

# PENGUIN

Installation & Maintenance

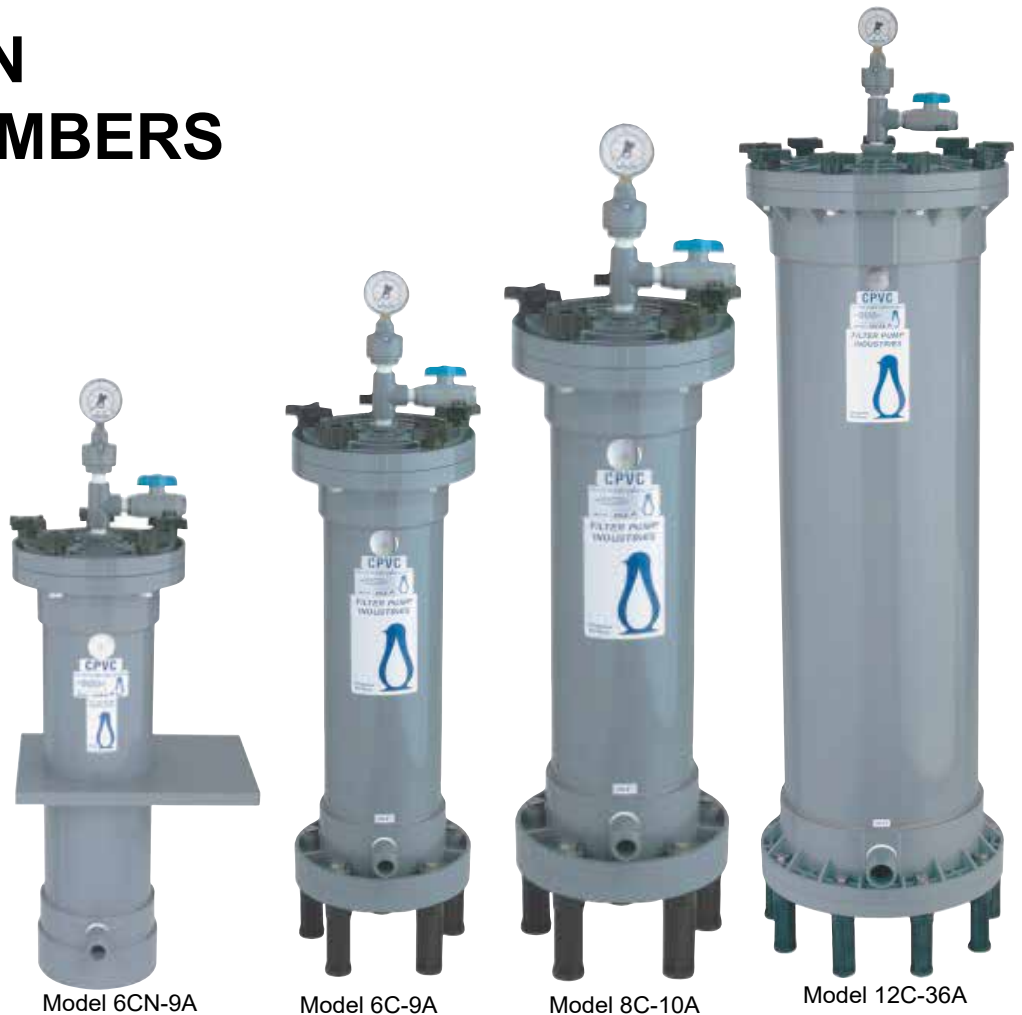
## SERIES C/CN FILTER CHAMBERS

### Models

- 6C (A or B)
- 8C (A, B, or C)
- 12C (A, B, or C)
- 6CN (A or B)
- 8CN (A or B)

### Materials

- A - CPVC
- B - Polypropylene
- C - PVDF



### INTRODUCTION

Penguin corrosion resistant filter chambers are recommended for a wide range of acidic or alkaline solutions. Three standard materials of construction where in direct solution contact are offered: A = CPVC/viton, B = polypropylene/EPR, and C = PVDF/viton. There is no metal to liquid contact, no springs to lose or break, no crushed tubes, no liquid bypass, and no external frame rods employed. Models 6C, 8C, and 12C chambers incorporate ribbed interchangeable tops and bottoms, double labyrinth o-ring sealing, and ribbed, long-sleeved flanges attached to the chamber shell, allowing for proper operation at elevated temperatures and pressures. The model 6CN in-tank chambers incorporate our standard features at the top of the chamber with a schedule 80, 6" half coupling securing everything at the bottom.

