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filtration
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sealing & shielding



Marine Filtration Systems



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If It's Not A Genuine Racor Filter, you could be asking for trouble...

Issue	Concerns With Competitor Copies	Racor Commitment to Quality
Blocked Filter	Low quality media will perform poorly and can block 70% sooner than Racor media.	Racor uses propriety Aquabloc [®] media that meets or exceeds water removal and particle efficiency requirements for OEM fuel injection systems.
Bypassing	Poorly constructed filters may bypass internally allowing dirty fuel and water to reach the engine.	Racor uses high quality materials and production processes to ISO/TS16949 to eliminate bypass problems.
Split Or Leaking Seals	Poor quality seals will swell excessively, leak, and may deteriorate within the service period.	Racor uses high quality automotive grade gaskets and seals that are compatible with B20 bio-diesel (i.e. NBR, HNBR, and Viton [®]).
Dirty Fuel Reaching Engine	Inefficient filters will not protect the engine.	Racor replacement filters will perform as designed for the application.
Water In Fuel Reaching Engine	Very few, if any, copycat filters perform to original equipment specifications.	Racor uses the same media and materials in original equipment and replacement filters.
Cold Conditions	Poor quality pump diaphragms and seals will harden and cause leaking.	Racor uses high quality materials that are rated for operating temperatures of -40° to +255°F (-40° to +124°C).
Cracked Head Casting	Poor quality head castings cannot cope with extreme environmental conditions and vibrations.	Racor products are validated under extreme vibration and climatic conditions.
Contains Banned Substances	Some copy filters contain banned substances in the canister coating and plating.	Racor canisters contain no banned substances and are validated under extreme salt spray and climatic conditions.
Cracked Clear Bowl	Copycat filter bowls are often made from poor quality material that will crack under extreme temperature, chemical exposure, or continuous vibrations.	Racor uses a unique durable clear plastic bowl material with high clarity, excellent UV protection, low and high temperature resistance, is impact resistant, and is impervious to all fuel types.
Filter Accessories	Unauthorized Racor copies do not always offer accessories. If they do, they are likely not tested.	Racor has a wide range of filter accessories that are validated for integrity, EMC compatibility, and safety.

SNAPP. The fuel filter change that changes everything.

SNAPP is big protection for small engines with fuel flows up to 26 gph and makes every filter change literally a snap. Fast, easy, clean. No tools are needed – when it's time for service, simply snap in a new filter. Simple installation and a patented priming system mean that protecting your engine investment is now ... a SNAPP.



Fast, easy, clean, SNAPP is a fuel filter change for the better.

The world turns to Racor for filtration solutions that provide ultimate protection from water and solid contamination. This is filtration that includes two innovations often copied but never quite duplicated – the powerful protection of patented, world-class Aquabloc® filter media and, the Racor trademark, a clear bowl that allows for at-a-glance inspection of fuel system integrity.

Quick-release squeeze tabs make filter changes a snap.

Permanent mounting bracket is stainless steel for withstanding corrosive environments.

SNAPP is a one-piece fuel filter water separator for 24/7 protection .

Heavy-duty high-impact nylon construction won't ever rust or corrode, even in humid conditions.

Clear bowl for at-a-glance inspection.

The rugged clear bowl allows on-the-spot inspection for water in fuel – a significant advantage when troubleshooting fuel quality.

The Racor self-venting drain means easy service with no mess – twist, drain, done.



Legendary Aquabloc® filter media in 2, 10 or 30 micron rating.

The Aquabloc® media is the world's definitive filtration protection – it's 99% effective in separating water and solid contamination from marine and diesel fuels.

Part #	Description
23281-02	Fuel Filter with Bracket - 2 Micron
23281-10	Fuel Filter with Bracket - 10 Micron
23281-30	Fuel Filter with Bracket - 30 Micron
R23280-02	Fuel Filter - Service - 2 Micron
R23280-10	Fuel Filter - Service - 10 Micron
R23280-30	Fuel Filter - Service - 30 Micron
23299-02	Fuel Filter with Bracket - with Drain - 2 Micron
23299-10	Fuel Filter with Bracket - with Drain - 10 Micron
23299-30	Fuel Filter with Bracket - with Drain - 30 Micron
R23298-02	Fuel Filter - Service - with Drain - 2 Micron
R23298-10	Fuel Filter - Service - with Drain - 10 Micron
R23298-30	Fuel Filter - Service - with Drain - 30 Micron

Specifications	
Maximum Flow Rate	26 gph (100 lph)
Aquabloc Micron Rating	2, 10, or 30 micron
Height	7.8" (198 mm)
Width	3.8" (97 mm) at bracket
Depth	4.1" (104 mm)
Water Sump Capacity	3.4 oz. (100 ml)
Bracket Material	Stainless Steel
Port Size	3/8" (9.5 mm)
Quick-Connect Fittings	3/8" (9.5 mm) (per SAE J2044)
Rated Pressure	50 PSI (3.5 bar)
Water Removal Efficiency	99%
Rated Temperature Range	-20° to 150°F (-29° to 66°C)

Fuel Filtration



Duplex units offer mariners the peace-of-mind of having a clean filter in reserve. Rough seas can stir up tank sediment which will quickly clog a single fuel filter.

With Racor, a simple turn of a valve puts a clean filter back on-line. Servicing of the clogged filter can then be performed even with the engine running.



Legendary Diesel Fuel Filtration

When engines demand heavy-duty, high-capacity water separation and fuel filtration, the Turbine Series is the most complete, efficient, and reliable engine protection you can install. Symbolizing Racor's continuing commitment to the science of filtration, the Turbine Series has established its position as the filter/separator often imitated, but never equaled. Models that include an aluminum bowl or stainless steel shield meet ASTM FS1201 certification, are UL-listed, American Bureau of Shipping, Veritas, Det Norske Veritas, ISO 10088, and USCG accepted. For severe service, all-metal bowls should be specified.

Paired with our famous and genuine Aquabloc® filters, the Racor Turbine Series is still the preferred brand for serious sailors globally.

Make certain that you replace your Turbine Series assemblies only with Genuine Racor Aquabloc® filters. While many others try to imitate the construction and performance of Aquabloc® filters, only the genuine article delivers the fit and performance specified by engine manufacturers, and guarantees that your Racor filter/water separator will deliver the protection you count on.

For convenience, end-caps are color-coded for easy identification and application.

Red = 30 micron, primary filtration.

Blue = 10 micron, secondary filtration.

Brown = 2 micron, final filtration.

The top cap includes handles for easy servicing and a filter bypass button for emergencies.

Aquabloc® media is a blend of high-grade cellulose compounded with engineered fibers, and a special chemical treatment. Water will not cling to the filter, Aquabloc® repels it.



Aquabloc® Filters

Besides removing asphaltenes, water, gums, and varnishes, Aquabloc® filters out tiny particles of dirt and algae from diesel fuel. Aquabloc® filters have polymer end-caps that will not corrode, ever.

With an Aquabloc® replacement filter, you get a complete kit with all the seals you need. And not just any seals, but specially-formulated, Racor-engineered seals.

Always carry extra Racor fuel filters as one tankful of dirty fuel can quickly clog a filter.

Many Racor filters include an emergency bypass.



The Inside Story

1 As fuel enters, it moves past the internal check valve, then through the turbine centrifuge where it flows in a spiraling direction, spinning off large particulates and water droplets. Being heavier than fuel, the large particulates and water droplets fall to the bottom of the bowl.

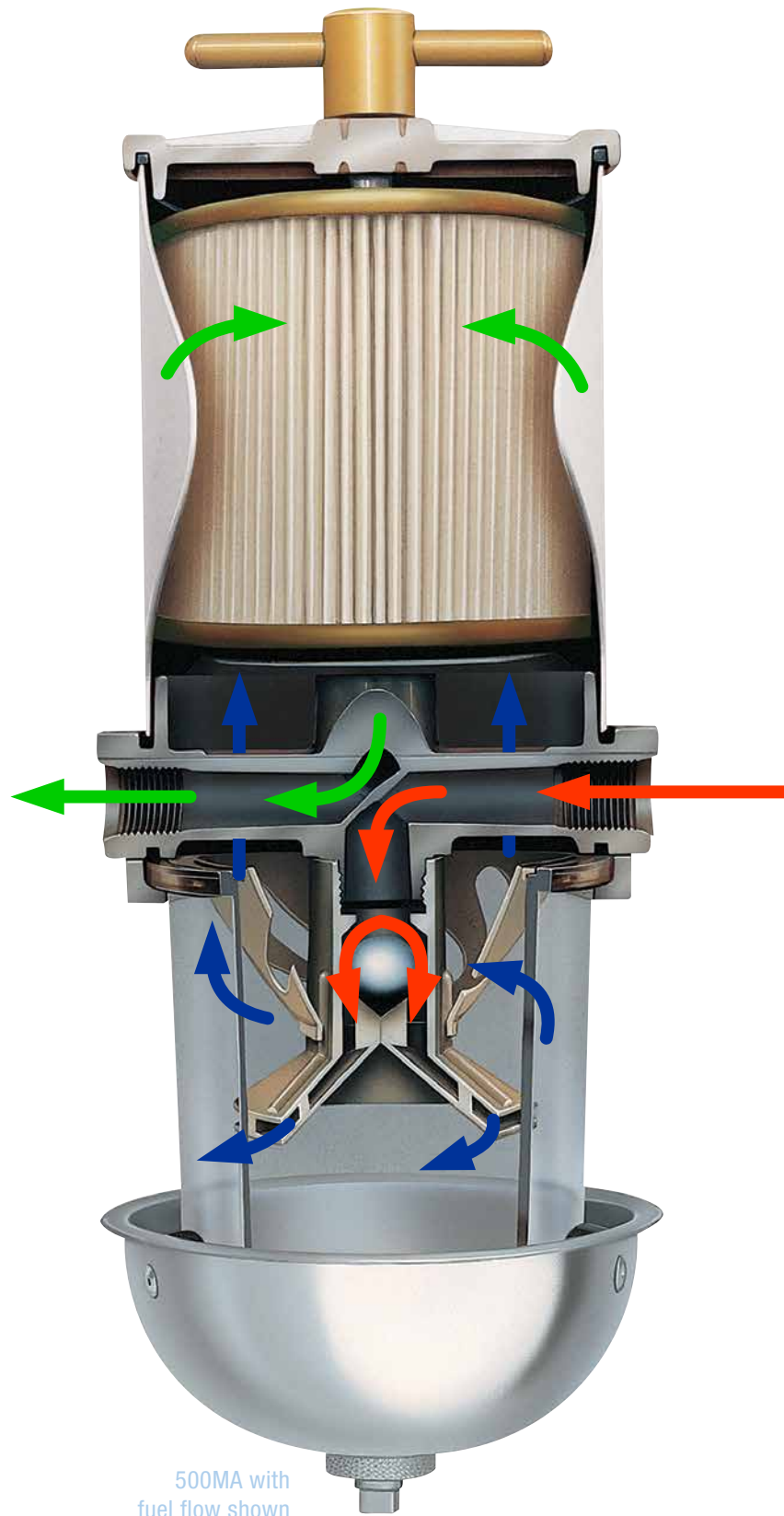
2 Smaller water droplets bead-up along and on the sides of the internal components and on the surface of the Aquabloc® filter. When large enough, they too fall into the high-capacity bowl to be drained as needed.

3 Besides repelling water asphaltenes, algae, rust, and tiny solids from fuel. Aquabloc® filters are waterproof, so they remain effective longer, saving you money.

Order only genuine Aquabloc® replacement filters.

2010	TM	-OR
Select Filter 2010 (500 Series),	Select a Micron Rating SM = 2, TM = 10, or PM = 30	Must have " -OR " in part number (includes o-rings)

2020N	-	02
Select Filter, 2040N (900 Series), or 2020N (1000 Series)		Select a Micron Rating 02, 10, or 30



Electric Primer Pump Kit

Racor's electric primer pump kit can be retrofitted to many of the Racor 900 or 1000 Turbine Series fuel filters/water separators already in service.

The filter pump is an innovative and proprietary system consisting of a 100 micron pre-screen filter, a flow bypass circuit, and an innovative roller cell pump powered by a 12 or 24 vdc Racor brushless motor.

