

# LUBRIMIST

Air cleaning technology



## Stay Clean and Green

Clean Air - Healthy Work Environment - Low Carbon Footprint



# Air pollution - An invisible killer

## About PM2.5

The air that you breathe contains a mixture of solids and liquids, including carbon, chemicals, sulphates, nitrates, mineral dust, and water. This is known as particulate matter.

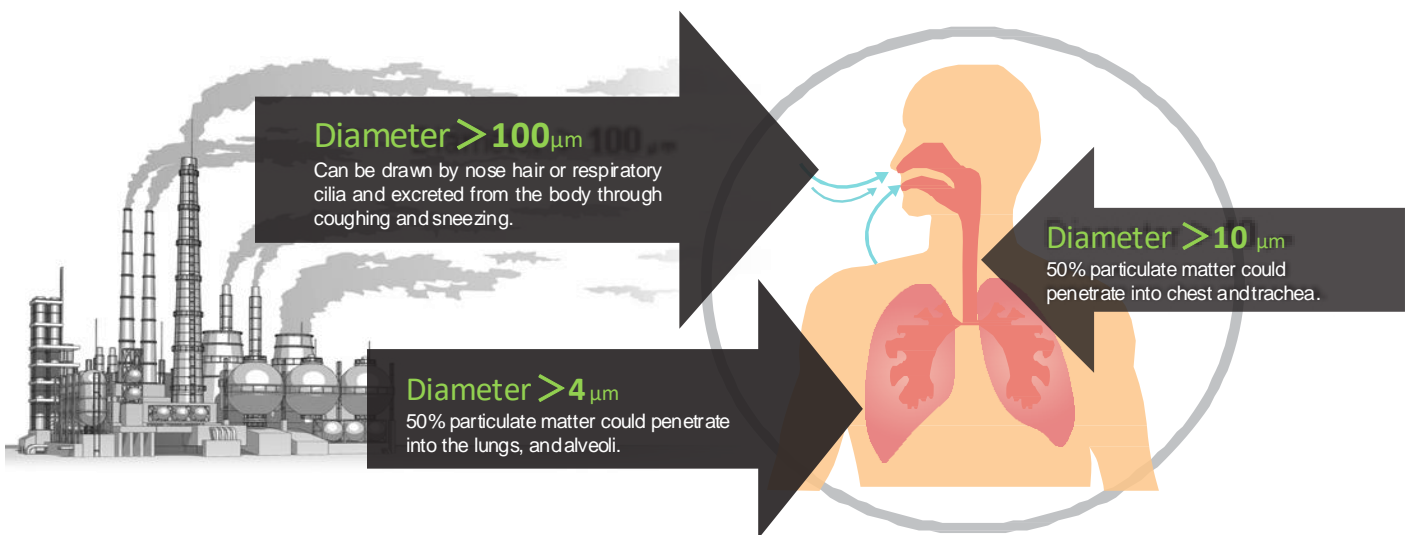
Some particles are more dangerous than others. Particles such as dust, soot, dirt or smoke, are large or dark enough to be visible. But the most damaging particles are minuscule particles, known as PM10 and PM2.5. PM2.5 particles are invisible to the naked eye and small enough to pass through the lungs, into the bloodstream, and into your organs.

Generally, they come from the combustion of solid and liquid fuels, through power generation, domestic heating and in-vehicle engines.

Particulate matter is measured as  $\mu\text{g}/\text{m}^3$ , which is the concentration of an air pollutant, and stands for "micrograms per cubic meter of air".

## PM2.5 Health Issues

Exposure to PM2.5 can cause illnesses like asthma, COPD, coronary heart disease, stroke, and lung cancer. There is also evidence that links PM2.5 to low birth weight, diabetes and diseases such as Alzheimer's and Parkinson's.



## Health Risks of PM 2.5

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Source: [www.blf.org.uk](http://www.blf.org.uk)



Level of PM2.5 Pollutant	PM2.5 (Concentration ( $\mu\text{g}/\text{m}^3$ ))	Activity Suggestion
Low	0~30	Satisfactory. No impact on human activities.
Middle	31~90	Moderately polluted. Breathing discomfort to asthma patients
High	91~120	Poor quality – polluted. Breathing discomfort to all
Very High	>121	Very poor to severe. Respiratory illness with continued exposure.

# Metalworking fluids and respiratory health

A growing concern is the risk of asthma, occupational hypersensitivity pneumonitis and other breathing problems from exposure to mist from metalworking. Work-related asthma is a significant and growing problem with an estimated 1,500 to 3,000 new cases each year. On average, up to 2003, at least 20 of these cases were associated with exposure to metalworking fluids but it is thought many more cases go unrecognised. There are also thought to be risks of breathing problems arising from exposure to mist from water-mix wash fluids used to clean machined components.

