Nederman

Fire & Emergency Vehicles

Complete Exhaust Removal Solutions

The Clean Air Company

Since 1944

Clean, Safe and Healthy

Nederman Emergency Vehicle Exhaust Solutions

- The Clean Air Company trusted at thousands of fire stations throughout the world
- High quality construction and exceptional performance that maximizes protection
- Broad range of solutions that align with the unique needs of each station

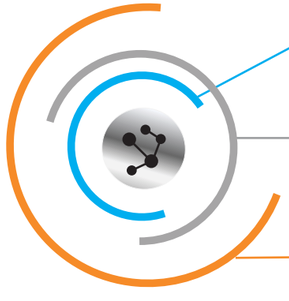
Firefighters face many health risks including exposure to diesel exhaust within the station. Left unchecked, vehicle exhaust fumes migrate throughout the apparatus bays and into office and living spaces negatively impacting the health, performance and well-being of first responders. Diesel exhaust is considered a Group 1 carcinogen by global health and safety organizations including NIOSH, OSHA and the WHO. Thankfully, new technologies including clean diesel have significantly reduced the exposure but does not fully eliminate the risk.

Nederman is the Clean Air Company and a global leader in protecting people, planet and workplaces from the harmful effects of indoor air pollution, including emergency vehicle exhaust, for over 80 years.

Did you know?

According to the National Institute for Occupational Safety and Health (NIOSH), firefighters are 9% more likely to be diagnosed with cancer and 14% more likely to suffer from a cancer-related death.

What is Diesel Particulate Matter (DPM)?



1 Complex Mixture Derived from Exhaust

DPM is a component of diesel exhaust that includes soot particles made up of carbon, ash, metallic abrasion particles, sulfates and silicates.

2 Classified as a Carcinogen

DPM has been classified as a toxic carcinogen by the World Health Organization (2013) and the International Agency for Cancer Research (2012).

3 Less than 2.5 Micron

90% of diesel particulate matter is less than 2.5 micron in diameter. Almost all particles are extremely small and can reach into deep regions of the lungs.

Why Nederman?

✓ Quality, Reliability and Durability

Experience and reputation you can trust as do thousands of firefighters throughout the world every day. Nederman is known for its quality and durability which translates into lasting solutions with reduced maintenance and operating expenses.

✓ Source Capture Approach

The only reliable way to protect those working the fire station is to immediately capture exhaust contaminants as they exit the tailpipe before they can migrate throughout the station. While ambient air cleaners eventually reduce contaminants, they do not protect the firefighters.

✓ Engineered Solutions

Not all fire stations are built or operated in the same way. Nederman offers a broad range of solutions and services to meet these unique requirements.

✓ Committed to Sustainability

Nederman is committed to being part of sustainable solutions for creating clean air.

Our facilities are ISO 14001:2015 certified

Health, Safety and Performance are Priorities

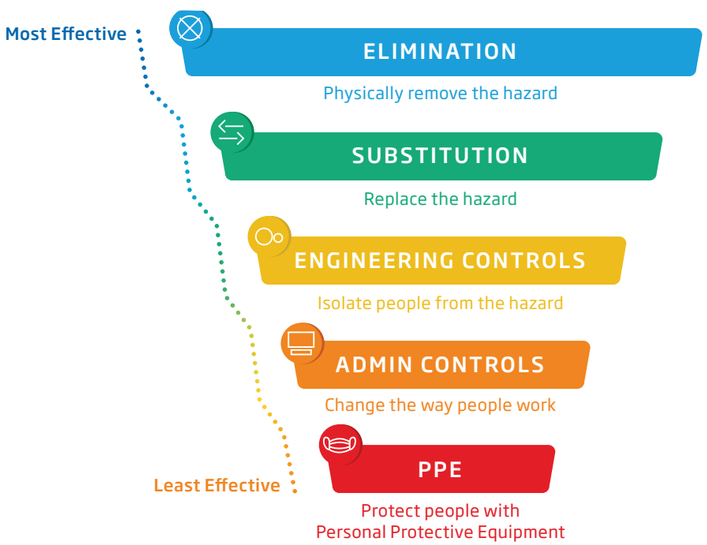
Solutions Based on Engineering and Experience

- Approach recommended by leading health and safety organizations to protect firefighters from diesel exhaust fumes
- Maximizes the health and safety with proven and reliable technology
- Product design that extends component life and reduces maintenance needs

Source Capture Approach

Nederman is committed to protecting firemen from the harmful effects of diesel exhaust and the most effective way to accomplish this is by capturing the contaminant immediately upon discharge from the vehicle. This approach virtually eliminates worker exposure or migration throughout the facility.

