Fuel Dispensing and Transfer Filtration

For Clean Diesel Applications
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Why Pre-filtration?

Because of the difficulties of maintaining a clean supply of diesel at all times, more consideration should be applied to upstream sources of contamination as well as at the engine. Filtering recirculation systems can be applied to storage and onboard systems, along with high efficiency filters at the dispensing pump. Careful monitoring of fuel quality and filter performance is needed to protect sensitive diesel engine injection systems.

For example, the fuel used on a highway construction project may have travelled the following route: *Refinery - piped to storage - tanker to distribution center - tanker to local retailer - tanker to on-site storage.*

Filtration in the fuel transfer process, fuel dispensing, on engine and equipment offers the best approach for clean diesel.
How it works.

Particulate Removing
A particulate removing filter system uses a single stage element. When contaminated fuel enters the vessel, particulate (rust, scale, dirt, and other contaminants) is removed, providing clean diesel to your engine and equipment.

Coalescer/Separator
A coalescer/separator system consists of two elements, creating a two stage filtration process. When contaminated fuel enters the vessel, particulate (rust, scale, dirt, and other contaminants) is removed and water is coalesced by the first stage filter (coalescing is when the water droplets collect on the media and then fall into the sump to be removed). Any free water is separated by the second stage element providing clean, dry diesel to your engine and equipment.

Bulk Filtration: RV Series
Parker Racor RV Series vessels are designed to be used in bulk fuel storage, fuel dispensing, fuel transfer, and large engine applications.

The RV Series set up as a coalescer/separator (RVFS), will remove emulsified free water and solids from diesel fuel. When equipped with coalescer/separator filters, water can be drained and removed from the RVFS sump.

RV filter vessels offer economy, versatility, unparalleled high efficiency, and low maintenance solutions to many fuel delivery and industrial filtration applications. The vessels will accept particulate filters (RVMF) or coalescer/separator filters.

Filter vessels are used in the diesel and re-fueling industry on fuel dispensing locations, providing clean diesel.

RV Series vessels provide the required filtration for today’s high-pressure common-rail engines.
Product Features:
- Carbon Steel Construction
- ASME Code Stamped
- Interior: Epoxy Coated To MIL-C-4556E
- Exterior: Grey Primer Coated
- Hinged Cover
- Connections are 2” NPTF

Optional Features:
- Optional Accessories Include: pressure relief valve, automatic air eliminator, drain valve, water-in-fuel sight glass, leg mounts or wall mounts, and differential pressure gauge.

Bulk Filtration Specs

<table>
<thead>
<tr>
<th>Specifications</th>
<th>RVFS-1/RVMF-1</th>
<th>RVFS-2/RVMF-2</th>
<th>RVFS-3/RVMF-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet and Outlet Ports</td>
<td>2 in. NPT</td>
<td>2 in. NPT</td>
<td>2 in. NPT</td>
</tr>
<tr>
<td>Vent and Relief Ports</td>
<td>3/4 in. NPT</td>
<td>3/4 in. NPT</td>
<td>3/4 in. NPT</td>
</tr>
<tr>
<td>Water Level Gauge Ports</td>
<td>1/2 in. NPT</td>
<td>1/2 in. NPT</td>
<td>1/2 in. NPT</td>
</tr>
<tr>
<td>Differential Gauge Ports</td>
<td>1/8 in. NPT</td>
<td>1/8 in. NPT</td>
<td>1/8 in. NPT</td>
</tr>
<tr>
<td>Pressure and Temperature</td>
<td></td>
<td>150 PSI @ 160°F (10.3 bar @ 71°C)</td>
<td></td>
</tr>
<tr>
<td>ASME Code Stamped</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Fuel Flow Rate - Diesel Fuel - RVFS</td>
<td>25 GPM (94.6 LPM)</td>
<td>50 GPM (189.3 LPM)</td>
<td>75 GPM (283.9 LPM)</td>
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<tr>
<td>Fuel Flow Rate - Diesel Fuel - RVMF</td>
<td>66 GPM (250 LPM)</td>
<td>133 GPM (503 LPM)</td>
<td>200 GPM (757 LPM)</td>
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<tr>
<td>Pressure Drop - Clean</td>
<td>2 PSID (0.14 bar)</td>
<td>2 PSID (0.14 bar)</td>
<td>2 PSID (0.14 bar)</td>
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<tr>
<td>Pressure Drop/Filter Change-out</td>
<td>15 PSID (1.0 bar)</td>
<td>15 PSID (1.0 bar)</td>
<td>15 PSID (1.0 bar)</td>
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<tr>
<td>Height</td>
<td>35.3 in. (89.7 cm)</td>
<td>49.8 in. (126.5 cm)</td>
<td>63.8 in. (162.1 cm)</td>
</tr>
<tr>
<td>Width</td>
<td>13.5 in. (34.3 cm)</td>
<td>13.5 in. (34.3 cm)</td>
<td>13.5 in. (34.3 cm)</td>
</tr>
<tr>
<td>Depth</td>
<td>13.2 in. (33.5 cm)</td>
<td>13.2 in. (33.5 cm)</td>
<td>13.2 in. (33.5 cm)</td>
</tr>
<tr>
<td>Dry Weight</td>
<td>100 lbs. (45 kgs)</td>
<td>115 lbs. (52 kgs)</td>
<td>130 lbs. (59 kgs)</td>
</tr>
<tr>
<td>Overhead Service Clearance</td>
<td>16.0 in. (40.6 cm)</td>
<td>32.0 in. (81.3 cm)</td>
<td>47.0 in. (119.4 cm)</td>
</tr>
</tbody>
</table>
### Mounting Information

