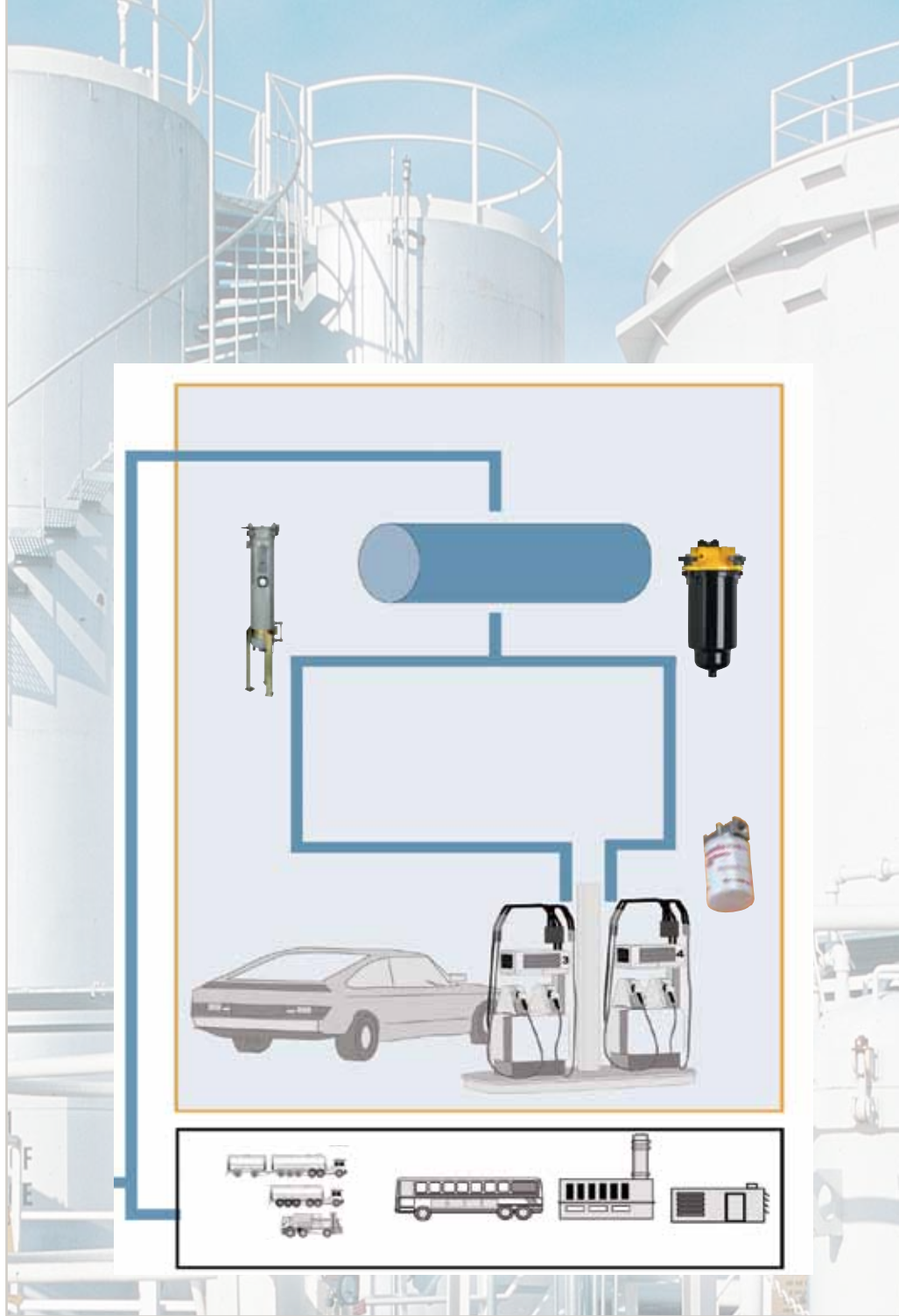




aerospace  
climate control  
electromechanical  
**filtration**  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



# Fuel Dispensing and Transfer Filtration

Racor Filter Division Europe



For more than 40 years Parker has been an innovator in diesel fuel filtration and water separation. A supplier of choice to major engine and vehicle OEM's, Parker is also a leading supplier of filtration solutions to the fuel dispensing and transfer market.

## RV Series - How They Work

The 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 filter/water separator (RVFS), will remove emulsified free water and solids from diesel fuel, gasoline, and other hydrocarbon streams. When equipped with filter/water separator filters, water can be drained and removed from the RVFS sump.

When the RV Series is set up with a particulate filter it is designed to remove solid contaminants such as dirt, rust, scale, and other solid materials from a hydrocarbon fuel stream down to one micron.

