<4.0	4.2
8RZ3	<1.0	<1.0	<2.0	<4.0	4.8
8RZ5	2.5	3.0	4.0	4.8	6.3
8RZ10	7.4	8.2	10.0	8.0	10.0
8RZ25	18.0	20.0	22.5	19.0	24.0

Element	DHC (gm)
8RZ1	33
8RZ3	26
8RZ5	51
8RZ10	29
8RZ25	30

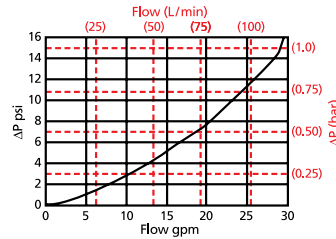
Element Collapse Rating: 150 psid (10 bar) for standard elements

Flow Direction: Outside In

Element Nominal Dimensions: 2.18" (55 mm) O.D. x 8.15" (206 mm) long

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

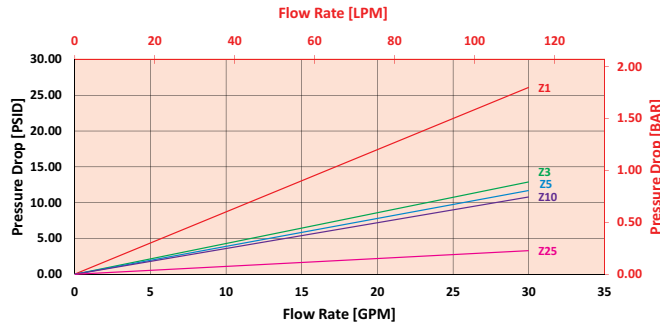
RFS50 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

8RZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 15 gpm (57 L/min) for RFS508RZ10VOD5 using 200 SUS (42.6 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 15 gpm. In this case, $\Delta P_{\text{housing}}$ is 5 psi (.34 bar) on the graph for the RFS50 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 15 gpm. In this case, $\Delta P_{\text{element}}$ is 5 psi (.34 bar) according to the graph for the 8RZ10 element.

Because the viscosity in this sample is 200 SUS (42.6 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 5 \text{ psi } [.34 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 5 \text{ psi } [.34 \text{ bar}]$$

$$V_f = 200 \text{ SUS (42.6 cSt)} / 150 \text{ SUS (32 cSt)} = 1.3$$

$$\Delta P_{\text{filter}} = 5 \text{ psi} + (5 \text{ psi} * 1.3) = 11.5 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .34 \text{ bar} + (.34 \text{ bar} * 1.3) = .78 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:
If your element is not graphed, use the following equation:
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP
8R3	0.35
8R10	0.30

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder RFS50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
RFS50						

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
RFS50	8	RZ10	V	O		D5

= RFS508RZ10VOD5

BOX 1	BOX 2	BOX 3
Filter Series	Element Length (in)	Element Size and Media
RFS50	8	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)

BOX 4	BOX 5	BOX 6
Seal Material	Inlet Port	Options
Omit = Buna N H = EPR V = Viton®	O = Manifold mounting	Omit = None X = Blocked bypass 50 = 50 psi bypass setting L = Two ¼" NPTF inlet and outlet female test ports U = Schroeder Check 7/16"-20 UNF Test Point installation in head (upstream)

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 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	MS13DC = Supplied w/ threaded connector & light MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end)
Electrical Visual with Thermal Lockout	MS13DCT = MS13 (see above), direct current, w/ thermal lockout MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ thermal lockout MS14DCLCT = Low current MS14DCT

NOTES:

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

Box 3. Example: 8RZ1V synthetic media elements are only available with Viton seals.

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

Box 5. For option O, O-rings included, fastening hardware not included.

Top-Ported Pressure Filter

RF60



Features and Benefits

- Top-ported high pressure filter
- Offered in pipe, SAE straight thread, flanged and ISO 228 porting
- Available with non-bypass option with high collapse element
- Various dirt alarm options available

30 gpm
115 L/min
6000 psi
415 bar

Model No. of filter in photograph is RF608R10P.

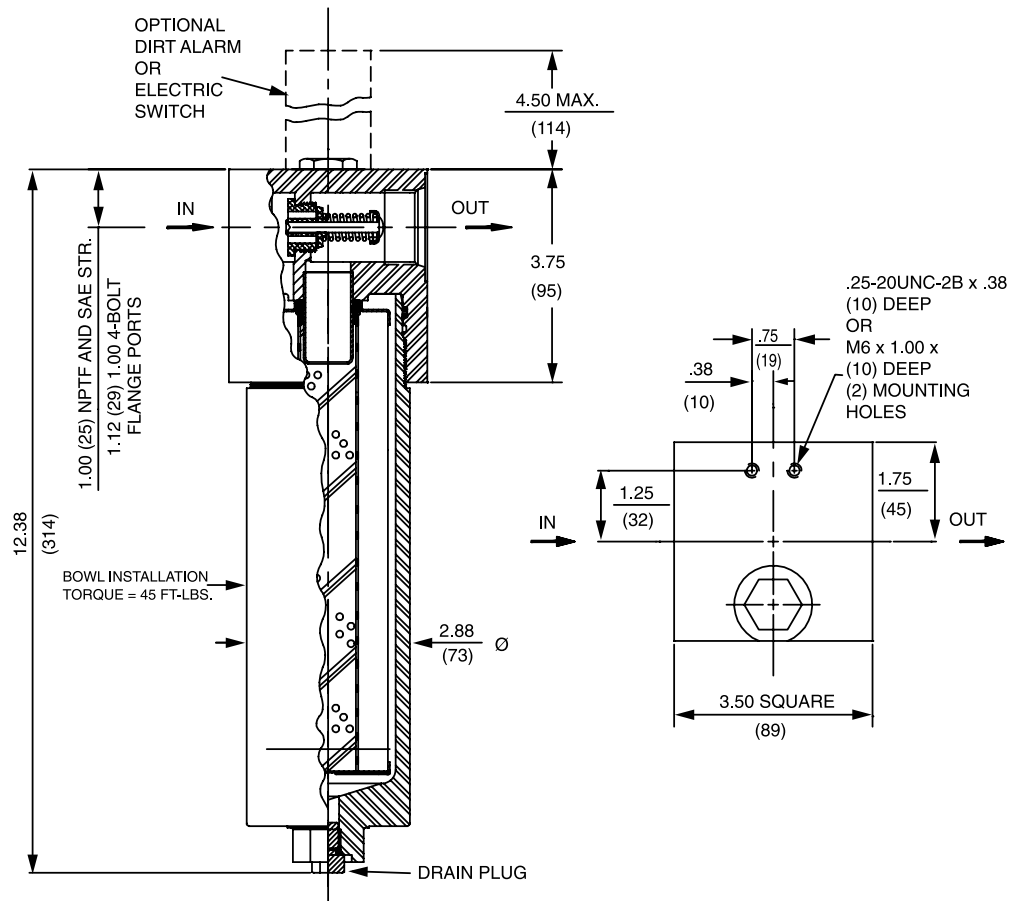
Flow Rating:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (415 bar)
Min. Yield Pressure:	18,000 psi (1241 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	2300 psi (159 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 56 psi (3.9 bar) Non-bypassing model has a blocked bypass.
Porting Head:	Steel
Element Case:	Steel
Weight of RF60-8R:	15.75 lbs. (7.2 kg)
Element Change Clearance:	3.0" (75 mm)

Filter Housing Specifications

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E-Media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Fluid Compatibility

NF30
NFS30
YF30
CFX30
PLD
CF40
DF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
KF50
TF50
KC50
MKF50
MKC50
KC65
MKC65
HS60
MHS60
KFH50
LC60
LC35
LC50
NOF30-05
NOF-50-760
FOF60-03
NMF30
RMF60
14-CRZX10
20-CRZX10



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(\alpha) \geq 200$	$\beta_x(\alpha) \geq 1000$
8RZ1	<1.0	<1.0	<1.0	<4.0	4.2
8RZ3	<1.0	<1.0	<2.0	<4.0	4.8
8RZ5	2.5	3.0	4.0	4.8	6.3
8RZ10	7.4	8.2	10.0	8.0	10.0
8RZ25	18.0	20.0	22.5	19.0	24.0
8RZX3	<1.0	<1.0	<2.0	4.7	5.8
8RZX10	7.4	8.2	10.0	8.0	9.8

Element	DHC (gm)
8RZ1	33
8RZ3	26
8RZ5	51
8RZ10	29
8RZ25	30
8RZX3	C/F
8RZX10	C/F

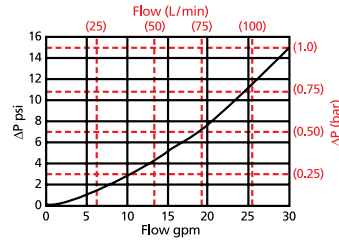
Element Collapse Rating: 150 psid (10 bar) for standard elements
3000 psid (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

Element Nominal Dimensions: 2.18" (55 mm) O.D. x 8.15" (206 mm) long

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

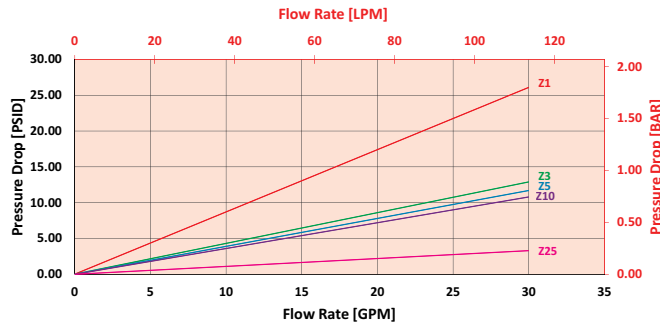
RF60 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

8RZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



Pressure Drop Information
Based on
Flow Rate
and Viscosity

$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 15 gpm (57 L/min) for RF608RZ10VPD5 using 100 SUS (21.3 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 15 gpm. In this case, $\Delta P_{\text{housing}}$ is 5 psi (.34 bar) on the graph for the RF60 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 15 gpm. In this case, $\Delta P_{\text{element}}$ is 5 psi (.34 bar) according to the graph for the 8RZ10 element.

Because the viscosity in this sample is 100 SUS (21.3 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 5 \text{ psi } [.34 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 5 \text{ psi } [.34 \text{ bar}]$$

$$V_f = 100 \text{ SUS (21.3 cSt)} / 150 \text{ SUS (32 cSt)} = .67$$

$$\Delta P_{\text{filter}} = 5 \text{ psi} + (5 \text{ psi} * .67) = 8.3 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .34 \text{ bar} + (.34 \text{ bar} * .67) = .57 \text{ bar}$$

Note:

If your element is not graphed, use the following equation:

$\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$. Plug this variable into the overall pressure drop equation.

Ele.	ΔP
8R3	0.35
8R10	0.30
8RZX3	C/F
8RZX10	C/F

Filter
Model
Number
Selection

How to Build a Valid Model Number for a Schroeder RF60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
RF60						

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
RF60	8	RZ10	V	P		D5

= RF608RZ10VPD5

BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Element Length (in)	Element Size and Media	Seal Material
RF60	8	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) RZX3 = R size 3 μ Excellement® Z-Media® (high collapse center tube) RZX10 = R size 10 μ Excellement® Z-Media® (high collapse center tube)	Omit = Buna N H = EPR V = Viton®
RFN60 (Non-bypassing: requires ZX high collapse elements)			

BOX 5	BOX 7
Inlet Port	Dirt Alarm® Options
P = 1" NPTF S = SAE-16 F = 1" SAE 4-bolt flange Code 62 B = ISO 228 G-1"	Omit = None Visual Visual with Thermal Lockout MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male connector 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 MS13DC = Supplied w/ threaded connector & light MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end) 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 6	
Options	
Omit = None X = Blocked bypass 50 = 50 psi bypass setting L = Two ¼" NPTF inlet and outlet female test ports U = Schroeder Check ⅞"-20 UNF Test Point installation in head (upstream)	
	Electrical Electrical with Thermal Lockout Electrical Visual Electrical Visual with Thermal Lockout

NOTES:

Box 2. Replacement element part numbers are a combination of Boxes 2, 3 and 4.
Example: 8RZ1V synthetic media elements are only available with Viton seals.

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

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

Box 6. Options X and 50 are not available with RFN60.

Box 7. Standard indicator setting for non-bypassing model is 50 psi unless otherwise noted.

Top-Ported Pressure Filter

CF60



Features and Benefits

- Top-ported high pressure filter
- Available with non-bypass option with high collapse element
- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- No-Element indicator option available

50 gpm
190 L/min
6000 psi
415 bar

Model No. of filter in photograph is CF601CCZ3SD5.

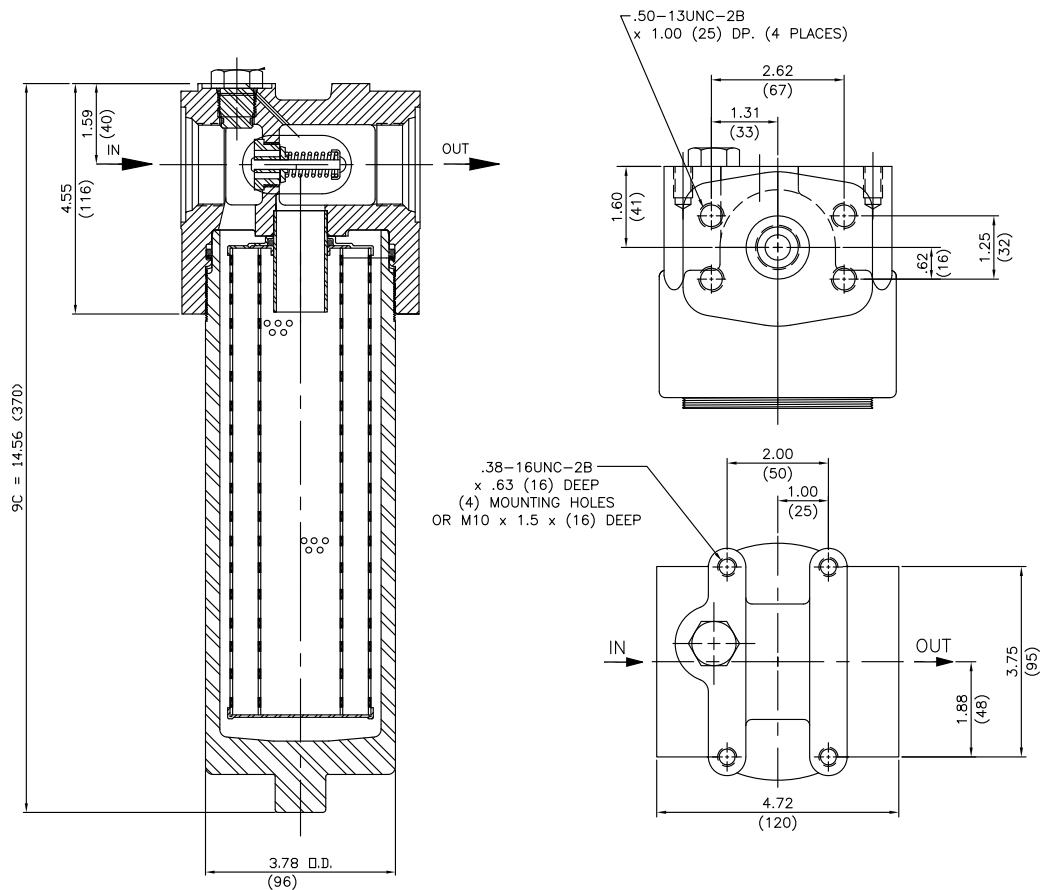
NF30
NFS30
YF30
CFX30
PLD
CF40
DF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
KF50
TF50
KC50
MKF50
MKC50
KC65
MKC65
HS60
MHS60
KFH50
LC60
LC35
LC50
NOF30-05
NOF-50-760
FOF60-03
NMF30
RMF60
14-CRZX10
20-CRZX10

Flow Rating:	Up to 50 gpm (190 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (415 bar)
Min. Yield Pressure:	15,500 psi (1070 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	4000 psi (276 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: 75 psi (5.2 bar) Non-bypassing model has a blocked bypass.
Porting Head:	Ductile Iron
Element Case:	Steel
Weight of CF60-9C:	24.0 lbs. (10.9 kg)
Element Change Clearance:	4.0" (103 mm)

Filter Housing Specifications

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E-Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic) and 10 µ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® and all ASP® Media (synthetic)
Phosphate Esters	All Z-Media® and ASP® Media (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media® and all ASP® Media (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Fluid Compatibility



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
CCZ1	<1.0	<1.0	<1.0	<4.0	4.2
CCZ3	<1.0	<1.0	<2.0	<4.0	4.8
CCZ5	2.5	3.0	4.0	4.8	6.3
CCZ10	7.4	8.2	10.0	8.0	10.0
CCZ25	18.0	20.0	22.5	19.0	24.0
CCZX3	<1.0	<1.0	<2.0	4.7	5.8

Element	DHC (gm)
CCZ1	57
CCZ3	58
CCZ5	63
CCZ10	62
CCZ25	63
CCZX3	26*

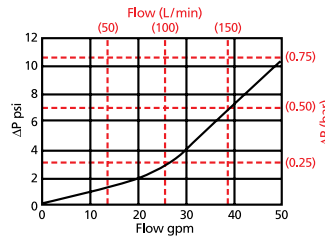
Element Collapse Rating: 150 psid (10 bar) for standard elements
3000 psid (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

Element Nominal Dimensions: CC: 3.0" (75 mm) O.D. x 9.5" (240 mm) long

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

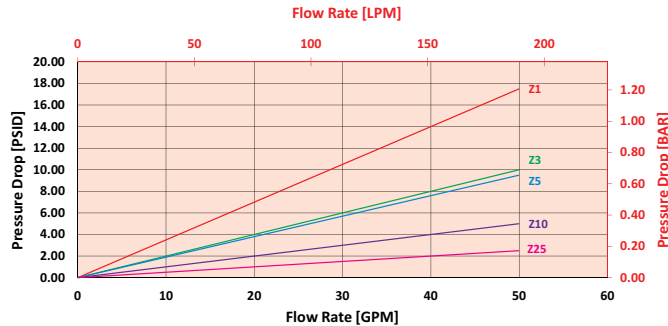
CF60 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

CCZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



Pressure Drop Information Based on Flow Rate and Viscosity

$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 30 gpm (113.6 L/min) for CF601CCZ10SD5 using 175 SUS (37.2 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 30 gpm. In this case, $\Delta P_{\text{housing}}$ is 4 psi (.28 bar) on the graph for the CF60 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 30 gpm. In this case, $\Delta P_{\text{element}}$ is 3 psi (.21 bar) according to the graph for the CCZ10 element.

Because the viscosity in this sample is 175 SUS (37.2 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 4 \text{ psi } [.28 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 3 \text{ psi } [.21 \text{ bar}]$$

$$V_f = 175 \text{ SUS } (37.2 \text{ cSt}) / 150 \text{ SUS } (32 \text{ cSt}) = 1.2$$

$$\Delta P_{\text{filter}} = 4 \text{ psi } + (3 \text{ psi } * 1.2) = 7.6 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .28 \text{ bar } + (.21 \text{ bar } * 1.2) = .53 \text{ bar}$$

Note:
If your element is not graphed, use the following equation:
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP
CC3	0.22
CC10	0.13
CC25	0.03
CCAS3	0.20
CCAS5	0.19
CCAS10	0.10
CCZX3	0.29
CCZX10	0.26

Filter
Model
Number
Selection

How to Build a Valid Model Number for a Schroeder CF60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
CF60								

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
CF60	1CC	Z	10		S		D5	

= CF601CCZ10SD5

BOX 1	BOX 2	BOX 3
Filter Series	Number and Size of Elements	Media Type
CF60	1CC	Omit E Media (cellulose)
CFN60 (Non-bypassing: requires ZX high collapse elements)		Z = Excellement® Z-Media® (synthetic) ZX = Excellement® Z-Media® (high collapse center tube) AS = Anti-Stat Media (synthetic)

BOX 4	BOX 5	BOX 6
Micron Rating	Seal Material	Porting
1 = 1 Micron (Z media) 3 = 3 Micron (AS, E, Z and ZX media) 5 = 5 Micron (AS, Z, and ZX media) 10 = 10 Micron (AS, E, Z, and ZX media) 25 = 25 Micron (E, Z and ZX media)	Omit = Buna N V = Viton® H = EPR H.5 = Skydrol® compatibility	S = SAE-20 P = 1¼" NPTF F = 1¼" SAE 4-bolt flange code 62 B = ISO 228 G-1¼"

BOX 7	BOX 8
Options	Dirt Alarm® Options
Omit = None 25 = 25 psi bypass setting 30 = 30 psi bypass setting 50 = 50 psi bypass setting 60 = 60 psi bypass setting 75 = 75 psi bypass setting	Omit = None D5 = Visual pop-up D8 = Visual w/ thermal lockout Electrical MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male connector Electrical with Thermal Lockout MS5T = MS5 (see above) w/ thermal lockout MS5LCT = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout MS12LCT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS17LCT = Low current MS17T Electrical Visual 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 identical to contents of Boxes 2, 3, 4 and 5. E media (cellulose) elements are only available with Buna N seals.

Box 5. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 6. B porting option supplied with metric mounting holes.

Box 8. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.

Top-Ported Pressure Filter

CTF60



Features and Benefits

- Top-ported high pressure filter
- High cyclic fatigue performance (6000 psi)
- Available with non-bypass option with high collapse element
- Offered in pipe, SAE straight thread, flange and ISO 228 porting
- Thread on bowl with optional drain plug for easy element service

Model No. of filter in photograph is CTF608CTZ10F20D9.

75 gpm
284 L/min
6000 psi
415 bar

NF30

NFS30

YF30

CFX30

PLD

CF40

DF40

PF40

RFS50

RF60

CF60

CTF60

VF60

LW60

KF30

KF50

TF50

KC50

MKF50

MKC50

KC65

MKC65

HS60

MHS60

KFH50

LC60

LC35

LC50

Filter Housing Specifications

Flow Rating:	Up to 75 gpm (284 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (415 bar)
Min. Yield Pressure:	18,000 psi (1241 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	6000 psi (415 bar), per NFPA T2.6.1-R1-2005 (only with F20 4-bolt flange porting)
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 50 psi (3.4 bar) Full Flow: 83 psi (5.7 bar) Non-bypassing model has a blocked bypass.
Porting Head:	Ductile Iron
Element Case:	Steel
Weight of CTF60-5CT:	25 lbs. (11.4 kg)
CTF60-8CT:	29 lbs. (13.2 kg)
CTF60-14CT:	38 lbs. (17.3 kg)
Element Change Clearance:	4.0" (103 mm)

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation

NOF30-05

NOF-50-760

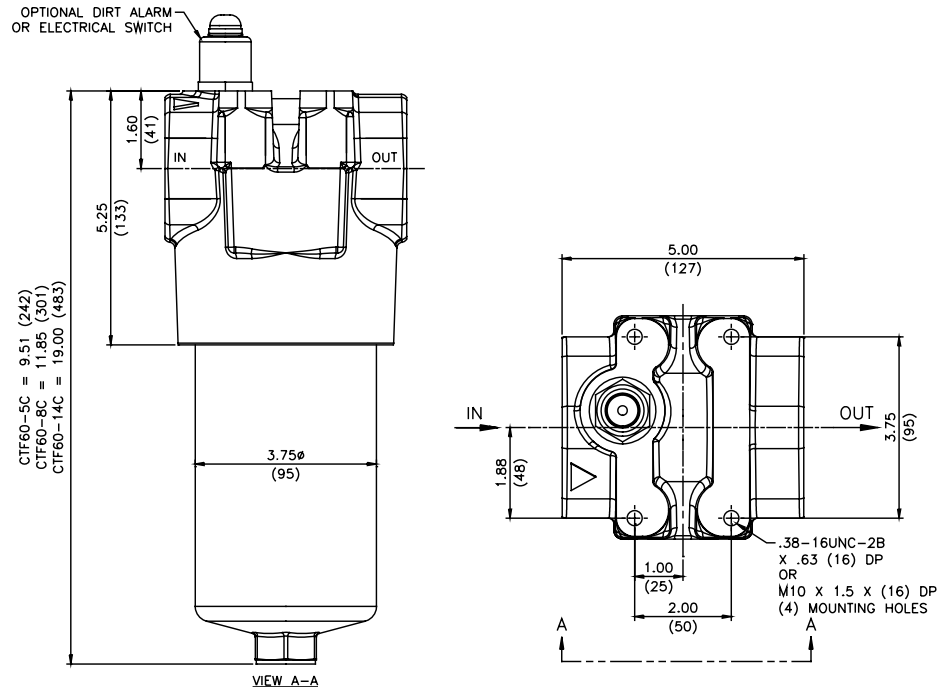
FOF60-03

NMF30

RMF60

14-CRZX10

20-CRZX10



Metric dimensions in ().
 Dimensions shown are inches (millimeters) for general information and overall envelope size only.
 For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(d)} \geq 200$	$\beta_{x(d)} \geq 1000$
CTZ1/CTZX1	<1.0	<1.0	<1.0	<4.0	4.2
CTZ3/CTZX3	<1.0	<1.0	<2.0	<4.0	4.8
CTZ5/CTZX5	2.5	3.0	4.0	4.8	6.3
CTZ10/CTZX10	7.4	8.2	10.0	8.0	10.0
CTZ25/CTZX25	18.0	20.0	22.5	19.0	24.0

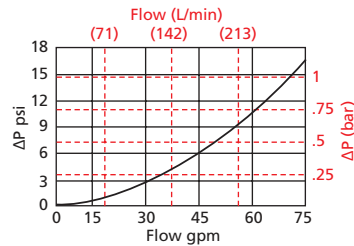
Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
5CTZ1	19	8CTZ1	31	14CTZ1	66
5CTZ3	16	8CTZ3	27	14CTZ3	57
5CTZ5	18	8CTZ5	30	14CTZ5	64
5CTZ10	21	8CTZ10	34	14CTZ10	72
5CTZ25	17	8CTZ25	28	14CTZ25	60
5CTZX1	14	8CTZX1	24	14CTZX1	53
5CTZX3	11	8CTZX3	18	14CTZX3	41
5CTZX5	10	8CTZX5	17	14CTZX5	38
5CTZX10	12	8CTZX10	20	14CTZX10	44
5CTZX25	11	8CTZX25	18	14CTZX25	39

Element Collapse Rating: 150 psid (10 bar) for standard elements
 Flow Direction: 3000 psid (210 bar) for high collapse (ZX) versions
 Outside In

Element Nominal Dimensions: 5CT : 2.64" (67 mm) O.D. x 4.88" (124 mm) long
 8CT : 2.64" (67 mm) O.D. x 7.25" (184 mm) long
 14CT : 2.64" (67 mm) O.D. x 14.38" (365 mm) long

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

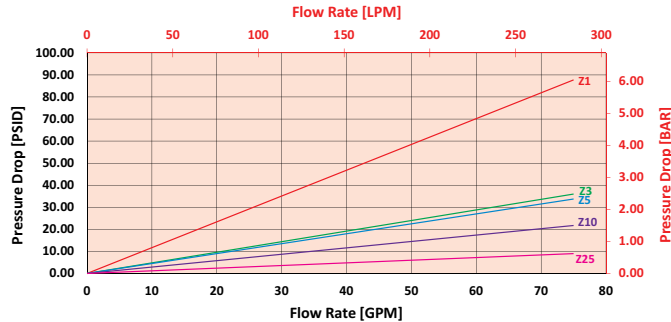
CTF60 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

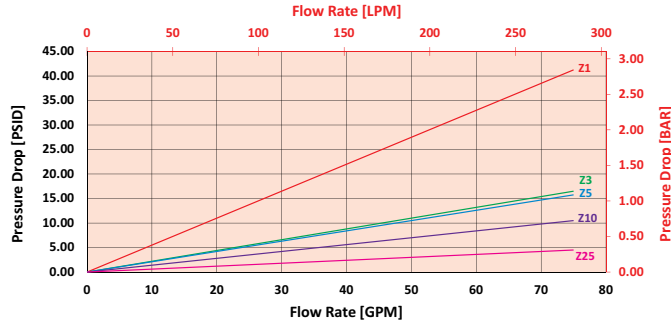
8CTZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



14CTZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 50 gpm (189 L/min) for CTF608CTZ5S20D9 using 200 SUS (42.6 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 50 gpm. In this case, $\Delta P_{\text{housing}}$ is 7 psi (.48 bar) on the graph for the CTF60 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 50 gpm. In this case, $\Delta P_{\text{element}}$ is 22 psi (1.5 bar) according to the graph for the 8CTZ5 element.

