



**Verified Retrofit  
Technologies and  
Product Offerings**

**Northeast  
Diesel Collaborative  
February 26, 2015**

# INTRODUCTION

## DISCUSSION TOPICS

- COMPANY OVERVIEW
- PRODUCT AND MARKET OVERVIEW
- DIRECT-FIT DESIGN DATABASE
- ENGINEERING CAPABLIITIES
- ENGINEERED SYSTEM INTEGRATION
- ENGINE EMISSION TEST CAPABILITIES
- VERIFIED PRODUCT OVERVIEW
- EPA / CALIFORNIA ARB VERIFIED PRODUCTS
- PRODUCT SUPPORT
- CONTACT

# INTRODUCTION COMPANY OVERVIEW

- Founded in 1994 and located in the greater Toronto area
  - Privately held company
  - Emissions control company specializing in the design, development and manufacturing of pollution control solutions for today's compression and spark-ignited engines
- Departments:
- Head Office and Administration
  - Engineering
  - Sales
  - Full Manufacturing Plant
  - Design Engineering
  - Emission Testing
  - Research and Development



# INTRODUCTION

## PRODUCT AND MARKET OVERVIEW

### Products

- Three Way Catalysts
- Diesel Oxidation Catalysts
- Passive Diesel Particulate Filters
- Active Diesel Particulate Filters
- Selective Catalytic Reduction Systems
- Air/Fuel Ratio Controllers, Data loggers and Electronic Control Units (ECU's)
- Non-Catalytic Mufflers and Exhaust Systems
- Exhaust Fume and Temperature Diluters
- Contract Metal Fabrication

### Markets

- Agricultural
- Construction
- Power Generation
- Marine
- Material Handling
- Mining
- Oil/Pipeline Industries
- Transit & Trucking
- Utility
- Locomotive

# INTRODUCTION DIRECT-FIT DESIGN DATABASE

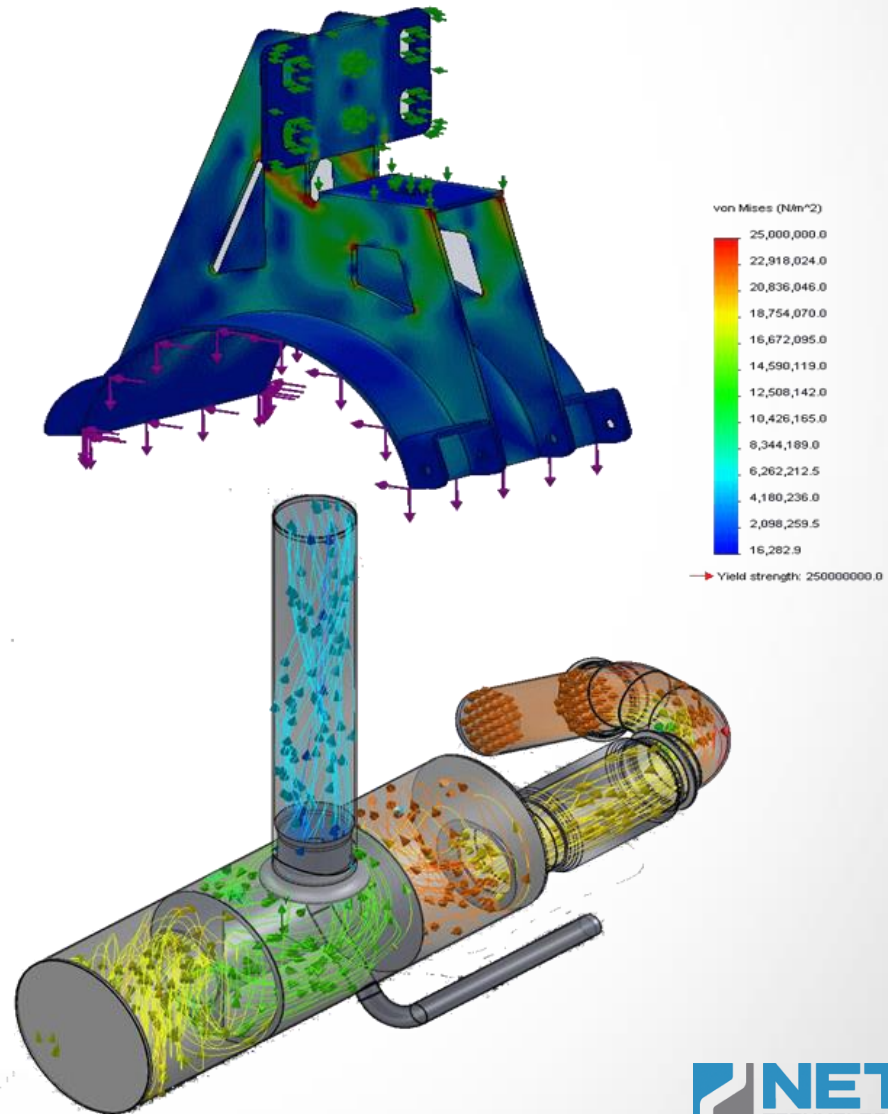
- Over 6000 direct-fit designs to exactly replace the equipment's original muffler
- Designs for construction, mining and agricultural equipment, stationary engines, forklifts, aerial lifts, and various other equipment types