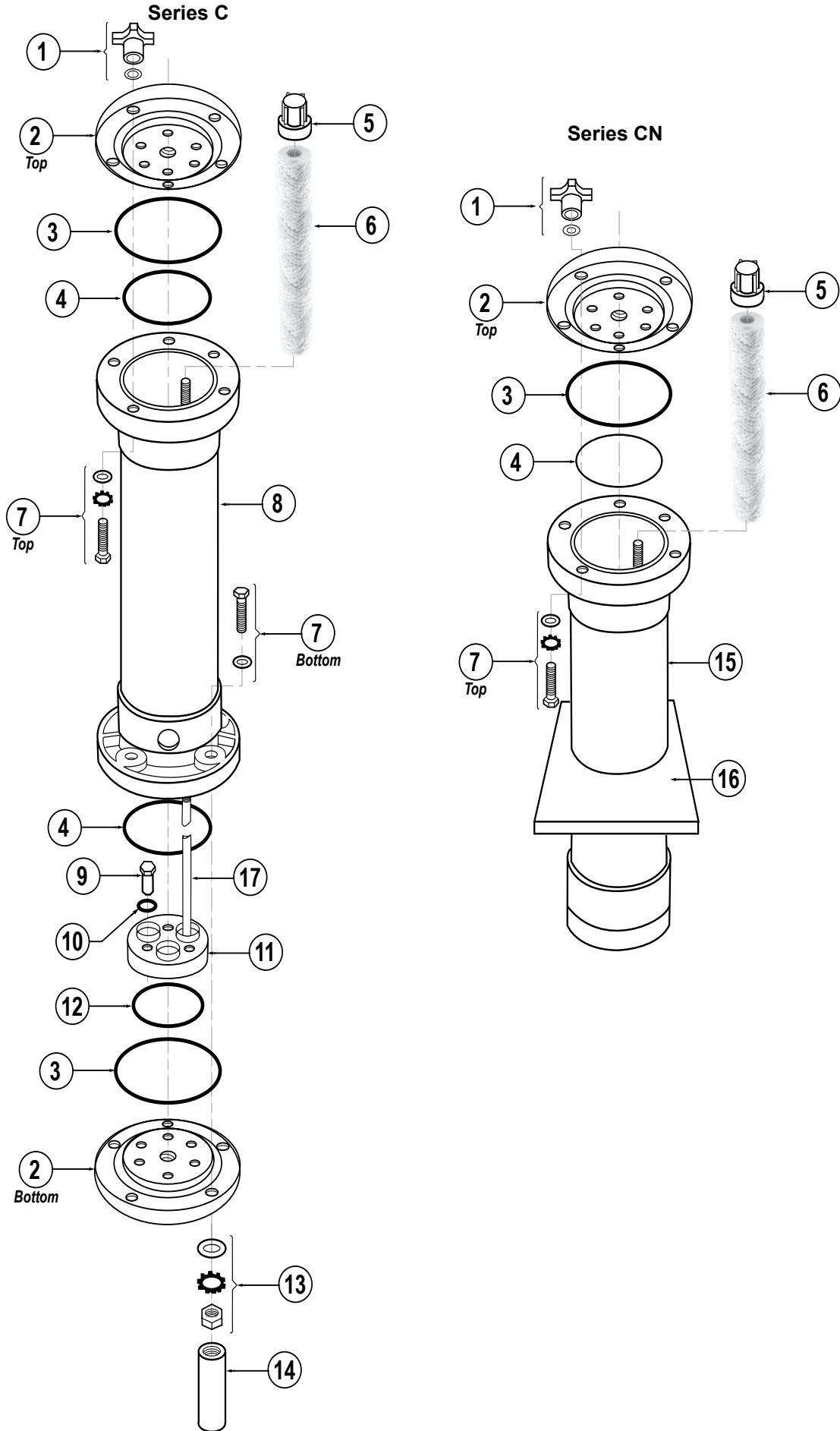
*Innovative Fluid Management Systems*

7932 Ajay Drive • Sun Valley, CA 91352

Phone: (818) 504-2391 • Fax: (818) 768-7590 • Internet: [www.filterpump.com](http://www.filterpump.com) • Email: [Info@filterpump.com](mailto:Info@filterpump.com)

