

# Series EG

## Electronic Grade Filter Housings

### Applications:

- High Purity Water
- Electroless Nickel Plating
- Plating Baths
- Rinse Tanks
- Bulk Chemical Filtration
- Wet Processing
- IPA Pre-Wetting

### Features:

- All PVDF Materials
- Multi – Round Housings
- High Flow Rates
- Low Extractables
- IR/Butt Fusion
- Uniform Flow Distribution
- Individual Filter Stop
- Smooth Flow



Model EG-8C-4C-2-1

## Innovative Solution

*The Multi-Round Electronic Grade Housings are designed for flow rates up to 145 GPM, while handling the most stringent applications in the electronic industry. All facets of the design and manufacturing process of this product have been focused on the user being able to achieve low extractables while filtering down to 0.02 microns absolute. The construction materials are PVDF or Polypropylene. The process, drain, and vent valve connections have been constructed utilizing the latest technology in welding (IR/Butt Fusion).*

*A retainer assembly is supplied providing each cartridge with a stop that ensures the “O” Rings stay engaged even under back pressure. This design feature specifically addresses the large tolerance on the length of PTFE filter cartridges.*

*The filter chamber has been designed to provide a smooth flow path from the inlet to the outlet. This ensures that the flow velocity of the fluid is maximized while traveling through the chamber, thus keeping particles in suspension until they are filtered out. A sophisticated flow distribution model has been utilized to ensure that the process fluid flows uniformly along the length of the filter elements. This feature increases the on-stream life of the filter elements as much as 30%.*

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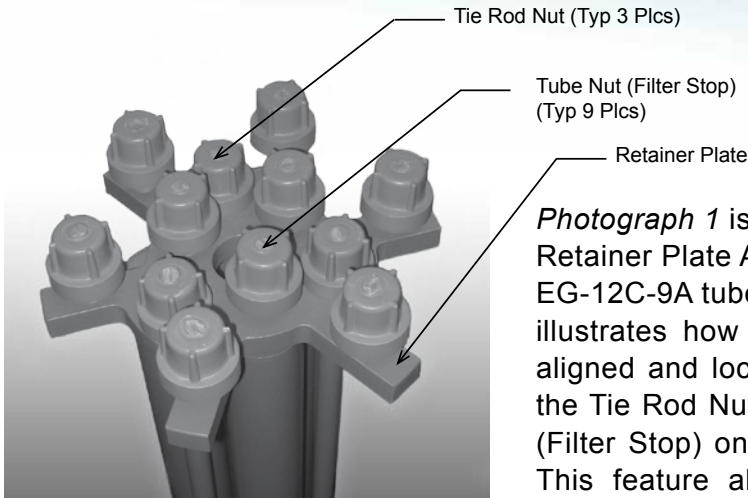


Photo 1- Retainer Plate Assembly (EG-12C-9A)

Photograph 1 is an end view of the Retainer Plate Assembly for an EG-12C-9A tube bundle. Photo 1 illustrates how each filter can be aligned and locked in place using the Tie Rod Nut and the Tube Nut (Filter Stop) on the retainer plate. This feature allows the operator to easily secure each filter quickly and safely. Photo 2 demonstrates 1.0" length adjustment available with each filter cartridge.

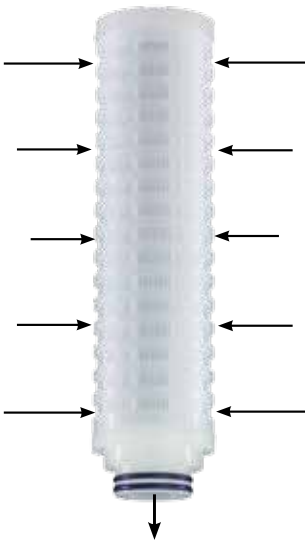


Illustration 1 shows graphically the benefits a uniform flow distribution has. When the filter cartridges are spaced correctly, as shown in Illustration 2, the flow goes equally around each filter cartridge. This ensures that the contamination builds uniformly around the filter cartridges fully using all of the filter media in each cartridge extending the on-stream life.

