

# UA2 Urea Dosing System.



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Cummins Emission Solutions is no stranger to aftertreatment system integration and subsystem design, which includes experience with urea dosing technologies. The patented UA2 Urea Dosing System is an essential part of any selective catalytic reduction (SCR) aftertreatment system, accurately designed to reduce oxides of nitrogen (NOx) emissions while providing best-in-class cost of ownership, performance and reliability to any diesel engine manufacturer. Our goal is to make you more competitive by providing solutions with reduced installation costs and better fuel economy.



### Supply Unit.

The urea supply unit is a high-accuracy unit for injecting urea into the exhaust aftertreatment system. A control module calculates the exact dosing rate of urea based on various engine conditions, and the urea mixes with air from the vehicle compressed air system. Atomized urea is then sent through the injector into the exhaust system upstream of the SCR catalyst.



### Dosing Unit.

The dosing unit, or injector, is a robust component that delivers an atomized urea and air mixture upstream of the SCR catalyst. The design allows injection in the center of the exhaust gas flow, which minimizes the risk of deposits and improves reliability. A relatively large orifice sizing in the nozzle also provides exceptional tolerance to contaminants.



### Aftertreatment Control Module.

The Aftertreatment Control Module translates datalink-commanded dosing rates into supply module inputs to accurately deliver the required dosing quantities. The independent aftertreatment control module can also be used to control other engineered components in the engine or aftertreatment system.

## How It Works.

The UA2 Urea Dosing System is a reductant delivery system that accurately injects a 32.5 percent solution of urea in water – also known as Diesel Exhaust Fluid (DEF) or AdBlue® – into the exhaust stream. When exposed to heat from the exhaust, the urea decomposes into ammonia. The ammonia reacts with the SCR catalyst, converting NOx in the exhaust stream into harmless nitrogen and water. To ensure performance and maximize the environmental benefits of the system, Cummins employs advanced control technology.

## UA2 Urea Dosing System Specifications.

Vehicle Application	Commercial On-Highway
Voltage	12V and 24V
Emissions Standards	Euro/EPA/NS/Bharat Stage
Dosing Rate	0.01-2.2 ml/sec
Droplet Size	≤ 30 µm Sauter Mean Diameter
Supply Module Dimensions/ Weight	223 mm x 201 mm x 98 mm/6 lb
Ambient Temperature Operating Range	-40°C to 85°C
Interfaces	
Electrical	FCI 4- and 14-way
Urea	Composite SAE J2044/ Beaded Hose Connector Suction Line: 5/16" (chassis mounting only) Transfer Line: 1/4"
Coolant	Composite SAE J2044/ Beaded Hose Connector
Architecture	Air-Assisted Dosing
Supply Unit Heating	Coolant or Electrical
Supply Unit Mounting	Tank or Chassis Mounting

## Why Cummins Emission Solutions?

### Innovative Design And Improved Reliability.

Leveraging our expertise in system design and integration, this patented design reduces the likelihood of deposit formation in the SCR system. The reduction in droplet size by up to 60 percent significantly improves reliability.

### Easier Vehicle Integration.

The supply unit has been designed for easy integration on top of the urea storage tank or on the chassis, minimizing engineering and validation expenses.

### Better Fuel Economy And Reduced Space Claims.

Testing has shown an improvement in NOx conversion efficiency over that of competitive systems through improved air management. The improved efficiency creates an opportunity for improved engine tuning, to support better fuel economy. If catalyst sizing is a limitation, the improved efficiency can lead to reductions in substrate and system size.





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