**PENGUIN**   
**FILTER PUMP INDUSTRIES**

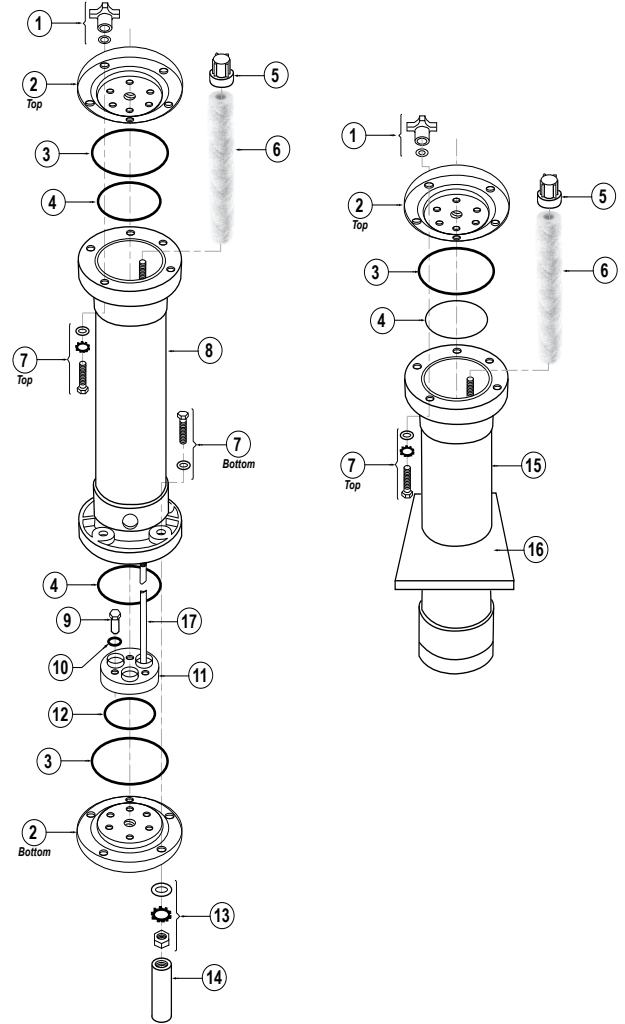
# Filter Chamber Spare Parts Drawing & 6C/8C/12C Filter Chamber Spare Parts List