There have been several large outbreaks of respiratory illness in the UK where many workers were diagnosed with respiratory illness as a result of exposure to mist. At one of these sites there was mist from both metalworking and washing machines.

Workers exposed to metalworking fluid mist and vapour have an increased risk of developing work-related asthma, bronchitis, irritation of the respiratory tract and breathing difficulties. It can also cause extrinsic allergic alveolitis, which can cause increasingly severe breathing difficulties in recurrent episodes, following repeated exposure. Exposure may also cause irritation to the eyes, nose and throat.

Under suitable conditions, bacteria and fungi can grow well in metalworking fluids. Inhalation of these bacteria, fungi or toxic by-products can cause irritation of the respiratory tract or flu-like symptoms, as well as making existing asthma symptoms worse.

Follow the instructions and training given by your employer on safe systems of work when working with metalworking fluids.

- Use splash guards, where provided, to control splashing and misting.
- Minimise the production of mist and vapour by controlling the volume and rate of delivery of the fluid to the cutting edge of the tool.
- Use any enclosures or ventilation provided to remove or control any mist or vapour produced.
- Allow a time delay before opening the doors on machine enclosures to ensure that all mist and vapour have been removed by the ventilation.
- Report any damaged or defective splash guards, ventilation hoods or other control equipment.
- Open workroom doors and windows to improve natural ventilation.
- Don't use compressed air to remove excess metalworking fluids from machined parts or plant or equipment.

**LUBRIMIST air filtration technology offers you a healthier work environment**



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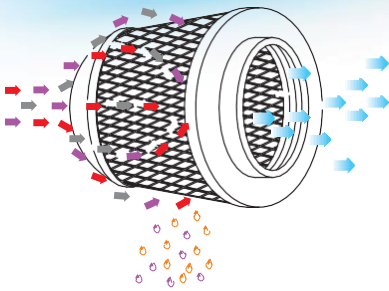
Low Carbon Footprint



Clean Air



Environmental Recycling



## Pre-Filtration System

- Effective, low-drag pre-filter for air/oil separation
- Separates oil droplets from the air and returns 95% of the oil to the machine
- Stainless and washable

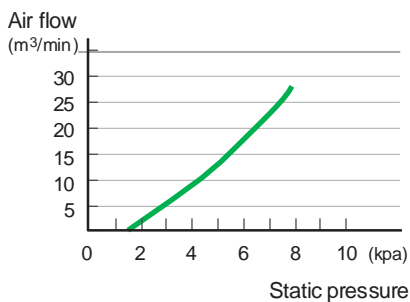


## High Efficiency Air Filter

- European E11 EPA-Standard
- Cylindrical, multi-layer design with increased filter surface area
- High density micro-fine fiberglass elements
- Efficiently removes up to 99.5% of PM2.5 particles
- Tool-free filter change

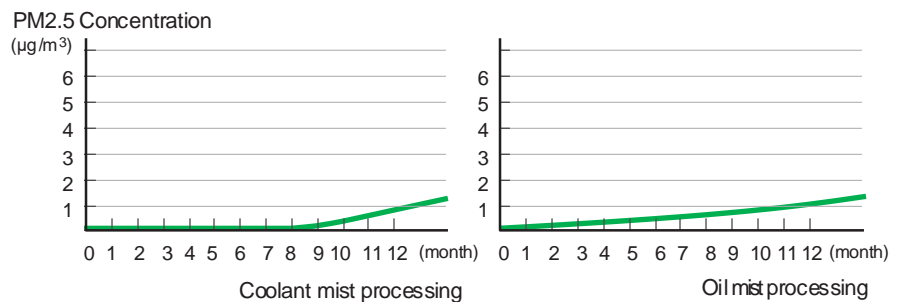
## Unique Fan Design

- Unique fan design & efficient compact motor reduce energy consumption



Suction volume graph of pre-filter

LV-20 estimated result.



Filtrate PM2.5 graph of after-filter

Test conducted in the emulsion or oil based CNC machine, after 8 months, PM2.5 is still 0.

• This is the result of testing in terms of LV-20, the reported data can vary due to different conditions.

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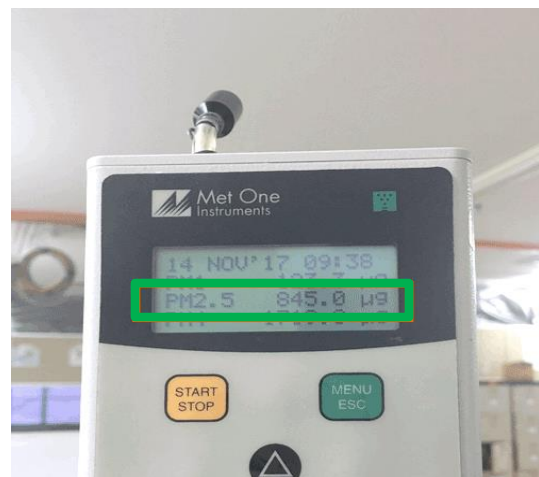
Onsite  
Testing



Factory air quality reading before and after LUBRIMIST installation



Particle count reading of 845µg of PM2.5 in the factory before Lubrimist installation.



