



Alfdex has developed a new smaller version of its Alfdex oil mist separator. The new units target diesel engines from 5.0 to 8.0 L used in a wide range of applications including trucks, buses, off-highway equipment, generator sets and marine engine systems. The new unit is nearly half the size of the existing Alfdex unit that has been a mainstay on many engines between 9.0 and 16 L.

MORE COMPACT CRANKCASE CLEANING

Alfdex develops smaller version of its oil mist separator system targeting medium-duty engines

BY BO SVENSSON

Swedish filtration specialist Alfdex has developed a smaller version of its oil mist separator designed to clean the crankcase gases in diesel engines. The new Alfdex separator is engineered to meet the requirements of medium-duty engines with displacements of 5.0 to 8.0 L.

Like their larger predecessors designed for 9.0 to 16 L diesels, the new smaller units can be used in a broad range of engine applications, including trucks, buses, generator sets, off-highway equipment and marine applications.

A number of major truck manufacturers in North America and Europe are using Alfdex separators and the

company said it delivers several hundred thousand units each year to help meet Euro 6, EPA 13, Tier 4 final and Stage 4 emissions regulations.

"Alfdex has, since the production start back in 2006, become the world's leading supplier of highly efficient solutions for the cleaning of crankcase gases from diesel engines, solutions that will satisfy environmental requirements for a very long time to come," said Anders Larsson, vice president, Alfdex.

"Our oil mist separator is a unique product which breaks new ground for crankcase ventilation on both present-day and future diesel engines by eliminating oil and soot from the blow-by. The separator, sealed for

life, keeps turbochargers and intercoolers running at peak performance. Yet it reduces oil consumption and requires no maintenance or service."

Alfdex oil mist separators use a centrifugal separation technique to prevent unfiltered crankcase gases from returning to the inlet of diesel engines or being emitted to the environment. The oil mist separator is built around a rotating conical disc stack, which is driven by an oil turbine at the bottom of the unit. Part of the lubricating oil circulating in the engine is routed to a nozzle, which directs an oil jet to drive the oil turbine.

Oil and soot particles are removed from the gas by means of centrifugal forces of about 2500 g at a separator speed of 7000 to 9000 r/min. Through centrifugal force, droplets and particles coalesce and form larger clusters that flow toward the outer edge of the discs. From there they are discharged onto the inner wall of the separator housing.

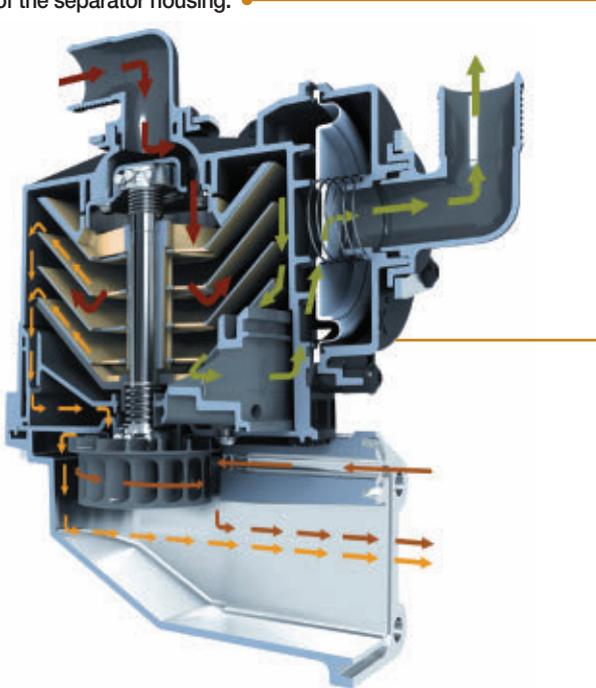
The droplets and particles then flow down to the bottom of the separator before finally being returned to the engine sump. The clean crankcase gases are then either returned to the engine (closed crankcase ventilation or CCV) or emitted into the air (open crankcase ventilation or OCV). In the CCV version, an integrated pressure control valve keeps the crankcase pressure at a requested level.

"The Alfdex oil mist separator is by far the most efficient solution for cleaning crankcase gases and the conclusion reached by leading diesel engine manufacturers," said Mats Ekeröth, managing director, Alfdex. "We work next door to the Alfa Laval center of separator development. This of course is a great advantage, since Alfa Laval has more than a 100 years of experience in separation technology."

The outer dimension of the new smaller unit has been reduced to almost half of the heavy-duty separator to fit the limited space requirements of medium-duty engines. In its capacity range, it provides the same

EMISSIONS TECHNOLOGY

The Alfdex oil mist separator is built around a rotating conical disc stack, which is driven by an oil turbine at the bottom of the unit. Oil and soot particles are removed from the gas by means of centrifugal forces that cause oil droplets and particles to coalesce and form larger clusters that flow toward the outer edge of the discs. From there they are discharged onto the inner wall of the separator housing.



high cleaning efficiency as the larger separator, Alfdex said. The separator will also be available with electric drive, the company said.

"The market for medium-sized trucks in the 6 to 15 tonnes range within EU is estimated to 70 000 and in North America to over 200 000 annually," Larsson said. "In Asia, the market is considerably larger with around 600 000 trucks/year.

"In a global perspective, the total number of medium-sized trucks manufactured annually is in the range of one million. But outside EU and North America the emissions legislations are still weak or missing."

"We have today an annual production of the Alfdex larger crankcase gas separators close to 500 000 a year," Ekeroth said. "We see a strong future also for the new, smaller version in a market where today simpler and less effective filter solutions are traditionally used. Such filters need frequent replacement and need destruction of the replaced media."

Alfdex believes that the future engine development will require more efficient cleaning of crankcase gases, in particular in CCV configurations. dpi

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