

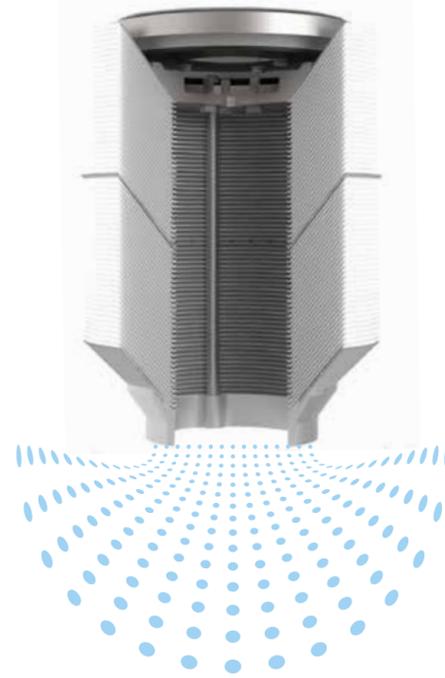
# THE BLUE LINE SERIES - OIL MIST SEPARATORS WITH HIGH PURIFICATION, LOW MAINTENANCE AND OUTSTANDING OPERATION ECONOMY

## THE TECHNOLOGY

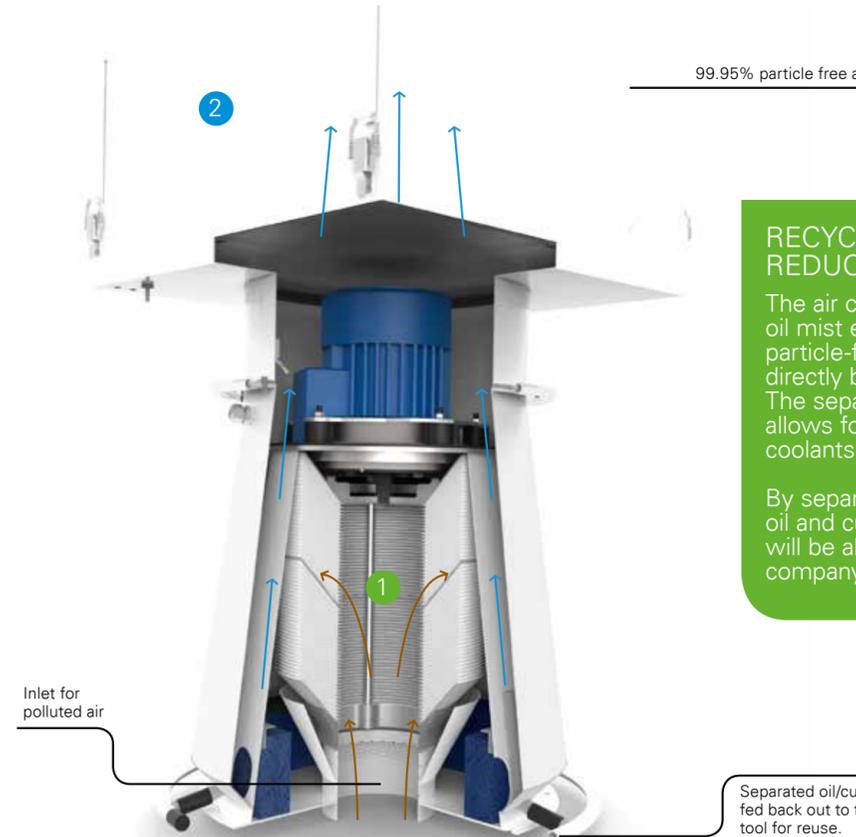
Liquid to gas separation technology was invented over 100 years ago. Based on that technology, 3nine has been developing oil mist eliminators since 2001. Since then, 3nine has been awarded with a large share of the global patents within centrifugal separation technologies.

3nine offers the only technology that separates mist particles from processed air and returns them for reuse as a liquid without using a filter. Our unique centrifugal separation technology purifies the air by separating the oil mist particles down to  $1\mu\text{m}$  with a 99.9% efficiency.

The BLUE LINE units are our classic series of oil mist eliminators with thousands in use around the world. They produce 500-2500m<sup>3</sup>/h and can handle machine tool cabins up to 20m<sup>3</sup> with 1 unit.



## OPERATING PRINCIPLE



**RECYCLE, REUSE & REDUCE**

The air coming from a BLUE LINE oil mist eliminator is 99.95% particle-free and can be **recycled** directly back into the workshop. The separation technology also allows for **reuse** of oils and coolants.

By separating instead of collecting oil and cutting fluid in a filter, you will be able to **reduce** your company's CO<sub>2</sub> footprint.



*"With 3nine's oil mist separators we're sure to minimize our maintenance costs."*

Åke Falk, Production Manager, Sandvik Coromant AB, Sweden

## SECURE WORKING ENVIRONMENT

Oil mist exposure can cause severe health issues for the operator. If not handled properly, the oil mist will coat the surfaces in the shop, causing risk of injuries by slippery surfaces, an increased need of cleaning and damages on electrical devices. With an oil mist separator from 3nine, this will not be a problem. The air coming out of a BLUE LINE oil mist eliminator is so clean that it can be recycled right back into the workshop and guarantees an optimal working environment for the operator.