The screenshot shows the NETT software interface. On the left, a list of equipment makes is displayed, with 'Caterpillar' selected. The 'Designs found' panel shows 1 result. The right side of the interface displays details for the selected part, including the Net Part Number (01CT1786-1422), Engineering (01-CT-01786-10422-DH), Part description (Catalytic Muffler), and Sales drawing (M:\Caterpillar (CT)\01CT1786-1422). A table at the bottom shows the part's application in a table with columns for Equipment Type, Make, Model, and Engine Type.

Equipment Type	Make	Model	Engine Type
	Caterpillar	966F	Diesel
Construction	Caterpillar	970F	Diesel

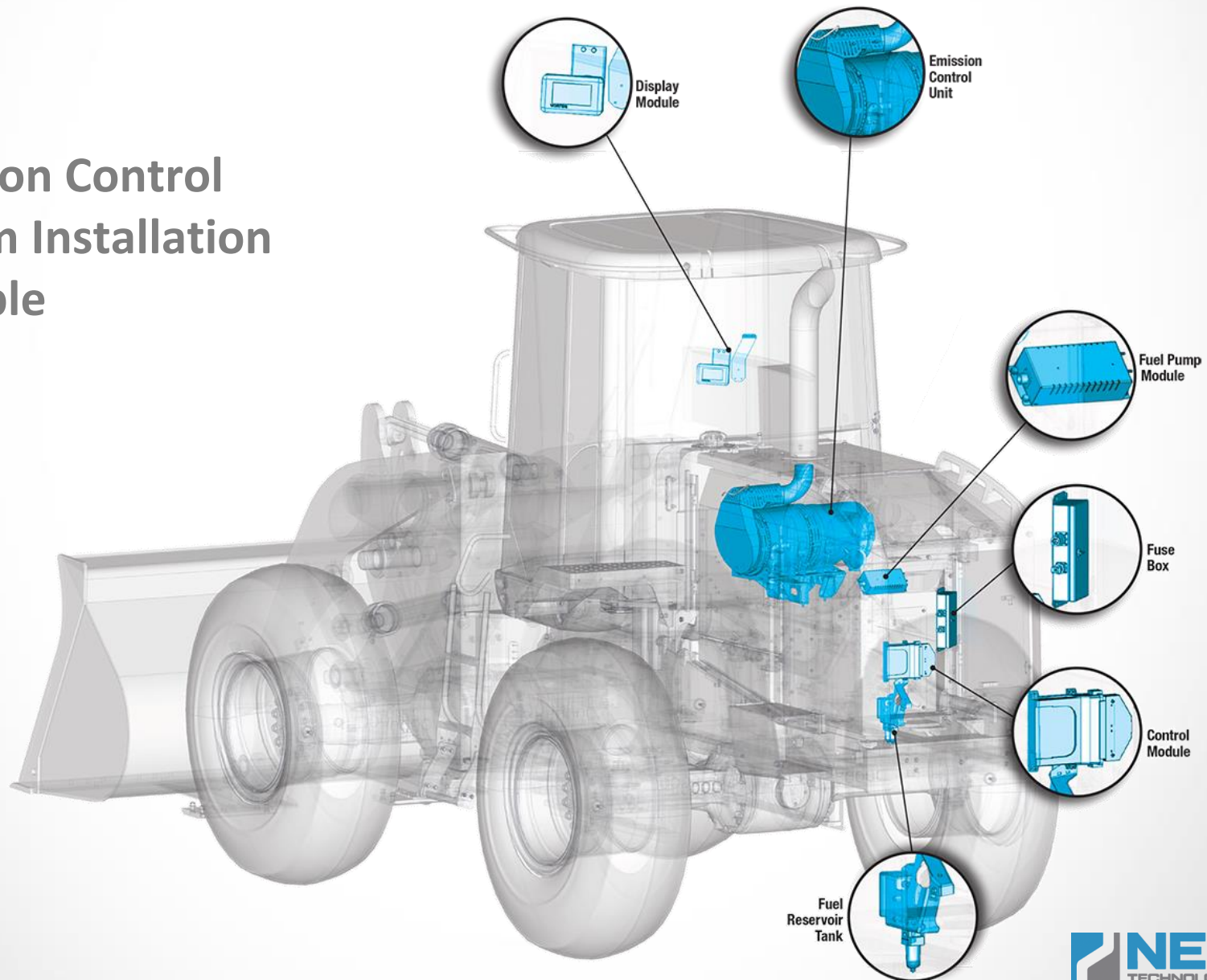
# INTRODUCTION ENGINEERING CAPABLIITIES

- Engineering Design utilizes the latest in design software from SolidWorks
- Engineering Analysis – for (FEA) Finite Element Analysis (stress and vibration)
- Flow Simulation for (CFD) Computation Fluid Dynamics analysis
- Noise attenuation/Exhaust Acoustics



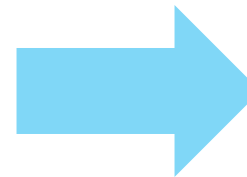
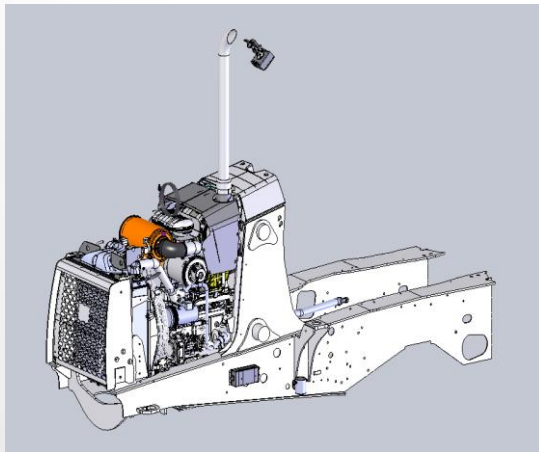
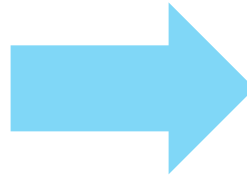
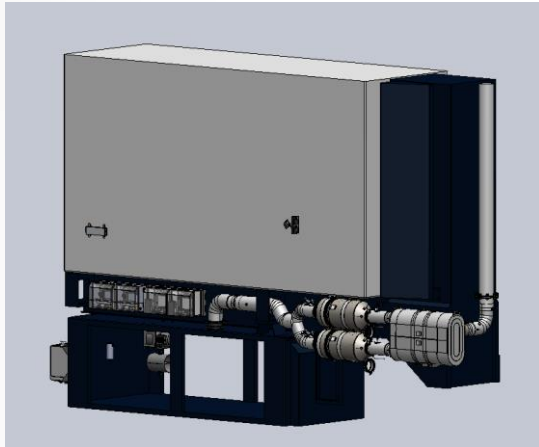
# INTRODUCTION ENGINEERED SYSTEM INTEGRATION