**Front View**

- 2.0 in. NPT Inlet Port
- 1/8 in. NPT Pressure Gauge Port
- 1/2 in. NPT Water Drain Port
- 1/2 in. NPT Sight Glass Port
- 2.0 in. NPT Outlet Port

**Bottom View**

- 3 Holes 11/16 in.
- 8.6 in. (21.8 cm) Dia.
- 3/4 in. Swing Bolts (4 bolts)

**Top View**

- 11.0 in. (27.9 cm)

**Mounting Legs**

- 19.1 in. (48.5 cm)

**Bulkhead Mounting Bracket**

- 7.0 in. (17.8 cm)
- 0.50 in. Holes Two Places

---

<table>
<thead>
<tr>
<th>Specs</th>
<th>RVFS-1/RVMF-1</th>
<th>RVFS-2/RVMF-2</th>
<th>RVFS-3/RVMF-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>in.</td>
<td>cm</td>
<td>in.</td>
</tr>
<tr>
<td>A</td>
<td>35.3</td>
<td>89.7</td>
<td>49.8</td>
</tr>
<tr>
<td>B</td>
<td>34.0</td>
<td>86.4</td>
<td>48.5</td>
</tr>
<tr>
<td>C</td>
<td>24.8</td>
<td>63.0</td>
<td>39.3</td>
</tr>
<tr>
<td>D</td>
<td>6.0</td>
<td>15.2</td>
<td>6.0</td>
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</tbody>
</table>
Ordering

A. Available for quick delivery.

<table>
<thead>
<tr>
<th>Part#'s Supplied with Quick Delivery Vessels</th>
</tr>
</thead>
<tbody>
<tr>
<td>RVFS-1-10C</td>
</tr>
<tr>
<td>RVFS-2-10C</td>
</tr>
<tr>
<td>RVFS-3-10C</td>
</tr>
<tr>
<td>RVFS-2-10C</td>
</tr>
<tr>
<td>RVFS-3-10C</td>
</tr>
<tr>
<td>RVFS-3-10C</td>
</tr>
<tr>
<td>RVFS-3-10C</td>
</tr>
</tbody>
</table>

B. Customization - the way you need it. *(Customized systems sold assembled or unassembled.)*

1: Select A Vessel

**RVFS - 1**

FS = Coalescer/Separator

MF = Particulate Filter

**Vessel Height**

1 = 35.3 in. (89.7cm)

2 = 49.8 in. (126.5 cm)

3 = 63.8 in. (162.1 cm)