### Product Features:

- **CE Certified**
- **250 PSI ASME Code, Section VIII Construction Stamped and Certified**
- **Inlet and Outlet Permanently Marked**
- **Exterior: Grey Primer Coated or stainless steel**
- **Leg Mounts or Wall Mounts**
- **Optional Accessories Include: pressure relief valve, automatic air eliminator, drain valve, water-in-fuel sight glass, and differential pressure gauge.**

### Biodiesel Filtration

Racor filter vessels are great for biofuel applications due to ease of service, rugged construction, and filtration efficiency.

However due to the nature of biofuels water can be more difficult to remove from them.

For biodiesel applications flow rates should be half what they would be for normal diesel.

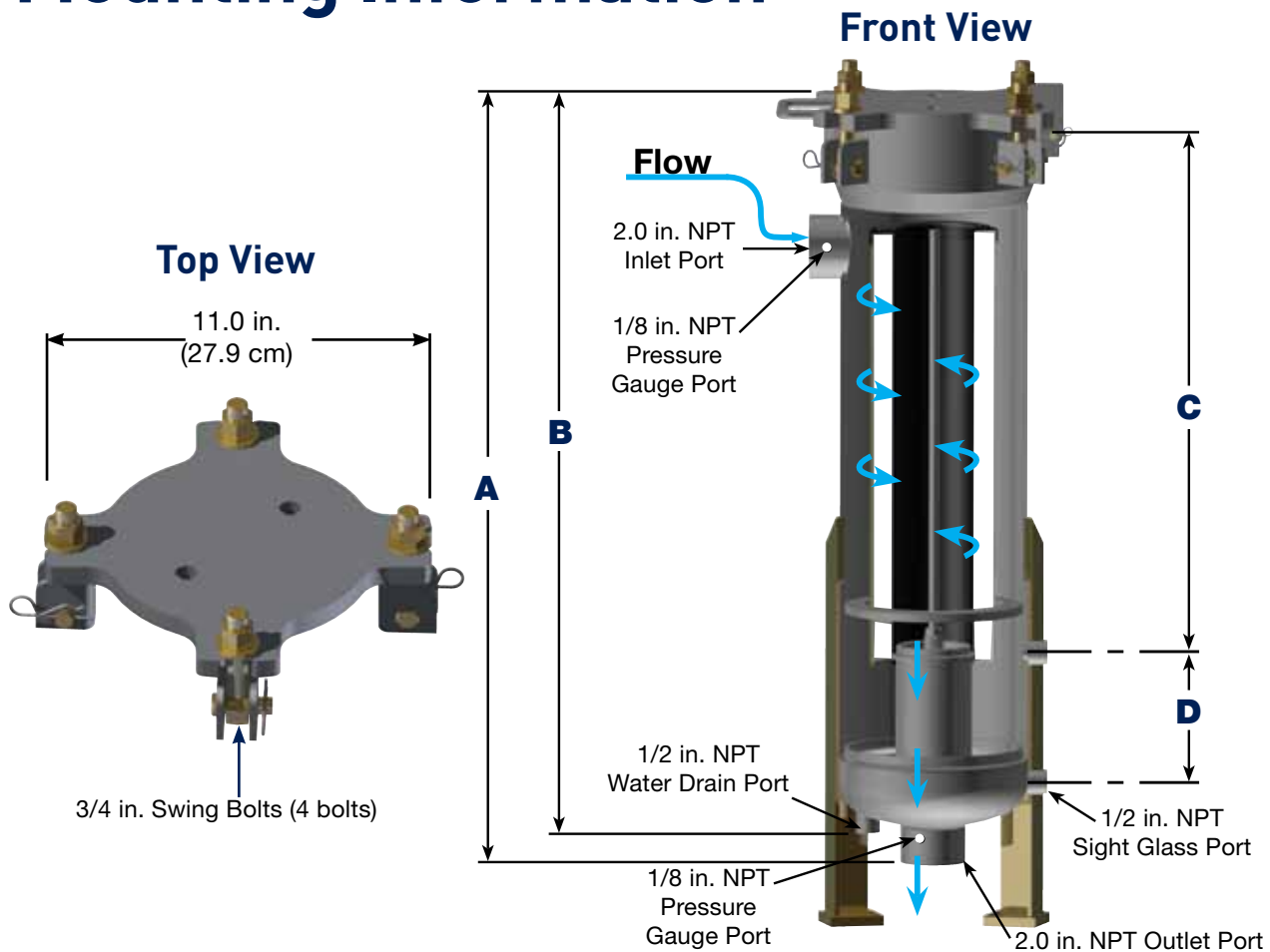


## Fuel Flow Information

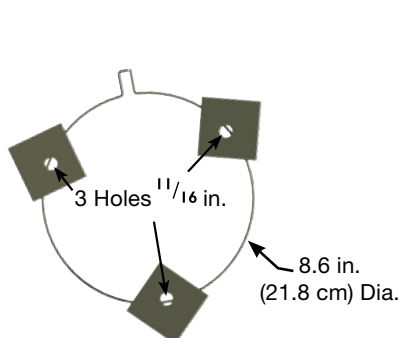
Flow Rate with Diesel Fuel		
Type	RVFS Coalescer / Separator	RVFS Microfilter
Size 1	25 GPM (94.6 LPM)	66 GPM (249.8 LPM)
Size 2	50 GPM (189.3 LPM)	133 GPM (503.5 LPM)
Size 3	75 GPM (283.9 LPM)	200 GPM (757.1 LPM)