When the switch is activated the fuel is drawn into the pre-screen, then pumped through the housing, refilling the unit with fresh, clean, dry fuel.

When not in use, the filter pump system is bypassed and the Racor fuel filter/water separator functions normally.



The complete primer pump kit includes a wiring harness and controller switch.

Order Part Number:

- **RKP1912** for 12 vdc systems
- **RKP1924** for 24 vdc systems



The unitized assembly is only 3.3 in. (8.4 cm) tall and kit is easily retrofitted to a 900 or 1000 series filter. For Racor duplex or triplex filter systems, only one primer pump is needed.

Note: Do not use in continuous duty applications.

Marine Turbine Series Fuel Filters



Model	500MA	900MA	1000MA	75500MAX	75900MAX
Max. Flow Rate (One filter on-line) (Two filters on-line)	60 GPH (227 LPH) N/A	90 GPH (341 LPH) N/A	180 GPH (681 LPH) N/A	60 GPH (227 LPH) 120 GPH (454 LPH)	90 GPH (341 LPH) 180 GPH (681 LPH)
Height	11.5 in. (29.2 cm)	17.0 in. (43.2 cm)	22.0 in. (55.9 cm)	11.5 in. (29.2 cm)	17.0 in. (43.2 cm)
Width	5.8 in. (14.7 cm)	6.0 in. (15.2 cm)	6.0 in. (15.2 cm)	14.5 in. (36.8 cm)	18.8 in. (47.8 cm)
Depth	4.8 in. (12.2 cm)	7.0 in. (17.8 cm)	7.0 in. (17.8 cm)	9.5 in. (24.1 cm)	11.0 in. (27.9 cm)
Weight (approx.)	4 lbs (1.8 kg)	6 lbs (2.7 kg)	17 lbs (7.7 kg)	17 lbs (7.7 kg)	23 lbs (10.4 kg)
Port Size (metric optional) ¹	3/4"-16 SAE 16 mm x 1.5	7/8"-14 SAE 22 mm x 1.5	7/8"-14 SAE 22 mm x 1.5	3/4"-16 SAE N/A	7/8"-14 SAE N/A
Clean Pres. Drop	0.3 PSI (0.02 bar)	0.34 PSI (0.02 bar)	0.49 PSI (0.03 bar)	0.70 PSI (0.05 bar)	1.7 PSI (0.12 bar)
Max. Operating Pressure ²	15 PSI (1.03 bar)	15 PSI (1.03 bar)	15 PSI (1.03 bar)	15 PSI (1.03 bar)	15 PSI (1.03 bar)
Replacement Filter	2010 Series	2040 Series	2020 Series	2010 Series	2040 Series
Overhead Clearance	4.0 in. (10.2 cm)	5.0 in. (12.7 cm)	10.0 in. (25.4 cm)	4.0 in. (10.2 cm)	5.0 in. (12.7 cm)
Ambient Temperature Range	-40° to +255°F (-40° to +124°C)				
Maximum Fuel Temperature	190°F (88°C)				

Notes: Units are available with metal bowls, add "M" after MA, i.e. 1000MAM. ¹ Use (*) for metric port threads, i.e. *500MA, *900MA, and *1000MA. ² Vacuum installations are recommended.



Model	731000MA	751000MAX	771000MA	791000MAV
Max. Flow Rate (One filter on-line) (Two filters on-line) (Three filters on-line)	N/A 360 GPH (1363 LPH) N/A	180 GPH (681 LPH) 360 GPH (1363 LPH) N/A	N/A N/A 540 GPH (2044 LPH)	180 GPH (681 LPH) 360 GPH (1363 LPH) 540 GPH (2044 LPH)
Height	22.0 in. (55.9 cm)	22.0 in. (55.9 cm)	22.0 in. (55.9 cm)	22.0 in. (55.9 cm)
Width	16.5 in. (41.9 cm)	18.0 in. (45.7 cm)	18.0 in. (45.7 cm)	21.5 in. (54.6 cm)
Depth	12.0 in. (30.5 cm)	11.0 in. (27.9 cm)	11.0 in. (27.9 cm)	11.8 in. (30.0 cm)
Weight (approx.)	26 lbs (11.8 kg)	30 lbs (13.6 kg)	39 lbs (17.7 kg)	52 lbs (23.6 kg)
Port Size	3/4"-14 NPT	7/8"-14 SAE	1"-11.5 NPT	3/4"-14 NPT
Clean Pres. Drop	1.7 PSI (0.12 bar)	3.7 PSI (0.26 bar)	1.7 PSI (0.12 bar)	2.5 PSI (0.17 bar)
Max. Operating Pressure ³	15 PSI (1.03 bar)	15 PSI (1.03 bar)	15 PSI (1.03 bar)	15 PSI (1.03 bar)
Replacement Filter	2020 Series	2020 Series	2020 Series	2020 Series
Overhead Clearance	10.0 in. (25.4 cm)	10.0 in. (25.4 cm)	10.0 in. (25.4 cm)	10.0 in. (25.4 cm)
Ambient Temperature Range	-40° to +255°F (-40° to +124°C)			
Maximum Fuel Temperature	190°F (88°C)			

Notes: Units are available with metal bowls, add "M" after MA, i.e. 1000MAM. ³ Vacuum installations are recommended.

Compact and Versatile Systems for Main Propulsion and Genset Applications

Cost-Effective

Cost-effective designs for on-engine or remote mounting. Complete assemblies available in all-metal bowls.

High-Capacity

Hand-operated fuel priming pumps are integral to many Racor diesel spin-on series models, a feature that allows for removal of unwanted air from the filter and engine fuel system.

Environmentally Friendly

Metal bowls are reusable, impact-resistant, and virtually indestructible. When it's time for service, only the filter is replaced—the bowl and drain plug are reused. The long life-cycle of Racor bowls saves you money and reduces the environmental impact through disposal of less material.

Note: Use metal bowl versions for all marine engine room applications.

Easy Upgrades

Water-in-fuel (WIF) sensors are available to alert operators to drain accumulated water from the bowl.

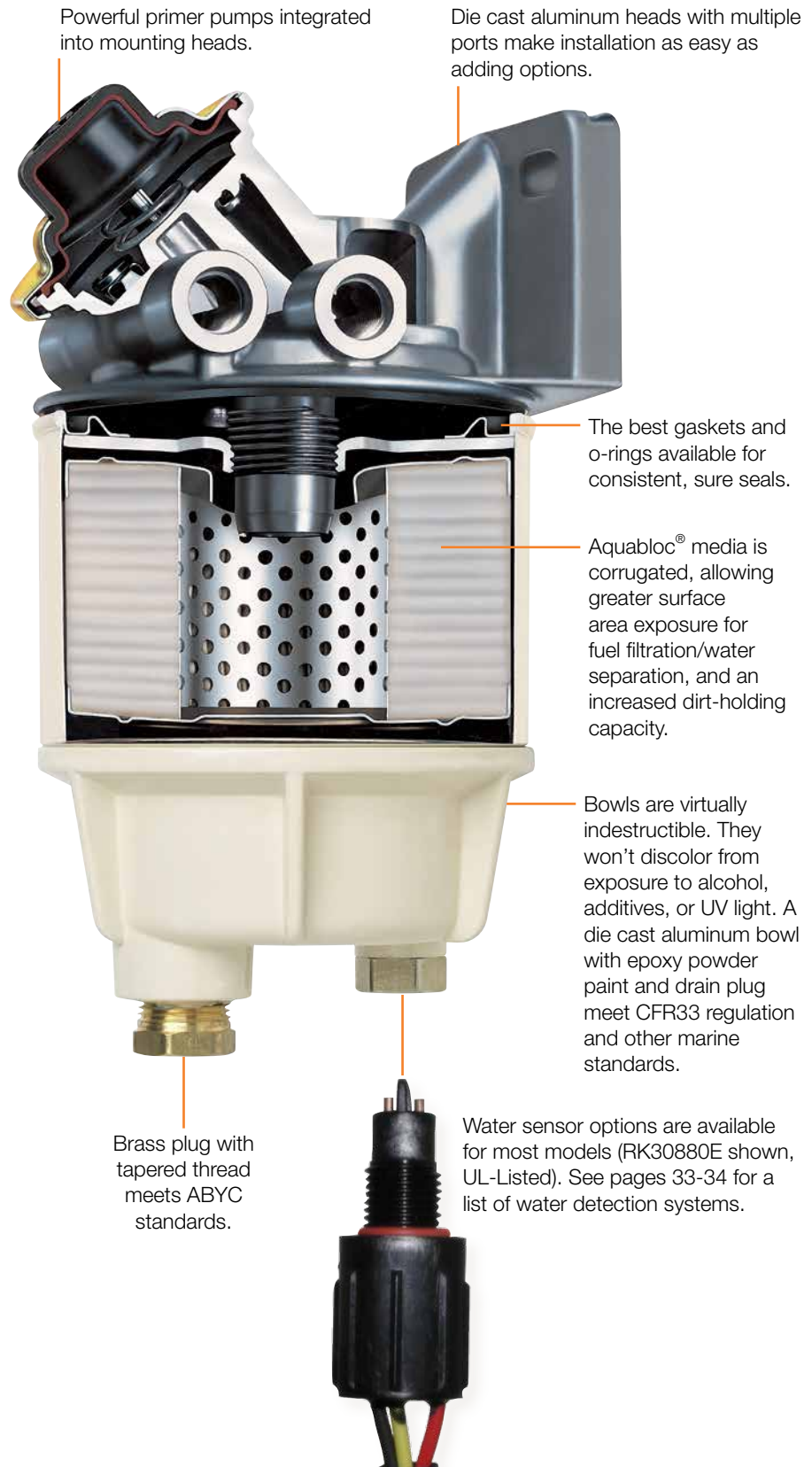
Corrosion-Resistant Construction

Advanced technology means bowls will not deteriorate from water collection, alcohol-blended fuels, exposure to harsh additives, salt spray, or UV light.

Safety First

Racor's UL-listed filters meet ABYC, ASTM, ISO, and many other global standards for filters used in marine engine rooms.

Diesel Spin-on Series



Diesel Spin-on Filters



Racor Aquabloc® Spin-on Fuel Filters Are Available in Color Coded 2, 10, or 30 Micron Ratings.

- P** = 30 micron, primary filtration.
- T** = 10 micron, secondary filtration.
- S** = 2 micron, final filtration.

Aquabloc® Spin-on Fuel Filters

Besides removing asphaltenes, water, gums, and varnishes, Aquabloc® filters out tiny particles of dirt and algae from diesel fuel.

With an Aquabloc® replacement filter, you get a complete kit with all the seals you need. And not just any seals, but specially-formulated, Racor-engineered seals.

Always carry extra Racor fuel filters as one tankful of dirty fuel can quickly clog a filter.

Please specify carefully – there are important differences among Spin-On Series features which effect performance and application.



