

**Nederman**

# Efficiency powered to infinity

Nederman FibreDrain® oil mist filters for continuous  
operation



# Clean air around the clock

Do you need a rock-solid solution for high-efficiency air filtration in your metalworking operations? Nederman FibreDrain® oil mist filters solve your problems by providing superior results even under the most challenging conditions in continuous operations. Our solutions are able to handle everything from oil mist to oil smoke and advanced MQL processes. Combining the highest filtration efficiency available with long filter life, our solutions help you keep production running and your workers safe.

## All the way, from dry to wet

Nearly every metal machining operation generates oil mist and smoke, which have a negative effect not only on employee health, but also on production equipment and your overall business revenue. There is, however, a fundamental difference between mist and smoke that presents a significant challenge for effective air filtration.

Oil mist is comprised of liquid droplets generally up to 20 microns in size. With higher machine speeds and pressure, the mist drops get so small that a liquid smoke, containing droplets less than 1 micron, can be created. Capturing these extremely small droplets requires specially treated and highly efficient filters.

Nederman FibreDrain® solutions are the most efficient filtration solution for all kinds of airborne particles produced during metalworking operations.



We offer filter systems for applications from Dry, i.e. dust removal, to Semi Dry and Medium Wet, i.e. filtration of emissions from MQL, and Wet, i.e. oil mist separation.



## Top performance for continuous operation

All Nederman FibreDrain® solutions are specially designed for continuous operation in low to high airflow applications. Unlike centrifugal or electrostatic systems, Nederman oil mist eliminators operate using high-performance filters to ensure maximum filter life and high efficiency levels in continuous operations.





### Nederman FibreDrain® in short:

- Unique, patent-pending FibreDrain® technology ensures top performance in continuous operation
- Exceptional fluid drainage capacity ensures maximum coolant retrieval and reduces coolant consumption
- The FibreDrain design secures long filter life and thus low operating cost
- Wide range of filter compositions to suit most applications
- Bespoke modular systems for large centralized systems
- Future-proof, can be adjusted to future parameters

## The benefits of controlling oil mist in your workshop

### Reduced health risks

Exposure to oil mist for a prolonged period of time can cause a number of health issues such as respiratory problems and skin conditions. Some studies have indicated that long-term exposure to oil mist can lead to increased susceptibility to several types of cancer.

### Increased safety

Oil mist creates slippery surfaces, which increases accident rates, and oil deposits increase the fire risk by allowing fires to spread quickly.

### Increased productivity

Aerosols harm the electronics in modern metalworking machines and cause expensive downtime.

### Cost savings

Oil mist filtration maximizes the amount of coolant that can be retrieved and returned back to the process. The cleaned air can be recirculated\* in the workshop or discharged from the factory via a heat exchanger.

*\*Depending on local regulations*

## Discover the air-cleaning experts

With more than 70 years of experience in extraction and filtration of various air contaminants, Nederman is the world leader in industrial air filtration. Our services cover everything from initial analysis and planning to installation, training and maintenance. We are able to provide flexible solutions, adapted to suit your particular processes and requirements and our dedicated experts can guide you to the best solution. Today, thousands of companies all over the world trust us to improve their operations. Let us improve yours.



# FibreDrain® – performance you can rely on

Nederman's unique FibreDrain® technology is the key to efficient oil mist filtration in demanding metalworking applications. The FibreDrain® filters are specially developed for continuous operation. Their unique composition makes it possible to capture even the smallest submicron droplets and drain them back to the process with maintained filtration efficiency.

The filters don't absorb or get clogged by the oil. Instead, specially treated fibre surfaces allow the collected droplets to coalesce, grow in fibre intersections and finally drain by gravity out of the filter medium. With FibreDrain®, the air is thoroughly cleaned and a maximum of coolant can be retrieved and reused.

Considering their reliable performance and long service life in continuous operations, the virtually maintenance-free Nederman FibreDrain® solutions pay off quickly not only for the working environment, but also for your business operation.