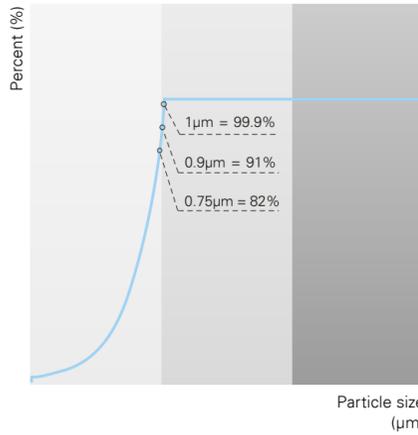
## CLEAN IN PLACE (CIP) "YOUR MAINTENANCE PARTNER"

With our CIP (Clean in Place) particle buildup on the rotor is avoided. The CIP system uses clean cutting fluid from the machine tool to automatically and continuously clean the rotors.

\* 12-18 months filter life is based on 1 shift per day, 5 days a week and normal operating conditions.

## SEPARATION EFFICIENCY

The BLUE LINE series of units separate 99.9% of all fluid particles down to  $1\mu\text{m}$ , 91% down to  $0.9\mu\text{m}$  and 82% down to  $0.75\mu\text{m}$ . In order to capture the finer particles that are  $<1\mu\text{m}$ , 3nine uses a HEPA filter (H13) to ultimately clean the air to 99.95%. With most of the particles separated in the disc stack, only 1% of the particles are collected in the HEPA filter.



The diagram shows the performance as a function of the particle diameter.



### 1 DISC STACK SEPARATION

Fluid particles will enter the disc stack to be separated to 99.9% down to  $1\mu\text{m}$ . On the discs, the small particles coalesce and form larger particles. The bigger the particle, the faster they move towards the edge of the spinning disc to be thrown off and onto the inner wall of the rotor chamber to be returned to the machine tool for reuse.

### 2 FINAL STAGE HEPA FILTER H13

The particles smaller than  $1\mu\text{m}$ , will be collected by the final stage HEPA filter. With most of the particles separated in the rotor, the HEPA filter has a life expectancy of 12-18 months\*. We use a high quality HEPA filter at grade H13 from Freudenberg, a filter with outstanding filtration performance that ensures a 99.95% particle free air - a performance equal to what is prescribed in hospitals.

3NINE'S LEADING COST SAVING TECHNOLOGY PROVIDES A HEALTHIER AND SAFER WORKING ENVIRONMENT, ALLOWING YOU TO FOCUS ON YOUR PRODUCTION.

## ADVANTAGES

- Life Cycle Cost - Low
- 99.95% Particle free Air!
- Minimal Maintenance
- Minimal Filter Change
- Suitable for applications with high degree of solid particles
- Minimal Duct Work
- Recycling of cutting fluids
- No Oily Surfaces in the Workshop
- Compact and Direct Installation
- Low energy use

**LINA™ 500**

Suitable for cabin size	<5m <sup>3</sup>
Air flow	500m <sup>3</sup> /h
Operating conditions	<50°C
Power supply	16 A, 230/460 V/3/50 Hz
Motor rating	0.55 kW
Rated current	1.35 A
Weight	54 kg
Height	840 mm
Diameter	Ø 480 mm
Inlet pipe	Ø 125.5 mm
Sound level	< 65 db (A)

**CLARA™ 1000**

Suitable for cabin size	<10m <sup>3</sup>
Air flow	1 000m <sup>3</sup> /h
Operating conditions	<50°C
Power supply	16 A/400 V/3/50 Hz
Motor rating	1.5 kW
Rated current	3.2
Weight	89 kg
Height	1 145 mm
Diameter	Ø 640 mm
Inlet pipe	Ø 161 mm
Sound level	<65 db (A)

**EMMA™ 2500**

Suitable for cabin size	<20m <sup>3</sup>
Air flow	2 500m <sup>3</sup> /h
Operating conditions	<50°C
Power supply	16 A/400 V/3/50 Hz
Motor rating	5.5 kW
Rated current	11.3 A
Weight	131 kg
Height	1 145 mm
Diameter	Ø 670 mm
Inlet pipe	Ø 316 mm
Sound level	<70 db (A)

**PETRA™ 1000**

Suitable for cabin size	<10m <sup>3</sup>
Air flow	1 000m <sup>3</sup> /h
Operating conditions	<50°C
Power supply	16 A/400 V/3/50 Hz
Motor rating	1.5 kW
Rated current	3.2 A
Weight	96 kg
Height	1 145 mm
Width	Ø 500 mm
Inlet pipe	Ø 160 mm
Sound level	<70 db (A)

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3nine is a Swedish company that develops solutions for the purification of processed air for the Metal Working Industry. Our revolutionary technology is based on centrifugal separation, using a disc stack which produces an extremely high degree of purification in a very compact format and requires a minimum of maintenance.



BLUE LINE

OIL MIST SEPARATORS

