



AiOLOS®

Oil Mist Collector & Air Cleaner

New



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PM2.5 is Invisible but often Exists around Us

The atmosphere contains lots of contaminants, among which some are suspending in the air and similar to dust particles. Usually called particulate matters, they may have different sizes. The particles smaller than or equal to 2.5µm are defined as fine particulate matter (PM2.5).



PARTICLE SIZE
<100µm

TOTAL SUSPENDED PARTICULATE MATTER (TSP)

The particle size is similar to suspended sand grains on the beach.

Beach sand: 90µm
Human hair: 60µm
Mycete: 30µm

PARTICLE SIZE
<10µm

PARTICULATE MATTER (PM10)

The particle size is about 1/10 of sand diameter and can easily go through nose hair, within nasal cavity and curved tracts to reach the throat.

PM10: 10µm

PARTICLE SIZE
<2.5µm

FINE PARTICULATE MATTER (PM2.5)

The particle size is about 1/28 of hair and can penetrate through alveolar air and then directly enter into the blood vessels to circulate throughout the body with blood.

Fine particulate matter (PM2.5): 2.5µm
Cigarette and smoke: 1µm

PM2.5 Impact on Human Health

The suspended particulate matters contained in the atmosphere may enter into human body through nose and throat. While the particles bigger than 10µm are removed by nasal cavities, the particles smaller than 10µm can still enter into the human body through trachea and bronchus. The varying degrees of damage to human body mostly depend on particle sizes and associated chemical properties.

More and more epidemiological studies reveal that PM2.5 easily adheres to harmful substances, such as dioxins, polycyclic aromatic hydrocarbons (PAHs) and heavy metal. A long-term inhalation may also lead to allergy, asthma, emphysema of lung and cardiovascular disease (CVD). Whether it is short-term or long-term exposure in a high density PM2.5 environment, the risk of respiratory diseases or even death definitely increases, especially for sensitive persons.

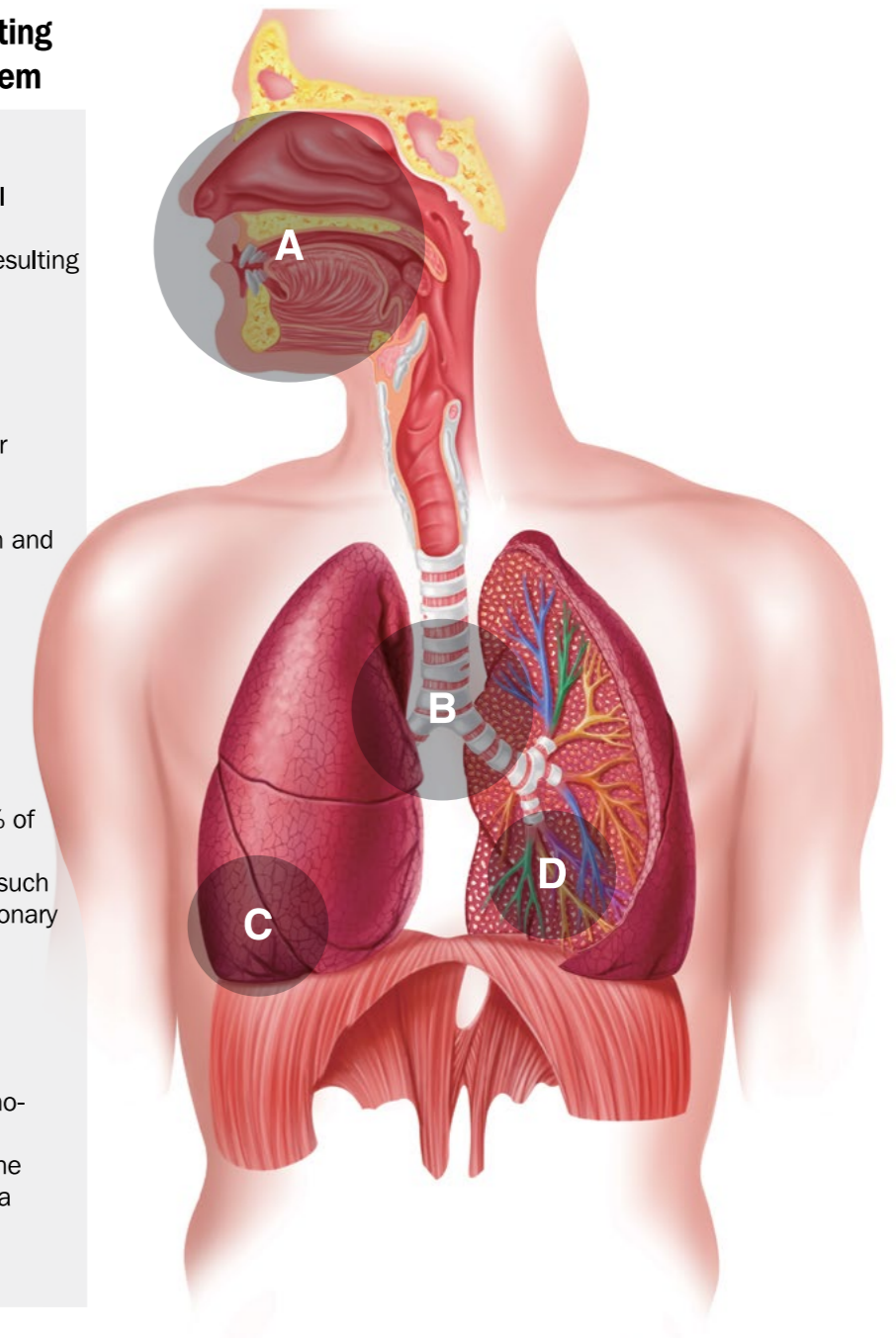
Different Particle Sizes And Distributing Positions Affecting Respiratory System