## Emission Control System Installation Example





# INTRODUCTION ENGINEERED SYSTEM INTEGRATION (cont.)



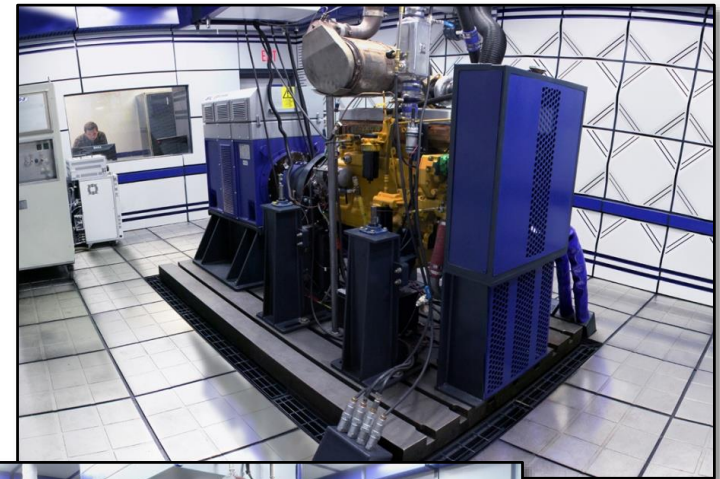
Emission systems easily integrate into existing equipment



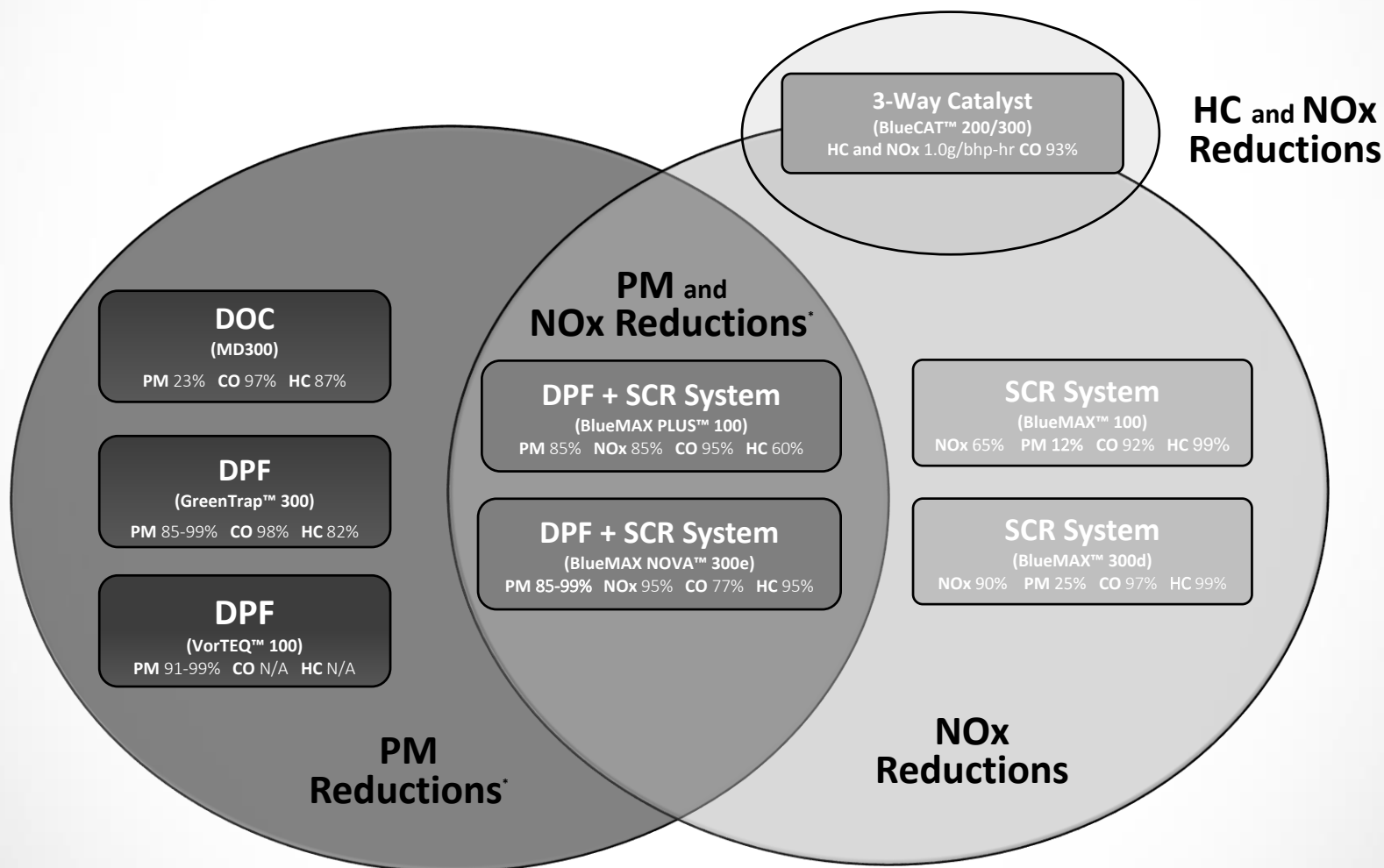
# INTRODUCTION ENGINE EMISSION TEST CAPABILITIES