Because the viscosity in this sample is 200 SUS (42.6 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 7 \text{ psi [.48 bar]} \quad | \quad \Delta P_{\text{element}} = 22 \text{ psi [1.5 bar]}$$

$$V_f = 200 \text{ SUS (42.6 cSt)} / 150 \text{ SUS (32 cSt)} = 1.3$$

$$\Delta P_{\text{filter}} = 7 \text{ psi} + (22 \text{ psi} * 1.3) = 35.6 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .48 \text{ bar} + (1.5 \text{ bar} * 1.3) = 2.4 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:
If your element is not graphed, use the following equation:
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP	Ele.	ΔP	Ele.	ΔP
5CTZ1	1.87	5CTZX1	1.64	8CTZX1	1.00
5CTZ3	0.77	5CTZX3	0.96	8CTZX3	0.59
5CTZ5	0.72	5CTZX5	0.68	8CTZX5	0.41
5CTZ10	0.46	5CTZX10	0.46	8CTZX10	0.28
5CTZ25	0.19	5CTZX25	0.25	8CTZX25	0.15
14CTZX1	0.46	14CTZX3	0.27	14CTZX5	0.19
14CTZX10	0.13	14CTZX25	0.07		

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder CTF60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
CTF60						

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
CTF60	8	CTZ5		S20		D9

= CTF608CTZ5S20D9

BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Element Length (in.)	Element Part Number	Seal Material
CTF60	5	CTZ1 = 1 µ Excellement® Z-Media® (synthetic)	Omit = Buna N
	8	CTZ3 = 3 µ Excellement® Z-Media® (synthetic)	V = Viton®
	14	CTZ5 = 5 µ Excellement® Z-Media® (synthetic)	H = EPR
CTFN60 (Non-bypassing; requires ZX high collapse elements)		CTZ10 = 10 µ Excellement® Z-Media® (synthetic)	
		CTZ25 = 25 µ Excellement® Z-Media® (synthetic)	
		CTZX1 = 1 µ Excellement® Z-Media® (high collapse center tube)	
		CTZX3 = 3 µ Excellement® Z-Media® (high collapse center tube)	
		CTZX5 = 5 µ Excellement® Z-Media® (high collapse center tube)	
		CTZX10 = 10 µ Excellement® Z-Media® (high collapse center tube)	
		CTZX25 = 25 µ Excellement® Z-Media® (high collapse center tube)	

BOX 5
Inlet Port
P20 = 1/4" NPTF
S20 = SAE-20
F20 = 1/4" SAE 4-bolt flange Code 62
B20 = ISO 228 G-1/4"

BOX 6
Options
Omit = None
UU = Series 1215 7/16" UNF Schroeder Check Test Points installed in the filter head (upstream & downstream)
DR = Drain on bowl
30 = 30 psi bypass setting
40 = 40 psi bypass setting

BOX 7
Dirt Alarm® Options
Omit = None
Visual D9 = Visual pop-up
Electrical
MS5SS = Electrical w/ 12 in. 18 gauge 4-conductor cable
MS5SSLC = Low current MS5
MS10SS = Electrical w/ DIN connector (male end only)
MS10SSLC = Low current MS10
MS11SS = Electrical w/ 12 ft. 4-conductor wire
MS12SS = Electrical w/ 5 pin Brad Harrison connector (male end only)
MS12SSLC = Low current MS12
MS16SS = Electrical w/ weather-packed sealed connector
MS16SSLC = Low current MS16
MS17SSLC = Electrical w/ 4 pin Brad Harrison male connector
Electrical with Thermal Lockout
MS5SST = MS5 (see above) w/ thermal lockout
MS5SSLC = Low current MS5T
MS10SST = MS10 (see above) w/ thermal lockout
MS10SSLC = Low current MS10T
MS12SST = MS12 (see above) w/ thermal lockout
MS12SSLC = Low current MS12T
MS16SST = MS16 (see above) w/ thermal lockout
MS16SSLC = Low current MS16T
MS17SSLC = Low current MS17T
Electrical Visual
MS13DC = Supplied w/ threaded connector & light
MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end)
Electrical Visual with Thermal Lockout
MS13SSDCT = MS13 (see above), direct current, w/ thermal lockout
MS13SSDCLCT = Low current MS13DCT
MS14SSDCT = MS14 (see above), direct current, w/ thermal lockout
MS14SSDCLCT = Low current MS14DCT

NOTES:

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

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

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

Box 7. All Dirt Alarm® Indicators must be Stainless Steel. Standard indicator setting is 50 psi. For replacement indicators, contact the factory.

Top-Ported Pressure Filter

VF60



Features and Benefits

- Top-ported high pressure filter
- Threaded bowl for easy element servicing
- Offered in pipe, SAE straight thread and ISO 228 porting
- Various dirt alarm options available

70 gpm
265 L/min
6000 psi
415 bar

Model No. of filter in photograph is VF609VZ10SD5.

NF30
NFS30
YF30
CFX30
PLD
CF40
DF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
KF50
TF50
KC50

Flow Rating:	Up to 70 gpm (265 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (415 bar)
Min. Yield Pressure:	15,500 psi (1070 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	3300 psi (230 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 50 psi (3.5 bar) Full Flow: 65 psi (4.5 bar)
Porting Head:	Ductile Iron
Element Case:	Steel
Weight of VF60-9V:	24.0 lbs. (10.9 kg)
Element Change Clearance:	4.0" (103 mm)

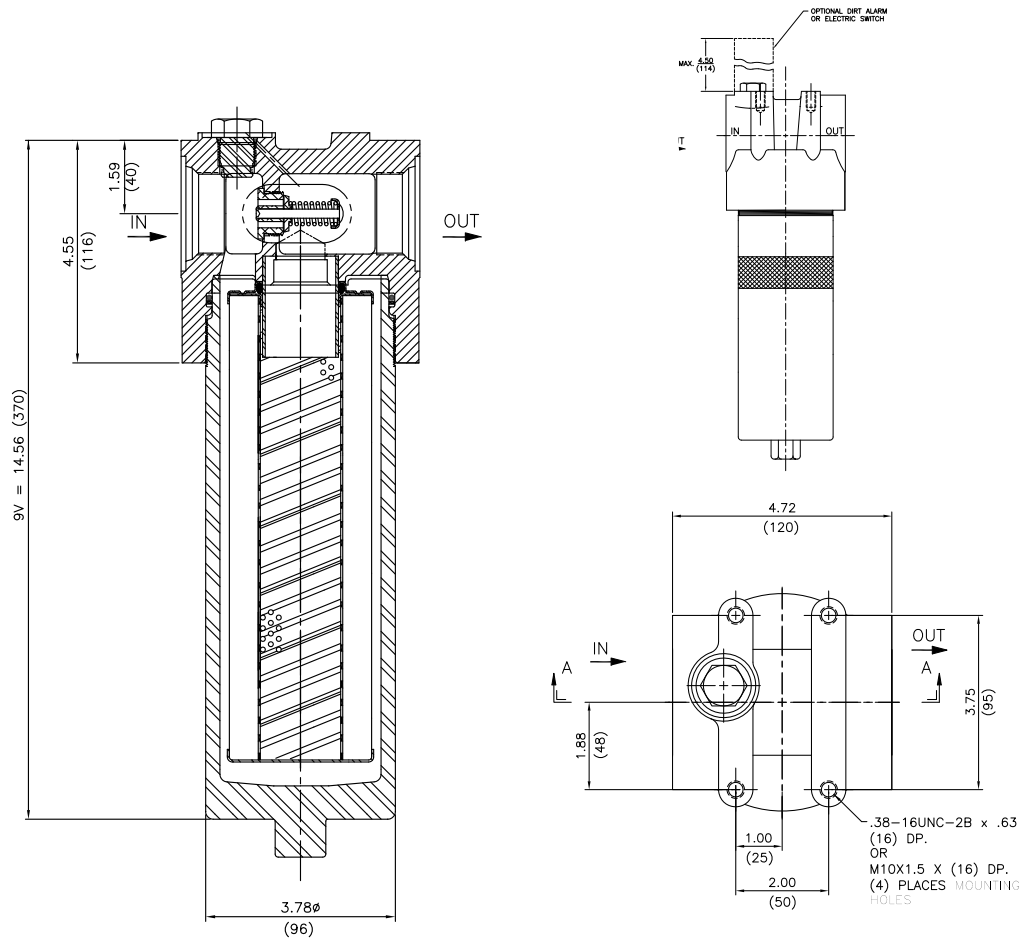
Filter Housing Specifications

MKF50
MKC50
KC65
MKC65
HS60
MHS60
KFH50
LC60
LC35
LC50

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E-Media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Fluid Compatibility

NOF30-05
NOF-50-760
FOF60-03
NMF30
RMF60
14-CRZX10
20-CRZX10



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(\alpha) \geq 200$	$\beta_x(\alpha) \geq 1000$
9VZ1	<1.0	<1.0	<1.0	<4.0	4.2
9VZ3	<1.0	<1.0	<2.0	<4.0	4.8
9VZ5	2.5	3.0	4.0	4.8	6.3
9VZ10	7.4	8.2	10.0	8.0	10.0
9VZ25	18.0	20.0	22.5	19.0	24.0

Element	DHC (gm)
9VZ1	55
9VZ3	57
9VZ5	62
9VZ10	60
9VZ25	61

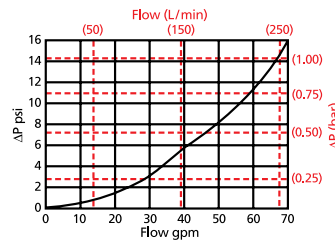
Element Collapse Rating: 150 psid (10 bar) for standard elements

Flow Direction: Outside In

Element Nominal Dimensions: 9V: 2.9" (75 mm) O.D. x 9.5" (240 mm) long

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

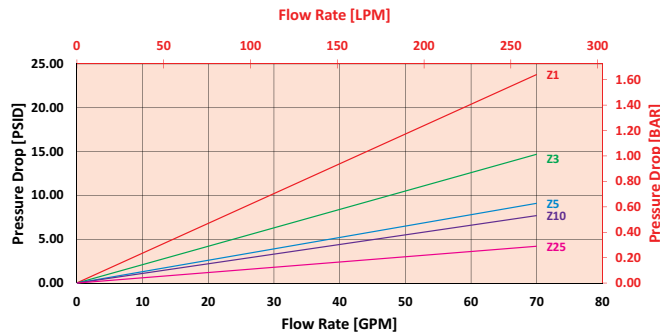
VF60 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

9VZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 40 gpm (151 L/min) for VF609VZ1S using 120 SUS (25.5 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 40 gpm. In this case, $\Delta P_{\text{housing}}$ is 6 psi (.42 bar) on the graph for the VF60 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 40 gpm. In this case, $\Delta P_{\text{element}}$ is 13 psi (.90 bar) according to the graph for the 9VZ1 element.

Because the viscosity in this sample is 120 SUS (25.5 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 6 \text{ psi } [.42 \text{ bar}] \mid \Delta P_{\text{element}} = 13 \text{ psi } [.90 \text{ bar}]$$

$$V_f = 120 \text{ SUS (25.5 cSt)} / 150 \text{ SUS (32 cSt)} = .80$$

$$\Delta P_{\text{filter}} = 6 \text{ psi} + (13 \text{ psi} * .80) = 16.4 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .42 \text{ bar} + (.90 \text{ bar} * .80) = 1.14 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:

If your element is not graphed, use the following equation:

$\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$. Plug this variable into the overall pressure drop equation.

Ele.	ΔP
9V3	0.32
9V10	0.24

Filter
Model
Number
Selection

How to Build a Valid Model Number for a Schroeder VF60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
VF60					

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6
VF60	9	VZ1		S	

= VF609VZ1S

BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Element Length (in)	Element Size and Media	Seal Material
VF60	9	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) VM150 = V size 150 µ M media (reusable metal)	Omit = Buna N V = Viton® H = EPR

BOX 5	BOX 6
Inlet Port	Dirt Alarm® Options
P = 1¼" NPTF	Omit = None
S = SAE-20	Visual D5 = Visual pop-up
B = ISO 228 G-1¼"	Visual with Thermal Lockout D8 = Visual w/ thermal lockout
	Electrical - MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable - MS5LC = Low current MS5 - MS10 = Electrical w/ DIN connector (male end only) - MS10LC = Low current MS10 - MS11 = Electrical w/ 12 ft. 4-conductor wire - MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) - MS12LC = Low current MS12 - MS16 = Electrical w/ weather-packed sealed connector - MS16LC = Low current MS16 - MS17LC = Electrical w/ 4 pin Brad Harrison male connector
	Electrical with Thermal Lockout - MS5T = MS5 (see above) w/ thermal lockout - MS5LCT = Low current MS5T - MS10T = MS10 (see above) w/ thermal lockout - MS10LCT = Low current MS10T - MS12T = MS12 (see above) w/ thermal lockout - MS12LCT = Low current MS12T - MS16T = MS16 (see above) w/ thermal lockout - MS16LCT = Low current MS16T - MS17LCT = Low current MS17T
	Electrical Visual - MS13DC = Supplied w/ threaded connector & light - MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end)
	Electrical Visual with Thermal Lockout - MS13DCT = MS13 (see above), direct current, w/ thermal lockout - MS13DCLCT = Low current MS13DCT - MS14DCT = MS14 (see above), direct current, w/ thermal lockout - MS14DCLCT = Low current MS14DCT

NOTES:

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

Box 2. Example: 9VZ1V synthetic media elements are only available with Viton seals.

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

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

High-Flow, High Pressure Filter

LW60

Features and Benefits

- Horizontal alignment allows straight-through flow, maximizing efficiency and minimizing pressure drop
- Proprietary synthetic media designed specifically for the mining industry. Excellement-MD™ provides level of filtration not achievable using alternative wire mesh elements because of their lack of absolute ratings
- Two-inch BSPP ports are easily adaptable to Super Stecko fittings commonly used underground
- Stainless steel bypass valve that ensures smooth integration with 95/5 fluid
- Non-bypassing version available with high crush (4500 psid) cleanable metal mesh (25 micron) element



Model No. of filter in photograph is LW6039ZPZ5VB32DPG.

300 gpm
1135 L/min
6000 psi
415 bar

NF30
 NFS30
 YF30
 CFX30
 PLD
 CF40
 DF40
 PF40
 RFS50
 RF60
 CF60
 CTF60
 VF60
LW60

KF30
 KF50
 TF50
 KC50

MKF50
 MKC50
 KC65

MKC65
 HS60
 MHS60

KFH50
 LC60
 LC35
 LC50

Filter Housing Specifications

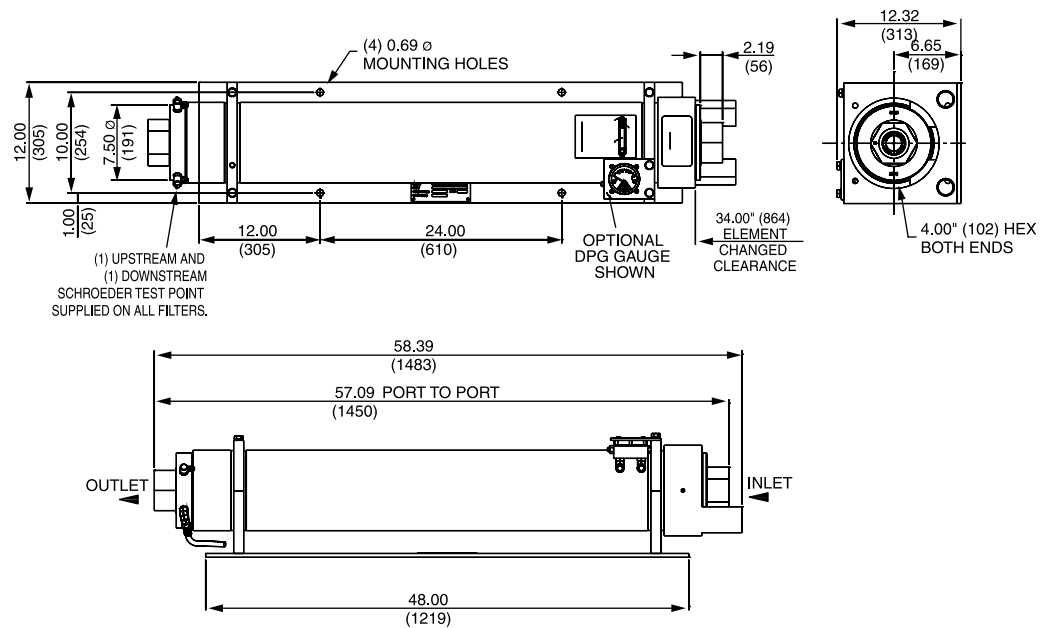
Flow Rating:	Up to 300 gpm (1135 L/min) for use with 95/5 fluids
Max. Operating Pressure:	6000 psi (414 bar)
Min. Yield Pressure:	18,000 psi (1240 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	4500 psi (310 bar), per NFPA T2.6.1
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 50 psi (3.4 bar) LWN60 non-bypassing model available with high crush element
Porting Cap:	Steel
Housing:	Steel
Weight:	550 lb. (250 kg)
Element Change Clearance:	34.0" (864 mm)

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
95/5 fluids	Specifically designed for use with 95/5 fluids applications

NOF30-05
 NOF-50-760
 FOF60-03
 NMF30
 RMF60
 14-CRZX10
 20-CRZX10

High-Flow, High Pressure Filter



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.

**Element
Performance
Information & Dirt
Holding Capacity**

	Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171
Element	$\beta_{x(d)} \geq 1000$
39ZPZ3V	5.1
39ZPZ5V	6.1
39ZPZ10V	12.1
39ZPZ25V	17.7

Element	DHC (gm)
39ZPZ3V	449
39ZPZ5V	359
39ZPZ10V	429
39ZPZ25V	284

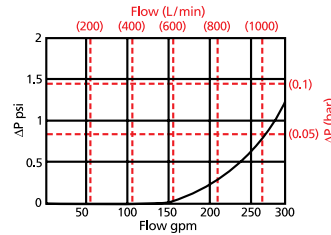
Element Collapse Rating: 150 psid (10 bar)

Flow Direction: Outside In

Element Nominal Dimensions: 5.0" (127 mm) O.D. x 38.0" (965 mm) long

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

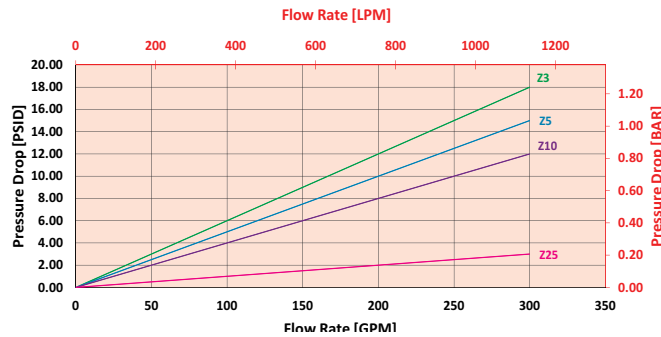
LW60 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

39ZPZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



Pressure Drop Information Based on Flow Rate and Viscosity

$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 200 gpm (757 L/min) for LW6039ZPZ3VB32DPG using 75 SUS (16 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 200 gpm. In this case, $\Delta P_{\text{housing}}$ is .25 psi (.02 bar) on the graph for the LW60 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 200 gpm. In this case, $\Delta P_{\text{element}}$ is 12 psi (.83 bar) according to the graph for the 39ZPZ3 element.

Because the viscosity in this sample is 75 SUS (16 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = .25 \text{ psi } [.02 \text{ bar}] \mid \Delta P_{\text{element}} = 12 \text{ psi } [.83 \text{ bar}]$$

$$V_f = 75 \text{ SUS (16 cSt)} / 150 \text{ SUS (32 cSt)} = .50$$

$$\Delta P_{\text{filter}} = .25 \text{ psi} + (12 \text{ psi} * .50) = 6.25 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .02 \text{ bar} + (.83 \text{ bar} * .50) = .44 \text{ bar}$$

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder LW60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
LW60				

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
LW60	39ZPZ3V	B32		DPG	= LW6039ZPZ3VB32DPG

BOX 1	BOX 2	BOX 3
Filter Series	Element Part Number	Porting
LW60	39ZPZ3V = 3 µ Excellement® Z-Media® (synthetic) 39ZPZ5V = 5 µ Excellement® Z-Media® (synthetic) 39ZPZ10V = 10 µ Excellement® Z-Media® (synthetic) 39ZPZ25V = 25 µ Excellement® Z-Media® (synthetic)	B32 = ISO 228 G-2" (2-11 BSPP)

BOX 4	BOX 5
Bypass Settings	Dirt Alarm® Options
Omit = 50 psi cracking 30 = 30 psi cracking	DPG = Differential pressure gauge

How to Build a Valid Model Number for a Schroeder LWN60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
LWN60				

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
LWN60	39ZPMX25V	B32		DPG	= LW6039ZPMX25VB32DPG

BOX 1	BOX 2	BOX 3
Filter Series	Element Part Number	Porting
LWN60 (Non-bypassing: requires MX high collapse elements)	39ZPMX25V = 25 µ Excellement® Z-Media® (high collapse center tube)	B32 = ISO 228 G-2" (2-11 BSPP)

BOX 4	BOX 5
Bypass Settings	Dirt Alarm® Options
Omit = Blocked	DPG = Differential pressure gauge

Base-Ported Pressure Filter

KF30/KF50



Features and Benefits

- Base-ported pressure filter
- Can be installed in vertical or horizontal position
- Meets HF4 automotive standard
- Element changeout from top minimizes oil spillage
- Offered in pipe, SAE straight thread, flanged and ISO 228 porting
- No-Element indicator option available
- Available with non-bypass option with high collapse element
- Integral inlet and outlet female test points option available
- Offered in conventional subplate porting
- Same day shipment model available
- Double and triple stacking of K-size elements can be replaced by single KK or 27K-size elements
- Available with quality-protected GeoSeal® Elements (GKF30/GKF50)

Model No. of filter in photograph is KF30/KF501K10SD.

