Racor BVFS Series Filter vessels are designed to filter liquid and solid contaminants from jet fuel, kerosene, diesel fuel, gasoline, aviation gas and other hydrocarbon based liquids.

These filter vessels utilize proven Racor and Parker Hannifin technology and may be used as coalescers, pre-filters or dehydrators by changing internal components, flow direction and using optional filter cartridges (factory configured). Water removing elements or silicone impregnated pre-filters may also be used with these vessels. Filtration capabilities down to 0.5 microns and less than 5 ppm water in fuels are obtainable.

Filter vessels feature single, double or triple length cartridges to meet customer flow and filtration requirements. Elements may also be stacked to meet customer needs. Maximum flow rates of 50, 100 or 150 gallons per minute are possible, depending upon fluids or filter cartridges. Additionally, higher flows are possible by multiplexing (factory configured).

The vessel is fabricated from carbon steel with an exterior primer coating of Gavlon suede gray and the interior is epoxy coated which meets MIL-C-4556E.

Accessories include differential pressure gauges, air eliminator, manual or automatic drain valves and water sight gauges.

Vessels also feature adjustable legs for mounting ease.

**Mounting Location**

The BVFS Series are permanently installed units designed for pressure applications up to 245 PSI at 250°F.

Install the unit in a location which provides accessibility, protection from heat or flames and accidental impacts. Always adhere to applicable local piping regulations or codes. Use the maximum line size possible and avoid reducers and elbows. (A shut-off valve is required prior to the inlet fitting).

<table>
<thead>
<tr>
<th>SPECIFICATIONS</th>
<th>BVFS-1</th>
<th>BVFS-2</th>
<th>BVFS-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet / Outlet Ports, Flow Rate, maximum Design Press. / Temp.</td>
<td>50 GPM / 189.3 LPM 245 PSI @ 250°F 17 bar @ 121°C</td>
<td>100 GPM / 378.5 LPM 245 PSI @ 250°F 17 bar @ 121°C</td>
<td>150 GPM / 568 LPM 245 PSI @ 250°F 17 bar @ 121°C</td>
</tr>
<tr>
<td>Max. Allowable Working Pressure</td>
<td>245 PSI / 17 bar</td>
<td>245 PSI / 17 bar</td>
<td>245 PSI / 17 bar</td>
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<tr>
<td>Replacement Elements See element chart on back page</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead space required for element change: in./mm</td>
<td>16 / 406</td>
<td>32 / 813</td>
<td>47 / 1194</td>
</tr>
<tr>
<td>Height in./mm</td>
<td>39 / 991</td>
<td>51 / 1295</td>
<td>65 / 1651</td>
</tr>
<tr>
<td>Diameter in./mm</td>
<td>13.5 / 343</td>
<td>13.5 / 343</td>
<td>13.5 / 343</td>
</tr>
<tr>
<td>Weight: dry/wet lbs. /kgs.</td>
<td>150 / 200</td>
<td>170 / 250</td>
<td>190 / 300</td>
</tr>
</tbody>
</table>
Installation

The BVFS units are designed to be permanently installed. Mount the unit in a location where it will be accessible for service and element changes. With a single unit installation, it is recommended to install a by-pass system around the unit if continuous service and element change during operation is required. If required, install an additional by-pass on the pump to control flow rate through the BVFS. See illustration below.

In the piping consideration, it is important to determine the pressure losses of the piping system. Pressure losses in the piping system can cause poor filtration efficiency and decreased flow rates. Install the filter in close proximity to the pump. Use 2” (or larger) diameter pipe and fittings. Always comply with all applicable local plumbing and electrical codes.

Typical By-pass System
(Consult factory for vacuum side applications).

A shut-off valve is recommended when the fuel tank is mounted higher than the filter.

A check valve is recommended to enable the system to maintain prime.

Below Ground Fuel Tank
(Suction Side Installation)

Above Ground Fuel Tank
(Pressure Side Installation)

A shut-off valve is recommended when the fuel tank is mounted higher than the filter.

