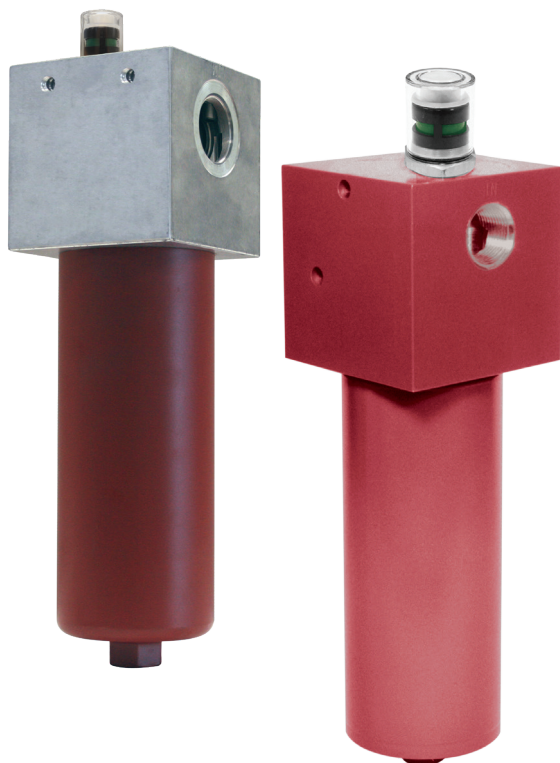


Top-Ported Pressure Filter

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.

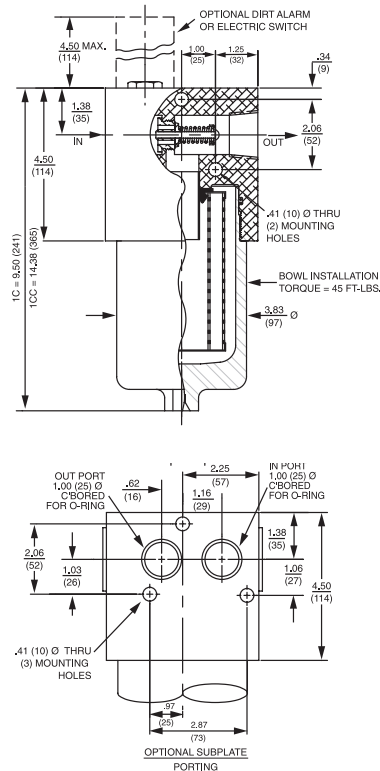
Flow Rating:	CF40 - 45 gpm (170 L/min) for 150 SUS (32 cSt) fluids DF40 - 30 gpm (113 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	4000 psi (275 bar)
Min. Yield Pressure:	12,000 psi (828 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	1800 psi (125 bar), per NFPA T2.6.1-2005
Temp. Range:	-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

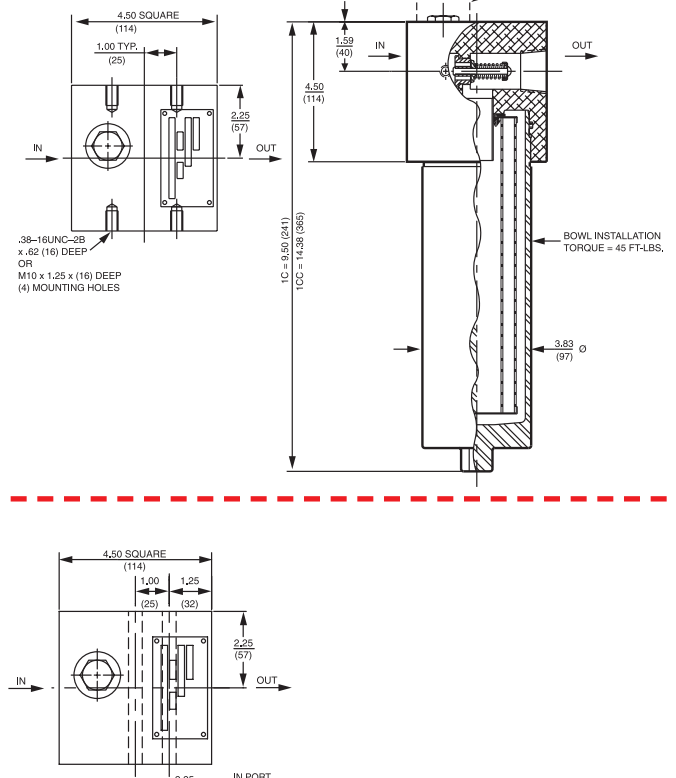
Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic), 10 µ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media®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

