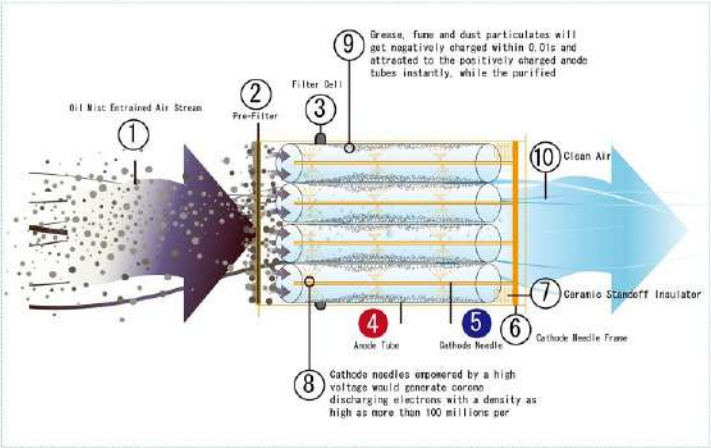
KLEANLAND

Industrial Oil Mist Collector （ESP）

"TO BE THE MOST COMPETITIVE ESP SUPPLIER IN THE WORLD"

How Does KLEAN ESP Work



Theoretically speaking, ESP technologies are used for the purpose of removing particulate matters from gas streams by applying an electrostatic charge to the fume & mist particulate with electrons emitted from the cathode section of the high voltage electric field, and negative ions produced as a result of co-mingling and collision of electrons and air molecules.

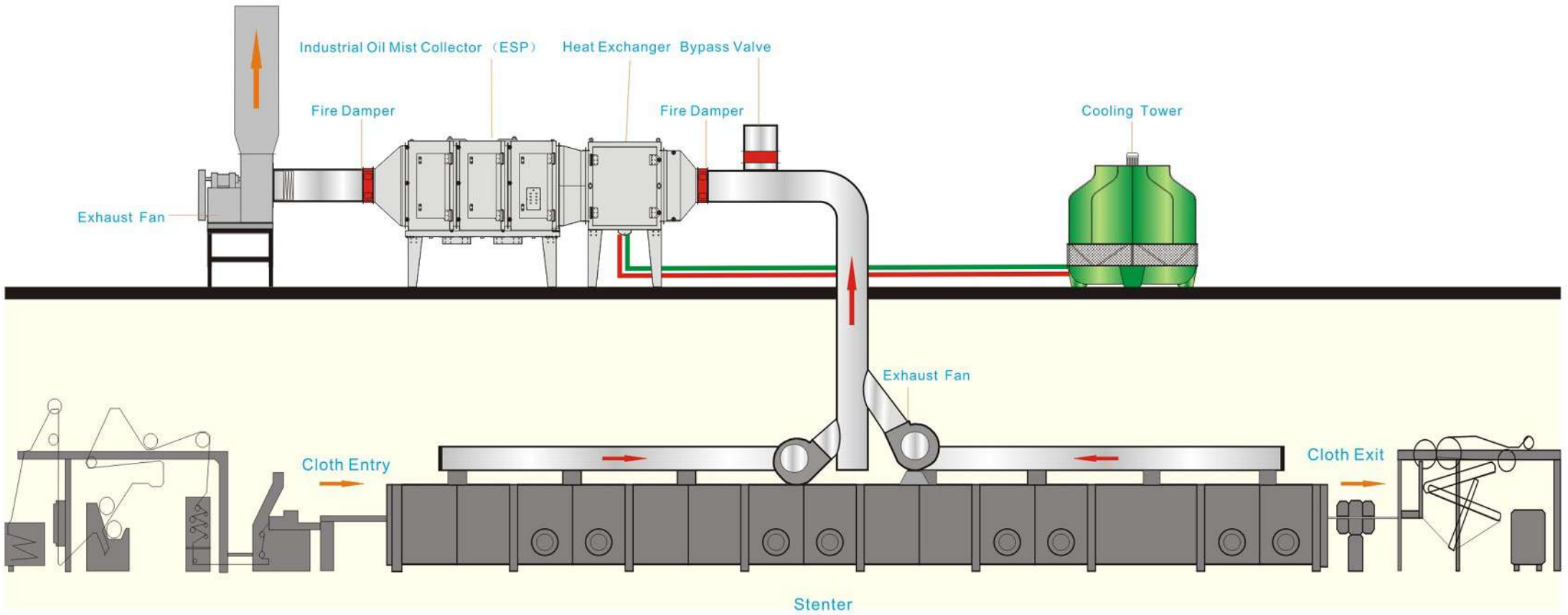
Following the negative electrostatic field created by the power supply, the negatively charged particulates would be attracted to the positively charged anode section and get captured, while the purified exhaust gas comes out clean.

