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FIRST LINE OF DEFENSE

Racor's GreenMAX integrated fuel filter/water separator designed to keep fuel systems flowing through cold conditions

BY CHAD ELMORE

The GreenMAX integrated fuel filter/water separator from the Racor Div. of Parker Hannifin Corp. is engineered to protect the life of engine-mounted high-efficiency fuel filters, thereby improving the performance of the entire fuel delivery system.

GreenMAX was originally developed at the request of a major over-the-road truck manufacturer, the company said. "Racor works in cooperation with engine and equipment manufacturers to develop solutions," said Dan Walters, Global Marketing & Sales manager, Racor, Modesto, Calif. "We have a sizable team of R&D engineers passionate about solving filtration challenges. In many cases we already have the technology and can match it to the needs of the customer.

"The filter is an integral part of a diesel engine's fuel management system, and our specialty is the filtration system, and that means understanding how diesel fuel flows in the system and how it reacts to certain types of media."

The standard cartridge fuel filter/water separator uses the company's progressive Aquabloc media for a rated flow rate of 150 gph. It has two inlet/outlet ports and is available in ratings of 2, 10 and 30 microns. A water-in-fuel sensor is standard and its high-capacity clear bowl permits instant visual fuel quality checks while a self-venting drain allows for clean fuel and water draining, said the company. The filter is approved for biodiesel fuel up to B20.

"The lead customer on this project is currently using their own unique version of GreenMAX, and now we also have global OEMs that are very interested in the product," said Bradley Harbur, R&D engineer at Racor. "We are marketing it for use

anywhere customers have 9 to 13 L engines. It is also an aftermarket product line for Racor."

An optional 12 or 24 V in-head fuel heater aids with cold starts, while an integrated hot engine return fuel recirculation valve takes the free heat from the engine return fuel and mixes it with incoming cold diesel to permit continuous fuel flow while the equipment is in operation. The electric heaters help get the equipment started and the fuel recirculation heater keep it running, Racor said.

GreenMAX has a filter valve mechanism that holds fuel system prime and prevents clean-side contamination when servicing, the company said, and includes a piston-style hand priming pump for easy maintenance.

The product can also be ordered with Racor's depth coalescing media (DCM), which is required when the filtration system is positioned on the pressure side of an electric fuel pump or downstream of any other device or additive that emulsifies water.

"Parker Racor has had coalescing filters in its lineup," Racor Division Engineering Manager Chris Van Lewen said. "In the early days, however, the industry wasn't really ready for it.

"Today with the new emissions systems and tighter tolerances for fuel pumps and injectors, it is time. The biodiesel content and certain additives in diesel fuel make it more difficult to separate the small emulsified water droplets out of the fuel. In applications where traditional solutions are no longer adequate for removing water, customers are now asking for DCM."

In traditional barrier filter media, fuel is permitted to pass through the media while the contaminants and water are blocked on the outside of the filter. The surface treatment of the filter media



The new GreenMAX fuel filter/water separator from Racor uses warm, unused fuel as it returns to the tank for on-demand heat transfer in cold-weather operations. This feature melts the wax and paraffin that can separate from diesel fuel at cold temperatures and can restrict fuel flow through the filters, the company said.

causes the water to bead up and the droplets fall away as they get larger.

A DCM is designed to remove micron-sized drops of emulsified water. Instead of beading up on the outside of the filter, the DCM allows them to pass through where they are combined with millions of other tiny drops that then fall out on the downstream side.

"We use the depth of the media itself to make the drops big enough that when they exit, they fall out of the fuel flow," Van Lewen said.

GreenMAX is engineered for return on investment, Racor said. Because of its modular design, the integrated fuel filter/water separator can meet the customer's engine and equipment requirements, the company said. **dp**

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<http://parker-racor.com/greenmax>