- A >10µm**
Distributing Position: Deposit at the nasal pharynx
Influence: Easy to cause allergic rhinitis, resulting in diseases such as cough and asthma.

- B 2.5~10µm**
Distributing Position: Deposit at the upper nasal cavity and deep respiratory tracts.
Influence: It may cause fibrillary paralysis, bronchial mucus membrane over-secretion and cryptae mucosae proliferation that lead to reversible bronchial spasm, suppress deep breath and spread to small bronchus.

- C <2.5µm**
Distributing position: Less than 10% of deposit at the bronchus and about 20-30% of deposit at the pulmonary alveolus.
Influence: it may cause various diseases, such as chronic bronchitis, bronchiectasis, pulmonary edema or bronchus fibrosis.

- D <0.1µm**
Distributing Position: Deposit in the pulmonary alveolus tissues.
Influence: It may cause macrophages in the lung, which result in pulmonary emphysema and pulmonary alveolus destruction.



World-class Quality Level

With the aim to achieve a world-class quality level, Ri Hsiung has passed world-renowned certifications like CE. From product design, materials receiving inspection, in-process inspection to final inspection and test prior shipping, the entire quality control processes are conducted according to international standards.

- High-efficiency, low noise and air purification.
- Stainless steel twilled screen designed that provides optimal oil mist interception effect.
- Turbo type blade wheel features extra powerful centrifugal force and suction force, achieving exceptional oil throw-away performance.
- 3,500 rpm high speed motor enables the blade wheel to drastically increase centrifugal force during running.
- Special oil fluid separation design.
- The collected oil mist does not need to be further filtrated and can be re-used directly.
- Equipped with a pressure gauge that enables the operator to replace the filters at the correct moment.