Given the tiny size of the electrons (which is several orders of magnitude smaller than that of the fume & mist particulates) and the high density of electrons discharged ($\geq 1\times 10^{8}/cm^{3}$), ionization of fume & mist particulates entrained in the exhaust airflow would be practically inescapable.

Rather than simply due to the occasional collision, fume & mist particulates in the electric field are bound to be charged according to the rules of basic charging mechanisms, namely field and diffusion charging. Negatively charged particulates are bound to be attracted to the positively charged anode section and get captured, thus achieving an extremely high air cleaning efficiency.

In contrast to other air cleaning devices, ESP applies energy only to the particulate matter being collected and therefore impart very low pressure drop on the air stream. In most cases, it is not necessary to choose an ID fan with much higher pressure for ventilation, resulting in a high-efficiency in its total consumption of energy (in the form of electricity)

KLEAN's Solution to Collect Stenter Oil Mist Emissions



A frequent result of heatsetting process of fabrics with a stenter is the release of heavy hot fumes containing organic oil vapors, dye staff particulates, finishing auxiliary mist, lint, etc. causing prodigious heat losses and air pollution.

Hot exhaust fume thus released passes through a pre-filtration device, where fiber particulates can be separated, then enters a heat exchanger and gets cooled down to a certain level where our ESP performs best, and finally enters our ESP, where organic oil vapors, dye staff particulates, finishing auxiliary mist getting captured and condensed can be collected and put into other proper use, leaving the processed flue gas coming out clean.

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Features of KLEAN ESP system for Stenter Exhaust Air Cleaning

1.Enormous efficiency:
Oil Mist Removal efficiency≥99%,
Particulate removal efficiency≥99% (at rated airflow capacity).

2.Quantity of waste oil collected by the ESP system can be huge, and collected oil features a comparatively high purity, which can be used as fuel, reused for lower end products or resold to waste collectors for further processing, thus the financial investment in this system can pay off over a short period of time.

3. Maximum security against fire hazards: consummate electrical protection functions, complemented with an efficient Fire detection and Suppression system, leaving no fire hazards undetected and no open flame unquenched.

4. Modular structure, plus multi-power control, ensuring the proper performance of the whole system even if some of the power packs failed to work.

5. Ease of cleaning and maintenance: Filter cells are washable and can be easily accessible through the cell access door.

specifications

Model	Airflow Capacity	Size (mm)			Net Weight	Power Consumption	Suitable for
	m^3/h	L	W	H	KG	KW	
BSG-216-12K	12000	2616	2060	2560	1273	4.2	5-chamber stenter
BSG-216-16K	16000	3489	2060	2560	1664	5.7	8-chamber stenter
BSG-216-20K	20000	4362	2060	2560	2122	7.1	8-10 chamner stenter
BSG-216-24K	24000	5235	2060	2560	2513	8.5	10-chamber stenter

A Sure Win Investment

Specially designed to tackle oil-laden fumes, our ESP is not only a perfect solution to reduce exhaust emissions resulting from the volatilization of solvent-base textile auxiliaries during heatsetting. Given the enormous oil mist removal efficiency of our unit and the comparatively high purity of the collected waste oil, it is also a sure win investment.