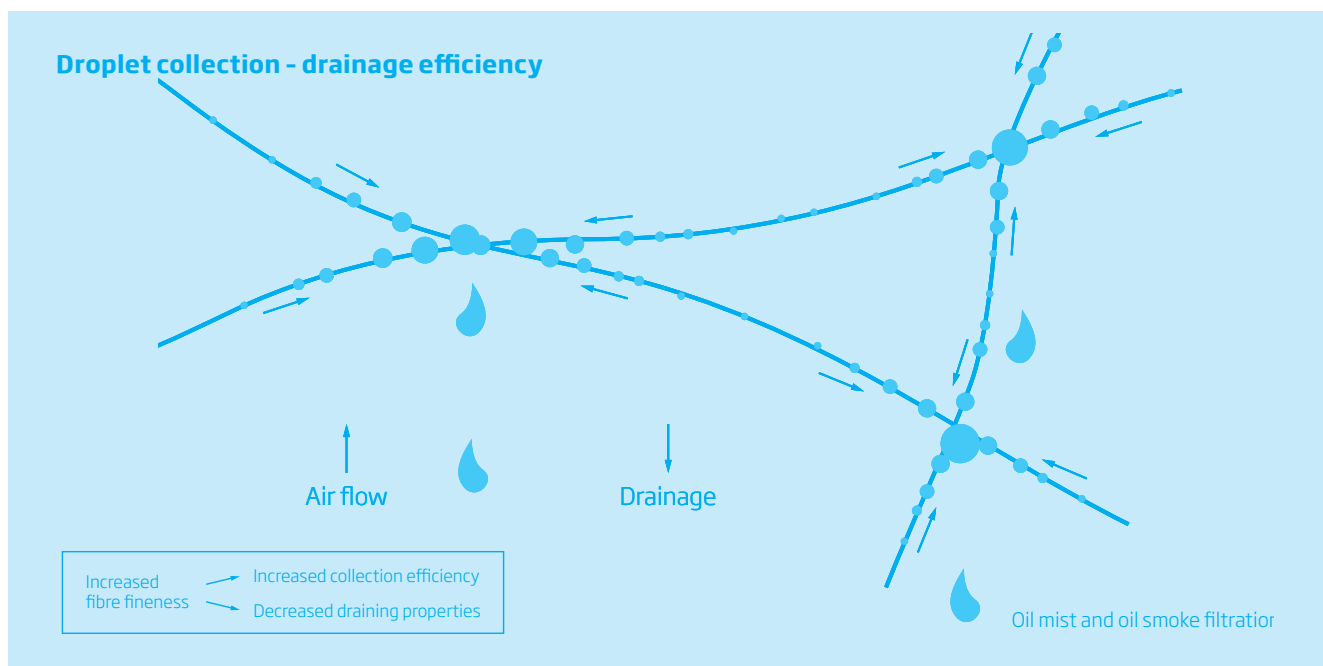
## How it works

Nederman FibreDrain® oil mist solutions collect oil mist and oil smoke at the source, i.e. directly at the metalworking machine, either enclosed or open. The oil-laden air is passed through the layers of compressed filter media at low velocity.

The airstream enters at the bottom of the filter unit and passes upward through the filter cartridges. The filter stack is progressive in filtration properties, which means that the smaller the particle, the further it will penetrate the filters in the air flow direction. The captured mist drains from the filter surface by gravity down in the sump of the collector.



*This picture illustrates the drainage process in our FibreDrain® filters.*



# A comprehensive range of oil mist filtration solutions



## Oil mist filters for emulsion applications

Nederman FibreDrain® oil mist collectors are designed to handle large amounts of emulsion mist during continuous operation. They are developed with focus on maximum efficiency in combination with low maintenance cost.

The separated oil/emulsion is collected at the bottom of the unit, where it can be drained out to a container, a pump box or directly back to the machine tool.

The collectors are equipped with highly efficient and silent fans enclosed in an insulated housing or on top of the unit with a silencer on the outlet. All units can also be delivered with constant airflow control.

