

AFTERTREATMENT

Single Module™



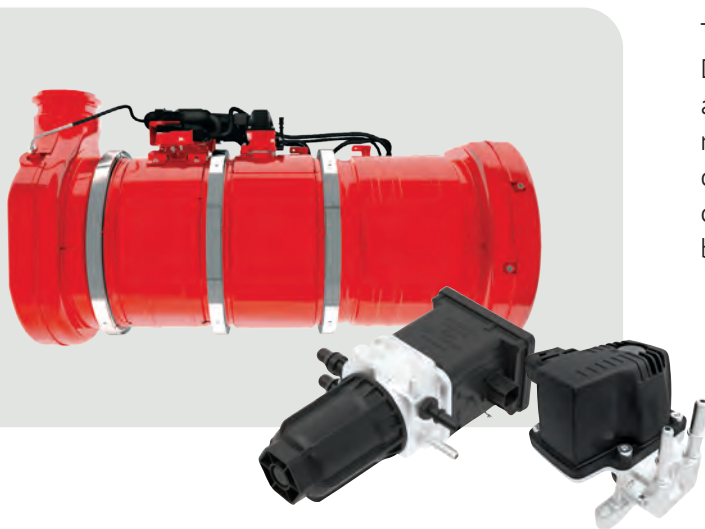
Better performance in
a smaller, lighter package

An ultra-high-efficiency aftertreatment system developed specifically to meet both customer needs and emissions standards.



PACKAGED FOR PERFORMANCE

This next-generation aftertreatment system delivers a smaller, more compact solution with reductions of up to 70% in space claim and 40% in weight compared to current combined diesel particulate filter (DPF) and selective catalytic reduction (SCR) systems in comparable markets. The single-cylinder design, enabled by the applications of advanced DPF and SCR catalyst technologies, offers improved particulate matter and nitrogen oxide (NOx) reduction capabilities. Simplified packaging and optimized on-board diagnostics make system integration easier for OEMs, and creates a more robust and reliable system.



LOW MAINTENANCE AND LOW EMISSIONS

The application of advanced catalyst technologies gives the Single Module™ greater ash capacity for long maintenance intervals. Because it's optimized for accessibility and serviceability, maintaining the system is simple. The DPF's passive regeneration events minimize the need for active regeneration and preventative cleaning, reducing both fuel usage and time spent on preventative maintenance. The system is capable of meeting the requirements of multiple emissions regulations, including the U.S. Department of Energy greenhouse gas and fuel-efficiency standards, U.S. Environmental Protection Agency 2017, European Union Euro Stage VI and upcoming off-highway Stage V regulations.

SCALABILITY AND FLEXIBILITY

The Single Module is designed to readily adapt to a variety of applications. It is available in catalyst diameters ranging from 9 to 13 inches, each with multiple length options, to ensure that the aftertreatment is appropriately matched to the engine output. Plus, we offer a flexible Single Module package – the Flex Module. This uniquely packaged solution is a split unit, with the DPF function in one section and the urea mixing and SCR in another, making it easier to fit in the limited space available in many off-highway applications while delivering the benefits of the Single Module technology.

OPTIMIZED UREA DOSING

The SCR is optimized with the use of the UL2 Urea Dosing System, a liquid-only system designed to achieve optimal levels of NOx reduction. The freeze-robust design offers improved reliability. Urea is continuously present within the unit, preventing crystallization and clogging. OEMs and users will benefit from the unique fluid recirculation capability, which allows the injector to be cooled by urea, eliminating the need for engine coolant lines to and from the injector. This reduces installation complexity while improving system robustness. The UL2's proprietary design optimizes dosing spray performance, reducing the risk of deposits and enhancing mixing capabilities, to significantly improve reliability.

One enabler of the Single Module's reduced weight and size is the Compact Mixer, a helical urea decomposition chamber developed in conjunction with Faurecia Emissions Control Technologies. The Compact Mixer optimizes urea mixing while minimizing the risk of urea deposits, ensuring efficient operation during NOx conversion.

LEARN MORE

To learn more about the Single Module or any of our other innovative products, visit cummins.com.



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