100/150 gpm NF30
380/570 L/min NFS30

KF30- 3000 psi YF30
210 bar CFX30

KF50- 5000 psi PLD
345 bar CF40

DF40

PF40

RFS50

RF60

CF60

CTF60

VF60

LW60

KF30

KF50

TF50

KC50

MKF50

MKC50

KC65

MKC65

HS60

MHS60

KFH50

LC60

LC35

LC50

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids With 2" porting only, up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	KF30- 3000 psi (210 bar) KF50- 5000 psi (345 bar)
Min. Yield Pressure:	KF30- 12,000 psi (830 bar), per NFPA T2.6.1 KF50- 15,000 psi (1025 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	KF30- 2500 psi (170 bar), per NFPA T2.6.1-2005 KF50- 3500 psi (240 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 61 psi (4.2 bar) Non-bypassing model has a blocked bypass.
Porting Base & Cap:	Ductile Iron
Element Case:	Steel
Weight of KF30-1K:	48 lbs. (22 kg)
Weight of KF30-2K:	65 lbs. (30 kg)
Weight of KF30-3K:	81 lbs. (37 kg)
Weight of KF50-1K:	59.7 lbs. (27.1 kg)
Weight of KF50-2K:	80.7 lbs. (36.6 kg)
Weight of KF50-3K:	102.0 lbs. (46.3 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic), 10 µ ASP® Media
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic) and all ASP® Media
Phosphate Esters	All Z-Media® and ASP® Media (synthetic) with H (EPR) seal designation and 3 and 10 µ E media (cellulose) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media® (synthetic) and all ASP® Media (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

NOF30-05

NOF-50-760

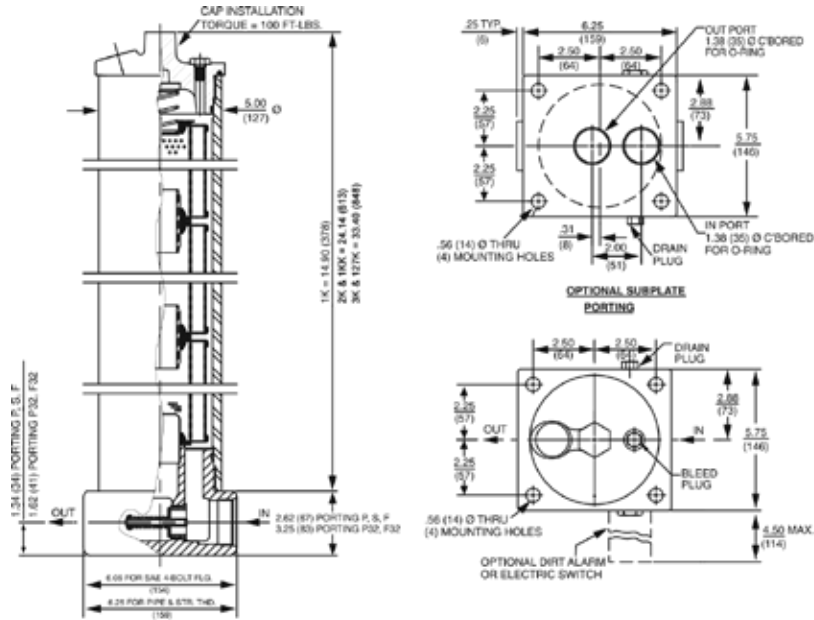
FOF60-03

NMF30

RMF60

14-CRZX10

20-CRZX10

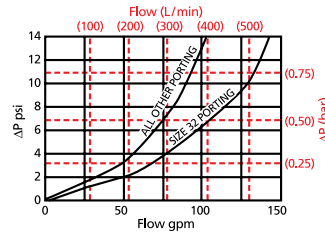


Base-Ported Pressure Filter

KF30/KF50

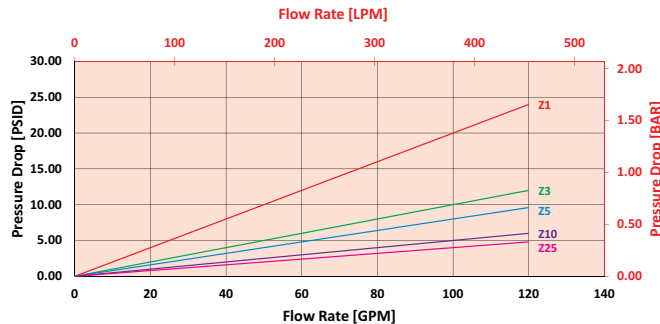
$\Delta P_{\text{housing}}$

KF30/KF50 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:

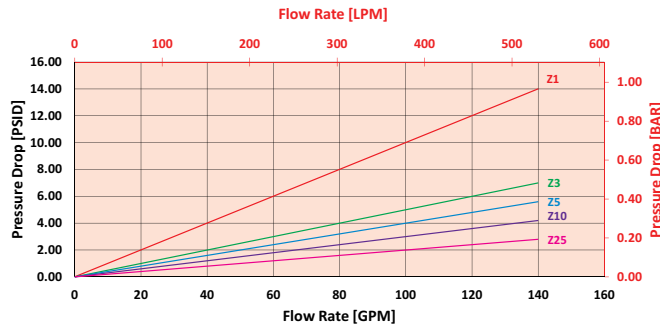


$\Delta P_{\text{element}}$

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



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



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 50 gpm (189.5 L/min) for KF301KZ10SD5 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 50 gpm. In this case, $\Delta P_{\text{housing}}$ is 3 psi (.21 bar) on the graph for the KF30 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 50 gpm. In this case, $\Delta P_{\text{element}}$ is 2.5 psi (.17 bar) according to the graph for the KZ10 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 3 \text{ psi } [.21 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 2.5 \text{ psi } [.17 \text{ bar}]$$

$$V_f = 160 \text{ SUS } (34 \text{ cSt}) / 150 \text{ SUS } (32 \text{ cSt}) = 1.1$$

$$\Delta P_{\text{filter}} = 3 \text{ psi } + (2.5 \text{ psi } * 1.1) = 5.8 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .21 \text{ bar } + (.17 \text{ bar } * 1.1) = .40 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:

If your element is not graphed, use the following equation:

$\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP	Ele.	ΔP	Ele.	ΔP
K3	0.25	2K3/ KK3	0.12	3K21/ 27K21	0.05
K10	0.09	2K10/ KK10	0.05	3K23/ 27K23	0.03
K25	0.02	2K25/ KK25	0.01	3K25/ 27K25	0.02
KAS3	0.10	2KAS3/ KKAS3	0.05	3K210/ 27K210	0.02
KAS5	0.08	2KAS5/ KKAS5	0.04	3K225/ 27K225	0.01
KAS10	0.05	2KAS10/ KKAS10	0.03	3K3	0.08
KZX10	0.22	2KZX10/ KKZX10	0.11	3K10	0.03
KZW1	0.43	2KZW1	-	3K25	0.01
KZW3	0.32	2KZW3/ KKZW3	0.16	3KAS3/ 27KAS3	0.03
KZW5	0.28	2KZW5/ KKZW5	0.14	3KAS5/ 27KAS5	0.02
KZW10	0.23	2KZW10/ KKZW10	0.12	3KAS10/ 27KAS10	0.02
KZW25	0.14	2KZW25/ KKZW25	0.07	3KAS25/ 27KAS25	0.07

Filter Model Number Selection

Highlighted product eligible for **QuickDelivery**

How to Build a Valid Model Number for a Schroeder KF30:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
KF30									

Example: NOTE: Only boxes 8 and 10 may contain more than one option

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
GKF30	KG	Z	10			S		D5	

= GKF30Z10SD5

BOX 1	BOX 2	BOX 3
Filter Series	Number & Size of Elements	Media Type
KF30 KFN30 (Non-bypassing: requires ZX high collapse elements)	1 = K, KK, 27K 2 = K 3 = K GeoSeal® Options 1 = KG, KKG, 27KKG 2 = KG 3 = KG	Omit = E Media (Cellulose) AS = Anti-Stat Media (synthetic) Z = Excellement® Z-Media® (synthetic) ZW = Aqua-Excellement® ZW Media ZX = Excellement® Z-Media® (High Collapse centertube) W = W Media (water removal) M = Media (reusable metal mesh) N size only
GKF30 (GeoSeal®) KF50 KFN50 (Non-bypassing: requires ZX high collapse elements) GKF50 (GeoSeal®)		

NOTES:

Box 2. Number of elements must equal 1 when using KK or 27K elements. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5. Double and triple stacking of K-size elements can be replaced by single KK and 27K elements, respectively. ZW media not available in 27K length. For standard elements, a plastic connector SAP P/N: 7630900(LF-1997) is used to connect two or three K elements. For high collapse, a steel connector is required SAP P/N: 7608360 (LF-3255C).

Box 5. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 7. For options F & F32, bolt depth .75" (19 mm).

For option O, O-rings included; hardware not included.

Box 8. X and 50 options are not available with KFN30 or KFN50.

Box 9. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.

Box 10. Options N, are not available with KFN30, KFN50. N option should be used in conjunction with dirt alarm.

BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
Micron Rating	Seal Material	Magnet Option	Porting	Options	Dirt Alarm® Options	Additional Options
1 = 1 Micron (Z, ZW, ZX media) 3 = 3 Micron (AS, E, Z, ZW, ZX media) 5 = 5 Micron (AS, Z, ZW, ZX media) 10 = 10 Micron (AS, E, M, Z, ZW, ZX media) 25 = 25 Micron (E, M, Z, ZW, ZX media) 60 = 60 Micron (M media) 150 = 150 Micron (M media) 260 = 260 Micron (M media)	Omit = Buna N V = Viton® H = EPR H.5 = Skydrol® compatibility	Omit = None M = Magnet inserts (not available w/ indicator in cap)	P = 1 1/2" NPTF P32 = 2" NPTF S = SAE-24 F = 1 1/2" SAE 4-bolt flange (KF30 Code 61) (KF50 Code 62) F32 = 2" SAE 4-bolt flange Code 61(KF30) *KF30 Only O = Subplate B24 = ISO 228 G-1 1/2"	Omit = None X = Blocked bypass 50 = 50 psi bypass setting L = Two 1/4" NPTF inlet & outlet female test ports U = Series 1215 1/16 UNF Schroeder Check Test Point installed in cap (upstream) UU = Series 1215 1/16 UNF Schroeder Check Test Point installed in block (upstream and downstream)	Omit = None D = Pointer D5 = Visual pop-up D5C = D5 in cap D9 = All stainless D5 D8 = Visual w/ thermal lockout D8C = D8 in cap MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male connector 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 MS = Cam operated switch w/ 1/2" conduit female connection MS13DC = Supplied w/ threaded connector & light MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end) 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	Omit = None N = No-Element Indicator (not available w/ KFN30/KFN50/GKF30/GKF50 or housings w/ indicator in cap) C = Electrical indicator in cap vs. in base standard G509 = Dirt Alarm and drain opposite standard G588 = Electric Switch and drain opposite standard

Base-Ported Pressure Filter

TF50



Features and Benefits

- Base-ported pressure filter
- Can be installed in vertical or horizontal position
- Element changeout from top minimizes oil spillage
- Offered in pipe, SAE straight thread, flanged and ISO 228 porting
- Available with non-bypass option with high collapse element
- Integral inlet and outlet female test points option available
- Offered in conventional subplate porting

Model No. of filter in photograph is TF502A10P.

40 gpm
150 L/min
5000 psi
345 bar

NF30
NFS30
YF30
CFX30
PLD
CF40
DF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
KF50
TF50

Flow Rating:	Up to 40 gpm (150 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,000 psi (1035 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	3500 psi (240 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 69 psi (4.8 bar) Non-bypassing model has a blocked bypass.
Porting Base:	Ductile Iron
Element Case & Cap:	Steel
Weight of TF50-1A:	24.4 lbs. (11.1 kg)
Weight of TF50-2A:	29.8 lbs. (13.5 kg)
Element Change Clearance:	8.50" (215 mm)

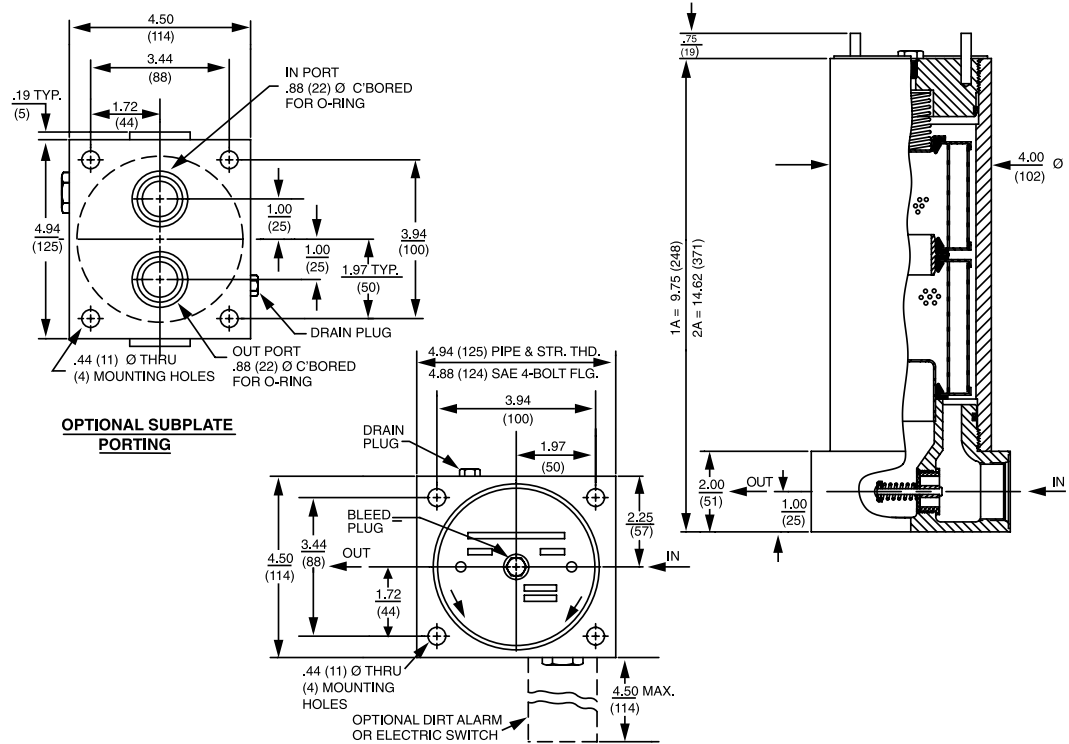
Filter Housing Specifications

KC50
MKF50
MKC50
KC65
MKC65
HS60
MHS60
KFH50
LC60
LC35
LC50

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Fluid Compatibility

NOF30-05
NOF-50-760
FOF60-03
NMF30
RMF60
14-CRZX10
20-CRZX10



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only.

For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
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
CCZX3	<1.0	<1.0	<2.0	4.7	5.8
CCZX10	7.4	8.2	10.0	8.0	10.0

Element	DHC (gm)
AZ1	25
AZ3	26
AZ5	30
AZ10	28
AZ25	28
CCZX3	26*
CCZX10	28*

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

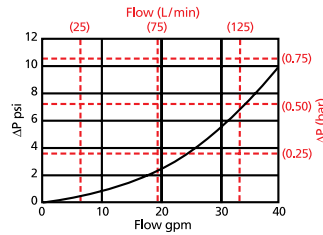
Flow Direction: Outside In

* Based on 100 psi terminal pressure

Element Nominal Dimensions: A: 3.0" (75 mm) O.D. x 4.5" (115 mm) long
CC: 3.0" (75 mm) O.D. x 9.5" (240 mm) long

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

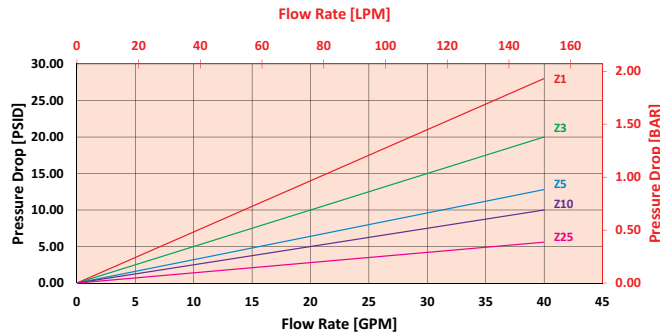
TF50 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

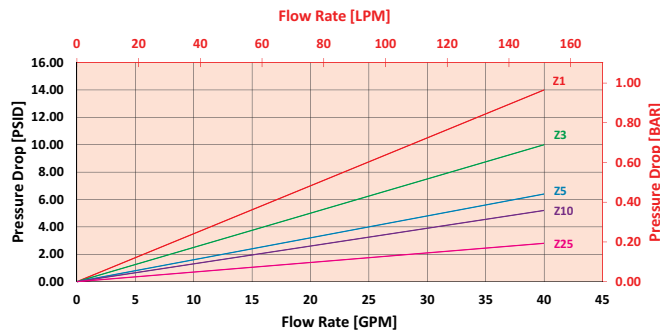
1AZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



2AZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 15 gpm (57 L/min) for TF501AZ10SD5 using 175 SUS (37.2 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 15 gpm. In this case, $\Delta P_{\text{housing}}$ is 1.8 psi (.12 bar) on the graph for the TF50 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 15 gpm. In this case, $\Delta P_{\text{element}}$ is 3.8 psi (.26 bar) according to the graph for the AZ10 element.

Because the viscosity in this sample is 175 SUS (37.2 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 1.8 \text{ psi } [.12 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 3.8 \text{ psi } [.26 \text{ bar}]$$

$$V_f = 175 \text{ SUS } (37.2 \text{ cSt}) / 150 \text{ SUS } (32 \text{ cSt}) = 1.2$$

$$\Delta P_{\text{filter}} = 1.8 \text{ psi} + (3.8 \text{ psi} * 1.2) = 6.4 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .12 \text{ bar} + (.26 \text{ bar} * 1.2) = .43 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:
If your element is not graphed, use the following equation:
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$. Plug this variable into the overall pressure drop equation.

Ele.	ΔP	Ele.	ΔP
A3	0.53	AA3	0.16
A10	0.36	AA10	0.18
A25	0.05	AA25	0.03
CCZX3	0.29		
CCZX10	0.26		

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder TF50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
TF50								

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
TF50	1	AZ5			S		D5	

= TF501AZ5SD5

BOX 1	BOX 2	BOX 3
Filter Series	Number	Media Type
TF50	1	AZ1 = 1 µm Excellement® Z-Media® (synthetic)
	2	AZ3 = 3 µm Excellement® Z-Media® (synthetic)
	(AZ elements only)	AZ5 = 5 µm Excellement® Z-Media® (synthetic)
TFN50		AZ10 = 10 µm Excellement® Z-Media® (synthetic)
(Non-bypassing: requires ZX high collapse elements)		AZ25 = 25 µm Excellement® Z-Media® (synthetic)
		CCZX1 = 1 µm Excellement® Z-Media® (high collapse center tube)
		CCZX3 = 3 µm Excellement® Z-Media® (high collapse center tube)
		CCZX10 = 10 µm Excellement® Z-Media® (high collapse center tube)

BOX 4	BOX 5	BOX 6
Seal Material	Magnet option	Porting
Omit = Buna N	Omit = None	P = 1" NPTF
V = Viton®	M = Magnet inserts (not available w/ indicator in cap or TFN50)	S = SAE-16
H = EPR		F = 1" SAE 4-bolt flange Code 61
H.5 = Skydrol® compatibility		O = Subplate
		B = ISO 228 G-1"

BOX 7	BOX 8
Options	Dirt Alarm® Options
Omit = None	None
X = Blocked bypass	Omit = None
25 = 25 psi bypass setting	D = Pointer
30 = 30 psi bypass setting	D5 = Visual pop-up
50 = 50 psi bypass setting	D5C = D5 in cap
60 = 60 psi bypass setting	D9 = All stainless D5
75 = 75 psi bypass setting	Visual
L = Two 1/4" NPTF inlet and outlet female test ports	D8 = Visual w/ thermal lockout
U = Series 1215 7/16 UNF Schroeder Check Test Point installation in cap (upstream)	D8C = D8 in cap
UU = Series 1215 7/16 UNF Schroeder Check Test Point installation in block (upstream and downstream)	Electrical
	MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable
	MS5LC = Low current MS5
	MS10 = Electrical w/ DIN connector (male end only)
	MS10LC = Low current MS10
	MS11 = Electrical w/ 12 ft. 4-conductor wire
	MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)
	MS12LC = Low current MS12
	MS16 = Electrical w/ weather-packed sealed connector
	MS16LC = Low current MS16
	MS17LC = Electrical w/ 4 pin Brad Harrison male connector
	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 with Thermal Lockout
	MS = Cam operated switch w/ 1/2" conduit female connection
	MS13 = Supplied w/ threaded connector & light
	MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end)
	Electrical Visual
	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
	Electrical Visual with Thermal Lockout
	MS13DCLCT = MS13 (see above), direct current, w/ thermal lockout
	MS14DCLCT = MS14 (see above), direct current, w/ thermal lockout

BOX 9
Additional Options
Omit = None
N = No-Element indicator (not available with TFN50)
G509 = Dirt alarm and drain opposite standard
G588 = Electrical switch and drain opposite standard

Base-Ported Pressure Filter

KC50



Features and Benefits

- Base-ported pressure filter
- Patented dirt-tolerant cap design
- Can be installed in vertical or horizontal position
- Meets HF4 automotive standard
- Element changeout from top minimizes oil spillage
- Offered in pipe, SAE straight thread, flanged and ISO 228 porting
- No-Element indicator option available
- Available with non-bypass option with high collapse element
- Integral inlet and outlet female test points option available
- Offered in conventional subplate porting
- Double and triple stacking of K-size elements can be replaced by single KK or 27K-size elements
- Available with quality-protected GeoSeal® Elements (GKC50)

Model No. of filter in photograph is KC501KZ10PD.

100/150 gpm NF30
380/570 L/min NFS30

5000 psi YF30
345 bar CFX30

PLD

CF40

DF40

PF40

RFS50

RF60

CF60

CTF60

VF60

LW60

KF30

KF50

TF50

Filter Housing Specifications

KC50

MKF50

MKC50

KC65

MKC65

HS60

MHS60

KFH50

LC60

LC35

LC50

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids With 2" porting only, up to 150 gpm (570 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,000 psi (1035 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	3500 psi (240 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Optional Cracking: 50 psi (3.5 bar) Full Flow: 61 psi (4.2 bar) Non-bypassing model has a blocked bypass.
Porting Base & Cap:	Ductile Iron
Element Case:	Steel
Weight of KF30-1K:	66.8 lbs. (30.3 kg)
Weight of KF30-2K:	87.8 lbs. (39.8 kg)
Weight of KF30-3K:	109.6 lbs. (49.7 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

Type Fluid Appropriate Schroeder Media

Petroleum Based Fluids	All E-Media (cellulose) and Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic), 10 µ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic), and all ASP® Media
Phosphate Esters	All Z-Media® and ASP® Media (synthetic) with H (EPR) seal designation and 3 and 10 µ E media (cellulose) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media® (synthetic), and all ASP® Media (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Fluid Compatibility

NOF30-05

NOF-50-760

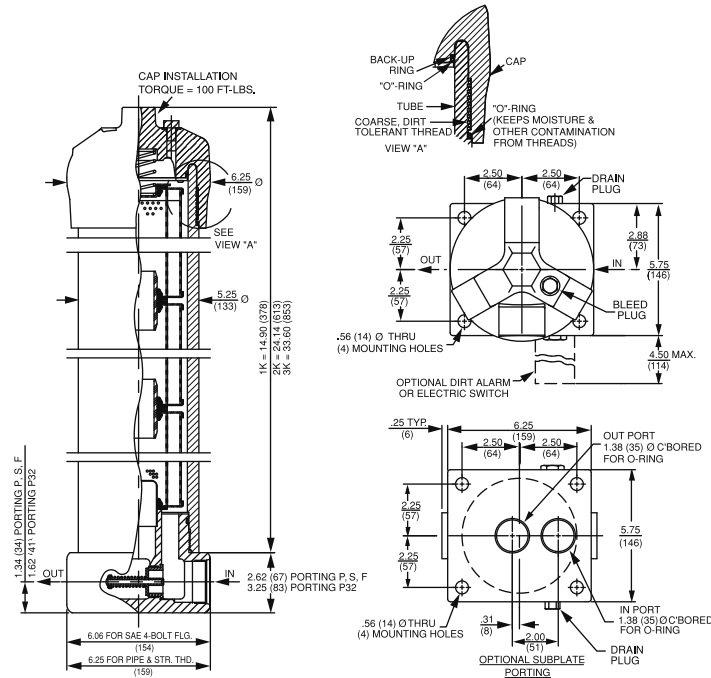
FOF60-03

NMF30

RMF60

14-CRZX10

20-CRZX10



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only.

