Racor Filter Division Europe
Hydrocarbon Filter Vessels and Elements
The most trusted name in engine protection

Racor technology takes the guesswork out of engine protection and Racor manufacturing quality and attention to detail ensures every customer gets the filtration and separation solution they are looking for.

To make product selection easier, Racor’s extensive range has been catalogued into four market/application groups detailed below.

RACOR
The World’s Best Filtration starts with the World’s Best Engineering.

Parker’s technical resources provide the correct filtration technologies that conform to your requirements. That’s why thousands of manufacturers and equipment users around the world rely on Parker Filtration products and people.

1975 Cold
1975 Racor pioneers integrated fuel heaters, now standard throughout the industry

1984 Protection
1984 The first Navistar powered Ford E Series and F Series vehicles roll off the production line with the revolutionary, compact and flexible Racor Spin On Series.

1987 Standard Equipment
1987 The first Navistar powered Ford E Series and F Series vehicles roll off the production line with the revolutionary, compact and flexible Racor Spin On Series.

1991 The Environment
1991 Along with protecting engines, Racor makes products that protect the environment.

1994 Air
1994 Engines gasping for a breath of fresh air breathe easy with the introduction of synthetic, multi stage Racor “twice the life” air filters.

1996 Plant expansion
1996 In addition to the world class manufacturing facility in Modesto, Racor opens locations in Oklahoma, South Carolina, Brazil, Korea and South Africa.

1998 Additives
1998 For all climates and seasons, Racor Additives are formulated to enhance engine efficiency and performance. It’s one more way to run clean.

2001 Global OEM
2001 Racor continues to forge long term relationships with Global OEM companies to produce sound, cost effective engineered solutions to meet specific application requirements.
Over 30 years of innovation, over 30 years of quality...

1969
Diesel Fuel
1969: It all began with a patented, and exceptionally efficient new way to remove water, dirt, rust and algae from diesel fuel.

1983
Technology
1983: Aquabloc® filters debut, and Racor Filter/Separators make another significant leap in filtration efficiency.

1985
Growth
1985: Racor becomes a division of Parker Hannifin Corporation, further strengthening one of the world’s most respected brands.

1989
Quality
1989: Racor earns Ford Q1 certification, the first in a series of quality awards from one of the world’s leading engine and equipment manufacturers.

1992
Oil
1992: Every bit as vital and every bit as dirty as fuel. The Racor solution is an ingenious one, a cleanable oil filter that puts an end to frequent filter changes and disposal.

1995
CCV Products
1995: Racor starts cleaning up engine rooms with a crankcase ventilation system that keeps oily blow-by from damaging turbo chargers and other precision components.

1997
Racor Hydrocarbon
1997: Racor Hydrocarbon Filters and Vessels debut – offering customers flow rates to 1000 gpm and higher.

2000
UK Facility
2000: Having moved out of Morley into a purpose-built factory at nearby Dewsbury in 1998, Racor sees significant growth in Europe. 2000 saw the expansion of manufacturing capability to include all spin-on series filters, and the establishment of a state-of-the-art design and test, research and development facility.

2002
High performance air filters
2002: Racor purchases Farr opening up opportunities in medium and heavy duty engine Air applications.

In Europe Morley, West Yorkshire in the UK becomes the centre of excellence in Europe.

In Europe Morley, West Yorkshire in the UK becomes the centre of excellence in Europe.
From the Refinery to the Forecourt

Over the last 30 years Racor has become the premium name to trust in Marine and Automotive fuel filtration and water separation. With advanced fuel filtration laboratories in the USA and Europe and new ones planned for Asia and South America, with separate 2500GPM API/IP test facilities in the USA, Racor will continue leading the market in advanced fuel filtration technology for years to come.

It should therefore be of little surprise that Racor should utilise this breadth of experience in the fuel supply industry, producing the most advanced Aviation Fuel API/IP 1581 qualified water separators, 1590 particulate filters and 1583 monitors, as well as Approved Vessels and a wide range of industry standard interchangeable products.

From the refinery to the injector, at the terminal and on the forecourt, Racor has a solution to your fuel delivery needs. With engine tolerances getting tighter, whilst injection pressures increase, the need for high quality fuel supply filtration/conditioning designed to complement on-board systems is here.

Filtration requirements will vary depending on local fuel quality.
RACOR FUELLLED UP

MF Racor offers 2 types of Micro-Filters: FP Cellulose elements offer 95% filtration efficiency and are available in micron ratings of 1, 2, 5, 10, 25, & 40, suitable for chemical, fuel and hydraulic applications. FS Synthetic high efficiency micro-filter elements feature a water resistant, all synthetic media providing 99.5% efficiency at the stated 1, 5, 10, & 25 micron settings complying to API/1590 3rd Edition (1 and 5 micron). Requirements may differ depending on location and contamination history.

