

RACOR®

Automotive and Industrial Filtration

Brochure FDRB171UK



The most trusted name in engine protection

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

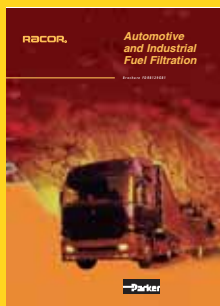
To make product selection easier, Racor's extensive range has been catalogued into four market/ application groups detailed below.



Hydrocarbon Filter Vessels and Elements

From the refinery to the injector, at the terminal and on the forecourt, Racor has a hydrocarbon filter vessel and element solution to your fuel delivery needs.

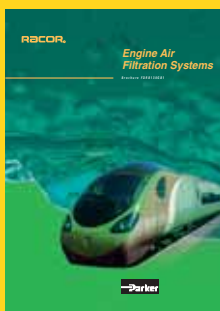
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Industrial and Automotive

Everytime you add fuel, you add millions of tiny contaminants...small enough to be invisible, but big enough to destroy injectors, pumps and profitability. Racor's industrial and automotive product range of customer proven spin-on filter/separators, turbine fuel filters and crank case ventilators are the solution.

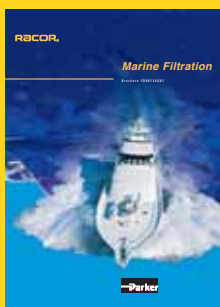
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Engine Air Filtration Systems

Fresh air. That's what Racor filtration is all about. Because when engines breathe easier they perform better with more power, more torque and with improved fuel economy. Whatever your application, there's a Racor Air Filtration system that will help you and your engine breathe easy.

Ref: FDRB172UK



Marine Filtration

Ask a sailor about engine protection. About filtration, about reliability and performance. Whatever they are the master of a superyacht, sailboat, fishing boat or tug, the chances are the one word answer will be the same as it has been for more than three decades...Racor. Marine filtration products trusted across the seven seas.

Ref: FDRB136GB1

For further information Email: filtrationinfo@parker.com

RACOR

The World's Best Filtration starts with the World's Best Engineering.

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



Hydraulic, Lubrication & Coolant Filtration

High-performance filtration systems for protection of machinery in industrial, mobile and military/marine applications.



Finite and Balston Compressed Air & Gas Filtration

Complete line of compressed air/gas filtration and separation products; coalescing, particulate and adsorption filters in many applications in many industries.



Racor Fuel Conditioning & Filtration

Parker air, fuel and oil filtration systems provide quality protection for engines operating in any environment, anywhere in the world.



Process & Chemical Fluid Filtration

Liquid filtration systems for beverage, chemical and food processing; cosmetic, paint, water treatment; photo-processing; and micro-chip fabrication.



System Contamination Monitoring

On-line dynamic particle analysis, off-line bottle sampling and fluid analysis and measurement of water content polluting the oil in a system.

Parker Filtration's global reputation as a reliable supplier of superior filtration products is the result of a focused and integrated development and manufacturing system.

Parker Filtration consolidates quality filtration products, manufactured for process filtration, air and gas filtration and separation, fuel conditioning and filtration, fluid power products and hydraulic filter products into one broad-based range that covers many markets and most applications, as detailed here.

1975 Cold

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

1984 Protection

1984 The Racor Sentinel System shuts down an engine before a major component failure can cause permanent damage. Sentinel remains the preferred all mechanical engine control system.

1987 Standard Equipment

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

1991 The Environment

1991 Along with protecting engines, Racor makes products that protect the environment. Lifeguard is a marine fuel/air separator that prevents fuel from escaping overboard from vent lines during refuelling.

1994 Air

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

1996 Plant expansion

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

1998 Additives

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

2001 Global OEM

2001 Racor continues to forge long term relationships with Global OEM companies to produce sound, cost effective engineered solutions to meet specific application requirements.



Over 30 years of innovation, over 30 years of quality...

1969 Diesel Fuel

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



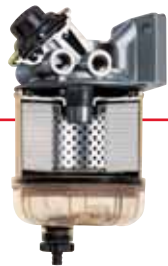
1983 Technology

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



1985 Growth

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



1989 Quality

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



1992 Oil

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



1995 CCV Products

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



1997 Racor Hydrocarbon

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



2000 UK Facility

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



2002 High performance air filters

2002 Racor purchases Farr opening up opportunities in medium and heavy duty Engine Air applications.



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



The World's Best Filtration Starts

Whether you operate a truck, bus, generator or pump set, you need to know that every time you switch on the ignition you will hear the engine fire into life, each time and every time. There is no better way to ensure engine reliability than with good quality filtration. Whatever and wherever your application, we have a system which will meet your requirements.

Fuel Filtration Water Separators (FFWS)

Fuel Contamination, either in the form of dirt or water will find its way into your fuel system however careful you are. With modern engines now injecting fuel at anything up to 2000 bar, and injector tolerances being measured in microns, it is hardly surprising that even a small amount of dirt or water corrosion can start a problem. Water or particulate can cause microscopic surface damage which is then focused on by the high pressure flow, to cause significant wear which will eventually lead to reduced efficiency and complete break-down. Several \$100 of filtration over an engines life can save \$1000's in engine re-fits let-alone down-time. Racor offer what is widely accepted as the industry bench mark premium product, why risk anything less.

Working to Efficiency standards:

ISO TR 13353, ISO TS 13353,
ISO 19438, SAE J 1985,
SAE J 905,

Water Separation Standards:

ISO 4020 6.5, SAE J1839,
SAE J 1488)

FFWS

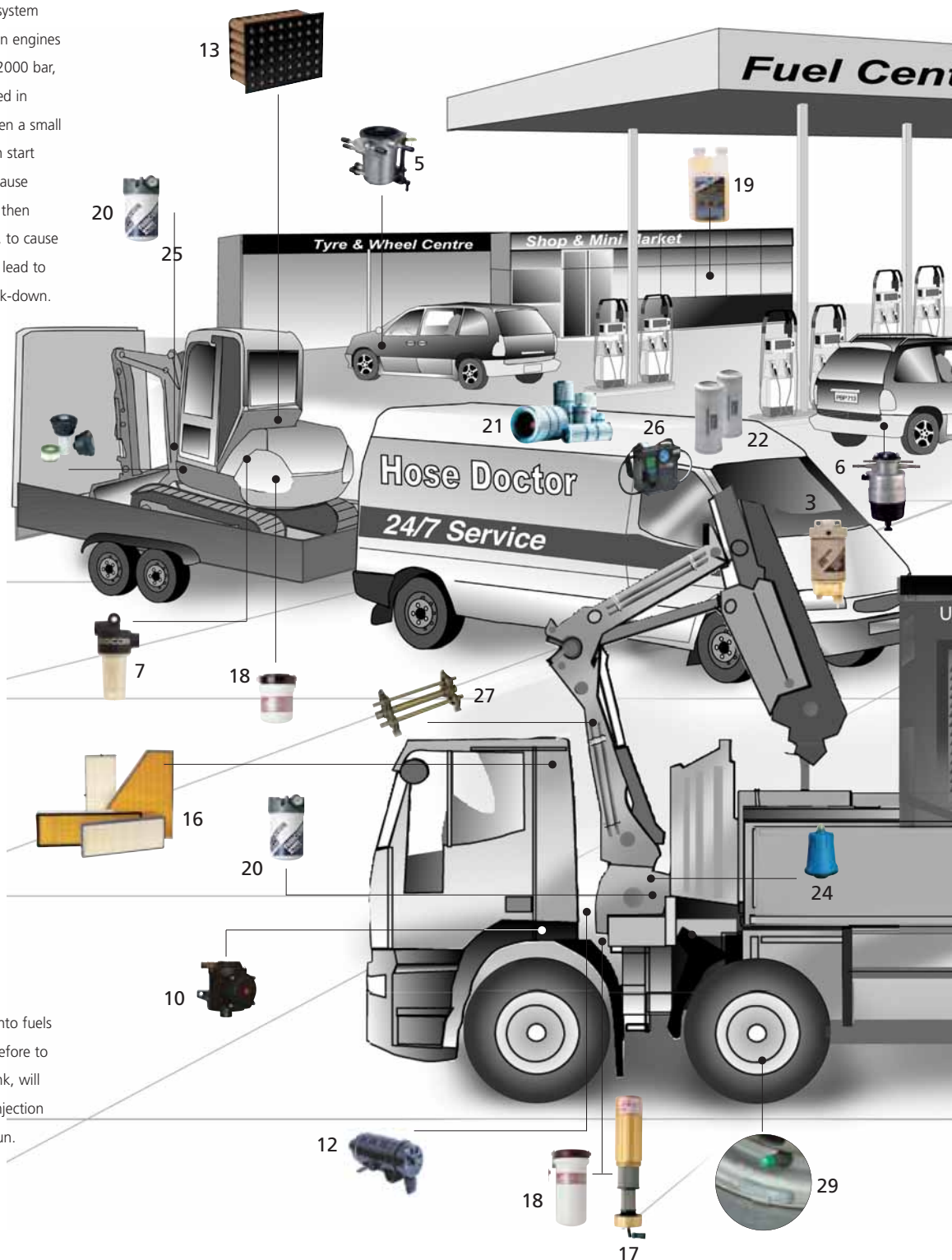
1. 400 Series FFWS
2. 600 Series FFWS
3. 200 Series FFWS
4. Turbine FFWS
5. Top Loader
6. P-Series Pump FFWS
7. RAC gasoline Series

Fuel Dispensing Filters

Water and dirt are often introduced into fuels during fuel transfer and storage, therefore to clean fuel before it enters the fuel tank, will reduce contamination, protect your injection system and save money in the long-run.

Fuel Delivery

8. FBO FFWS
9. RVFS FFWS



with the World's Best Engineering

Racor Closed Crankcase Ventilation

To meet emissions legislation and also to keep engine bays and air filters clear of oil, engine blow by gases emanating from the crankcase are fed back into the air intake before the turbo charger. However these gases are full of soot laden oil mist, which will coat the turbo turbine blades and more importantly coat the intercooler, reducing

efficiency and causing over heating. Racor's CCVs solve this problem. They are some of the most efficient available and have patented upstream crankcase pressure regulation as opposed to a turbo vacuum limiters, which other manufacturers are forced to employ.

CCV

10. CCV 3500

11. CCV 6000

Air Filters

High efficiency air filters will allow your engine to breath clean dry air, which will stop damaging particulate from entering the engine and oil systems. In very dirty atmospheres special static and active pre-cleaners are available to stop media elements from being prematurely clogged.

Air Filters

12. AF Air Filter

13. Pamic Air Filter

14. ECO Air Filter

15. Dynacell Air Filter

16. Cabin Air Filters

Oil Filters

For increased service life with Bypass LFS-800 series, cleanable re-usable spin-on replacement LFS 700 Series or specific engine intergrated OEM systems.

Oil Filters

17. LFS 802 Oil Filter

18. LFS 700 Oil Filter

Racor Additives

For long term fuel stability, elimination of Bacterial growth or engine performance improvement, Racor have an additive to suit your needs.