Illust. 1  
Flow Velocity

Chart 1  
Filter Housing  
Pressure Drop

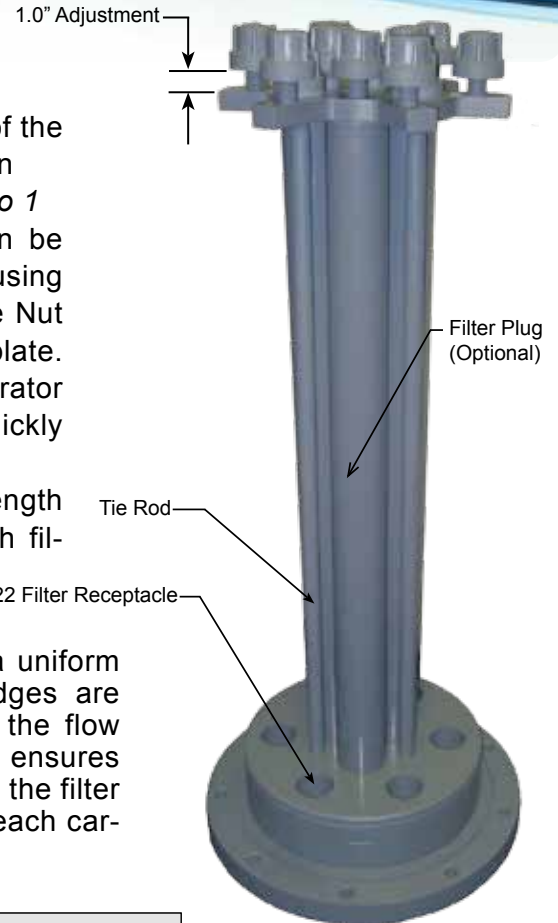
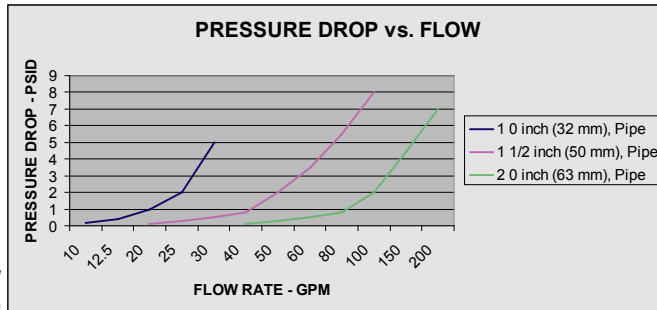
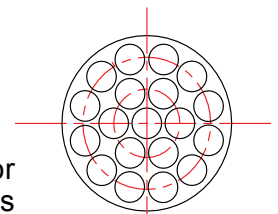


Photo 2- Tube Bundle Hardware (EG-12C-9A)



Illust. 2  
End View of Filter Bundle

### EG SERIES SPECIFICATIONS

Chamber Model	GPH Based on 70°F Water	Cartridge No. & Length	Connection Size	Shipping Wt. lbs.
4C-1	0 - 300	1 - 10"	1.0"	7
4C-2	300 - 570	1 - 20"	1.0"	10
4C-3	450 - 810	1 - 30"	1.0"	13
8C-4-1	750 - 1200	4 - 10"	1.5"	34
8C-4-2	1200 - 2400	4 - 20"	1.5"	46
8C-4-3	2400 - 3600	4 - 30"	1.5"	58
8C-4-4	3600 - 4800	4 - 40"	2.0"	70
12C-9-1	1300 - 2700	9 - 10"	1.5"	72
12C-9-2	2700 - 5400	9 - 20"	1.5"	92
12C-9-3	5000 - 6500	9 - 30"	2.0"	112
12C-9-4	6200 - 8640	9 - 40"	2.0"	132

All dimensions are in inches, 1.0 inch = 25.4mm

The inlet and outlet connections for 8C, 12C and 18C filter chambers come standard with ANSI flanges. To determine pressure drop, first obtain the correct pipe size from the EG Series Specifications Table and the Model No. Then use that information to get the pressure drop from Chart 1.

Other factory flange arrangements, process control valves, control panel and skid mounted arrangements are available upon request.