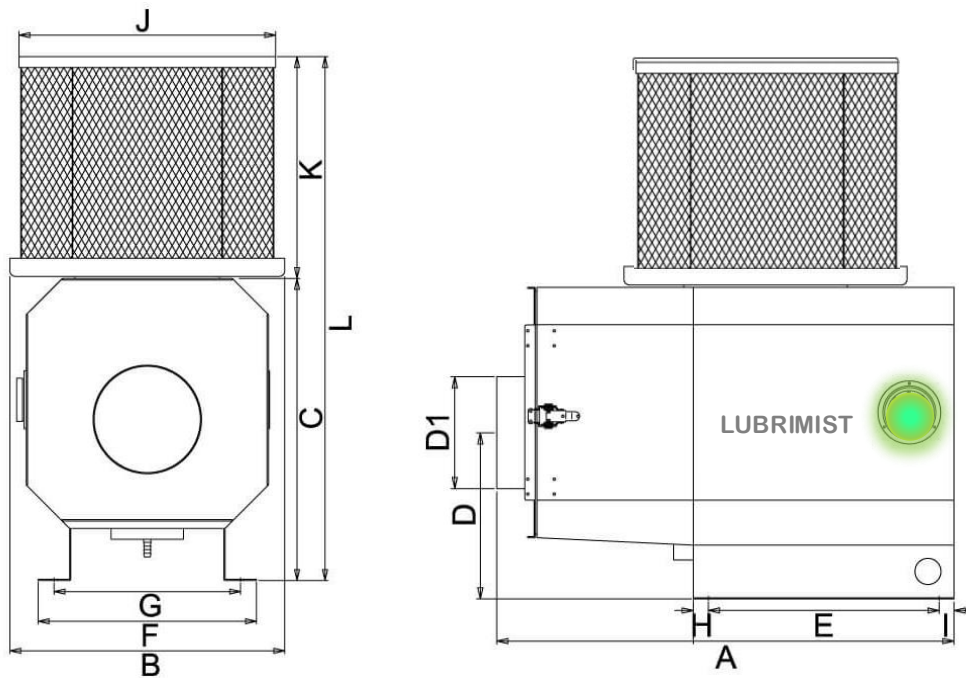
Particle count after Lubrimist installation reduced to just 13.4µg of PM2.5, more than 98% reduction.

Lubrimist units effectively capture and filter coolant or oil mist / smoke, preventing inhalation of hazardous residues present in a foggy hazes across the factory. Oily residues on surfaces, equipment and electrical panels can also be reduced with Lubrimist extraction thus cost savings can be achieved by the avoidance of equipment malfunction and reduced cleaning.

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MODEL	Power source	Motor	Airflow m <sup>3</sup> /min (with hepa)	Static pressure mmAq	Operating noise db(A)	Filter efficiency	Weight (Kg)	Inlet diameter (mm)
LV-10	3PH AC400V or AC220V 50Hz	0.2 KW	16.9 (10.0)	103	68	Up to 99.5% EU E11 Class	48	ø150
LV-20		0.4 KW	20.0 (12.3)	134	75		55	ø150
LV-30		0.75 KW	28.8 (21.6)	165	78		71	ø150



Model	LV-10	LV-20	LV-30
A	621	646	750
B	369	369	450
C	435	464	523
D	253.5	253.5	279.3
E	295	310	363
F	209	234	284
G	162	187	237
H	25	25	30
I	25	25	35
J	360	360	435
K	310	410	410
L	745	874	923

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### Installations

Lubrimist Air Cleaners require limited space due to its simplicity and compactness of installation. The installation is subject to the users' environment. The product can either be installed on the top of the machine or be settled on the telescopic stand.



Installed on the top of the machine

Set up on the combination stand

### Oil Mist Air Cleaner Installation Examples



High efficiency, low noise and excellent air purification create a healthy work environment.

### Applications

NC/CNC lathes, multi-purpose lathes, machining centres, sliding head machines, NC milling cutters, milling cutters, gear hobbing machines, grinding machines, automatic lathes, drill presses, broaching machines, transfer machines and gun drills.

Die-casting machines, injection moulding machines (resins) and large presses.

Quenching machines, rolling machines, cold forging machines, lens cutting, lens grinding, ceramic processing, glass manufacturing, washer systems, coating equipment, air blowers for food, pharmaceutical and cosmetic products.

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