Racor Additives

19. Fuel/Oil/Coolant Additives

Additional Products

20. Hydraulic spin on

21. Parker Par-Fit

22. Replacement Elements

23. LPG/CNG Filters

24. ABL

25. EAB

26. Particle Counter

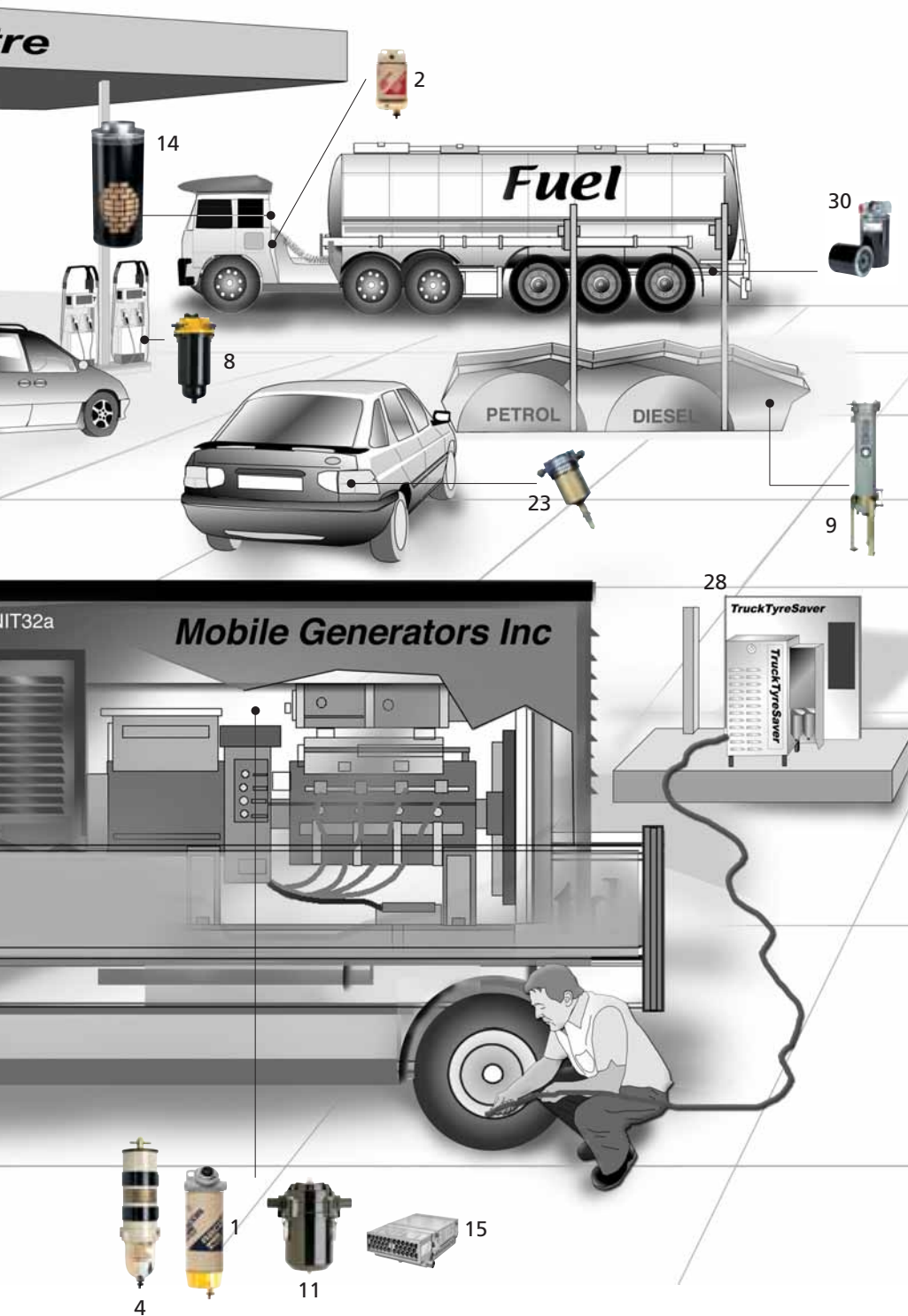
27. Multiclamp

28. Nitrogen Tyre Saver

29. Green Dust Cap Nitrogen Filled

30. Transmission Filter

At the heart of the filter is the filter paper or media, which is constructed from a special blend of mixed fibre sizes, to achieve the highest possible efficiency whilst maximising capacity and life. The media is impregnated with special resins to ensure durability and separation performance. Product is built in an ISO TS 16949 quality system environment to ISO 14001 Environmental requirements. Leading global engine manufacturers recommend Racor to protect their engines, why risk anything less.



Racor technology takes the guesswork out of engine protection.



Ultraviolet Light

Freezing Temperatures

Road Hazards

All-season dependability

Racor see through bowls are constructed of high grade polymers engineered to withstand the rigours of nature and of demanding applications. They won't discolour from exposure to ultra violet light. They are impervious to the chemicals and additives often found in diesel fuel. They with stand server freezing temperature as well as impact from flying stones and road hazzards.

The best gaskets and o-rings available promise consistent, sure seals.

Die cast aluminium heads with multiple ports make installation as easy as adding options.

Powerful primer pumps are integrated into mounting heads.

Cost-Effective Visual Inspection

See-through collection bowls allow a water-in-fuel condition to be immediately visible. Closed spin-on cans waste expensive fuel and labour because it's impossible to check for water without actually opening the drain or removing the can from the mounting head.

Environmentally Friendly

Engineered polymer bowls are reusable, impact-resistant and virtually indestructible. When it's time for service, only the filter element is replaced – the see-through bowl and drain valve assembly are reused. The long life cycle of the bowl saves money and reduces the environmental impact through disposal of less material. Use metal bowl versions for inspected or commercial vessels.

Aquabloc II media is corrugated, allowing greater surface area exposure for fuel filtration and an increased dirt-holding capacity.

Polymer bowls are virtually indestructible. They won't discolour from exposure to alcohol, additives or UV light – a see-thru that stays see-through. A die cast aluminium bowl is available for most models.

Water sensor and vacuum gauges to signal service are valuable options available for most models.

Positive seal self-venting drain eliminates leaks and speeds service.

Bowl removal wrench available 22628



Corrosion-Free Construction

Advanced polymer technology means bowls will not deteriorate from water collection, alcohol-blended fuels, exposure to harsh additives or UV light. Unseen water lying in sealed cans causes them to rust and corrode or worse yet, increase in level and pass through.

Easy Upgrades

See-through bowls provide connection ports for upgrades which enhance engine performance and reliability. Powerful in-bowl heaters can be added to improve operation in colder climates and electronic sensors alert the operator to drain water in the bowl.

110A - 120A - 140



Maximum protection in minimum space.

The 110A is designed for fuel injected petrol engines with high working pressures and also can be used on diesel engines.

A metal housing is standard.

Other models in the 100 Series, the 120A and 140, offer reliable protection for smaller diesel and petrol engines used in generator sets, pressure washers and other equipment. Their compact size fits tight mounting locations and multiple ports offer installation flexibility.

215 - 230 - 245

Improved for greater versatility.

The 215, 230 and 245 filter/separators come standard with an integral priming pump and a new see-through contaminant bowl which can operate in applications up to 30 psi.

Another design upgrade is the optional 200-watt in-bowl heater for colder operating conditions. Applications include light duty and medium duty trucks and vehicles, construction, agricultural and other diesel powered equipment.



Model	110A	120A	140A	215	230	245
Maximum Flow Rate *1	57 L/hr (15 G/hr) Diesel 132 L/hr (35 G/hr) Petrol	571 L/hr (15 G/hr) Diesel 132 L/hr (35 G/hr) Petrol	571 L/hr (15 G/hr) Diesel 35 gph/132 lph Petrol	571 L/hr (15 G/hr) Diesel	114 L/hr (30 G/hr) Diesel	170 L/hr (45 G/hr) Diesel
Petrol/Diesel *2	Both	Both	Both	Diesel	Diesel	Diesel
Vacuum Installation	Yes	Yes	Yes	Yes	Yes	Yes
Pressure Installation	Yes	Yes	Yes	Yes	Yes	Yes
Maximum Pressure Bar *3	6.9	0.5	0.5	2.06	2.06	2.06
Clean Pressure Drop Bar	0.01	0.01	0.0007	0.008	0.02	0.04
No. of Ports	4	4	2	3	3	3
Port Size	14mm – 1/4NPTF	14mm – 1/4NPTF	14mm – 1/4NPTF	14mm – 1/4NPTF	14mm – 1/4NPTF	14mm – 1/4NPTF
Integral Primer Pump *4	No	No	No	Yes	Yes	Yes
Replacement Element No *5	R11	R12	R12	R15	R20	R25
See Through Bowl	No	Yes	Yes	Yes	Yes	Yes
Metal Bowl *1	Std	Yes	Yes	Yes	Yes	Yes
Drain Type	Positive Seal	Positive Seal	Positive Seal	Positive Seal	Positive Seal	Positive Seal
Water Sensor Option *6	Yes	Yes	Yes	Yes	Yes	Yes
Electric Heater Option *6	No	No	No	Yes	Yes	Yes
Height mm	152	166	152	211	229	267
Width mm	81	81	81	102	102	102
Depth mm	81	81	81	102	102	102
Weight Kg	0.59	0.5	0.5	0.5	0.8	1

*1 Flow rate given in US gph 1US Gallon = 0.833 Gallon

*2 Metal Bowls must be used for petrol installations

*3 Pressure installations are applicable up to the maximum Pressure shown

*4 Models with integral priming pumps are not recommended for petrol applications

*5 Replacement element micron rating can be specified as 'S' for 2 micron, 'T' for 10 micron or 'P' for 30 micron

*6 Not for use with petrol applications



445 - 460 - 490 - 4120

A powerful, integral primer pump makes service quick and easy.

The standard equipment primer pump tops the list of extensive options that allows bus fleets, truck fleets, RV owners and others to tailor a filter/separator system specifically to their operating requirements. These options include a choice of three micron rating for the Aquabloc filter element, 200 watt in bowl resistance heater, water sensor and flow rates up to 454 l/hr (120 US gph).



DIESEL SPIN-ON SERIES

645 - 660 - 690 - 6120

Maximise engine protection with a low profile, easy to fit filtration system.

With all the features of the 400 Series, the 600 Series offers engine owners an economical system for applications where an integral primer pump is not needed. Flow rates up to 454 l/hr (120 US gph), in bowl heater and water sensor are all available options.



260	445	460	490	4120	645	660	690	6120
227 L/hr (60 G/hr)	170 L/hr (45 G/hr)	227 L/hr (60 G/hr)	341 L/hr (90 G/hr)	454 L/hr (120 G/hr)	170 L/hr (45 G/hr)	227 L/hr (60 G/hr)	341 L/hr (90 G/hr)	454 L/hr (120 G/hr)
Diesel	Diesel	Diesel	Diesel	Diesel	Both	Both	Both	Both
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2.06	2.06	2.06	2.06	1.03	2.06	2.06	2.06	1.03
0.01	0.01	0.025	0.065	0.058	0.0006	0.0035	0.02	0.024
3	4	4	4	4	7	7	7	7
M16 1.5	16mm - 3/8NPTF	16mm - 3/8NPTF	16mm - 3/8NPTF	16mm - 3/8NPTF	16mm - 3/8NPTF	16mm - 3/8NPTF	16mm - 3/8NPTF	16mm - 3/8NPTF
No	Yes	Yes	Yes	Yes	No	No	No	No
R260	R45	R60	R90	R120	R45	R60	R90	R120
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	No	No	No	Yes	No	No	No	Yes
Self-Vent	Self-Vent	Self-Vent	Self-Vent	Self-Vent	Self-Vent	Self-Vent	Self-Vent	Self-Vent
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
267	236	279	300	381	215	259	284	359
102	114	114	114	114	114	114	114	114
102	121	121	121	121	114	114	114	114
1	1.1	1.3	1.4	1.8	1.07	1.17	1.2	1.8

For complete part numbers references please refer to www.racor.com and select 7480 product catalogue from the literature tab.

1420 - 6120 - 3150 - 3250

High Capacity Fuel Filtration

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 II media is standard, and all units provide flexibility in options to customize and meet specific operating conditions.