For complete dimensions please contact Schroeder Industries to request a certified print.

**Element
Performance
Information & Dirt
Holding Capacity**

	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
KZ1/KKZ1/27KZ1	<1.0	<1.0	<1.0	<4.0	4.2
KZ3/KKZ3/27KZ3	<1.0	<1.0	<2.0	<4.0	4.8
KZ5/KKZ5/27KZ5	2.5	3.0	4.0	4.8	6.3
KZ10/KKZ10/27KZ10	7.4	8.2	10.0	8.0	10.0
KZ25/KKZ25/27KZ25	18.0	20.0	22.5	19.0	24.0
KZW1	N/A	N/A	N/A	<4.0	<4.0
KZW3/KKZW3	N/A	N/A	N/A	4.0	4.8
KZW5/KKZW5	N/A	N/A	N/A	5.1	6.4
KZW10/KKZW10	N/A	N/A	N/A	6.9	8.6
KZW25/KKZW25	N/A	N/A	N/A	15.4	18.5
KZX3/KKZX3/27KZX3	<1.0	<1.0	<2.0	4.7	5.8
KZX10/KKZX10/27KZX10	7.4	8.2	10.0	8.0	9.8

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
KZ1	112	KKZ1	224	27KZ1	336	KZW1	61
KZ3	115	KKZ3	230	27KZ3	345	KZW3	64
KZ5	119	KKZ5	238	27KZ5	357	KZW5	63
KZ10	108	KKZ10	216	27KZ10	324	KZW10	57
KZ25	93	KKZ25	186	27KZ25	279	KZW25	79
KZX3	81*	KKZX3	163*	27KZX3	249*	* Based on 100 psi terminal pressure	
KZX10	90*	KKZX10	182*	27KZX10	279*		

* Based on 100 psi terminal pressure

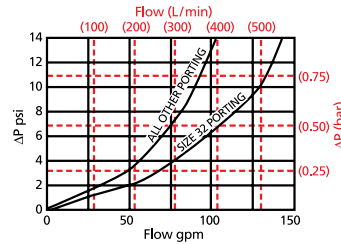
Element Collapse Rating: 150 psid (10 bar) for standard elements
3000 psid (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

Element Nominal Dimensions: K: 3.9" (99 mm) O.D. x 9.0" (230 mm) long
 KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long
 27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

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

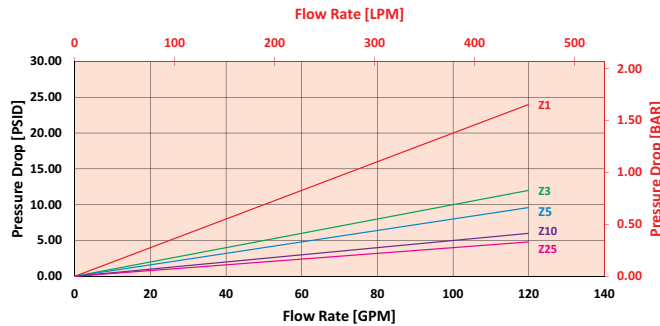
KC50 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

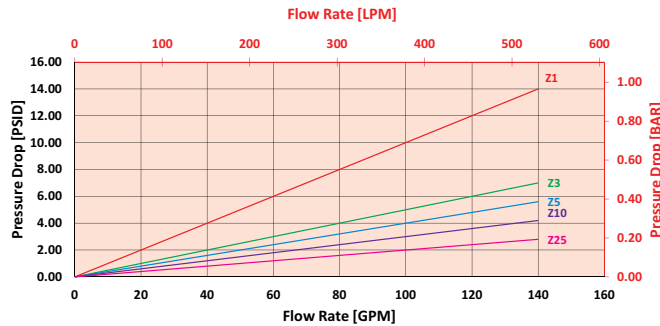
KZ/KGZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



2KZ/KKGZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 50 gpm (189.5 L/min) for KC501KZ10SD5 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 50 gpm. In this case, $\Delta P_{\text{housing}}$ is 3 psi (.21 bar) on the graph for the KC50 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 50 gpm. In this case, $\Delta P_{\text{element}}$ is 2.5 psi (.17 bar) according to the graph for the KZ10 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 3 \text{ psi } [.21 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 2.5 \text{ psi } [.17 \text{ bar}]$$

$$V_f = 160 \text{ SUS } (34 \text{ cSt}) / 150 \text{ SUS } (32 \text{ cSt}) = 1.1$$

$$\Delta P_{\text{filter}} = 3 \text{ psi } + (2.5 \text{ psi } * 1.1) = 5.8 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .21 \text{ bar } + (.17 \text{ bar } * 1.1) = .40 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:

If your element is not graphed, use the following equation:

$\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$. Plug this variable into the overall pressure drop equation.

Ele.	ΔP	Ele.	ΔP	Ele.	ΔP
K3	0.25	2K3/ KK3	0.12	3K21/ 27K21	0.05
K10	0.09	2K10/ KK10	0.05	3K23/ 27K23	0.03
K25	0.02	2K25/ KK25	0.01	3K25/ 27K25	0.02
KAS3	0.10	2KAS3/ KKAS3	0.05	3K210/ 27K210	0.02
KAS5	0.08	2KAS5/ KKAS5	0.04	3K225/ 27K225	0.01
KAS10	0.05	2KAS10/ KKAS10	0.03	3K3	0.08
KZX10	0.22	2KZX10/ KKZX10	0.11	3K10	0.03
KZW1	0.43	2KZW1	-	3K25	0.01
KZW3	0.32	2KZW3/ KKZW3	0.16	3KAS3/ 27KAS3	0.03
KZW5	0.28	2KZW5/ KKZW5	0.14	3KAS5/ 27KAS5	0.02
KZW10	0.23	2KZW10/ KKZW10	0.12	3KAS10/ 27KAS10	0.02
KZW25	0.14	2KZW25/ KKZW25	0.07	3KAS25/ 27KAS25	0.07

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder KC50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
KC50									

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
KC50	1K	Z	10			S		D5	

= KC501KZ10SD5

BOX 1	BOX 2	BOX 3
Filter Series	Number & Size of Elements	Media Type
KC50	1 K, KK, 27K	Omit = E Media (Cellulose) (KC50 only)
KCN50	2 K	AS = Anti-Stat Media (synthetic)
(Non-bypassing: requires ZX high collapse elements)	3 K	Z = Excellence® Z-Media® (synthetic)
	GeoSeal® Options	ZX = Excellence® Z-Media® (High Collapse centertube) (KCN50 Only)
	1 KG, KKG, 27KG	ZW = Aqua-Excellence ZW Media (KC50 Only)
	2 KG	W = W Media (water removal)
	3 KG	M = Media (reusable metal mesh) (KC50 & KCN50 Only)

GKC50
(GeoSeal®)

WKC50
(Water)

BOX 4	BOX 5	BOX 6	BOX 7
Micron Rating	Seal Material	Magnet Option	Porting
1 = 1 Micron (Z, ZW, ZX media)	Omit = Buna N	Omit = None	P = 1 1/2" NPTF
3 = 3 Micron (AS, E, Z, ZW, ZX media)	V = Viton®	M = Magnet inserts (not available w/ indicator in cap)	P32 = 2" NPTF
5 = 5 Micron (AS, Z, ZW, ZX media)	H = EPR		S = SAE-24
10 = 10 Micron (AS, E, M, Z, ZW, ZX media)	H.5 = Skydrol® compatibility		F = 1 1/2" SAE 4-bolt flange
25 = 25 Micron (E, M, Z, ZW, ZX media)			Code 62
60 = 60 Micron (M media)			O = Subplate
150 = 150 Micron (M media)			B24 = ISO 228
260 = 260 Micron (M media)			G-1 1/2"

BOX 8	BOX 9	BOX 10
Options	Dirt Alarm® Options	Additional Options
Omit = None	None	Omit = None
X = Blocked bypass	Omit = None	N = No-Element Indicator (not available w/ KCN50 or GKC50 housings w/ indicator in cap)
50 = 50 psi bypass setting	D = Pointer	G509 = Dirt Alarm and drain opposite standard
L = Two 1/4" NPTF inlet & outlet female test ports	D5 = Visual pop-up	G588 = Electric Switch and drain opposite standard
U = Series 1215 7/16 UNF Schroeder Check Test Point installed in cap (upstream)	D5C = D5 in cap	
UU = Series 1215 7/16 UNF Schroeder Check Test Point installed in block (upstream and downstream)	D9 = All stainless D5	
	D8 = Visual w/ thermal lockout	
	D8C = D8 in cap	
	MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable	
	MS5LC = Low current MS5	
	MS10 = Electrical w/ DIN connector (male end only)	
	MS10LC = Low current MS10	
	MS11 = Electrical w/ 12 ft. 4-conductor wire	
	MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only)	
	MS12LC = Low current MS12	
	MS16 = Electrical w/ weather-packed sealed connector	
	MS16LC = Low current MS16	
	MS17LC = Electrical w/ 4 pin Brad Harrison male connector	
	MS5T = MS5 (see above) w/ thermal lockout	
	MS5LC = Low current MS5T	
	MS10T = MS10 (see above) w/ thermal lockout	
	MS10LC = Low current MS10T	
	MS12T = MS12 (see above) w/ thermal lockout	
	MS12LC = Low current MS12T	
	MS16T = MS16 (see above) w/ thermal lockout	
	MS16LC = Low current MS16T	
	MS17LC = Low current MS17T	
	MS = Cam operated switch w/ 1/2" conduit female connection	
	MS13DC = Supplied w/ threaded connector & light	
	MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end)	
	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. Number of elements must equal 1 when using KK or 27K elements. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5. Double and triple stacking of K-size elements can be replaced by single KK and 27K elements, respectively. ZW media not available in 27K length. For standard elements, a plastic connector SAP P/N: 7630900 (LF-1997) is used to connect two or three K elements. For high collapse, a steel connector is required SAP P/N: 7608360 (LF-3255C).

Box 5. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

Box 7. For option F, bolt depth .75" (19 mm). For option O, O-rings included; hardware not included.

Box 8. X and 50 options are not available with KCN50.

Box 9. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.

Box 10. Option N, are not available with KCN50/ GKC50. N option should be used in conjunction with dirt alarm.

Base-Ported Pressure Filter

MKF50/ MKC50



Features and Benefits

- Base-ported high pressure dual filter manifold mounted
- Meets HF4 automotive standard
- Element changeout from top minimizes oil spillage
- Offered in pipe porting (contact factory for other porting options)
- No-Element indicator option available
- Available with non-bypass option with high collapse element
- Integral inlet and outlet female test points option available
- Double and triple stacking of K-size elements can be replaced by single KK or 27K-size elements
- Available with quality-protected GeoSeal® Elements (GMKF50)

200 gpm
760 L/min
5000 psi
345 bar

NF30
NFS30
YF30
CFX30
PLD
CF40
DF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
KF50
TF50
KC50
MKF50
MKC50
KC65
MKC65
HS60
MHS60
KFH50
LC60
LC35
LC50
NOF30-05
NOF-50-760
FOF60-03
NMF30
RMF60
14-CRZX10
20-CRZX10

Model No. of filter in photograph are MKF504K10PD5 and MKC504K10PD5.

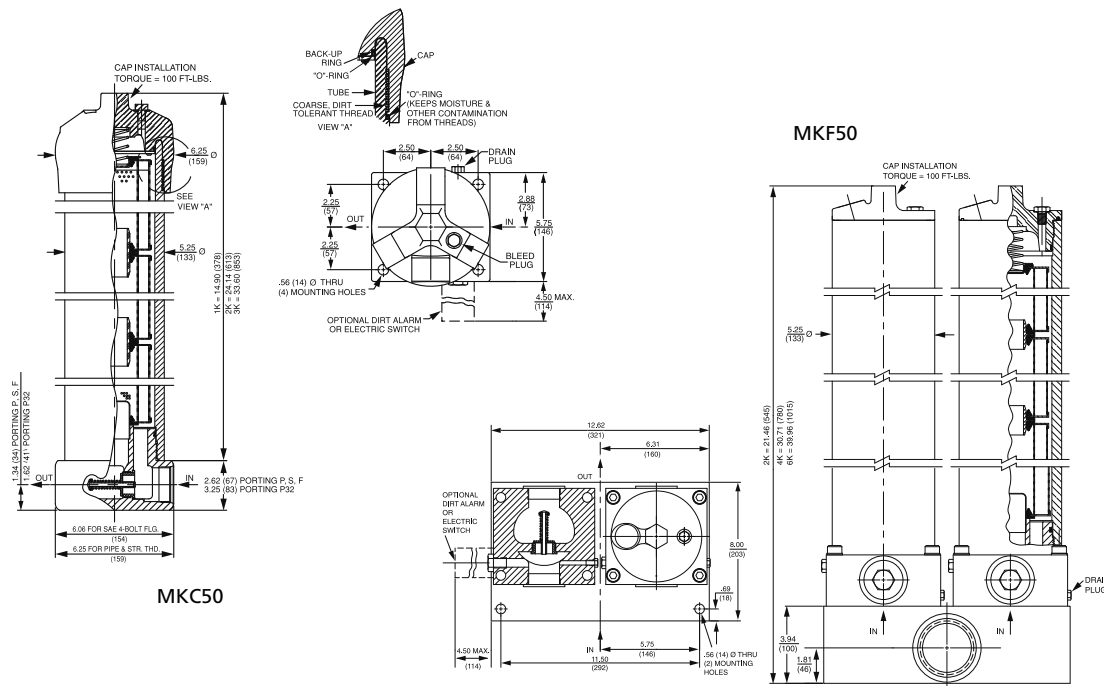
Flow Rating:	Up to 200 gpm (760 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,000 psi (1035 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	3500 psi (240 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Optional Cracking: 50 psi (3.5 bar) Full Flow: 61 psi (4.2 bar) Non-bypassing model has a blocked bypass.
Porting Base & Cap:	Ductile Iron
Element Case:	Steel
Weight of MKF50-2K:	214.0 lbs. (97.3 kg)
Weight of MKF50-4K:	243.0 lbs. (110.2 kg)
Weight of MKF50-6K:	284.4 lbs. (129.0 kg)
Weight of MKC50-2K:	216.0 lbs. (98.0 kg)
Weight of MKC50-4K:	245.0 lbs. (111.1 kg)
Weight of MKC50-6K:	286.4 lbs. (129.9 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

Filter Housing Specifications

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E-Media (cellulose) and Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic), 10 µ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic), and all ASP® Media
Phosphate Esters	All Z-Media® and ASP® Media (synthetic) with H (EPR) seal designation and 3 and 10 µ E media (cellulose) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media® (synthetic), and all ASP® Media (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Fluid Compatibility

Base-Ported Pressure Filter



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only.

For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
KZ1/KKZ1/27KZ1	<1.0	<1.0	<1.0	<4.0	4.2
KZ3/KKZ3/27KZ3	<1.0	<1.0	<2.0	<4.0	4.8
KZ5/KKZ5/27KZ5	2.5	3.0	4.0	4.8	6.3
KZ10/KKZ10/27KZ10	7.4	8.2	10.0	8.0	10.0
KZ25/KKZ25/27KZ25	18.0	20.0	22.5	19.0	24.0
KZW1	N/A	N/A	N/A	<4.0	<4.0
KZW3/KKZW3	N/A	N/A	N/A	4.0	4.8
KZW5/KKZW5	N/A	N/A	N/A	5.1	6.4
KZW10/KKZW10	N/A	N/A	N/A	6.9	8.6
KZW25/KKZW25	N/A	N/A	N/A	15.4	18.5
KZX3/KKZX3/27KZX3	<1.0	<1.0	<2.0	4.7	5.8
KZX10/KKZX10/27KZX10	7.4	8.2	10.0	8.0	9.8

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
KZ1	112	KKZ1	224	27KZ1	336	KZW1	61	KKZW1	122
KZ3	115	KKZ3	230	27KZ3	345	KZW3	64	KKZW3	128
KZ5	119	KKZ5	238	27KZ5	357	KZW5	63	KKZW5	126
KZ10	108	KKZ10	216	27KZ10	324	KZW10	57	KKZW10	114
KZ25	93	KKZ25	186	27KZ25	279	KZW25	79	KKZW25	158
KZX3	81*	KKZX3	163*	27KZX3	249*	* Based on 100 psi terminal pressure			
KZX10	90*	KKZX10	182*	27KZX10	279*				

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

Flow Direction: Outside In

Element Nominal Dimensions: K: 3.9" (99 mm) O.D. x 9.0" (230 mm) long
KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long
27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

Base-Ported Pressure Filter

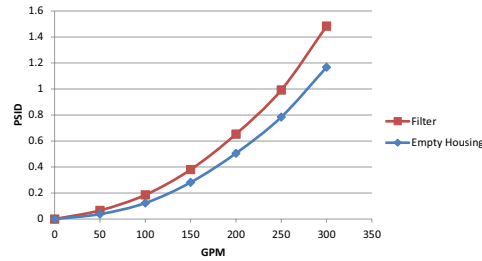
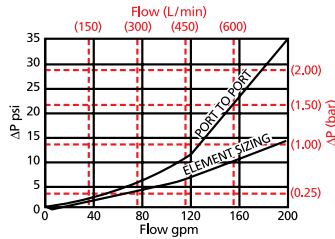
MKF50/ MKC50

Pressure Drop Information Based on Flow Rate and Viscosity

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

MKF50/MKC50 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:

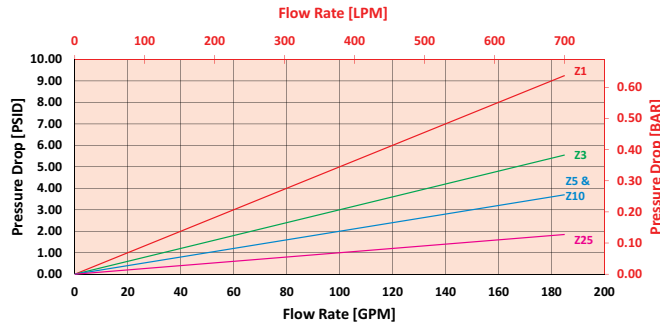
95-5 @ 40C



$\Delta P_{\text{element}}$

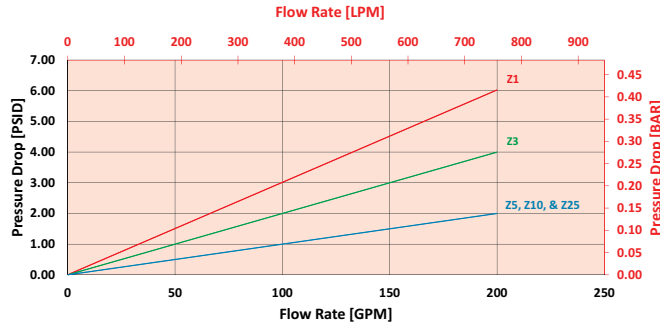
4KZ/2KZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



6KZ/2-27KZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 100 gpm (379 L/min) for MKF504KZ10PD5 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 100 gpm. In this case, $\Delta P_{\text{housing}}$ is 8 psi (.55 bar) on the graph for the MKF50 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 100 gpm. In this case, $\Delta P_{\text{element}}$ is 2 psi (.14 bar) according to the graph for the KZ10 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 8 \text{ psi } [.55 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 2 \text{ psi } [.14 \text{ bar}]$$

$$V_f = 160 \text{ SUS (34 cSt)} / 150 \text{ SUS (32 cSt)} = 1.1$$

$$\Delta P_{\text{filter}} = 8 \text{ psi} + (2 \text{ psi} * 1.1) = 10.2 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .55 \text{ bar} + (.14 \text{ bar} * 1.1) = .70 \text{ bar}$$

Note:

If your element is not graphed, use the following equation:

$\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP	Ele.	ΔP	Ele.	ΔP
2KZ1	0.10	2K3	0.12	4K3/ KK3	0.06
2KZ3	0.05	2K10	0.05	4K10/ KK10	0.02
2KZ5	0.04	2K25	0.01	4K25/ KK25	0.01
2KZ10	0.03	2KAS3	0.05	4KAS3/ KKAS3	0.03
2KZ25	0.02	2KAS5	0.04	4KAS5/ KKAS5	0.02
KZW1	0.43	2KAS10	0.03	4KAS10/ KKAS10	0.02
KZW3	0.32	2KZX10	0.11	4KZX10	0.06
KZX5	0.28	2KZW3	0.16	6KAS3/ 27KAS3	0.02
KZW10	0.23	2KZW5	0.14	6KAS5/ 27KAS5	0.01
KZW25	0.14	2KZW10	0.12	6KAS10/ 27KAS10	0.01
		2KZW25	0.07	6KZX10	0.04

Filter Model Number Selection

Base-Ported Pressure Filter

How to Build a Valid Model Number for a Schroeder MKF50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
MKF50								

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
MKF50	2K	Z	10		P		D5	

= MKF502KZ10PD5

BOX 1	BOX 2	BOX 3
Filter Series	Number & Size of Elements	Media Type
MKF50	2 K, KK, 27K	Omit = E Media (Cellulose) (MKF50 only)
MKFN50 (Non-bypassing: requires ZX high collapse elements)	4 K	AS = Anti-Stat Media (synthetic)
GMKF50 (GeoSeal®)	6 K	Z = Excellerment® Z-Media® (synthetic)
MKC50	GeoSeal® Options	ZX = Excellerment® Z-Media® (High Collapse centertube) (MKFN50 Only)
MKCN50 (Non-bypassing: requires ZX high collapse elements)	2 KG, KKG, 27KG	ZW = Aqua-Excellerment ZW Media (MKF50 Only)
WKC50 (Water)	4 KG	W = W Media (water removal)
	6 KG	M = Media (reusable metal mesh) (MKF50 & MKFN50 Only)

BOX 4	BOX 5	BOX 6	BOX 7
Micron Rating	Seal Material	Porting Option	Porting
1 = 1 Micron (DZ, Z, ZW, ZX media)	Omit = Buna N	P = 2½" NPTF	Omit = None
3 = 3 Micron (AS,DZ, E, Z, ZW, ZX media)	V = Viton®		X = Blocked bypass
5 = 5 Micron (AS, DZ, Z, ZW, ZX media)	H = EPR		50 = EPR
10 = 10 Micron (AS, DZ, E, M, Z, ZW, ZX media)	H.5 = Skydrol® compatibility		= Two ¼" NPTF inlet and outlet female test ports
25 = 25 Micron (E, DZ, M, Z, ZW, ZX media)			U = Series 1215 ¾ UNF Schroeder Check Test Point installed in cap (upstream)
60 = 60 Micron (M media)			
150 = 150 Micron (M media)			
260 = 260 Micron (M media)			

BOX 8	
Dirt Alarm® Options	
None	Omit = None
Visual	D = Pointer D5 = Visual pop-up D5C = D5 in cap D9 = All stainless D5
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout D8C = D8 in cap
Electrical	MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male connector
Electrical with Thermal Lockout	MS5T = MS5 (see above) w/ thermal lockout MS5LCT = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout MS12LCT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS17LCT = Low current MS17T
Electrical Visual	MS = Cam operated switch w/ ½" conduit female connection 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 9
Additional Options
Omit = None
N = No-Element Indicator (not available w/ MKFN30/ MKCN50 or housings w/ indicator in cap)

NOTES:

- Box 2. Number of elements must equal 2 when using KK or 27K elements. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5. Double and triple stacking of K-size elements can be replaced by single KK and 27K elements, respectively. ZW media not available in 27K length. For standard elements, a plastic connector SAP P/N: 7630900 (LF-1997) is used to connect two or three K elements. For high collapse, a steel connector is required SAP P/N: 7608360 (LF-3255C).
- Box 5. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.
- Box 7. 50 option is not available with MKFN50.
- Box 8. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.
- Box 9. N option should be used in conjunction with dirt alarm.