Specifications	215RMAM	230RMAM	245RMAM	445MAM10	460MAM10	490MAM10	4120MAM10
Maximum Flow Rate	15 GPH (57 LPH)	30 GPH (114 LPH)	45 GPH (170 LPH)	45 GPH (170 LPH)	60 GPH (227 LPH)	90 GPH (341 LPH)	120 GPH (454 LPH)
Maximum PSI ¹	30 PSI (2.1 bar)	30 PSI (2.1 bar)	30 PSI (2.1 bar)	15 PSI (1.0 bar)	15 PSI (1.0 bar)	15 PSI (1.0 bar)	15 PSI (1.0 bar)
Clean Pressure Drop	0.12 PSI (0.01 bar)	0.3 PSI (0.02 bar)	0.6 PSI (0.04 bar)	0.2 PSI (0.01 bar)	0.3 PSI (0.02 bar)	0.4 PSI (0.03 bar)	0.5 PSI (0.03 bar)
Port Size	1/4"-18 NPTF	1/4"-18 NPTF	1/4"-18 NPTF	3/8" NPTF	3/8" NPTF	3/8" NPTF	3/4" SAE
Primer Pump	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Replacement Filter	R15TUL	R20TUL	R25TUL	S3204TUL	S3211TUL	S3201TUL	S3201TUL
Number of Ports	3	3	3	4	4	4	4
Water Sensor Option	RK30880E						
Height	7.7 in. (19.6 cm)	9.0 in. (22.9 cm)	10.5 in. (26.7 cm)	9.4 in. (23.9 cm)	10.8 in. (27.4 cm)	12.8 in. (32.5 cm)	12.8 in. (32.5 cm)
Width	3.9 in. (9.9 cm)	3.9 in. (9.9 cm)	4.0 in. (10.2 cm)	4.5 in. (11.4 cm)	4.5 in. (11.4 cm)	4.5 in. (11.4 cm)	4.5 in. (11.4 cm)
Depth	4.0 in. (10.2 cm)	4.0 in. (10.2 cm)	4.0 in. (10.2 cm)	4.8 in. (12.2 cm)	4.8 in. (12.2 cm)	4.8 in. (12.2 cm)	4.8 in. (12.2 cm)
Weight (approx.)	1.2 lbs (0.5 kg)	2.0 lbs (0.9 kg)	2.2 lbs (1.0 kg)	2.9 lbs (1.3 kg)	3.1 lbs (1.4 kg)	3.3 lbs (1.5 kg)	3.3 lbs (1.5 kg)
Ambient Temp Range	-40° to +255°F (-40° to +124°C)						
Maximum Fuel Temp	190°F (88°C)						

¹ Pressure Installations are applicable up to the maximum PSI shown, vacuum installations are recommended.



The patented P Series Diesel Fuel Conditioning Module (for vacuum side applications only) was developed for application in any diesel engine fuel injection system. P Series assemblies are available in three sizes and all feature 3/8" NPT fuel ports. This innovative and modular fuel filter/water separator incorporates low-pressure fuel system components into a single package. It supplies clean, dry fuel to the fuel system and serves as a repriming system.

Fuel Conditioning Modules



Durable, 12 vdc roller-cell electric fuel pump offers the benefit of an electric, on-demand, priming pump.

A fuel filter/water separator and primer pump in one unit.

High-performance Aquabloc® cartridge-style filter media is environmentally friendly and incinerable.



Important Note: ABYC standards allow for installation outside of the engine room only.

Specifications	P4	P5
Maximum Flow Rate	40 GPH (151 LPH)	50 GPH (189 LPH)
Clean Pressure Drop	0.5 PSI (0.03 bar)	0.8 PSI (0.06 bar)
Max. Pump Output (at 14.4 volts)	40 GPH (151 LPH)	40 GPH (151 LPH)
Standard Fuel Port Size (SAE J476)	3/8"-18 NPT	3/8"-18 NPT
Total Number of Ports Available	2	2
Fuel Inlets	1	1
Fuel Outlets	1	1
Replacement Filter		
2 micron	R58095-2	R58039-2
10 micron	R58095-10	R58039-10
30 micron	R58095-30	R58039-30
Minimum Service Clearance	2.5 in. (6.4 cm)	2.5 in. (6.4 cm)
Height	9.0 in. (22.9 cm)	11.5 in. (29.2 cm)
Depth	5.2 in. (13.2 cm)	5.2 in. (13.2 cm)
Width	4.8 in. (12.2 cm)	4.8 in. (12.2 cm)
Weight (dry - approx.)	3.8 lbs (1.7 kg)	4.2 lbs (1.9 kg)
Maximum Pump Outlet Pressure	10 PSI (0.7 bar)	10 PSI (0.7 bar)
Features		
Water Sensor	Standard	Standard
Heater ¹	Standard	Standard
Pressure Regulator (10 PSI)	Standard	Standard
Ambient Temp Range	-40° to +255°F (-40° to +124°C)	
Maximum Fuel Temperature	190°F (88°C)	

Vacuum installations are recommended. ¹ Not for use with gasoline applications.

How To Order (The example below illustrates how part numbers are constructed).

P4	2	10	N	H
Specify Model P4 (for 40 GPH) P5 (for 50 GPH)	Must be in part number. Specifies a 12 vdc pump.	Specify micron rating: 02, 10, or 30	Must be in part number. Specifies 3/8" NPT ports.	Must be in part number. Specifies a 12 vdc 150 watt heater.

Fuel Conditioning Modules



Product Specifications	
Max. Flow Rate	60 GPH (220 LPH)
No. of Ports	2
Port Size	M16-1.5 ORB
Water Sensor	Standard
Micron Rating	10
Operating Voltage	12V and 24V

Available Part Numbers	
P510MAM	FF/WS, 10 micron
R58065-2	2 micron Replacement Element
R58065-10	10 micron Replacement Element
R58065-30	30 micron Replacement Element
RK 20725	12V Water Detection
RK 20725-24	24V Water Detection
RK 12870	12V Water Detection w/ Buzzer
RK 12871	24V Water Detection w/ Buzzer



The New Racor Fuel Polisher removes contamination at the source - the fuel tank.

Most filtration solutions block contamination as it moves through the fuel system on the way to the engine.

As contamination builds, fuel filters will choke leading to inadequate fuel delivery to the engine, damage to injectors and other engine components, increased emissions, and decreased performance.

The Racor fuel polisher removes contamination from the fuel tank allowing the fuel system to run at peak performance.

By setting up a new fuel circuit around the fuel tank contamination such as water, dirt and rust will be removed from the fuel delivery circuit, resulting in increased filter life, better performance, and less downtime to change filters.

Filter Funnels

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 50 micron 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.



Specifications	RFF1C	RFF3C	RFF8C	RFF15C
Max. Flow Rate	2.5 GPM (9.4 LPM)	3.5 GPM (13.2 LPM)	5 GPM (18.9 LPM)	12 GPM (45.4 LPM)
Micron Rating	50 micron	50 micron	50 micron	50 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)

Caution for Users: Petroleum products flowing over a plastic surface generate static electricity. Caution should be taken to ensure that the RFF is grounded to reduce static electricity buildup and reduce the chance of explosions or fire. Electrically bond the funnel by using a wire with a metal clip on each end and clamp one to the upper rim of the funnel and the other to the fueling source. For example, the metal gas can or nozzle from the pump.



Every Time You Squeeze The Trigger, You Threaten Your Engine's Life.

No matter how carefully gasoline is handled or stored, dirt, rust, gums, algae, and water are going to find their way in, and just a few drops can leave you dead in the water. Racor gasoline fuel filter/water separators with Aquabloc® media remove virtually 100% of damaging water and solids, allowing engines to run with more power and greater efficiency. Install a Racor mounting head or spin directly onto your existing filter head to protect your engine and improve its performance. Spin on a Racor fuel filter/water separator, for the life of your engine.

The Most Complete Protection on the Water

Being on the water is fun, having water in your fuel is not. And more than ever today's high-performance gasoline inboard and outboard engines require clean, dry fuel. Racor filters offer the improved features and peace-of-mind that come with our quality fuel filter/water separators.

- Clear contaminant collection bowl with drain valve for outboards only
- 10 micron Aquabloc® media is standard
- High capacity and long life
- Rated 98% efficient at 10 micron per SAE test procedures
- Corrosion-resistant construction.
- Metal bowl units for inboard powered boats meet 33 CFR and USCG regulations
- Meets ABYC standard for gasoline-powered vessels
- New 2 micron option

Integral primer pump versus the old primer bulb for outboards



Racor innovation leads the market again. The new 490R-RAC-01 gasoline fuel filter/water separator with integral primer pump (for outboards only) eliminates the need to install a primer bulb in the fuel line.



Specifications	120R-RAC-01	120R-RAC-02	320R-RAC-01	320R-RAC-02	490R-RAC-01	660R-RAC-01	660R-RAC-02	3120R-RAC-32
Max. Flow Rate	30 GPH (114 LPH)	30 GPH (114 LPH)	60 GPH (227 LPH)	60 GPH (227 LPH)	90 GPH (341 LPH)	90 GPH (341 LPH)	90 GPH (341 LPH)	120 GPH (454 LPH)
Filter (10 micron)	S3240	S3240TUL	S3227	S3228TUL	S3227	S3232	S3232TUL	S3232TUL
Filter (2 micron)	N/A	N/A	S3228SUL	S3228SUL	S3228SUL	N/A	N/A	N/A
Center Threads	M18 x 1.5	M18 x 1.5	1"-14	1"-14	1"-14	1"-14	1"-14	1"-14
Port Size	1/4"-18 NPTF	1/4"-18 NPTF	1/4"-18 NPTF	1/4"-18 NPTF	3/8"-18 NPTF	3/8"-18 NPTF	3/8"-18 NPTF	1/2"-14 NPTF
Height	6.5 in. (16.5 cm)	6.0 in. (15.2 cm)	9.4 in. (23.9 cm)	9.0 in. (22.9 cm)	9.9 in. (25.1 cm)	11.0 in. (27.9 cm)	10.5 in. (26.7 cm)	10.4 in. (26.4 cm)
Width	3.2 in. (8.1 cm)	3.2 in. (8.1 cm)	4.0 in. (10.2 cm)	4.0 in. (10.2 cm)	4.5 in. (11.4 cm)	4.2 in. (10.7 cm)	4.2 in. (10.7 cm)	4.0 in. (10.2 cm)
Depth	3.2 in. (8.1 cm)	3.2 in. (8.1 cm)	4.0 in. (10.2 cm)	4.0 in. (10.2 cm)	4.8 in. (12.2 cm)	4.5 in. (11.4 cm)	4.5 in. (11.4 cm)	5.0 in. (12.7 cm)
Weight (approx.)	1.1 lbs (0.5 kg)	1.2 lbs (0.5 kg)	2.0 lbs (0.9 kg)	2.0 lbs (0.9 kg)	2.6 lbs (1.2 kg)	3.0 lbs (1.4 kg)	3.0 lbs (1.4 kg)	2.0 lbs (0.9 kg)
Clean Pressure Drop	0.2 PSI (0.01 bar)	0.2 PSI (0.01 bar)	0.6 PSI (0.04 bar)	0.6 PSI (0.04 bar)	1.0 PSI (0.07 bar)	0.6 PSI (0.04 bar)	0.6 PSI (0.04 bar)	0.2 PSI (0.01 bar)
Max. Working Pressure¹	7.0 PSI (0.5 bar)	7.0 PSI (0.5 bar)	7.0 PSI (0.5 bar)	7.0 PSI (0.5 bar)	7.0 PSI (0.5 bar)	7.0 PSI (0.5 bar)	7.0 PSI (0.5 bar)	7.0 PSI (0.5 bar)
Service Clearance (under bowl)	1.0 in. (2.5 cm)	1.0 in. (2.5 cm)	1.0 in. (2.5 cm)	1.0 in. (2.5 cm)	1.0 in. (2.5 cm)	1.0 in. (2.5 cm)	1.0 in. (2.5 cm)	1.0 in. (2.5 cm)
Ambient Temp Range	-40° to +255°F (-40° to +124°C)							
Max. Fuel Temperature	190°F (88°C)							

¹ Pressure installations are acceptable up to the maximum PSI shown. Racor filter/separators will not separate oil from gasoline in blended fuel mixtures.

Upgrade Your Gasoline Filter

Convenient Spin-ons

Now, owners of inboard or outboard engines can get smoother operation and longer life—all in one easy spin, onto their existing engine filter heads. There's a choice of rugged,

reusable clear bowls with self-venting drains (for outboard applications), or a metal bowl with drain plug (for inboard applications). Metal bowls are UL Listed and USCG accepted.



PFF5510	Replaces Mercury, Mercruiser, Yamaha, Suzuki, Honda, and Tohatsu. 10 micron.	Inboard or Outboard
B32020MAM	Replaces quicksilver. Also fits: SMI, Sierra, Aquapower, and other filter heads (comes with a metal bowl—shown above). 10 micron.	Inboard or Outboard
S3220TUL¹	Replacement filter for B32020MAM. 10 micron.	Inboard or Outboard
B32021MAM	Replaces OMC. UL Recognized (comes with a metal bowl). 10 micron.	Inboard or Outboard
S3221TUL	Replacement filter for B32021MAM. 10 micron.	Inboard or Outboard
B32013	Replaces Quicksilver, Yamaha, Suzuki, SMI, Volvo Penta, Sierra, AquaPower, and other filter heads (comes with a clear bowl—shown above). 10 micron.	Outboard
S3213	Replacement filter for B32013. 10 micron.	Outboard
B32014	Replaces OMC (comes with a clear bowl). 10 micron.	Outboard
S3214	Replacement filter for B32014. 10 micron.	Outboard

¹ Optional 2 micron filter (S3220SUL).