# Spare Parts

## Spare Parts 6C, 8C, 12C

Item	Description	6C	6C	8C	8C	12C	12C
1	Knob & Washer	C-600-01	5	C-600-01	5	C-600-01	9
2A-TOP	Head/Flange-TOP, CPVC	C-600-02A-TOP	1	C-800-02A-TOP	1	C-120-02A-TOP	1
2A-BOT	Head/Flange-BOT, CPVC	C-600-02A-BOT	1	C-800-02A-BOT	1	C-120-02A-BOT	1
2B-TOP	Head/Flange-TOP, Polypro	C-600-02B-TOP	1	C-800-02B-TOP	1	C-120-02B-TOP	1
2B-BOT	Head/Flange-BOT, Polypro	C-600-02B-BOT	1	C-800-02B-BOT	1	C-120-02B-BOT	1
2C-TOP	Head-TOP-PVDF	C-600-02C-TOP	1	C-800-02C-TOP	1	C-120-02C-TOP	1
2C-BOT	Head-BOT-PVDF	C-600-02C-BOT	1	C-800-02C-BOT	1	C-800-02C-BOT	1
3E-A	Head O-ring - EPR - CPVC	C-600-03E-A	2	C-800-03E-A	2	C-120-03E-A	2
3E-C	Head O-ring - EPR - PVDF	C-600-03E-C	2	C-800-03E-C	2	C-120-03E-C	2
3E-Q	Head/Flange Quad Ring - EPR	C-600-03E-Q	2	C-800-03E-Q	2	C-120-03E-Q	2
3V-A	Head O-ring - Viton - CPVC	C-600-03V-A	2	C-800-03V-A	2	C-120-03V-A	2
3V-C	Head O-ring - Viton	C-600-03V-C	2	C-800-03V-C	2	C-120-03V-C	2
3V-Q	Head/Flange Quad Ring - Viton	C-600-03V-Q	2	C-800-03V-Q	2	C-120-03V-Q	2
4E-A	Shell O-ring - EPR	C-600-04E-A	2	C-800-04E-A	2	C-120-04E-A	2
4E-C	Shell O-ring - EPR	C-600-04E-C	2	C-800-04E-C	2	C-120-04E-C	2
4E-Q	Shell Quad Ring - EPR	C-600-04E-Q	2	C-800-04E-Q	2	C-120-04E-Q	2
4V-A	Shell O-ring - Viton	C-600-04V-A	2	C-800-04V-A	2	C-120-04V-A	2
4V-C	Shell O-ring - Viton	C-600-04V-C	2	C-800-04V-C	2	C-120-04V-C	2
4V-Q	Shell Quad Ring - Viton	C-600-04V-Q	2	C-800-04V-Q	2	C-120-04V-Q	2
5A	Tube Nut - CPVC	C-400-04A	3	C-400-04A	5	C-400-04A	12
5B	Tube Nut - Polypro	C-400-04B	3	C-400-04B	5	C-400-04B	12
5C	Tube Nut - PVDF	NA	3	C-400-04C	5	C-400-04C	12
6-DOE	Tube Filter, DOE	**	3	**	5	**	12
6-SOE	Tube Filter, SOE	**	2	**	4	**	9
7-TOP	Flange Bolt & Washer Assy	C-600-07-TOP	5	C-600-07-TOP	5	C-600-07-TOP	9
7-BOT	Flange Bolt & Washer Assy	C-600-07-BOT	5	C-600-07-BOT	5	C-600-07-BOT	9
7-TOP-T	Flange Bolt & Washer Assy, Titanium	C-600-07-TOP-T	5	C-600-07-TOP-T	5	C-600-07-TOP-T	9
7-BOT-T	Flange Bolt & Washer Assy, Titanium	C-600-07-BOT-T	5	C-600-07-BOT-T	5	C-600-07-BOT-T	9
8A-1	Shell - CPVC 10"	C-600-08A-1	1	C-800-08A-1	1	C-120-08A-1	1
8B-1	Shell - Polypro 10"	C-600-08B-1	1	C-800-08B-1	1	C-120-08B-1	1
8C-1	Shell - PVDF 10"	C-600-08C-1	1	C-800-08C-1	1	C-120-08C-1	1
8A-2	Shell - CPVC 20"	C-600-08A-2	1	C-800-08A-2	1	C-120-08A-2	1
8B-2	Shell - Polypro 20"	C-600-08B-2	1	C-800-08B-2	1	C-120-08B-2	1
8C-2	Shell - PVDF 20"	C-600-08C-2	1	C-800-08C-2	1	C-120-08C-2	1
8A-3	Shell - CPVC 30"	C-600-08A-3	1	C-800-08A-3	1	C-120-08A-3	1
8B-3	Shell - Polypro 30"	C-600-08B-3	1	C-800-08B-3	1	C-120-08B-3	1
8C-3	Shell - PVDF 30"	C-600-08C-3	1	C-800-08C-3	1	C-120-08C-3	1
8A-4	Shell - CPVC 40"	C-600-08A-4	1	C-800-08A-4	1	C-120-08A-4	1
8B-4	Shell - Polypro 40"	C-600-08B-4	1	C-800-08B-4	1	C-120-08B-4	1
8C-4	Shell - PVDF 40"	C-600-08C-4	1	C-800-08C-4	1	C-120-08C-4	1
9A	Manifold Bolt - CPVC	C-600-09A	3	C-600-09A	5	C-600-09A	3
9B	Manifold Bolt - Polypro	C-600-09B	3	C-600-09B	5	C-600-09B	3
9C	Manifold Bolt - CPVC	C-600-09C	3	C-600-09C	5	C-600-09C	3
