THE CLARIFIER

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Threaded Base Filter Elements

We have had a number of threaded base filter elements available for over 4 years, but we're still surprised by customers (and some Distributors!) who are not aware of them. The advantages of threaded base filter elements are much easier installation and removal, plus the easier cleanout of the deckplate. (Just think of the "fun" in a vertical vessel with all the long tie rods when it comes time to remove the accumulated dirt from the deckplate before installing the new open end filter elements!!)

Here are the model numbers of the available threaded base filter elements:

FO-629PLF2TB
FO-629PLF5TB
FO-644PLF1/2TB
FO-644PLF1TB
FO-644PLF2TB
FO-644PLF5TB
FO-644PLF10TB
FO-644PLF25TB
FO-656PLF2TB
FO-656PLF5TB

These threaded base filter elements screw easily onto the Velcon 6000T screw base adapters. Existing filter vessels with the 6" OD, 3-1/2" ID open end elements can easily be modified to the screw base adapters and threaded base elements. Try it! - You'll like it!! ⌘

The F-117 posters are here! For your free, limited edition poster, please fax your name, company, address, and phone number to (719) 531-5690. You can also e-mail your request to: vfsales@velcon.com or phone our hotline at 1-800-583-1178.

Synthetic Separators Now Available

The patent pending Repeller,™ Velcon's newly constructed synthetic separator has successfully passed a Group II, Class B series of tests in the vertical test vessel with our 85 series coalescers. The qualified flow rates range from 209 to 1,670 USGPM.

The Repeller is intended for customers who want a low cost, disposable, low static charging separator. The cartridges are competitively priced, and can reduce the number of elements required per vessel. The elements can be cleaned and reused and are interchangeable with Facet Separator cartridges.

A variety of lengths are available up to 44".

Contact Rick Waite at 719-528-7250 or your Velcon authorized distributor for similiarity data sheets and/or more information. ⌘

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Frequently Asked Questions & Answers

Q Does Velcon have any elements that can be used for commissioning Filter/ Separators?

A *We recommend using the FI-6xxFG10TB series which can be used in place of coalescer elements. This ensures that the contaminant is retained inside these cartridges and does not enter the vessels. We also have our FO-754PL05, which can be used for clay vessel commissioning*

Q Can the Hydrokit be used in both jet fuel and avgas?

A *No, only jet fuel and diesel.*

Q How much water can the AC-718 series element hold?

A *This element can hold from two-four quarts of water, depending on the flow rates and viscosity of the fluid.*

Q What is the difference between an FO-436GA and an FO-436G?

A The FO-436GA is five microns and the FO-436G is one micron.

Re-Epoxying of Existing Filter Vessels

Upon inspection or at normal element changes of older filter vessels in the field (clay, pre-filter, or filter/separator vessels) many of you have seen rusting at the bottom and/or sides of the vessels, with the epoxy coating chipped away. What is the procedure to re-epoxy coat these vessels? We have found that the "quick-fix" of re-epoxying the vessel in place usually does not result in reliable epoxy coating.

If a customer wants to re-epoxy the interior of an existing field vessel, we recommend the vessel be removed from the installation, and shipped to a shop that has sand-blast and epoxy paint facilities. To meet API-1581 requirements for the epoxy coating, the epoxy should meet the MIL-C-4556E specification.

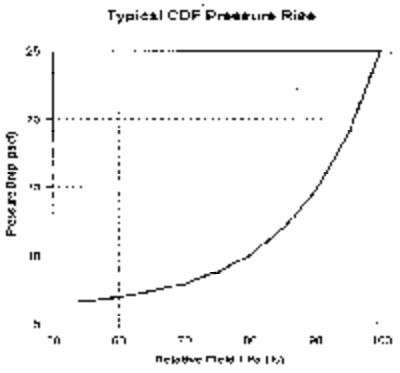
We have found by "trial and error" that once the vessel is in the shop, this is the recommended procedure to get a proper epoxy coating:

A. Sand-blast the vessel interior to "white" metal.
B. Allow the vessel to sit in the hot sun for a few days, or apply heat to the inside of the vessel. This step is very important as it draws out residual fuel from the metal. If the vessel was to be re-epoxied right after the initial sand-blast, this residual fuel in the metal will eventually bubble the epoxy away from the metal, resulting in cracked epoxy and rusting. This could occur within 3-6 months.
C. After the vessel has had the residual fuel "baked away" (the metal now is free of water) a quick 2nd sand blast is applied.
D. The sand-blast material is removed, and the epoxy coating is applied in 2 layers, per the epoxy manufacturer's procedures.

Including shipment to and from the field location, the vessel may be out of service two to four weeks. Velcon can advise price and timing to re-epoxy existing field vessels. ⌘

Changing out of CDF® Cartridges

A major oil company has requested we address the subject of differential pressure, particularly when a major refueling is approaching. If the differential pressure has reached 23 psi and changeout is at 25 psi, it can be seen from the curve below that the time interval between 23 psi and 25 psi is only 3-4% of the cartridge life. In this instance, it may be prudent to change the cartridges at 23 psi, rather than have 25 psi reached during refueling of an aircraft. ⌘



Pre-Filter Confusion

In the March 1994 issue of **The Clarifier** we talked about the sizing of pre-filter (micronic) vessels. Quick summary: oversizing of the pre-filter vessels results in better efficiency of the elements; and it extends the time between element changeouts, which is an economic advantage for the terminals and refineries where available manhours for element changes is at a premium.