2: Select Accessories

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>71330-150</td>
<td>Pressure Relief Valve (150 PSIG)</td>
</tr>
<tr>
<td>70906</td>
<td>Water Level Gauge, (290 PSIG)</td>
</tr>
<tr>
<td>72061-RVFS</td>
<td>Water Level Gauge S.S. (300 PSIG)</td>
</tr>
<tr>
<td>71679</td>
<td>3/4” Stainless Steel Air Eliminator</td>
</tr>
<tr>
<td>72059</td>
<td>Differential Pressure Gauge Assembly</td>
</tr>
<tr>
<td>71943-.5</td>
<td>1/2” NPT Brass Drain Valve</td>
</tr>
<tr>
<td>72060-.5</td>
<td>1/2” NPT Stainless Steel Drain Valve</td>
</tr>
<tr>
<td>71943-.75</td>
<td>3/4” NPT Brass Vent Valve</td>
</tr>
<tr>
<td>72060-.75</td>
<td>3/4” NPT Stainless Steel Vent Valve</td>
</tr>
<tr>
<td>71981</td>
<td>Mounting Legs</td>
</tr>
<tr>
<td>71982</td>
<td>Wall Mount Bracket</td>
</tr>
<tr>
<td>72482</td>
<td>Inlet Mount Bracket</td>
</tr>
</tbody>
</table>

3: Select a Filter

**RVFS Coalescer/Separator Cartridge Options**

<table>
<thead>
<tr>
<th>Vessel Series</th>
<th>1 micron</th>
<th>5 micron</th>
<th>10 micron</th>
<th>25 micron</th>
<th>40 micron</th>
</tr>
</thead>
<tbody>
<tr>
<td>RVFS-1</td>
<td>HOCP-15801</td>
<td>HOCP-15805</td>
<td>HOCP-15810</td>
<td>HOCP-15825</td>
<td>HOCP-15840</td>
</tr>
<tr>
<td>RVFS-2</td>
<td>HOCP-30801</td>
<td>HOCP-30805</td>
<td>HOCP-30810</td>
<td>HOCP-30825</td>
<td>HOCP-30840</td>
</tr>
<tr>
<td>RVFS-3</td>
<td>HOCP-44801</td>
<td>HOCP-44805</td>
<td>HOCP-44810</td>
<td>HOCP-44825</td>
<td>HOCP-44840</td>
</tr>
</tbody>
</table>

***HOCP Coalescer Cartridge - Requires HSP filter***

<table>
<thead>
<tr>
<th>Vessel Series</th>
<th>1 micron</th>
<th>5 micron</th>
<th>10 micron</th>
<th>25 micron</th>
<th>40 micron</th>
</tr>
</thead>
<tbody>
<tr>
<td>RVFS-1</td>
<td>HSP-15401</td>
<td>HSP-15405</td>
<td>HSP-15410</td>
<td>HSP-15425</td>
<td></td>
</tr>
<tr>
<td>RVFS-2</td>
<td>HSP-30401</td>
<td>HSP-30405</td>
<td>HSP-30410</td>
<td>HSP-30425</td>
<td></td>
</tr>
<tr>
<td>RVFS-3</td>
<td>HSP-44401</td>
<td>HSP-44405</td>
<td>HSP-44410</td>
<td>HSP-44425</td>
<td></td>
</tr>
</tbody>
</table>

***HSP Separator Cartridge - Pleated Paper***

<table>
<thead>
<tr>
<th>Vessel Series</th>
<th>1 micron</th>
<th>5 micron</th>
<th>10 micron</th>
<th>25 micron</th>
<th>40 micron</th>
</tr>
</thead>
<tbody>
<tr>
<td>RVFS-1</td>
<td>HSP-15401</td>
<td>HSP-15405</td>
<td>HSP-15410</td>
<td>HSP-15425</td>
<td></td>
</tr>
<tr>
<td>RVFS-2</td>
<td>HSP-30401</td>
<td>HSP-30405</td>
<td>HSP-30410</td>
<td>HSP-30425</td>
<td></td>
</tr>
<tr>
<td>RVFS-3</td>
<td>HSP-44401</td>
<td>HSP-44405</td>
<td>HSP-44410</td>
<td>HSP-44425</td>
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</tbody>
</table>