Applicable Industries

- Machining shop
- EDM machining shop
- Punching plant
- Petrochemical processing factory
- Glass surface processing plant
- Food processing plant
- Textile factory
- Electronic factory (Clean room)

Applicable Machinery

- Machining center
- Electrical Discharge Machine
- CNC lathe
- CNC milling machine
- Grinding machine
- Drilling machine
- Plastic injection molding machine
- Other machining equipment

Oil Mist Collector & Air Cleaner

Oil mist collection and purification efficiency

reaches over

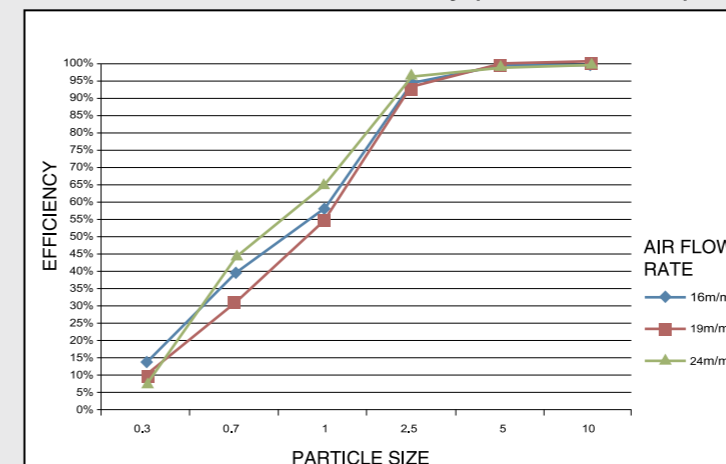
99.9%

Your No.1 Choice in Energy Saving & Carbon Reduction

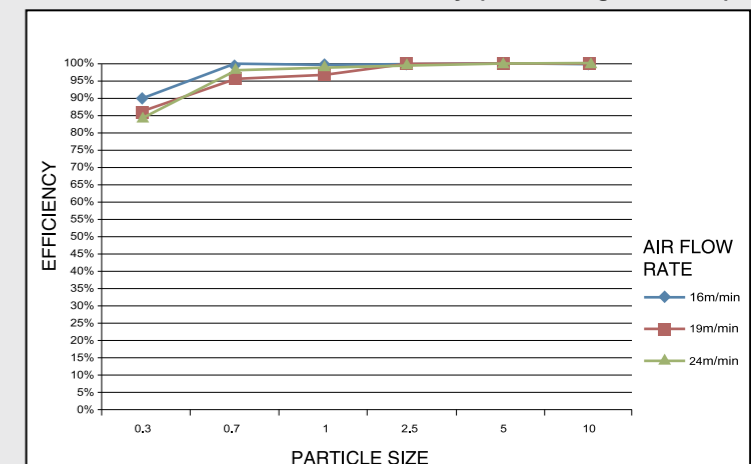


Comparison Of Oil Mist Collection Efficiency

Particulate Matter Filter Efficiency (General Models)



Particulate Matter Filter Efficiency (Ri Hsiung AIOLOS)



Oil Mist Collection And Air Purification Processes



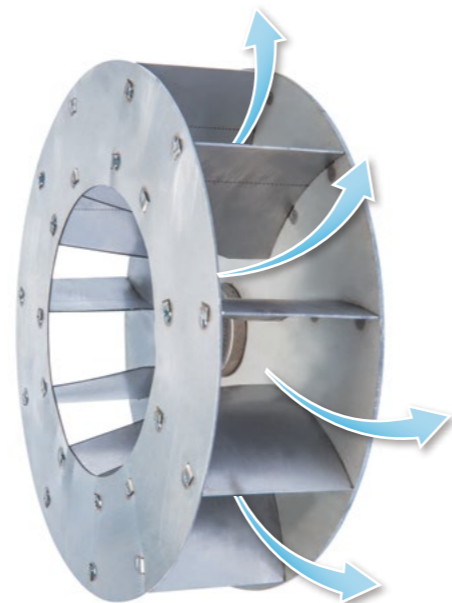
Direct Interception Intercepts 70% of Oil Mist

- When oil mist streamlines flow through the stainless steel filter screen at the front end, mist particles can be easily intercepted and collected.
- This stainless steel filter can be cleaned and re-used.