Source capture is a highly effective engineering control used for addressing workplace hazards. In 2016, NIOSH recommended the use of engineering controls for reducing firefighter exposure to diesel engine exhaust.*



CDC Workplace Safety and Health NIOSH

Source Capture

Source capture proactively captures the exhaust discharged from the tailpipe and removes it from the building virtually eliminating exposure to the firefighters.

Ambient Air

Ventilation or ambient air cleaning near the roof allows the diesel to migrate throughout the facility and does not eliminate fume exposure to the firefighter's breathing zone.

* https://www.cdc.gov/niosh/hhe/reports/pdfs/2016-0094-3267.pdf

Responsive Actuation

The more responsive the exhaust system is, the more effective it is in controlling the fume. Nederman offers a wireless, dashboard actuator system that senses when the engine turns on and immediately turns on the exhaust fan to begin capturing the fume.

Vehicle Exhaust Solutions for Every Station's Needs

Experience and Expertise Built Into Every Solution

- Exhaust solutions engineered to your station's unique needs
- Full range of solutions to address any circumstance or station arrangement
- Durability to reduce maintenance and total cost of ownership

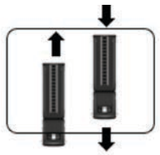
Not all fire stations are the same and neither should their vehicle exhaust system. When selecting or designing a exhaust system, it is important to consider several key factors that delivers the reliability and durability at the right value. Some of the factors include the type of truck, the exhaust pipe geometry, the station design, run frequency, geography and maintenance budget.

Vehicle Type and Quantity

Different types of vehicles, tailpipe styles and sizes require different types of solutions.

Exit Speed

How fast do trucks exit the station? Faster exits require more durable construction and smoother release of the exhaust hose.



Apparatus Bay Orientation

Do the trucks always back in or do they drive through? Is there more than one truck per bay? Each of these factors influence the exhaust control system design.

Run Frequency

Is your station is located in a busy urban area or a rural area? The number of runs per day influence what type of system may work best.

Geography

Some locations are constantly driving through snow, ice or in rough terrain that may make undercarriage components more vulnerable to damage.

Maintenance Budget Considerations

Do you have the ability to perform in-house maintenance or need to rely on outside resources? If maintenance is a challenge, durability and reliability are critical.

System Arrangement

Undercarriage Exhaust Arrangements

For emergency vehicles that have exhaust tailpipe(s) under the vehicle carriage, Nederman offers a broad range of solutions that accommodate the station configuration, number of vehicles and operation with a track or rail system that includes an exhaust hose that reaches down to the tailpipe and then safely conveys the exhaust from the building.

Vertical Exhaust Stack Arrangements

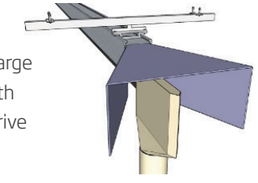
Some types of heavy duty emergency vehicles or crash trucks commonly used at airports have vertical exhaust stacks which require a different solution arrangement. Nederman offers a range of products to fit these needs with both back-in or drive through exhaust stack solutions.

MagnaStack

MagnaStack is a system designed for normal sized engines and vehicles with vertical exhaust stacks that back in to stations.

VerticalStack

VerticalStack is designed for large sized engines and vehicles with vertical exhaust stacks that drive through or back in to stations.



Creating the Ideal Solution

The Magna System electromagnet connection is the gold standard for safety and performance.

Track, Rail and Trolley Styles

MagnaTrack HS

The Track HS features an aluminum track and vertical hose supported by a coiled balancer for back-in or drive through stations. This configuration is suited for stations with average frequency runs and higher exit speeds.

- Maximum Exit Speed: Up to 15 mph (25 km/h)
- Number of Vehicles: 1
- Travel Direction: Back-In (typical) or Drive Through
- Track Length Range: 24 – 40 FT (7 – 18 m)
- Run Frequency: Medium

MagnaRail 920

MagnaRail is a high capacity system designed to handle the highest operational requirements. Up to four vehicles can be attached to the same rail each, with a designated disconnection point. For a drive through application for vehicles with either high level or low level tail pipes.

- Maximum Exit Speed: Up to 15 mph (25 km/h)
- Number of Vehicles: Up to 4
- Travel Direction: Back-In (typical) or Drive Through
- Track Length Range: 24 – 98 FT (7 – 30 m)
- Run Frequency: High

Magna System

Electromagnet – Side Panel Target with Electromagnet

The industry leading electromagnet provides a powerful vehicle connection resulting in effective exhaust capture at the source, reliable performance and smooth release.