## Oil Mist Filters (OMF)

	OMF 1000-2	OMF 1000 FC	OMF 2000 FC	OMF 2000	OMF 4000i
Max. air flow	1000 m³/h	1000 m³/h	2000 m³/h	2000 m³/h	4000 m³/h
Filter stages	2	3	3	3	3
Prefilter	Optional	Not applicable	Not applicable	Optional	Optional
Inlets	2	2	2	2	2
Inlet diameter	200 mm	150 mm	200 mm	200 mm	315 mm
Design	Floor standing, vertical	Horizontal, for mounting on machine	Horizontal, for mounting on machine	Floor standing, vertical	Floor standing, vertical

	OMF 4000	OMF 6000	OMF 2x4000 SM	OMF 3x4000 SM	OMF 2x6000SM
Max. air flow	4000 m³/h	6000 m³/h	8000 m³/h	12000 m³/h	12000 m³/h
Filter stages	3	3	3	3	3
Prefilter	Optional	Optional	Optional	Optional	Optional
Inlets	2	2	Right or left	Right or left	Right or left
Inlet diameter	315 mm	400 mm	450x450 mm	560x560 mm	560x560 mm
Design	Floor standing, vertical	Floor standing, vertical	Floor standing, vertical	Floor standing, vertical	Floor standing, vertical

## Oil smoke filters for neat oil applications

Nederman FibreDrain® oil smoke collectors are designed to handle large amounts of oil smoke during continuous operation. They are developed with focus on maximum efficiency in combination with low maintenance cost. The separated oil/emulsion is collected at the bottom of the unit, where it can be drained out to a container, a pump box or directly back to the machine tool. The collectors are equipped with highly efficient and silent fans enclosed in an insulated housing or on top of the unit with a silencer on the outlet. All units can also be delivered with constant airflow control.

### Oil Smoke Filters (OSF)

	OSF 500 FC	OSF 1000-2	OSF1000 FC	OSF 1000	OSF 1500 FC	OSF 2000i	OSF 2000	OSF 3000	OSF 3500
Max. air flow	500 m³/h	1000 m³/h	1000 m³/h	1000 m³/h	1500 m³/h	2000 m³/h	2000 m³/h	3000 m³/h	4000 m³/h
Filter stages	3	2	3	3	3	3	3	3	3
Prefilter	Not applicable	Optional	Not applicable	Optional	Not applicable	Optional	Optional	Optional	Optional
Inlets	2	2	2	2	2	2	2	2	2
Inlet diameter	150 mm	200 mm	200 mm	200 mm	200 mm	315 mm	315 mm	400 mm	315 mm
Design	Horizontal, for mounting on machine	Floor standing, vertical	Horizontal, for mounting on machine	Floor standing, vertical	Horizontal, for mounting on machine	Floor standing, vertical	Floor standing, vertical	Floor standing, vertical	Floor standing, vertical

	OSF 4000	OSF 7000	OSF 2x2000 SM	OSF 3x2000 SM	OSF 4x2000 SM	OSF 5x2000 SM	OSF 4x3000 SM
Max. air flow	4000 m³/h	8000 m³/h	4000 m³/h	6000 m³/h	8000 m³/h	10000 m³/h	12000 m³/h
Filter stages	3	3	3	3	3	3	3
Prefilter	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Inlets	2	2	Right or left	Right or left	Right or left	Right or left	Right or left
Inlet diameter	315 mm	450 mm	350x350 mm	560x560 mm	450x450 mm	500x500 mm	560x560 mm
Design	Floor standing, vertical	Floor standing, vertical	Floor standing, vertical	Floor standing, vertical	Floor standing, vertical	Floor standing, vertical	Floor standing, vertical

Larger units for centralized systems available on request.



Improve your production efficiency, achieve a better working environment and reduce environmental impact.



# Oil mist filters for MQL applications

Nederman FibreDrain® MQL filters are designed to overcome the new circumstances caused by the transformation of wet processes into the Minimum Quantity Lubrication (MQL) technologies.

Being neither dry nor wet, MQL emissions define two new challenging applications areas: Semi Dry (wet content with very sticky, semi fluid and solid non-self-drainable particles) and Medium Wet (drainable fluid droplets in combination with non-self-drainable particles).