Flow Rate with Kerosene or Aviation Fuel		Flow rate specified for pressure side installation. For vacuum side installation please email: <a href="mailto:rfdtechnicalsupport@parker.com">rfdtechnicalsupport@parker.com</a>
Type	RVFS	
Size 1	50 GPM (189.3 LPM)	
Size 2	100 GPM (378.5 LPM)	
Size 3	150 GPM (567.8 LPM)	

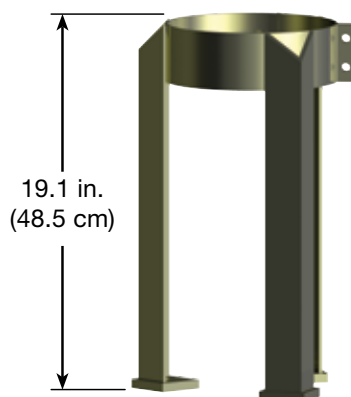
# Mounting Information



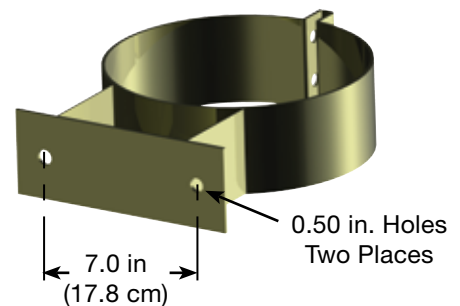
	RVFS-1 and RVMF-1		RVFS-2 and RVMF-2		RVFS-3 and RVMF-3	
Dimensions	in.	cm	in.	cm	in.	cm
A	35.3	89.7	49.8	126.5	63.8	162.1
B	34.0	86.4	48.5	123.2	62.4	158.5
C	24.8	63.0	39.3	99.8	54.0	137.2
D	6.0	15.2	6.0	15.2	6.0	15.2



**Bottom View**



**Mounting Legs**



**Bulkhead Mounting Bracket**

# Filter Elements

The RVFS is used primarily as a filter/water separator, where two elements are installed into the vessel, one inside the other: 1 x coalescer and 1 x separator. This arrangement will remove emulsified

free water and solids from diesel fuel, fuel oils and other hydrocarbon streams. Water is collected in an internal sump area between the coalescer and separator elements.

The RVFS Series can however be used with a range of alternative elements including: particulate (Pre-filter) filter elements, water absorbing (Monitor) elements and clay bags.

## Element Types:

### 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, 25 & 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 6-7" 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 95% 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 6-7" OD, 3.5" ID elements in multiple lengths of 14 inches.

## Element Part Numbers:

### HOCP Coalescer Cartridge - Requires Matching HSP filter

Vessel Series	1 micron	5 micron	10 micron	25 micron
RVFS-1	HOCP-15801	HOCP-15805	HOCP-15810	HOCP-15825
RVFS-2	HOCP-30801	HOCP-30805	HOCP-30810	HOCP-30825
RVFS-3	HOCP-44801	HOCP-44805	HOCP-44810	HOCP-44825

### HSP Separator Cartridge - Pleated Paper

RVFS-1	HSP-15401	HSP-15405	HSP-15410	HSP-15425
RVFS-2	HSP-30401	HSP-30405	HSP-30410	HSP-30425
RVFS-3	HSP-44401	HSP-44405	HSP-44410	HSP-44425

For RVFS-1, 2, and 3, customer must order one **HOCP** and one **HSP** filter. A fuel filter/water separator consists of one coalescer and one separator filter in the same housing.

### HFP Silicon Treated - Pleated

Vessel Series	1 micron	5 micron	10 micron	25 micron
RVMF-1	HFP-14601	HFP-14605	HFP-14610	HFP-14625
RVMF-2	HFP-28601	HFP-28605	HFP-28610	HFP-28625
RVMF-3	HFP-43601	HFP-43605	HFP-43610	HFP-43625

### HFS Synthetic Fiber

RVMF-1	HFS-14601	HFS-14605	HFS-14610	HFS-14625
RVMF-2	HFS-28601	HFS-28605	HFS-28610	HFS-28625
RVMF-3	HFS-43601	HFS-43605	HFS-43610	HFS-43625

### HFW Water Absorbing Separator

RVMF-1		HFW-14605		HFW-14625
RVMF-2		HFW-14605 (x2)*		HFW-14625 (x2)*
RVMF-3		HFW-14605 (x3)*		HFW-14625 (x3)*

\* Multiple cartridges required

**Note:** All vessels come equipped with Viton® o-rings. Compatible with biodiesel mixtures.

# RV Series Specifications

Racor RV Series filter vessels offer economy, versatility, unparalleled high efficiency, and low maintenance solutions to many fuel delivery and industrial filtration applications. The vessels will accept fuel filter or fuel filter/water separator filters.