DF40



CF40



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	
	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_x(c) \geq 200$	$\beta_x(c) \geq 1000$
CZ1/CCZ1	<1.0	<1.0	<1.0	<4.0	4.2
CZ3/CCZ3	<1.0	<1.0	<2.0	<4.0	4.8
CZ5/CCZ5	2.5	3.0	4.0	4.8	6.3
CZ10/CCZ10	7.4	8.2	10.0	8.0	10.0
CZ25/CCZ25	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	9.8

Element	DHC (gm)	Element	DHC (gm)
CZ1	25	CCZ1	57
CZ3	26	CCZ3	58
CZ5	30	CCZ5	63
CZ10	28	CCZ10	62
CZ25	28	CCZ25	63
		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

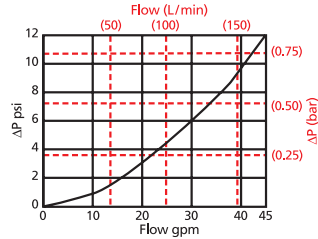
Element Nominal Dimensions: C: 3.0" (75 mm) O.D. x 4.75" (120 mm) long
CC: 3.0" (75 mm) O.D. x 9.5" (240 mm) long

* Based on 100 psi terminal pressure

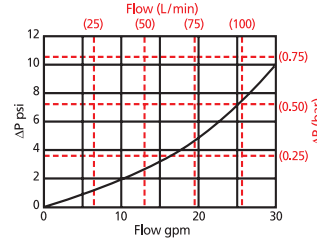
$\Delta P_{\text{housing}}$

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

CF40- 1-1/4" Porting



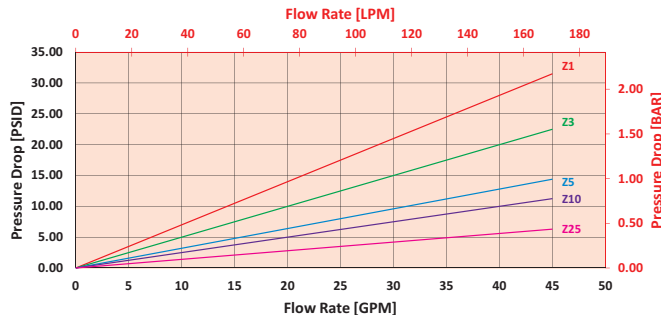
DF40- 1" Porting



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

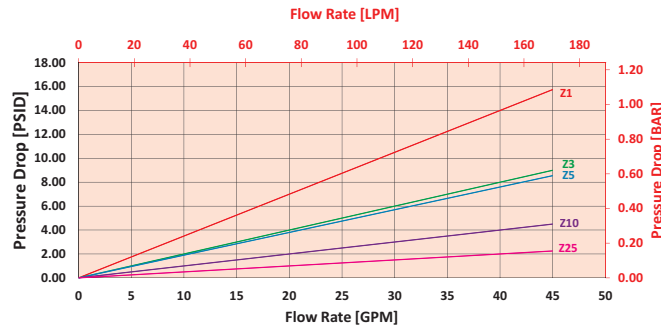
CZ

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	BOX 10
CF40									

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

= CF401CZ10SD5

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10
Filter Series CF40 CFN40 (Non-bypassing; requires ZX high collapse elements) DF40 DFN40 (Non-bypassing; requires ZX high collapse elements)	Number and Size of Elements 1 C CC	Media Type 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	Micron Rating 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®)	Seal Material Omit = Buna N V = Viton® W = Buna N, <i>Anodized Aluminum parts</i> H = EPR H.5 = Skydrol® compatibility	Porting S = SAE-20" P = 1 1/4" NPTF B = ISO 228 G-1 1/4"	Bypass Omit = 40 PSI Bypass X = Blocked bypass 25 = 25 psi bypass setting (CF40 only) 30 = 30 psi bypass setting (CF40 only) 50 = 50 psi bypass setting (Omit box 7 if a non-bypassing filter housing is selected)	Test Ports Omit = None L = Two 1/4" NPTF inlet and outlet female test ports	Dirt Alarm® 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 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	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. When X is paired with a standard filter series, a standard bushing and spring plate will be used.
- Box 9. Standard indicator setting for non-bypassing model is 50 psi unless otherwise noted.
- Box 10. N option is not available with CFN40 or DFN40. N option should be used in conjunction with dirt alarm.