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### Specifications:

Housing Type: Multi -Round

Max Temperature: 260°F (121.5C)

Cartridge Type: 222/226 "O" Ring

Max Cartridge Dia. (in): 2.75 (69.9 mm)

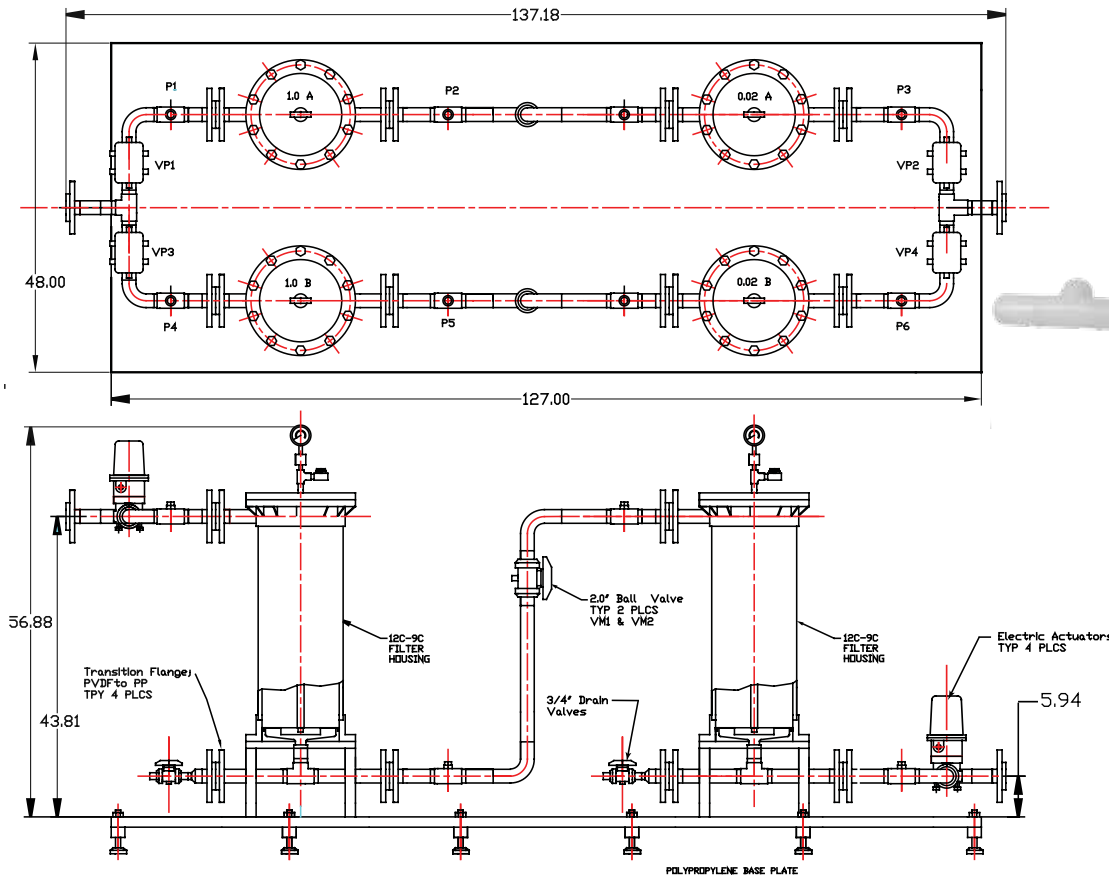
Material: PVDF or PP

Max Pressure (PSI): 70 PSI (4.93Kg/Cm<sup>2</sup>)

Seals: Viton, Kalraz or FEP Encapsulated Viton



8C-4C-2 (PVDF)



Schematic 1

Automatic Pre & Final Duplex Filtration System

All series EG Filter Housings are specifically designed to accommodate cartridge tolerances of +/- 0.75 in length to ensure proper interface with all existing filter manufacturer's cartridges available in the market. Although the major manufacturers of cartridges offer many styles and codes, at least one style will fit the EG chamber, Consult factory for verification. The process, drain and vent valve connections have been constructed utilizing the latest technology in welding (IR/Butt Fusion).