Racor Quality in One Easy Spin

- High-capacity, on-engine primary or secondary filtration
- Fits most existing mounting heads
- See-through bowl with water sensor option
- Mounting heads available, contact Racor or your distributor

320 Engine Spin-On Series



H I G H F L O W

MODEL	4160 R10	6120	3150	3250
Maximum Flow Rate	160 gph / 600 lph	120 gph / 454 lph	150 gph / 570 lph	250 gph / 946 lph
Gasoline or Diesel ¹	Diesel	Both	Diesel	Diesel
Vacuum Installation	Yes	Yes	Yes	Yes
Pressure Installation	Yes	Yes	Yes	Yes
Maximum PSI ² /kPa	3 psi / 0.4 kPa	15 psi / 103 kPa	7psi / 50 kPa	7 psi / 50 kPa
Clean Pressure Drop PSI	0.85 psi	0.35 psi	0.68 psi	1 psi
No. of Ports	4	7	2	2
Port Size	m 161.5	3/8 NPT	0.875" X 14 SAE	0.875" X 14 SAE
Integral Primer Pump ³	Yes	No	No	No
Replacement Element No. ⁴	R160T	R120	S3238P	S3207P
Bowl/See-Through	Yes	Yes	Yes	Yes
Bowl/Metal ¹	Yes	No	Yes	Yes
Drain Type	Self-Vent	Self-Vent	Self-Vent	Self-Vent
Water Sensor Option ⁵	Yes	Yes	Yes	Yes
Electric Heater Option ⁵ (12V/24V)	Yes	Yes	Yes	Yes
Height	15" / 381mm	14.12" / 359mm	13.6" / 345mm	17.25" / 438mm
Width	4.5" / 114mm	4.5" / 114mm	5" / 127mm	5" / 127mm
Depth	4.8" / 121mm	4.5" / 114mm	5.5" / 140mm	5.5" / 140mm
Weight	3.9 lbs / 1.8 Kg	3.9 lbs / 1.8 Kg	3.6 lbs / 1.6 Kg	4.6 lbs / 2.08 Kg

Notes: (1) Metal bowls should be used for gasoline installations.
 (2) Pressure installations are applicable up to the maximum PSI/ kPa shown.
 (3) Models with integral primer pumps are not recommended for gasoline applications.
 (4) Replacement element micron rating can be specified as "S" for 2 micron, "T" for 10 micron, or "P" for 30 micron. (5) Not for use with gasoline applications.
 For complete part numbers references please refer to www.racor.com and select 7480 product catalogue from the literature tab.

Fuel Filter/ Water Separator w/ Reusable See-Through Bowl	Spin-On Replacement Element (only)	Micron Rating	Height	Width	Depth
B32001	S3201	10	10.5"	267 mm	Application: Cummins – 90 gph/Secondary (Final)
B32002	S3202	30	10.5"	267 mm	Application: DDC – 90 gph/Primary
B32003	S3203	2	8.63"	219 mm	Applications: Caterpillar – 60 gph/Secondary (Final) IH (Navistar) – 90 gph/Secondary (Final)
B32004	S3204	30	7.13"	181 mm	Application: IH (Navistar) – 40 gph/Secondary
B32005	S3205	30	9.75"	248 mm	Application: Mack 90 gph – 90 gph/Primary
B32006	S3206	2	12"	305 mm	Application: Caterpillar – 90 gph/Secondary (Final)
B32007	S3207	10	13.5"	343 mm	Application: Cummins – 180 gph/Secondary (Final)
B32008	S3208	*	7.25"	184 mm	Application: Deutz, Volvo – 30 gph
B32009	S3209	*	8.63"	219 mm	Application: Mann, DAF – 60 gph
B32011	S3211	10	8.63"	219 mm	Application: Cummins Short – 90 gph/Secondary (Final)
B32012	S3212	30	7.13"	181 mm	Application: DDC – 90 gph/8.2L Primary
B32016	S3216	*	5.85"	149 mm	Application: Deutz, Volvo Short – 20 gph

* Available in 2, 10 or 30 micron.



Racor Integrated Pump Series

The 790R30 Integrated fuel filter/water separator assembly is a two-stage filtration and repriming system featuring a solid state controlled electronic priming pump, an electric water drain, a vent valve to purge air, a 200 micron prefilter screen, a 30 micron Aquabloc II spin-on element, a water sensor probe, a metal collection bowl and a weather proof control box.

This complete fuel management system isolates contaminants present in diesel fuels and traps them prior to reaching the fuel injection system, protecting the engine's fuel system from costly and premature failure.



SPECIFICATIONS 790R30

SPECIFICATIONS	790R30
Maximum Flow Rate	60 GPH (227 LPH)
Replacement Element	S3230P
Micron Rating	30 Micron
Height	12.3 in. (31.2 cm)
Width	4.3 in. (11.0 cm)
Depth	6.5 in. (16.5cm)
Weight (Dry)	6.5 lb (3.0kg)
Clean Pressure Drop	0.25 PSI (1.7 kPa)
Operating Temperature	-40° to +225°F (-40° to +107°C)

P-Series Racor Fuel Conditioning Module

The Racor fuel conditioning module is designed and manufactured to provide the highest possible value to the diesel engine, vehicle and equipment. The innovation and modular design of the RFCM incorporates all of the low pressure fuel components required by the latest generation of electronically-controlled fuel injection systems. The consistent pressure and volume delivery of pure fuel under various engine speeds, loads and environmental conditions is absolutely essential to achieve the efficiency levels required in today's engines. The modular design of the RFCM allows features to be added or removed independent of one another – providing a new level of design flexibility.

Robust roller-cell electric fuel pump ensures consistent fuel delivery at a variety of engine speeds.

Thermostatically (10°C / 50°F – 26°C / 80°F) controlled PTC style electric fuel heater (200 watts at 12V DC) facilitates cold weather starting.



Thermal recirculation valve regulates return fuel recirculation for optimum performance during cold weather operation (10°C / 50°F – 32°C / 90°F).

The patented RFCM contains Racor's high performance Aquabloc II filter media.

Environmentally friendly cartridge-style element is incinerable and is available at the required efficiency levels for high pressure diesel fuel injection systems. An anti-drainback valve makes element service convenient and clean.

Contaminant collection bowl is removable.

Water sensing system alerts the operator when service is required and a self-venting drain valve makes draining quick and easy.

Also available in see-through collection bowl.



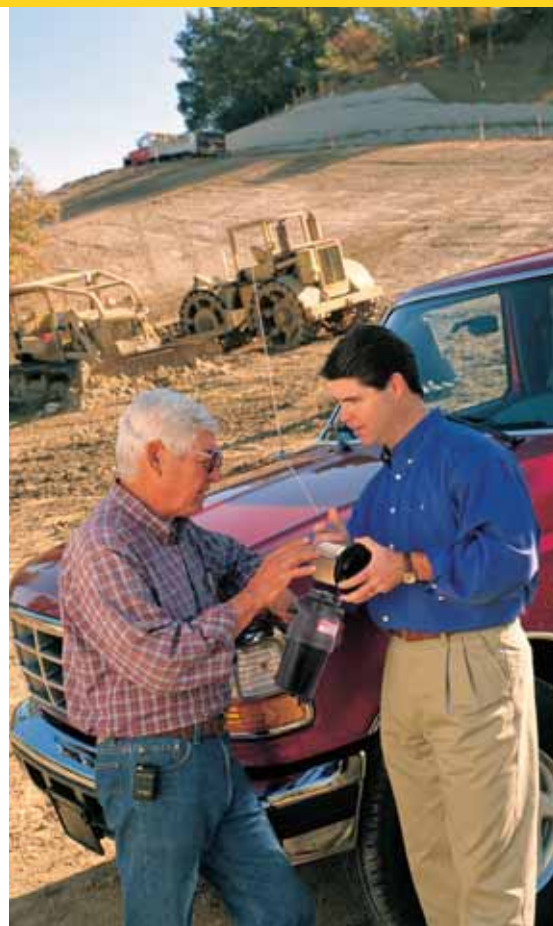
Durable, 12V DC roller-cell electric fuel pump offers the benefit of an electric, on-demand, priming pump.

Thermostatically controlled PTC style electric (150-watt) heater facilitates cold weather starting.

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

Water-in-fuel (WIF) sensor alerts the operator when service is required. Under-dash control module for pump and water sensor operation is included with pump option.

Contaminant collection bowl with self-venting drain is both removable and reusable.



BASIC MODELS	P3	P4	P5
Maximum Flow Rate	30 gph / 114 lph	40 gph / 170 lph	50 gph / 227 lph
Clean Pressure Drop	0.4 psi / 2.8 kPa	0.5 psi / 3.4 kPa	0.8 psi / 5.5 kPa
Maximum Pump Output (at 14.4 volts)	40 gph / 151 lph	40 gph / 151 lph	40 gph / 151 lph
Standard Fuel Port Size (SAE J476)	3/8" – 18 npt	3/8" – 18 npt	3/8" – 18 npt
Total Number of Ports Available:			
Fuel Inlets	1	1	1
Fuel Outlets	1	1	1
Replacement Elements:			
02 micron	R58060-02	R58095-02	R58039-02
10 micron	R58060-10	R58095-10	R58039-10
30 micron	R58060-30	R58095-30	R58039-30
Minimum Service Clearance	2.5" (28 mm)	2.5" (28 mm)	2.5" (28 mm)
Height	7.7" (196mm)	9.0" (229 mm)	11.5" (292 mm)
Depth	5.2" (132 mm)	5.2" (132 mm)	5.2" (132 mm)
Width	4.8" (122 mm)	4.8" (122 mm)	4.8" (122 mm)
Weight (dry)	3.4 lb (1.5 kg)	3.8 lb (1.7 kg)	4.2 lb (1.9 kg)
Maximum Pump Output Pressure	10 psi (69 kPa)	10 psi (69 kPa)	10 psi (69 kPa)
Features: ¹			
Water Sensor	Standard	Standard	Standard
Heater	Standard	Standard	Standard
Pressure Regulator (10 psi)	Standard	Standard	Standard
Operating Temperature	-40° to +255°F / -40° to +121°C		

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

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

P4	2	10	N	H
Specify 'P3' for 30 gph, 'P4' for 40 gph, or 'P5' for 50 gph	'2' must be in the part number. (It specifies a 12 vdc pump)	Specify micron rating of element: '10' only	'N' must be in the part number. (It specifies standard 3/8" npt ports)	'H' must be in the part number. (It specifies a 12 vdc, 150 watt heater)

For continuous run pump operation, custom fittings, or pressure requirements consult Parker Filtration +44 (0) 1924 487000.

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.

The First Name In Fuel Filtration Is Also The Most Improved

Every engine runs better with a system that cleans fuel, removes water, heats fuel and senses when it's time for service. The system is the Racor Turbine Series and it's the most complete, most efficient, most reliable high-capacity engine protection you can install. A system that protects your investment in engines and fuel.

The high grade aluminium components and powder coat paints mean that corrosion is never a worry.

A durable single bolt mounting bracket doubles resistance to vibration fatigue.

Aquabloc media sheds water and keeps engines waterproof, rustproof and dirtproof.

300-watt heaters start you in the cold – thermostats are standard to meet the requirements of today's electronic engines.

Polymer bowl withstands impact and temperature extremes.

Self-venting drain. A single twist makes draining clean, fast and easy.

End caps are colour-coded for easy identification and application – red for 30 micron primary filtration, blue for 10 micron primary or secondary, and brown for 2 micron secondary/final filtration.