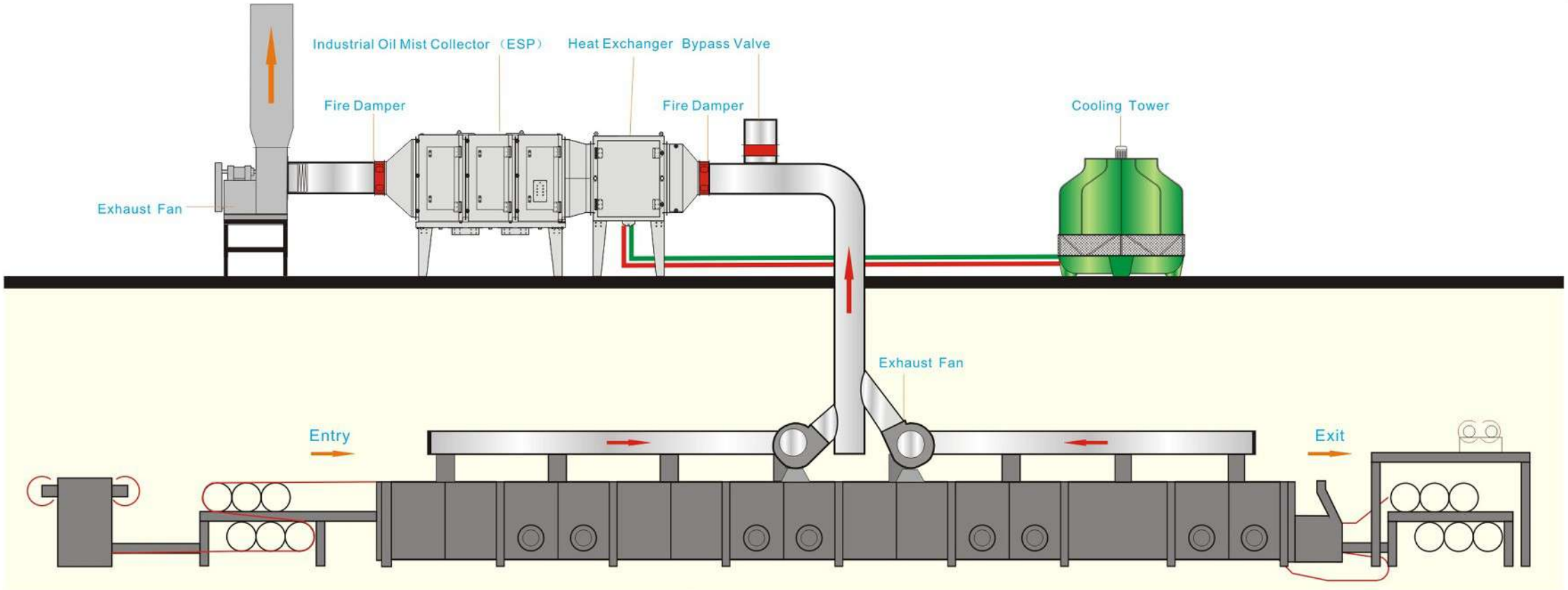
Suppose you have a five-chamber stenter working 24 hours a day and 330 days a year, we'd recommend an ESP that features an airflow capacity of 12000 m^3/h for this stenter. Given an average fume concentration of up to 470 mg/m^3, we would know that the amount of collected waste oil per day would be:

$Q = C * V * H * \eta = 470*12000*24*10^{-6}*99\% = 134$ kg.

See the table below and get to know how much our ESP can save you and create for you.

Main electric power equipment of a typical system	Power Consumtion	Operating Time	Electricity Fees	Collected Waste Oil	Waste Oil Price	Returns	Profit
	KW	day/year	RMB	kg/day	RMB/KG	RMB/year	RMB/year
ESP	5.7	330	27086	134	3	132660	50214
Exhaust Fan	7.5		35640				
Water Pump	2.2		10454				
Cooling Tower	2.25		10692				

KLEAN's Solution to Collect DOP Oil Mist Emissions



Drying Chambers of PVC Production Line

Emissions of DOP plasticizer-based oily vapor from the processing of a wide variety of PVC product, such as synthetic leather, vinyl flooring, wallpaper, latex/vinyl gloves, anti-slip mats, flex banners, conveyor belts, PVC coated air socks, plastic wire mesh, etc. are contained and exhausted by the fume hood, then directed through the ventilation ductwork and introduced into a water-cooled heat exchanger, where temperature of the exhaust gas can be cooled down to a certain level where conditions for the performance of the electrostatic precipitator (ESP) would be comparatively ideal. Oily contents in the exhaust gas, such as DOP, viscosity reducer, etc. are collected by the high voltage electric field created by our ESP, collection efficiency of which can reach up to ≥95%, while emissions of the processed exhaust gas would be legitimate. The collected oily particles coalesce into larger droplets, begin to flow, and drain from ESP. Featuring a comparatively high purity, the collected waste oil can still be recycled and used as raw material, or can be sold to the waste oil collector for further processing, thus the initial investment in this system can pay off over a short period of time.