Filter vessels are used in the diesel and kerosene re-fueling industry on fuel dispensing locations, providing clean dry fuel. Equally these vessels can be used for AV gas, heating oils, gasoline, and other hydrocarbon fuels.

RV Series vessels provide the required filtration for today's high-pressure common-rail engines.

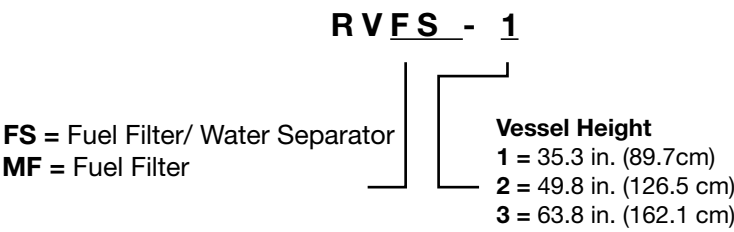


Specifications	RVFS-1 RVMF-1	RVFS-2 RVMF-2	RVFS-3 RVMF-3
Inlet and Outlet Ports	2 in. NPT	2 in. NPT	2 in. NPT
Vent and Relief Ports	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT
Water Level Gauge Ports	1/2 in. NPT	1/2 in. NPT	1/2 in. NPT
Differential Gauge Ports	1/8 in. NPT	1/8 in. NPT	1/8 in. NPT
Pressure & Temperature: ASME	250 PSI @ 250°F (17 bar @ 121°C)		
Pressure & Temperature: CE mark	148 PSI @ 250°F (10 bar @ 121°C)		
ASME Code Stamped or CE Marked	Yes	Yes	Yes
Pressure Drop - Clean	2 PSID (0.14 bar)	2 PSID (0.14 bar)	2 PSID (0.14 bar)
Pressure Drop/Filter Change-out	15 PSID (1.0 bar)	15 PSID (1.0 bar)	15 PSID (1.0 bar)
Height (excluding mounting legs)	35.3 in. (89.7 cm)	49.8 in. (126.5 cm)	63.8 in. (162.1 cm)
Width	13.5 in. (34.3 cm)	13.5 in. (34.3 cm)	13.5 in. (34.3 cm)
Depth	13.2 in. (33.5 cm)	13.2 in. (33.5 cm)	13.2 in. (33.5 cm)
Dry Weight	100 lbs. (45 kgs)	115 lbs. (52 kgs)	130 lbs. (59 kgs)
Overhead Service Clearance	16.0 in. (40.6 cm)	32.0 in. (81.3 cm)	47.0 in. (119.4 cm)



# ASME Coded Vessels:

## Step 1: Select A Vessel



## Step 2: Select Accessories

Part Number	Description
71330-150	Pressure Relief Valve*
70906	Water Level Sight Glass, (diesel only, 125 PSIG)*
72061-RVFS	Water Level Site Gauge (Jet, AV gas, and gasoline, 300 PSIG)
71679	Stainless Steel Air Eliminator *
72059	Differential Pressure Gauge Assembly *
71943-5	1/2" NPT Brass Drain Valve *
72060-.5	1/2" Stainless Steel Drain Valve
71943-.75	3/4" NPT Brass Vent Valve
72060-.75	3/4" NPT Stainless Steel Vent Valve
71981	Mounting Legs*
71982	Wall Mount Bracket
72482	Inlet Check Valve
<b>Installation Kits*</b>	
72153-1, 2, or 3 Coalescer/Separator	
72193-1, 2, or 3 Paper or Synthetic Microfilter	

\* Comes with RVFS or RVMF unit.



## Step 3: Select a Filter Element

See page 4 for element ordering

The following vessel part numbers are **in stock and ready to ship** at all times:

RVFS-1-10C  
RVFS-2-10C  
RVFS-3-10C

These standard vessels come with accessories marked with \* as shown

# RVFS Series CE Marked

The RVFS SS CE Marked models have been introduced to work in modern European fuel environments with mixed bio diesel blends.

The revised series is now completely fabricated in 304 stainless steel removing the need for internal or external painting, whilst improving fuel compatibility, cleanliness and durability.

These stainless steel vessels will be available only in the CE marked construction code with a maximum operating pressure of 10 barg.