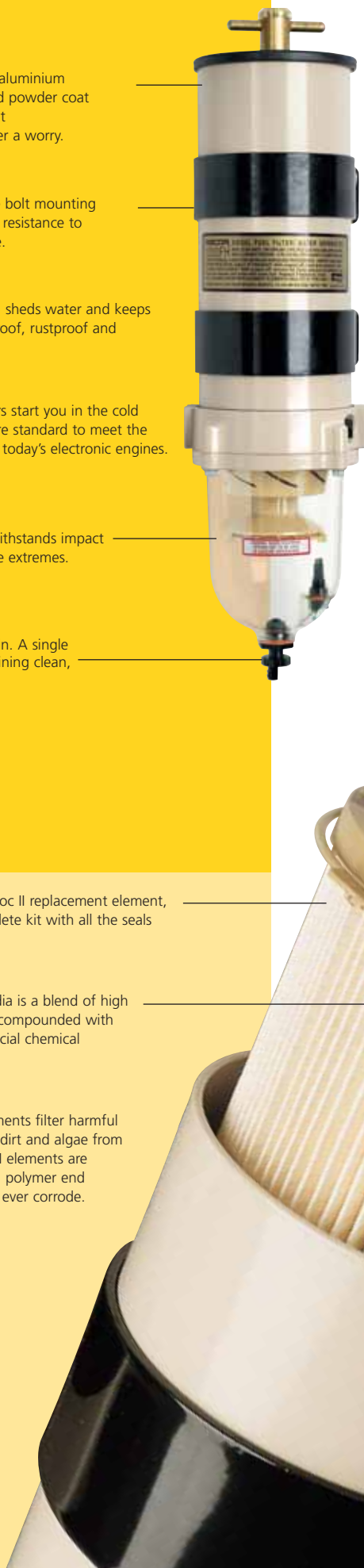
With an Aquabloc II replacement element, you get a complete kit with all the seals you need.

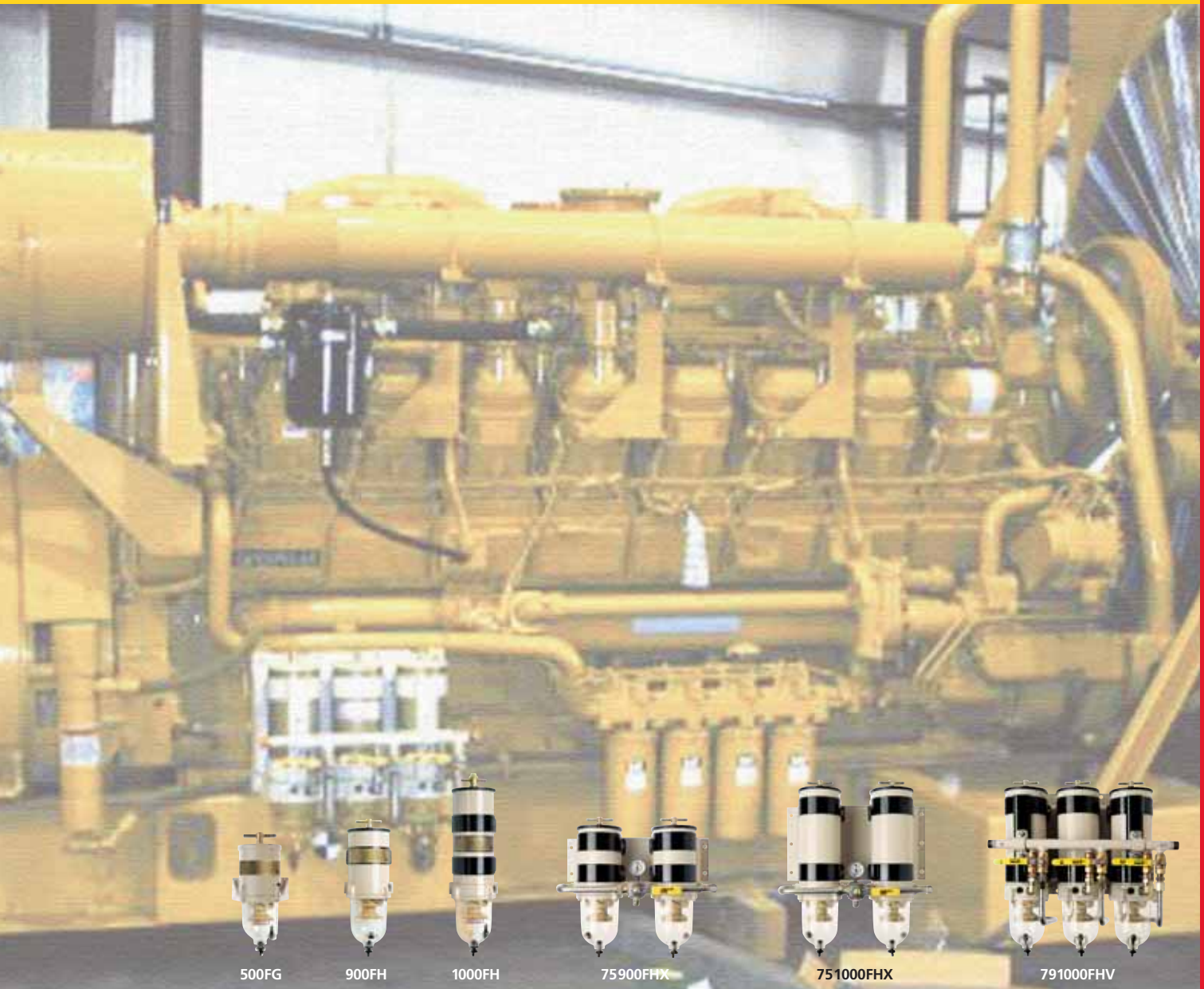
Aquabloc II media is a blend of high grade cellulose compounded with resins and a special chemical treatment.

Aquabloc II elements filter harmful tiny particles of dirt and algae from fuel. Aquabloc II elements are rustproof – with polymer end caps that won't ever corrode.

Use original Racor filter elements to ensure premium performance.

An integral bail handle makes changeouts easy.





MODEL	500FG	900FH	1000FH	75500FGX	75900FHX	731000FH	751000FHX	771000FH	791000FHV
Maximum Flow Rate	60 gph 227 lph	90 gph 341 lph	180 gph 681 lph	120 gph 454 lph	180 gph 681 lph	360 gph 1363 lph	180/360 gph 681/1363 lph	540 gph 2044 lph	360/540 gph 1363/2044 lph
Height	11.5" / 292 mm	17" / 432 mm	22" / 559 mm	11.5" / 292 mm	17" / 432 mm	22" / 559 mm	22" / 559 mm	22" / 559 mm	22" / 559 mm
Width	5.8" / 147 mm	6" / 152 mm	6" / 152 mm	14.5" / 368 mm	18.75" / 476 mm	16.5" / 419 mm	18.75" / 476 mm	21.5" / 546 mm	21.5" / 546 mm
Depth	4.8" / 122 mm	7" / 178 mm	7" / 178 mm	9.5" / 241 mm	11" / 279 mm	12" / 305 mm	11" / 279 mm	12" / 305 mm	12" / 305 mm
Weight	4 lbs / 1.7 kgs	6 lbs / 2.7 kgs	10 lbs / 4.5 kgs	17 lbs / 7.7 kgs	23 lbs / 10.4 kgs	26 lbs / 11.8 kgs	30 lbs / 13.6 kgs	39 lbs / 17.7 kgs	52 lbs / 23.6 kgs
Port Size Std. (Option)	3/4" -16 UNF 16 mm x 1.5	7/8" -14 UNF 22 mm x 1.5	7/8" -14 UNF 22 mm x 1.5	3/4" -16 UNF	7/8" -14 UNF ¹	3/4" NPT	7/8" -14 UNF ¹	1" -11 1/2 NPT	3/4" NPT
Clean Pressure Drop	0.25 psi 1.72 kPa	0.34 psi 2.4 kPa	0.49 psi 3.4 kPa	0.70 psi 4.83 kPa	1.7 psi 11.7 kPa	1.7 psi 11.7 kPa	3.7 psi 25.5 kPa	1.7 psi 11.7 kPa	2.5 psi 17.2 kPa
Maximum Operating Pres.	15 psi 103 kPa	15 psi 103 kPa	15 psi 103 kPa	15 psi 103 kPa	15 psi 103 kPa	15 psi 103 kPa	15 psi 103 kPa	15 psi 103 kPa	15 psi 103 kPa
Element #	2010	2040	2020	2010	2040	2020	2020	2020	2020
Element Removal Clearance	4" / 102 mm	5" / 127 mm	10" / 254 mm	4" / 102 mm	5" / 127 mm	10" / 254 mm	10" / 254 mm	10" / 254 mm	10" / 254 mm

Notes: (1) Male "JIC" 37" fittings.

(2) Flow rates shown for one/both filters on-line.

(3) Flow rates shown for two/all filters on-line.

For accurate fuel flow rates consult your engine manual, engine manufacturer's agent or Racor distributor.

Manifold Units:

- 75500, 75900 and 751000 double manifolds with shutoff valve.
- 731000 double manifold without shutoff valves.
- 791000 triple manifold with shutoff valves.
- 771000 triple manifold without shutoff valves.

For complete part numbers references please refer to www.racor.com and select 7480 product catalogue from the literature tab.

Today's Alternative Fuels

Today's alternative fuels – compressed natural gas, liquid natural gas and liquid propane gas – have the same problems that plague diesel and gasoline... contamination that collects during handling, water that condenses in tanks and compressors that leak oil into the fuel stream.



The precision components necessary for the efficient operation of an alternative fuel system demand superior filtration.

The solution – the industry's first and most complete line of alternative fuel filter/coalescers and prefilter/strainers. From pipeline to engine – Racor fuel filter/coalescer products provide the ultra-fine filtration required by alternative fuels.

Protecting the fuel injectors and components of an alternative fuel system is vital to efficient vehicle operation. Racor offers the most complete line of fuel filter/coalescers and prefilter/strainers for on-vehicle applications. These filters ensure removal of damaging aerosol contamination as small as 0.3 to 0.6 micron and exceed 95% efficiency, depending on the grade of element specified. Units are available in a range of pressure ratings and are constructed of aluminium, stainless steel or painted steel.

The fuel filter/coalescer elements are produced by a patented process of arranging microglass fibers into a tubular form. During operation, fuel is forced through the coalescing media from the inside of the cartridge through the tubular wall to the outside, where the large droplets fall to the bottom of the housing.

Oily water emulsion accumulates until drained while the dirt particles remain trapped on the surface of the fibres.

Prefilter/Strainers

Engineered and precisely manufactured to provide superior performance at operating pressures up to 500 psi, the compact, in-line prefilter/strainers are an essential first step in a complete filtration system.



Low Pressure Fuel Filter/Coalescers

Low pressure coalescers are ideal for operating environments up to 500 psi. All aerosol contaminants in the 0.3 to 0.6 micron range are filtered to an efficiency level that exceeds 95%.

High Pressure Fuel Filter/Coalescers

These patented coalescing filters are constructed to withstand operating pressures to 3600 psi. These coalescing filters

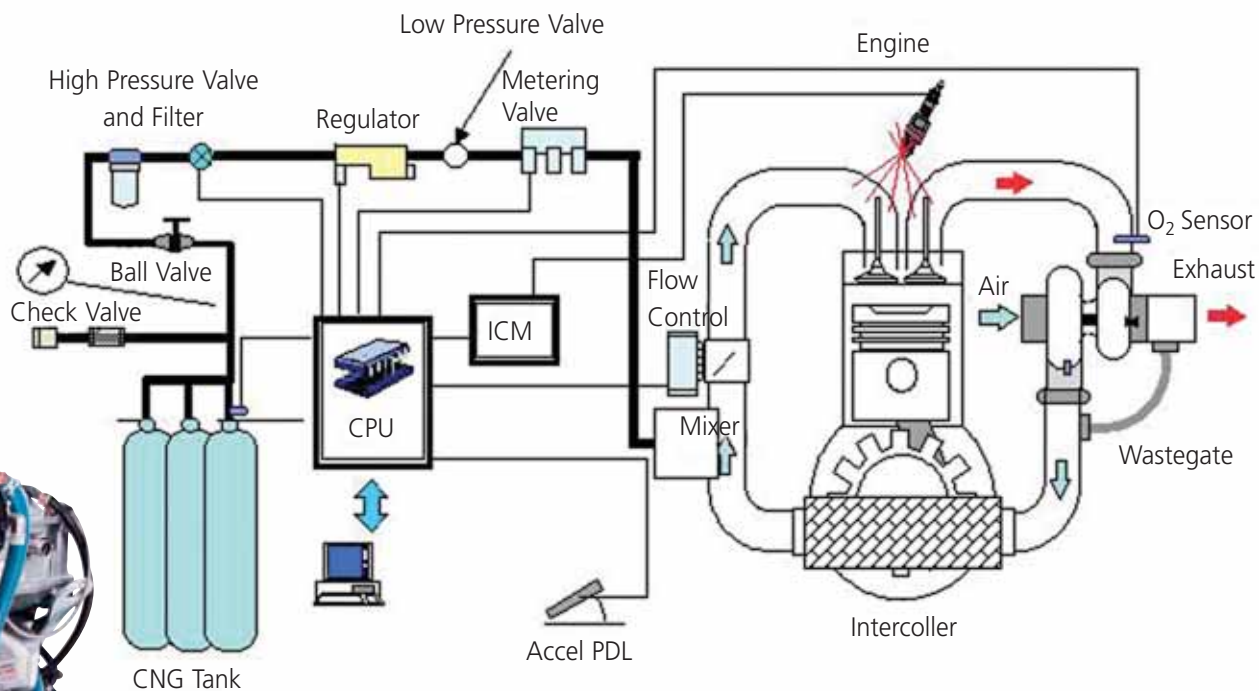
remove over 95% of aerosols in the 0.3 to 0.6 micron range.