Compact Gasoline Filters for Smaller Boats and Personal Watercraft



Specifications	025-RAC-01	025-RAC-02	110A
Max. Flow Rate	25 GPH (95 LPH)	25 GPH (95 LPH)	35 GPH (132 LPH)
Media	250 micron (cleanable plastic screen)	10 micron (Aquabloc [®] filter)	10 micron (Aquabloc [®] filter)
Port Size	1/4"-18 NPTF	1/4"-18 NPTF	1/4"-18 NPTF
Dimensions	H 4.3" x D 2.1"	H 4.3" x D 2.1"	H 6" x D 3.3" x W 3.2"

New Packaging

Parker Racor is proud to introduce the new packaging for Marine gasoline filters. The new packaging was designed to improve product protection and increase customer appeal, by making Racor marine products stand out on retail shelves nationwide.

The new retail packaging, uses maximum strength paperboard for increased product protection. Easy to read graphics were incorporated into the new design. Each graphic panel shows relevant information such as product features, applications, marine certifications, marine standards, consumer benefits and product performance. Useful features such as, service part numbers and product cutaway illustrations are also included. To allow for speed checkouts, UPC barcodes are included on all new Racor Marine packaging.

The new packaging exemplifies the quality that is built into every Racor product, from final assemblies to replacement filters.



800 Series Fuel Filtration

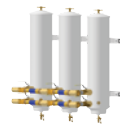


Specs	804MA	75804MA	79804MA
Flow Rate	240 GPH (908 LPH)	480 GPH (1817 LPH)	720 GPH (2725 LPH)
In/Out Ports	3/4" NPT	3/4" NPT	3/4" NPT
Height	20.6 in. (52.3 cm)	20.6 in. (52.3 cm)	20.6 in. (52.3 cm)
Width	6.7 in. (17.0 cm)	19.0 in. (48.3 cm)	27.0 in. (68.6 cm)
Depth	8.9 in. (22.6 cm)	17.8 in. (45.2 cm)	17.8 in. (45.2 cm)
Delta P	0.48 PSI (0.03 bar)		
Max Working Pressure	15 PSI (1.03 bar)		
Water Capacity	40.6 oz (1.2 L)		
Weight	25 lbs (11.3 kg)	60 lbs (27.2 kg)	90 lbs (40.8 kg)

Racor's compact 804MA Series diesel fuel filter/water separator, made of 100% steel construction to meet ABS and USCG requirements for marine fuel filters on classed and inspected vessels. The 804MA series are available in single, dual valved and triple valved configurations and handle fuel flow rates of 240, 480 and 720 gallons per hour, respectively; utilizing the standard Racor 2020 Series filter cartridges.

- **100% Steel Construction** By ASME Certified Welders
- **Stainless Steel T-handle** On Steel Lid
- **Steel/High Pressure Glass Water Sight-Gauge**
- **Steel Contaminant Sump** With Steel Drain Plug
- **Marine-Grade White Exterior Coating**
- **Durable Steel Mounting Brackets**

800 Series fuel filter/water separators offer large diesel engine operators ease of maintenance and continuous engine operation.



Specifications	75806MA	79806MA	812MA	75812MA	79812MA
Maximum Flow Rate	720 GPH (2725 LPH)	1080 GPH (4088 LPH)	720 GPH (2725 LPH)	1440 GPH (5451 LPH)	2160 GPH (8176 LPH)
Fuel Ports	1" NPT	1" NPT	1" NPT	1" NPT	1 1/4" NPT
Max Working Pressure	30 PSI (2.1 bar)	30 PSI (2.1 bar)	30 PSI (2.1 bar)	30 PSI (2.1 bar)	30 PSI (2.1 bar)
Clean Pressure Drop	3.2 PSI (0.2 bar)	6.0 PSI (0.4 bar)	3.2 PSI (0.2 bar)	6.0 PSI (0.4 bar)	5.2 PSI (0.35 bar)
Replacement Filter	(2) RK 22788*	(3) RK 22788*	RK 22610**	(2) RK 22610**	(3) RK 22610**
Height	22.8 in. (57.9 cm)	22.8 in. (57.9 cm)	33.2 in. (84.3 cm)	33.2 in. (84.3 cm)	33.2 in. (84.3 cm)
Width	21.8 in. (55.4 cm)	33.3 in. (84.6 cm)	6.6 in. (16.8 cm)	21.8 in. (55.4 cm)	33.3 in. (84.6 cm)
Depth	16.0 in. (40.6 cm)	16.0 in. (40.6 cm)	8.9 in. (22.6 cm)	16.0 in. (40.6 cm)	16.0 in. (40.6 cm)
Weight (approx.)	52 lbs (23.6 kg)	79 lbs (35.8 kg)	36 lbs (16.3 kg)	89 lbs (40.4 kg)	133 lbs (60.3 kg)
Sump Capacity	2 gal (7.6 l)	2.9 gal (11.0 l)	1 gal (3.8 l)	2 gal (7.6 l)	2.9 gal (11.0 l)
Service Clearance (above)	12.0 in. (30.5 cm)	12.0 in. (30.5 cm)	12.0 in. (30.5 cm)	12.0 in. (30.5 cm)	12.0 in. (30.5 cm)
(below)	4.0 in (10.2 cm)	4.0 in (10.2 cm)	4.0 in (10.2 cm)	4.0 in (10.2 cm)	4.0 in (10.2 cm)
Ambient Temp Range	-40° to +255°F (-40° to +124°C)				
Max Fuel Temperature	190°F (88°C)				

* RK 22788 – Replacement filter kit (contains one each of 4021 and 4022 filter and a lid gasket; 75806MA requires 2 kits; 79806MA requires 3 kits).

** RK 22610 – Replacement filter kit (contains one each of 8021 and 8022 filter and a lid gasket; 75812MA requires 2 kits; 79812MA requires 3 kits).

RVFS Series Hydrocarbon Filtration

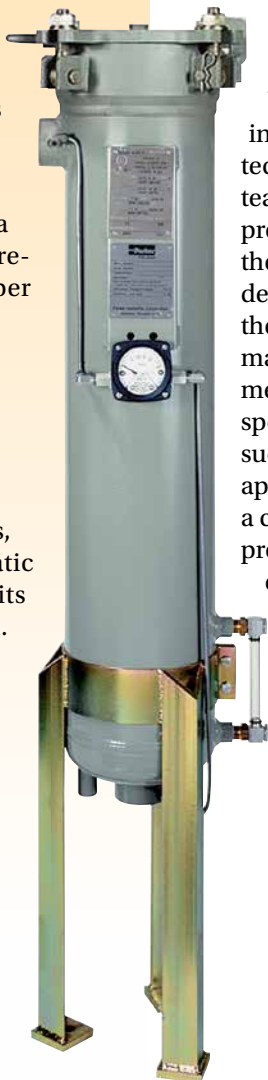
Versatile RVFS Series

Applications for Racor RVFS Series filter vessels include removing liquid and solid contaminants from diesel fuel, gasoline, kerosene, aviation gas, jet fuel, and other lubricating or hydraulic oils. RVFS vessels utilize proven filter design technology and can be used as a coalescer, separator, water absorber, or clay treater by changing internal components, flow direction, or by selecting optional filter cartridges when ordering. The vessels are fabricated from carbon steel with an exterior primer coating of galvanized suede gray and the interior is epoxy coated to meet MIL-C-4556E.

Filter choices include a coalescer, separator, pre-filter, and water absorber or clay treater.

Completely dressed factory filter vessels can be specified with differential pressure gauges, water sight glasses, air eliminators, and manual or automatic drains. Wall mount units can be special ordered. Consult factory for other options and see brochure #7648.

Pressure Rating:
250 PSI (17.2 bar)
ASME Code Section VIII



The Ultimate In High-Capacity Filtration

For over 40 years, Racor has been recognized as the leader in filtration and separation technology. Our engineering team takes specific application prerequisites, and by utilizing the latest computer-assisted design tools, quickly develops the necessary components to manufacture filter vessels that meet industry and customer-specific requirements. Our successful experience in global applications is the result of a continuous improvement process and real-world evaluations of product performance.

Specifications	RVFS-1	RVFS-2	RVFS-3
Inlet and Outlet Ports	2.0 in. NPT	2.0 in. NPT	2.0 in. NPT
Maximum Flow Rate (diesel)	25 GPM (94 LPM)	50 GPM (189 LPM)	75 GPM (283 LPM)
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 and Temperature	250 PSI @ 250°F (17 bar @ 121°C)		
ASME Code Stamped	Yes	Yes	Yes
Clean Pressure Drop	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	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)

Note: 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.

Replacement Filter Options

RVFS-1**	Micron	Description
HOCP-15801	1	Coalescer
HSP-15401	1	Separator
HOCP-15805	5	Coalescer
HSP-15405	5	Separator
HOCP-15810	10	Coalescer
HSP-15410	10	Separator
HOCP-15825	25	Coalescer
HSP-15425	25	Separator

RVFS-2**	Micron	Description
HSP-30401	1	Separator
HOCP-30805	5	Coalescer
HSP-30405	5	Separator
HOCP-30810	10	Coalescer
HSP-30410	10	Separator
HOCP-30825	25	Coalescer
HSP-30425	25	Separator

RVFS-3**	Micron	Description
HSP-44401	1	Separator
HOCP-44805	5	Coalescer
HSP-44405	5	Separator
HOCP-44810	10	Coalescer
HSP-44410	10	Separator
HOCP-44825	25	Coalescer
HSP-44425	25	Separator



FBO-10-MA and FBO-14-MA

Racor's FBO-10-MA and FBO-14-MA filter assemblies are designed to meet tough hydrocarbon refueling conditions and provide for ease of filter change-outs. The FBO assemblies can handle flow rates from 18 to 53 GPM (68 to 201 LPM) depending on filter specified and fuel being filtered (see chart below).

The slotted locking ring collar attaches the filter housing to the aluminum die cast filter head with four bolts. Metal hand knobs are provided for ease of maintenance.

Powder coated components capable of 150 PSI @ 240°F max design pressure.

Steel filter bowl assembly, a manual vent valve, and a manual drain valve help provide ease of service—especially significant given the FBO assembly's wide range of installations, including aviation fuel trucks, aviation fueling cabinets, diesel fuel dispensing systems, marine fuel docks, and fuel systems on large diesel engines. 1 1/2" NPT inlet and outlet.