Diffusion Effect and Second Interception

- Once mist particles hit the stop plates, they may cause dispersed flow and diffusion, before being easily collected by a large area woven screen at the second stage.
- Oil mist hitting generates static electricity that absorbs oil mist, making oil droplet collection more convenient.

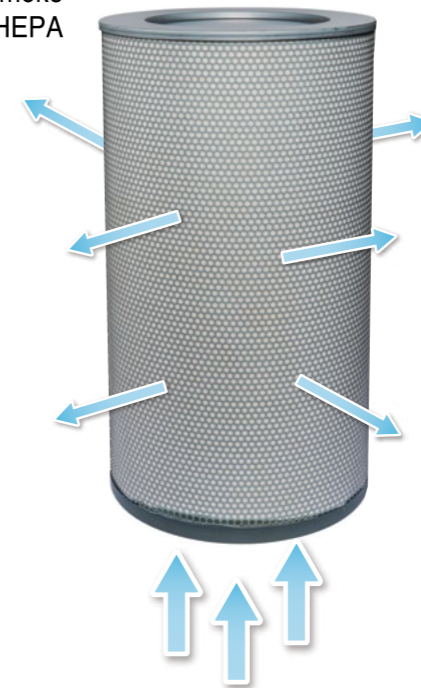


Centrifugal Hitting Extra Powerful Centrifugal Blade Wheel

The turbo type blade wheel integrates innovative features such as extra powerful suction force and centrifugal force as well as high speed cyclone that allow oil mist to adhere on the internal walls. Then, mist particles are intercepted by the internal oil stop plates, before being collected.

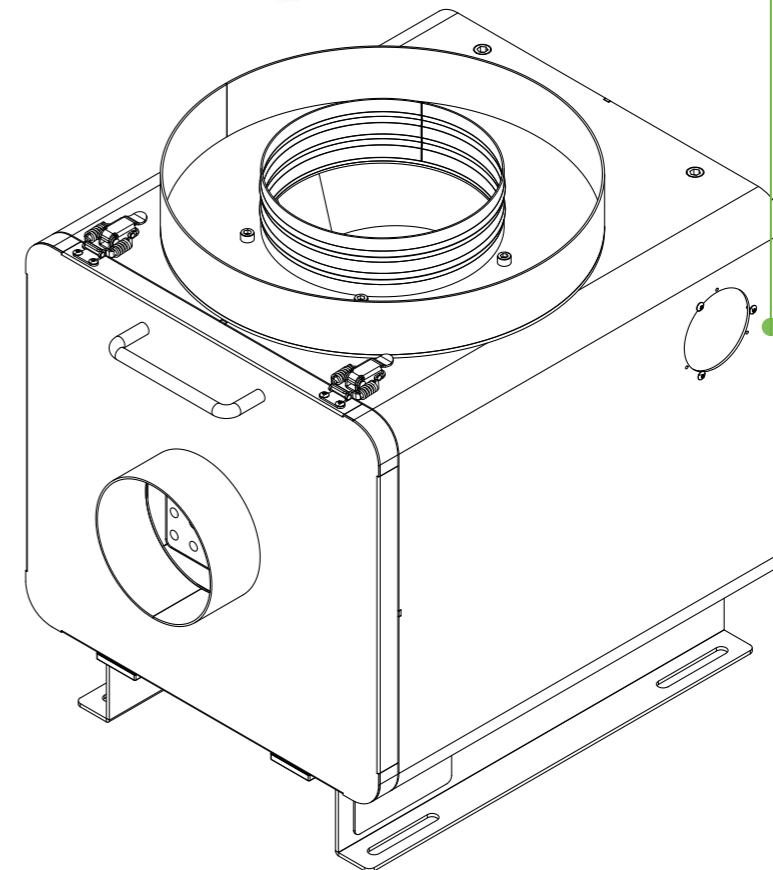
Final Filtration (Consumables) Smoke Filtration

Although oil mist has been filtrated at various stages, there is still some smoke contained in the air. Such smoke can be removed with the use of a HEPA filter drum.