Most manufacturers offer pre-filter elements in different nominal efficiencies, ranging from 1/2, 1, 2, 5 micron and higher. The lower the nominal micron rating, the "tighter" the element; and also the lower the nominal micron rating, the more expensive will be the element.

The question is often asked: "How much dirt will this xx micron rated element hold?" We filter manufacturers "dance around" this question because the particulate matter encountered at one location may be considerably different at another location. The particulate matter (size and type of particles) can also vary at a given location, depending on the source of the product (may get receipts from multiple suppliers). Barge deliveries and multi-product pipeline deliveries will probably result in more particulate matter.

To give an estimate to the customer, we say that "normally" we expect a 6" OD by 14-1/2" long pleated paper filter element to hold about 3 pounds of dirt before it gets plugged to 15 psid. The actual amount of dirt the element will hold depends on size of particulate (the smaller the particle size, the faster it will reach 15 psid); the depth of media (the thicker the depth, the more fine particulates it will hold for a given surface area); the type of particulate (the softer or "slimier" the matter, the faster it will reach 15 psid). Other factors, such as excess additive levels in the fuel can also plug up elements faster.

So, you can see we can't apply "rocket science" to our predictions of element life. We guess 3 pounds of dirt for a 14-1/2" long element, or 9-10 pounds for the 44" long elements, and then advise the customer that actual dirt removal before reaching 15 psid is dependent upon conditions at his site.

Many years ago the common pre-filter nominal micron rating for Jet Fuel and Avgas was 5 micron. We recommend the 5 micron filter for diesel, and it may be acceptable for Avgas, but we have switched our recommendations for Avgas and Jet Fuel. For Avgas, we recommend the 2 micron pre-filter. We have found that our 2 micron pre-filters result in about the same life as our 5 micron filters. We guess this has to do with the depth of the paper in the 2 micron elements.

We used to recommend the 2 micron pre-filters for Jet Fuel, but with the development of the API-1581 3rd edition qualified coalescers (our nominal 0.3 micron rated 87 series coalescer, and our 0.5 micron rated 85 series coalescer) we recommend the customer start with an oversized pre-filter vessel containing the 1 micron elements. If the customer still experiences frequent downstream coalescer changes, then we recommend he install the 1/2 micron elements.

The 1/2 micron pre-filter elements are more expensive, but field experience has shown that they usually out-last the 1 micron elements before changeout at 15 psid. Once again, this is due to the thicker media in the 1/2 micron elements. More and more customers have switched to the 1/2 micron pre-filter elements for Jet Fuel.

> "Using prefilters with larger micron rating than the coalescers is like trying to keep animals out of your house with a chain linked fence. It stops the dogs and cats, but the mice walk right in."
> *Howard Gammon, Gammon Technical Products*

We have also added more of the threaded base pre-filter elements to our product line. This makes it easier for changeouts (see accompanying article). We recommend installation of the single length threaded base or open-end filter elements for three reasons:

1. faster and easier installation;
2. less expensive than stacked, shorter elements;
3. less gasket seals to minimize bypass possibility.

We still get customers who complain about elements plugging up too fast when they insist that their fuel is "clean". Occasionally they want "more open" filters to prolong the life. We hate to see this proposed in an Aviation Fuel system, because all they are doing is letting the dirt get closer to the airplane. The general QC principle in removing dirt and water from Aviation Fuel is to keep it as far away as possible from the plane. ⌘

Paper Cone Inserts for Nozzle Screens

There have been a couple of Distributors who have reported fine particulate matter downstream of the final filter in low flow Jet Fuel or Avgas systems. This particulate matter is usually generated by rust from "black iron pipe" or other matter in the system. These original systems were not designed to meet todays requirements. Currently, stainless steel or steel pipe with an internal epoxy coating is used.

Jim Slaughter of Eastern Aviation Fuels proposed a paper cone insert to be installed in the 100 mesh nozzle strainer. We have since produced 3 different sizes of these paper inserts, using 5 micron paper. The available part numbers are: FI-CONE5, FI-CONE5L, and FI-CONE5LL. Admittedly, these are "bandaid" fixes to poorly designed systems, but Jim advises they take care of the problem, protecting the airplane.

If anyone else wants to use the paper inserts in the nozzle screens, just send back the screen, advise the quantity of inserts, and we'll work up the inserts and mail back with one installed in the screen. Prices are available from your friendly Velcon Distributor. ⌘

If you know anyone who would like to receive ***The Clarifier***, fax their name, company and address to:

We also welcome your comments and suggestions on topics covered in ***The Clarifier***.

Velcon Filters, Inc.
Attn: Cheryl Scripter
4525 Centennial Blvd.
Colorado Springs, CO
80919-3350

Phone: (719) 531-5855
Fax: (719) 531-5690
e-mail: vfsales@velcon.com

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Colorado Springs, CO 80919-3350

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