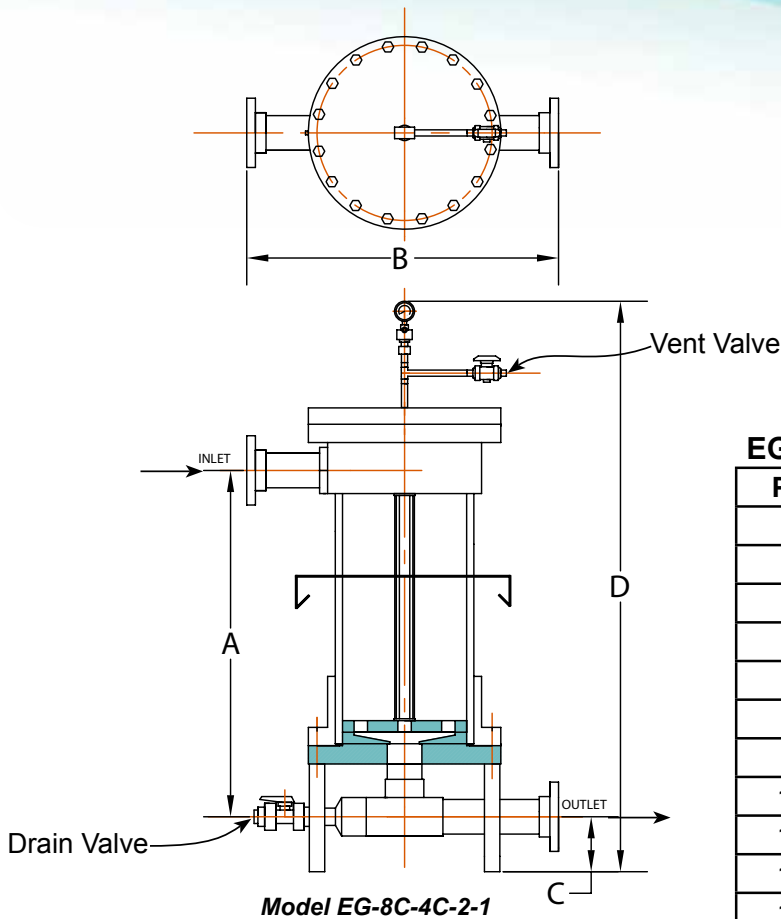
Penguin staff engineers are leaders in their respective fields, each having published in industry recognized magazines, presented technical papers and hold numerous patents. Our engineering staff is friendly and willing to solve problems that others have abandoned. We offer complete filtration systems, an example of an advanced system would have multiple EG Series Filter Vessels arranged in parallel with pre and final filtration, ancillary piping, automated valves, computerized controls with variable functions of time and pressure, see Schematic 1.

Contact us for additional information regarding advance capabilities and features.



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## Electronic Grade Filter Housings



### EG SERIES DIMENSIONS

PART#	"A"	"B"	"C"	"D"
4C1	18-1/8"	1-3/8"	3 1/2"	7"
4C-2	28-1/8"			
4C-3	38-1/8"			
8C-4-1	33"	22-1/2"	4.13"	25-1/8"
8C-4-2	43"	32-1/2"		35-1/8"
8C-4-3	53"	42-1/2"		45-1/8"
8C-4-4	63"	52-1/2"		55-1/8"
12C-9-1	32-3/4"	22-1/4"	4.13"	24-3/4"
12C-9-2	42-3/4"	32-1/4"		34-3/4"
12C-9-3	52-3/4"	42-1/4"		44-3/4"
12C-9-4	62-3/4"	52-1/4"		54-3/4"

All dimensions are in inches, 1.0 inch = 25.4mm

**Note:** The filter housing seal arrangement has been designed to accommodate variable lengths of all Teflon membrane cartridges while providing a positive seal.

### NOMENCLATURE

Electronic Grade	Chamber Diameter	Chamber Series	No. of Cartridges	Chamber Material	Cartridge Length	Cartridge Fitting	Seal
EG	4 = 4" Dia	C - Filter	1 = 1	B=Polypropylene	1= 10"	1 = 222	V = Viton
	8 = 8" Dia		4 = 4	C=PVDF	2= 20"	2 = 226	K = Kalrez
	12=12" Dia		9 = 9		3 = 30"		FEP = FEP Encapsulated Viton
					4= 40"		E = EPDM

PART NUMBER EXAMPLE: **EG-8C-4C-2-1-V**