Pressure Detection Gauge

The pressure detection gauge indicates the time when the filters need to be cleaned or replaced. This reduces electricity consumption, while maintaining high efficiency oil mist removal.



Sophisticated Inspection Instruments

Ri Hsiung's Q.C. department is fully equipped with a wide range of sophisticated inspection equipment. With these inspection instruments, Ri Hsiung's well-trained Q.C. personnel can rigorously inspect the performance of each oil mist collector and the level of particulate matters contained in the environment.

Particulate Matter Content Inspection Instrument

Used for inspecting the existing amount of particulate matters in the air.



Sound Level Meter

The sound level meter is applied for testing the noise level when oil mist collector is running.



Air Flow Tester



Vibration Tester

The digital type vibration tester is used to accurately inspect vibration condition when oil mist collector is running.



VOC Inspection Instrument

It is applied to inspect various volatile organic compounds (VOCs) contained in the air, which are harmful to human health.



Infrared Thermal Meter



Legend of Filter Drum Configuration

Applicable Environment for Two Types of Filter Drums:

POLY-FIBER FILTER DRUM : (For water coolant)

This type of filter drum is perfect for water-based cutting fluid and light cutting applications. When water moisture and oil mist are generated during machining, a poly-fiber filter drum is recommended.

GLASS-FIBER FILTER DRUM : (For both water & pure oil coolant)

This type of filter drum is suitable for oil-based cutting fluid and heavy cutting applications. During heavy machining process, if massive oil smoke is generated in addition to water moisture and oil mist, a glass-fiber filter drum should be applied.

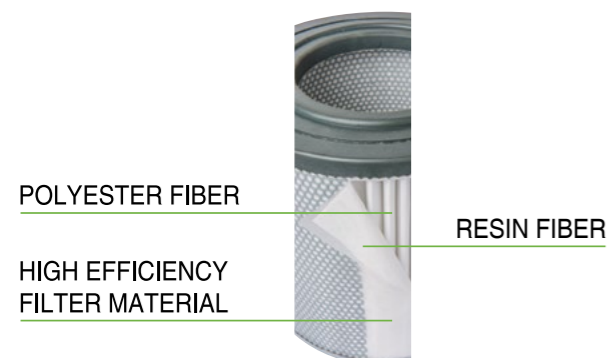
Available Types Of Filter Drums:

POLY-FIBER FILTER DRUM :

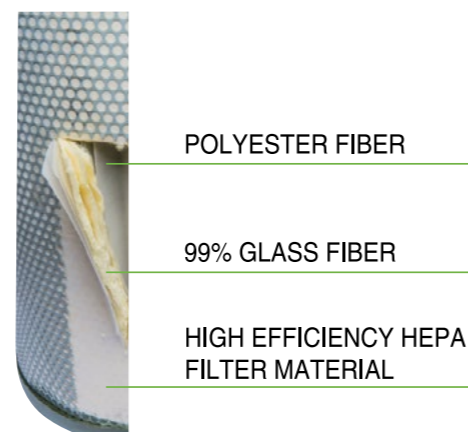
Poly Fiber	300mm	600mm
MC 250+ MC 500+	★	
MC 1000+ MC 1500+	★	

GLASS-FIBER FILTER DRUM :

