

Diesel generator emission control has never been easier!

Diesel generators are an excellent power source, with the exception of their emissions. Particulate Matter (PM)/soot and Oxides of Nitrogen (NOx) are significant contributors to air pollution causing negative environmental and health impacts worldwide.

The BlueMAX™ NOVA 300e is an emission control system consisting of an active diesel particulate filter (DPF) and a diesel oxidation catalyst (DOC) upstream of a selective catalytic reduction (SCR). It is designed to control emissions of both PM and NOx from medium and heavy duty diesel engines in stationary applications. The system uses a proprietary catalyst on the inner surfaces of the DPF walls which reduces the regeneration temperature and therefore allows the system to passively regenerate in favorable engine exhaust operating temperatures. When temperature is not sufficient for passive regeneration, active regeneration is used by means of hydrocarbon (fuel) injection over the DOC catalyst. An electronic control unit (ECU) evaluates the system parameters such as temperature, pressure and exhaust mass flow rate in real time and uses these values to predict and activate the regeneration cycle.

In the Nett BlueMAX™ NOVA 300e, NOx is reduced over the SCR catalyst through chemical reaction with diesel exhaust fluid (DEF). The SCR sub-system consists of the SCR catalytic converter, a DEF dosing unit, and the DEF tank (see diagram). The DEF control strategy relies on NOx concentration measurements by a sensor positioned upstream of the SCR catalyst. Based on the NOx sensor signal in combination with an engine mass air flow sensor and temperature sensors, the ECU calculates the amount of urea which needs to be injected for optimum NOx reductions. The NOx sensor-based control strategy makes the system very suitable for both original equipment and retrofit applications. System calibration (i.e. engine mapping) is not required and the system can be installed on a wide range of diesel engines, both mechanically and electronically controlled. The system also uses an electric heater to keep the exhaust temperature above favorable NOx reduction requirements in order to ensure optimum performance during all operational conditions.

The Nett BlueMAX™ NOVA 300e ECU continuously monitors and measures the performance of all system sensors and components. In the event of malfunction, the ECU will indicate the existence of a problem to the operator via the system display. In addition to 95-99% PM and 95% NOx reductions the system provides a reduction in Carbon Monoxide (CO) and Hydrocarbons (HC) emissions greater than 95% and 97% respectively.

BlueMAX™ NOVA 300e SCR, DOC + Active DPF system



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Sold and supported globally, Nett Technologies Inc., develops and manufactures proprietary catalytic solutions that use the latest in diesel oxidation catalyst (DOC), diesel particulate filter (DPF), selective catalytic reduction (SCR), engine electronics, stationary engine silencer, exhaust system and exhaust gas dilution technologies. Our reliable and real-world emission solutions will extend the usable life of existing equipment while allowing you to avoid costly future replacements. We manufacture emission control solutions that are California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (EPA) verified. As the emission control authority, we are here to help you navigate through the hassles and complexities of emission control compliance.

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BlueMAX™ NOVA 300e PRODUCT OVERVIEW

How does the BlueMAX™ NOVA 300e Filter work?