FWS Racor Hydrocarbon coalescers use a 2 stage separation system. The first stage coalesces the fuel/water emulsion by means of fibre bed hydrophilic coalescence, the second stage uses a synthetic hydrophobic separator as a final barrier, allowing the clean dry fuel to pass through, whilst the coalesced water droplets are repelled by the hydrophobic barrier and are collected in the sump of the housing. A full range of standard and API/1581 5th Edition qualified combinations are available.

NOTE: The minimum requirement for the supply of JET-A or JET-A1 is a Filter Water Separator (FWS) meeting the requirements of API/IP 1581 (5th Edition), drum filling is also considered as direct supply.

FMI Fuel Monitor elements will absorb free water from fuels to <15 ppm whilst providing 97.4%+ filtration efficiency and are qualified to 1 micron. Monitor elements are qualified to API/1583 3rd Edition. Systems are available to fit these into both RVFS and FBO housings in addition to purpose-built Monitor housings.

RVFS This innovative filter vessel will accept a wide range of Filters, Micro-filters, Coalescer/Separators, Monitors and Clay treatment elements. The vessel is particularly targeted at high volume fuel delivery systems, and has been widely used on forecourts and fueling stations.

FBO Offering a similar level of versatility as the RVFS, these filter vessels will accept a wide range of Filters, Micro-filters, Coalescer/Separators, Monitors and Clay treatment elements. The vessel is particularly targeted at medium volume fuel delivery systems, and offers an economical solution to fuel delivery.

ACM 20 Parker’s renowned particle counter has been re-engineered and calibrated for use in fuels and allows quick, easy economical fuel condition checks for aviation and diesel fuels. A quick 2 minute test will allow you to check contamination levels, trends and integrity in a far more consistent reliable and repeatable way than traditional clear and bright methods.

The minimum filtration requirement of Jet-A1 into Airports and drum filling, is a filter (FWS) meeting the requirements of API/IP1581 current addition.
Racor is a qualified supplier of API/IP 1581 (American Petroleum Institute/Institute of Petroleum) and military standard aviation fuel coalescer/separators, API/IP 1583 monitors and API/IP 1590 microfilter elements. Racor aviation fuel filtration systems are used by customers worldwide to assure the delivery of clean, dry fuel. This same filter element technology is used to remove water and solid contaminants from diesel, gasoline, naptha, natural gas, compressed natural gas, liquid natural gas and other fuels before they are transported, stored and used.
Racor has expanded its filter vessel product line for refineries, pipelines, bulk storage terminals and airport refueling equipment. Vessels are designed and manufactured to ASME API/IP and CE/PED qualifications. The product flow range now meets or exceeds customer flow ranges found in most industry hydrocarbon applications. Racor vessels, combined with Racor filter elements, offer customers finer filtration, cleaner, drier hydrocarbon products and extended element change intervals. Extended change intervals offer more uptime and lower maintenance costs.

By utilizing the latest computer-aided design tools, the engineering team takes specific application requirements and quickly develops the necessary components to manufacture vessels and elements that meet industry codes and customer-specific requirements.

Racor’s emphasis on advanced engineering is combined with a company-wide focus on uncompromising quality and premier customer service. This concentrated effort means that customers receive on-time delivery of the highest quality filtration systems available and that they meet the demanding requirements for performance and service life.
Pleated Media Cartridges FP Series

- Maximum surface area offers optimum contamination holding capacity.
- High flow rate, low initial pressure drop.
- Micron rating from 40 micron down to 1 micron.
- Cartridges to fit most popular industry filter vessels.
- Collapse pressure = 75 PSID.
- pH range from 5 to 9.
- 115°C (240°F) maximum operating temperature.
- Flow direction = outside to in.
- Glass filled nylon end caps are standard, eliminating corrosion and offering excellent thermal stability and high impact resistance.
- Buna-N gaskets standard.
- Other options available.
- HIF coreless configuration.
- HIF ‘W’ pleat.
- Competitor cross references.