## Equipment details and description:

- EPA 40 CFR PART 1065 emissions compliant engine test cell for both engine certification and product verification
- Eddy Current AVL engine dynamometers - 20 kW and 80 kW
- Alternating Current AVL DynoRoad engine dynamometer - 220 kW
- Horiba 1600D and 7200 multi-gas analyzers
- Sierra BG-3 PM sampling system
- Multigas 2030 MKS FTIR and Semtech DS gas analyzers
- Raw Gas Measurement (RGM), Constant Volume Sampling (CVS) Full Flow Dilution



# INTRODUCTION VERIFIED PRODUCT OVERVIEW



\*Emission reductions represent field performance levels, verified reductions are available on their respective executive orders.

# PRODUCTS VERIFIED PRODUCT SUMMARY



## EPA Verified

- SCR (BlueMAX™ 100)
- PASSIVE DPF + SCR (BlueMAX™ PLUS)
- SCR (BlueMAX™ 300d)
- DOC (MD300)



## ARB Verified

- 3-Way Catalyst (BlueCAT™ 200/300)
- ACTIVE DPF + SCR (BlueMAX™ NOVA 300e)
- PASSIVE DPF (GreenTRAP™ 300)
- ACTIVE DPF (VorTEQ™ 100)

# EPA VERIFIED PRODUCTS

SELECTIVE CATALYTIC REDUCTION SYSTEM

## BlueMAX™ 100 (SCR SYSTEM)

- The BlueMAX™ urea-SCR system is designed to control nitrogen oxide (NOx) emissions from medium and heavy-duty diesel engines
- NOx is reduced over the SCR catalyst through a chemical reaction with urea
- Reliable, cost-effective emission control technologies

**VERIFIED APPLICATION:** Off-Road Vehicles



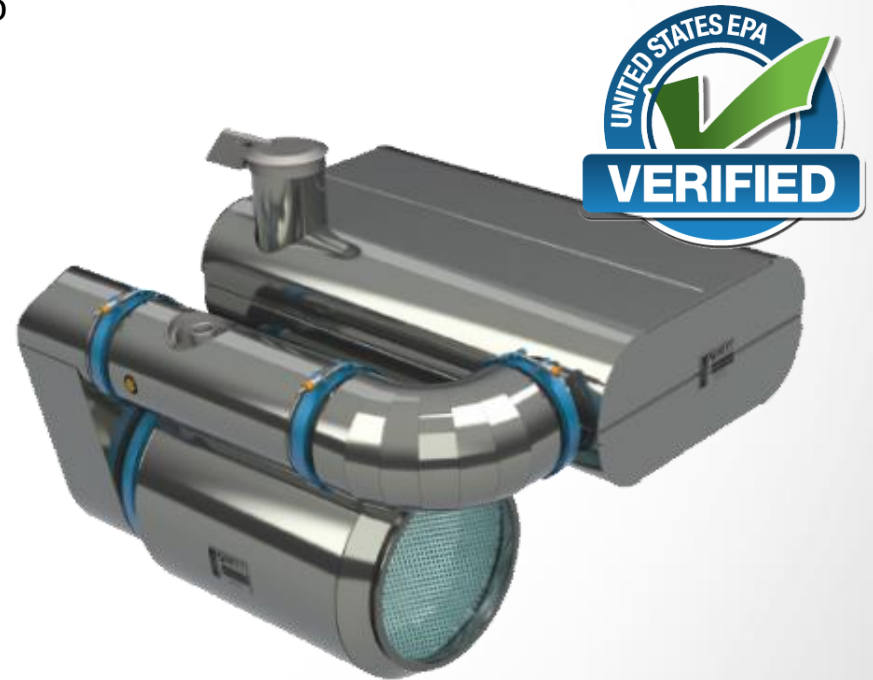
# EPA VERIFIED PRODUCTS

PASSIVE DPF + SCR SYSTEM

## BlueMAX™ PLUS 100 (PASSIVE DPF + SCR SYSTEM)

- A passive DPF and SCR system that is designed to control emissions of particulate matter (PM) and oxides of nitrogen (NOx) from medium and heavy-duty diesel engines
- In the BlueMAX™ PLUS 100 system, the diesel particulate filter utilizes a wall-flow monolith to trap the soot produced by diesel engines

