Non-Bypassing Pressure Filter   **CFX30**

30 gpm
115 L/min
3000 psi
210 bar

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

Model No. of filter in photograph is CFX301CC10S.

Filter Housing Specifications

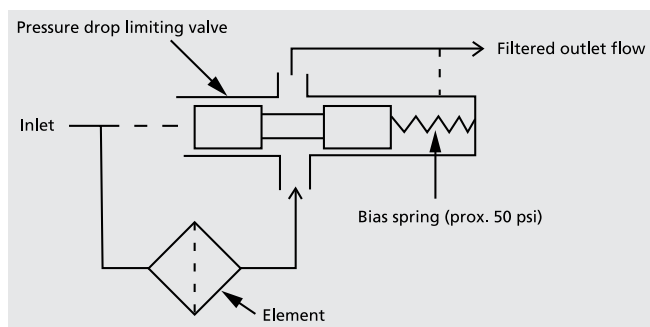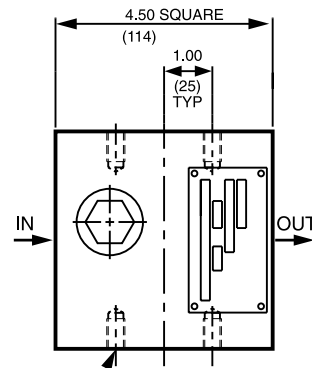|	
Flow Rating:	Up to 30 gpm (115 L/min) for 150 SUS (32 cSt) fluids
Max. Operating Pressure:	3000 psi (210 bar)
Min. Yield Pressure:	12,000 psi (828 bar), per NFPA T2.6.1
Rated Fatigue Pressure:	1800 psi (125 bar), per NFPA T2.6.1-2005
Temp. Range:	-20°F to 225°F (-29°C to 107°C)
Bypass Setting:	Non-Bypassing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

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

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.

Pressure drop limiting valve
Filtered outlet flow
Inlet
Bias spring (prox. 50 psi)
Element

4.50 SQUARE
(114)

1.00
(25)
TYP

IN   OUT

4.50 MAX.
(114)

OPTIONAL DIRT ALARM
OR ELECTRIC SWITCH

1.59
(40)

IN   OUT

4.50
(114)

1CC = 14.38 (365)

.38-16UNC-2B
x .62 (16) DEEP
OR
M10 x 1.5 x (16) DEEP
(4) MOUNTING HOLES

NOTE: FOR ALL CFX INSTALLATIONS, AN UPSTREAM
RELIEF VALVE SET FOR 3000 PSI OR LESS
IS REQUIRED TO PROTECT THE SYSTEM
AND FILTER

BOWL INSTALLATION
TORQUE = 45 FT-LBS.

3.83 Ø
(97)
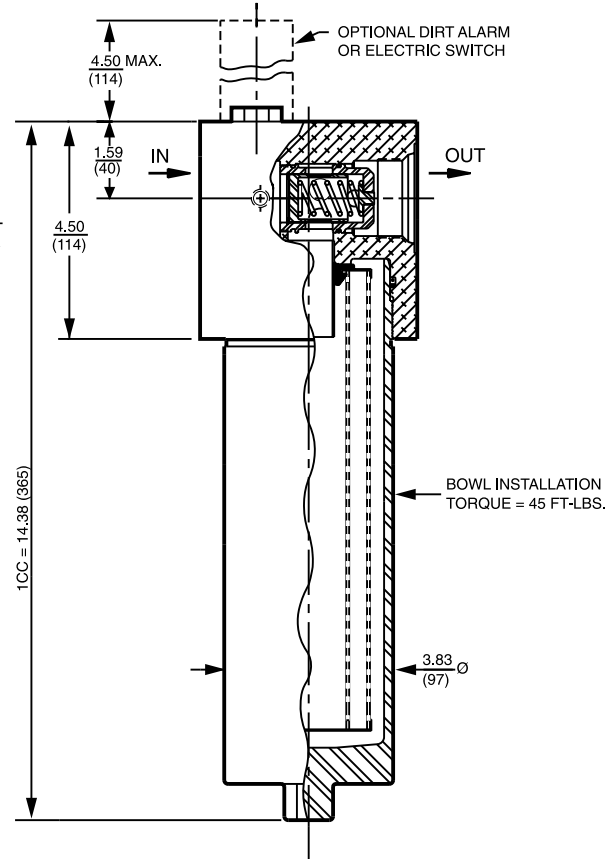
Metric dimensions in ( ).
Dimensions shown are inches (millimeters) for general information and overall envelope size only.
For complete dimensions please contact Schroeder Industries to request a certified print.