Synthetic Pleated Media Cartridges FS Series

- 4 times the filtration surface area of comparable product available from competitors.
- 99.7% efficiency at stated element rating.
- Designed and tested to meet stringent requirements of API/IP 1590 Specifications and qualification procedures for aviation fuel microfilters. (Consult factory to obtain qualification test report).
- Micron ratings of 1 and 5 (approved) 10 and 25.
- Collapse pressure 75 PSID.
- Qualified to a flow rate of 4.64 gallon/inch of filter with an initial pressure drop of 1.5 PSID.
- Glass-filled nylon end caps are designed as standard, eliminate corrosion and its byproducts. In addition they provide excellent thermal stability and impact resistance.
- Buna-N gaskets are designed as standard.
- PH range from 5 to 9.
- Designed to fit most popular filter vessels.
- Steel outer wrap for back flow protection.
- Competitor cross references.
API Coalescer Cartridges

- 3rd and 5th edition approved.
- Vertical and horizontal applications.
- Coreless, crushable and incinerable.
- No perforated center tube allows 100% utilization of the coalescing media.
- No metal components.
- Removes emulsified water and particulates from the jet stream.
- Available in standard industry lengths.
- Solids removal down to 0.5 micron.
- Glass-filled nylon end caps are standard.
- Maximum differential pressure is 75 PSID.
- Max. operating temperature is 115°C (240°F).
- pH range from 5 to 9.
- Buna-N gaskets are standard.
- Competitor cross reference.

Coalescer Cartridges

- Available in standard industry diameters and lengths.
- Removes particulates and emulsified water from hydrocarbon fluids.
- Multi-layered media increases contaminant holding capacity.
- Water removal to less than 5 PPM.
- Glass-filled nylon end caps are standard, eliminating corrosion and offering excellent thermal stability and high impact resistance.
- Maximum differential pressure = 75 PSID.
- Maximum operating temperature = 115°C (240°F).
- pH range from 5 to 9.
- No perforated center tube allows 100% utilization of the coalescing media. This eliminates media blinding often found in conventional coalescer designs.
- Standard construction contains no metal components. This allows spent cartridges to be easily crushed or incinerated to reduce disposal costs.
- Buna-N gaskets standard, other types available per customer requirements.
- Solids removal in a variety of micron ratings: 0.5, 1, 2, 5, 10 & 25.
Monitor Elements

- Qualified at less than 1 micron
- Qualified at less than 5 ppm of water in the effluent
- Qualified at less than 0.3 mg/liter of solids in effluent
- Glass filled nylon end caps are standard eliminating corrosion and its by products in addition to having excellent thermal stability and impact resistance
- Parker Hannifin Buna-N o-ring seal standard (Viton available on request)
- Multi-layered media for maximum solids holding – with absorbent media cross linked to trap and hold free and emulsified water
- Works in the presence of fuel additives an surfactants as specified in the API/IP Specification1583 Qualification Procedure
- Collapse strength exceeds 180-psi differential pressure
- Dimensionally interchangeable with all 2" outside diameter competitor cartridges
- Standard lengths 5", 10", 15", 20", 25" and 30".
- Designed to fit existing monitor vessels where 2" monitors are used
- Not affected by temperatures varying from -65° F to 160° F (-54 C° to 71° C)
- No metal components reducing disposal costs

Separator Elements

- API-qualified separator cartridges.
- Cartridges to fit most industry vessels.
- Synthetic screen with 40 micron filtration barrier can be cleaned and reused.
- Teflon®-coated screen at 50 micron. Teflon® is cleanable.
- Silicone-impregnated pleated paper media provides filtration barrier to one micron (for use in diesel applications).
- Glass-filled nylon end caps are standard, eliminating corrosion, offering excellent thermal stability and high impact resistance.
- 240°F (115°C) maximum operating temperature.
- pH range from 5 to 9.
Clay Bags and Canisters

- Interior and exterior media migration barriers.
- Canisters or Lexel bags.
- No internal metal parts to corrode or pose a safety hazard.
- Buna-N gaskets.
- Compatible with standard industry 7” x 18” or 7” x 19” cartridges.
- Unique construction results in minimum swell, which makes cartridge changeout fast and easy.

Water Absorbing Elements

- Designed to fit most vessels sized for 5” x 13.5”, 6” x 14”, 7” x 18” and 8” x 22” cartridges.
- Micron ratings 1, 5, 10 and 30.
- Removes free and emulsified water to less than 5 PPM.
- Water absorbing capacity to four quarts depending upon cartridge size.
- Progressive low flow rates or rapid differential pressure rise alert operators changeout is needed.
- Spin-on filters also available.

HIF Coreless Elements

- The crushable filter element has no metal components.
- Crushable element, reduces disposal volume by up to 85%.
- "W" Pleats offer large surface area to maximize contaminate removal and solids loading.
- Incinerable, consult local regulations.
- High flow rate, low initial pressure drop.
- Collapse pressure 75 PSID.
- pH range from 5 to 9.
- Max. operating temperature: 240°F (115°C).
- Flow direction: outside to in.
- Glass filled nylon end caps are standard.
- Buna N gaskets standard.
- Recommended cartridge changeout 20 PSID.
- Available in micron ratings of 1, 2, 5, 10 and 25.

