RYPOS/BEKAERT ACTIVE DIESEL PARTICULATE FILTER SYSTEM

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Rypos and Bekaert have developed an Active Diesel Particulate Filter System (ADPFS) that is characterized by high efficiency and very low electric power consumption for regeneration. The regeneration is independent of engine exhaust temperature or fuel sulfur content. The filter material is made of sintered metal fibers and has high porosity, high soot holding capacity, low thermal mass for quick heating, and low backpressure. The metal fibers are designed to resist corrosion at high temperatures. This filter material is capable of capturing up to 95 percent of the soot in diesel exhaust.

The operation of the Rypos/Bekaert ADPFS is controlled by a microprocessor. The controller monitors the ADPFS, and periodically, as required, an electric current is passed through a filter element, which then acts as a heating element. The filter elements are stacked to form a filter cartridge. In a typical system, two or more filter cartridges are used. During the regeneration cycle, the exhaust flow is controlled by redirecting the flow away from the filter element that is being heated. This is done to minimize the energy consumption during regeneration. The regeneration strategy is designed to keep the backpressure below a preset level.

The ADPFS functions automatically, during normal engine operation. It is scalable from 15- to 1000-hp engines, and can be used in any application, stationary or mobile. The ADPFS can be combined with a diesel oxidation catalyst to further suppress the carbon monoxide, hydrocarbons, and the soluble organic fraction of the particulate matter.