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

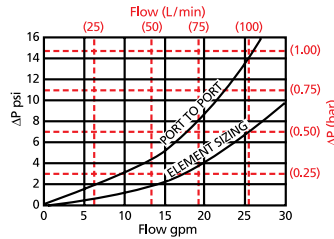| Element	DHC (gm)
CCZ1	57
CCZ3	58
CCZ5	63
CCZ10	62
CCZ25	63

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

Flow Direction: Outside In

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

Non-Bypassing Pressure Filter

$\triangle$**P**$_{housing}$

CFX30 $\triangle$P$_{housing}$ for fluids with sp gr (specific gravity) = 0.86:

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

$\triangle$**P**$_{element}$

CCZ

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

Flow Rate [LPM]
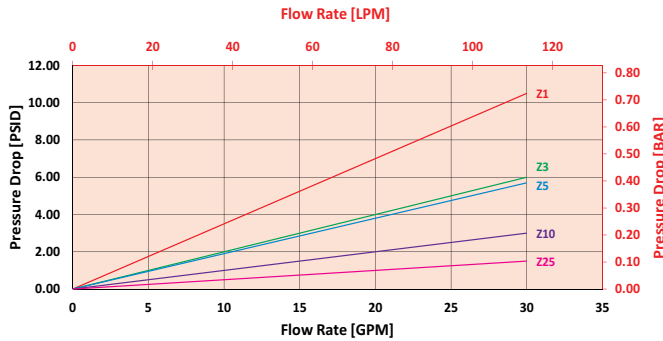
$$\triangle\mathbf{P_{filter}} = \triangle\mathbf{P_{housing}} + (\triangle\mathbf{P_{element}} * V_f)$$

Exercise:

Determine $\triangle$**P**$_{filter}$ at 15 gpm (57 L/min) for CFX301CZ5SD5 using 100 SUS (21.3 cSt) fluid.

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

Use the element pressure curve to determine $\triangle$**P**$_{element}$ at 15 gpm. In this case, $\triangle$**P**$_{element}$ 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, $\triangle$**P**$_{filter}$, is calculated by adding $\triangle$**P**$_{housing}$ with the true element pressure differential, ($\triangle$**P**$_{element}$*V$_f$). The $\triangle$**P**$_{element}$ from the graph has to be multiplied by the viscosity factor to get the true pressure differential across the element.

Solution:

$\triangle$**P**$_{housing}$ = 5 psi [.34 bar] | $\triangle$**P**$_{element}$ = 3 psi [.21 bar]

V_f = 100 SUS (21.3 cSt) / 150 SUS (32 cSt) = .67

$\triangle$**P**$_{filter}$ = .34 psi + (.21 psi * .67) = .48 psi

   OR

$\triangle$**P**$_{filter}$ = .34 bar + (.21 bar * .67) = .48 bar

Note:
If your element is not graphed, use the following equation:
$\triangle$**P**$_{element}$ = Flow Rate x $\triangle$**P**$_f$. Plug this variable into the overall pressure drop equation.

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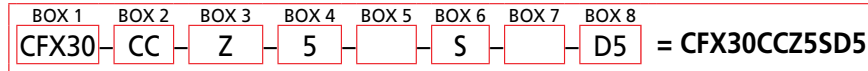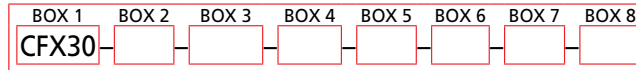
BOX 1	BOX 2	BOX 3
Filter Series	**Number & Size of Elements**	**Media Type**
CFX30	1 C = Single Length CC = Double Length	Omit = E Media (cellulose) Z = Excellement® Z-Media® (synthetic) AS = Anti-Stat Media (synthetic) M = Media (reusable metal mesh)

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
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)

BOX 8		
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 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.