Base-Ported Pressure Filter

KC65



Features and Benefits

- Base-ported high pressure filter
- Patented dirt-tolerant cap design
- Can be installed in vertical or horizontal position
- Meets HF4 automotive standard
- Element changeout from top minimizes oil spillage
- Offered in flanged porting
- No-Element indicator option available
- Available with non-bypass option with high collapse element
- Integral inlet and outlet female test points option available
- Double and triple stacking of K-size element can be replaced by single KK or 27K-size element
- Available with quality-protected GeoSeal® Elements (GKC65)

100 gpm
380 L/min
6500 psi
450 bar

NF30

NFS30

YF30

CFX30

PLD

CF40

DF40

PF40

RFS50

RF60

CF60

CTF60

VF60

LW60

KF30

KF50

TF50

KC50

MKF50

MKC50

KC65

MKC65

HS60

MHS60

KFH50

LC60

LC35

LC50

Filter Housing Specifications

Flow Rating:	Up to 100 gpm (380 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6500 psi (450 bar)
Min. Yield Pressure:	19,500 psi (1345 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	5000 psi (345 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 75 psi (5.2 bar) Non-bypassing model has a blocked bypass.
Porting Base & Cap:	Ductile Iron
Element Case:	Steel
Weight of KC65-1K:	80 lbs. (36.3 kg)
Weight of KC65-2K:	102 lbs. (46.3 kg)
Weight of KC65-3K:	124 lbs. (56.3 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose) and Z-Media® (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic), 10 µ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic) and all ASP® Media (synthetic)
Phosphate Esters	All Z-Media® and ASP® Media (synthetic) with H (EPR) seal designation and 3 and 10 µ E media (cellulose) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media® (synthetic) and ASP® Media (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

NOF30-05

NOF-50-760

FOF60-03

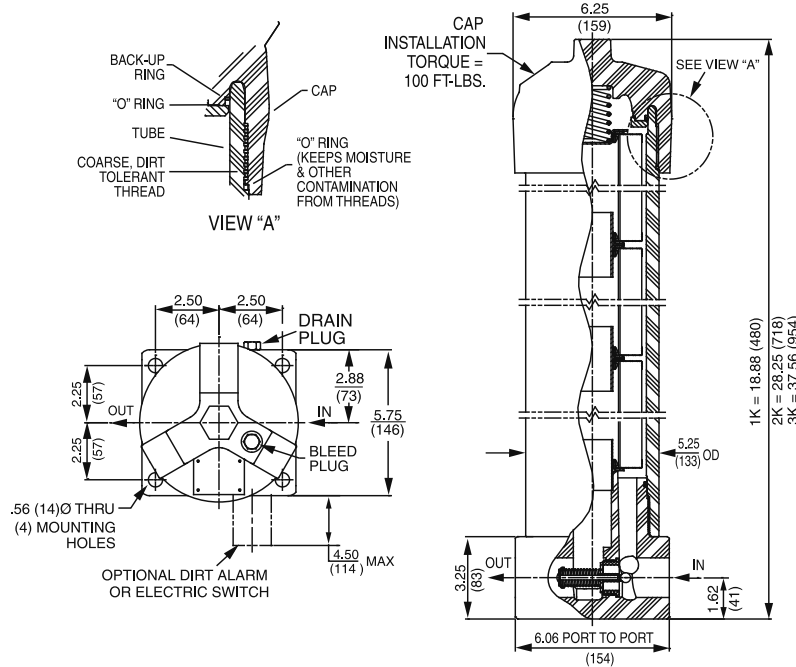
NMF30

RMF60

14-CRZX10

20-CRZX10

Model No. of filter in photograph is KC651K10FD9.



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only.

For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/ NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
KZ1/KKZ1/27KZ1	<1.0	<1.0	<1.0	<4.0	4.2
KZ3/KKZ3/27KZ3	<1.0	<1.0	<2.0	<4.0	4.8
KZ5/KKZ5/27KZ5	2.5	3.0	4.0	4.8	6.3
KZ10/KKZ10/27KZ10	7.4	8.2	10.0	8.0	10.0
KZ25/KKZ25/27KZ25	18.0	20.0	22.5	19.0	24.0
KZW1	N/A	N/A	N/A	<4.0	<4.0
KZW3/KKZW3	N/A	N/A	N/A	4.0	4.8
KZW5/KKZW5	N/A	N/A	N/A	5.1	6.4
KZW10/KKZW10	N/A	N/A	N/A	6.9	8.6
KZW25/KKZW25	N/A	N/A	N/A	15.4	18.5
KZX3/KKZX3/27KZX3	<1.0	<1.0	<2.0	4.7	5.8
KZX10/KKZX10/27KZX10	7.4	8.2	10.0	8.0	9.8

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
KZ1	112	KKZ1	224	27KZ1	336	KZW1	61		
KZ3	115	KKZ3	230	27KZ3	345	KZW3	64	KKZW3	128
KZ5	119	KKZ5	238	27KZ5	357	KZW5	63	KKZW5	126
KZ10	108	KKZ10	216	27KZ10	324	KZW10	57	KKZW10	114
KZ25	93	KKZ25	186	27KZ25	279	KZW25	79	KKZW25	158
KZX3	81*	KKZX3	163*	27KZX3	249*				
KZX10	90*	KKZX10	182*	27KZX10	279*				

* Based on 100 psi terminal pressure

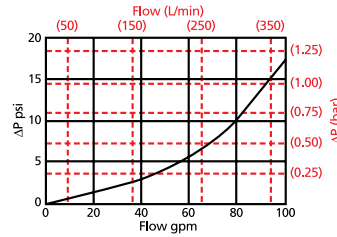
Element Collapse Rating: 150 psid (10 bar) for standard elements
3000 psid (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

Element Nominal Dimensions: K: 3.9" (99 mm) O.D. x 9.0" (230 mm) long
KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long
27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

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

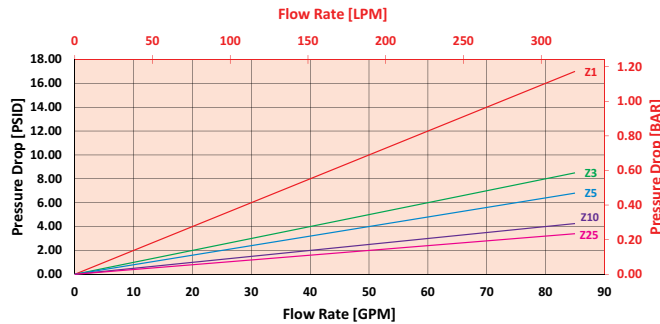
KC65 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

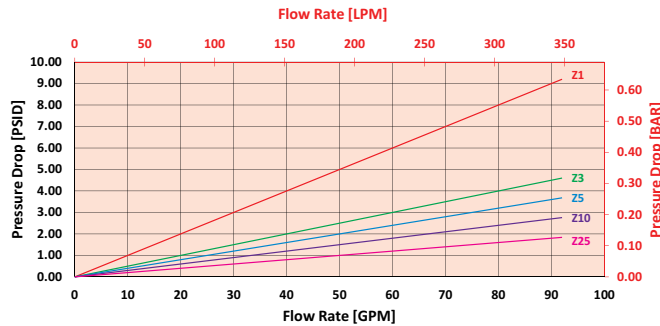
KZ/KGZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



2KZ/KKZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 50 gpm (189.5 L/min) for KC651KZ10FD9 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 50 gpm. In this case, $\Delta P_{\text{housing}}$ is 4 psi (.27 bar) on the graph for the KC65 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 50 gpm. In this case, $\Delta P_{\text{element}}$ is 2.5 psi (.17 bar) according to the graph for the KZ10 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, $(\Delta P_{\text{element}} * V_f)$. The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 4 \text{ psi [.27 bar]} \quad | \quad \Delta P_{\text{element}} = 2.5 \text{ psi [.17 bar]}$$

$$V_f = 160 \text{ SUS (34 cSt)} / 150 \text{ SUS (32 cSt)} = 1.1$$

$$\Delta P_{\text{filter}} = 4 \text{ psi} + (2.5 \text{ psi} * 1.1) = 6.8 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .27 \text{ bar} + (.17 \text{ bar} * 1.1) = .46 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:

If your element is not graphed, use the following equation:

$\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP	Ele.	ΔP	Ele.	ΔP
K3	0.25	2K3/KK3	0.12	3KZ1/27KZ1	0.05
K10	0.09	2K10/KK10	0.05	3KZ3/27KZ3	0.03
K25	0.02	2K25/KK25	0.01	3KZ5/27KZ5	0.02
KAS3	0.10	2KAS3/KKAS3	0.05	3KZ10/27KZ10	0.02
KAS5	0.08	2KAS5/KKAS5	0.04	3KZ25/27KZ25	0.01
KAS10	0.05	2KAS10/KKAS10	0.03	3K3	0.08
KZX10	0.22	2KZX10/KKZX10	0.11	3K10	0.03
KZW1	0.43	2KZW1	-	3K25	0.01
KZW3	0.32	2KZW3/KKZX3	0.16	3KAS3/27KAS3	0.03
KZW5	0.28	2KZW5/KKZX5	0.14	3KAS5/27KAS5	0.02
KZW10	0.23	2KZW10/KKZX10	0.12	3KAS10/27KAS10	0.02
KZW25	0.14	2KZW25/KKZX25	0.07	3KZ10/27KZ10	0.07

Filter Model Number Selection

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
KC65									

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
KC65	1K	Z	10			F		D5	

= KC651KZ10FED5

BOX 1	BOX 2	BOX 3
Filter Series	Number & Size of Elements	Media Type
KC65	1 K, KK, 27K	Omit = E Media (Cellulose)
KCN65 (Non-bypassing: requires ZX high collapse elements)	2 K	AS = Anti-Stat Media (synthetic)
GKC65 (GeoSeal®)	GeoSeal® Options	Z = Excellement® Z-Media® (synthetic)
	1 KG, KKG, 27KG	ZX = Excellement® Z-Media® (High Collapse centertube) (KCN65 Only)
	2 KG	ZW = Aqua-Excellement ZW Media (KC65 Only)
	3 KG	W = W Media (water removal)
		M = Media (reusable metal mesh) (KC65 & KCN65 Only)

NOTES:

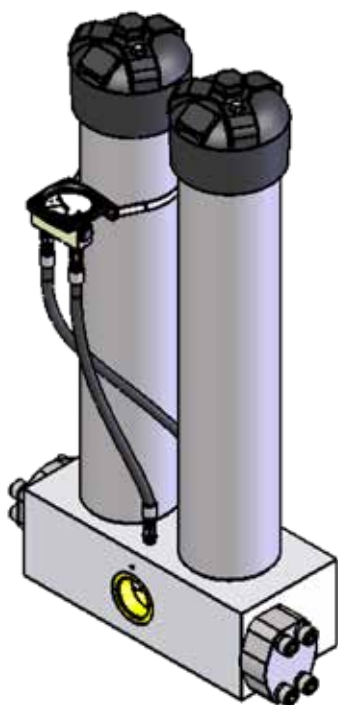
- Box 2. Number of elements must equal 1 when using KK or 27K elements. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5. Double and triple stacking of K-size elements can be replaced by single KK and 27K elements, respectively. ZW media not available in 27K length. For standard elements, a plastic connector SAP P/N: 7630900 (LF-1997) is used to connect two or three K elements. For high collapse, a steel connector is required SAP P/N: 7608360 (LF-3255C).
- Box 5. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.
- Box 7. For option F, bolt depth 1.12" (30 mm).
- Box 8. X and 50 options are not available with KCN65.
- Box 9. Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.
- Box 10. Option N is not available with KCN65. N option should be used in conjunction with dirt alarm.

BOX 4	BOX 5	BOX 6	BOX 7
Micron Rating	Seal Material	Magnet Option	Porting
1 = 1 Micron (Z, ZW, ZX media)	Omit = Buna N	Omit = None	F = 1 1/2" SAE 4-bolt flange Code 62
3 = 3 Micron (AS, E, Z, ZW, ZX media)	V = Viton®	M = Magnet inserts (not available w/ indicator in cap)	
5 = 5 Micron (AS, Z, ZW, ZX media)	H = EPR		
10 = 10 Micron (AS, E, M, Z, ZW, ZX media)	H.5 = Skydrol® compatibility		
25 = 25 Micron (E, M, Z, ZW, ZX media)			
60 = 60 Micron (M media)			
150 = 150 Micron (M media)			
260 = 260 Micron (M media)			

BOX 8	BOX 9	BOX 10
Options	Dirt Alarm® Options	Additional Options
Omit = None	None Omit = None	Omit = None
X = Blocked bypass	Visual D9 = All stainless D5	N = No-Element Indicator (not available w/ KFN65 or housings w/ indicator in cap)
50 = 50 psi bypass setting	MS55S = Electrical w/ 12 in. 18 gauge 4-conductor cable	G509 = Dirt Alarm and drain opposite standard
L = Two 1/4" NPTF inlet & outlet female test ports	MS55SLC = Low current MS5	
U = Series 1215 7/16 UNF Schroeder Check Test Point installed in cap (upstream)	MS10SS = Electrical w/ DIN connector (male end only)	
UU = Series 1215 7/16 UNF Schroeder Check Test Point installed in block (upstream and downstream)	MS10SSLC = Low current MS10	
	MS11SS = Electrical w/ 12 ft. 4-conductor wire	
	MS12SS = Electrical w/ 5 pin Brad Harrison connector (male end only)	
	MS12SSLC = Low current MS12	
	MS16SS = Electrical w/ weather-packed sealed connector	
	MS16SSLC = Low current MS16	
	MS17SSLC = Electrical w/ 4 pin Brad Harrison male connector	
	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	
	MS = Cam operated switch w/ 1/2" conduit female connection	
	MS13DC = Supplied w/ threaded connector & light	
	MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end)	
	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	

Base-Ported Pressure Filter

MKC65



Features and Benefits

- Base-ported high pressure dual filter manifold mounted
- Meets HF4 automotive standard
- Element changeout from top minimizes oil spillage
- Offered in pipe porting (contact factory for other porting options)
- No-Element indicator option available
- Available with non-bypass option with high collapse element
- Integral inlet and outlet female test points option available
- Double and triple stacking of K-size elements can be replaced by single KK or 27K-size elements

200 gpm NF30
760 L/min NFS30
300 gpm* YF30
1,136 L/min* CFX30
6000 psi PLD
413 bar CF40
 DF40
 PF40
 RFS50
 RF60
 CF60
 CTF60
 VF60
 LW60
 KF30
 KF50
 TF50
 KC50
 MKF50
 MKC50
 KC65
MKC65
 HS60
 MHS60
 KFH50
 LC60
 LC35
 LC50

Model No. of filter in photograph is MKC654K10BD5.

Flow Rating:	Up to 200 gpm (760 L/min) for 150 SUS (32 cSt) fluids Up to 300 gpm (1,136 L/min) for Water/Oil Emulsions
Max. Operating Pressure:	6000 psi (413 bar)
Min. Yield Pressure:	18,000 psi (1240 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	4500 psi (310 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) Optional Cracking: 50 psi (3.5 bar) Full Flow: 61 psi (4.2 bar) Non-bypassing model has a blocked bypass.
Porting Base & Cap:	Ductile Iron
Element Case:	Steel
Weight of MKC65-2K:	216.0 lbs. (98.0 kg)
Weight of MKC65-4K:	245.0 lbs. (111.1 kg)
Weight of MKC65-6K:	286.4 lbs. (129.9 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

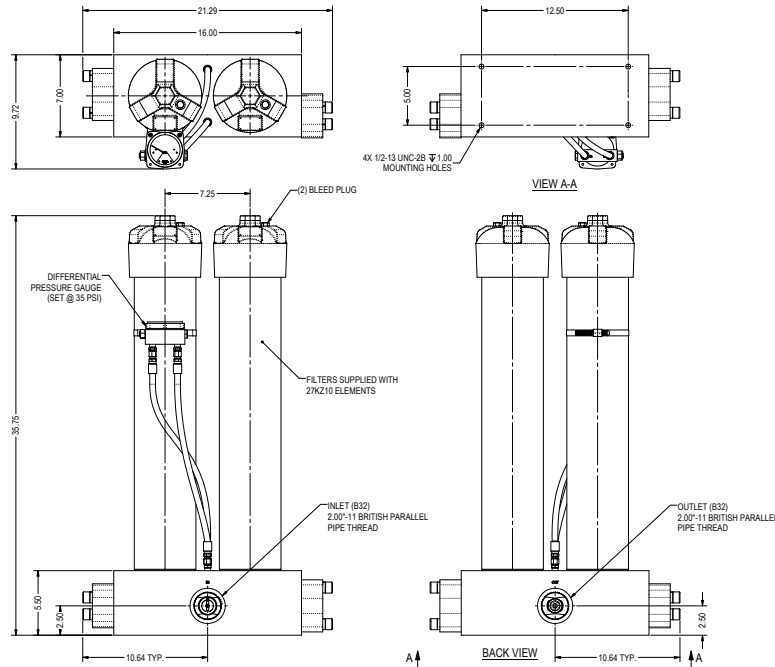
Filter Housing Specifications

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E-Media (cellulose) and Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic), 10 µ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic), and all ASP® Media
Phosphate Esters	All Z-Media® and ASP® Media (synthetic) with H (EPR) seal designation and 3 and 10 µ E media (cellulose) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media® (synthetic), and all ASP® Media (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Fluid Compatibility NOF30-05
 NOF-50-760
 FOF60-03
 NMF30
 RMF60
 14-CRZX10
 20-CRZX10

*Rated for Water/Oil Emulsions

SCHROEDER INDUSTRIES 119



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
KZ1/KKZ1/27KZ1	<1.0	<1.0	<1.0	<4.0	4.2
KZ3/KKZ3/27KZ3	<1.0	<1.0	<2.0	<4.0	4.8
KZ5/KKZ5/27KZ5	2.5	3.0	4.0	4.8	6.3
KZ10/KKZ10/27KZ10	7.4	8.2	10.0	8.0	10.0
KZ25/KKZ25/27KZ25	18.0	20.0	22.5	19.0	24.0
KZW1	N/A	N/A	N/A	<4.0	<4.0
KZW3/KKZW3	N/A	N/A	N/A	4.0	4.8
KZW5/KKZW5	N/A	N/A	N/A	5.1	6.4
KZW10/KKZW10	N/A	N/A	N/A	6.9	8.6
KZW25/KKZW25	N/A	N/A	N/A	15.4	18.5
KZX3/KKZX3/27KZX3	<1.0	<1.0	<2.0	4.7	5.8
KZX10/KKZX10/27KZX10	7.4	8.2	10.0	8.0	9.8

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
KZ1	112	KKZ1	224	27KZ1	336	KZW1	61	KKZW3	128
KZ3	115	KKZ3	230	27KZ3	345	KZW3	64	KKZW5	126
KZ5	119	KKZ5	238	27KZ5	357	KZW5	63	KKZW10	114
KZ10	108	KKZ10	216	27KZ10	324	KZW10	57	KKZW25	158
KZ25	93	KKZ25	186	27KZ25	279	KZW25	79		
KZX3	81*	KKZX3	163*	27KZX3	249*	* Based on 100 psi terminal pressure			
KZX10	90*	KKZX10	182*	27KZX10	279*				

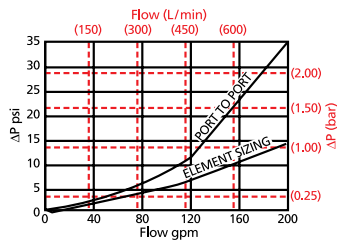
Element Collapse Rating: 150 psid (10 bar) for standard elements
3000 psid (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

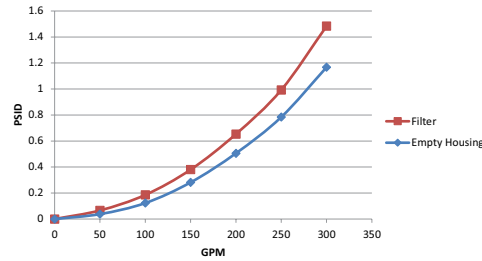
Element Nominal Dimensions: K: 3.9" (99 mm) O.D. x 9.0" (230 mm) long
KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long
27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

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

MKC65 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



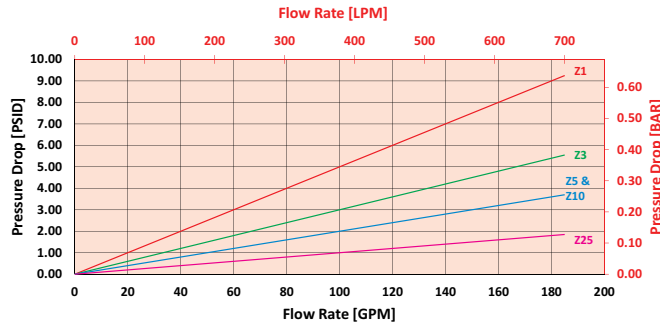
98-2 Water/Oil Emulsion A 40C



$\Delta P_{\text{element}}$

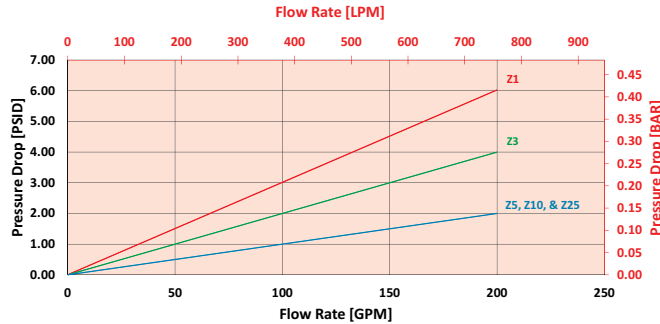
4KZ/2KZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



6KZ/2-27KZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 100 gpm (379 L/min) for MKC654KZ10PD5 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 100 gpm. In this case, $\Delta P_{\text{housing}}$ is 8 psi (.55 bar) on the graph for the MKC65 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 100 gpm. In this case, $\Delta P_{\text{element}}$ is 2 psi (.14 bar) according to the graph for the KZ10 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 8 \text{ psi } [.55 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 2 \text{ psi } [.14 \text{ bar}]$$

$$V_f = 160 \text{ SUS (34 cSt)} / 150 \text{ SUS (32 cSt)} = 1.1$$

$$\Delta P_{\text{filter}} = 8 \text{ psi} + (2 \text{ psi} * 1.1) = 10.2 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .55 \text{ bar} + (.14 \text{ bar} * 1.1) = .70 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:

If your element is not graphed, use the following equation:

$\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

Ele.	ΔP	Ele.	ΔP	Ele.	ΔP
2KZ1	0.10	2K3	0.12	4K3/KK3	0.06
2KZ3	0.05	2K10	0.05	4K10/KK10	0.02
2KZ5	0.04	2K25	0.01	4K25/KK25	0.01
2KZ10	0.03	2KAS3	0.05	4KAS3/KKAS3	0.03
2KZ25	0.02	2KAS5	0.04	4KAS5/KKAS5	0.02
KZW1	0.43	2KAS10	0.03	4KAS10/KKAS10	0.02
KZW3	0.32	2KZX10	0.11	4KZX10	0.06
KZX5	0.28	2KZW3	0.16	6KAS3/27KAS3	0.02
KZW10	0.23	2KZW5	0.14	6KAS5/27KAS5	0.01
KZW25	0.14	2KZW10	0.12	6KAS10/27KAS10	0.01
		2KZW25	0.07	6KZX10	0.04

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder MKC65:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
MKC65								

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9
MKC65	2K	Z	10		B		D5	

= MKC652KZ10BD5

BOX 1	BOX 2	BOX 3
Filter Series	Number & Size of Elements	Media Type
MKC65	2 K, KK, 27K 4 K 6 K GeoSeal® Options 2 KG, KK, 27KG 4 KG 6 KG	Omit = E Media (Cellulose) AS = Anti-Stat Media (synthetic) Z = Excellement® Z-Media® (synthetic) ZX = Excellement® Z-Media® (High Collapse centertube) ZW = Aqua-Excellement ZW Media W = W Media (water removal) M = Media (reusable metal mesh)

BOX 4	BOX 5	BOX 6	BOX 7
Micron Rating	Seal Material	Porting Option	Porting
1 = 1 Micron (DZ, Z, ZW, ZX media) 3 = 3 Micron (AS, DZ, E, Z, ZW, ZX media) 5 = 5 Micron (AS, DZ, Z, ZW, ZX media) 10 = 10 Micron (AS, DZ, E, M, Z, ZW, ZX media) 25 = 25 Micron (E, DZ, M, Z, ZW, ZX media) 60 = 60 Micron (M media) 150 = 150 Micron (M media) 260 = 260 Micron (M media)	Omit = Buna N V = Viton® H = EPR H.5 = Skydrol® compatibility	B = 2" BSP B = 2" BSP	Omit = None X = Blocked bypass 50 = EPR = Two ¼" NPTF inlet and outlet female test ports U = Series 1215 ⅜ UNF Schroeder Check Test Point installed in cap (upstream)

BOX 8
Dirt Alarm® Options
None Omit = None Visual D = Pointer D5 = Visual pop-up D5C = D5 in cap D9 = All stainless D5 DPG = Differential pressure gauge Visual with Thermal Lockout D8 = Visual w/ thermal lockout D8C = D8 in cap Electrical MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male connector MS5T = MS5 (see above) w/ thermal lockout MS5LCT = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout MS12LCT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS17LCT = Low current MS17T Electrical Visual MS = Cam operated switch w/ ½" conduit female connection MS13 = Supplied w/ threaded connector & light MS14 = Supplied w/ 5 pin Brad Harrison connector & light (male end) Electrical Visual with Thermal Lockout MS13DCT = MS13 (see above), direct current, w/ thermal lockout MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ thermal lockout MS14DCLCT = Low current MS14DCT

BOX 9
Additional Options
Omit = None N = No-Element Indicator

NOTES:

- Box 2.** Number of elements must equal 2 when using KK or 27K elements. Replacement element part numbers are identical to contents of Boxes 2, 3, 4 and 5. Double and triple stacking of K-size elements can be replaced by single KK and 27K elements, respectively. ZW media not available in 27K length. For standard elements, a plastic connector SAP P/N: 7630900 (LF-1997) is used to connect two or three K elements. For high collapse, a steel connector is required SAP P/N: 7608360 (LF-3255C).
- Box 5.** H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.
- Box 8.** Standard indicator setting for non-bypassing model is 50 psi unless otherwise specified.
- Box 9.** N option should be used in conjunction with dirt alarm.

