

# 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

50 gpm  
**190 L/min**  
 6000 psi  
**415 bar**

Model No. of filter in photograph is CF601CCZ3SD5.

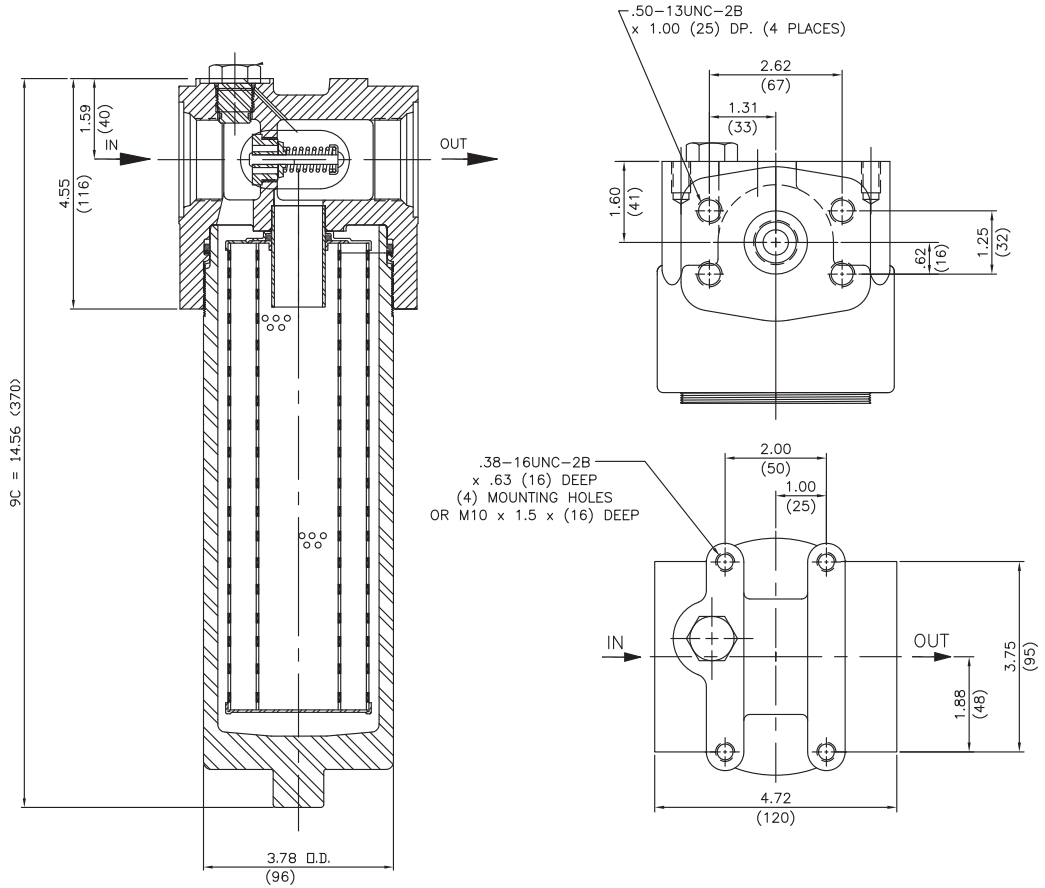
- NF30
- NFS30
- YF30
- CFX30
- PLD
- CF40
- DF40
- PF40
- RFS50
- RF60
- CF60**
- CTF60
- VF60
- LW60
- KF30
- KF50
- TF50
- KC50
- MKF50
- MKC50
- KC65
- MKC65
- HS60
- MHS60
- KFH50
- LC60
- LC35
- LI50
- LC50
- NOF30-05
- NOF-50-760
- FOF60-03
- NMF30
- RMF60
- 14-CRZX10
- 20-CRZX10