**RVMF Particulate Cartridge Options**

<table>
<thead>
<tr>
<th>Vessel Series</th>
<th>1 micron</th>
<th>5 micron</th>
<th>10 micron</th>
<th>25 micron</th>
</tr>
</thead>
<tbody>
<tr>
<td>RVMF-1</td>
<td>HFP-14601</td>
<td>HFP-14605</td>
<td>HFP-14610</td>
<td>HFP-14625</td>
</tr>
<tr>
<td>RVMF-2</td>
<td>HFP-28601</td>
<td>HFP-28605</td>
<td>HFP-28610</td>
<td>HFP-28625</td>
</tr>
<tr>
<td>RVMF-3</td>
<td>HFP-43601</td>
<td>HFP-43605</td>
<td>HFP-43610</td>
<td>HFP-43625</td>
</tr>
</tbody>
</table>

A RVMF system consists of one particulate filter.

For RVFS-1, 2, and 3, customer must order one HOCP and one HSP filter.
A RVFS system consists of one coalescer and one separator filter.
Dispensing Filtration: FBO Series

Parker Racor’s FBO assemblies are specifically designed to meet filtration requirements of today’s high-pressure common-rail diesel injection systems.

Common applications include: mobile refuelers, refueling cabinets, fuel dispensing pumps, large diesel engines, bulk fuel handling, and fuel transfer.

Filter Options

FBO filter systems have three filter options to meet various requirements: Particulate filter, coalescer/separator filter, or water absorber filter. For fuel dispensing applications, a coalescer/separator filter is recommended.

FBO filter systems are designed to meet the toughest diesel refueling conditions and feature easy cartridge filter change-outs.

Available Options

- Differential Pressure Gauge
  (part# 72694) 0-15 PSID
  (part# 72783) 0-30 PSID

- Mounting Bracket
  (part# 73084)

- Water Sensor Probe
  Steel - Adapter
  (part# RK18-1656)
  Steel - Water Sensor
  (part# RK23191-01)
  Plastic - Water Sensor
  (part# RK30880E) - Not Shown

- Sight Glass 1/2” NPT
  (part# 72710)

- 45 watt, 120 VAC Heater
  Available for Cold Climate Applications
  (part# FBO-HTR-KIT)
**Technical Information**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Maximum Flow Rates</th>
<th>Clean</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FBO-10</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diesel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Particulate Filter</td>
<td>25 GPM (94.6 LPM)</td>
<td>2.5 PSID</td>
<td>15 PSID</td>
</tr>
<tr>
<td>Water Separator</td>
<td>20 GPM (75.7 LPM)</td>
<td>2.5 PSID</td>
<td>15 PSID</td>
</tr>
<tr>
<td>Water Absorber</td>
<td>25 GPM (94.6 LPM)</td>
<td>2.5 PSID</td>
<td>15 PSID</td>
</tr>
<tr>
<td><strong>FBO-14</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diesel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Particulate Filter</td>
<td>30 GPM (113.6 LPM)</td>
<td>2.5 PSID</td>
<td>15 PSID</td>
</tr>
<tr>
<td>Water Separator</td>
<td>25 GPM (94.6 LPM)</td>
<td>2.5 PSID</td>
<td>15 PSID</td>
</tr>
<tr>
<td>Water Absorber</td>
<td>25 GPM (94.6 LPM)</td>
<td>2.5 PSID</td>
<td>30 PSID</td>
</tr>
</tbody>
</table>

**Product Features**
- Die-Cast Aluminum Head
- Steel Bowl Assembly
- Powder Coated Components
- Locking Ring Collar
- 1.5” NPT Inlet and Outlet Ports
- Maximum Pressure: 150 PSI (10 bar) and Maximum Temperature 160°F (71°C)
- Lockable Manual Drain Valve: 1/2” NPT (part# 73225-.5)
- Grounding Lug
- Manual Vent Valve

**Mounting Information**

- **Top View**
  - 8.6 in. (21.8 cm)
  - Differential Pressure Gauge Part#72694
  - 1.5 in. NPT Inlet and Outlet
  - Manual Vent