Engineered Modules/System

The combination of high pressure filters, regulators, fittings and brackets into one module allows manufacturers to specify one part number.

Typical Compressed Natural Gas System



	LOW			MEDIUM	HIGH		
MODEL	FFC-119	FFC-110	FFC-110L	FFC-112 FFC-112-SAE	FFC-113	FFC-114	FFC-116
Type	Pre-filter/ Strainer	Coalescer	Coalescer	Coalescer	Coalescer	Coalescer	Coalescer
Port	5/8" Outlet 1/4" Inlet	1/4" NPT	1/2" NPT	1/4" NPT	1/2" NPT 9/16 SAE	1/2" NPT	1/4" NPT
PSI (Max.)	500 PSI	500 PSI	500 PSI	3600 PSI	3600 PSI	3600 PSI	3600 PSI
Rated Flow ⁵	25	25	50	15	50	50	8.4
Length (in / mm)	4.87" / 123.69 mm	7.16" / 181.86 mm	10.4" / 264.16 mm	4.75" / 120.65 mm	8.03" / 203.96 mm	6.98" / 177.29 mm	3.85" / 97.79 mm
Diameter (in / mm)	2.63" / 66.80 mm	3.13" / 79.50 mm	3.13" / 79.50 mm	2.25" / 57.15 mm	2.97" / 75.43 mm	2.97" / 75.43 mm	1.75" / 44.45 mm
CNG		•	•	•	•	•	•
LNG			• ²		• ³	• ³	
LPG	•	•	•				
Weight lbs. / kg	.5 lbs / .23 kg	1.5 lbs / .68 kg	1.8 lbs / .82 kg	1.5 lbs / 0.68 kg	5.5 lbs / 2.49 kg	5.25 lbs / 2.3 kg	1.75 lbs / .79 kg
Element Number	N/A	CLS110-10	CLS110-10L	CLS112-10	CLS113-6	CLS113-6	CLS116-10
Sump Capacity Oz.	N/A	5.0	7.0	0.5	5.0	3.0	0.25
Material	Painted Steel	Painted Steel	Painted Steel	Stainless Steel	Anodized Aluminum	Stainless Steel	Stainless Steel

Notes: (1) Use in conjunction with coalescer.
 (2) Low flow rate LNG applications.
 (3) Medium flow rate LNG applications. Bypass included.
 (4) High flow rate LNG applications. Bypass included.
 (5) SCFM at 100 PSIG.

FBO Filter Assembly

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

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

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

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



Standard Design Features

- Die-cast aluminium head
- Steel filter bowl assembly
- Powder coated components
- Locking ring collar, no clamps
- 1 1/2 " NPT Inlet and Outlet
- 10 bar @ 240° F max. design pressure
- Manual drain valve
- Manual vent valve

Options

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



Installations

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

Applications

- Jet fuel, aviation gas, diesel fuel, gasoline, kerosene, JP4, JP5 and JP8.

Performance Specifications

FBO-10	Maximum Flow Rates				Clean Dry	Change
	Flow Range	Diesel	Jet Fuel	Gasoline	Delta P	Delta P
Prefilter	5-40 gpm	20	40	50	**	20 PSID
Filter Sep	5-35 gpm	18	35	45	**	15 PSID
Absorber	5-25 gpm	18	35	45	**	30 PSID
FBO-14	Flow Range	Diesel	Jet Fuel	Gasoline	Delta P	Delta P
Prefilter	10-60 gpm	30	60	75	**	20 PSID
Filter Sep	10-50 gpm	25	50	65	**	15 PSID
Absorber	10-37gpm	26	55	70	**	30 PSID

** varies with fluid and flow rate



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

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

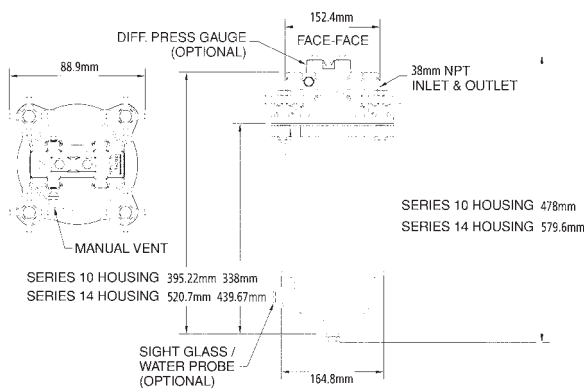
Silicon treated cellulose prefilters remove particle contaminants down to one micron.

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

Review the element chart on this page for field applications.

Element Applications

Application	Micron Rating	FBO-10 6 x 10 Element	FBO-14 6 x 14 Element
Filter Separator	1	FBO 60327	FBO 60336
	5	FBO 60328	FBO 60337
	10	FBO 60353	FBO 60356
	25	FBO 60329	FBO 60338
Prefilter	1	FBO 60330	FBO 60339
	5	FBO 60331	FBO 60340
	10	FBO 60356	FBO 60357
	25	FBO 60332	FBO 60341
Absorptive Filter	1	FBO 60333	FBO 60342
	5	FBO 60334	FBO 60343
	10	FBO 60355	FBO 60358
	25	FBO 60335	FBO 60344



RVFS Series

The Racor RVFS Series filter vessels offer an unparalleled high efficiency, versatile, economical and low maintenance solution to many fuel delivery and industrial filtration applications. The vessels will accept Micro-filter pre-filters, Coalsecer/Water Separator combinations, Monitor/Absorbers and clay treatment bags.

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



RVFS Maximum Flow Rates

	Flow rate with 37 SSU Diesel GPM/LPM			Flow rate with 32 SSU Aviation Fuel GPM/LPM			
	Coalescer	Prefilter	Monitor	Coalescer	Prefilter	Monitor	Clay
RVFS-1	25	66	29	50	66	58	N/A
RVFS-2	50	133	58	100	133	116	7/26.5
RVFS-3	75	200	87	150	200	174	14/53

Element Options

	Coalescer Element Prefix OCP					Separator Element Options			
	1 micron	2 micron	5 micron	10 micron	25 micron	5 micron	10 micron	25 micron	Teflon
RVFS-1	OCP-15854	OCP-15855	OCP-15858	OCP-15868	OCP-15878	SP-15404	SP-15405	SP-15407	ST-15401
RVFS-2	OCP-30854	OCP-30855	OCP-30858	OCP-30868	OCP-30878	SP-30404	SP-30405	SP-30407	ST-30401
RVFS-3	OCP-44854	OCP-44855	OCP-44858	OCP-44868	OCP-44878	SP-44404	SP-44405	SP-44407	ST-44401

micron rating	Water Absorbing FW Elements				Clay Canister
	1	5	10	25	
RVFS-1*	FW-61401	FW-61405	FW-61410	FW-61425	FCC-18701
RVFS-2*	FW-61401	FW-61405	FW-61410	FW-61425	FCC-18701
RVFS-3*	FW-61401	FW-61405	FW-61410	FW-61425	FCC-18701

*Note RVFS 1 takes one element, RVFS 2 takes 2 takes 2 elements, RVFS 3 takes 3 elements.

	FP Silicon Treated Pleated Pre-filters					
	0.5 micron	1 micron	2 micron	5 micron	10 micron	25 micron
RVFS-1	FP-14601-1/2	FP-14601	FP-14602	FP-14604	FP-14605	FP-14607
RVFS-2	FP-30601-1/2	FP-30601	FP-30602	FP-30604	FP-30605	FP-30607
RVFS-3	FP-44601-1/2	FP-44601	FP-44602	FP-44604	FP-44605	FP-44607

Recommended options for diesel fuel applications. Consult Racor for other fluids.

Vessel Dimensions inches			Dry Weight	Overhead space requirements
height	width	depth		
39	13.75	13.5	46 kg	16
51	13.75	13.5	52 kg	32
65	13.75	13.5	59 kg	47

Optional Accessories

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

Applications

- Jet A, Jet A1
- JP4, JP5, JP8
- Diesel Fuel
- Kerosene
- Gasoline



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

RVFS Element Options

Features

- Carbon steel construction, other materials available
- 17 23 ASME code Section VIII construction, stamped and certified. CE certified vessels available.
- Zinc plated swing bolt closure.
- Buna-N o-ring cover seal
- Buna-N o-ring cover seal
- Interior epoxy coated MIL C4556E, exterior primer coated (carbon steel versions only)

Connections

- Inlet and Outlet: 2 inch NPT
- Main Drain and Liquid Level Ports: 1/2 inch NPT
- Vent and Pressure Relief Connection: 3/4 inch NPT
- Differential Pressure Gauge/ Sample Ports: 1/8 inch NPT



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.

FS Element Installation



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

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

The RVFS-1, 2 3 housing series is compatible with all 6-7"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 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 elements in multiple lengths of 14 inches.

Clay Canister Installation



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

FMI Monitor Installation



This pictorial shows the mounting of Parker's FMI IP qualified monitor/filter series. These elements will absorb free water from fuels to less than 15 ppm and offer 97.4% + filtration efficiency and are qualified to 1 micron.

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

*When ordering a RVFS for FP, FS or FW installation, 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.

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

Closed Crank Case Ventilation Systems



The problem – open and unfiltered engine crankcase breathers, allow oil and soot laden aerosol mist to enter the atmosphere from the crankcase.

Environmental concerns and EPA and European legislation bans the emission of open and untreated crankcase gases into the atmosphere. To reduce total engine emissions, it is becoming necessary to close the crankcase breather system, by routing these gases back into the air intake system.

Crankcase blowby is produced when combustion gases under high pressure are blown past the piston rings into the crankcase. As these blow by gases pass through the crankcase, they become contaminated with oil mist. Racor's crankcase ventilation system removes these contaminations. The exhaust can then be allowed to be vented in the atmosphere.

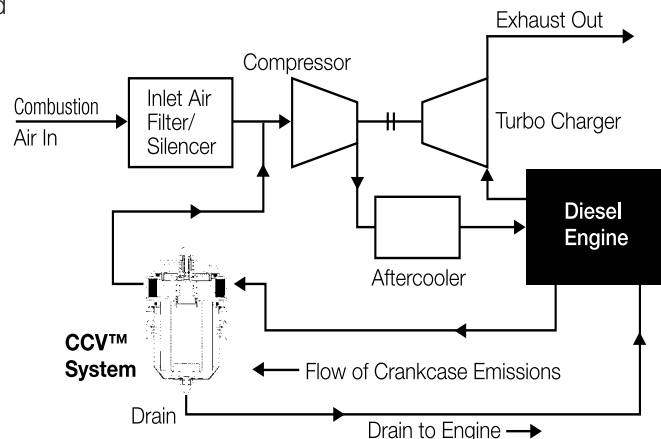
For applications requiring more stringent emissions requirements, a closed crankcase filter is recommended. In this application, the exhaust from the crankcase filter is routed to the inlet side of the turbo. A regulator in the crankcase filter controls the vacuum in the crankcase to ensure proper operation.

