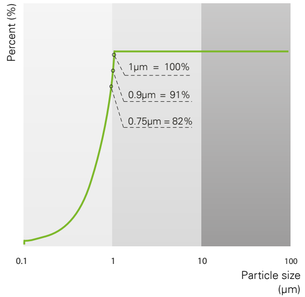
THE GREEN LINE SERIES - OIL MIST SEPARATORS WITH HIGH PURIFICATION, LOW MAINTENANCE AND OUTSTANDING OPERATION ECONOMY

THE TECHNOLOGY

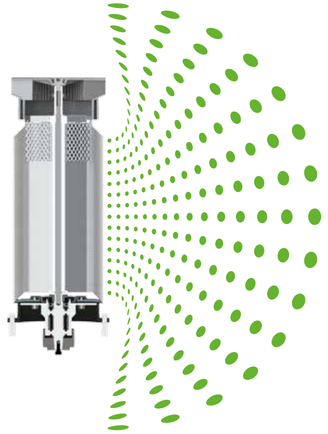
Liquid to gas separation technology was invented over 100 years ago. Based on that technology, 3nine has been developing oil mist separators since 2001. In 2009, 3nine started developing a totally new concept and technologies that would further change the way oil mist would be eliminated in the shop.

Our goal was to bring oil mist elimination to a new level, develop products that were well adapted for all applications using either oil or coolant and to simplify the monitoring of the products through visual and digital communication. The new series, called the GREEN LINE, is based on Multi-Rotor and Counter Current Technologies. Multi-Rotor technology facilitates scalability which allows for the many airflow requirements and Counter Current Technology allows each unit to work with all machining applications using either oil or coolant.



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

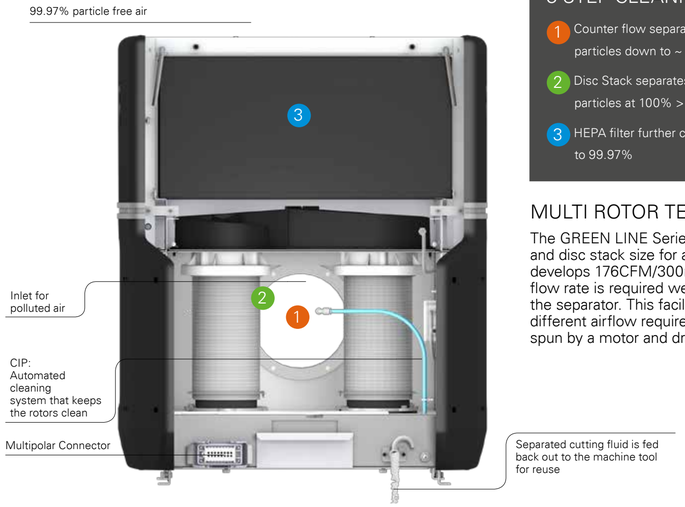
3NINE'S LEADING COST SAVING TECHNOLOGY PROVIDES A HEALTHIER AND SAFER WORKING ENVIRONMENT, ALLOWING YOU TO FOCUS ON YOUR PRODUCTION.



SEPARATION EFFICIENCY

The GREEN LINE series of units separate 100% of all fluid particles down to 1 µm, 91% down to 0.9 µm and 82% down to 0.75 µm. In order to capture the finer particles that are <1µm, 3nine uses a HEPA filter (H13) to ultimately clean the air to 99.97%. With most of the particles separated in the disc stack, only 1% of the particles are collected in the HEPA filter.

OPERATING PRINCIPLE



3 STEP CLEANING

1. Counter flow separates the largest particles down to ~ 10 µm
2. Disc Stack separates smaller particles at 100% > 1 µm
3. HEPA filter further cleans particles to 99.97%

MULTI ROTOR TECHNOLOGY

The GREEN LINE Series utilizes one rotor and disc stack size for all the units. One rotor develops 176CFM/300m³/h. When a higher flow rate is required we add another rotor to the separator. This facilitates scalability for different airflow requirements. The rotors are spun by a motor and drive belt.

1 COUNTER FLOW TECHNOLOGY

The GREEN LINE units are based on Counter Current Technology. Each rotor has a fan at its top, which along with the spinning disc stack, creates the suction and pulls the processed air in from the machine tools' cabin. This combination creates the pre-separation of the larger particles down to 10µm. This makes it extremely efficient for all applications, including difficult applications such as grinding or die casting with emulsions.