Natural Gas Filter

- Molded fiberglass tube. Constructed of glass fibers and bonded with inert phenolic binders.
- The welded perforated steel core gives added protection against collapse at high differential pressures. Metal end caps are adhesively.

Applications

- Water Absorbing Elements
- Clay Bags and Canisters
- Natural Gas Filter
FBO Filter Assembly

Racors’ new FBO-10 and FBO-14 filter assemblies are designed to meet the toughest hydrocarbon refueling conditions and provide for ease of filter change outs. The FBO Assembly can flow at 25gpm (95 lpm) or up to 75gpm (230 lpm) depending on the model, the elements installed and fuel being filtered.

The FBO assembly can be used on mobile refuelers or installed in refueling cabinets. The unit can also be used for diesel fuel dispensing pumps or as a primary fuel filter/water separator for large diesel engines.

The assembly features a locking ring collar, which attaches the filter housing to the aluminium die-cast filter head with four bolts. The slotted locking ring collar allows maintenance personnel to hand-loosen the four collar bolts, rotate and lower the bowl assembly for element change outs. With new element installed, simply raise the bowl and rotate into position on the locking ring and hand tighten evenly.

The closure hardware consists of stainless steel nuts, bolts and washers with metal hand knobs for ease of maintenance – one person can easily change the filter element. No special tools are required.

Maximum Flow Rates

<table>
<thead>
<tr>
<th>Flow Range</th>
<th>Diesel</th>
<th>Jet Fuel</th>
<th>Gasoline</th>
<th>Delta P</th>
<th>Delta P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prefilter</td>
<td>5-40 gpm</td>
<td>20</td>
<td>40</td>
<td>50</td>
<td><strong>20 PSI</strong></td>
</tr>
<tr>
<td>Prefilter</td>
<td>5-35 gpm</td>
<td>18</td>
<td>35</td>
<td>45</td>
<td><strong>15 PSI</strong></td>
</tr>
<tr>
<td>Absorber</td>
<td>5-25 gpm</td>
<td>18</td>
<td>25</td>
<td>45</td>
<td><strong>30 PSI</strong></td>
</tr>
</tbody>
</table>

** varies with fluid and flow rate

Performance Specifications

<table>
<thead>
<tr>
<th>FBO-10</th>
<th>Maximum Flow Rates</th>
<th>Clean Dry</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prefilter</td>
<td>5-40 gpm</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Prefilter</td>
<td>5-35 gpm</td>
<td>18</td>
<td>35</td>
</tr>
<tr>
<td>Absorber</td>
<td>5-25 gpm</td>
<td>18</td>
<td>25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FBO-14</th>
<th>Flow Range</th>
<th>Diesel</th>
<th>Jet Fuel</th>
<th>Gasoline</th>
<th>Delta P</th>
<th>Delta P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prefilter</td>
<td>10-60 gpm</td>
<td>30</td>
<td>60</td>
<td>75</td>
<td><strong>20 PSI</strong></td>
<td></td>
</tr>
<tr>
<td>Prefilter</td>
<td>10-50 gpm</td>
<td>35</td>
<td>50</td>
<td>65</td>
<td><strong>15 PSI</strong></td>
<td></td>
</tr>
<tr>
<td>Absorber</td>
<td>10-35 gpm</td>
<td>35</td>
<td>55</td>
<td>70</td>
<td><strong>30 PSI</strong></td>
<td></td>
</tr>
</tbody>
</table>

Standard Design Features

- Die-cast aluminum head
- Steel filter bowl assembly
- Powder coated components
- Locking ring collar, no clamps
- 1 ½” NPT Inlet and Outlet
- 10 bar @ 240° F max design pressure
- Manual drain valve
- Manual vent valve

Options

- Mounting bracket
- Sight level gauge
- Pressure diff. indicator

Installations

- Aviation fuel trucks
- Aviation fueling cabinets
- Diesel fuel dispensing system
- Marine fuel docks
- Fuel systems on large diesel engines

Applications

The versatile FBO-10 and the FBO-14 filter assemblies have three element options to meet most field applications.

For refueling applications the filter separator element is used. The filter separator element removes contaminants and water from jet fuel, aviation gas, diesel fuel, gasoline and hydrocarbon fuels.

Silicon treated cellulose prefilters remove particle contaminants down to one micron.

Absorptive filters remove water and contaminants from fuel, oil or other hydrocarbon streams.