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

High efficiency oil separation to 0.3µ (microns)

Durable glass-filled nylon components

Maximum continuous operating temperature, -40°F to +240°F (-40°C to 116°C)

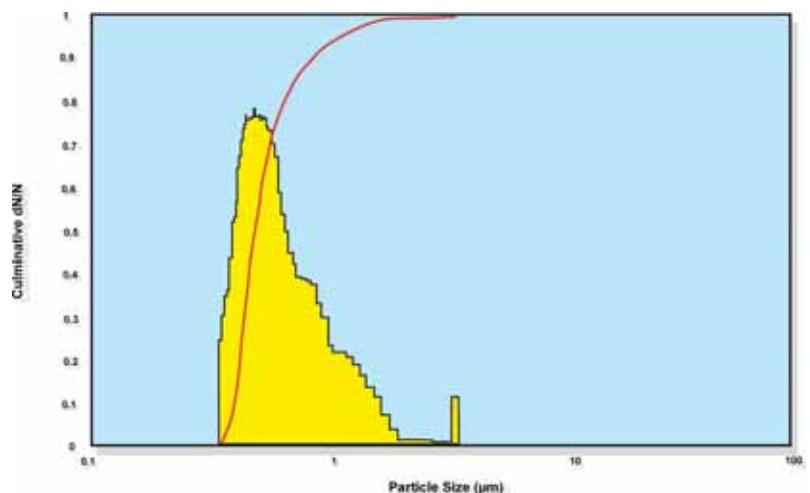


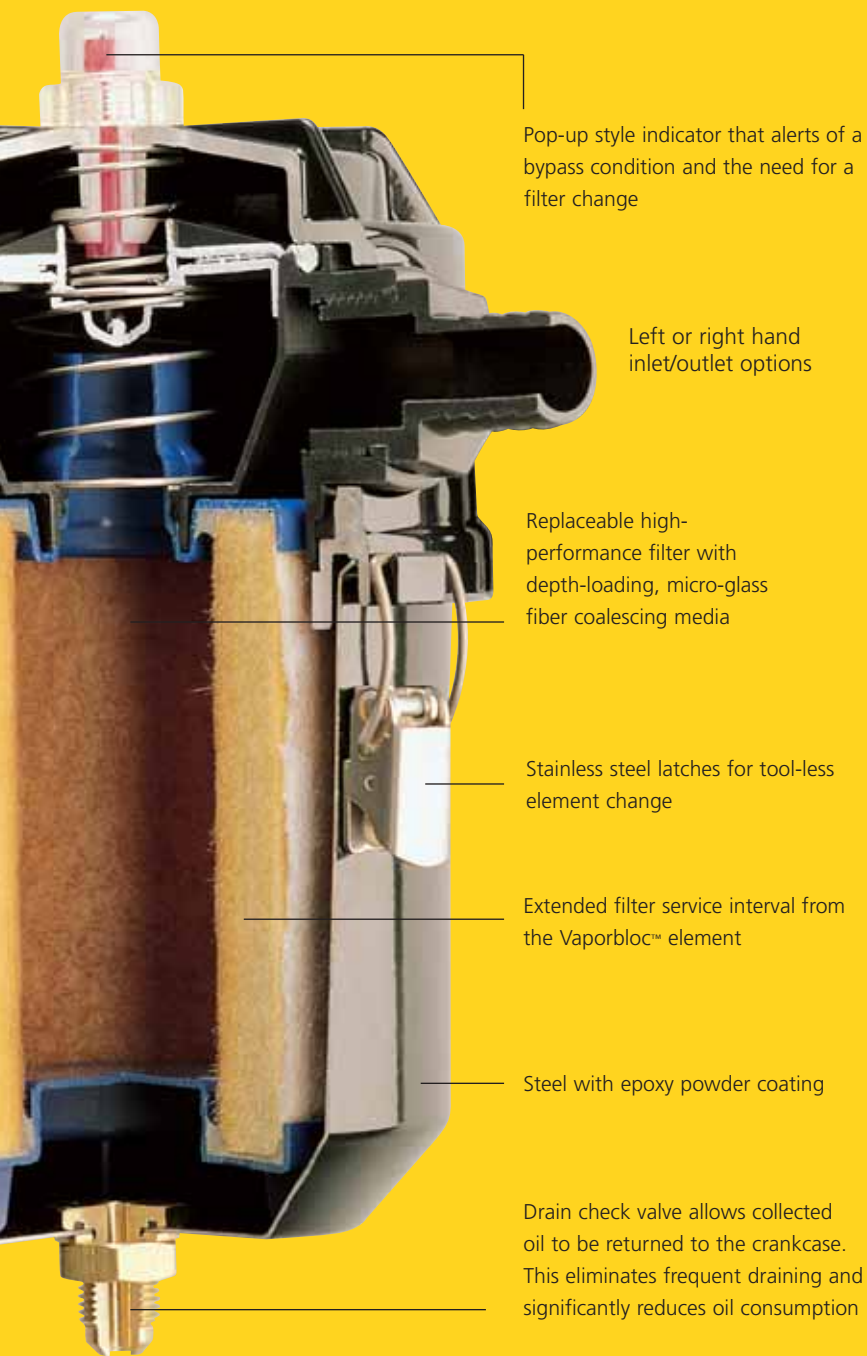
Separator Performance Data

Measurement of blow-by aerosol size distribution shows that over 90% of oil particles can be > 1 micron in diameter. Typically a significant peak occurs in particle sizes between 0.4 and 0.5 microns (as shown opposite).

While some other CCV systems can offer reasonable efficiency above 1 micron, depth filtering media gives excellent sub micron performance, while still maintaining a very low pressure differential across the entire engine speed and load range.

Typical Engine Blow-by Oil Particle Size Distribution

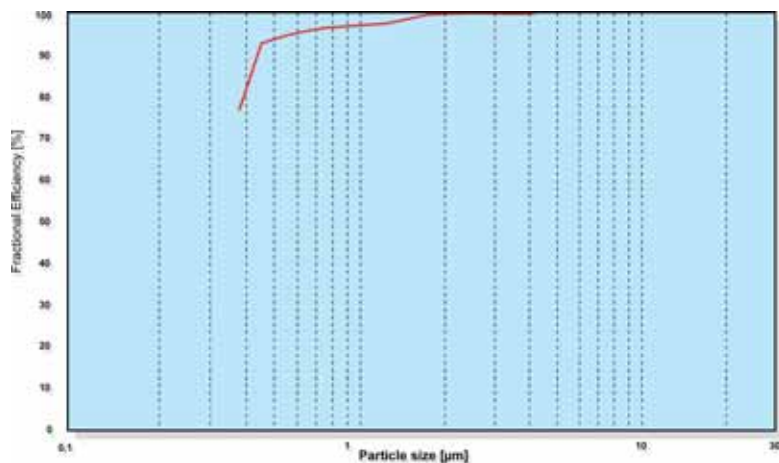




Cummins QSM11 marine engine with CCV cutaway

- In closed environments like generator set and marine engine rooms, damage to surrounding equipment such as radiators and electronic control panels can cause hazardous conditions, down time and expensive maintenance.
- Oil mist will coat and contaminate the aftercooler and other engine components. This coating reduces engine cooling capacity, causes a degradation of engine performance and reliability over time, and shortens the useful service life of the engine components.
- The engine intake inhales contaminated gasses, clogging air filter systems and damaging turbo-charger components. It is imperative that oil mist be removed from the crankcase emissions prior to introduction into the engine air intake in closed breather systems.

Racor CCV Media Fractional Efficiency Curve



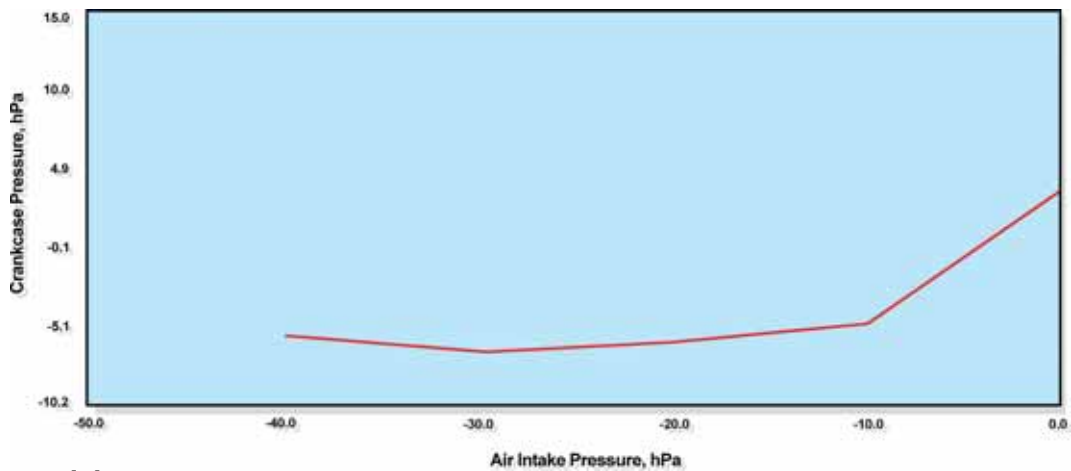
Caterpillar 3196 marine engine with Racor CCV/AF System



Advanced Crankcase Pressure Regulation

Racor CCV s employ a unique patented upstream pressure regulation system, which is the only way to maintain consistent crankcase pressures across the full engine speed/load range and throughout the filter element service life. Competitive products are forced to use vacuum limiter forms of regulation which allow varying crankcase pressures at different engine speeds and are unable to regulate for increasing filter element differential during the service period.