10E	Manifold Bolt O-ring - EPR (DOE only)	C-600-10E	3	C-600-10E	5	C-600-10E	3
10V	Manifold Bolt O-ring - Viton (DOE only)	C-600-10V	3	C-600-10V	5	C-600-10V	3
11A-DOE	Manifold - CPVC (DOE) (Bolted)	C-600-11A-DOE	1	C-800-11A-DOE	1	C-120-11A-DOE	1
11B-DOE	Manifold - Polypro (DOE) (Bolted)	C-600-11B-DOE	1	C-800-11B-DOE	1	C-120-11B-DOE	1
11A-SOE	Manifold - CPVC (SOE) (Bolted)	C-600-11A-SOE	1	C-800-11A-SOE	1	C-120-11A-SOE	1
11B-SOE	Manifold - Polypro (SOE) (Bolted)	C-600-11B-SOE	1	C-800-11B-SOE	1	C-120-11B-SOE	1
11C-SOE	Manifold - PVDF (DOE) (Bolted)	C-600-11C-DOE	1	C-800-11C-DOE	1	C-120-11C-DOE	1
12E	Manifold O-ring - EPR (DOE)	C-600-12E	1	C-800-12E	1	C-120-12E	1
12V	Manifold O-ring - Viton (DOE)	C-600-12V	1	C-800-12V	1	C-120-12V	1
13	Nut, Lock Washer & Washer Assy	C-600-13	5	C-600-13	5	C-600-13	9
13-T	Nut, Lock Washer & Washer Assy, Titanium	C-600-13-T	5	C-600-13-T	5	C-600-13-T	9
14	Chamber Leg, Lexan	C-600-14	5	C-600-14	5	C-600-14	9
14B	Chamber Leg, Polypro	C-600-14B	5	C-600-14B	5	C-600-14B	9
14C	Chamber Leg, PVDF	C-600-14-C	5	C-600-14-C	5	C-600-14-C	9
15A-1	Shell bottom/Manifold Assy-10"(6CN)CPVC,Cemented	C-600-15A-1	1	C-800-15A-1	NA	NA	NA
15A-2	Shell bottom/Manifold Assy-20"(6CN)CPVC,Cemented	C-600-15A-2	1	C-800-15A-2	NA	NA	NA
15A-3	Shell bottom/Manifold Assy-30"(6CN)CPVC,Cemented	C-600-15A-3	1	C-800-15A-3	NA	NA	NA
16A	B-Mount Bracket, (6CN) CPVC	B-6C-A	1	B-8C-A	NA	NA	NA
17A-6	Tube Rod - CPVC 6", DOE	C-400-03A-6	3	C-400-03A-6	5	C-400-03A-6	12
17B-6	Tube Rod - Polypro 6", DOE	C-400-03B-6	3	C-400-03B-6	5	C-400-03B-6	12
17C-6	Tube Rod - PVDF 6", DOE	C-400-03C-6	3	C-400-03C-6	5	C-400-03C-6	12
17A-1	Tube Rod - CPVC 10", DOE	C-400-03A-1	3	C-400-03A-1	5	C-400-03A-1	12
17B-1	Tube Rod - Polypro 10", DOE	C-400-03B-1	3	C-400-03B-1	5	C-400-03B-1	12
17C-1	Tube Rod - PVDF 10", DOE	C-400-03C-1	3	C-400-03C-1	5	C-400-03C-1	12
17A-2	Tube Rod - CPVC 20" DOE	C-400-03A-2	3	C-400-03A-2	5	C-400-03A-2	12
17B-2	Tube Rod - Polypro 20" DOE	C-400-03B-2	3	C-400-03B-2	5	C-400-03B-2	12
17C-2	Tube Rod - PVDF 20" DOE	C-400-03C-2	3	C-400-03C-2	5	C-400-03C-2	12
17A-3	Tube Rod - CPVC 30" DOE	C-400-03A-3	3	C-400-03A-3	5	C-400-03A-3	12
17B-3	Tube Rod - Polypro 30" DOE	C-400-03B-3	3	C-400-03B-3	5	C-400-03B-3	12
17C-3	Tube Rod - PVDF 30" DOE	C-400-03C-3	3	C-400-03C-3	5	C-400-03C-3	12
17A-4	Tube Rod - CPVC 40" DOE	C-400-03A-4	3	C-400-03A-4	5	C-400-03A-4	12
17B-4	Tube Rod - Polypro 40" DOE	C-600-03B-4	3	C-600-03B-4	5	C-600-03B-4	12
17C-4	Tube Rod - PVDF 40" DOE	C-600-03C-4	3	C-600-03C-4	5	C-600-03C-4	12
18A	Gauge/Guard - Air Vent Valve Assy- CPVC	C-600-18A	1	C-800-18A	1	C-800-18A	1
18B	Gauge/Guard - Air Vent Valve Assy- Polypro	C-600-18B	1	NA	NA	NA	NA
18C	Gauge/Guard - Air Vent Valve Assy- PVDF	NA	NA	C-800-18C	1	C-800-18C	1
20A	Head - SOE Manifold Assy, Cemented - CPVC	C-600-20A-SOE	1	C-800-20A-SOE	1	C-120-20A-SOE	1
20B	Head - SOE Manifold Assy, Welded - Polypro	C-600-20B-SOE	1	C-800-20B-SOE	1	C-120-20B-SOE	1
20C	Head - SOE Manifold Assy, Welded - PVDF	C-600-20C-SOE	1	C-800-20C-SOE	1	C-120-20C-SOE	1