Review the element chart on this page for field applications.

<table>
<thead>
<tr>
<th>Element Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Application</strong></td>
</tr>
<tr>
<td>Filter Separator</td>
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<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Prefilter</td>
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<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Absorptive Filter</td>
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</tr>
</tbody>
</table>
The Racor RVFS Series filter vessels offer an unparalleled high efficiency, versatile, economical and low maintenance solution to many fuel delivery and industrial filtration applications. The vessels will accept Micro-filter pre-filters, Coalesce/Water Separator combinations, Monitor/Absorbers and clay treatment bags.

Used mainly in the diesel and kerosene re-fuelling industry, these robust vessels can be seen on countless forecourts providing clean dry safe fuel to modern TDI, PD, HDI, CDI and heavy duty vehicles. Equally these vessels can be used for kerosene, aviation fuels, heating oils, gasoline and numerous other industrial fluids and fuels.

### RVFS Maximum Flow Rates

<table>
<thead>
<tr>
<th>Flow rate with 37 SSU Diesel GPM/LPM</th>
<th>Flow rate with 32 SSU Aviation Fuel GPM/LPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coalescer</td>
<td>Prefilter</td>
</tr>
<tr>
<td>RVFS-1</td>
<td>25</td>
</tr>
<tr>
<td>RVFS-2</td>
<td>50</td>
</tr>
<tr>
<td>RVFS-3</td>
<td>75</td>
</tr>
</tbody>
</table>

### Element Options

- **Coalescer Element Prefix OCP**
- **Separator Element Options**
- **Water Absorbing FW Elements**
- **Clay Cartridge**
- **FP Silicon Treated Pleated Pre-Filters**
- **Recommended options for diesel fuel applications. Consult factory for other fluids.**

### Optional Accessories
- Automatic air eliminator
- Pressure relief valve
- Differential pressure gauge
- Liquid level gauge
- Manual water drain valve
- Support stand
- Wall mount brackets

### Applications
- Jet A, Jet A1
- Diesel Fuel
- Kerosene
- Gasoline

### Vessel Dimensions inches

<table>
<thead>
<tr>
<th>Height</th>
<th>Width</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>13.75</td>
<td>13.3</td>
</tr>
<tr>
<td>51</td>
<td>13.75</td>
<td>13.3</td>
</tr>
<tr>
<td>65</td>
<td>13.75</td>
<td>13.3</td>
</tr>
</tbody>
</table>

For additional information please consult the RVFS installation handbook, Part No. RAC3002GB1.
**RVFS Element Options**

### Coalescer / Separator

Coalescer and separator mounted in the RVFS housing. Fluid/fuel is passed from the outside of the coalescer to the inside. The coalescer element provides primary filtration of the fuel as well as coalescing free water from it. The clean fuel passes through the separator barrier and into the outlet of the housing. The coalesced water droplets are repelled by the hydrophobic barrier and are collected in the sump of the housing. The sump should be drained routinely.

### FP Element Installation

Mounting shown – Parker’s cellulose FP microfilter series. These elements offer 95% filtration efficiency of fluids and are available in micron ratings of 1, 2, 5, 10, 20 & 40.

When ordering a RVFS for FP installation the kit number 72137 is required.

The RVFS-1, 2 & 3 housing series is compatible with all 6” OD, 3.5” ID in multiple lengths of 14 inches.

### FS Element Installation

Mounting shown – Parker’s patented FS synthetic microfilter series. The microfilter features a water resistant, all synthetic media and provides 99.5% + efficiency at the stated 1, 5, 10 & 25 micron ratings.

When ordering a RVFS for FS installation the kit number 72137 is required.

The RVFS-1, 2 & 3 housing series is compatible with all 6” OD, 3.5” ID in multiple lengths of 14 inches.

### FW Element Installation

Mounting shown – Parker’s combination water absorbing/ filtration FW filter series. These elements will absorb free water from fuels to less than 15 ppm and offer 55% filtration efficiency and are available in micron ratings of 1, 5, 10 & 25. This product can also be used to absorb free water and filter industrial oils.

When ordering a RVFS for FW installation the kit number 72137 is required. The RVFS-1, 2 & 3 housing series is compatible with all 6” OD, 3.5” ID elements in multiple lengths of 14 inches.

### Clay Canister Installation

This pictorial shows the mounting of Parker’s adaptor and clay canister, FCC-18701. Clay is known as Attapulgus clay, Fuller’s Earth or diatomaceous earth. The principle use in fuels filtration is that fuel. This product can also be used to neutralize acid or products of oxidation from industrial oils, including hydraulic fluids, lubricating oils, and dielectric fluids.