- **Front View**
  - Sight Glass Part# 72710
  - Optional Water Sensor Probes
  - Probe (Plastic): RK 30880E
  - Probe (Steel): RK23191-01
  - Probe Adapter: RK18-1656

- **Mounting Bracket Hole Pattern**
  - 1.3 in. (3.3 cm)
  - 9.5 in. (24.1 cm)
  - 4.3 in. (10.9 cm)
  - 5.3 in. (13.5 cm)
  - 1.3 in. (3.3 cm)
  - 6 x 0.44

- **Mounting Bracket Kit**
  - Racor part # 73084 (includes two 1 1/2” NPT male/female fittings)
How to Order

F B O - 1 0 - D P

Flow Rates
10 = 5-25 GPM (19-95 LPM)
14 = 10-30 GPM (38-114 LPM)

DP = Differential Gauge
DPL = Delta-P Gauge with Liquid Sight Glass
MA = Marine Assembly

Guide to help you specify the right FBO system with the accessories you need.

**Popular Option

<table>
<thead>
<tr>
<th><strong>FBO-10</strong></th>
<th>Delta-P Gauge</th>
<th>Filter</th>
<th>Sight Glass</th>
<th>Drain Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBO-10-DP</td>
<td>•</td>
<td>Order Separately (see next page)</td>
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<tr>
<td>FBO-10-DPL**</td>
<td>•</td>
<td>Order Separately (see next page)</td>
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<tr>
<td>FBO-14</td>
<td>•</td>
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<td>•</td>
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<td>FBO-14-DP</td>
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<td>Order Separately (see next page)</td>
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<td>FBO-14-DPL**</td>
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<td>Order Separately (see next page)</td>
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<tr>
<td>FBO-10-25M2</td>
<td>•</td>
<td>FBO 60332</td>
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<tr>
<td>FBO-14-25M2</td>
<td>•</td>
<td>FBO 60341</td>
<td>•</td>
<td></td>
</tr>
</tbody>
</table>

2 FBO Assemblies available for quick delivery.
**Replacement Filters**

Filters are used to protect the OEM supplied fuel system.

**Coalescer/Separator**

Coalescer/separator filters are a two stage element that removes water and contaminants from diesel fuel streams and are the most popular filters.

**Particulate Filter**

Particulate filters remove contaminants down to one micron. Particulate filters can also be used upstream, before a water separator filter, to extend filter life.

**Water Absorber**

Water absorber filters absorb water and filter out contaminants from diesel fuel.

<table>
<thead>
<tr>
<th><strong>FBO</strong></th>
<th><strong>Micron Rating</strong></th>
<th><strong>Coalescer/Separator</strong></th>
<th><strong>Particulate</strong></th>
<th><strong>Water Absorber</strong></th>
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<tbody>
<tr>
<td></td>
<td>1</td>
<td>FBO 60327</td>
<td>FBO 60330</td>
<td>FBO 60333</td>
</tr>
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<td></td>
<td>5</td>
<td>FBO 60328</td>
<td>FBO 60331</td>
<td>FBO 60334</td>
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<td></td>
<td>10</td>
<td>FBO 60353</td>
<td>FBO 60354</td>
<td>FBO 60355</td>
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<tr>
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<td>25</td>
<td>FBO 60329</td>
<td>FBO 60332</td>
<td>FBO 60335</td>
</tr>
</tbody>
</table>

**FBO-10**

(6 X 10 Filter)

|         | 1                 | FBO 60336               | FBO 60339       | FBO 60342          |
|         | 5                 | FBO 60337               | FBO 60340       | FBO 60343          |
|         | 10                | FBO 60356               | FBO 60357       | FBO 60358          |
|         | 25                | FBO 60338               | FBO 60341       | FBO 60344          |

**FBO-14**

(6 X 14 Filter)
Duplex Diesel Filtration

DFBO Duplex Filter:
The DFBO duplex filter brings Racor FBO filters to the engine room or any other high flow environment. Made with cast-iron head and steel bowls meet Marine specific applications, that require ABS certification (Marine model: DFBO-14-MA not shown)
The DFBO comes with the two 25 micron coalescer/separator elements. A particulate filter or a water absorptive filter may be used.

