

## DESCRIPTION

### Model Number System.

Refer to the box at right. The one or two digit Series Designator relates to the approximate micron rating of each model coalescer cartridge. Note that this is a nominal rating and should be used for reference only.

The “0”, “2”, and “4” Series all-fiberglass cartridges are rated at 25, 5, and 3 microns respectively. The “2” and “4” Series are commonly used with diesel and other fuel oils, and are a compromise between filtration efficiency (cartridge life) and water removing capability. They coalesce gross water, but normally do not remove fine water haze.

The all-fiberglass “6” Series was originally developed for jet fuel service (the original MIL-F-8901 specification). With a 2-micron rating, it has proven to be the most cost effective design in some jet fuel applications. “6” Series cartridges are also used in gasoline filtration service. However, it should be noted

that the powerful detergent additives in most automotive gasolines reduce the coalescing capability of this and other cartridge designs.

### “83” Series Cartridges.

The 1-micron rated “83” Series is a pleated media/fiberglass cartridge. The very practical “83” Series cartridges have become the most widely used design in applications including gasoline, condensate, and insulating oil filtration.

### “85” and “87” Series Cartridges.

The “85” Series is rated at 0.5-micron while the “87” Series is rated at 0.3 micron. Both incorporate multi-layered pleated media. The “85” Series has consistently shown superior dirt holding capacity in the field.

### JF5 Series Coalescers.

JF5 Series Cartridges are Parker Velcon’s newest design. Combined with V5N5 Series Separators, they offer higher flow rates and extended service life.

### EI\* 1581 6th Edition Cartridges.

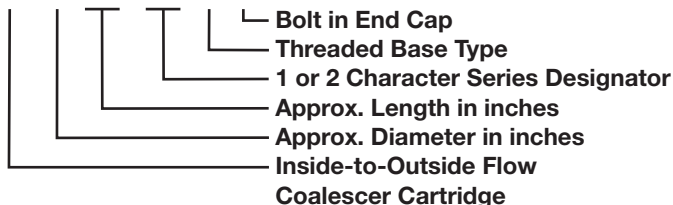
I-6xxC5 (TB), I-6xxMM, and I-6xxA4 Series of coalescers incorporate a multi-layered pleated media designed to provide superior dirt holding capacity in the field, combined with 0.4 micron efficiency. The I-6xxC5 (TB) replaces both the I-6xx85 (TB) and I-6xx87 (TB) cartridges. These cartridges are available in either threaded base or open-end configuration. See pages 7, 20 & 21 for more specific information on EI 1581 6th Edition.

Cartridge Dimensions. 6” diameter cartridges are the current industry standard. They are offered in lengths of 11”, 14”, 22”, 28”, 33”, 38”, 44”, and 56”. However, not all series are available in all lengths or in both end cap designs.

4” diameter cartridges are also offered for use with older equipment. They are available in a variety of lengths ranging from 8 to 40 inches.

**Parker Velcon Model Numbers** include significant product information. **Example:**

**I - 6 2 8 C 5 T B**



Note that I-628C5 would designate the open end version of this cartridge.

## GENERAL SPECIFICATIONS

- 75 psi maximum pressure differential rating
- 5 to 9 pH range
- 250°F (121.1°C) maximum operating temperature
- Aluminum center tube
- Buna-N gaskets
- Injection molded end caps are standard on 6” diameter threaded base coalescers;
- Aluminum end caps are standard on 6” diameter open end cartridges
- All 6” diameter cartridge end caps are bonded directly to the media with high strength epoxy or urethane
- 4” diameter cartridge have molded polyester resin or injection molded end caps

\*EI (Energy Institute) is the new specification authority. API (American Petroleum Institute) is no longer involved in aviation fuel filtration specifications.



# Separator Cartridges

## Filter/Separator 2nd Stage Elements

### FEATURES

- Optimum 2nd stage water removal
- Choice of PTFE Coated Screen, Synthetic or Pleated Paper Media
- Field proven performance
- Largest selection of replacement elements

### DESCRIPTION

Separator Cartridges are employed as the second stage in filter/ separator vessels. Their sole function is to repel coalesced water drops produced by the first stage cartridges while allowing hydro-carbon fluids to pass through. Water drops settle into the filter/ separator sump and are not carried downstream. All particle filtering is done by the first stage coalescer cartridge.