Specifications	FBO-10-MA	FBO-14-MA
Fuel Ports	1 1/2" NPT	1 1/2" NPT
Max. Flow Rate	see chart below	
Max. Working pressure	150 PSI @ 240°F (10.3 bar @ 115°C)	
Clean Pressure Drop	1 PSI (0.07 bar)	1 PSI (0.07 bar)
Height	18.8 in. (47.8 cm)	22.6 in. (57.4 cm)
Width	8.6 in. (21.8 cm)	8.6 in. (21.8 cm)
Depth	8.6 in. (21.8 cm)	8.6 in. (21.8 cm)
Weight (approx.)	13 lbs (5.9 kg)	16 lbs (7.3 kg)
Service Clearance	12.0 in. (30.5 cm)	16.0 in. (40.6 cm)
Ambient Temp Range	-40° to +255°F (-40° to +124°C)	
Max Fuel Temperature	190°F (88°C)	

FBO Replacement Filter Options

Water Separator

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

Silicone Treated

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 Absorber

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

FBO	Micron Rating	Water Separator	Silicone Treated (pre-filter)	Water Absorber
FBO-10 (6 X 10 Filter)	1	FBO 60327	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
FBO-14 (6 X 14 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

Fuel Polishing Carts

Specifications	FC-30-110V
Application	Power generation, fuel transfer, and fuel storage
Replacement Filter	See FBO replacement filter chart
Flow Rate	10.5 GPM (39.7 LPM)
Power Requirements	3.4A / 110V / 60 Hz, 2A / 220V / 50 Hz
Height	50.5 in (128.2 cm)
Width	21.5 in (54.6 cm)
Length	22.9 in (58.1 cm)
Weight	105 lbs (47.6 kg)
Max. Fuel Operating Temperature	100° F (38° C)

FC-30-110V Replacement Elements:

Available Cartridges for FBO-10 Assemblies			
Micron Rating	Water Separator	Silicone Treated	Water Absorber
1	FBO 60327	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

Specifications	FC-20-1-120V
Application	power generation, fuel transfer, and fuel storage
Inlet/Outlet Connections	1.0 in. (2.5 cm) Cam Lock
Replacement Filter	see FBO replacement filter chart (page 18)
Flow Rate (depending on fuel and filter used)	17 to 20 GPM (64 to 76 LPM)
Power Requirements	115 vac 15 amp
Maximum Pressure Rating	150 PSI (10 bar)
Height	33.3 in. (84.6 cm)
Width	23.7 in. (60.2 cm)
Length	26.0 in. (66.0 cm)
Weight (dry)	95 lbs (43 kg)
Max. Fuel Operating Temperature	100°F (38°C)
Filter Cart With All Accessories	FC-20-1-120V-KIT

Accessories

Specifications	FC-20-A1	FC-20-A2	FC-20-A3
25 Foot Heavy-Duty, Non-Kink Hose (2 required)	•		
4 Foot Service Probe (2 required)		•	
25 Foot, Heavy-Duty Power Cord			•

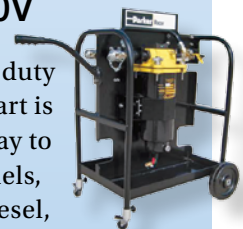
Filter Dolly FC-30-110V



The Racor FBO Filter Dolly is a new lightweight mobile unit ideal for on-site cleaning of fuel storage and transport tanks. 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 water quickly and efficiently (pump flow rate of 10.5 GPM).

The Filter Dolly will serve as a filtration and dispensing system that efficiently removes water and bacterial growth from diesel fuel that can damage pumps and injectors. The compact, lightweight cart can be maneuvered and operated by one person. The cart can run unattended, has maintenance alarms, and clogged filter & water level shutdown features.

Fuel Polishing Cart FC-20-1-120V



The Racor heavy-duty Fuel Polishing Cart is a cost effective way to filter diesel, jet fuels, mixtures of biodiesel, and other petroleum hydrocarbon fluids in storage or transport. This filter cart polishes, cleans up, and recycles old or contaminated fuel. It can be used in preventative maintenance practices to keep fuel tanks clean, or as a servicing unit to clean up fuel tanks that have become contaminated with rain, sea water, dirt, rust, and microbial growth.

Spin-On Protection At The Pump

Start protecting your engine investment right at the pump. Racor's Fuel Dispensing Filters are essential for stationary and overhead tanks and mobile service vehicles. With their easy-to-install heads, they remove virtually 100% of the contaminants from diesel fuel.

Racor FDW filters feature a super-absorbent, chemically-treated media that absorbs 25 times its weight in water, "locking it in" as a barrier against free and emulsified water. There is no bypass valve which ensures that your engine is completely protected. As the media swells, it significantly reduces fuel flow rate, signaling a need to replace the filter.

Racor offers filter protection down to 25 micron (nominal). Flow rates range from 15 to 100 GPM (57 to 379 LPM). Filter service is clean and easy, there's no cartridge to replace, just spin-on a new Racor filter.



Filter Heads

Part Number	PFHH07500	PFFDH12500	23179001**
Port Size	3/4" NPT	1 1/4" NPT	1 1/2" NPT
Filter	PFFDW3525	PFFDW51125	PFFDW51125 (two filters required)
Center Thread	1"-12 UNF	1 1/2"-16 UNF	1 1/2"-16 UNF
Max. Flow Rate	15 GPM (57 LPM)	50 GPM (189 LPM)	100 GPM (379 LPM)

Fuel dispensing filters can be used with diesel fuel or gasoline. **23179001 dual head. Call Parker Hydraulic Filter Division to order (419-644-4311).



Water Removing Filters

Part Number	PFFDW3525	PFFDW51125
Micron Rating	25	25
Filter Size	3.7 D x 5.5 L	5.0 D x 11.0 L
Center Thread	1"-12 UNF	1 1/2"-16 UNF

Maximum operating pressure of fuel dispensing filter heads and water removing filters is 100 PSI (6.9 bar). 10 micron filters available through special order.

3150R and 3250R High Flow Filters

High flow applications need not suffer with high maintenance... and Racor offers a range of ultra-high capacity, highly efficient fuel filter/water separators that also deliver spin-on convenience. As you'd expect, Aquabloc® media is standard and all units provide flexibility in options to customize and meet specific operating conditions.



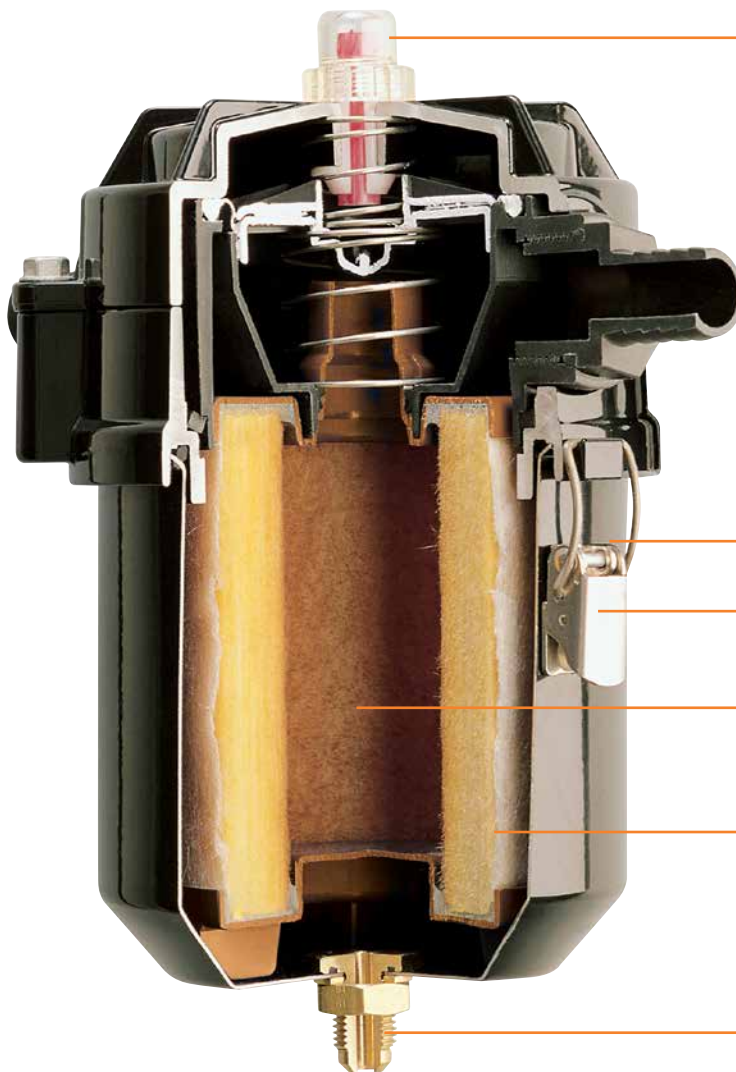
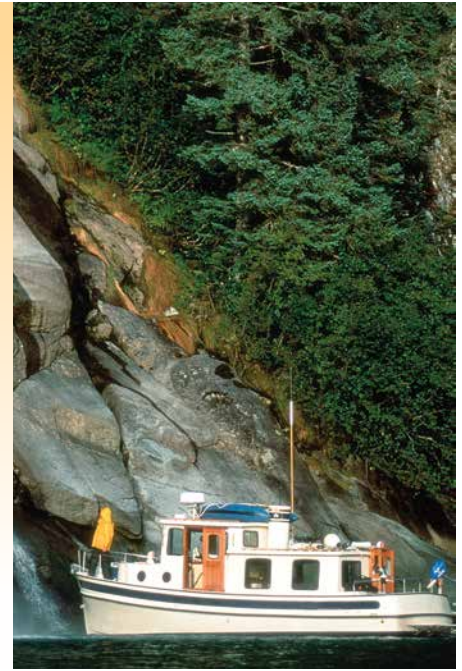
Part Number	3150R	3250R
Maximum Flow Rate	150 GPH (568 LPH)	250 GPH (946 LPH)
Maximum Working Pressure	7 PSI (0.48 bar)	7 PSI (0.48 bar)
Filter	S3238	S3207T
Port Size	7/8"-14 SAE	7/8"-14 SAE
Height	13.6 in. (34.5 cm)	17.3 in. (43.9 cm)
Width	5.0 in. (12.7 cm)	5.0 in. (12.7 cm)
Depth	5.5 in. (14.0 cm)	5.5 in. (14.0 cm)
Weight (approx.)	3.6 lbs (1.6 kg)	4.6 lbs (2.1 kg)
Clean Pressure Drop	0.7 PSI (0.05 bar)	1.0 PSI (0.07 bar)
Water Capacity (in bowl)	2.8 oz (82.8 ml)	2.8 oz (82.8 ml)
Ambient Temp Range	-40° to +255°F (-40° to +124°C)	
Maximum Fuel Temperature	190°F (88°C)	

Crankcase Filtration

In a robust, compact package, the patented Racor Closed Crankcase Ventilation (CCV) Filter Systems provide superior oil coalescence and crankcase pressure control under the most severe conditions.

- They reduce oil consumption by separating the oil from crankcase gases and returning the oil to the sump.
- The high-efficiency filter prevents fouling of the turbocharger and after-cooler.
- Keeps engine compartment and components clean.
- Filtered crankcase gas is returned to the engine intake system for re-combustion instead of polluting the environment.

CCV systems eliminate crankcase emissions and provide a cleaner engine environment by performing the following functions:



Pop-up style indicator that alerts of a bypass condition and the need for a filter change.

A unique crankcase pressure regulator with integral bypass valve minimizes variation in crankcase pressure. Excessive variation in crankcase pressure can damage seals, cause loss of oil, and other problems.

Left or right-hand inlet/outlet options.

High-efficiency oil separation down to 0.3 microns.

Durable glass-filled nylon and die cast aluminum components.

Steel with epoxy powder coating.

Stainless steel latches for tool-less filter change.

Replaceable high-performance filter with depth-loading, micro-glass fiber coalescing media.

Extended filter service interval from the Vaporbloc filter.

Drain check valve allows collected oil to be returned to the crankcase. This eliminates frequent draining and significantly reduces oil consumption.



CCV Operation

- CCV systems operate by filtering contaminants and coalescing oil mist from crankcase gases. The crankcase breather hose is connected to the 3/4" inlet hose barb of the CCV assembly. The connection at the engine can be positioned at the valve cover or crankcase.
 - The pressure regulating valve protects the engine from excessive crankcase vacuum.
 - Filtered air from the CCV assembly is plumbed to the air intake system between the air filter and turbocharger.
 - Coalesced oil drains from the filter sump to an external drain. A check valve holds oil in the line until it is released to the oil pan via a hose connection.
- The only routine maintenance required for the Racor Closed Crankcase Ventilation filter system is filter replacement. Typical service life of the high-performance filter in diesel applications is 750 hours. Some variations in service life occur depending on load profile, engine wear condition, flow, aerosol mass concentration of crankcase emissions, and soot concentration.