Features and Benefits
• Head material is cast-iron, and bowl material is steel.
• Install in vacuum or pressure applications.
• Fluroelastomer seals for biodiesel compatibility.
• Selector valve allows you to isolate filters to have standby filtration.
• Water-in-fuel sight glass available.

FBO-14-DPL-Duplex Filter:
The FBO Duplex Stand was designed with continuous duty applications in mind. The Duplex Stand assembly allows the isolation of one filter at a time for servicing while still in operation. The duplex design ensures that fuel is filtered without interruption.
A particulate filter, a coalescer/separator filter, or a water absorptive filter can be used.

Features and Benefits
• Die-Cast Aluminum Head
• Locking Ring Collar (no v-clamps)
• Maximum Pressure: 150 PSI (10 bar)
• Maximum Temperature: 160°F (71°C)
• Manual Vent Valve and Grounding Lug
• 1” NPT Inlet and Outlet Ports
• Steel Bowl Assembly
• Powder Coated Components
• Lockable Manual Drain Valve: 1/2” NPT (part# 73225-.5)
Portable Diesel Filtration

These portable units are a cost effective way to filter diesel and biodiesel, in storage or transport. Filter Carts are fully portable and self-contained. They are easily moved at the job-site by one person using the built-in wheels and handle. Filter carts can polish, clean up, and recycle old or contaminated fuel. They can also be used in preventative maintenance practices to keep fuel tanks clean.

Features and Benefits

- Versatile and portable
- Viton® seals and gaskets
- Sight glass and drain valve to detect and remove water
- Particulate removal, coalescer/separation, and water absorption filtration
- Drip pans to capture dripping fluids and prevent environmental issues
- Filter shows differential pressure for filter element changeout

Viton® is a registered trademark of DuPont™

<table>
<thead>
<tr>
<th>Feature</th>
<th>FC-16-25</th>
<th>FC-20-1-120V</th>
<th>FC-10-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosed Cart</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Wheel Cart</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Wheel Cart</td>
<td></td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Available Bypass Valve for fluid transfer only</td>
<td></td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Holding Tank</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Additional Mesh Strainer</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>FBO-10</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>FBO-14</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>5 micron element</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>10 micron element</td>
<td></td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>25 micron element</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>120V Power Requirement</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>110V Power Requirement</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hose Kit/Wands</td>
<td>●</td>
<td>Order FC-20-1-120V-kit for fuel cart plus kit</td>
<td>●</td>
</tr>
<tr>
<td>Flow Rate (GPM)</td>
<td>16</td>
<td>17</td>
<td>10</td>
</tr>
</tbody>
</table>
Additional Pre-filtration Products

icountACM20
State-of-the-Art Fuel Contamination Monitoring

Fully functional particle counter approved for use on fuels.

- Two minute test procedure
- Fully manufactured by Parker with 20 years experience in the Particle Counter Measuring market
- Laser optical scanning analysis
- Multi-standard ISO cleanliness reporting
- On-board, rear-mounted pump enables monitoring possibilities. For example: Fuel storage/vehicle tanks and fuel storage drums
- Latest averaging software as standard
- Downloader software

icountOS
Portable Condition Monitoring for Fuel Systems

- Fluid viscosity as high as 300cSt (usable range) will be able to pass through the detector at the proper flow rate
- Quick connections for testing online and offline
- Reporting Standards ISO4406:1999, NAS1638 and RH% moisture sensor display in high intensity OLED format
- Data Storage up to 250,000 test points of information
- Compact, lightweight and robust, truly portable iOS makes field analysis simple, quick and easy
- Able to sample directly from a hydraulic reservoir, barrel and vehicle fuel tank or from a high pressure, online hydraulic system with the addition of a pressure reducing adaptor
- Completely self contained, with laser detection particle counter (icountPD), rechargeable battery and flow management pump
- No special software needed
- Embedded web page generator for data download onto any PC or laptop via a universal RJ45 connection interface
- Fast detection of the presence of contamination with a sampling period from 5 seconds to 999 seconds
- Wi-fi access