- **Effective Capture -** Nozzle located immediately at the exhaust ensuring capture and entrainment of cooler, ambient air.
- **Smooth Release -** Sensor controlled release disconnects the nozzle at the perfect spot reliably, every time.
- **Ergonomic -** The connection plate is conveniently located where no leaning or excessive handling is required for connection.
- **No Tailpipe Modifications -** The connection is made on a targeted plate above the tailpipe so no modification or adapter is required.
- **Maximum Versatility.** A slightly oversized and offset nozzle arrangement adapts to most tailpipe arrangements including dual, tapered or other odd shaped exhaust tailpipes.

A Complete, Engineered Solution

The Total Package

Let Nederman's experienced team configure a complete, turnkey exhaust solution that protects your facility and firefighters.

The Full Range of Components to Build a Complete System

1 Exhaust Fan

Once the system configuration is known, Nederman will select a fan that ensures proper air flow at each extraction point.

2 Track / Rail Trolley

Based on the run frequency, exit speed, number of vehicles or other factors and select the style that best meets your operation.

3 System Controls

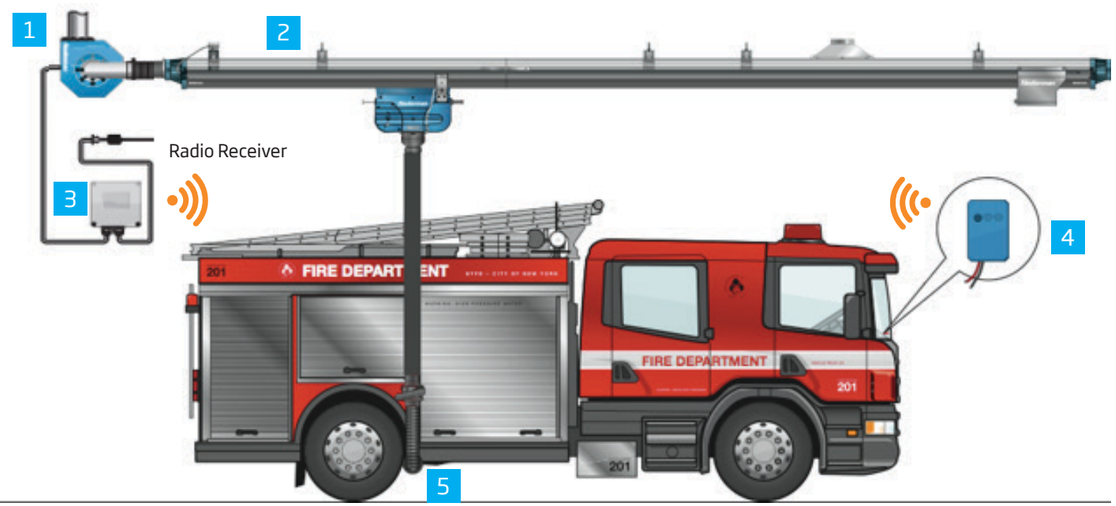
Nederman offers UL Listed system control panels that operate the fan and actuators. Optional Variable Frequency Drives can be used to further automate the system.

4 System Actuator

Standard in-dashboard actuator and receiver turns the fan on immediately when the engine is turned on.

5 Nozzle Style

Select from the available sizes for the high-performance electromagnet nozzle connection.



System	Location	Track / Rail Trolley	Magnet Style	Connection Point	Actuator
MagnaTrack HS	Undercarriage	Track	Electromagnet	Target Plate	In Dash
MagnaRail	Undercarriage	Rail	Electromagnet	Target Plate	In Dash
MagnaStack	Vertical Stack	NA	Electromagnet	NA	In Dash

The Nederman Advantage

- Design and Engineering Support
- Engineered Solution Unique to Your Needs
  - Reliable Protection
  - Simple to Use and Operate
  - Durability and Low Cost of Ownership
- Installation and Planning
- Post-Sale Support and Service

Learn more about Nederman's complete solutions for fire and emergency vehicles.

Nederman

The Clean Air Company

Our Promise - Contributing to a Sustainable Future

Clean air is one of the cornerstones of sustainable production. Our customers want to boost profitability by making their operations as efficient as possible.They want to meet high environmental standards and keep employees safe from fumes and dust. Nederman can help them on all counts. That's how we create value.

The Clean Air Company - Vision 2025

Nederman celebrates its 80th anniversary in 2024. From the very beginning, the business idea was clean air. Today, the environment and sustainability are more relevant than ever and the demands are increasing to to actively contribute to more efficient production and reduced industrial emissions. The next generation of solutions for clean industrial airflows is under development. Nederman is at the forefront of this development.

80 Since 1944

35 Since 1989 Nederman

Nederman | EMST | 04-2024