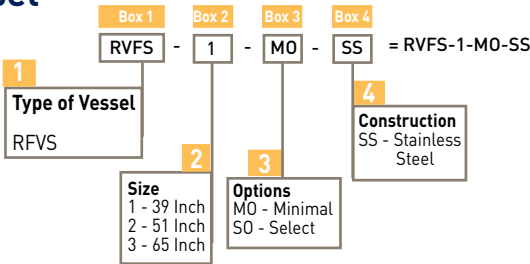
The RVFS is used primarily as a filter/water separator, where two elements are installed into the vessel- 1x Coalescer element and 1x separator element.

This set up will remove emulsified free water and solids from diesel fuel, fuel oils, and other hydrocarbon streams. Water is collected in an internal sump area between the stage one and stage two elements. However the RVFS Series can also be used with a range of alternative filter elements including particulate filter elements, water absorbing elements and even clay bags.



## Ordering CE Marked Vessels

### Step 1: Select a Vessel



### Step 2: Select Accessories

	MO	SO
	Minimal Options	Select Options
Diff Pressure Gauge	X	X
Auto Air Eliminator		
Pressure Relief Valve		
1 x Water Sight Glass	X	
2 x Water Float sight Glasses		
Manual Air Vent	X	
Manual Water Drain	X	
Sample Probes		
Auto Water Drain		
	Note: The Minimal Specification of equipment. Other options Can be added but fitted by customer and quoted as separate line items	Note: Basic vessel. All ports plugged and customer selects and fits options. All Options quoted a separate line items .

**Note:** For additional information, request brochure 7537 or 7648.

### Step 3: Select an Element

See page 4 for element ordering

Pressure Rating:  
148 PSI (10 bar) CE marked to PED  
(Pressure Equipment Directive)

# FBO Series

- Fuel Filter,
- Fuel Filter/Water Separator, or
- Fuel Filter/Water Absorber

## Filter Options

These versatile housings have three filter options to meet various requirements: fuel filter, fuel filter/water separator, or water absorber. For fuel dispensing applications, a fuel filter/water separator filter is recommended.

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

## Product Features

- **Die-Cast Aluminum Head**
- **Steel Bowl Assembly**
- **Powder Coated Components**
- **Locking Ring Collar (no v-clamps)**
- **1.5" NPT Inlet and Outlet Ports**
- **Maximum Pressure: 150 PSI (10 bar) and Maximum Temperature 240°F (115°C)**
- **Lockable Manual Drain Valve: 1/2" NPT (part# 73225-.5)**
- **Grounding Lug**
- **Manual Vent Valve**
- **Optional Differential Pressure Gauge (part# 72694)**
- **Optional Sight Glass 1/2" NPT (part# 72710)**
- **Optional Mounting Bracket (part# 73084)**
- **Optional Water Sensor Probe (bushing part# 73249, water sensor part# RK30880E)**
- **Optional 45 watt, 120 VAC Heater Available for Cold Climate Applications**



## Typical Applications

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

They can be used on mobile refuelers, installed in refueling cabinets, for fuel dispensing pumps, as a primary fuel filter/water separator for large diesel engines, in bulk fuel handling, fuel transfer, or other higher flow applications.

## Servicing

FBO assemblies have a flow rate of 10 GPM (38 LPM) to 75 GPM (284 LPM), depending on model, filter, and type of fuel to be filtered. They also feature a "locking ring collar", which attaches the filter housing to an aluminum die cast filter head with four bolts. A slotted "locking ring collar" allows maintenance personnel to hand loosen four collar bolts, rotate, and lower the bowl assembly for easy filter change-outs.

With a new filter installed, simply raise the bowl and rotate into position on the locking ring and hand tighten (evenly torquing the 4 closure bolts to 100 lb-in is highly recommended).

The closure hardware consists of stainless steel nuts, bolts, and washers with metal hand knobs for ease of maintenance. No wrenches or other special tools are required, allowing one person to easily change the filter.

**Note:** No V-band clamps are used. Contains Viton® o-rings for compatibility in Biodiesel applications.

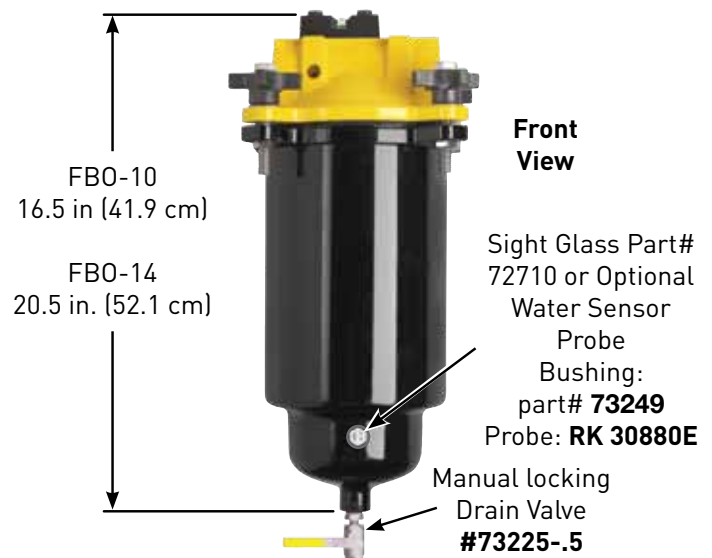
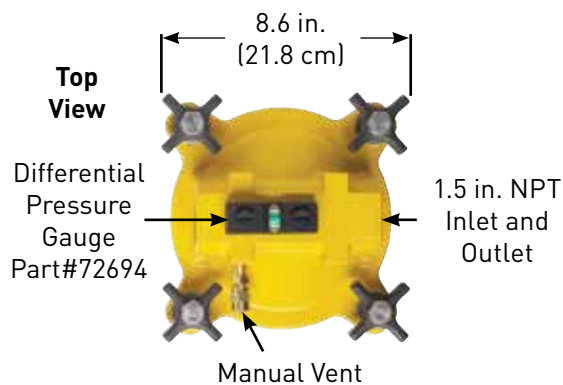