\*\* Consult Factory

\*\*\* All SOE manifolds must be purchased in conjunction with a new head/flange ass'y since SOE manifolds are only cemented or heat welded to the respective head/flange ass'y. They should be ordered under item 20 as one complete bottom/manifold ass'y.

# INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

## PLUMBING

Model 6C/8C/12C filter chambers should be mounted vertically on their legs with their outlet port on the bottom, facing downward. Do not mount these chamber models in the solution inside the reservoir unless the chamber is specifically designed for in-tank installation. If this is the case, then employ a B-mount bracket. An "N" will be designated in the part number as follows: 6CN-6A or 6CN-9A. The inlet/outlet ports are as follows: 6C = 1" NPT and 8C/12C = 1 1/2" NPT. Whether purchased as a separate unit or a complete filter system, 6C/8C/12C filter chambers can be singularly or base-mounted with the pump on the floor outside the solution reservoir, or inside the tank for models: 6CN-6A and 6-CN-9A only. In-tank mounting will provide a compact unit while having all of the solution flow confined to inside the tank, thus preventing possible loss of solution. All base mounted chambers are hoses or rigid piped and valved on a common baseplate, in conjunction with pressure gauge and guard/air vent valve ass'y, and an initial set of cartridge filters. Model 2-6C/2-8C/2-12C indicates two (2) chambers rigid piped and valved on a common baseplate in parallel, having single inlet and dual outlets, in conjunction with gauge and guard/air vent valve ass'y and an initial set of cartridge filters.

## TUBE EXCHANGE

Each 6C/8C/12C filter chamber is equipped with one initial set of 15 micron filter tubes. The following are filter chamber models with their respective tube numbers and lengths.

Refer to Bulletin 101 for details regarding the Penguin 6C/8C/12C chamber designed for SOE cartridge filter configurations.

There is no set timetable for spent filter tube replacement. Cartridge filter change-out varies with each application. No two are ever completely identical, only similar. Change-out is based on the following: a) solution type; b) continuous or non-continuous operation; c) single-pass or recirculation; d) particle type, size, and distribution; e) micron porosity; and f) flow rates. As a helpful guide, a pressure gauge and guard ass'y is supplied to help determine differential pressure ( $\Delta P$ ) between clean tubes and those in need of replacement. (See Maintenance for replacement instructions, immediately following).

Models	No. of DOE tubes	Length of tubes	
6C -	6C-3/6CN-3	3	10"
	6C-6/6CN-6	3	20"
	6C-9/6CN-9	3	30"
C -	8C-5/8CN-5	5	10"
	8C-10/8CN-10	5	20"
	8C-15/8CN-15	5	30"
	8C-20	5	40"
12C -	12C-12	12	10"
	12C-24	12	20"
	12C-36	12	30"
	12C-48	12	40"

## ASSEMBLY 6C/8C/12C

- 1) Screw the hex head bolts with larger washers into both shell flanges, where the metal inserts are exposed. Tighten the bolts using a 3/4" wrench. Do not over-tighten.
- 2) Press two (2) of the #4 O-rings evenly into the grooves located on the flanges. Press one (1) #3 O-ring evenly into the groove of the bottom flange. Press the #12 O-ring into the groove of the #11 manifold. The O-ring is undersized and must be stretched while pressing into the groove. Moistening this O-ring with water will ease this operation.
- 3) Place #10 O-rings underneath the 3/4" manifold bolt. Align the timing mark on the manifold with the timing mark on the bottom flange. Remember that the knife-edges of the manifold must face upwards.
- 4) Align the timing mark on the side of the bottom head containing the manifold with the timing mark on the shell flange. Be sure the threaded side hole is at the bottom. Using a 3/4" wrench, secure the bottom head onto the shell by tightening the nuts. Make sure that you use the flat and lock washers and that you alternate diagonally until all nuts are tight. The chamber legs have a recessed cavity on one side. Screw the chamber legs with the cavity over the nuts, hand tightening only. Do not use any tools to tighten these legs.
- 5) Press the second #3 O-ring into the head groove. Position the chamber with the remaining bolts at the top. Place the head over the bolts. Tighten the head down by hand using the #1 washer and knobs. Alignment of the timing marks is not necessary.