2 CENTRIFUGAL SEPARATION

Fluid particles smaller than 10 µm, will enter the disc stack to be further separated to 100% down to 1µm. 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 re-turned to the machine tool for reuse.

3 FINAL STAGE HEPA FILTER H13

The particles smaller than 1µm, 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.* The final stage HEPA filter is a grade H13 and produces 99.97% particle free air.

CLEAN IN PLACE "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. With the GREEN LINE Series the rotor can go through a cleaning cycle automatically at every startup and shutdown of the unit.

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

LED-COMMUNICATION

All GREEN LINE oil mist separators have a built in system control box. The control box monitors and reports on the HEPA filter status and the status of the airflow. The status of the machine is then communicated through a LED RGB-strip on the front and back of the machine.

SECURE WORKING ENVIRONMENT

Oil mist exposure can cause severe health issues for the operator. If not handled properly, the oil mist will coat practically everything in the shop causing potential health problems for the operators, risk of injury from slips and falls, damage to electrical components and an increased need for housekeeping. With an oil mist separator from 3nine, this will not be a problem. The air coming out of a GREEN LINE oil mist separator is so clean that it can be recycled right back into the workshop and guarantees an optimal working environment for the operator.

ADVANTAGES

- One machine for all applications
- Low Life Cycle Cost
- 99.97% Particle free Air!
- Minimal Maintenance
- Minimal Filter Changes
- Suitable for applications with a 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

SPECIFICATIONS

NOVA 300	EU-standard	NA-standard
Max cabin size	<2 m³	70 CF
Air flow	300m³/h	176 CFM
Operating conditions	5-50 °C	41-122 F
Power supply (basic)	3-phase 280-400V 50Hz 6A	3-phase 230/460V 60Hz 6A
(advanced)	3-phase 380-480V 50/60Hz 6A	3-phase 208-240V 50/60Hz 6A
Motor rating	0.37 kW	0.37 kW
Rated current	1 A	1.9A (230V) - 1.1A (460V)
Weight	35 kg	77.2 lbs
Height	550 mm	21.6"
Lenght	694 mm	27.3"
Depth	475 mm	18.7"
Inlet pipe	Ø 100 mm	Ø 4"
Sound level	< 65 db (A)	< 65 db (A)

ANNA 600	EU-standard	NA-standard
Max cabin size	<6 m³	210 CF
Air flow	600 m³/h	352 CFM
Operating conditions	5-50 °C	41-122 F
Power supply	3-phase 380-480V 50/60Hz 6A	3-phase 208-240V 50/60Hz 6A
Motor rating	0.75 kW	0.75 kW
Rated current	1.9 A	1.9A (230V) - 3.3A (460V)
Weight	80 kg	176.4 lbs
Height	936 mm	36.8"
Lenght	748 mm	21.5"
Depth	546 mm	29.7"
Inlet pipe	Ø 200 mm	Ø 8"
Sound level	<70 db (A)	<70 db (A)

LOVA 900	EU-standard	NA-standard
Max cabin size	<9 m³	320 CF
Air flow	900 m³/h	528 CFM
Operating conditions	5-50 °C	41-122 F
Power supply	3-phase 380-480V 50/60Hz 6A	3-phase 208-240V 50/60 Hz 6A
Motor rating	1.5 kW	1.5 kW
Rated current	3.3 A	2.8A (230V) - 5.7A (460V)
Weight	113 kg	249 lbs
Height	936 mm	36.8"
Lenght	777 mm	30.5"
Depth	833 mm	32.8"
Inlet pipe	Ø 200 mm	Ø 8"
Sound level	<70 db (A)	<70 db (A)

NINA 1200	EU-standard	NA-standard
Max cabin size	<12 m³	425 CF
Air flow	1200 m³/h	704 CFM
Operating conditions	5-50 °C	41-122 F
Power supply	3-phase 380-480V 50/60Hz 6A	3-phase 208-240V 50/60 Hz 6A
Motor rating	1.5 kW	1.5 kW
Rated current	3.3 A	2.8A (230V) - 5.7A (460V)
Weight	119 kg	262.4 lbs
Height	936 mm	36.8"
Lenght	777 mm	30.5"
Depth	833 mm	32.8"
Inlet pipe	Ø 200 mm	Ø 8"
Sound level	<70 db (A)	<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.

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GREEN LINE
OIL MIST SEPARATORS