Features of KLEAN ESP system for DOP Oil Mist Recovery

Features

1.Enormous efficiency:
Oil Mist Removal efficiency≥99%,
Particulate removal efficiency≥99% (at rated airflow capacity).

2.Quantity of waste oil collected by the ESP system can be huge, and collected oil features a comparatively high purity, which can be used as fuel, reused for lower end products or resold to waste collectors for further processing, thus the financial investment in this system can pay off over a short period of time.

3. Maximum security against fire hazards: consummate electrical protection functions, complemented with an efficient Fire detection and Suppression system, leaving no fire hazards undetected and no open flame unquenched.

4. Modular structure, plus multi-power control, ensuring the proper performance of the whole system even if some of the power packs failed to work.

5. Ease of cleaning and maintenance: Filter cells are washable and can be easily accessible through the cell access door.

Specifications

Model	Airflow Capacity	Size (mm)			Net Weight	Power Consumption
	m³/h	L	W	H	KG	KW
BSG-216-12K	12000	2616	2060	2560	1273	4.2
BSG-216-16K	16000	3489	2060	2560	1664	5.7
BSG-216-20K	20000	4362	2060	2560	2122	7.1
BSG-216-24K	24000	5235	2060	2560	2513	8.5

A Sure Win Investment

We also designed an ESP system especially for the PVC production line. It can perfectly solve the air pollution problem during the PVC production process. Meanwhile, the waste DOP/ DEHP oil collected by the ESP would feature a comparatively high purity, thus can be put into other proper use, or to be sold to the waste oil collector for further processing, offsetting a substantial amount of initial capital and operational investment.

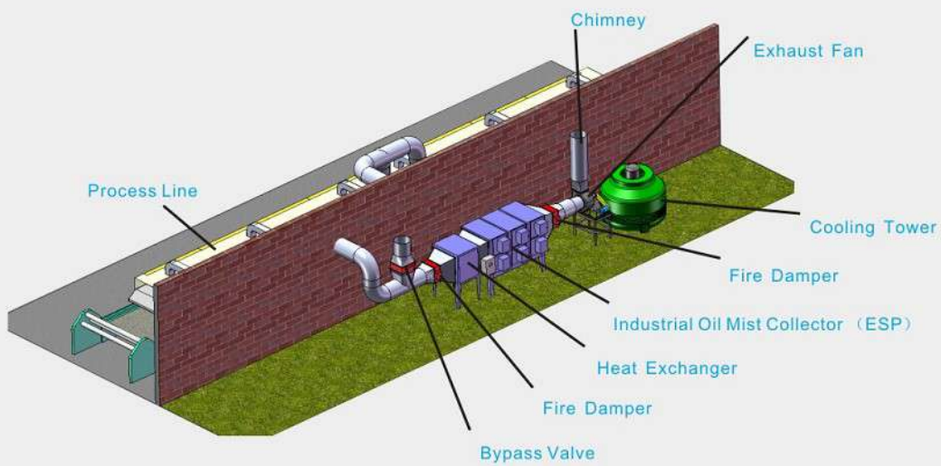
Take a 25m-long drying line of a PVC production line for example. We'd normally recommend an ESP with an airflow capacity of 16000 m³/h. If the production line keeps working for 24 hours a day and 330 days per year, and fume concentration is up to 450mg/m³, then the amount of collected waste oil per day would be:

Q = C*V*h*η = 450*16000*24*10⁻⁶*99% = 171kg.

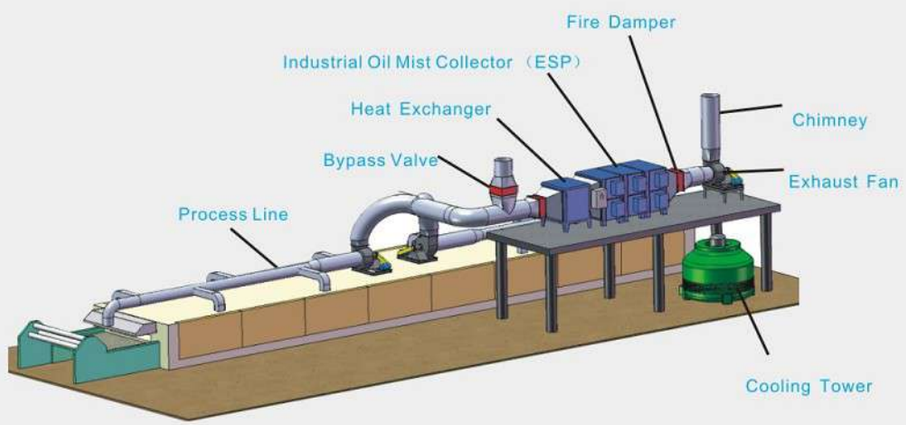
See the table below and get to know how much our ESP can save you and create for you.