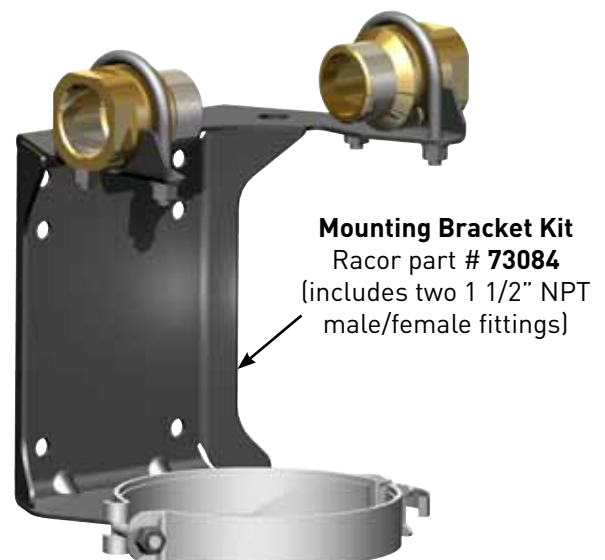
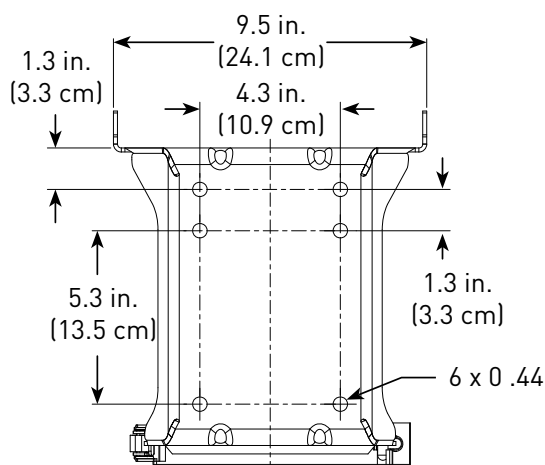
# Technical Information

Specifications	Maximum Flow Rates			Clean	Change
FBO-10	Diesel	Gasoline	Kerosene	Delta P	Delta P
Filter	25 GPM (94.6 LPM)	53 GPM (200.6 LPM)	35 GPM (132.5 LPM)	2.5 PSID	15 PSID
Water Separator	20 GPM (75.7 LPM)	32 GPM (121.1 LPM)	21 GPM (79.5 LPM)	2.5 PSID	15 PSID
Water Absorber	20 GPM (75.7 LPM)	45 GPM (170.3 LPM)	35 GPM (132.5 LPM)	2.5 PSID	30 PSID
FBO-14	Diesel	Gasoline	Kerosene	Delta P	Delta P
Filter	30 GPM (113.6 LPM)	75 GPM (283.9 LPM)	50 GPM (189.3 LPM)	2.5 PSID	15 PSID
Water Separator	25 GPM (94.6 LPM)	45 GPM (170.3 LPM)	30 GPM (113.6 LPM)	2.5 PSID	15 PSID
Water Absorber	25 GPM (94.6 LPM)	70 GPM (265.0 LPM)	55 GPM (208.2 LPM)	2.5 PSID	30 PSID

## Mounting Information



**Mounting Bracket Hole Pattern**



# In The Field And On The Road



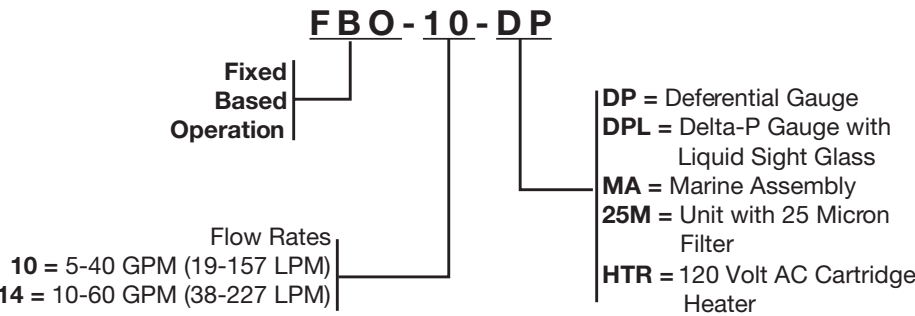
FBO Commercial Application



FBO Commercial Application



FBO On Refuelling Rig



## How to Order

Below is a part number guide to help you get the right FBO assembly with the accessories you need.