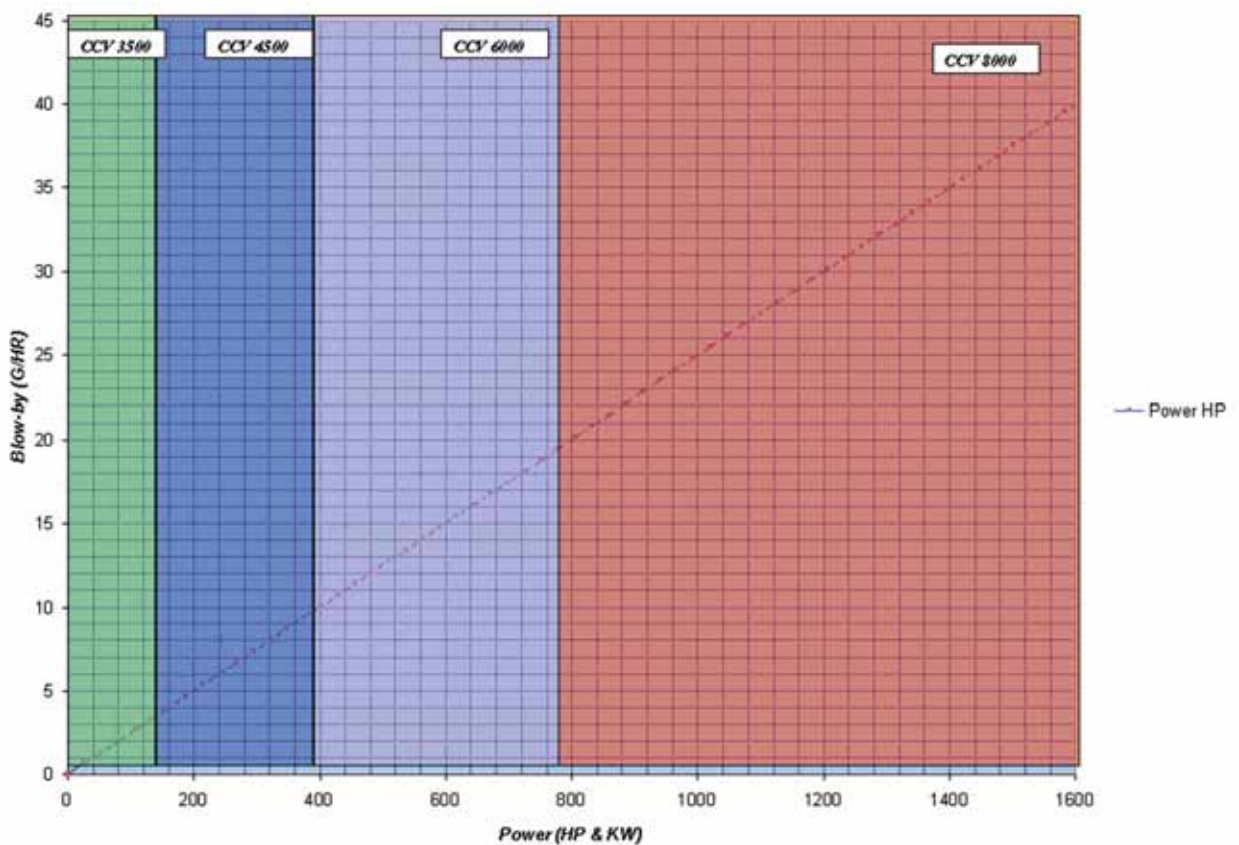
Racor Patented CCV Crankcase Regulation



Racor CCV Sizing

CCV systems should be specified using engine blow-by flow, based on engine manufacturer’s data. If this information is not available then the size of CCV required can be estimated using the CCV Sizing Chart, based on engine power output. This chart will help you to easily select a CCV, which will allow for a typical filter element service period of 750 hours for engines falling on or below the Power/Oil carry-over line. If your application has a higher oil carry over than usual, and lies above the line then you can expect the service life to be shortened accordingly, you may consider moving to the next CCV size up. Furthermore, for larger applications it is possible to use multiple CCVs , for convenience the CCVs can be specified with Right or Left hand inlet (Suffix R or L).

CCV Sizing Chart



Closed Crank Case Ventilation Systems



	CCV1500	CCV3500	CCV4500	CCV6000	CCV8000
Height	5.1" / 130 mm	7.0" / 178 mm	9.25" / 235.0 mm	12.00" / 304.8 mm	13.88" / 352.6 mm
Maximum Opening Width (incl. clamps & bracket)	8.2" / 208 mm	7.0" / 178 mm	7.50" / 190.5 mm	11.25" / 286.8 mm	13.25" / 336.6 mm
Depth	5.6" / 142 mm	6.3" / 160 mm	5.60" / 142.2 mm	7.30" / 185.4 mm	9.30" / 236.2 mm
Weight	1.5 lbs / .68 kg	2.3 lbs / 1.0 kg	3.26 lbs / 1.48 kg	5.01 lbs / 2.28 kg	8.72 lbs / 3.96 kg
Filter Removal Clearance	6.0" / 152 mm	4.6" / 117 mm	2.25" / 57.2 mm	4.00" / 101.6 mm	5.00" / 127.0 mm
Replacement Element / Media Density/Low	CCV 55365-04	N/A	N/A	N/A	N/A
Replacement Element / Media Density/Medium	N/A	CCV 55304-06	CCV 55248-06	CCV 55274-06	CCV 55222-06
Replacement Element / Media Density/High	N/A	CCV 55304-08	CCV 55248-08	CCV 55274-08	CCV 55222-08
Housing Material	Glass-filled nylon and black powder epoxy coated steel bracket.	Glass-filled nylon components.	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.
Inlet & Outlet Thread Size	3/4" hose	3/4" hose	1 3/16" - 12 STOR	1 5/8" - 12 STOR	1 7/8" - 12 STOR
Max. Cubic Feet per Minute	1" cfm / 30 lpm	3.0" cfm / 84 lpm	10 cfm / 283 lpm	20 cfm / 566 lpm	40 cfm / 1132 lpm
Crankcase Pressure Regulator	Vacuum limiting valve	Integral	Integral	Integral	Integral
Bypass/Change Indicator	N/A	Integral	Integral or Remote	Integral or Remote	Integral or Remote
Engine Block Check Valve Return Fitting	N/A	1/4" NPT	1/4" NPT	1/4" NPT	3/8" NPT
Swivel Fitting (Qty.)	N/A	# 6 JIC (2pcs.)	# 6 JIC (2pcs.)	# 6 JIC (2pcs.)	# 8 JIC (2pcs.)
Oil drain hose I.D.	N/A	.375"	.375"	.375"	.5"

Additional details are available in technical manual #55021. * Units can be manifolded to handle higher flow rates.

Crankvent CV820 and CV1000 Systems trap crankcase blow-by and recycle engine oil through a high performance, open-cell foam filter. They help to decrease costs for maintaining air filters and keeping engine rooms clean. These units are typically used as an "open" system for non-turbocharged engines.



Model No.	CV820	CV1000 ²
Diameter	6.00" / 152 mm	8.14" / 207 mm
Height	7.55" / 192 mm	8.48" / 215 mm
Weight	2.0 lbs. / 0.9 kg	3.0 lbs. / 1.4 kg
Filter Removal Clearance	4.00" / 102 mm	4.00" / 102 mm
Housing Material	Anodized aluminum All 18-8 stainless hardware	Anodized aluminum All 18-8 stainless hardware
Inlet Size	1" Female NPT	1-1/4" Female NPT
Outlet Size	1" Female NPT	1-1/4" Female NPT
Horsepower Range	Up to 350 HP (75–260 KW)	350–600 HP (260–450 KW) ¹
Max. Cubic Feet per Minute	10 cfm / 283 lpm	15 cfm / 425 lpm
Service Kit	CV 820 SK	CV 1000 SK

For use on naturally aspirated engines.
 (1) Use of two or more filters per engine allows higher flow.
 (2) The Crankvent® CV1000 must be used in two cycle engines with air box drain applications. Additional details are available, please consult Racor.

Open System Crankcase Filtration



High efficiency, high capacity open cell foam filter

A unique baffle design disperses gases throughout the full length of the media – improving efficiency and release of oil into the reservoir – maintaining a low pressure drop throughout an extended filter life

Reduces NOx and hydrocarbon emissions by lowering combustion temperatures (closed systems only)

Specially- compounded, long-lasting seals

Integral drain/check valve allows for periodic disposal of collected oil. For maintenance-free operation, valve can be plumbed directly to the oil pan

Oil reservoir collects filtered contaminants



We've Bottled Racor Protective

Racor Additives are performance-enhancing products for all climates and seasons. There are several convenient sizes, including 1 and 2.5 gallon bottles and also a 16 oz. bottle that makes measuring quick and easy.

The high concentration of active ingredients in Racor additives allows for higher treatment rates. All Racor Fuel Additives are alcohol-free.

Diesel Biocide

Racor Diesel Biocide is a multifunctional petroleum distillate fuel additive. It is used to help maintain color stability and clarity; control bacteria, fungi, organic reaction and sludge formation; inhibit corrosion; and disperse existent sludge.

EPA Est. No. 072342-CA-001. EPA Reg. No. 1448-172-47099.

- Kills faster and longer and more forms of algae and bacteria than other brands
- Kills both aerobic and anaerobic fungi
- Concentrated, extended time formula
- EPA approved as both a biocide and aftermarket fuel additive
- Prevents internal corrosion from microbial fouling
- Provides superior mixing with fuel at all temperatures
- Fuel and water soluble
- Does not cause foaming



Diesel Performance Plus+

Racor Diesel Performance Plus+ has the same engine protection qualities of Racor Diesel Conditioner Plus+ and it has five times the Cetane improver to deliver optimal engine performance. The added performance comes with improved lubricity and is alcohol-free for better fuel system component protection.

All the features of Racor Conditioner Plus+ and:

- Five times the Cetane improver for faster starts and improved performance
- Lubricity improver passes HFRR Lubricity Test for diesel fuel per ASTM D6079-99
- Stabilizes fuel and prevents corrosion per ASTM D665A
- Four times the detergent additive for a clean fuel system



Gasoline Conditioner Plus+

Racor Gasoline Conditioner Plus+ is a diluted multifunctional gasoline additive which cleans as it protects. Racor Gasoline Conditioner Plus+ is designed for secondary treatment applications. It can be used with all types of internal combustion systems and gasoline blends. By cleaning the engine's fuel injectors and carburetor, it provides better combustion, better fuel economy and lower exhaust emissions.

- Protects intake system against corrosion
- Prevents accumulation of deposits
- Improves efficiency of fuel filter/water separators through demulsification
- Will not harm lube oil or catalytic converters
- Stabilizes quality of stored gasoline



Lube Oil Treatment

Racor Lube Oil Treatment is a fluorocarbon oil additive which contains an advanced, highly effective polymer lubricant. It provides a superior thin coating to protect precision engine parts, and does not contain PTFE or Teflon®, which have been known to fall from suspension and clog precision engine components. It may be used with diesel and gasoline engines and is compatible with all motor oils including synthetics.

- Reduces noise and heat in diesel and gasoline engines
- Anti-corrosion formula
- Increases mileage, engine life and performance
- Reduces friction on cold start-up
- Prevents premature wear on piston rings and cylinder walls, reducing harmful exhaust emissions





A convenient spout extension is available for quick, clean service. The spout fits 16oz. bottles only. Order part no. RK 21644.

Diesel Winter Plus+

Racor Diesel Winter Plus+ is added to middle petroleum distillates such as No. 2 heating oil or diesel fuel to improve their low temperature operability as measured by pour pint and cold filter plugging point. Racor Diesel Winter Plus+ prevents the plugging of lines, filter screens and valves and allows the fuel to flow freely down to -32° F (-32° C). Diesel Winter Plus+ contains a de-icer, which can help reduce line freezing.

- Improves fuel flow and facilitates cold weather starting
- Improves efficiency of fuel filter/water separators through demulsification
- Contains a cetane improver and de-icer
- Smoother, quieter engine operation
- Prevents corrosion
- Stabilizes fuel quality during prolonged storage



Diesel Conditioner Plus+

Racor Diesel Conditioner Plus+ is a multi-functional diesel fuel additive for all-season use. Its formulation contains a cetane improver which enhances power delivery, starting, and helps engines run smoother and quieter. Racor Diesel Conditioner Plus+ passes the Cunnins L10 superior rating for detergency as demonstrated in low and high sulfur fuel. Can be used in conjunction with Racor Biocide or Winter Plus.

- Contains lubricity additives to reduce friction; prevents wear and tear, extending engine life
- Dissolves gums and varnishes; keeps the injection system clean
- A clean fuel system provides improved fuel economy and lower emissions
- Reduces injector coking
- Reduces sediment formation which can result in reduced maintenance
- Reduces corrosion and rust formation in tanks and lines
- Improves efficiency of fuel filter/water separators through demulsification
- Contains a cetane improver
- Eases starting, increases power
- Passes the scuffing BOCLE test for lubricity
- Stabilizes fuel quality during prolonged storage
- Alcohol free



Coolant Treatment

Racor Coolant Treatment is a combustion corrosion inhibitor and iron oxide/scale dispersant. It's unique formulation protects all types of metals, including aluminum, in diesel and gasoline engine cooling systems.