Top-Ported Pressure Filter

HS60/ MHS60



Features and Benefits

- Full flow reverse flow check valve diverts flow past the element in hydrostatic applications
- Top-ported design capable of handling 100 gpm flow
- Offered in SAE straight thread and flange porting
- Thread on bowl with drain plug for easy element service
- 6000 psi cyclic
- Certified for Offshore Standard DNVGL-OS-D101 "Marine and Machinery Systems and Equipment"
- Contact factory for higher flow applications

120 gpm
450 L/min
6000 psi
415 bar

Model No. of filters in photograph are HS6013HZ3F24 and MHS6013HZ3F24.

Flow Rating:	Up to 100 gpm (380 L/min)
Max. Operating Pressure:	6000 psi (415 bar) only for flange ported models
Min. Yield Pressure:	Contact factory
Rated Fatigue Pressure:	6000 psi (415 bar) (only with 4-bolt flange porting)
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 87 psi (5.9 bar)
Porting Head:	Ductile Iron
Element Case:	Steel
Weight of HS60-13H:	75 lbs. (34.2 kg)
Weight of MHS60:	160 lbs. (72.6 kg)
Element Change Clearance:	4.0" (103 mm)

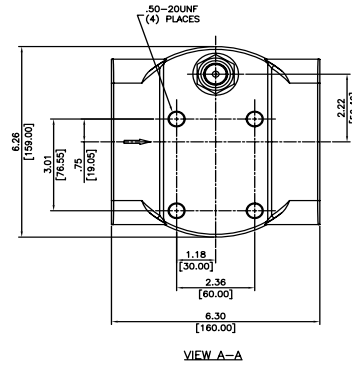
Filter Housing Specifications

Type Fluid	Appropriate Schroeder Media
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation

Fluid Compatibility

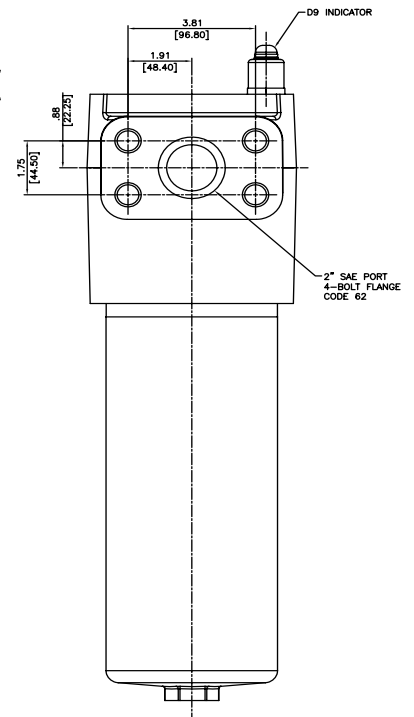
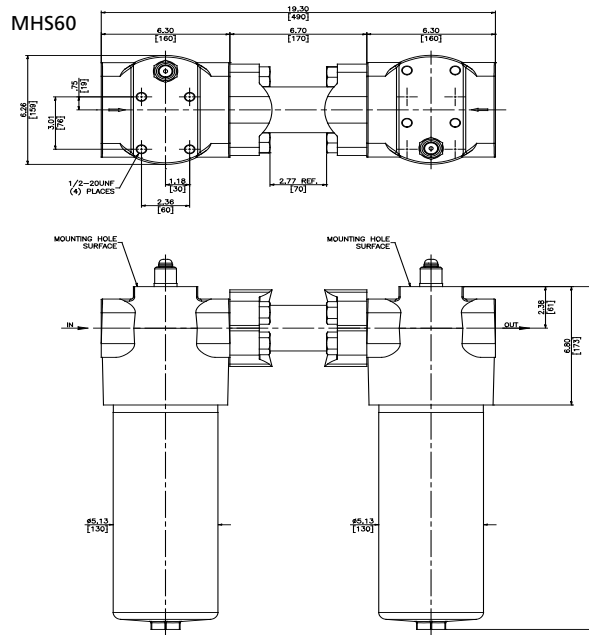
NF30
NFS30
YF30
CFX30
PLD
CF40
DF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
KF50
TF50
KC50
MKF50
MKC50
KC65
MKC65
HS60
MHS60
KFH50
LC60
LC35
LC50
NOF30-05
NOF-50-760
FOF60-03
NMF30
RMF60
14-CRZX10
20-CRZX10

HS60



VIEW A-A

MHS60



Metric dimensions in ().
Dimensions shown are inches (millimeters) for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
13HZ3/13HZX3	<1.0	<1.0	<2.0	<4.0	4.8
13HZ5/13HZX5	2.5	3.0	4.0	4.8	6.3
13HZ10/13HZX10	7.4	8.2	10.0	8.0	10.0
13HZ25/13HZX25	18.0	20.0	22.5	19.0	24.0

Element	DHC (gm)	Element	DHC (gm)
13HZ3	100.7	13HZX3	75.7
13HZ5	113.2	13HZX5	74.1
13HZ10	119.7	13HZX10	81.4
13HZ25	123.5	13HZX25	92.9

Element Collapse Rating: 290 psi (20 bar) for standard elements
3045 psi (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

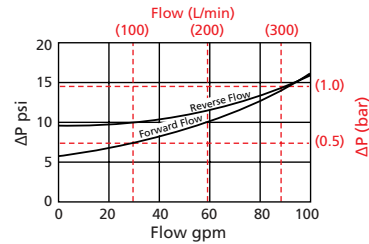
Element Nominal Dimensions: 13HZ : 3.5" (90 mm) O.D. x 13" (325 mm) long

Top-Ported Pressure Filter

HS60/ MHS60

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

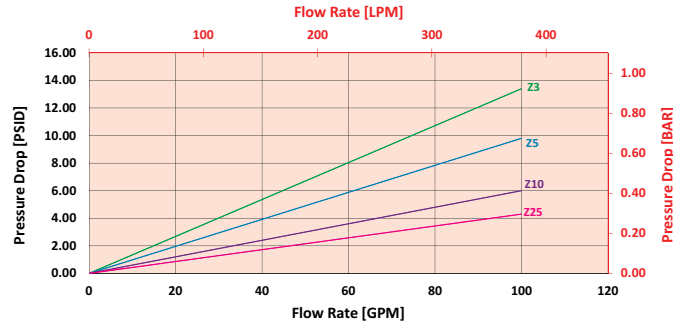
HS60/MHS60 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

13HZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 30 gpm (113.7 L/min) for HS6013HZ10S24D13 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 30 gpm. In this case, $\Delta P_{\text{housing}}$ is 7 psi (.48 bar) on the graph for the HS60 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 30 gpm. In this case, $\Delta P_{\text{element}}$ is 2 psi (.14 bar) according to the graph for the 13HZ10 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 7 \text{ psi } [.48 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 2 \text{ psi } [.14 \text{ bar}]$$

$$V_f = 160 \text{ SUS (34 cSt)} / 150 \text{ SUS (32 cSt)} = 1.1$$

$$\Delta P_{\text{filter}} = 7 \text{ psi} + (2 \text{ psi} * 1.1) = 9.2 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .48 \text{ bar} + (.14 \text{ bar} * 1.1) = .63 \text{ bar}$$

**Pressure
Drop
Information
Based on
Flow Rate
and Viscosity**

Note:
If your element is not graphed, use the following equation:
 $\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$. Plug this variable into the overall pressure drop equation.

Ele.	ΔP
13HZX3	0.176
13HZX5	0.104
13HZX10	0.054
13HZX25	0.048

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder HS60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
HS60				

Example: NOTE: One option per box

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
HS60	13HZ3		F24	D13	= HS6013HZ3F24D13

BOX 1	BOX 2	BOX 3
Filter Series	Element Part Number	Seal Material
HS60	13HZ3 = 3 µ Excellement® Z-Media® (synthetic)	Omit = Buna N
HSN60 (Non-bypassing: requires ZX high collapse elements)	13HZ5 = 5 µ Excellement® Z-Media® (synthetic)	V = Viton®
MHS60	13HZ10 = 10 µ Excellement® Z-Media® (synthetic)	H = EPR
MHSN60 (Non-bypassing: requires ZX high collapse elements)	13HZ25 = 25 µ Excellement® Z-Media® (synthetic)	
	13HZX3 = 3 µ Excellement® Z-Media® (high collapse center tube)	
	13HZX5 = 5 µ Excellement® Z-Media® (high collapse center tube)	
	13HZX10 = 10 µ Excellement® Z-Media® (high collapse center tube)	
	13HZX25 = 25 µ Excellement® Z-Media® (high collapse center tube)	

BOX 4	BOX 5
Porting Options	Dirt Alarm® Options
S24 = SAE-24	None Omit = None
F24 = 1½" SAE 4-bolt flange Code 62	Visual D13 = Visual pop-up
F32 = 2" SAE 4-bolt flange Code 62	Electrical - MS5SS = Electrical w/ 12 in. 18 gauge 4-conductor cable - MS5SSLC = Low current MS5 - MS10SS = Electrical w/ DIN connector (male end only) - MS10SSLC = Low current MS10 - MS11SS = Electrical w/ 12 ft. 4-conductor wire - MS12SS = Electrical w/ 5 pin Brad Harrison connector (male end only) - MS12SSLC = Low current MS12 - MS16SS = Electrical w/ weather-packed sealed connector - MS16SSLC = Low current MS16 - MS17SSLC = Electrical w/ 4 pin Brad Harrison male connector
	Electrical with Thermal Lockout - MS5SST = MS5 (see above) w/ thermal lockout - MS5SSLC = Low current MS5T - MS10SST = MS10 (see above) w/ thermal lockout - MS10SSLC = Low current MS10T - MS12SST = MS12 (see above) w/ thermal lockout - MS12SSLC = Low current MS12T - MS16SST = MS16 (see above) w/ thermal lockout - MS16SSLC = Low current MS16T - MS17SSLC = Low current MS17T
	Electrical Visual - MS13SS = Supplied w/ threaded connector & light - MS14SS = Supplied w/ 5 pin Brad Harrison connector & light (male end)
	Electrical Visual with Thermal Lockout - MS13SSDCT = MS13 (see above), direct current, w/ thermal lockout - MS13SSDCLCT = Low current MS13DCT - MS14SSDCT = MS14 (see above), direct current, w/ thermal lockout - MS14SSDCLCT = Low current MS14DCT

NOTES:

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

Box 3. Viton® is a registered trademark of DuPont Dow Elastomers.

Box 5. All Dirt Alarm® Indicators must be Stainless Steel. Standard indicator setting is 75 psi. For replacement indicators, contact the factory.

Hydrostatic Base-Ported Filter

KFH50



Features and Benefits

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

70 gpm
265 L/min
5000 psi
345 bar

Model No. of filter in photograph is KFH501K10SD5.

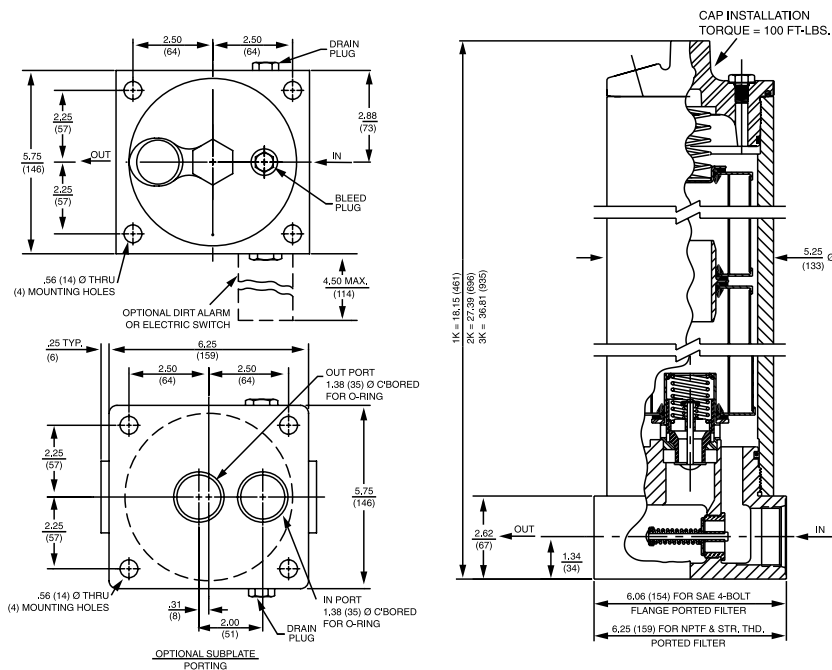
Flow Rating:	Up to 70 gpm (265 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,000 psi (1035 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	3500 psi (240 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Cracking: 40 psi (2.8 bar) Full Flow: 61 psi (4.2 bar)
Porting Base & Cap:	Ductile Iron
Element Case:	Steel
Weight of KFH50-1K:	60.0 lbs. (27.2 kg)
Weight of KFH50-2K:	80.3 lbs. (36.4 kg)
Weight of KFH50-3K:	100.5 lbs. (45.6 kg)
Element Change Clearance:	8.50" (215 mm) for 1K; 17.50" (445 mm) for KK; 26.5" (673 mm) for 27K

Filter Housing Specifications

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media® (synthetic)
Phosphate Esters	All Z-Media® (synthetic) with H (EPR) seal designation and 3 and 10 µ E media (cellulose) with H (EPR) seal designation
Skydrol®	3, 5, 10 and 25 µ Z-Media® (synthetic) with H.5 seal designation (EPR seals and stainless steel wire mesh in element, and light oil coating on housing exterior)

Fluid Compatibility

NF30
NFS30
YF30
CFX30
PLD
CF40
DF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
KF50
TF50
KC50
MKF50
MKC50
KC65
MKC65
HS60
MHS60
KFH50
LC60
LC35
LC50
NOF30-05
NOF-50-760
FOF60-03
NMF30
RMF60
14-CRZX10
20-CRZX10



Metric dimensions in ().
Dimensions shown are inches (millimeters) for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
KZ1/KKZ1/27KZ1	<1.0	<1.0	<1.0	<4.0	4.2
KZ3/KKZ3/27KZ3	<1.0	<1.0	<2.0	<4.0	4.8
KZ5/KKZ5/27KZ5	2.5	3.0	4.0	4.8	6.3
KZ10/KKZ10/27KZ10	7.4	8.2	10.0	8.0	10.0
KZ25/KKZ25/27KZ25	18.0	20.0	22.5	19.0	24.0
KZW1	N/A	N/A	N/A	<4.0	<4.0
KZW3/KKZW3	N/A	N/A	N/A	4.0	4.8
KZW5/KKZW5	N/A	N/A	N/A	5.1	6.4
KZW10/KKZW10	N/A	N/A	N/A	6.9	8.6
KZW25/KKZW25	N/A	N/A	N/A	15.4	18.5
KZX3/KKZX3/27KZX3	<1.0	<1.0	<2.0	4.7	5.8
KZX10/KKZX10/27KZX10	7.4	8.2	10.0	8.0	9.8

Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)	Element	DHC (gm)
KZ1	112	KKZ1	224	27KZ1	336	KZW1	61		
KZ3	115	KKZ3	230	27KZ3	345	KZW3	64	KKZW3	128
KZ5	119	KKZ5	238	27KZ5	357	KZW5	63	KKZW5	126
KZ10	108	KKZ10	216	27KZ10	324	KZW10	57	KKZW10	114
KZ25	93	KKZ25	186	27KZ25	279	KZW25	79	KKZW25	158
KZX3	81*	KKZX3	163*	27KZX3	249*				
KZX10	90*	KKZX10	182*	27KZX10	279*				

* Based on 100 psi terminal pressure

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

Flow Direction: Outside In

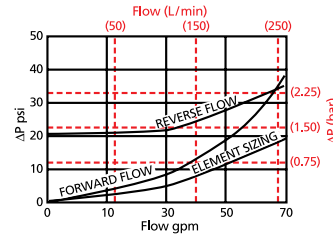
Element Nominal Dimensions: K: 3.9" (99 mm) O.D. x 9.0" (230 mm) long
KK: 3.9" (99 mm) O.D. x 18.0" (460 mm) long
27K: 3.9" (99 mm) O.D. x 27.0" (690 mm) long

Hydrostatic Base-Ported Filter

KFH50

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

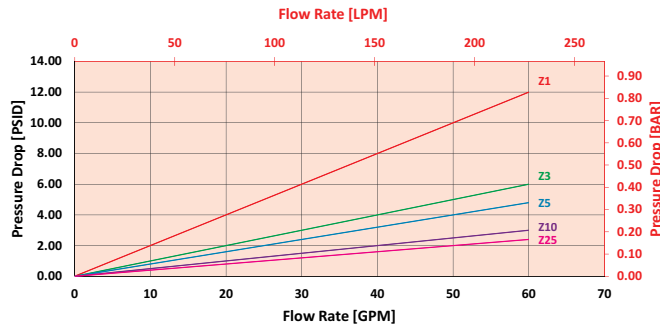
KFH50 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

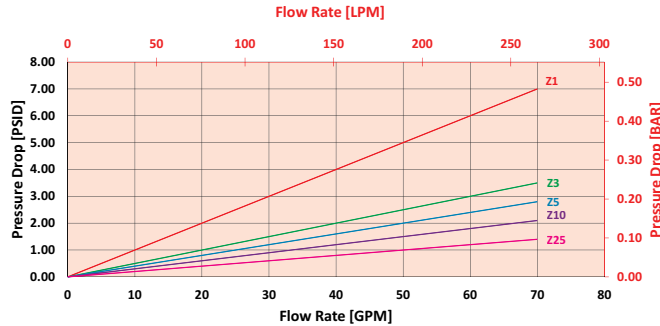
KZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



2KZ/KKZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 30 gpm (113.7 L/min) for KFH501KZ10SD5 using 160 SUS (34 cSt) fluid.

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

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 30 gpm. In this case, $\Delta P_{\text{element}}$ is 1.5 psi (.10 bar) according to the graph for the KZ10 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 9 \text{ psi } [.62 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 1.5 \text{ psi } [.10 \text{ bar}]$$

$$V_f = 160 \text{ SUS } (34 \text{ cSt}) / 150 \text{ SUS } (32 \text{ cSt}) = 1.1$$

$$\Delta P_{\text{filter}} = 9 \text{ psi } + (1.5 \text{ psi } * 1.1) = 10.7 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .62 \text{ bar } + (.10 \text{ bar } * 1.1) = .73 \text{ bar}$$

Pressure Drop Information Based on Flow Rate and Viscosity

Note:

If your element is not graphed, use the following equation:

$\Delta P_{\text{element}} = \text{Flow Rate} \times \Delta P_f$ Plug this variable into the overall pressure drop equation.

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

Filter
Model
Number
Selection

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
KFH50							

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

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
KFH50	1	KZ5		S		D5	G509

= KFH501KZ5SD5G509

BOX 1	BOX 2	BOX 3			BOX 4
Filter Series	Number of Elements	Element Part Number			Seal Material
KFH50	1	K	KK	27K	Omit = Buna N V = Viton® H = EPR H.5 = Skydrol® compatibility
	2	Length	Length	Length	
	3	K3	KK3	27K3 = 3 μ E media (cellulose)	
	K10	KK10	27K10 = 10 μ E media (cellulose)		
	K25		27K10 = 25 μ E media (cellulose)		
	KZ1	KKZ1	27KZ1 = 1 μ Excellement® Z-Media® (synthetic)		
	KZ3	KKZ3	27KZ3 = 3 μ Excellement® Z-Media® (synthetic)		
	KZ5	KKZ5	27KZ5 = 5 μ Excellement® Z-Media® (synthetic)		
	KZ10	KKZ10	27KZ10 = 10 μ Excellement® Z-Media® (synthetic)		
	KZ25	KKZ25	27KZ25 = 25 μ Excellement® Z-Media® (synthetic)		
	KZW1		= 1 μ Aqua-Excellement™ ZW media		
	KZW3	KKZW3	= 3 μ Aqua-Excellement™ ZW media		
	KZW5	KKZW5	= 5 μ Aqua-Excellement™ ZW media		
	KZW10	KKZW10	= 10 μ Aqua-Excellement™ ZW media		
	KZW25	KKZW25	= 25 μ Aqua-Excellement™ ZW media		
	KW	KKW	27KW = W media (water removal)		
KM10		= K size 10 μ M media (reusable metal)			
KM25		= K size 25 μ M media (reusable metal)			
KM60		= K size 60 μ M media (reusable metal)			
KM150		= K size 150 μ M media (reusable metal)			
KM260		= K size 260 μ M media (reusable metal)			

BOX 5
Porting
P = 1½" NPTF
S = SAE-24
F = 1½" SAE 4-bolt flange Code 62
O = Subplate
B = ISO 228 G-1½"

= 3 μ E media (cellulose)

= 10 μ E media (cellulose)

= 25 μ E media (cellulose)

= 1 μ Excellement® Z-Media® (synthetic)

= 3 μ Excellement® Z-Media® (synthetic)

= 5 μ Excellement® Z-Media® (synthetic)

= 10 μ Excellement® Z-Media® (synthetic)

= 25 μ Excellement® Z-Media® (synthetic)

= 1 μ Aqua-Excellement™ ZW media

= 3 μ Aqua-Excellement™ ZW media

= 5 μ Aqua-Excellement™ ZW media

= 10 μ Aqua-Excellement™ ZW media

= 25 μ Aqua-Excellement™ ZW media

= W media (water removal)

= K size 10 μ M media (reusable metal)

= K size 25 μ M media (reusable metal)

= K size 60 μ M media (reusable metal)

= K size 150 μ M media (reusable metal)

= K size 260 μ M media (reusable metal)

Omit = Buna N

V = Viton®

H = EPR

H.5 = Skydrol® compatibility

BOX 5

Porting

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

BOX 6

Options

Omit = None
L = Two ¼" NPTF inlet and outlet female test ports
U = Series 1215 7/16 UNF Schroeder Check Test Point installation in cap (upstream)
UU = Series 1215 7/16 UNF Schroeder Check Test Point installation in block (upstream and downstream)

BOX 7

Dirt Alarm® Options

None	Omit = None
Visual	D = Pointer D5 = Visual pop-up D5C = D5 in cap D9 = All stainless D5
Visual with Thermal Lockout	D8 = Visual w/ thermal lockout D8C = D8 in cap
Electrical	MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS5 MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male connector
Electrical with Thermal Lockout	MS5T = MS5 (see above) w/ thermal lockout MS5LCT = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout MS12LCT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS17LCT = Low current MS17T
Electrical Visual	MS = Cam operated switch w/ ½" conduit female connection MS13DC = Supplied w/ threaded connector & light MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end)
Electrical Visual with Thermal Lockout	MS13DCT = MS13 (see above), direct current, w/ thermal lockout MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ thermal lockout MS14DCLCT = Low current MS14DCT

BOX 8

Additional Options

Omit = None
G509 = Dirt alarm and drain opposite standard

NOTES:

Box 2. Number of elements must equal 1 when using KK or 27K elements.

Box 3. Replacement element part numbers are identical to contents of Boxes 3 and 4. Double and triple stacking of K-size elements can be replaced by single KK and 27K elements, respectively. ZW media not available in 27K length.

Box 4. H.5 seal designation includes the following: EPR seals, stainless steel wire mesh on elements, and light oil coating on housing exterior. Viton® is a registered trademark of DuPont Dow Elastomers. Skydrol® is a registered trademark of Solutia Inc.

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



Features and Benefits (LC60)

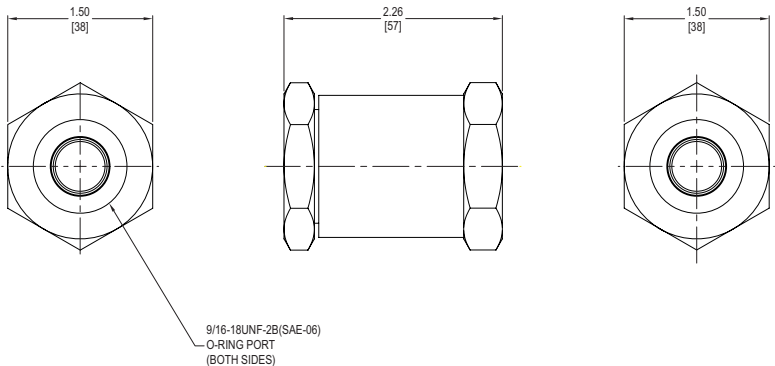
- Compact design allows for in-line installation.
- Small profile allows filter to be mounted in tight areas.
- Quick and easy cartridge element change outs.
- Durable, compact design.
- Uses 10 micron stainless steel wire mesh filtration.
- Perfect for pilot pressure circuits and pressure compensated pump protection.

Model No. of filter in photograph is LC601SSD10S.

Flow Rating:	Up to 8 gpm (30 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (414 bar)
Min. Yield Pressure:	18000 psi (1241 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	6000 psi (414 bar), per NFPA T2.6.1
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Porting Head:	Steel
Element Case:	Steel
Weight:	0.93 lbs. (0.42 kg)
Element Change Clearance:	2.50" (63.5 mm)
Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Stainless Steel Wire Mesh
Invert Emulsions	10 μ Stainless Steel Wire Mesh
Water Glycols	10 μ Stainless Steel Wire Mesh

Filter Housing Specifications

Fluid Compatibility



Metric dimensions in ().
Dimensions shown are inches (millimeters) for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.