NOTE:
Maintain enough space above the lid for element removal clearance (see element chart for dimensions)

Maintain 8” below the drain.

Primming the units

1. If the fuel tank is located above the unit (pressure application), open the lid air vent and then open the inlet valve. Allow the unit to fill using the head pressure. On vacuum applications, remove the top lid and fill with clean fuel.
2. Start the pump and close the air vent when fuel begins to purge (pressure application). Check the fuel system for leaks. Correct any problems with the pump off and pressure relieved from the housing.

Operation

The BVFS is now in operation. These units are designed to remove liquid and solid contaminants from hydrocarbons. Water and heavy contaminants will accumulate in the sump. Additionally, the filter elements will progressively become more restrictive as they remove contaminants from the fuel. This is normal operation and should be anticipated. Servicing frequency is dependant on the contamination level of the fluid. When reading gauges, note the system pressure and the differential pressure. Replace the elements before the gauge reads 15 PSI differential.

Service

Frequency of water draining or element replacement is determined by the contamination level of the fuel.

The BVFS will need a by-pass system installed (see above illustration) in order to service the unit while the pump is running, otherwise shut the pump off and close applicable valves prior to servicing.
**Draining Water**

Inspect or drain the sump of water on a regular basis. Utilize the water sight glasses to determine level of water accumulation.

Above Ground Fuel Tank Applications or Transfer Pump* Pressure Side Applications:
1. Open the drain to evacuate contaminants with a suitable collection container in place. Head pressure will push the contaminants out while priming the filter. Transfer pump applications, see asterisk (*) note below.

Below Ground Fuel Tank Applications or Transfer Pump* Applications:
1. Close the inlet valve and open the drain valve. Open the vent to release the vacuum within the unit. Close the drain.
2. Prime the unit by removing the lid and filling the unit with clean fuel. Transfer pump applications, see asterisk (*) note below.
3. Replace the Lid and snugly tighten the hex bolts on the lid.

*Note: If using a transfer pump, open the drain, start the pump and then close the drain after all water is evacuated.

**Element Replacement**

Replace the element annually as a minimum or when the differential pressure gauge reads 15 PSI. The actual measurement will vary with different fuel systems. When flow rate drops, it may be time for element change.

All Tank Applications:
1. Close all valves to the unit to be serviced or by-pass, as applicable.
2. Remove the lid and remove the elements by holding the element or bail handle and pulling slowly with an upward twisting motion.
3. Insert the elements slowly and twist the element downward until it seats.
4. Replace the lid gasket after lubricating with clean fluid or oil.
5. Refer to ‘Priming the units’, otherwise, fill the unit with clean fuel, then replace the lid. Snugly tighten the lid hex bolts to 80 ft.lbs.

Note: On above ground tank or transfer pump applications, you may use fuel pressure to prime the unit.

**Important:** Remember to open the air vent to evacuate all air.

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**Dimensions**

- **BVFS-1** 50 GPM
  - 13.75 " all models
  - 39"

- **BVFS-2** 100 GPM
  - 51"

- **BVFS-3** 150 GPM
  - 65"
### Element Options

<table>
<thead>
<tr>
<th>Vessel Model</th>
<th>Element Description</th>
<th>Element Size</th>
<th>0.5 micron</th>
<th>1 micron</th>
<th>2 micron</th>
<th>5 micron</th>
<th>10 micron</th>
<th>25 micron</th>
<th>Teflon Screen</th>
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<tbody>
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<td>RCFG-514Z</td>
<td>RCFG-514Z</td>
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</table>

### Equipment Options

- Air Eliminators
- Differential Pressure Gauges
- Manual or Automatic Drain
- Pressure Relief Valve
- Water Sight Glass

Consult factory for optional equipment availability and pricing.

**WARNING:** The following statement is required pursuant to Proposition 65 applicable in the State of California: ‘This product may contain a chemical known to the State of California to cause cancer.’

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