Top-Ported Pressure Filter CF40/DF40

Model No. of filter in photograph is CF401CC10SD5 and DF401CCZ10PD5.

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

Filter Housing Specifications

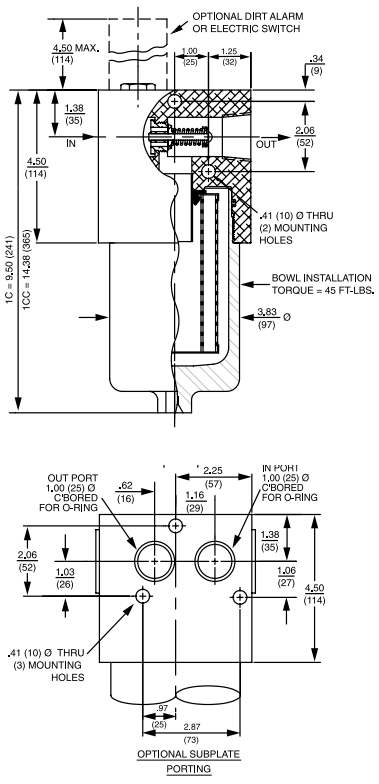
Flow Rating:	CF40 - 45 gpm (170 L/min) for 150 SUS (32 cSt) fluids DF40 - 30 gpm (113 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	4000 psi (275 bar)
Min. Yield Pressure:	12,000 psi (828 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	1800 psi (125 bar), per NFPA T2.6.1-2005
Temp. Range:	-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: Element Case:	Aluminum Steel
Weight of CF40/DF40-1C: Weight of CF40/DF40-1CC:	14.0 lbs. (6.4 kg) 19.5 lbs. (8.9 kg)
Element Change Clearance:	4.00" (100 mm) for C elements 8.75" (219 mm) for CC elements

Fluid Compatibility

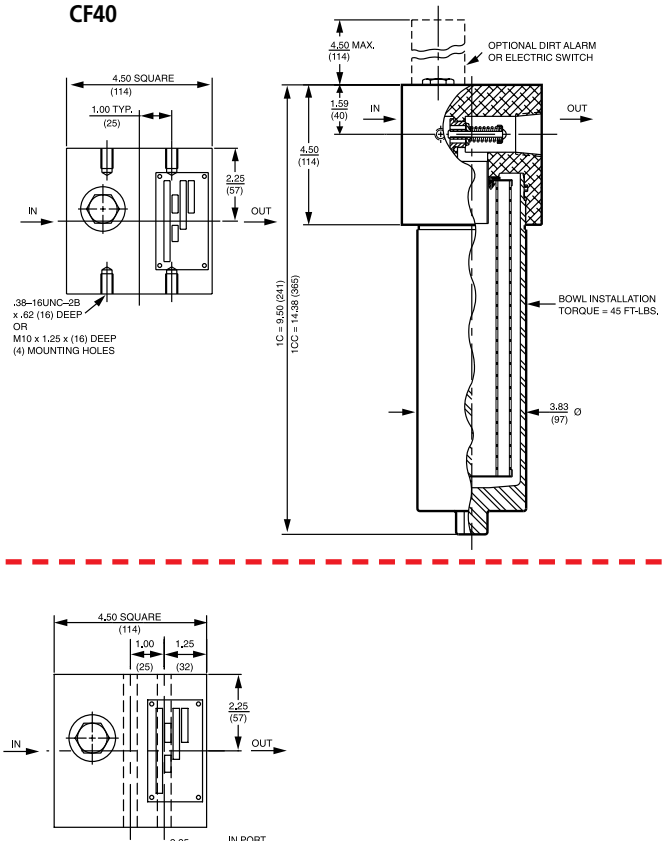
Type Fluid	Appropriate Schroeder Media
Petroleum Based Fluids	All E Media (cellulose), Z-Media® and ASP® Media (synthetic)
High Water Content	All Z-Media® and ASP® Media (synthetic)
Invert Emulsions	10 and 25 µ Z-Media® (synthetic), 10 µ ASP® Media (synthetic)
Water Glycols	3, 5, 10 and 25 µ Z-Media®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

CF40/DF40 Top-Ported Pressure Filter

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

	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	$\beta_x \geq 75$	$\beta_x \geq 100$	$\beta_x \geq 200$	$\beta_{x(c)} \geq 200$	$\beta_{x(c)} \geq 1000$
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