- Stabilizes engine coolants helping prevent the formation of abrasive gel-like deposits
- Neutralizes hard water salts
- Contains an inhibitor to help protect all metals in the engine cooling system from corrosive attack
- Maintains heat transfer in closed cooling systems
- Helps prevent overheating
- Disperses silica deposits
- Contains an anti-foam agent



Part No.	Description	Size	gallons	Treats	litres
ADT 1116	Diesel Cond. Plus	16 ounces	320		1,210
ADT 1201	Diesel Cond. Plus	1 gallon	2,560		9,700
ADT 1325	Diesel Cond. Plus	2.5 gallons	6,400		24,200
ADT 1555	Diesel Cond. Plus	55 gallon drum	140,800		533,000
ADT 2116	Diesel Biocide	16 ounces	1,280		4,850
ADT 2201	Diesel Biocide	1 gallon	10,240		38,770
ADT 2325	Diesel Biocide	5 gallons	51,200		193,800
ADT 2555	Diesel Biocide	55 gallon drum	563,200		2,132,000
ADT 4116	Diesel Winter Plus	16 ounces	128		485
ADT 4201	Diesel Winter Plus	1 gallon	1,024		3880
ADT 4325	Diesel Winter Plus	2.5 gallons	2,560		9,700
ADT 4325	Diesel Winter Plus	55 gallon drum	56,320		213,200
ADT 5116	Gasoline Cond. Plus	16 ounces	320		1,210
ADT 5325	Gasoline Cond. Plus	2.5 gallons	6,400		24,200
ADT 5555	Gasoline Cond. Plus	55 gallon drum	140,800		533,000
ADT 7116	Lube Oil Treatment	16 ounces	2		7
ADT 7201	Lube Oil Treatment	1 gallon	16		61
ADT 7555	Lube Oil Treatment	55 gallon drum	880		3330
ADT 8116	Coolant Treatment	16 ounces	8		30
ADT 8021	Coolant Treatment	1 gallon	64		242

Accessories

Water Probe Kits

Racor offers a wide selection of water probes, each designed for use with particular models and installation requirements. These probes are available in various configurations to fit every Racor filter/separator. The water probe is only a component in the water detection system and will not work without a Racor electronic detection module (see next two pages). The RK30880 has the electronic detection module built-in to its design and has the simplest installation procedure. Multiplex units must use one probe for each collection bowl but only one water detection module is needed.



Specifications	RK 21069	RK 30964	RK 22371	RK 30880
Threads	1/2"-20 Threads	1/2"-20 Threads 9 /16	9/16"-18 Threads	1/2"-20 Threads
Description	One piece design with two wires. Requires a detection module.	Includes detachable 2-wire connector. Requires a detection module.	Includes detachable 2-wire connector. Requires a detection module.	Active probe, 3-wire connector, no detection module.
Voltage	12 or 24 vdc	12 or 24 vdc	12 or 24 vdc	12 or 24 vdc
Power Draw: (12 volt) (24 volt)	N/A	N/A	N/A	5 Milliamps 10 Milliamps
Maximum Load	N/A	N/A	N/A	1 Amp
Weight	0.03 lb (0.01 kg)	0.02 lb (0.01 kg)	0.1 lb (0.05 kg)	0.4 lb (0.2 kg)

Caution: Never wire a water probe directly to voltage or another brand of detection module.

T-handle Vacuum Gauge

T-handle vacuum gauges are available to monitor element condition and as the filter element slowly becomes clogged with contaminates 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 (at the outlet side of the Racor filter) visual monitoring of element condition is possible at a glance. At the first indication of decreased performance, note the dial reading or apply the 'red line' decal provided with most kits. This will assist in knowing when to change the filter at the next interval. T-handle Vacuum Gauge



Specifications	RK11-11969	RK11-11669
Description	500FG units only. T-handle vacuum gauge kit includes gauge & fitting with 9/16"-18 UNF threads. See below.	For 900FH &1000FH units only. T-handle vacuum gauge kit includes gauge & fitting with 9/16"-18 UNF threads. See below.
Threads	1/4" NPT bottom boss mount.	1/4" NPT bottom boss mount.
Dimensions	2.0" W x 1.1" D	2.0" W x 1.1" D
Dial	2 in.	2 in.
Weight	0.3 lb (0.1 kg)	0.3 lb (0.1 kg)

Special Notes: For severe vibration applications, mount the gauge on a stable, remote location and connect to the source using flexible tubing. After September 1999, Racor converted many liquid-filled gauges to new silicone dampened movement. This new (dry) technology provides a vibration resistant design that never leaks fluid or requires adjustments due to temperature or altitude variations.

Accessories

Water Detection Modules

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 electric 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).



Specifications	RK 20726	RK 11-11570	RK 20725	RK 20725-24
Voltage	12 or 24 vdc	12 or 24 vdc	12 vdc	24 vdc
Features	Light & Buzzer	Light & Buzzer	Light Only	Light Only
Description	Red DRAIN lamp illuminates continuously and buzzer sounds momentarily when water is detected. Power-up self diagnosis feature and circuit protection included.	Includes pre-set vacuum switch (7in.Hg.), connector and outlet adapter fitting. The red DRAIN or CHANGE FILTER lamps illuminate continuously and buzzer sounds momentarily when water is detected.	Green ON lamp illuminates with power and red DRAIN lamp illuminates when water is detected. Includes initial power-up self diagnosis feature & circuit protection.	Same as RK20725
Dimensions ¹	2.2" Diameter x 3.2" Depth	2.2" Diameter x 2.0" Depth	1.0 " H x 1.5"D x 2.0" W	1.0 " H x 1.5"D x 2.0" W
Power Draw: (12 volt) (24 volt)	3 Milliamps 13 Milliamps	3 Milliamps 14 Milliamps	10 Milliamps	10 Milliamps
Max. Internal Load	30 Milliamps	30 Milliamps	30 Milliamps	30 Milliamps
Weight	0.4 lb (0.2 kg)	0.9 lb (0.4 kg)	0.4 lb (0.2 kg)	0.4 lb (0.2 kg)

¹Cut 2.0" diameter hole to mount gauges in instrument panel.

RK22628 Bowl Wrench

Racor offers a hand wrench to remove all metal and see-through spin-on bowls that feature external ribs. By simply fitting the wrench over the bowl ribs, the bowl can be removed from the replaceable spin-on element, or filter housing with little effort. The wrench is made of a corrosion proof, high-impact, high-strength engineered polymer. One bowl wrench per kit.

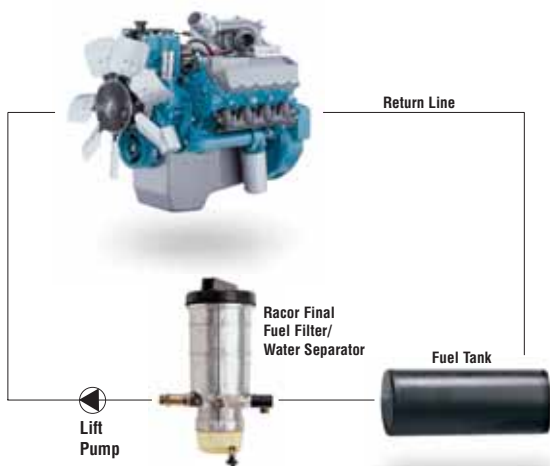
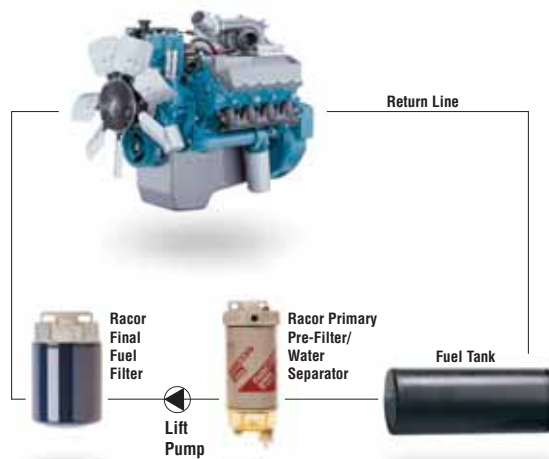


Typical Filter / Separator Options



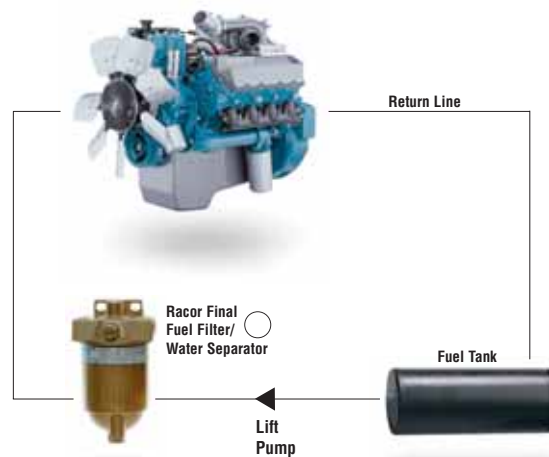
Primary (Pre-) Fuel/Water Separator For Vacuum Applications And Final Fuel For Pressure Applications

Fuel is drawn out of the fuel reservoir by the lift pump into and out of the pre-fuel filter/water separator. The fuel is pre-filtered through a 10 to 30 micron rated filter which also removes harmful water, thereby protecting the lift pump and injection system. The lift pump pressurizes the pre-filtered fuel into the final filter. Fuel is then filtered by a 1 to 7 micron rated filter, ensuring purified fuel is delivered. The combination filtration system design provides superior protection for heavy-duty applications where high levels of contamination and high volumes of fuel require a high filter capacity. Fuel conditioning options (drain, water sensor, hand primer pump, heater, etc.) are usually installed in the primary assembly.



Secondary (Final) Fuel Filter/Water Separators For Vacuum Applications

This design integrates the primary fuel filter/water separator and final fuel filter into one system that is installed prior to the lift pump. The single assembly provides total filtration (1 to 7 microns) and water separation for the entire fuel system. This filtration system design provides excellent protection for applications where cost and service constraints are a challenge. Sufficient space for an adequate size combination unit must be available.



Secondary (Final) Fuel Filter/Water Separators For Pressure Applications

This design integrates the primary fuel filter/water separator and final fuel filter into one compact system that is installed after the lift pump. Generally, an in-fuel reservoir filter screen (100 to 200 micron) is utilized to complete the filtration system. The final fuel filter/water separator is installed after the lift pump and provides protection (1 to 7 microns) to the high pressure injection system. This filtration system design provides economical fuel injection system protection for small diesel engines, automotive and light-truck applications that already have generally good fuel quality and a relatively low volume of fuel usage.

Hydraulic



Parker Filtration's global reputation as a reliable supplier of superior hydraulic and lubrication filtration products, fluid power products and fluid condition monitoring equipment, is the result of a focused and integrated development and manufacturing system. A range of products that cover many markets and most applications.

Marine



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

Hydrocarbon



Hydrocarbon filter vessels and elements represent an important and fast developing part of the Parker Racor range. Installation applications include aviation fuel trucks, diesel fuel dispensing systems; marine fuel docks, bulk fuel storage and garage pump dispensing systems. Racor quality elements offer customers finer filtration, cleaner, drier hydrocarbon products and extended element change intervals.

Engine Air Filtration Systems



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

Parker Hannifin Corporation

Aerospace Group

A leader in the development, design, manufacture and service of control systems and components for aerospace and related high technology markets, achieving profitable growth through premier customer service.



Climate & Industrial Controls Group

Designs, manufactures and markets system control and fluid handling components and systems to refrigeration, air conditioning and industrial customers worldwide.



Fluid Connectors Group

Designs, manufactures and markets rigid and flexible connectors and associated products used in pneumatic and fluid systems.



Instrumentation Group

A global leader in the design, manufacture and distribution of high quality critical flow components for worldwide process instrumentation, ultra high purity, medical and analytical applications.



Automation Group

A leading supplier of pneumatic and electro mechanical components and systems to automation customers worldwide.



Filtration Group

Designs, manufactures and markets quality filtration and clarification products, providing customers with the best value, quality, technical support and global availability.



Hydraulics Group

Designs, produces and markets a full spectrum of hydraulic components and systems to builders and users of industrial and mobile machinery and equipment.



Seal Group

Designs, manufactures and distributes industrial and commercial sealing devices and related products by providing superior quality and total customer satisfaction.

The name to trust in fuel filtration

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