	1	2	3	4
	Delta-P Gauge	Filter	Sight Glass	Drain Valve
FBO-10		Order Separately (see next page)		
FBO-10-DP	X	Order Separately (see next page)		
FBO-10-DPL	X	Order Separately (see next page)	X	X
FBO-10-25M	X	FBO 60332	X	X
FBO-10-HTR <sup>1</sup>	X	Order Separately (see next page)	X	X
FBO-14		Order Separately (see next page)		
FBO-14-DP	X	Order Separately (see next page)		
FBO-14-DPL	X	Order Separately (see next page)	X	X
FBO-14-25M	X	FBO 60341	X	X
FBO-14-HTR <sup>1</sup>	X	Order Separately (see next page)	X	X

<sup>1</sup>Includes a 120 Volt AC, explosion proof heater, for stationary applications.

# Replacement Filter Elements

## Fuel Filter

Silicone treated fuel filters remove particle contaminants down to one micron. Silicone filters can also be used upstream, before a fuel filter/water separator, to extend filter life.

## Water Separator

Water separator filters remove water and contaminants from hydrocarbon fuel streams and are the most popular filters.

## Water Absorber

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



FBO	Micron Rating	Water Separator	Silicone Treated	Water Absorber
<p><b>FBO-10</b> (6 X 10 Filter)</p>	1	FBO 60327 FBO 60360 <sup>2</sup>	FBO 60330	FBO 60333
	5	FBO 60328	FBO 60331	FBO 60334
	10	FBO 60353	FBO 60354	FBO 60355
	25	FBO 60329	FBO 60332	FBO 60335
<p><b>FBO-14'</b> (6 X 14 Filter)</p>	1	FBO 60336 FBO 60361 <sup>2</sup>	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

<sup>1</sup> **72951** Monitor Adapter Plate enables the **FBO-14** to take five **RMO-210-4** monitor filters.

<sup>2</sup> API/EI 1583 5th Edition filters are certified for jet fuel applications.

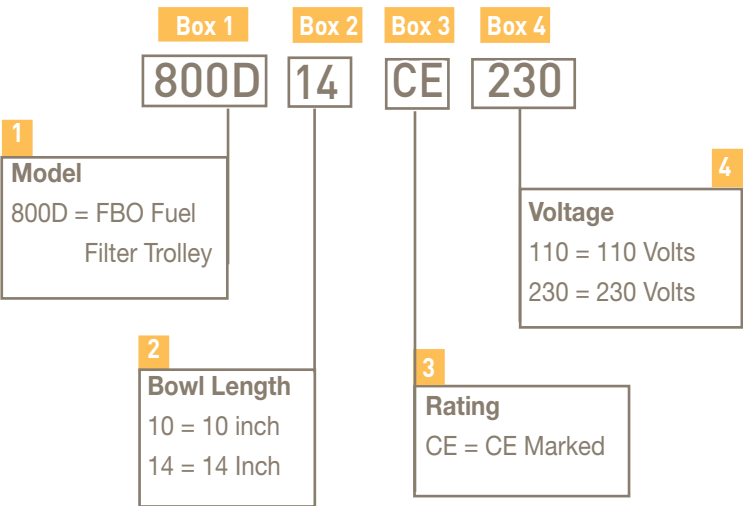
# FBO Fuel Filter Trolley

Cleaner fuel means lower costs and less engine wear



The Racor FBO Filter Trolley is a new lightweight mobile unit ideal for on-site cleaning of fuel tanks, drums and bowzers. It incorporates state-of-the-art Racor fuel filter technology which removes potentially damaging contamination from your diesel fuel. Available with a range of filters from 1 to 25 micron it removes particles and virtually 100% water quickly and efficiently (flow rate of over 50 litres per minute).

- Excellent portability, delivering fast on-site fuel polishing
- Protects engines from failure and unscheduled shutdowns due to contaminated fuel
- Eliminates cost of replacement fuel
- Safe, stand alone operation due to automatic shut down and in built alarm
- Suction and Return line hoses included



The FBO Fuel Filter trolley uses the standard range FBO Elements which can be see in the table on page 10.

# Fuel Dispensing Elements

For stationary equipment, fuel dispensing elements protect expensive system components not only from microscopic solid contaminants, but from damaging water as well.