Glass Fiber	300mm	600mm
MC 250+ MC 500+	★	
MC 1000+ MC 1500+	★	★



▲ POLY-FIBER FILTER DRUM

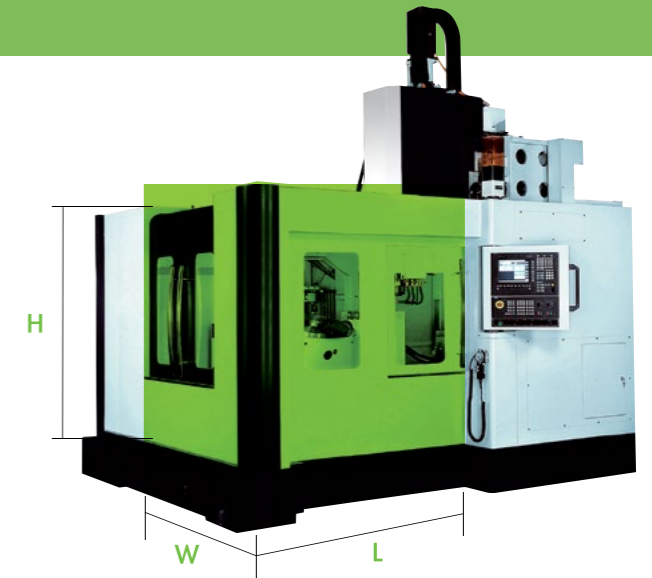


▲ GLASS-FIBER FILTER DRUM

Selection guide for oil mist collector according to machine volume

$$L \times W \times H = M^3$$

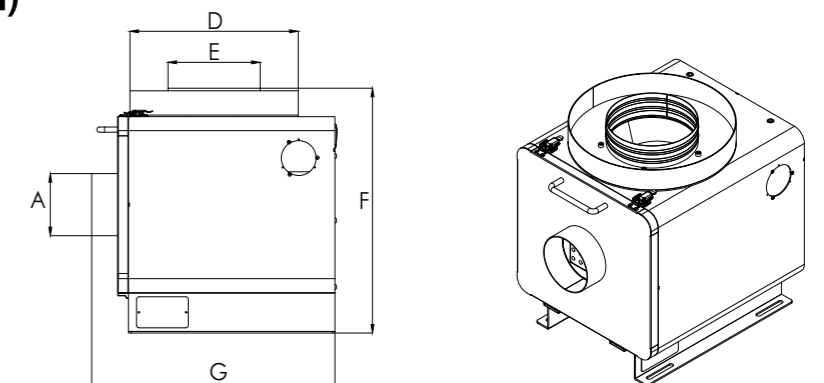
MODEL SELECTION REFERENCE



SPECIFICATIONS

MODEL	UNIT	MC 250+	MC 500+	MC 1000+	MC 1500+
Motor	kW	0.18	0.37	0.75	1.12
Air flow (50 / 60 Hz)	m³/min	11/13	20/24	34.5/41.5	42/49
Noise level	dB	≤65	≤68	≤70	≤75
Weight	kg	33	40	49	59
Air suction port	mm	Ø100	Ø125	Ø150	Ø150
Power source	V	3ph.200-220 3ph.380-415	3ph.200-220 3ph.380-415	3ph.200-220 3ph.380-415	3ph.200-220 3ph.380-415
Model selection	M³	<1	1-4	4-6	6-8

Dimensional Drawings (mm)



	A	B	C	D	E	F	G
MC 250+	95	234	325	325	178	433	449
MC 500+	120	274	365	325	178	473	470
MC 1000+	145	289	380	380	217.4	526	535
MC 1500+	145	359	450	380	217.4	580	540

Management Philosophy

Follow The Right People. Do The Right Thing.

With a total dedication to research and design, Ri Hsiung manufactures various types of oil mist collectors and air cleaners that meet the requirements for energy saving and carbon reduction. As environmental awareness is rising gradually, governments and entrepreneurs pay attention to the prevention of occupational diseases. In addition, the conventional vacuum extraction methods used in the past to discharge harmful gases out of the factory are not considered as effective solutions to purify air and improve its quality within the factory. In some factories with negative pressure, such methods may even cause an increase of electricity consumption resulting in environmental pollution.