Specifications	CCV4500	CCV6000	CCV8000	CCV12000
Maximum Flow Rate	10 CFM (283 LM)	20 CFM (566 LM)	40 CFM (1133 LM)	50 CFM (1416 LM)
Maximum Engine Rating	400 HP (298.3 KW)	800 HP (596.6 KW)	1600 HP (1193.1 KW)	2000 HP (1491.4 KW)
Inlet/Outlet Port Size	1 3/16" -12 STOR	1 5/8" -12 STOR	1 7/8" -12 STOR	1 7/8" -12 STOR
Weight (approx.)	3.3 lbs (1.5 kg)	5.0 lbs (2.3 kg)	8.7 lbs (3.9 kg)	9.3 lbs (4.2 kg)
Replacement Filter Media Density: Low	CCV55248-04	N/A	N/A	N/A
Replacement Filter Media Density: High	CCV55248-08	CCV55274-08	CCV55222-08	CCV55222-12-08
Replacement Filter Media Density: Ultra	CCV55248-10	CCV55274-10	CCV55222-10	CCV55222-12-10
Housing Material	Die cast head, glass-filled nylon and black powder epoxy-coated steel bowl.	Die cast head, glass-filled nylon and black powder epoxy-coated steel bowl.	Die cast head, glass-filled nylon and black powder epoxy-coated steel bowl.	Die cast head, glass-filled nylon and black powder epoxy-coated steel bowl.
Crankcase Pressure Regulator	Integral	Integral	Integral	Integral
Bypass/Change Indicator	Integral or Remote	Integral or Remote	Integral or Remote	Integral or Remote
Engine Block Check Valve Return Fitting	1/4" NPT	1/4" NPT	3/8" NPT	3/8" NPT
Swivel Fitting (Qty.)	#6 JIC (2 pcs.)	#6 JIC (2 pcs.)	#8 JIC (2 pcs.)	#8 JIC (2 pcs.)
Oil Drain Hose I.D.	0.375 in. (0.95 cm)	0.375 in. (0.95 cm)	0.5 in. (1.27 cm)	0.5 in. (1.27 cm)

Units can be manifolded to handle higher flow rates. Do not use CCV1500 in continuous duty applications.

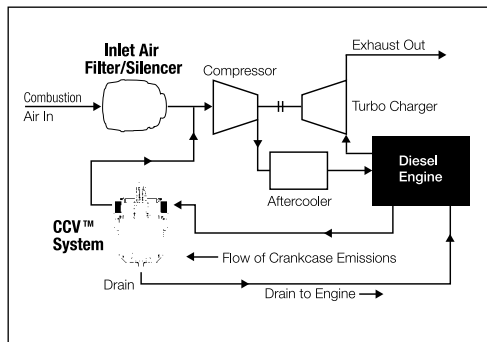
Reduce Emissions

Clean Up Engine Rooms and Engines

Marine diesel engines can benefit from the installation of a combination Racor Closed Crankcase Ventilation (CCV) and Air Filter/Silencer System. The CCV contains Racor's high-performance Vaporbloc™ filter made of depth-loading, micro-glass fiber coalescing media. The marine Air Filter/Silencer (AF) contains a washable media and is ruggedly built to provide an extended service life.

How the Systems Work

The engine crankcase breather is connected to the inlet of the Racor CCV assembly. The CCV outlet is connected to the engine's combustion air inlet via an air intake connector where filtered blowby gas is recycled through the combustion process. Oil collected in the CCV sump is returned to the crankcase through a hose and a drain check valve.



Air Filter/Silencers

The Racor Marine Air Filter removes contaminants introduced into the air from both outside and inside the vessel. Sand, salt, carpet fibers, and other contaminants are trapped in the oil-impregnated Vaporbloc™ filter media. The unique silencer housing design reduces turbo noise. An integral hose connection on the housing routes the clean blowby from the CCV back into the engine.

- A pop-up style indicator on the CCV assembly, alerts the operator of a bypass condition and the need for a CCV Vaporbloc™ filter change.
- Air Filter/Silencer comes standard with an integral vent port for CCV connection.
- Air filter media is washable; a cleaning kit is available.
- Optional tap sleeves for easy connection of existing air cleaner to CCV assembly.
- Prevents turbo and intercooler fouling.

Marine Engine Application Worksheet

In order to determine the correct Racor CCV system for a particular application, certain engine information is required. A complete kit is composed of the following:

1. Racor CCV assembly
2. Fitting/Hose Kit
3. Air Intake Connector (Tap Sleeve or Marine Air Filter/Silencer Assembly)

1 Select the Racor CCV Assembly:

Racor CCV application is determined by crankcase flow in cubic feet per minute or CFM. Flow on new engines is low but as the engine wears on, the CFM increases. Select the correct Racor CCV model by dividing the engine horsepower output by 40.

Example: CAT 3116/260HP ÷ 40 = 6.5 CFM, select CCV4500
 CAT 3406/525HP ÷ 40 = 13.13 CFM, select CCV6000

Maximum Flow Rate	
CCV Model	Flow
CCV4500	10 CFM (283 l/m)
CCV6000	20 CFM (566 l/m)
CCV8000	40 CFM (1133 l/m)
CCV12000	50 CFM (1416 l/m)



CCV units are designed to handle crankcase flow rates of up to 50 CFM (1416 l/m). Traditionally, the crankcase flow rate can be calculated as follows: Rated horsepower ÷ 40 = cubic feet per minute (CFM). This formula can only be used as a guide since recent improvements in piston design have produced engines with higher horsepower and lower blowby flow rates. The blowby flow rate of a worn engine, at time of overhaul, is generally double the flow rate when the engine is new. The flow rate of a worn engine is factored into the formula. **Note:** Specify left or right-hand inlet when ordering.



Cummins QSM11 marine engine with CCV cutaway



John Deere Marine PowerTech engine with Racor CCV/AF System



Marine Air Filter/Silencer (AF) System

For more detailed information and for available hose kits, request technical manual number #55021.

2 Select a Fitting/Hose Kit:

Fitting/Hose Kits come with both fittings and enough hose for the inlet and outlet sides of the Racor CCV assembly. Racor CCV filter units require straight thread o-ring hose barb fittings available only from Racor distributors. In order to determine the correct application, you will need to know the quantity and the outside diameter of engine breather(s)/hose connection. Fitting/Hose Kits are available in various sizes and hose configurations.

3 Air Intake Connector — Select A, B, or C, Depending on Application:

A. Tap Sleeve

Tap sleeves connect the Racor CCV outlet to the engine's air intake. Determine the inside diameter of the hose between the turbo and the air cleaner. This will determine the outside diameter of the tap sleeve required for completion of the installation of your Racor CCV system. Verify all dimensions required of the tap sleeve before ordering.

Example: John Deere #4045T — Hose between turbo and air cleaner is 4" inside diameter. Correct tap sleeve is CCV40100, which is 4" outside diameter with a 1" OD hose barb.

Tap Sleeves



Tap Sleeve	Dimensions		
	O. D.	Length	Hose Barb
CCV30100	3 in.	5 in.	1 in.
CCV40100	4 in.	5 in.	1 in.
CCV50125	5 in.	6 in.	1.1/4 in.
CCV60125*	6 in.	6 in.	1.1/4 in.

*Note: CCV60125 includes a 1 1/4" x 1 1/2" bushing (connects to 1 1/2" ID hose).

B. Hump Hose Fittings:

Use these with existing air cleaner-to-turbo rubber adapters.

Part Number	Hose
CCV55540	3/4 in.
CCV55113	1 in.
CCV55114	1 1/4 in.
CCV55115	1 1/2 in.



C. Marine Air Filter Silencer Assembly.

In order to determine the correct marine air filter application, you will need to know the engine's marine air filter rating (AFR) and provide the hose connection to turbo. Choose the correct marine air filter application per the following guideline. Verify that the marine air filter dimensions will fit into your engine room.

4-cycle engines: $AFR = HP \times 2.0$

2-cycle engines: $AFR = HP \times 2.5$

Maximum Flow Rate	
Marine Air Filter	Air Flow Rate
AF M408512	800 CFM (377 l/s)
AF M501012	1200 CFM (566 l/s)
AF M601212	1600 CFM (755 l/s)
AF M701212	2000 CFM (944 l/s)

Note: If AFR is close to maximum capacity of the marine air filter as listed above, use the next size larger.

Example: DDC 12V92TA DDEC (2-cycle - twin turbo):

$826 \text{ hp} \times 2.5 = 1032.5 \text{ AFR per turbo} = (2) \text{ AF M501012}$

$1110 \text{ hp} \times 2.5 = 1387.5 \text{ AFR per turbo} = (2) \text{ AF M601212}$

CAT 3196 (4-cycle - twin turbo):

$660 \text{ hp} \times 2.0 = 1320.0 \text{ AFR} = (1) \text{ AF M601212}$

Marine Air Filters (AF) typically correspond with the following CCV models, see chart.

Marine Air Filter	CCV Model
AF M408512	CCV3500 or CCV4500
AF M501012	CCV4500 or CCV6000
AF M601212	CCV8000
AF M701212	CCV12000

Air Filter/Silencer



Specifications	AF M408512	AF M501012	AF M601212	AF M701212**
Max. Air Flow*	800 CFM (378 l/s)	1200 CFM (566 l/s)	1600 CFM (755 l/s)	2000 CFM (944 l/s)
Outlet Diameter	4.0 in. (10.2 cm)	5.0 in. (12.7 cm)	6.0 in. (15.2 cm)	7.0 in. (17.8 cm)
Filter	AF M8040	AF M8050	AF M8060	AF M8070
Length	12.5 in. (31.8 cm)	12.5 in. (31.8 cm)	12.5 in. (31.8 cm)	12.5 in. (31.8 cm)
Depth	9.6 in. (24.4 cm)	11.5 in. (29.2 cm)	13.5 in. (34.3 cm)	13.5 in. (34.3 cm)
Hose Barb Size	1.0 in. (2.5 cm)	1.25 in. (3.2 cm)	1.25 in. (3.2 cm)	1.0 in. (2.5 cm)
Weight	4.2 lbs (1.9 kg)	5.0 lbs (2.3 kg)	8.0 lbs (3.6 kgs)	8.0 lbs (3.6 kgs)

Operating Temperature -40° to +240°F (-40° to +116°C)

*Values given are cubic feet per minute (CFM) and liters per second (l/s). **AF M701212-01 is available with a 1.25 in. hose barb.



Competitor Part Number	Racor Part Number	Dimensions D x H x D
CD170	AF M8145	10 x 8 x 10
CD174	AF M8121	7.5 x 6 x 7.5
CD175	AF M8122	7.5 x 7 x 7.5
CD178	AF M8126	7.5 x 10 x 7.5
CD180	AF M8010	3" Air Separator
CD183	AF M8153	12 x 12 x 12
CD184	AF M8037	9 x 14 x 6.875
CD185	AF M8047	10 x 14 x 7
CD186	AF M8152	12 x 7 x 12
CD189	AF M8157	12 x 14 x 12
CD190	AF M8026	7.5 x 10 x 5.125
CD195	AF M8025	7.5 x 8 x 5.125
CD196	AF M8034	9 x 9 x 7
CD197	AF M8033	9 x 12 x 6.88
CD200	AF M8134	9 x 9 x 9
CD201	AF M8133	9 x 12 x 9

Air Filter Replacements

Racor offers direct replacements for the intake air filter portion of competitive air filters/silencers. Also available is the replacement filter for the vacuum limiter air separator.

The filter media for all replacement filters is an oil-impregnated cotton gauze and is sandwiched between pleated, epoxy-coated aluminum wire-mesh with polyurethane sealing surfaces. This product is cleanable and must be oiled before re-using.

Washing and Re-oiling Kit



AF M82006



How They Work

LG50 (for gasoline)



Stage 1:
Venting tank fuel is diffused by the flow diverter and air is allowed to bypass the diverter. Fuel is directed back into the fuel tank.

Stage 2:
Vapor collects on the interior surfaces and coalesces. The fuel returns downward by gravity and air continues up and out of the unit.



LG100 (for diesel/gasoline)

Stage 1:
Venting tank fuel is diffused by the flow diverter and air is allowed to bypass the diverter. Fuel is directed back into the fuel tank.

Stage 2:
Fuel de-foams through a fine wire mesh screen which filters out large contaminants. Under the screen, the fuel collects temporarily until it can freely flow back to the fuel tank.

Stage 3:
Vapor collects on the interior surfaces and coalesces. The fuel returns downward by gravity and air continues up and out of the unit.

Note: The safety relief valve includes a floating check ball which will not permit a large in-rush of fuel to bypass. In the event of internal pressure reaching 2.4 PSI (0.17 bar), the spring will compress and open the safety seat.