### FMI Monitor Installation

Mounting shown – Parker’s FMI IP qualified monitor/filter series. These elements will absorb free water from fuels to less than 15 ppm and offer 97.4% + filtration efficiency and are qualified to 1 micron.

The installation of the monitor adaptor in the RVFS-1 allows the user to install 6-15” elements for jet fuel flow of 90 USGPM. The installation of the monitor adaptor in the RVFS-2 allows the user to install 6-30” elements for jet fuel flow of 180 USGPM.

**Features**

- Carbon steel construction, other materials available
- 17.23 ASME code Section VIII construction, stamped and certified. CE certified vessels available.
- Zinc plated swing bolt closure.
- Buna-N o-ring cover seal
- Interior epoxy coated MIL-C4556E, exterior primer coated (carbon steel versions only)

**Connections**

- Inlet and Outlet: 2 inch NPT
- Main Drain and Liquid Level Ports: 1/2 inch NPT
- Vent and Pressure Relief Connection: 1/4 inch NPT
- Differential Pressure Gauge/ Sample Ports: 1/8 inch NPT

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*When ordering a RVFS for FP, FS or FW installation, kit number 72137 is required. The RVFS-1, 2 or 3 housing series is compatible with all 6” OD, 3.5” ID in multiple lengths of 14 inches.

**Where Kits are offered in a – 1, -2 or – 3 configuration, the corresponding kit should be used within the RVFS-1, 2 or – 3.*
Pre Filter Vessels

The RVMF Series Vertical Vessels are used with Racor Hydrocarbon FP, FS, and HIF coreless, high efficiency micronic series elements. Racor hydrocarbon filter housings are designed for removing solid contaminants such as dirt, rust, pipe scale and other types of solids from fuels. Racor hydrocarbon vessels are designed for a single pass through the high efficiency element for clean product downstream.

Applications
- Jet A, Jet A1
- Diesel Fuel
- Kerosene
- Gasoline
- Bio-Diesel

Connections
- Inlet and Outlet: Style 1 – 3000# NPT coupling Style 2 & 3 – 150# RF (ANSI) flanged
- Vent and relief valve: 3/4 inch NPT
- Differential pressure gauge/sample ports: 1/4 inch NPT

Applications
- Jet A, Jet A1
- Diesel Fuel
- Kerosene
- Gasoline
- Bio-Diesel

Features
- Carbon steel construction; other materials available
- 150 psi ASME Code, Section VIII construction, stamped and certified
- Yellow zinc-plated swing bolt closure
- Buna-N o-ring cover seal
- Hydraulic jack cover lift furnished on 14 inch and larger vessels
- HIF center tubes when required
- Inlet and outlet permanently marked
- Interior: epoxy-coated MIL–C–4556 E
- Exterior: prime coated
- Knife-edge cartridge mounting seals
- Rod mount cartridge hardware
- Stamped name plate

Optional Accessories
- Automatic air eliminator
- Differential pressure gauge
- Pressure relief valve
- Manual drain valve
- Sampling probes
**PRE FILTER VESSELS**

*Weights and Volumes are approximate.*
*Dimensions are reference only. For exact dimensions, request drawing for applicable model number.*

**Weights and Volumes**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Liquid Volume</th>
<th>Dry Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>gpm lpm gallons</td>
<td>lbs. kgs.</td>
</tr>
<tr>
<td>RVMF-60-1-14</td>
<td>60 227 6 22</td>
<td>1 170 77</td>
</tr>
<tr>
<td>RVMF-120-1-28</td>
<td>120 454 9 34</td>
<td>1 190 86</td>
</tr>
<tr>
<td>RVMF-200-1-44</td>
<td>200 757 12 45</td>
<td>1 220 100</td>
</tr>
<tr>
<td>RVMF-400-2-44</td>
<td>400 1514 38 144</td>
<td>2 485 220</td>
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<tr>
<td>RVMF-600-3-44</td>
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<td>3 560 254</td>
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<td>11 1500 680</td>
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<td>RVMF-3600-18-44</td>
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<td>RVMF-5200-26-44</td>
<td>5200 19682 450 1703 26 3450 1565</td>
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</tbody>
</table>

**Model No.**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Flow Rate</th>
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*Custom designs available.*

17
Industrial Filter/Water Separator Vessels

The RVFS Series Filter/Water Separator Vessels are for use with Racor Hydrocarbon ACP/CP Series Coalescers and SP, SS, and ST Series Separator Cartridges. Racor hydrocarbon RVFS Series two-stage vertical coalescer/separator housings are designed to filter solids and separate two immiscible liquids. Using the correct combination of Racor hydrocarbon coalescer cartridges and second stage separator cartridges will provide the highest degree of water and solids removal.