Flow direction is from outside-to-inside. The top photo insert shows water being repelled by the hydrophobic separator medium on the cartridge's outside surface. Hydrocarbon fluids, on the other hand, easily pass through and exit the separator cartridge. Cartridges with three different types of repelling media are offered:

PTFE Coated Screen (PCS) Cartridges are, by far, the most popular type of separator cartridge. With proper cleaning and inspection, cost effective PCS elements can be reused over many changeout cycles. And, PCS cartridges generate considerably less static charge than pleated paper cartridges. These features have made them the preferred choice for aircraft fueling applications.

Pleated Paper Cartridges cannot be reused and are replaced at every coalescer cartridge changeout. They are often used with diesel and other fuel oils which may contain materials that adhere to PCS cartridges and cannot be cleaned off.

Synthetic Media Cartridges can be cleaned a maximum of two times. They are intended for customers who do not want to take the time to clean and re-use separators.

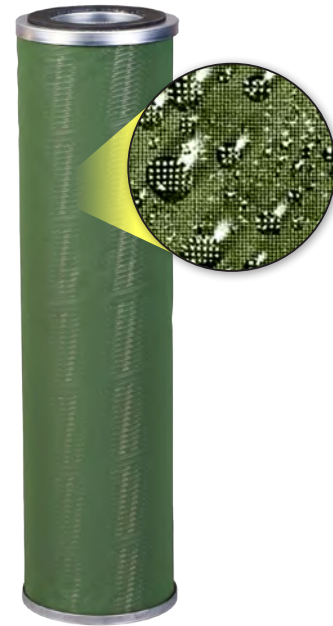
### SEPARATOR CARTRIDGE PERFORMANCE

Maintaining a uniform flow along the length of the cartridge optimizes performance and reduces the number of cartridges required. Flow is controlled by a tube, inside each cartridge, through which the hydrocarbon fluid exits the cartridge and the filter/separator vessel. Two styles of inner tube are offered. See bottom photo.

Cartridges with uniform hole pattern inner tubes are adequate for many applications. However, where optimum flow distribution is required, cartridges with variable hole pattern inner tubes are recommended. When converting older equipment, a lesser number of variable hole pattern cartridges is usually required. Operating costs will therefore be reduced.

### SEPARATOR CARTRIDGES

Model numbers containing a "C" in denotes a uniform hole pattern on the inner tube with PCS media, while the codes with a "V" signifies a variable hole pattern with PCS media. Blind caps have a hole for the tie rod.



Coalesced water drops from the first stage are shown (above) intruding upon the surface of the PCS Separator Cartridge. The droplets are repelled by the PTFE coated screen, enabling the droplets from passing through. The screen magnification shows how the droplets form on the surface of the PTFE coating.

### INNER TUBE HOLE PATTERN



Uniform Variable

Velcon Model Numbers include significant product information. **Example:**

S O - 6 3 6 P V

- Code identifying Media, Tube Type, and End Cap Design
- Approx. Length in inches
- Approx. Diameter in inches
- Outside-to-Inside Flow Separator Cartridge