As such, Ri Hsiung focuses on helping customers to solve environmental pollution problems that cannot be effectively managed when industry strives for upgrading its production efficiency. Ri Hsiung has built up a team of professionals, dedicated to research and design for oil mist collector development. Based on the environmental technology concept that relies on uncompromising quality requirements for our products, we serve each customer with the principle of "Professional Service Priority". Through self-development, we always strive to play the role of pioneer in this global competitive market. Furthermore, we always keep moving together with our customers toward the goal of success.

Quality Control

Ri Hsiung's oil mist collectors and air cleaners are designed with the centrifugal force oil mist separation principle through turbo blades. Our units integrate outstanding features such as simple construction, compact installation space, easy maintenance, convenient operation, great smoke and oil mist removal capacity, long service life, low running cost and easy function expansion. Applicable for grinding machines, gear machining equipment and large type machining centers, Ri Hsiung's oil mist collectors and air cleaners are also suitable for other equipment that may generate oil mist, dusts, oil fumes or emulsified air mist.

During manufacturing process, rigorous quality controls are conducted throughout the entire production to ensure quality. Ri Hsiung's rigorous quality requirements are also applied on finished products, which are all subject to comprehensive inspections and tests prior shipping. What we do is to deliver the best possible product quality to our customers. In order to achieve a world-class quality level, Ri Hsiung has been certified by world-renowned authoritative organizations such as SGS and CEPROM. From product design, material receiving inspection, in-process inspection to final inspection before shipment, every detail is cared for reaching quality excellence. This also ensures that each Ri Hsiung's product exhibits the highest performance with maximum durability. The rigorous implementation of total quality control combined with superb quality level allows Ri Hsiung to look forward to becoming an excellent enterprise with maximum dependability.

Application Examples

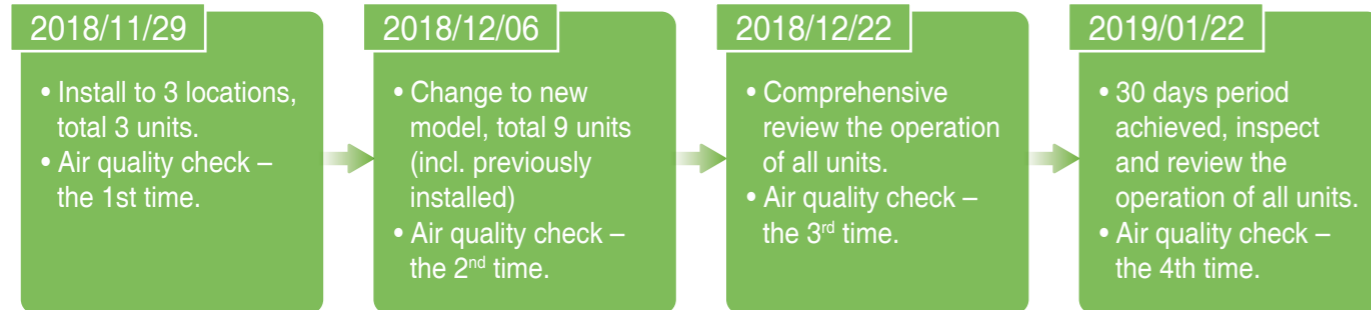


CASE STUDY

Background:

Customer : Stock-listed electronic components company, an excellent supplier for APPLE and laptop.
CNC Machine quantity : 500+
Current facility : Air-conditioned factories with central air extraction piping system. All-oil-based cutting fluids are used in production and processing; however, the current system is insufficient. The remains lead to oily floors and electronic equipment and air-conditioning malfunction frequently.

Installation & Schedule:



Oil Mist Collector spec.

Installed Area:
MOLD ROOM

1 on 1, total 9 units.