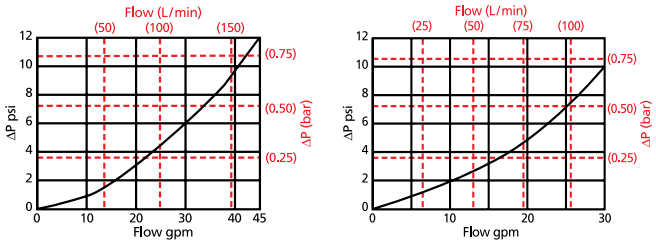
Element Nominal Dimensions: C: 3.0" (75 mm) O.D. x 4.75" (120 mm) long
CC: 3.0" (75 mm) O.D. x 9.5" (240 mm) long

* Based on 100 psi terminal pressure

Pressure Drop Information
Based on Flow Rate and Viscosity

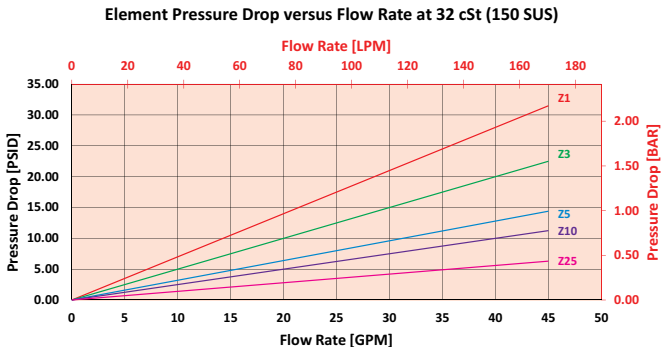
$\Delta P_{housing}$

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

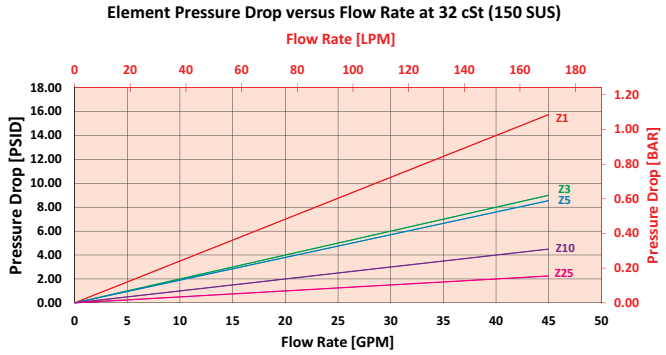


$\Delta P_{element}$

CZ



CCZ



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

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

Use the element pressure curve to determine $\Delta P_{element}$ at 25 gpm. In this case, $\Delta P_{element}$ 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 $\Delta P_{housing}$ with the true element pressure differential, ($\Delta P_{element} * V_f$). The $\Delta P_{element}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

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

V_f = 200 SUS (42.6 cSt) / 150 SUS (32 cSt) = 1.3

ΔP_{filter} = 4.5 psi + (6 psi * 1.3) = 12.3 psi

OR

ΔP_{filter} = .31 bar + (.42 bar * 1.3) = .86 bar

Note:
If your element is not graphed, use the following equation:
$\Delta P_{element}$ = Flow Rate x ΔP_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

CF40/DF40 Top-Ported Pressure Filter

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									
CF40	1C	Z	10		S		D5		= CF401CZ10SD5

BOX 1 — Filter Series

CF40
CFN40 (Non-bypassing: requires ZX high collapse elements)
DF40
DFN40 (Non-bypassing: requires ZX high collapse elements)

BOX 2 — Number and Size of Elements

1	C
	CC

BOX 3 — 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

BOX 4 — 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 media®)

BOX 5 — Seal Material

Omit	= Buna N
V	= Viton®
W	= Buna N, *Anodized Aluminum parts*
H	= EPR
H.5	= Skydrol® compatibility

BOX 6 — Porting *Only for CF40 Configuration

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

BOX 6 (Cont.) — Porting *Only for DF40 Configuration

O	= Manifold mounting
S	= SAE-16
P	= 1" NPTF
B	= ISO 228 G-1

BOX 7 — 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 ¼" NPTF inlet and outlet female test ports

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	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 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.