**VERIFIED APPLICATION:** Off-Road Vehicles



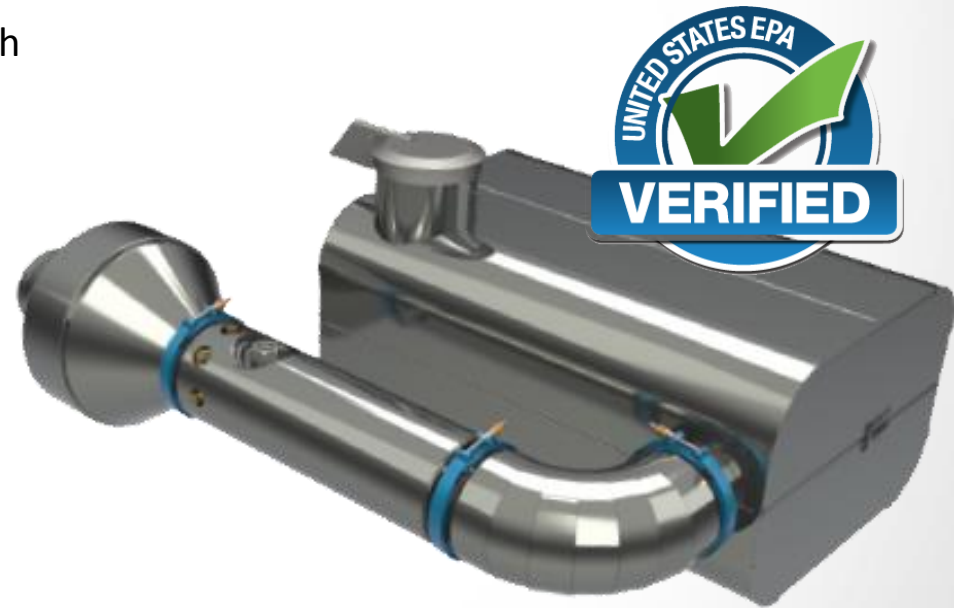
# EPA VERIFIED PRODUCTS

SELECTIVE CATALYTIC REDUCTION SYSTEM

## BlueMAX™ 300d (SCR SYSTEM)

- The BlueMAX™ urea-SCR system equipped with a DOC upstream is designed to control the emissions of NO<sub>x</sub>, HC and CO from medium and heavy-duty diesel engines
- NO<sub>x</sub> is reduced over the SCR catalyst through chemical reaction with urea

**VERIFIED APPLICATION:** Generators and Pumps





# EPA VERIFIED PRODUCTS DIESEL OXIDATION CATALYST

## MD300 (DOC SYSTEM)

- M-Series DOC's utilize a precious metal diesel oxidation catalyst bonded to a monolithic, "flow-through" catalyst core
- The core is made of corrugated, high-temperature resistant stainless steel foil packaged into rugged stainless steel containers
- Simple, inexpensive, maintenance free and suitable for all types and applications of diesel engines

**VERIFIED APPLICATION:** Generators and Off-Road



# ARB VERIFIED PRODUCTS 3-WAY CATALYST SYSTEM

## BlueCAT™ 200/300 (3-Way Catalyst Systems)

- Designed to control NO<sub>x</sub> and HC (as well as CO) emissions from Large Spark Ignited (LSI) engines
- BlueCAT™ system controls exhaust emissions from industrial forklift trucks and other spark ignited rich-burn (stoichiometric) engines