MODEL	UNIT	MC-1500
Power Source	V(3PH)	220 / 380
Motor	kW/hp	1.2 / 1.6
Air Flow (50Hz/60Hz)	M³/h	1260 / 1560
Noise Level	dB	≤72
Weight	kg	53
Air Suction Port	mm	Ø150
Rotation	rpm	2850 / 3500
Application	M³	6-8

US AQI Level	PM2.5 (µg/m³)	Health Recommendation (for 24 hour exposure)
WHO PM2.5 (µg/m³) Recommended Guidelines as of September 22, 2021: 0-5.0		
Good 0-50	0-12.0	Air quality is satisfactory and poses little or no risk.
Moderate 51-100	12.1-35.4	Sensitive individuals should avoid outdoor activity as they may experience respiratory symptoms.
Unhealthy for Sensitive Groups 101-150	35.5-55.4	General public and sensitive individuals in particular are at risk to experience irritation and respiratory problems.
Unhealthy 151-200	55.5-150.4	Increased likelihood of adverse effects and aggravation to the heart and lungs among general public.
Very Unhealthy 201-300	150.5-250.4	General public will be noticeably affected. Sensitive groups should restrict outdoor activities.
Hazardous 301+	250.5+	General public at high risk of experiencing strong irritations and adverse health effects. Should avoid outdoor activities.

MOLD ROOM

Air Quality Data BEFORE OIL MIST installed

TIMESTAMP	LOCATION	PM 2.5 (µg/m³)
2018/12/6 09:23	Entry of mold room	232.66
2018/12/6 09:25	YCM MV106A/Front of sliding door	273.81
2018/12/6 09:26	YCM MV106A/Door seam	249.92
2018/12/6 09:28	CNC Machine EDM/Door seam	95.49
2018/12/6 09:29	CNC Machine EDM/Front of sliding door	103.31
2018/12/6 09:31	MORI MV5000/Front of sliding door	183.44
2018/12/6 09:32	MORI MV5000/Door seam	170.64
2018/12/6 09:38	MORI MV4000/Front of sliding door	374.22
2018/12/6 09:40	MORI MV4000/EDM area	67.48

Air Quality Data AFTER installed MORE than 30 days

TIMESTAMP	LOCATION	PM 2.5 (µg/m³)
2019/1/22 14:18	Entry of mold room	37.35
2019/1/22 14:33	Ventilated area outside of mold room	68.11
2019/1/22 14:19	MORI MV5000/Front of sliding door	60.41
2019/1/22 14:21	MORI MV5000/Behind machine, oil mist area	55.41
2019/1/22 14:24	MORI MV4000/Front of sliding door	48.80
2019/1/22 14:25	MORI MV4000/Door seam	34.01
2019/1/22 14:27	MORI MV4000/Behind machine, oil mist area	72.01
2019/1/22 14:35	MORI MV4000/from filter drum	0.27
2019/1/22 14:38	MORI MV4000/next to filter drum	29.57
2019/1/22 14:22	CNC Machine (EDM) front of sliding door	40.95
2019/1/22 14:29	CNC Machine (EDM) next to oil mist collector unit	16.36
2019/1/22 14:31	YCM/Door seam	47.19

BEFORE & AFTER

> 1 Month <

LOCATION	PM 2.5 (µg/m³)			
	Test time	Before Install	Test time	After
Front of Entry of Mold Room	2018/12/12	157.65	2019/01/22	37.35
MORI MV5000 / Front of sliding door	2018/12/22	81.01	2019/01/22	60.41
CNC Machine (EDM) / Front of sliding door	2018/12/06	103.31	2019/01/22	40.95
MORI MV4000 / Front of sliding door	2018/12/06	374.22	2019/01/22	48.8
YCM / Door seam	2018/11/29	151.36	2019/01/22	34.01
YCM / Door seam	2018/12/06	249.92	2019/01/22	47.19
Ventilated area outside of Mold Room			2019/01/22	68.11

OUTCOMES:

After more than 30 days of operation, it was found that the indoor **PM2.5 37.35** was significantly better than the outdoor open air area **PM2.5 68.11**. Customer is very satisfied with the result and going to adopt AiOLOS Oil Mist Collector to replace their central system.