8 gpm
30 L/min
6000 psi
415 bar

- NF30
- NFS30
- YF30
- CFX30
- PLD
- CF40
- DF40
- PF40
- RFS50
- RF60
- CF60
- CTF60
- VF60
- LW60
- KF30
- KF50
- TF50
- KC50
- MKF50
- MKC50
- KC65
- MKC65
- HS60
- MHS60
- KFH50
- LC60
- LC35
- LC50
- NOF30-05
- NOF-50-760
- FOF60-03
- NMF30
- RMF60
- 14-CRZX10
- 20-CRZX10

Element
Performance
Information & Dirt
Holding Capacity

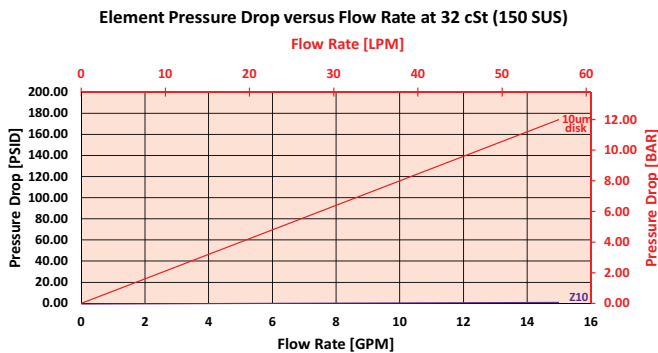
Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$

Please contact manufacture for more details

Pressure
Drop
Information
Based on
Flow Rate
and Viscosity

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

LC60 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



Filter
Model
Number
Selection

How to Build a Valid Model Number for a Schroeder LC60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
LC60				

Example:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
LC60	1	SSD10		S

= LC601SSD10S

BOX 1	BOX 2	BOX 3
Filter Series	Number of Elements	Element Part Number
LC60	1	SSD10 = 10 μ Stainless Steel Wire Mesh

BOX 4	BOX 5
Seal Material	Porting
Omit = Buna N	S = SAE-6

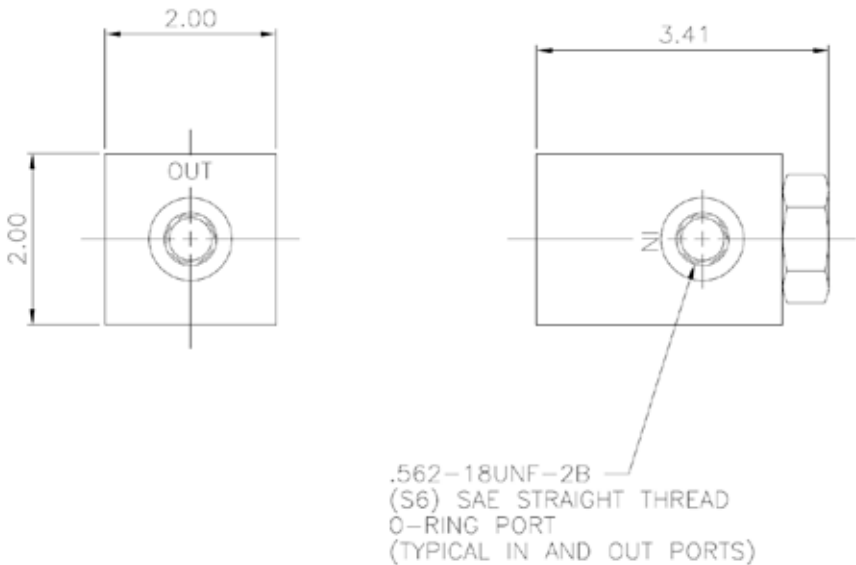


Features and Benefits (LC35)

- Compact design allows for in-line installation.
- Small profile allows filter to be mounted in tight areas.
- Quick and easy cartridge element change outs.
- Durable, compact design.
- Uses 10 or 40 micron Sintered Bronze filtration.
- Perfect for pilot pressure circuits and pressure compensated pump protection.

Model No. of filter in photograph is LC351B510S.

Flow Rating:	Up to 15 gpm (57 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3500 psi (241 bar)
Min. Yield Pressure:	10500 psi (724 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	2200 psi (152 bar), per NFPA T2.6.1
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Porting Head:	Steel
Element Case:	Steel
Weight:	1.32 lbs. (0.60 kg)
Element Change Clearance:	3.25" (82.6 mm)
Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Sintered Bronze
Invert Emulsions	10 and 40 μ Sintered Bronze
Water Glycols	10 and 40 μ Sintered Bronze



Metric dimensions in ().
Dimensions shown are inches (millimeters) for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.

15 gpm
57 L/min
3500 psi
241 bar

Filter Housing Specifications

Fluid Compatibility

- NF30
- NFS30
- YF30
- CFX30
- PLD
- CF40
- DF40
- PF40
- RFS50
- RF60
- CF60
- CTF60
- VF60
- LW60
- KF30
- KF50
- TF50
- KC50
- MKF50
- MKC50
- KC65
- MKC65
- HS60
- MHS60
- KFH50
- LC60
- LC35**
- LC50
- NOF30-05
- NOF-50-760
- FOF60-03
- NMF30
- RMF60
- 14-CRZX10
- 20-CRZX10

Element
Performance
Information & Dirt
Holding Capacity

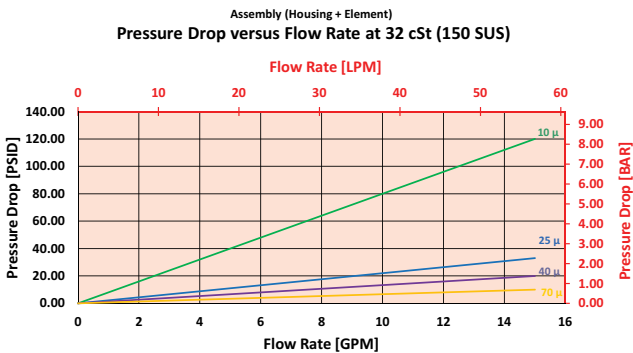
Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$

Please contact manufacturer for more details

Pressure
Drop
Information
Based on
Flow Rate
and Viscosity

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

LC35 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



Filter
Model
Number
Selection

How to Build a Valid Model Number for a Schroeder LC35:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
LC35				

Example:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
LC35	1	BS10		S

= LC351BS10S

BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Number of Elements	Element Part Number	Seal Material
LC35	1	BS10 = 10 μ Sintered Bronze BS25 = 25 μ Sintered Bronze BS40 = 40 μ Sintered Bronze BS70 = 70 μ Sintered Bronze	Omit = Buna N

BOX 5
Porting
S = SAE-6



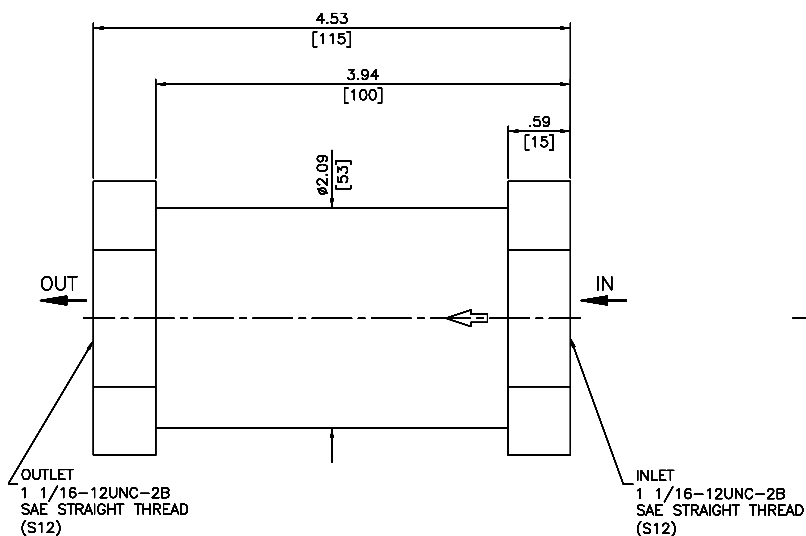
Features and Benefits

- Compact design allows for in-line installation on hose reels
- High quality synthetic ZX-Media high collapse elements ensure all fluid is filtered
- Available with SAE or NPT threading
- Convenient 2 1/4" Hex for easy service

Model No. of filter in photograph is LC501LZX10S.

Flow Rating:	Up to 9 gpm (35 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (350 bar)
Min. Yield Pressure:	15,000 psi (1050 bar)
Rated Fatigue Pressure:	5000 psi (350 bar), per NFPA T2.6.1-R1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Body and Cap:	Steel
Element Case:	Steel
Weight of LC50:	3.63 lbs. (1.65 kg)
Element Change Clearance:	3.25" (83 mm)

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® (synthetic)
High Water Content	All Z-Media® (synthetic)
Invert Emulsions	10 and 25 μ Z-Media® (synthetic)
Water Glycols	10 and 25 μ Z-Media® (synthetic)



Metric dimensions in ().
 Dimensions shown are inches (millimeters) for general information and overall envelope size only.
 For complete dimensions please contact Schroeder Industries to request a certified print.

9 gpm
35 L/min
5000 psi
345 bar

Filter Housing Specifications

Fluid Compatibility

NF30

NFS30

YF30

CFX30

PLD

CF40

DF40

PF40

RFS50

RF60

CF60

CTF60

VF60

LW60

KF30

KF50

TF50

KC50

MKF50

MKC50

KC65

MKC65

HS60

MHS60

KFH50

LC60

LC35

LC50

NOF30-05

NOF-50-760

FOF60-03

NMF30

RMF60

14-CRZX10

20-CRZX10

Element Performance Information & Dirt Holding Capacity

Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171			
Element		$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
LZX3		<4.0	4.8
LZX10		8.0	10.0
LZX25		19.0	24.0

Element	DHC (gm)	Element	DHC (gm)
LZX3	1.1	LZX25	1.0
LZX10	1.0	LZX40	0.9

Element Collapse Rating: 3000 psi (207 bar)

Flow Direction: Outside In

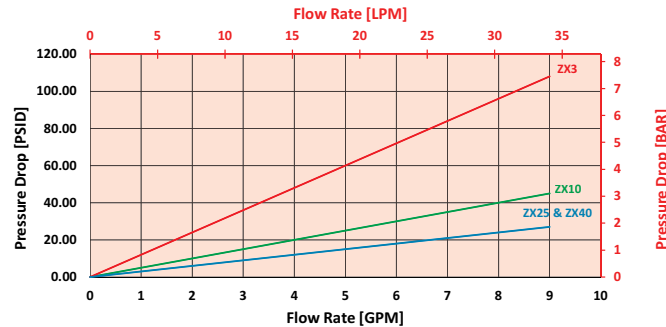
Element Nominal Dimensions: 1.4" (43 mm) O.D. x 1.7" (35 mm) long

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

LC50 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:

Pressure Drop Information Based on Flow Rate and Viscosity

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder LC50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
LC50				

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	
LC50	1	LZX10		S	= LC501LZX10S

BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Number of Elements	Element Part Number	Seal Material
LC50 (non-bypassing only)	1	LZX3 = 3 μ Excellement® Z-Media® (high collapse center tube) LZX10 = 10 μ Excellement® Z-Media® (high collapse center tube) LZX25 = 25 μ Excellement® Z-Media® (high collapse center tube) LZX40 = 40 μ Excellement® Z-Media® (high collapse center tube)	Omit = Buna N V = Viton®
BOX 5			
Porting			
S = SAE-12 P = 3/4" NPT			

High-Pressure Sandwich Filter

NOF30-05



Features and Benefits

- Sandwich filter configured for D05 subplate
- Withstands high pressure surges, high static pressure loads
- 3000 psi collapse elements

12 gpm
45 L/min
3000 psi
210 bar

NF30
NFS30
YF30
CFX30
PLD
CF40
DF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
KF50
TF50
KC50

Model No. of filter in photograph is NOF301NNZX305D5.

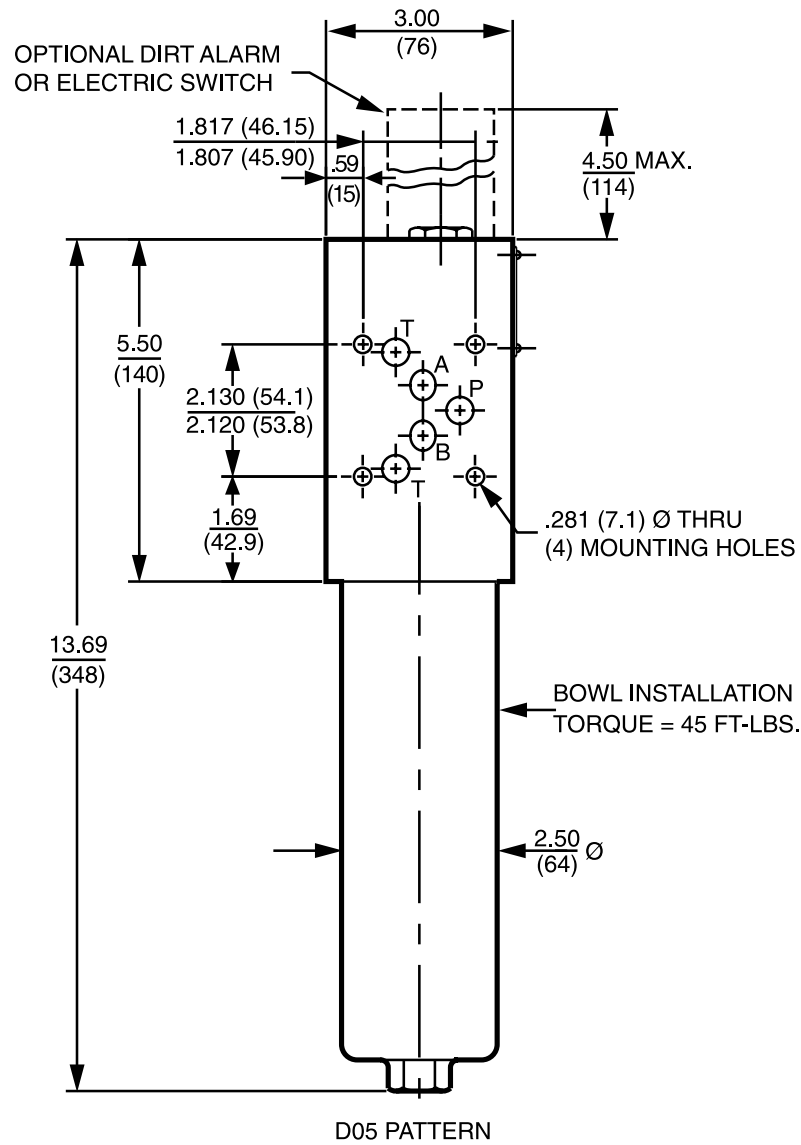
Flow Rating:	Up to 12 gpm (45 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)
Min. Yield Pressure:	10,000 psi (690 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	Contact Factory
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	High collapse elements are standard
Porting Base & Cap:	Aluminum
Element Case:	Aluminum
Weight of NOF30-1NN:	6.6 lbs. (3.0 kg)
Element Change Clearance:	4.50" (115 mm)

Filter Housing Specifications

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® (synthetic)
High Water Content	3, 10 and 25 µ Z-Media® (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic)
Water Glycols	3, 10 and 25 µ Z-Media® (synthetic)

Fluid Compatibility

NOF30-05
NOF-50-760
FOF60-03
NMF30
RMF60
14-CRZX10
20-CRZX10



Metric dimensions in ().
 Dimensions shown are inches (millimeters) for general information and overall envelope size only.
 For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(\alpha) \geq 200$	$\beta_x(\alpha) \geq 1000$
NNZX3	<1.0	<1.0	<2.0	4.7	5.8
NNZX10	7.4	8.2	10.0	8.0	9.8

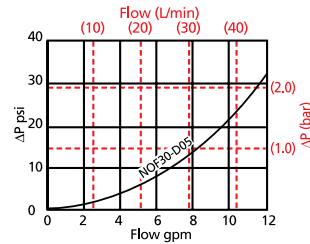
Element	DHC (gm)
NNZX3	11*
NNZX10	13*

Element Collapse Rating: 3000 psid (210 bar) for high collapse (ZX) versions
 Flow Direction: Outside In
 Element Nominal Dimensions: 1.75" (45 mm) O.D. x 8.00" (200 mm) long

*Based on 100 psi terminal pressure

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

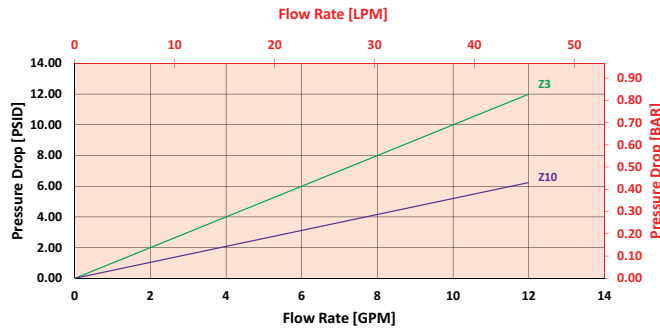
NOF30-05 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

1NNZX

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



Pressure Drop Information
Based on
Flow Rate
and Viscosity

$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 5 gpm (19 L/min) for NOF301NNZX1005D5 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 5 gpm. In this case, $\Delta P_{\text{housing}}$ is 5 psi (.34 bar) on the graph for the NOF30 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 5 gpm. In this case, $\Delta P_{\text{element}}$ is 3 psi (.21 bar) according to the graph for the NNZX10 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 5 \text{ psi } [.34 \text{ bar}] \quad | \quad \Delta P_{\text{element}} = 3 \text{ psi } [.21 \text{ bar}]$$

$$V_f = 160 \text{ SUS (34 cSt)} / 150 \text{ SUS (32 cSt)} = 1.1$$

$$\Delta P_{\text{filter}} = 5 \text{ psi} + (3 \text{ psi} * 1.1) = 8.3 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = .34 \text{ bar} + (.21 \text{ bar} * 1.1) = .57 \text{ bar}$$

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder NOF30-05:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
NOF30						

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
NOF30	1	NNZX3		05		D5

= NOF301NNZX305D5

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	Number & Size of Elements	Element Part Number	Seal Material	Porting
NOF30	1	NNZX3 = NN size 3 μ high collapse media NNZX10 = NN size 10 μ high collapse media NNZX25 = NN size 25 μ high collapse media	Omit = Buna N V = Viton® W = Buna N	05 = D05 subplate pattern

BOX 6	BOX 7
Options	Dirt Alarm® Options
Omit = None	None 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 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
	MS13DC = Supplied w/ threaded connector & light MS14DC = Supplied w/ 5 pin Brad Harrison connector & light (male end)
	Electrical Visual with Thermal Lockout MS13DCT = MS13 (see above), direct current, w/ thermal lockout MS13DCLCT = Low current MS13DCT MS14DCT = MS14 (see above), direct current, w/ thermal lockout MS14DCLCT = Low current MS14DCT

NOTES:

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

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

High-Pressure Servo Sandwich Filter

NOF50



Features and Benefits

- Localized protection at the servo helps to eliminate downtime and protect critical applications from contamination-related servo valve failures
- Sandwich style 4-bolt design – no additional lines to connect
- Designed to protect these commonly installed servo valves: Moog 761 & 62, Vickers SM4-20 and Parker BD15
- High collapse elements, rated to 3000 psi (210 bar)
- Easily applied to new and existing systems
- All steel construction

15 gpm
57 L/min
5000 psi
345 bar

Model No. of filter in photograph is NOF501SVZX3760.

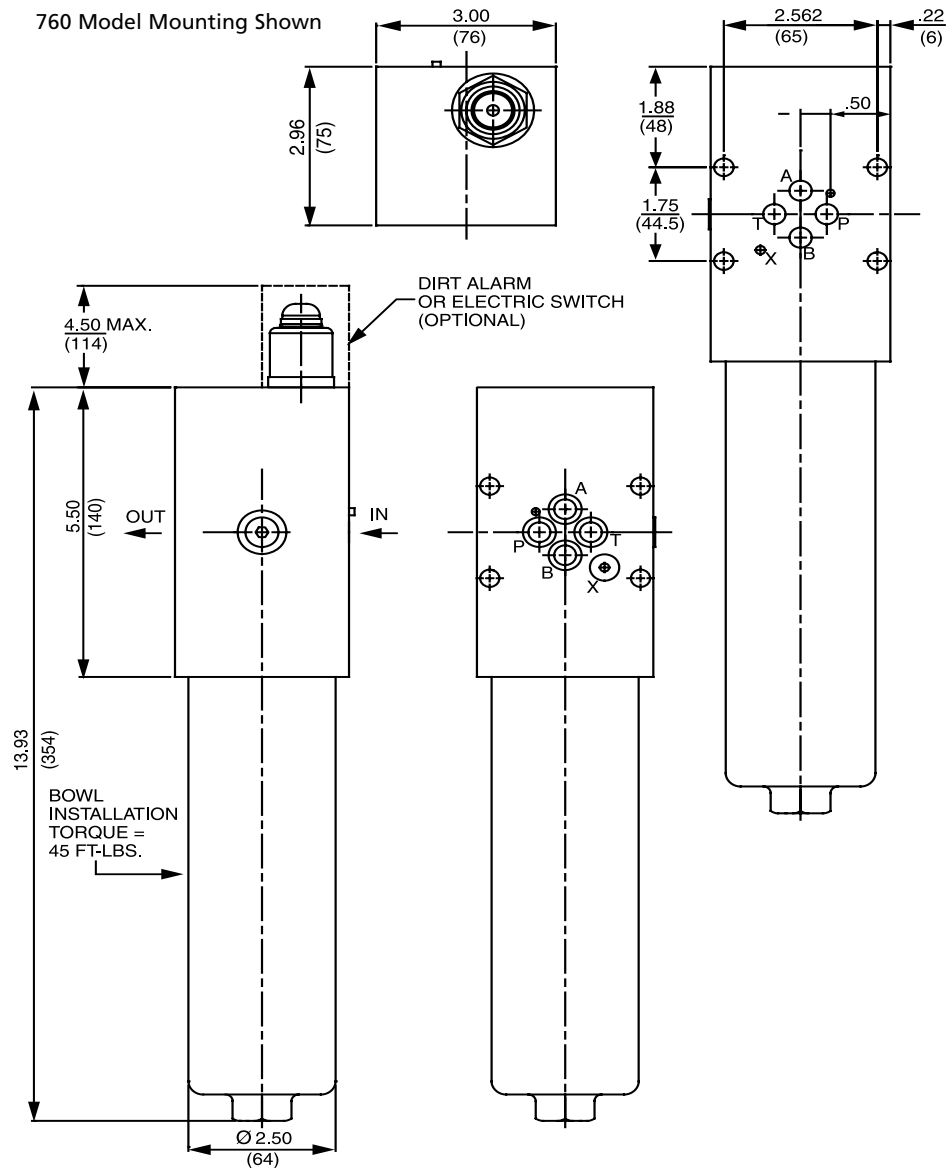
Flow Rating:	Up to 15 gpm (57 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	5000 psi (345 bar)
Min. Yield Pressure:	15,000 psi (1034 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	4000 psi (276 bar) per NFPA T2-6.1 R2-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Non-Bypass Model:	Standard with high collapse elements
Porting Head:	Steel
Element Case:	Steel
Weight of NOF50-1SV:	17 lb. (7.7 kg)
Element Change Clearance:	4.50" (115 mm)

Filter Housing Specifications

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® (synthetic)
High Water Content	3, 10 and 25 µ Z-Media® (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic)
Water Glycols	3, 10 and 25 µ Z-Media® (synthetic)

Fluid Compatibility

NF30
NFS30
YF30
CFX30
PLD
CF40
DF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
KF50
TF50
KC50
MKF50
MKC50
KC65
MKC65
HS60
MHS60
KFH50
LC60
LC35
LC50
NOF30-05
NOF-50-760
FOF60-03
NMF30
RMF60
14-CRZX10
20-CRZX10



Metric dimensions in ().
 Dimensions shown are inches (millimeters) for general information and overall envelope size only.
 For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
SVZX3	<1.0	<1.0	<2.0	4.7	5.8
SVZX10	7.4	8.2	10.0	8.0	9.7

Element	DHC (gm)
SVZX3	11*
SVZX10	13*

Element Collapse Rating: 3000 psid (210 bar) for high collapse (ZX) versions

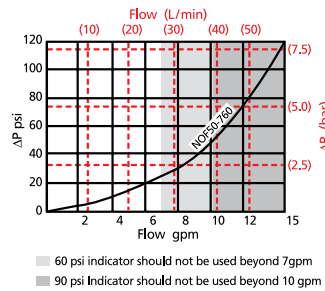
Flow Direction: Outside In

Element Nominal Dimensions: 1.75" (45 mm) O.D. x 8.0" (200 mm) long

*Based on 100 psi terminal pressure

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

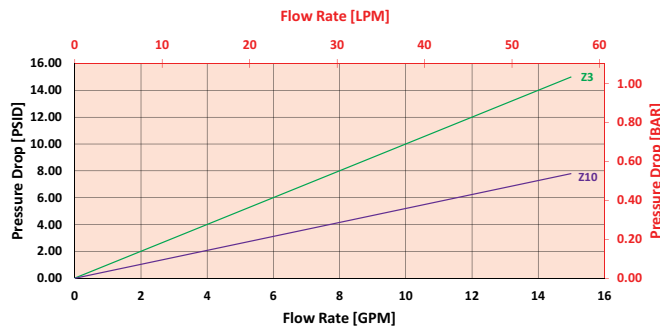
NOF50 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

1SVZX

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



Pressure Drop Information
Based on
Flow Rate
and Viscosity

$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 5 gpm (19 L/min) for NOF501SVZX10760D5 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 5 gpm. In this case, $\Delta P_{\text{housing}}$ is 15 psi (1 bar) on the graph for the NOF30 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 5 gpm. In this case, $\Delta P_{\text{element}}$ is 3 psi (.21 bar) according to the graph for the SVZX10 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 15 \text{ psi [1 bar]} \mid \Delta P_{\text{element}} = 3 \text{ psi [.21 bar]}$$

$$V_f = 160 \text{ SUS (34 cSt)} / 150 \text{ SUS (32 cSt)} = 1.1$$

$$\Delta P_{\text{filter}} = 15 \text{ psi} + (3 \text{ psi} * 1.1) = 18.3 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = 1 \text{ bar} + (.21 \text{ bar} * 1.1) = 1.2 \text{ bar}$$

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder NOF50:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
NOF50							

Example: NOTE: One option per box

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8
NOF50	1	SVZX3		760			D5

= NOF501SVZX3760D5

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	Number of Elements	Element Part Number	Seal Material	Porting
NOF50	1	SVZX3 = S size 3 μ high collapse media SVZX10 = S size 10 μ high collapse media SVZX25 = S size 25 μ high collapse media	Omit = Buna N V = Viton®	760 = Moog servo configuration 761 = Moog servo configuration

BOX 6	BOX 7
Options	Optional Test Point
Omit = 60 psid 90 = 90 psid	Omit = None U = Series 1215 7/16"-20 UNF Schroeder Check Test Point installation

BOX 8	
Dirt Alarm® Options	
None	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 MS MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male connector
Electrical with Thermal Lockout	MS5T = MS5 (see above) w/ thermal lockout MS5LCT = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout MS12LCT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS17LCT = Low current MS17T
Electrical Visual	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 3. Replacement element part numbers are identical to contents of Boxes 3 and 4.