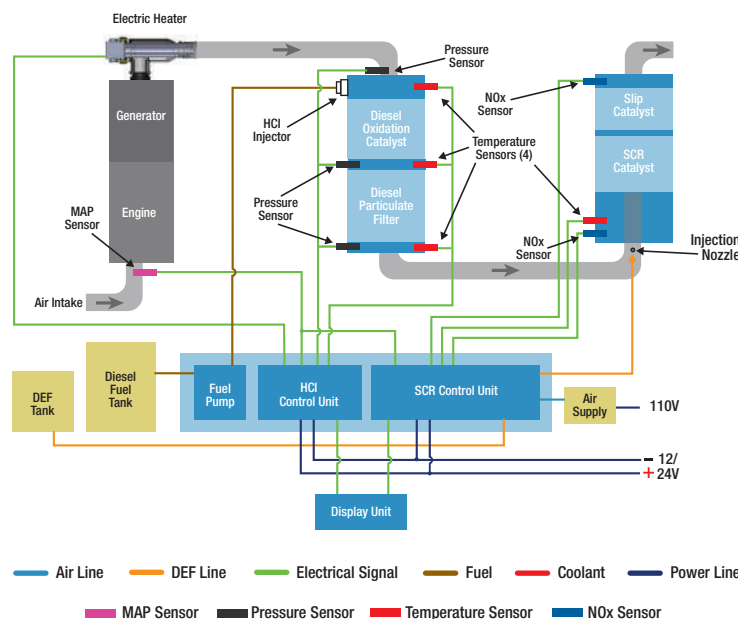
Nett Technologies' BlueMAX™ NOVA 300e is an Active DPF, DOC and SCR system which is designed to control emissions of particulate matter (PM) and oxides of nitrogen (NOx) from medium and heavy-duty diesel engines in stationary applications. The BlueMAX™ NOVA 300e is verified by California Air Resources Board (CARB) for diesel engines certified to Tier 1, Tier 2 and Tier 3 with a rating equal to or greater than 75 hp/56 kW. Diesel engine has to meet 0.2 grams per brake horsepower hour (g/bhp-hr) diesel particulate matter (PM) or less based on certification or in-use emissions testing (as tested on an appropriate steady-state certification cycle outlined in the ARB off-road regulations – similar to ISO 8178 D2). Also, the BlueMAX™ NOVA 300e is verified for diesel engines Tier 4i with a rated power over 750 hp/560 kW, or Tier 4 Alt 20% NOx and PM, emitting PM at a rate of 0.2 g/bhp-hr or less.

The wall-flow DPF traps PM/soot emissions emitted by the diesel engines. The cylindrical filter element of the device consists of many square parallel channels running in axial direction, separated by thin porous walls. A proprietary catalyst is wash-coated on the inner surfaces of the monolith channels. The inner catalyst lowers the PM oxidation temperature allowing filter to passively regenerate at lower temperatures.

When the exhaust temperature is not sufficient for passive regeneration, an active regeneration will be automatically triggered. During active regeneration, diesel fuel is injected over the DOC catalyst (upstream of the DPF unit) in a controlled manner to increase the exhaust temperature to levels that can safely oxidize collected soot in the DPF.

NOx is reduced over the SCR catalyst through chemical reaction with a reducing agent 'urea' commonly referred to as diesel exhaust fluid (DEF). The urea control strategy relies on NOx concentration measurements by a sensor positioned upstream of the SCR catalyst. Based on the NOx sensor signal, in combination with an engine mass air flow sensor and temperature sensors, the ECU calculates the amount of urea which needs to be injected for optimum NOx reductions. The system also uses an electric heater to keep the exhaust temperature above favorable NOx reduction requirements to achieve the highest NOx reduction performance during all operational conditions.

BlueMAX™ NOVA 300e System Schematic Drawing

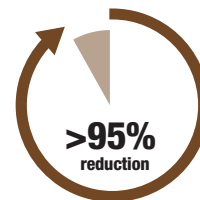


PRODUCT FEATURES

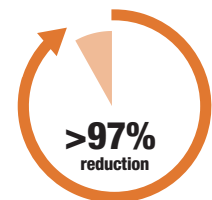
- Active DPF (hydrocarbon injection (HCl)), DOC and urea-SCR system
- Level 3 Plus, Mark 5 Verification (PM & NOx at least 85% reduction)
- Internally insulated with optional external insulation available
- Computerized controller with 3 customizable alarms
- Maintenance intervals of 2000 to 6000 hours
- Data logging capabilities
- Colour display informing of system operational conditions and status
- Energy efficient with quiet operation

EMISSIONS REDUCTION PERFORMANCE

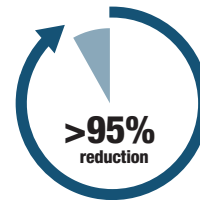
Typical BlueMAX™ NOVA 300e Emissions Reduction Performance



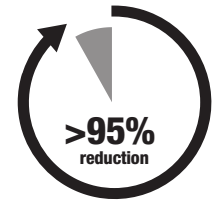
Carbon Monoxide (CO)



Hydrocarbons (HC)



Nitrogen Oxides (NOx)



Particulate Matter (PM)

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