## CARTRIDGE CODE IDENTIFICATION

Model	Flow Control (perforation)	Dimensions (inches)			Media
		OD	Mounting End ID	Opposite End ID	
SO-3xxC	Uniform	3 <sup>1</sup> / <sub>6</sub>	2	Blind	PCS
SO-3xxV	Variable	3 <sup>1</sup> / <sub>6</sub>	2	Blind	PCS
SO-4xxC	Uniform	4 <sup>1</sup> / <sub>6</sub>	3 <sup>1</sup> / <sub>2</sub>	Blind	PCS
SO-4xxV	Variable	4 <sup>1</sup> / <sub>6</sub>	3 <sup>1</sup> / <sub>2</sub>	Blind	PCS
SO-6xxC	Uniform	6	3 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>	PCS
SO-6xxCA	Uniform	6	3 <sup>1</sup> / <sub>2</sub>	Blind	PCS
SO-6xxCM	Uniform	6	4 <sup>1</sup> / <sub>2</sub>	Blind	PCS
SO-6xxVA(5)	Variable	6	3 <sup>1</sup> / <sub>2</sub>	Blind	PCS
SO-6xxV(5)	Variable	6	4 <sup>1</sup> / <sub>2</sub>	Blind	PCS
SO-6xxPV(5)	Variable	6	4 <sup>1</sup> / <sub>8</sub>	Blind	PCS
SO-6xxPLF3*	Uniform	6	3 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>	Pleated Paper
SO-6xxPLBZ*	Uniform	6	3 <sup>1</sup> / <sub>2</sub>	Blind	Pleated Paper
SO-6xxVASN(5)	Variable	6	3 <sup>1</sup> / <sub>2</sub>	Blind	Synthetic
SO-6xxVSN(5)	Variable	6	4 <sup>1</sup> / <sub>2</sub>	Blind	Synthetic
SO-6xxPVS(5)	Variable	6	4 <sup>1</sup> / <sub>8</sub>	Blind	Synthetic

\*The shelf life for pleated paper separators (for example, SO-xxxPLF3 and SO-6xxPLBZ) is one year.

### SPECIFICATIONS

- PCS medium is 200 mesh stainless steel screen coated on both sides with green PTFE
- The screen is lockseam folded and fastened with an internal aluminum clip
- Pleated medium is silicone treated resin impregnated paper with a protective outer aluminum screen jacket
- Aluminum Tube
- Aluminum and/or glass filled nylon endcaps
- Buna-N gaskets
- pH range: 5 to 9
- Maximum operating temperature: 250°F (121.1°C)

### SO SERIES CARTRIDGES

The code identification table to the left are the most commonly used. A variety of other styles are available for special applications. Contact a local area distributor for details.

SO-6xxPLF3 pleated separators

come in lengths of 11,14, 16, 29, and 33 inches. SO-6xxPLBZ pleated separators come in lengths of 22, 29, 33, and 44 inches.

SO-6xxC cartridges are available in these same stackable lengths plus longer lengths. Single-unit designs, however, are recommended for installation ease and lower cost. Other styles listed in the table are not intended to be stacked.

Parker Velcon variable size hole pattern cartridges should not be replaced with uniform hole pattern cartridges unless appropriate full-scale test data can be supplied showing equivalent performance.

SO-6xxVASN/VSN/PVS(5) separators are intended for customers who want a separator for disposal use rather than a re-useable filter, which can be cleaned a maximum of two times.

### EI 1581 6TH EDITION QUALIFIED SEPARATORS

The SO-6xxV5, SO-6xxPV5, and

SO-6xxVA5 are PTFE Coated Screen (PCS) cartridges. SO-6xxVSN(5), SO-6xxPVS(5), and SO-6xxVASN (5) are synthetic separator cartridges. To achieve optimum flow distribution all of these cartridges incorporate a variable hole pattern inner tube combined with a uniform hole pattern outer tube specifically designed for installation in vertical filter/separators. Please refer to literature form VEL1521 for overall separator dimensions and general specifications.

### CATEGORY FUELS

Parker AFD tests and qualifies a comprehensive range of products to meet the EI 1581 6th Edition Specification.

### CATEGORY C

All of our PCS Separator Cartridges are qualified for Category C.

### CATEGORY M

This category covers military fuels, such as JP8 (similar to Jet A but containing anti-icing and other additives). Separators for this category are currently PCS Separators SO-6xxV5, SO-6xxVA5, and SO-6xxPV5, as well as Synthetic Separators SO-6xxVSN, SO-6xxPVS(5), SO-6xxVSN5 and SO-6xxVASN.

Category M qualified cartridges also qualify for Category C.

### CATEGORY M100

This category is for military fuels such as JP8+100. The PCS Separators for M100 are currently the SO-6xxCM and SO-6xxGS (three-stage).

To obtain your authorized EI 1581 6th Edition Similarity Data Report for existing vessels, please complete Velcon Similarity Certification form VEL1728.