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

Box 6. Please note indicator flow limitations on pressure drop graph, previous page.

High-Pressure Sandwich Filter

FOF60-30



Features and Benefits

- Sandwich filter configured for D03 subplate pattern
- Withstands high pressure surges, high static pressure loads
- 3000 psi collapse elements

12 gpm
45 L/min
6000 psi
415 bar

NF30
NFS30
YF30
CFX30
PLD
CF40
DF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
KF50
TF50
KC50

MKF50
MKC50
KC65
MKC65
HS60
MHS60
KFH50
LC60
LC35
LC50

NOF30-05
NOF-50-760

FOF60-03

NMF30
RMF60
14-CRZX10
20-CRZX10

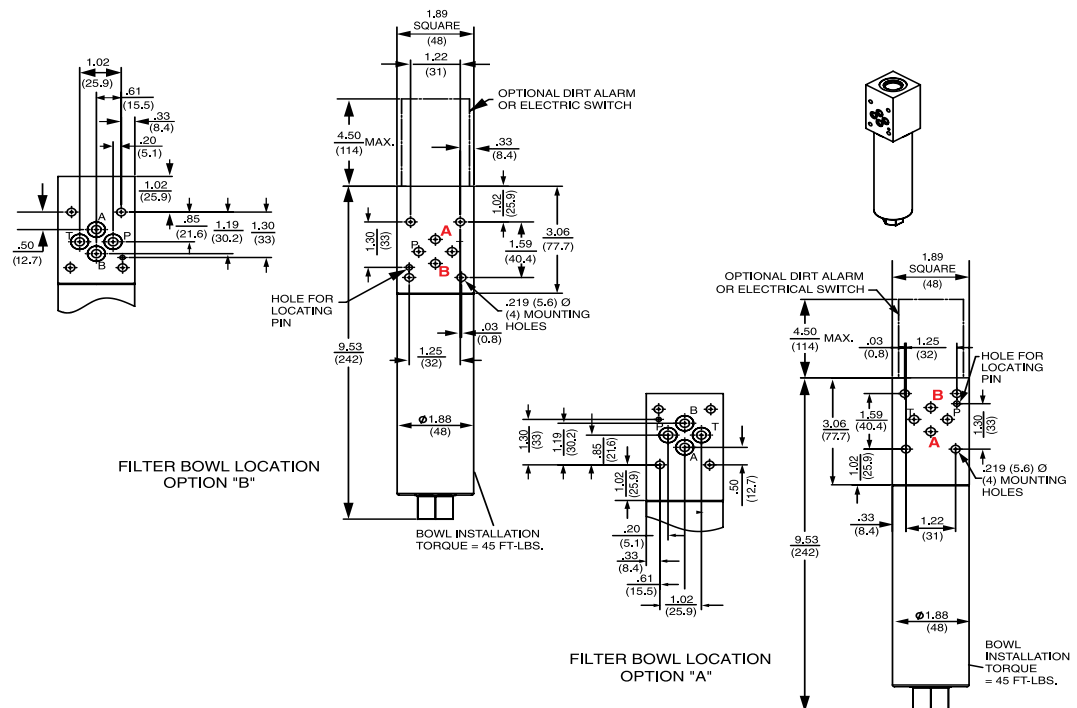
Model No. of filter in photograph is FOF601FZX303BD5.

Flow Rating:	Up to 12 gpm (45 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (415 bar)
Min. Yield Pressure:	26,000 psi (1790 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	4000 psi (275 bar), per NFPA T2.6.1
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Non-Bypass Model:	Available with high collapse elements
Porting Head:	Steel
Element Case:	Steel
Weight:	7.3 lbs. (3.3 kg)
Element Change Clearance:	4.50" (115 mm)

Filter Housing Specifications

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® (synthetic)
High Water Content	3 and 10 µ Z-Media® (synthetic)

Fluid Compatibility



Metric dimensions in ().
 Dimensions shown are inches (millimeters) for general information and overall envelope size only.
 For complete dimensions please contact Schroeder Industries to request a certified print.

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
FZX3	<1.0	<1.0	<2.0	4.7	5.8
FZX10	7.4	8.2	10.0	8.0	9.8

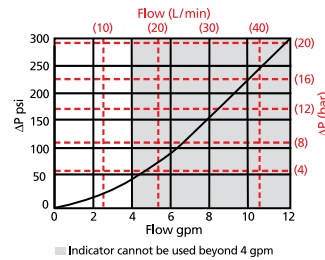
Element	DHC (gm)
FZX3	3*
FZX10	5.1

Element Collapse Rating: 3000 psid (210 bar) for high collapse (ZX) versions
 Flow Direction: Outside In
 Element Nominal Dimensions: 1.25" (30 mm) O.D. x 3.25" (85 mm) long

*Based on 100 psi terminal pressure

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

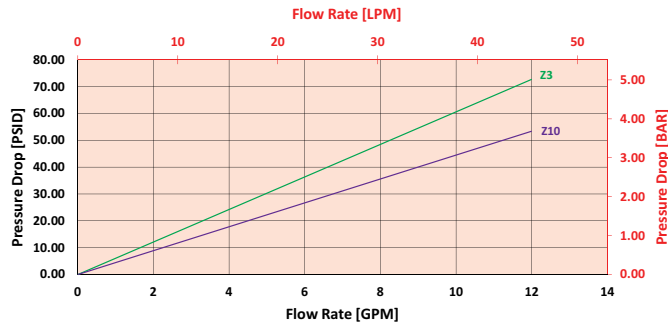
FOF60-03 $\Delta P_{\text{housing}}$ for fluids with sp gr (specific gravity) = 0.86:



$\Delta P_{\text{element}}$

FXZ

Element Pressure Drop versus Flow Rate at 32 cSt (150 SUS)



Pressure Drop Information
Based on
Flow Rate
and Viscosity

$$\Delta P_{\text{filter}} = \Delta P_{\text{housing}} + (\Delta P_{\text{element}} * V_f)$$

Exercise:

Determine ΔP_{filter} at 5 gpm (19 L/min) for FOF601FZX1003BD5 using 160 SUS (34 cSt) fluid.

Use the housing pressure curve to determine $\Delta P_{\text{housing}}$ at 5 gpm. In this case, $\Delta P_{\text{housing}}$ is 60 psi (4.1 bar) on the graph for the FOF60 housing.

Use the element pressure curve to determine $\Delta P_{\text{element}}$ at 5 gpm. In this case, $\Delta P_{\text{element}}$ is 22 psi (1.5 bar) according to the graph for the FZX10 element.

Because the viscosity in this sample is 160 SUS (34 cSt), we determine the **Viscosity Factor (V_f)** by dividing the **Operating Fluid Viscosity** with the **Standard Viscosity** of 150 SUS (32 cSt). To best determine your Operating Fluid Viscosity, please reference the chart in Appendix D.

Finally, the overall filter pressure differential, ΔP_{filter} , is calculated by adding $\Delta P_{\text{housing}}$ with the true element pressure differential, ($\Delta P_{\text{element}} * V_f$). The $\Delta P_{\text{element}}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$$\Delta P_{\text{housing}} = 60 \text{ psi [4.1 bar]} \quad | \quad \Delta P_{\text{element}} = 22 \text{ psi [1.5 bar]}$$

$$V_f = 160 \text{ SUS (34 cSt)} / 150 \text{ SUS (32 cSt)} = 1.1$$

$$\Delta P_{\text{filter}} = 60 \text{ psi} + (22 \text{ psi} * 1.1) = 64.2 \text{ psi}$$

OR

$$\Delta P_{\text{filter}} = 4.1 \text{ bar} + (1.5 \text{ bar} * 1.1) = 5.8 \text{ bar}$$

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder FOF60-03:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
FOF60						

Example: NOTE: One option per box

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7
FOF60	1	FZX3		03	A	D5

= FOF601FZX303AD5

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	Number of Elements	Element Part Number	Seal Material	Porting
FOF60	1	FZX3 = F size 3 μ high collapse media FZX10 = F size 10 μ high collapse media	Omit = Buna N V = Viton®	03 = D03 subplate pattern

BOX 6	BOX 7
Filter Bowl Location	Dirt Alarm® Options
A = Bowl adjacent to Port "A"	None Omit = None
B = Bowl adjacent to Port "B"	Visual D5 = Visual pop-up
(Refer to drawing on page 140.)	Visual with Thermal Lockout D8 = Visual w/ thermal lockout
	Electrical MS5 = Electrical w/ 12 in. 18 gauge 4-conductor cable MS5LC = Low current MS MS10 = Electrical w/ DIN connector (male end only) MS10LC = Low current MS10 MS11 = Electrical w/ 12 ft. 4-conductor wire MS12 = Electrical w/ 5 pin Brad Harrison connector (male end only) MS12LC = Low current MS12 MS16 = Electrical w/ weather-packed sealed connector MS16LC = Low current MS16 MS17LC = Electrical w/ 4 pin Brad Harrison male connector
	Electrical with Thermal Lockout MS5T = MS5 (see above) w/ thermal lockout MS5LCT = Low current MS5T MS10T = MS10 (see above) w/ thermal lockout MS10LCT = Low current MS10T MS12T = MS12 (see above) w/ thermal lockout MS12LCT = Low current MS12T MS16T = MS16 (see above) w/ thermal lockout MS16LCT = Low current MS16T MS17LCT = Low current MS17T
	Electrical Visual 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 3. Replacement element part numbers are identical to contents of Boxes 3 and 4.

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

Box 7. Dirt Alarm® cannot be used beyond 4 gpm. Filters ordered without a Dirt Alarm do not include a machined indicator port. Therefore, one cannot be added at a later date.

Manifold Filter Kit

NMF30



Features and Benefits

- Allows for effective filtration in customer's manifold

Model No. of filter in photograph is NMF301NNZX10.

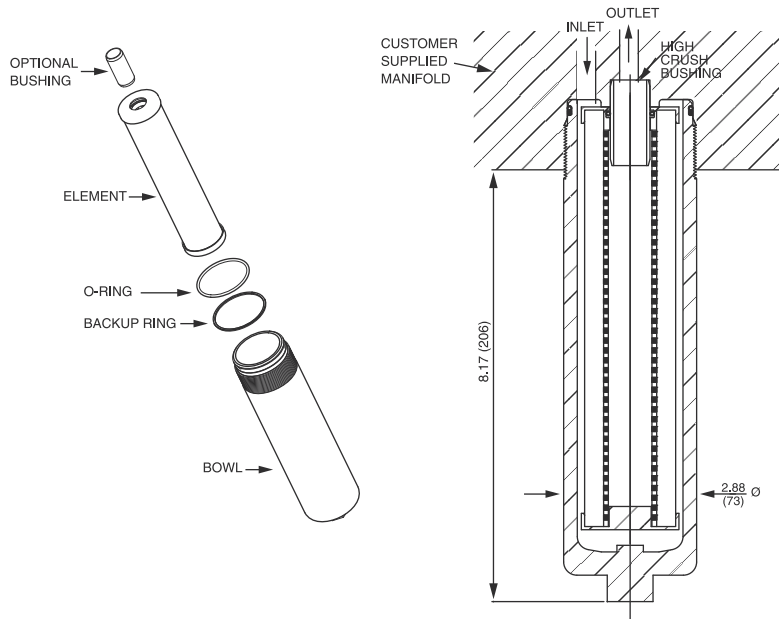
Flow Rating:	Up to 20 gpm (75 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)*
Min. Yield Pressure:	10,000 psi (690 bar)*, per NFPA T2.6.1
Rated Fatigue Pressure:	2400 psi (185 bar)*, per NFPA T2.6.1
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Element Case:	Aluminum
Element Change Clearance:	4.50" (115 mm)

*Only with manifold material properties equivalent to aluminum 6061-T651.

Type Fluid
Petroleum Based Fluids
High Water Content

Filter Housing Specifications

Fluid Compatibility



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.

20 gpm	NF30
75 L/min	NFS30
3000 psi	YF30
210 bar	CFX30
	PLD
	CF40
	DF40
	PF40
	RFS50
	RF60
	CF60
	CTF60
	VF60
	LW60
	KF30
	KF50
	TF50
	KC50
	MKF50
	MKC50
	KC65
	MKC65
	HS60
	MHS60
	KFH50
	LC60
	LC35
	LC50
	NOF30-05
	NOF-50-760
	FOF60-03
	NMF30
	RMF60
	14-CRZX10
	20-CRZX10

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171		Dirt Holding Capacity gm
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$	
NNZX3	<1.0	<1.0	<2.0	4.7	5.8	11*
NNZX10	7.4	8.2	10.0	8.0	9.8	13*

Element	DHC (gm)
NNZX3	11*
NNZX10	13*

Element Collapse Rating: 3000 psid (210 bar)

Flow Direction: Outside In

Element Nominal Dimensions: 1.75" (45 mm) O.D. x 8.00" (200 mm) long

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder NMF30:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
NMF30				

Example: NOTE: One option per box

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
NMF30	1	NNZX3		

= NMF301NNZX3

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	Number of Elements	Element Part Number	Seal Material	Bushing
NMF30	1	NNZX3 = NN size 3 μ high collapse media NNZX10 = NN size 10 μ high collapse media NNZX25 = NN size 25 μ high collapse media	Omit = Buna N V = Viton® W = Buna N	Omit = Included N = Not included

NOTES:

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

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

Manifold Filter Kit

RMF60



Features and Benefits

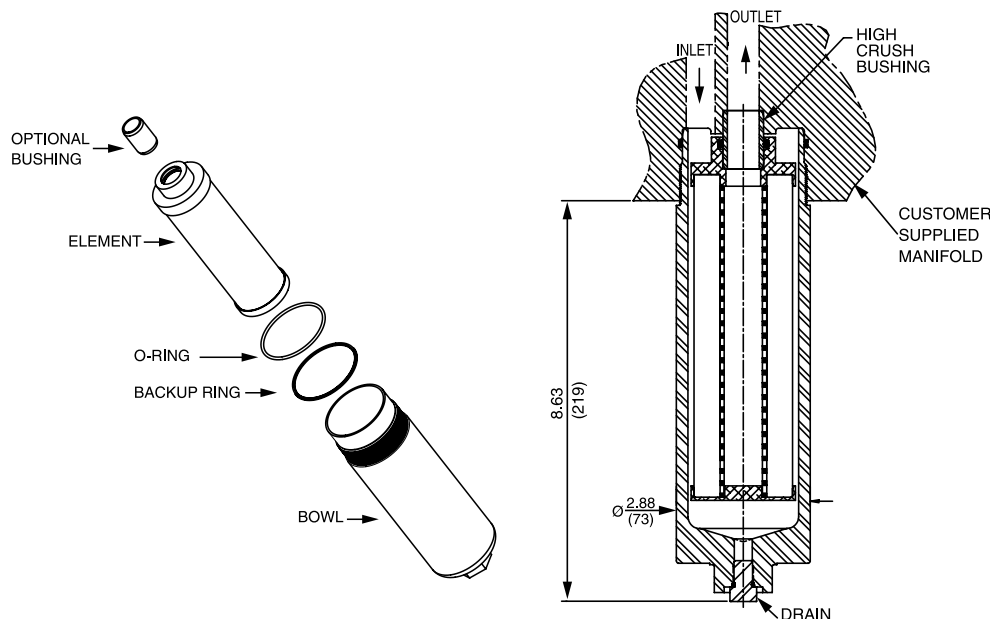
- Allows for effective filtration in customer's manifold

Model No. of filter in photograph is RMF608RZX10.

Flow Rating:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	6000 psi (415 bar)*
Min. Yield Pressure:	18,000 psi (1240 bar)*
Rated Fatigue Pressure:	2300 psi (159 bar)*
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Element Case:	Steel
Element Change Clearance:	3.0" (75 mm)

*Only with manifold material properties equivalent to AISI 1018 C.R.S.

Type Fluid
Petroleum Based Fluids
High Water Content



Metric dimensions in ().
Dimensions shown are inches (millimeters) for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.

30 gpm
115 L/min
6000 psi
415 bar

Filter Housing Specifications

Fluid Compatibility

NF30
NFS30
YF30
CFX30
PLD
CF40
DF40
PF40
RFS50
RF60
CF60
CTF60
VF60
LW60
KF30
KF50
TF50
KC50
MKF50
MKC50
KC65
MKC65
HS60
MHS60
KFH50
LC60
LC35
LC50
NOF30-05
NOF-50-760
FOF60-03
NMF30
RMF60
14-CRZX10
20-CRZX10

Element Performance Information & Dirt Holding Capacity

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
NNZX3	<1.0	<1.0	<2.0	4.7	5.8
NNZX10	7.4	8.2	10.0	8.0	9.8

Element	DHC (gm)

Element Collapse Rating: 3000 psid (210 bar)
 Flow Direction: Outside In
 Element Nominal Dimensions: 2.18" (55mm) O.D. x 8.15" (206 mm) long

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder RMF60:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
RMF60				

Example: NOTE: One option per box

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
RMF60	8	RZX3		

= RMF608RZX3

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5
Filter Series	Element Length	Element Size and Media	Seal Material	Bushing
RMF60	8	RZX3 = E size 3 μ Excellement® Z-Media® (high collapse center tube) RZX10 = E size 10 μ Excellement® Z-Media® (high collapse center tube) RZX25 = E size 25 μ Excellement® Z-Media® (high collapse center tube)	Omit = Buna N V = Viton® H = EPR	Omit = Included N = Not included

NOTES:

Box 2: Replacement element part numbers are a combination of Boxes 2, 3, and 4. Example: 8RZX3V

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

Features and Benefits (14-CRZX10)

- Cartridge filters are designed to be mounted directly in the manifold
- Withstands high pressure surges—3000 psi (210 bar) collapse rating

6 gpm
23 L/min
3000 psi
210 bar

NF30
NFS30
YF30
CFX30
PLD

Filter Housing Specifications

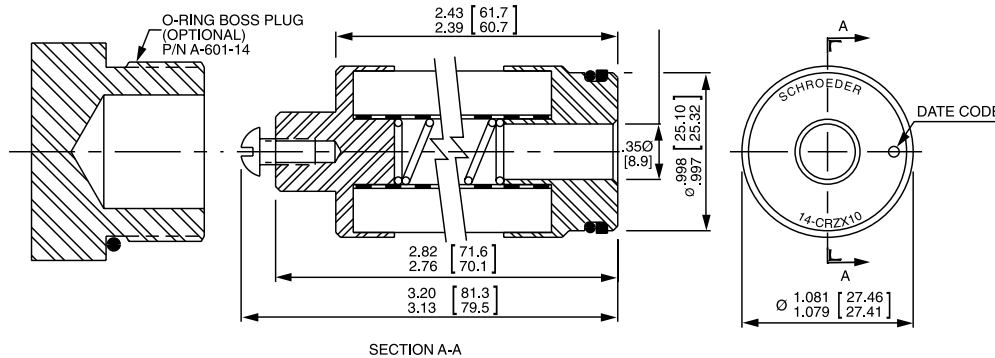
CF40
DF40

Fluid Compatibility

PF40
RFS50
RF60

Element Performance Information & Dirt Holding Capacity

CF60
CTF60
VF60
LW60
KF30
KF50
TF50
KC50



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.

Element	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(d)} \geq 200$	$\beta_{x(d)} \geq 1000$
ZX10	7.4	8.2	10.0	8.0	9.8

Contact factory for other media options.

Element	DHC (gm)
---------	----------

MKF50
MKC50
KC65

MKC65

HS60

MHS60

KFH50

LC60

LC35

LC50

NOF30-05

NOF-50-760

FOF60-03

NMF30

RMF60

14-CRZX10

20-CRZX10

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder 14-CRZX10:

BOX 1: 14-CRZX10 BOX 2:

Example: NOTE: One option per box

BOX 1: 14-CRZX10 BOX 2: P = 14-CRZX10P

BOX 1 Filter Series	BOX 2 Number of Elements
14-CRZX10	Omit = No Plug P = Plug

NOTES:

Box 2: Replacement element part numbers are a combination of Boxes 2, 3, and 4. Example: 8RZX3V

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

Cartridge Element

12 gpm
45 L/min

3000 psi
210 bar

Features and Benefits (20-CRZX10)

- Cartridge filters are designed to be mounted directly in the manifold
- Withstands high pressure surges—3000 psi (210 bar) collapse rating

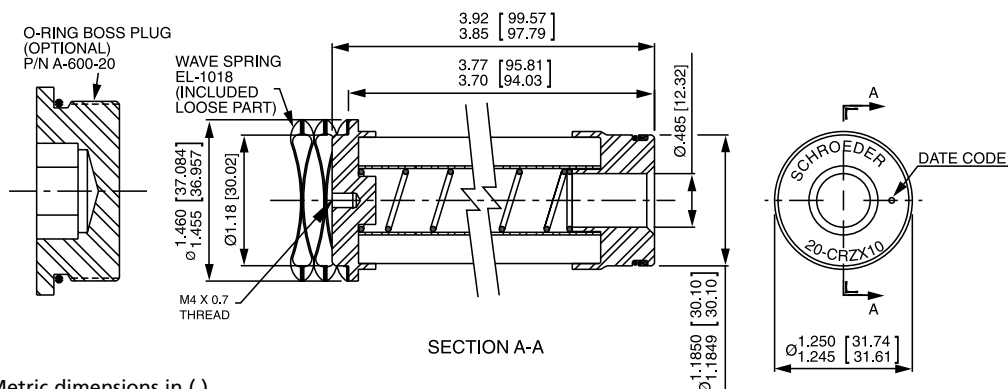
Filter Housing Specifications

Max. Operating Pressure:	3000 psi (210 bar)
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Element Change Clearance:	20-CRZX10: 3.50" (90 mm)

Fluid Compatibility

Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All Z-Media® (synthetic)
High Water Content	3 and 10 μ Z-Media® (synthetic)

**Element
Performance
Information & Dirt
Holding Capacity**



Metric dimensions in ().

Dimensions shown are inches (millimeters) for general information and overall envelope size only. For complete dimensions please contact Schroeder Industries to request a certified print.

**Element
Performance
Information & Dirt
Holding Capacity**

	Filtration Ratio Per ISO 4572/NFPA T3.10.8.8 Using automated particle counter (APC) calibrated per ISO 4402			Filtration Ratio per ISO 16889 Using APC calibrated per ISO 11171	
Element	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
ZX10	7.4	8.2	10.0	8.0	9.8

Contact factory for other media options.

Element	DHC (gm)
---------	----------

Element Collapse Rating: 3000 psid (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

*Based on 100 psi terminal pressure

Element Nominal Dimensions:

Filter Model Number Selection

How to Build a Valid Model Number for a Schroeder 20-CRZX10:

BOX 1	BOX 2
20-CRZX10	

Example: NOTE: One option per box

Example 1: **FOUR:** One option per box

BOX 1	BOX 2
20-CRZX10	P

= 20-CRZX10P

NOTES:

Box 2: Replacement element part numbers are a combination of Boxes 2, 3, and 4. Example: 8RZX3V

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

BOX 1	BOX 2
Filter Series	Number of Elements
20-CRZX10	Omit = No Plug P = Plug