**VERIFIED APPLICATION:** Material Handling/Forklift

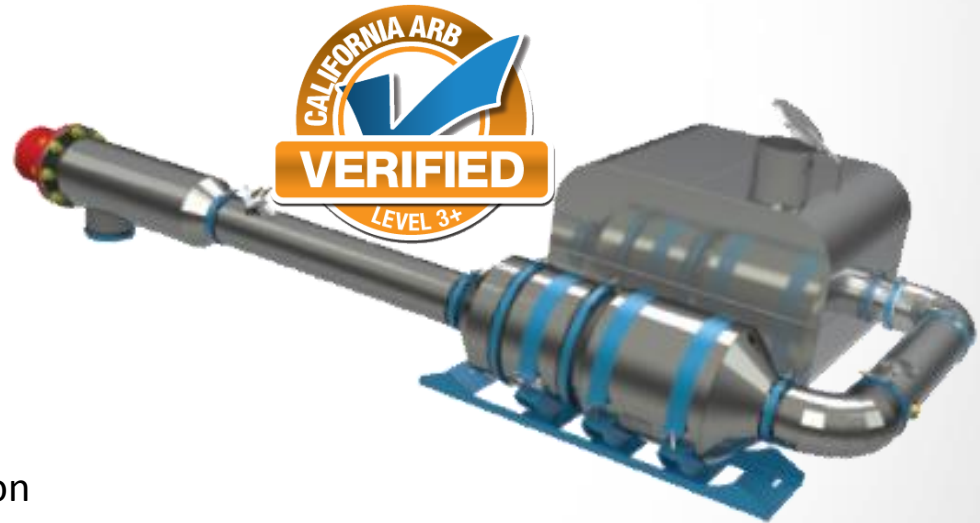


# ARB VERIFIED PRODUCTS

ACTIVE DPF + SCR SYSTEM

## BlueMAX™ NOVA 300e (Active DPF + SCR System)

- The BlueMAX™ NOVA incorporates an active DPF and urea-based SCR system
- Designed to control emissions of both diesel particulate matter and oxides of nitrogen (NOx) from medium and heavy duty diesel engines
- PM is captured by the DPF and the active regeneration strategy is through Hydrocarbon Injection (HCI)



**VERIFIED APPLICATION:** Prime Power Generators

# ARB VERIFIED PRODUCTS

PASSIVE DIESEL PARTICULATE FILTER SYSTEM

## GreenTRAP™ 300 (Passive DPF SYSTEM)

- Passive DPF for effective control of diesel particulate matter from medium to heavy duty diesel engines
- Level 3+ device for Tier 1, Tier 2, or Tier 3 certified off-road engines



**VERIFIED APPLICATION:** Prime and Stand-by Generators

# ARB VERIFIED PRODUCTS

ACTIVE DIESEL PARTICULATE FILTER SYSTEM

## VorTEQ™ 100 (Active DPF System)

- An active DPF system designed to control particulate matter emissions from diesel engines using a burner for periodic regenerations
- Not sensitive to variations in exhaust gas temperature
- Driver-Interface-Unit provides real-time performance monitoring

**VERIFIED APPLICATION:** Off-Road Vehicles







# THANK YOU

**NETT TECHNOLOGIES INC.**

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Building **CUSTOM-FIT ENGINEERED** emission control solutions for the **CONSTRUCTION** industry.

...the emission control authority.

Products Industries Technology Regulations

ARB VERIFIED 3-Way (LPG/CNG) 3-Way Catalytic Converters	EPA VERIFIED DOC (Diesel/CI/DO) Diesel Oxidation Catalysts	ARB VERIFIED DPF (Diesel) Diesel Particulate Filters	EPA VERIFIED SCR (Diesel/CI/DO) Selective Catalytic Reduction	Stationary Industrial Engines	Mufflers, Piping & Acc.

**Nett Technologies**

Founded in 1994 and located in the Greater Toronto Area, Nett Technologies Inc. is an environmental company that specializes in manufacturing catalytic converters, diesel oxidation catalysts (DOC), diesel particulate filters (DPF), selective catalytic reduction (SCR), engine electronics, stationary engine silencers, exhaust systems and exhaust gas diluters to the OEM and retrofit markets.

**Latest News**

- BlueMAX™ PLUS 100 SCR** Receives Verification by the United States EPA.
- GreenTRAP™ VOLT 320** System Eliminates Soot from Marine Vessel.

**Interactive Tools**

- Design Database Lookup** Search our product database
- Catalyst Sizing Application** Find products according to size
- California LSI Fleet Emissions** Calculate fleet emissions

**EPA and ARB Quick Reference Guide of Verified Products**

Download today your Quick Reference Guide of ARB and EPA Verified Products from Nett Technologies. We engineer and manufacture both standard and custom fit design configurations. Our products are extensively tested to assure customer satisfaction in performance, fit, appearance and installation time.

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