Eliminate Fuel Vent Line Overflow During Refueling

ECO Friendly



Next time you fill up, watch your fuel vent line. A typical refueling will send up to half a gallon or more of fuel spilling overboard. Fuel spillage is not only expensive, it's absolutely deadly to fragile lakes, rivers, and waterways. Also, USCG and other regulations prohibit the discharge of oils with civil and criminal penalties.

Installed in the fuel tank vent line, the Racor Fuel/Air Separator efficiently separates air from fuel forced into the line. Air is vented, and all fuel is returned to the tank. The Fuel/Air Separator captures fuel normally discharged due to agitation and thermal expansion up to 2.4 PSI (0.17 bar). It also eliminates damage to expensive striping, labels, and protects finishes from fuel stains. The unit is also maintenance free—there's nothing to rust or corrode.

The Racor Fuel/Air Separator fits neatly into your vent line, actually replacing a section of the line and fittings are included with each kit. One Fuel/Air Separator unit is required for each vent line. Fuel/Air Separators fit 5/8" vent lines, 1/2" fittings are available.



Specifications	LG50	LG100
Application:		
Gasoline	Yes	Yes
Diesel	No	Yes
Maximum Air Flow	12 CFM (340 l/m)	17 CFM (481 l/m)
Hose Barb	5/8"	5/8"
Thermal Expansion	Up to 2.4 PSI (0.17 bar)	Up to 2.4 PSI (0.17 bar)
Height	6.0 in. (15.2 cm)	9.8 in. (24.9 cm)
Diameter	1.8 in. (4.6 cm)	4.0 in. (10.2 cm)
Weight (dry)	1.2 lbs (0.5 kg)	1.6 lbs (0.7 kg)

Notes: ¹ Order part **RK 50033** for 1/2" NPTF threaded fitting)

Reservoir Breather Filters

Reservoir breather filters provide precision hydraulic components with special protection against wear particles and destructive moisture. The use of reservoir breather filters is especially critical in high-humidity areas or where

moisture is present near hydraulic systems. Racor reservoir breathers contain a unique filter media which removes both dirt and moisture. The spin-on design provides ease of service.



Specifications

Specifications	PFHW57RB	PFH5526
Micron	10	10
Center Thread	1 1/2"-16 UNF	1 1/2"-16 UNF
Diameter	5.0 in. (12.7 cm)	3.7 in. (9.4 cm)
Length	7 in. (17.8 cm)	5.3 in. (13.5 cm)

Hydraulic Filters



Part Number	PFHW5710	PFHW5110
Flow rate	50 GPM (189 LPM)	50 GPM (189 LPM)
Threads	1 1/2"-16 UNF	1 1/2"-16 UNF
Diameter	5.0 in. (12.7 cm)	5.0 in. (12.7 cm)
Length	7 in. (17.8 cm)	11 in. (27.9 cm)
Pressure	100 PSI (6.9 bar)	100 PSI (6.9 bar)

See chart below for mounting head information.



Type 1



Type 2



Type 3
(multi port head)

Mounting Heads

Part Number	Head Type	Port Size	Center Thread	By-pass Setting (PSID)	Replacement Filter
Maximum flow rate for the heads below is 15 GPM (56 LPM) and up to 175 PSI (12.1 bar)					
PFHH07500	1	3/4" NPTF	1"-12 UNF	3	PFFDW3825
PFHH07515	1	3/4" NPTF	1"-12 UNF	15	
PFHH07525	1	3/4" NPTF	1"-12 UNF	25	
PFHH12525R ¹	2	1 1/4" NPTF	1 1/2"-16 UNC	25	PFHW5110
PFHH12515MP	3	1 1/4" NPTF	1 1/2"-16 UNC	15	PFHW5710
PFHH12525MP	3	1 1/4" NPTF	1 1/2"-16 UNC	25	

¹Right hand flow.

Replacement Hydraulic Filters

Par Fit™ hydraulic filters are interchangeable with most competitors filters to allow customers to acquire all their replacement filters from one quality source. Racor Par Fit™ hydraulic replacement filters conform to all the same rigorous tests as the standard replacement filters and are designed to efficiently filter contaminants out of hydraulic fluid.

For a full list of cross reference part numbers, request bulletin 7729.



Built to Last

RUGGED CONSTRUCTION, EASY INSTALLATION AND TOOL-LESS SERVICE ARE TRADEMARKS OF ADVANCED RACOR DESIGNS.

The Absolute Series introduces a new standard for system performance and reliability by purifying oils in engine, transmission and hydraulic systems. The top load Absolute Oil Cleaner can be specified for 30 and 50 quart applications and each is easily connected to the corresponding lubricating oil system.

Beyond the filtration of solid particles, the Absolute Series provides important benefits that extend full flow filter life as well as reducing maintenance by maximizing water absorption, removal of sludge, resins and soot.

THE CLEAR AND ABSOLUTE BENEFITS

- Removes up to 99% of all solid contaminants
- Reduces the water concentration to less than 100 ppm
- Eliminates damaging resins and oxidation products
- Extends oil change intervals
- 2 to 4 times fewer expensive full flow filter cartridges
- Extends the life of all engine components
- Provides a significant reduction of oil consumption and oil disposal cost
- An important decrease of equipment down time
- Rugged design
- Will not void engine warranty
- Reduces operating cost and increases profits



The intricately channeled base provides a large footprint to fully support the element under pressure, ensuring uniform loading of the element. Ultra-clean oil flows through the channels into the clean oil stream.

Tool-less access and easy service via the classic Racor T-handle.

A multi-layered engineered cellulose media presents a massive surface area to remove solid contamination and emulsified water. The result is both exceptional dirt holding capacity and removal of water concentration to less than 100 parts per million.

Racor offers 3, 5, 10 micron replacement elements to further tailor to filtration needs. No other company offers so many choices.

The engineered base design at the bottom of the Absolute housing supports the element under high pressure and provides a channeled migration path for clean oil to flow back into the primary oil stream.

Racor offers Parker UL-Rated hose and high quality fittings and adapters.

The Absolute Oil Cleaner is designed as a top load filter, but can be mounted at any angle using the heavy-duty mounting bracket.





Specifications	ABS10300	ABS10450
Maximum Pressure	72.5 PSI (5 bar)	72.5 PSI (5 bar)
Capacity	30 qts (28 L)	50 qts (47 L)
Port Size (inlet/outlet)	1/4" NPTF	1/4" NPTF
Dimensions	W6.38 x H12.48 in. (W162 x H317 mm)	W8.03 x H12.64 in. (W204 x H321 mm)
Weight	10 lbs (4.5 kg)	15 lbs (6.8 kg)
Seal Kit	ABS44235	ABS44250

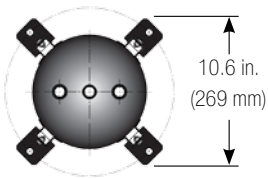
REPLACEMENT FILTERS

ABS10300	3 micron filter (Green) 5 micron filter (Blue) 10 micron filter (Orange)
ABS10450	3 micron filter (Green) 5 micron filter (Blue) 10 micron filter (Orange)



Footprint

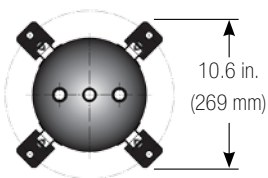
ø 0.5 in. (12.7 mm) 4 holes



High Capacity Absolute Series Oil Cleaners are space-efficient, with footprints from just 8" to 19", and heights from 24" to 50".

Footprint

ø 0.5 in. (12.7 mm) 4 holes



High Volume



Specifications	ABS11200	ABS11300
Housing Material	Stainless Steel	Stainless Steel
Application Capacity	100 qts (94.6 L)	150 qts (142.0 L)
Port Size	1/2" NPTF	1/2" NPTF
Dimensions	W9.3 x H24.41 in. (W236 x H620 mm)	W9.3 x H30.12 in. (W236 x H765 mm)
Replacement Filters	(use two) ABS20430 (3 micron) ABS20470 (5 micron) ABS25450 (10 micron)	(use three) ABS20430 (3 micron) ABS20470 (5 micron) ABS25450 (10 micron)
Weight	22 lbs (10.0 kg)	28.7 lbs (13.0 kg)
V-band	ABS50030	ABS50030
Packing	ABS50070	ABS50070
O-ring	ABS50057	ABS50057

High Volume



Specifications	ABS11400	ABS11410	ABS10515
Housing Material	Carbon Steel	Carbon Steel	Carbon Steel
Application Capacity	100 qts (94.6 L)	150 qts (142.0 L)	250 qts (236.6 L)
Port Size	1/2" NPTF	1/2" NPTF	1.0" NPTF
Working Pressure	73 PSI (5.0 bar)	73 PSI (5.0 bar)	73 PSI (5.0 bar)
Dimensions	W11.81 x H23.62 in. (W300 x H600 mm)	W11.81 x H29.25 in. (W300 x H743 mm)	W18.9 x H50.0 in. (W480 x H1270 mm)
Replacement Filters	(use two) ABS20430 (3 micron) ABS20470 (5 micron) ABS25450 (10 micron)	(use three) ABS20430 (3 micron) ABS20470 (5 micron) ABS25450 (10 micron)	(use three) ABS20430 (3 micron) ABS20470 (5 micron) ABS25450 (10 micron)
Weight	40 lbs (18.1 kg)	48.5 lbs (22.0 kg)	196 lbs (89.0 kg)
Packing Spacer	ABS50072	ABS50072	-
O-ring	ABS50082	ABS50082	ABS50058

OilCheck LFS RK761



The oil monitor measures the effects of contaminants and the electrochemicals that occur in synthetic and petroleum based oils. This is achieved by detecting and measuring the oil's dielectric constant.

By comparing the measurements obtained from used and unused oils of the same make and grade, the oil monitor is able to determine the degree of change in the oil's dielectric constant. Dielectric change is directly related to the contamination level and degradation of the oil and may allow the user to achieve longer intervals between oil changes and immediately detect increased mechanical wear and coolant dilution, resulting in the loss of the oil's lubricating properties.

Time Frame: 5-10 Minutes

Fluid Types:

- Engine Oil
- Transmission Fluid
- Hydraulic Fluid

Marine Rated Hose

No-Skive Hose and Fittings

- No-Skive hose and fittings do not require removal of the outer hose cover, eliminating premature failure caused by skiving too long or short.
- Use of No-Skive hose and fittings keeps outer cover intact, protecting vulnerable wire wrap during fitting assembly.
- Cushioned grip increases hose life - supporting cushion of compressed rubber between gripping threads on fitting reduces wire movement, minimizing stress.
- High-tensile steel wire braid.
- Corrosion Protection - steel wire braid of No-Skive hose is never exposed because outer rubber cover is not removed before assembling fitting.
- No-Skive fittings allow socket threads to penetrate outer hose cover, and grip the wire braid of the hose.
- Simple two step assembly—attach socket to hose, thread nipple to socket.
- Packaged in 350-foot reels or 50-foot kits.
- Passed 2 1/2 minute fire test.
- 500 PSI working pressure.

Parker Marine Hose is a USCG-rated hose for gasoline, diesel, lube oil, and hydraulic systems for commercial and recreational applications.

As you'd expect, it delivers test-proven performance in a wide operating temperature range and constant working pressure. It is of a long-lasting reinforced construction, kink and cut resistant, and compatible with a variety of standard 100R5 fittings.