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 <sup>®</sup> and ASP <sup>®</sup> Media (synthetic)
High Water Content	All Z-Media <sup>®</sup> and ASP <sup>®</sup> Media (synthetic)
Invert Emulsions	10 and 25 μ Z-Media <sup>®</sup> (synthetic) and 10 μ ASP <sup>®</sup> Media (synthetic)
Water Glycols	3, 5, 10 and 25 μ Z-Media <sup>®</sup> and all ASP <sup>®</sup> Media (synthetic)
Phosphate Esters	All Z-Media <sup>®</sup> and ASP <sup>®</sup> Media (synthetic) with H (EPR) seal designation
Skydrol <sup>®</sup>	3, 5, 10 and 25 μ Z-Media <sup>®</sup> and all ASP <sup>®</sup> 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	
	$\beta_1 \geq 75$	$\beta_1 \geq 100$	$\beta_1 \geq 200$	$\beta_1(c) \geq 200$	$\beta_1(c) \geq 1000$
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*

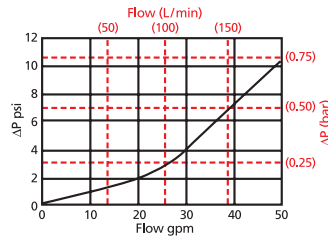
Element Collapse Rating: 150 psid (10 bar) for standard elements  
 3000 psid (210 bar) for high collapse (ZX) versions

Flow Direction: Outside In

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

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

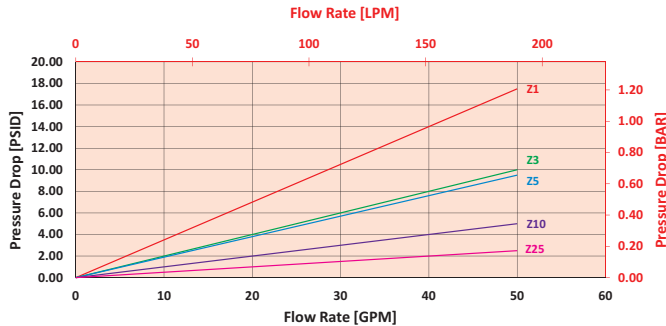
CF60  $\Delta P_{\text{housing}}$  for fluids with sp gr (specific gravity) = 0.86:



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

CCZ

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



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

**Exercise:**

Determine  $\Delta P_{\text{filter}}$  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,  $\Delta P_{\text{filter}}$ , 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

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

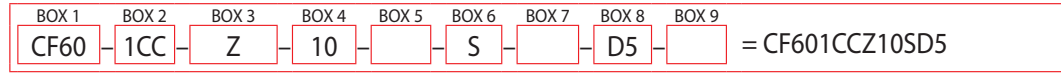
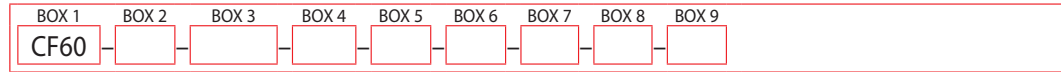
Pressure Drop Information Based on Flow Rate and Viscosity

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.	$\Delta P$
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
<b>Filter Series</b>	<b>Number and Size of Elements</b>	<b>Media Type</b>
CF60	1CC	Omit E Media (cellulose)
CFN60 <small>(Non-bypassing: requires ZX high collapse elements)</small>		Z = Excellement® Z-Media® (synthetic) ZX = Excellement® Z-Media® (high collapse center tube) AS = Anti-Stat Media (synthetic)

BOX 4	BOX 5	BOX 6
<b>Micron Rating</b>	<b>Seal Material</b>	<b>Porting</b>
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
<b>Bypass</b>	<b>Dirt Alarm® Options</b>
Omit = 40 PSI Bypass X = Blocked Bypass 30 = 30 psi bypass setting 50 = 50 psi bypass setting <small>(Omit box 7 if a CFN60 is selected)</small>	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 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 7. When X is paired with a standard filter series, a standard bushing and spring plate will be used.

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