Applications
- Jet A, Jet A1
- Diesel Fuel
- Kerosene
- Gasoline
- Bio-Diesel

Optional Accessories
- Automatic air eliminator
- Pressure relief valve
- Differential pressure gauge
- Sampling probes
- Manual or automatic water drain valves
- Sump drain line heaters
- Liquid level gauge
- Water slug control valve
- Pilot control valve

Installations
- Refineries
- Terminals
- Loading racks
- Mobile and marine fuel sites

Connections
- Inlet and Outlet: 150# RF (ANSI) flanged
- Main Drain: 1 - 2 inch NPT
- Vent and pressure relief connection: 3/4 inch NPT
- Differential pressure gauge/sample ports: 1/4 inch NPT

Applications
- Jet A, Jet A1
- Diesel Fuel
- Kerosene
- Gasoline
- Bio-Diesel

Features
- Carbon steel construction; other materials available
- 10.34 bar ASME Code, Section VIII construction, stamped and certified
- Yellow zinc-plated swing bolt closure
- Buna-N o-ring cover seal
- Hydraulic jack cover lift
- Inlet and outlet permanently marked
- Interior: epoxy-coated MIL-C-4556 E
- Exterior: prime coated
- Knife-edge cartridge mounting seals
- Stamped name plate
### Industrial Filter/Separator Vessels

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<th>CS 33.0 SSU</th>
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### Element Selection Information

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Fuel Monitor Vessels

The RHFM Series Horizontal Fuel Monitor Vessels, equipped with the FMI or FM Series Fuel Monitor cartridges, check the entire flow of fuel, collecting solids, absorbing water and ensuring only clean and dry fuel for delivery.

Racor Hydrocarbon FMI 2” Series Monitor Cartridges are qualified to the latest edition of API/IP Specifications 1583 Qualification Procedures. The vessels can also be equipped with FM 2” Series cartridges. The FMI and FM 2” Series Monitor Cartridges are designed to flow from the outside to inside at a rate of 1 US GPM per inch of length. In addition, they are not disarmed when surfactants and fuel additives are present.

Connections

- Inlet and Outlet: 150# RF (ANSI) flanged
- Main Drain: 3/4 inch NPT
- Vent and pressure relief connection: 3/4 inch NPT
- Differential pressure gauge connection: 1/4 inch NPT
- Sampling connection: 1/4 inch NPT

Features

- Carbon steel construction; other material available
- 10.3 ASME Code, Section VIII construction, stamped and certified
- Yellow zinc plated bolted closures
- Buna-N O-ring cover seal
- Cartridge spider assembly
- 220 PSI flatplate hydrotest
- Interior: epoxy-coated MIL-C-46056 E
- Exterior: primer coated
- Multi-position inlet connection and mounting saddles
- Patent Pending design

Applications

- Jet A, Jet A1
- Diesel Fuel
- Kerosene
- Gasoline
- Bio Diesel

Optional Accessories

- Automatic air eliminator
- Pressure relief valve
- Differential pressure gauge
- Sampling probes
- Manual drain valve
- Cover inter-lock safety device

Applications

- Jet A, Jet A1
- Diesel Fuel
- Kerosene
- Gasoline
- Bio Diesel

Connections

- Inlet and Outlet: 150# RF (ANSI) flanged
- Main Drain: 3/4 inch NPT
- Vent and pressure relief connection: 3/4 inch NPT
- Differential pressure gauge connection: 1/4 inch NPT
- Sampling connection: 1/4 inch NPT

Standard Housing Data and Flow Rates

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Weights and volumes are approximate.

Model

- Custom designs available. *Dimensions are reference only. For exact dimensions, request drawing for applicable model number.

Dimensional Data

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<th>B</th>
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Pressure Filter Vessel Summary

Racor’s growing vessel product line includes prefiltrers, vertical and horizontal two-stage coalescers, fuel monitors and clay treaters. The vessels are offered with a full option line including air eliminators, pressure relief valves, differential pressure gauges, liquid level gauges, water slug control valves, heaters and manual. Racor uses the latest CAD computer design systems, materials and processes to meet industry qualifications and customer’s stringent field demands.