Racor elements are engineered and manufactured to meet stringent quality requirements and Original Equipment manufacturer (OEM) specifications for service life and efficiency.

When you specify Racor filters, you know you're doing everything you can to protect your equipment, extend its life-cycle and effectiveness, and improve your bottom line. Models are available for direct spin-on replacement and with integral, die cast aluminum heads.



Specifications	PFFDW3525	PFFDW3825	PFFDW51125
Maximum Flow Rate	450 GPH (1703 LPH)	900 GPH (3406 LPH)	3000 GPH (11356 LPH)
Max. Working Pressure	100 PSI (689.6 kPa)	100 PSI (689.6 kPa)	100 PSI (689.6 kPa)
Micron Rating	25	25	25
Height	5.0 in. (12.7 cm)	8.0 in. (20.3 cm)	11.0 in. (27.9 cm)
Diameter	4.0 in. (10.2 cm)	4.0 in. (10.2 cm)	4.0 in. (10.2 cm)
Center Threads	1"-12	1"-12	1"-12
Solids Capacity	0.5 oz. (15.6 g)	1.0 oz. (28.7 g)	2.0 oz (56.5 g)
Water Capacity	8.4 oz. (0.2 L)	15.4 oz. (0.5 L)	30.3 oz (0.9 L)
Weight (dry)	1.2 lb (0.5 kg)	1.5 lb (0.7 kg)	2.8 lb (1.3 kg)
H <sub>2</sub> O Removal Efficiency	99%		
Operating Temperature	-50o to +225oF (-45o to +107oC)		

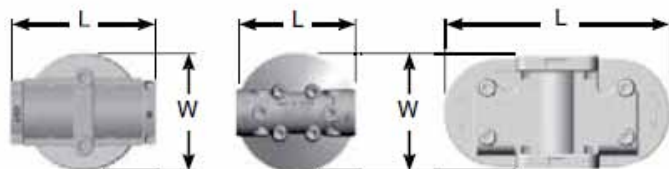


# Optional Mounting Heads



Specifications	PFHH07500	PFFDH12500	23179001
Maximum Flow Rate	900 GPH (3,406 LPH)	3000 GPH (11,356 LPH)	6000 GPH (22,712 LPH)
Fuel Ports	0.75" NPT	1.25" NPT	1.5" NPT
Height	2.5 in. (6.4 cm)	3.5 in. (8.9 cm)	4.5 in. (11.4 cm)
Length	3.8 in. (9.7 cm)	5.3 in. (13.5 cm)	11.3 in. (28.7 cm)
Width	3.0 in. (7.6 cm)	5.3 in. (13.5 cm)	5.5 in. (14.0 cm)
Gasket Pack (5 pc)	N/A	INGCSG100	INGCSG100
Operating Pressure	100 PSI (6.9 bar)		

\*\*23179001 dual head. Please call Parker's sales office to order.



# RFF Fuel Filter Funnels

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

RFF funnels are capable of removing free water and solids down to 0.003 inch and allows you to visually inspect the integrity of your fuel supply as you refuel.

Dirt and water are practically unavoidable in stored fuel, causing microbial growth, corrosive acids, electrolysis, and rust. These contaminants can plug filters, corrode components, decrease efficient combustion, and can cause engine shutdown or system failure.

Great for refueling lawn mowers, chain saws, snow machines, ATVs, power generators, boat motors, PWCs, RVs, helicopters, motorcycles, etc. Racor filter funnels are for people who need clean dry fuel on the go.

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.



## Product Features

- Rugged Construction
- PTFE Coated Stainless Steel Filter
- Four Sizes, Four Flow Rates
- Electro-Conductive Plastic Material
- Corrosion Resistant
- Self Cleaning
- No Parts To Replace



Specifications	RFF1C	RFF3C	RFF8C	RFF15C
Max. Flow Rate	2.7 GPM (10.2 LPM)	3.9 GPM (14.8 LPM)	5 GPM (18.9 LPM)	15 GPM (56.8 LPM)
Micron Rating	127 micron	127 micron	127 micron	76 micron
Height	6.0 in. (15.2 cm)	9.0 in. (22.9 cm)	10.0 in. (25.4 cm)	10.0 in. (25.4 cm)
Diameter	3.5 in. (8.9 cm)	5.5 in. (14.0 cm)	8.5 in. (21.6 cm)	8.5 in. (21.6 cm)
Weight	0.2 lb (0.09 kg)	0.3 lb (0.14 kg)	0.6 lb (0.27 kg)	1.0 lb (0.45 kg)



01422 377367



enquiries@prosep.co.uk

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FILTER SYSTEMS LTD

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- VACCUM
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- FILTER MEDIA

**DOMESTIC**

- ULTRAVIOLET
- TREATMENT OF BOREHOLES,  
SPRINGS & WELLS
- WATER TESTING

**FUEL FILTRATION**

- DIESEL, AVIATION



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