



Solutions for Engine and OEM Machine Manufacturers

Whether engines or OEM machines is your business, Proventia is your number one application partner. While we do the fitting, you can concentrate on what you do best. Our numerous off-road projects have made us proficient in designing solutions for various types of engines and machinery.

Proventia is your partner already in the OEM design stage. Making sure that emission control is taken into

consideration results in cost-efficient and precise solutions, and shorter turnaround times.

FOR ENGINE MANUFACTURERS

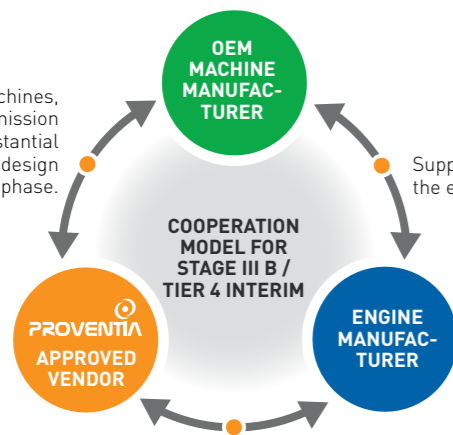
Proventia's solutions complete your engines with Stage III B / Tier 4 interim approved emission control equipment. By working together with us, you can ensure your customer's get support for your engine brand. We can also support your

engine sales for low volume customers.

FOR OEM MACHINE MANUFACTURERS

Designed to seamlessly match your products, Proventia delivers certified and customized after-treatment systems that fulfill the demands of Stage III B / Tier 4 interim regulations. Our purifiers are used in dozens of countries, and are always tailored to comply with local emission regulations.

Knowing diesel engines, machines, their conditions of use and emission regulations, Proventia is a substantial system supply partner in the design and supply phase.



Supply chain for the engines of today.

Tailoring emission control equipment for your engines in various OEM machines.



AGRICULTURE & FORESTRY

Whether your machines are used in fields or forests, Proventia is your emission control partner. Proventia has tailored solutions for many kinds of machines types in agriculture and forestry, durably and reliably.

PROVEN BY MARKET, GUARANTEED BY PROVENTIA.

Proventia is an international automation and environmental technology group. We develop solutions to clean emissions from engines and power plants, as well as production technology to increase the efficiency of manufacturing processes. Our success is based on innovative, tailored solutions and a comprehensive service. We are continually developing new products and technologies to benefit our customers. Many leading actors in their own sectors have confidence in Proventia's versatile competence and extensive expertise.



EMISSION CONTROL FOR OFF-ROAD



**WE ARE ON – IF YOU ARE OFF-ROAD.
EMISSION CONTROL BY PROVENTIA.**





Prepare for Stage III B, Tier 4 interim and beyond!

The timetable and emission control requirements for Stage III B and Tier 4 interim are tight. The effects on off-road vehicles and machines will be significant.

The good news for you is that Proventia has all it takes to solve this challenge. Our solutions provide the whole

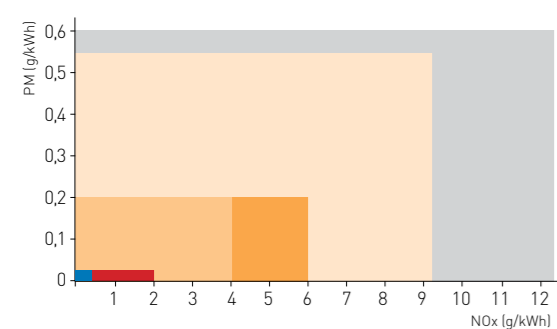
exhaust package, including spare parts, and integrate fully with a wide variety of diesel machinery. Our own high performance test laboratory ensures the best possible quality and durability for our solutions.

We know the various conditions of use for off-road

and have long experience in exhaust gas purification and emission control.

Our R&D already looks beyond 2011 to the wider regulations coming in 2014. We can promise to be just as committed and prepared for the new requirements then as we are now.

Non-Road Emission Limits in EU (>130 kW)



Legend: Non-Regulated, EU / Stage I (1999), EU / Stage II (2002), EU / Stage III A (2006), EU / Stage III B (2011), EU / Stage IV (2014)

This table is intended general guidance only. For full regulations, refer to the regulatory authorities.