General Specifications

<table>
<thead>
<tr>
<th>Vessel Series</th>
<th>Flow Rates</th>
<th>Fuels</th>
<th>Elements</th>
<th>Inlet/Outlet</th>
<th>Specifications</th>
<th>Coatings</th>
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</tr>
<tr>
<td>Horizontal Filter Separators</td>
<td>Up to 1,400 gpm</td>
<td>Jet A, Jet A 1</td>
<td>CP &amp; ACP(APU/P) Coalescer</td>
<td>NPT</td>
<td>Carbon Steel</td>
<td>Internal – Epoxy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JP 4,5,8</td>
<td>Teflon®, Synthetic &amp; Paper Separators</td>
<td>RF Flange</td>
<td>ASME Code</td>
<td>External – Primer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diesel Fuel</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Kerosene</td>
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<tr>
<td></td>
<td></td>
<td>Gasoline</td>
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<tr>
<td></td>
<td>Up to 5,300 lpm</td>
<td>Bio-Diesel</td>
<td></td>
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<tr>
<td>Clay Treaters</td>
<td>Up to 1,800 gpm</td>
<td>Jet A, Jet A 1</td>
<td>7 x 8 inch Bags or Canisters</td>
<td>NPT</td>
<td>Carbon Steel</td>
<td>Internal – Epoxy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diesel Fuel</td>
<td></td>
<td>RF Flange</td>
<td>ASME Code</td>
<td>External – Primer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kerosene</td>
<td></td>
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<tr>
<td></td>
<td>Up to 6,813 lpm</td>
<td>Gasoline</td>
<td></td>
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</tr>
<tr>
<td>Fuel Monitors</td>
<td>Up to 1,200 gpm</td>
<td>Jet A, Jet A 1</td>
<td>2 inch (AP/I/P) &amp; MIL SPEC M-81300C (AS)</td>
<td>NPT</td>
<td>Carbon Steel</td>
<td>Internal – Epoxy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JP 4,5,8</td>
<td></td>
<td>RF Flange</td>
<td>ASME Code</td>
<td>External – Primer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diesel Fuel</td>
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<td>Kerosene</td>
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<tr>
<td></td>
<td>Up to 4,542 lpm</td>
<td>Gasoline</td>
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<td></td>
<td>Bio-Diesel</td>
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</tbody>
</table>

Features

- ASME Code, Section VIII construction, stamped & certified.
- Designed for low pressure drop.
- Designed for easy element changeouts.
- A variety of positive element seal designs are available.
- Welded carbon steel construction is standard. Alternative material types, including stainless steel and aluminium, can be designed to meet application requirements.
- A variety of interior and exterior surface coatings are available for your specification.
- Large capacity sumps are incorporated into each design.
- CAD provides fast and accurate custom vessel designs.

For specific vessel tech data and dimensions, consult product specification sheets.
Fluid Condition Monitoring

Current practice in the aviation industry is to use a visual, 'clear and bright' test to make sure that the fuel being supplied from our refineries is free from solid matter and undissolved water at normal ambient temperatures.

This test is subjective and cannot detect those contaminatees that can really do damage to the engine and its critical tolerance fuel control components in todays modern aero engines.

- Particle counting has been in lab environments since the 1960's.
- Recognised as an industry approved method.
- Counts particulate distribution in hydraulic fluids.
- Conforms with ISO/NAS and SAE standards.

Applications

- Determination of particle size distribution for filter testing.
- Determination of water content in fuel.
- Filter performance monitoring.
- Pipeline commission trials.
- Future development for telemetric analysis.
Parker Filtration’s global reputation as a reliable supplier of superior hydraulic and lubrication filtration products, fluid power products and fluid condition monitoring equipment, is the result of a focused and integrated development and manufacturing system. A range of products that cover many markets and most applications.

Hydraulic

Marine

Engine Air Filtration Systems

Fuel and Water

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It’s easy to see why Parker Racor is the most trusted name in marine filtration. Experienced sailors and marine system designers know that a fuel filter failure can stop a craft dead in the water. For nearly four decades, Racor has designed and manufactured diesel fuel filter/water separators that represent the standard in the marine industry.

Fresh air. That’s what Racor air filtration is all about. Because when engines breathe easier they perform better – with more power, more torque and with improved fuel economy. The Racor lineup includes heavy duty air cleaners and pre-cleaners, crankcase ventilation, marine filter/silencers, cabin air filters and replacement filters. All are super high efficiency, with engineered, application-specific media that improves performance as it extends service life.

Parker Racor fuel and oil filtration systems provide quality protection for engines operating in any environment, anywhere in the world. Racor’s tried and trusted range of Spin-On fuel filter/water separators and the legendary Turbine Series represent, to customers, OEMs and end users alike, the very best in fuel filtration solutions.

Hydrocarbon Brochure (Oct 08): Hydrocarbon Brochure (Feb 05)  13/10/08  11:59  Page 25
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