icountBSplus
The benchtop solution to fluid contamination bottle sampling

- Quick sample bottle analysis with variable test time options from 15 seconds and volume capacities from 25ml
- Repeatable and re-producible result performance to ISO4406:1999, NAS1638 AS4509E and GOST 17216:2001 (Differential and Cumulative) particle count distributions
- On-board compressor and ‘shop’ air capability
- icounBSplus has the capability for on-line fluid measurement configuration as well as off-line fluid sampling
- Design concept allowing for portability. DC and rechargeable battery pack power option built in
- CE compliant
- On-board thermal printer
- 500 test memory (fully downloadable)
Fuel Filter Funnel

Racor Filter Funnel (RFF) is a heavy-duty, fast-flow, filter-in-a-funnel that separates damaging free water and contaminants from gasoline, diesel, heating oil, and kerosene.

The RFF family of products is capable of removing free water and solids down to 0.005 inches and allows you to visually inspect the integrity of your fuel supply as you refuel.

The RFF family is manufactured using industrial-grade black electro-conductive polypropylene. Carbon powder is injected into the plastic so that the RFF will conduct static electricity. The grounding capability of the RFF is an important safety feature. Always use proper fuel handling procedures and follow local, state, and federal regulations.

<table>
<thead>
<tr>
<th>Specifications</th>
<th>RFF1C</th>
<th>RFF3C</th>
<th>RFF8C</th>
<th>RFF15C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Flow Rate</td>
<td>2.5 GPM (9.4 LPM)</td>
<td>3.5 GPM (13.2 LPM)</td>
<td>5 GPM (18.9 LPM)</td>
<td>12 GPM (45.4 LPM)</td>
</tr>
<tr>
<td>Micron Rating</td>
<td>50 micron</td>
<td>50 micron</td>
<td>50 micron</td>
<td>50 micron</td>
</tr>
<tr>
<td>Height</td>
<td>6.0 in. (15.2 cm)</td>
<td>9.0 in. (22.9 cm)</td>
<td>10.0 in. (25.4 cm)</td>
<td>10.0 in. (25.4 cm)</td>
</tr>
<tr>
<td>Diameter</td>
<td>3.5 in. (8.9 cm)</td>
<td>5.5 in. (14.0 cm)</td>
<td>8.5 in. (21.6 cm)</td>
<td>8.5 in. (21.6 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.2 lb (0.09 kg)</td>
<td>0.3 lb (0.14 kg)</td>
<td>0.6 lb (0.27 kg)</td>
<td>1.0 lb (0.45 kg)</td>
</tr>
</tbody>
</table>

How They Work

The Racor Filter Funnel comes complete with a built-in DuPont Teflon® PTFE (polytetrafluoroethylene) coated stainless steel screen filter. As fuel is being filtered, free water and contaminants collect on the bottom. Because water is heavier than fuel, free water will settle to the bottom. When you have a substantial amount of water (approximately 1 cup), dispose of it properly and resume refueling.

When properly used, the filter will separate free water from hydrocarbon fuels. Free water is a collection of water molecules in the bottom of fuel cans, tanks, or drums, formed when fuel is stored for even short periods of time. The free water formation is due to condensation in the air and/or separation of water molecules from fuel.

Water may be present in hydrocarbon fuels as free water or as an emulsion, small droplets of water suspended in fuel. Water may be emulsified in fuel by vibration or by emulsifying additives such as alcohol, or detergents. The RFF filter will not remove emulsified water. Instead, install a Racor fuel filter/water separator to remove emulsified water from your fuel delivery or engine fuel system.

Excessive filling will cause pressure and can force water through the funnels filter. If funnel filter is more than 1/3 covered with water and flow rate begins to slow, stop fueling immediately, properly dispose of water and contaminants from the funnel, then continue fueling.

2-cycle oil contains detergents, which may allow some water to pass through the filter screen. The only safe way to filter out water is to add the 2-cycle oil to the tank after filtering the fuel through the funnel. Additives containing alcohol can emulsify and bind water to fuel. The filter cannot remove this bound water. Add additives after fueling.