	Mining	Material handling	Construction	Agriculture & forestry
DOC	•	•	•	•
pDPF	•	•	•	•
DPF	•	•	•	•
SCR	•	•	•	•

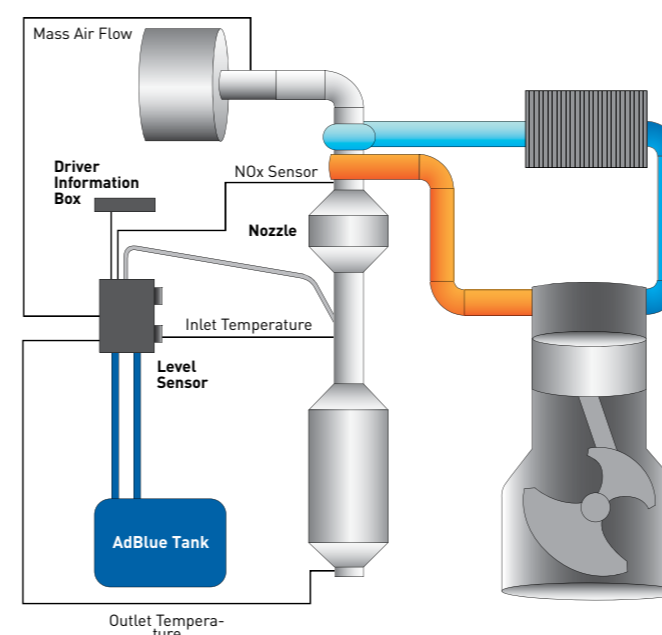
Proventia's technologies for Stage III B / Tier 4 interim cover solutions for several fields.

Stage III B / Tier 4 interim compliant



Proventia's SCR Solutions for Diesel Machinery

Proventia's emission control solutions combine several elements with different functions. A SCR after-treatment system can include an oxidation catalyst, a PM filter, a SCR catalyst and a silencer, each assisting the function of the other. Piping and installation accessories as well as potential monitoring equipment are also included, all designed to fit each application seamlessly.



SCR after-treatment solution. SCR system is an excellent option for off-road for 60-90% NOx reduction from 2011 onwards. SCR has a high automation level and is an advanced injection and monitoring system.

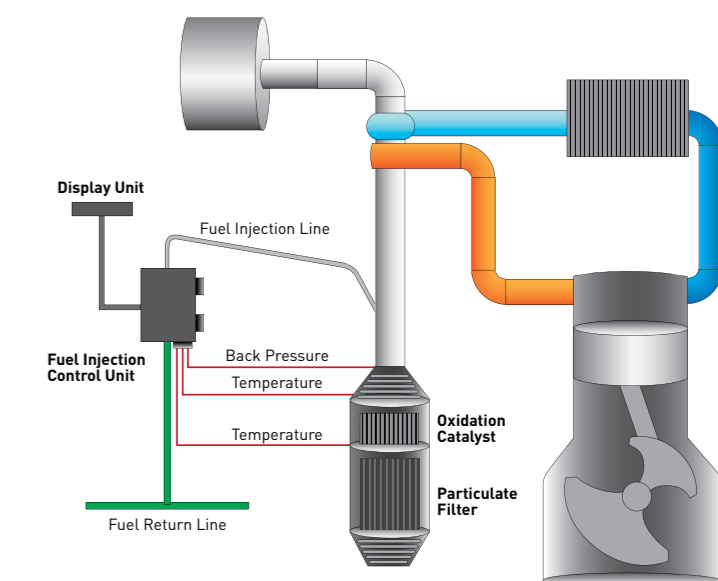
Source of Ammonia: Urea through hydrolysis reaction $(NH_2)_2CO + H_2O \rightarrow 2NH_3 + CO_2$

DeNOx Reaction: At favored temperature $4NH_3 + 2NO_2 + 2NO \rightarrow 4N_2 + 6H_2O$



Proventia's DPF Solutions for Diesel Machinery

Proventia's passive and active DPF filters keep your engines running clean, above and below the ground. Thousands of purifiers have already been installed and are in use with excellent results and a high degree of satisfaction. Proventia's diesel particulate filters are used in buses, trucks and various work machines in retrofit and OEM installations. The filter solution provides a one of a kind performance and is extremely user-friendly.



Diesel engine equipped with an active DPF, regeneration with catalytic fuel burner. Engines equipped with Proventia's DPF filters fulfill the most stringent regulations.



MINING

Mines and tunnels: heat, noise, dust and dirt. Proventia's durable solutions for the challenging environments underground lead to radical PM, NOx and noise reduction.



MATERIAL HANDLING

We know the technologies and various conditions of use for diesel machinery from corrosion sensitive, salty marine-climate ports and harbors to warehouses and building sites. We deliver exhaust solutions for machines such as cranes, reach stackers, straddle carriers, lift trucks and terminal tractors.



CONSTRUCTION

Over a decade Proventia has designed and delivered emission control solutions based on various technologies for several manufacturers producing machinery for building sites, such as wheel loaders, excavators, bull dozers, etc.