Fire-Resistant Marine Hose Meets SAE J1527, Type A, Class 1, and SAE J1942 Standards



Part Number	Hose I.D.		Hose O.D.		Working Pressure		Burst Pressure		Min. Bend Radius		Weight (per foot)		Inches of Mercury	
	in.	cm	in.	cm	PSI	mPa	PSI	mPa	in.	cm	lbs/ft	kg/m	Hg	kPa
CGH-5	1/4	0.6	0.6	1.5	500	3.4	2000	13.8	1	2.5	0.19	0.09	20	68
CGH-6	5/16	.8	0.7	1.8	500	3.4	2000	13.8	1 1/4	3.2	0.23	0.10	20	68
CGH-8	13/32	1.0	0.8	2.0	500	3.4	2000	13.8	1 3/4	4.5	0.28	0.13	20	68
CGH-10	1/2	1.3	0.9	2.3	500	3.4	2000	13.8	2 1/4	5.7	0.39	0.18	20	68
CGH-12	5/8	1.6	1.1	2.8	500	3.4	2000	13.8	2 3/4	7.0	0.47	0.21	20	68
CGH-16	7/8	2.3	1.2	3.0	500	3.4	2000	13.8	3 1/2	8.9	0.41	0.19	20	68

Water Detection Probes



RK23191

Stainless Steel WIF Probe

- ABS Marine Type Approved, Cert. #11-HS800012-PDA.
- UL Marine Listed, 168Y.
- Meets requirements of ISO19921 fire resistance test.
- Robust 303 stainless steel and ceramic design.
- One inch (1") hex drive body, over 3 in. (7.6 cm) long.
- 1/2"-20 straight threads with SAEJ1926 sealing design.
- FKM o-ring material for durable service life.
- Detachable Packard GT-Series connector and 36" long wiring loom.

Stainless Steel Water In Fuel (WIF) Probe

The new all-steel and ceramic water in fuel (WIF) probe was designed to meet new IMO Marine Requirements. Racor's new RK23191 water probe can be used with all of our American Bureau of Shipping (ABS) and Underwriters Laboratories, Inc. (UL) Marine products. This passive probe design has a 303 stainless steel housing which captivates a ceramic insulator and stainless probe tip. The housing features a durable plastic connector housing to attach to an external pigtail harness with yellow and black 18 AWG wires (no polarity).

Water Probes

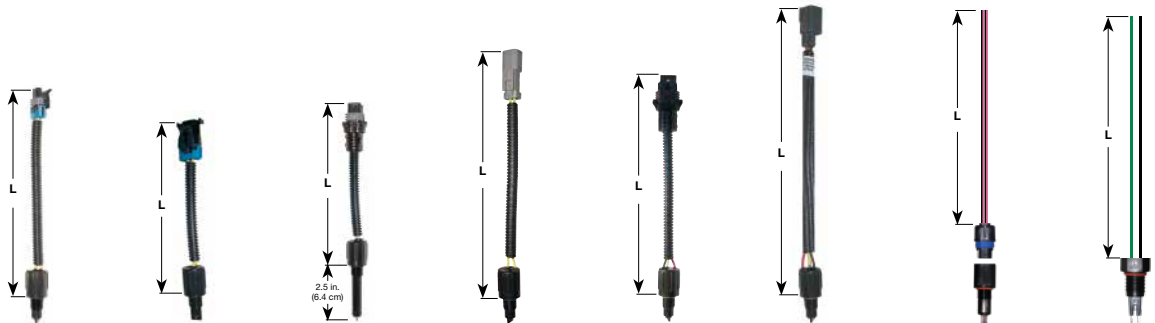
Racor offers a wide selection of water-in-fuel (WIF) detection systems, each designed for specific filter assemblies and installation requirements.

Water probes simply provide metal pin tip entry into a water collection bowl. Some contain no active electronics and require an external electronic detection module to detect water.

Electronic Detection Modules

Detection modules have internal electronics that pass a small current across special metal pins. When water bridges the pin tips, a solid state switch is activated allowing a larger current to flow to drive a light or provide a signal to an engine computer. Electronic detection modules will automatically reset once water is drained away from the probe tips.

Detailed instructions are supplied with every WIF sensor and electronic detection module—see **page 33**.



Specifications	RK 55484	56140	RK56140-01	RK55617	RK30880E**	RK30880-03**	RK 30964	RK 21069
Mating Connector	Delphi Packard 12162000	Delphi Packard 12162000	Delphi Packard 12162000	N/A	Racor 22556	Yazaki 7283-7031-10	None	None
Thread Size	1/2"-20 UNF							
Volts	12 or 24	12	12	12	12 or 24	12 or 24	12 or 24	12 or 24
Probe Tips	Gold Plated Nickel	Beryllium Copper	Beryllium Copper	Beryllium Copper	Beryllium Copper	Beryllium Copper	Stainless Steel	Stainless Steel
Wire Length (L)	8.0 in. (20.3 cm)	6.0 in. (15.2 cm)	6.0 in. (15.2 cm)	8.7 in. (22.1 cm)	8.0 in. (20.3 cm)	11.0 in. (27.9 cm)	8.0 in. (20.3 cm)	8.5 in. (21.6 cm)
Internal Resistor	220K ohm	220K ohm	220K ohm	82.5K ohm	Amplifier	Amplifier	None	None
Application	Cummins	-	John Deere	Cummins	All	Hino	All	All
Output	-	-	-	-	To Ground	To Ground	-	-

** These WIF probes have a built-in water detection module.

Vacuum/Compound Gauge Kits

Vacuum and Compound (vacuum/pressure) gauges and related hardware are available to monitor filter condition. As the filter slowly becomes clogged with contaminants the restriction (resistance to flow) increases. The fuel pump still tries to draw fuel (suction) but because of this restriction less fuel is delivered to the engine and instead more air is pulled from it (fuel de-gassing). These results can cause the engine to lose power and eventually stall.

By installing a vacuum gauge in your fuel system (on the outlet side of the Racor filter) visual monitoring of filter condition is possible at a glance. Note the position of the dial, or apply the 'red line' decal provided with most kits. This will assist in easy monitoring as filter efficiency begins to decrease when a filter change is necessary.

Note: Intervals of filter changeout may vary depending on fuel cleanliness. Always keep a spare Racor filter on hand.



PFHG15LF
30/60 PSI Gauge

Accessories

Enhance Your Fuel Systems Performance and Ease of Service

When is My Engine Air Filter "Used Up?"

Because it performs so well, it is not uncommon for the engine air filter to appear as if it has reached its capacity. The only way to know when the engine air filter has reached its capacity is to measure the restriction at service.

An effective way to verify restriction is with a filter restriction monitor. A restriction monitor will provide a quick and accurate assessment of the air filter's condition and remaining service life.



Standard Filter Monitor Part Numbers

Part Number	Range (In. water vac.)	Description
400033015 ^A	8-15 inHg (27-51 kPa)	Direct Mount
400033020 ^A	8-20 inHg (27-68 kPa)	Direct Mount
400033025 ^A	8-25 inHg (27-85 kPa)	Direct Mount
014440001 ^A	8-25 inHg (27-85 kPa)	Direct Mount w/ 90° Fitting
072604000 ^B	4-25 inHg (14-85 kPa)	Remote Mount
076248001 ^A	8-25 inHg (27-85 kPa)	Dash Mount

^A Unit standard with a 1/8" -27 NPT straight fitting.

^B Unit standard with a 90° coupling and 10' hose.

Part No.	Description	Tread Size	
RK 11233	Vacuum Gauge, Silicone Dampened, 2" dial, 0-30 inHg. (0-15 PSI)	1/4" NPT Back Mount With Bracket	
1606B	Vacuum Gauge Kit. Gauge (RK 11233), one 7232-4, And One 7234-4 Fitting	1/4" NPT Back Mount With Bracket	
7232-4	Adapter Fitting	1/8" MNPT x #4 (1/4") Hose	
0102-4-2	Adapter Fitting	1/4" NPTM x 1/8" NPTF	
RK11-1676E	Vacuum Gauge With 2" Dial, Rotating Bezel, And Red Tell-Tale Pointer. 0-30 inHg. (0-15 PSI)	1/4" NPT Bottom Mount	
RK11-1969	T-Handle Vacuum Gauge (for 500FG Turbine series fuel filter/water separators)	1/4" NPT x 3/4" Fitting Threads	
RK 11-1669	T-handle Vacuum Gauge (for 900 and 1000 Turbine series fuel filter/water separators)	1/4" NPT x 1" Fitting Threads	
RK 19492	UL-Listed Brass Drain Valve	1/4" NPTF	

Water Detection Modules & Kits

Racor Water Detection Kits are available in a wide selection for various installation requirements. Under-dash, in-dash, and remote mount, these solid-state units may be used with any Racor fuel filter/water separator and water probe. They are manufactured using the highest quality materials and

are all 100% electrically tested. An electronic detection module analyzes electrical resistance at the water probe and determines if water is present. If so, the detection module operates to indicate water, based on its features listed below. All units reset automatically after water is removed (unless specified).

Caution: The water probe and detection modules work with 12 or 24 volts, direct current only and should never be wired to other brand modules or household 110 or 220 volts, alternating current. Use the guide below to find the correct detection module for your application.

Part Number	Description	Voltage	Image
RK 12870	Under-dash water detection module. Light illuminates and alarm sounds when water is detected. Water must be drained to reset light and stop alarm. Plastic enclosure measures: 1.38" square x 1.25" deep. Water probe included.	12 vdc	
RK 12871	Same as above	24 vdc	
RK 20725	Under-dash mount water detection module. Light only. Green 'ON' lamp illuminates with power on. Red 'DRAIN' lamp illuminates when water is detected. Initial power-up self diagnosis feature and circuit protection included. Plastic enclosure measures: 2.75" x 1" x 1.5". Water probe included.	12 vdc	
RK 20725-24	Same as above	24 vdc	
RK 20726	2" gauge-type water detection module. Light and audio. Red 'DRAIN' lamp illuminates and horn sounds when water is detected. Initial power-up self diagnosis feature and circuit protection included. Plastic case, satin black dial with white lettering. Water probe included.	12 or 24 vdc	
RK 11-1570 ¹	2" gauge-type water detector and filter restriction module. Includes pre-set vacuum switch (7 inHg), connector, and outlet adapter fitting. Red 'DRAIN' or 'CHANGE FILTER' lamp illuminate and horn sounds when water is detected. Water probe included.	12 or 24 vdc	
RK 14329	Remote detection unit sends 12 VDC hot (+) signal when an input ground signal (from a water probe or a vacuum switch—not included) is received. Must be used with a relay to power a horn or indicator lamp (if draw is over 1 amp). Plastic enclosure measures: 3" x 2.5" x .75"	12 vdc	
RK 14321	Same as above	24 vdc	
14332	Under-dash mounts same as RK 14329 but sends a ground (-) signal. Enclosure size is same as RK 20725 above.	12 vdc	
RK 20163	Vacuum Switch Kit Non-adjustable, 'Normally Open' contacts close at 7 inHg (3.4 PSI) 1/8"-27 NPT threads. For use with all models.	N/A	
RK 21030	Vacuum Switch Connector Kit Molded connector with single 18 AWG., 18" blue wire lead.	N/A	
RK30880E	This kit includes new and enhanced detection electronics built into the probe body and works with 12 or 24 volt DC systems. Water probe and detection module all in one.	12 or 24 vdc	

¹ Clear collection bowl must have a 7/8" SAE port.

WARNING: Failure or improper selection or improper use of the products and/or systems described herein or related items can cause death, personal injury, and property damage. This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for the products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety, and warning requirements of the application are met. The products described herein, including with limitation, product features, specification, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.



Parker Racor Division Quality Management System Certifications

- ISO/TS 16949: 2002
- ISO 14001: 2004



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Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 1 800 C-Parker (1 800 272 7537).



AEROSPACE

Key Markets

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



CLIMATE CONTROL

Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

Key Products

- CO² controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



ELECTROMECHANICAL

Key Markets

- Aerospace
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

Key Products

- AC/DC drives & systems
- Electric actuators
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



FILTRATION

Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



FLUID & GAS HANDLING

Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



HYDRAULICS

Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

Key Products

- Diagnostic equipment
- Hydraulic cylinders
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



PNEUMATICS

Key Markets

- Aerospace
- Conveyor & material handling
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors



PROCESS CONTROL

Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



SEALING & SHIELDING

Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

Key Products

- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management



Worldwide Filtration Manufacturing Locations

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www.parker.com/balston

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www.parker.com/faf

Finite Airtek Filtration/Finite

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Engine Filtration & Water Purification Racor

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www.parker.com/racor

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desalination.parker.com

Parker Sea Recovery

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310 637 3400
www.searecovery.com

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www.parker.com/hydraulicfilter

Laval, QC Canada
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www.parkerfarr.com

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www.parker.com/processfiltration

Madison, WI
608 824 0500
www.scilog.com

Phoenixville, PA
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www.velcon.com

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Parker Gas Separations

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Hiross Zander

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Parker Procal

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