Do not attempt to remove the filter from the funnel, filter is permanently attached to the funnel.

The RFF is designed to work with fuels only. CAUTION! Do not use the RFF for anything but filtering fuels, other liquids may compromise the effectiveness of the filter.

Another purpose for using a RFF is to facilitate the inspection of fuel for contamination in the form of solids (down to 50 micron) and free water. Don’t forget to check the fuel filter sump for water. If water or contamination are found, dispose of properly.

To test the RFF, simply fill with water, roughly 1/3 the way up the screen. This amount of water should not pass through the Teflon® coated filter screen. Keep this amount in mind when using the RFF knowing that the head pressure caused by the weight of more than this may cause water to pass through the screen.

Always dispose of water, contaminants, or dirty fuel in a proper manner.

Periodically inspect the funnel for physical damage. Store the funnel properly as some fuel may remain on the surfaces.
# Worldwide Filtration Manufacturing Locations

## North America

### Compressed Air Treatment

**Gas Separation & Filtration Division**
Airtek/Finite/domnick hunter/Zander
Lancaster, NY
716 686 6400
www.parker.com/faf

Balston
Haverhill, MA
978 858 0505
www.parker.com/balston

### Engine Filtration

**Racor**
Modesto, CA
209 521 7860
www.parker.com/racor

Holly Springs, MS
662 252 2656
www.parker.com/racor

### Hydraulic Filtration

**Hydraulic & Fuel Filtration**
Metamora, OH
419 644 4311
www.parker.com/hydraulicfilter

Laval, QC Canada
450 629 9594
www.parker.com/hydraulicfilter

Velcon
Colorado Springs, CO
719 531 5855
www.velcon.com

### Process Filtration

**domnick hunter Process Filtration**
SciLog
Oxnard, CA
805 604 3400
www.parker.com/processfiltration

### Water Purification

**Village Marine, Sea Recovery, Horizon Reverse Osmosis**
Carson, CA
310 637 3400
www.parker.com/watermakers

## Europe

### Compressed Air Treatment

**domnick hunter Filtration & Separation**
Gateshead, England
+44 (0) 191 402 9000
www.parker.com/dhfns

**Parker Gas Separations**
Etten-Leur, Netherlands
+31 76 508 5300
www.parker.com/dhfns

**Hiross Zander**
Essen, Germany
+49 2054 9340
www.parker.com/hzfd

Padova, Italy
+39 049 9712 111
www.parker.com/hzfd

### Engine Filtration & Water Purification

**Racor**
Dewsbury, England
+44 (0) 1924 487 000
www.parker.com/rfde

**Racor Research & Development**
Stuttgart, Germany
+49 (0)711 7071 290-10

### Hydraulic Filtration

**Hydraulic Filter**
Arnhem, Holland
+31 26 3760376
www.parker.com/hfde

Urjala, Finland
+358 20 753 2500

### Condition Monitoring

**Parker Kittiwake**
West Sussex, England
+44 (0) 1903 731 470
www.kittiwake.com

### Process Filtration

**domnick hunter Process Filtration**
Parker Twin Filter BV
Birtley, England
+44 (0) 191 410 5121
www.parker.com/processfiltration

## Asia Pacific

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**Australia**
Castle Hill, Australia
+61 2 9654 7777
www.parker.com/australia

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+86 21 5031 2525
www.parker.com/china

### India

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+91 22 4391 0700
www.parker.com/india

### Japan

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+81 45 870 1522
www.parker.com/japan

### Korea

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+82 31 359 0782
www.parker.com/korea

### Singapore

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Jurong Town, Singapore
+65 6887 6300
www.parker.com/singapore

### Thailand

**Thailand**
Bangkok, Thailand
+66 2186 7000
www.parker.com/thailand

## Latin America

### Parker Comercio Ltda.

**Filtration Division**
Sao Paulo, Brazil
+55 12 4009 3500
www.parker.com/br

### Pan American Division

**Miami, FL**
305 470 8800
www.parker.com/panam

### Africa

**Africa**
Aeroport Kempton Park, South Africa
+27 11 9610700
www.parker.com/africa