Nederman FibreDrain® MQL-solutions can be individually adjusted to changes in your metal machining process.



## Minimum Quantity Lubrication Filters (MQL)

	MQ1015	MQ2030	MQ3045	MQ4060
Max. air flow	1000-1500 m³/h	2000-3000 m³/h	3000-4500 m³/h	4000-6000 m³/h
Filter stages	3	3	3	3
Prefilter	Optional	Optional	Optional	Optional
Inlets	2	2	2	2
Inlet diameter	200 mm	250 mm	315 mm	400 mm
Design	Floor-standing, vertical	Floor-standing, vertical	Floor-standing, vertical	Floor-standing, vertical

Larger units for centralized systems available on request.

Nederman MQL-solutions can be individually adjusted to changes in your metal machining process.





# Grinding and cutting – neat oil

Case study from the automotive industry

## Background

Grinding and cutting using flooding of neat oil is the traditional process used for tough machining. The lubricant creates oil smoke emissions. A lot of droplets are smaller than  $0.2\ \mu\text{m}$ , which means highly efficient oil smoke filtration is needed.

## Challenge

To be able to run an efficient and cost-effective production line, in continuous operation, the customer needed oil smoke collectors that could handle an extremely high load of oil smoke. The collectors used so far in other production lines had huge maintenance and service needs, something that was unacceptable for this new investment. Instead, a designed centralized filtration system for continuous operation at high efficiency with long filter life was necessary.

## Solution

Nederman FibreDrain® technology was evaluated during a period of three months with extremely good results. A centralized multistage filtration oil smoke extractions system was ordered and installed, with FibreDrain technology plus a final H13 HEPA filter.

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“After 26 months draining large amounts of oil without any increase in pressure drop, the original filters are still in use.”

Operations manager in the automotive industry

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## Result

After 26 months draining large amounts of oil without any increase in pressure drop, the original filters are still in use. There are no detectable particulates in the air that has passed the HEPA filters.



# Complete solutions that protect your environment

## Comprehensive product range

Nederman is a world-leading environmental technology company with solutions that take their origin in “capture-at-source”, i.e. extraction of contaminants right at the point of creation. We filter, clean and recycle to create eco-efficient production in demanding industrial surroundings. Our offer includes individual products, engineering design, installation, commissioning and service. By continually adding new skills and solutions and expanding our geographic presence, we help our customers to develop their businesses both economically and ecologically.



## Extensive experience

For more than 75 years, Nederman has developed products and solutions to reduce the strain on the environment and protect people from harmful particles, fibres, dust, gas, smoke and oil mist. We have extensive experience in how to create a safe working environment. Our accumulated know-how is easily accessible when you plan a new facility or need to modernize existing operations.





# 70-80%

of the total lifecycle cost  
of a filter is associated  
with energy use.\*

\* Juergen Becker, Market Manager Automotive, Freudenberg Filtration Technologies (Germany), "Energy Efficiency in Air Ventilation", presented at Filtrex Asia 2011.



### Worldwide presence

Nederman has a strong global presence in both sales and production. We have our own sales companies in 25 countries and distributors in more than 30 countries. Production is performed in 12 countries on five continents. In many countries, we also have a well-established service organization. By offering advanced service with high availability, Nederman helps customers to secure continuous, optimized production.

The image features a large background photograph of a calm lake reflecting a clear blue sky and a dense forest of green trees. In the top-left corner, there is a white graphic element containing the Nederman logo. The logo consists of the word "Nederman" in a bold, blue, sans-serif font, with a white diagonal line cutting through the letters from the bottom-left to the top-right.

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Nederman is a world-leading environmental technology company. We filter, clean and recycle to create eco-efficient production in demanding industrial surroundings.

For more than 70 years, Nederman has developed, manufactured, and installed products and solutions to reduce the strain on the environment and improve working conditions in numerous industries.

Our products and systems have been ground-breaking in industries such as machining, metal fabrication, mining, automotive, composite manufacturing, food, pharmaceuticals, wood-working, and many others.