Main electric power equipment of a typical system	Power Consumtion	Operating Time	Electricity Fees	Collected Waste Oil	Waste Oil Price	Returns	Profit
	KW	day/year	RMB	kg/day	RMB/KG	RMB/year	RMB/year
ESP	5.7	330	27086	171	6	338580	255018
Exhaust Fan	7.5		35640				
Water Pump	2.2		10454				
Cooling Tower	2.25		10692				

Outdoor Installation



Indoor Installation



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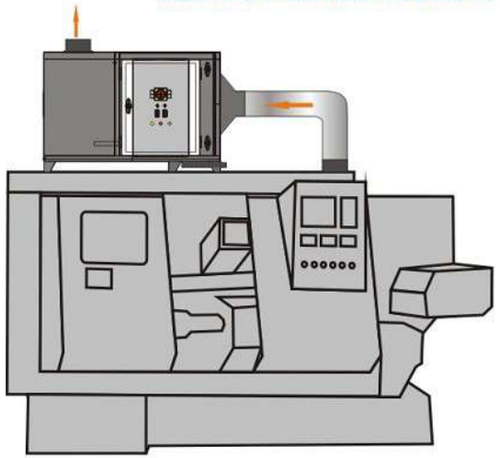
Machine-mounted Oil Mist Collector

Image for Reference Only

Heavy airborne smoke particles and droplets are generated due to the use of various oily metalworking fluids during CNC machining, fasteners processing, steel oil quenching and other metal processing procedures, long-term exposure to which may cause chronic occupational diseases or lower working efficiency in workers resulting from the chemically toxic and physically irritating ability of the metalworking oil. Finely dispersed oil mist would precipitate, along with metal particles from previous processing, on the floor, making it very slippery and more prone to accidents, and on the friction component of the processing machinery, exerting influence on the processing precision of the CNC machines and other equipment and tools.

With the help of our electrostatic oil mist collector, 99% oil mist produced during your metalworking processes can be removed from the indoor air environment and collected for recycling purposes.

Machine-mounted Treatment



Features

1. Enormous Oil Mist removal efficiency:
⩾99% at rated airflow capacity.
Processed air can be discharged directly into the workplace
2. Safe and stable: our unit features a consummate electrical protection system, complemented by Self Monitoring and Malfunction Self-diagnosis functions.
3. Ease of cleaning and maintenance: Filter cells are washable and can be easily accessible through the cell access door.
4. Light weight and Compact size: ensuring ease of installation
5. Pollutants can be collected by using our stand-alone units or our centralized treatment station

Specifications

Model	Airflow Capacity	Size (mm)			Purification Efficiency	Power Consumption
	m^3/h	L	W	H	%	KW
BSG-216J-1000	1000	1685	750	770	⩾99%	1.22
BSG-216J-2000	2000	1975	909	932.5	⩾99%	2.02

Applications

Mobile Welding Fume Extractor

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Features

1、Enormous Oil Mist removal efficiency: ≥99% at rated airflow capacity. Processed air can be discharged directly into the workplace

2、Safe and stable: our unit features a consummate electrical protection system, complemented by Self Monitoring and Malfunction Self-diagnosis functions.

3、Flexible extraction arm plus Alfa extraction hood, can be used to pick up welding fume from any direction without exerting any negative influence on welder's working efficiency.

4、Ease of cleaning and maintenance: Filter cells are washable and can be easily accessible through the cell access door.

5、Pollutants can be collected by using our stand-alone units or our centralized treatment station

Welders are subject to high level of exposure to welding fumes, most of which are inhalable sub-micron particulates and may lead to acute or chronic respiratory diseases if inhaled, thus should be get rid of before it enters the respiratory system.

In view of this, we offer you our electrostatic welding fume extractor. Light weight and compact size, complemented with a 2-meter long flexible extraction arm, our electrostatic welding fume extractor ensures you the ease of installation and use for wave soldering, metal welding, laser cutting, etc. when fine dust and fume particulates constitute principle pollutants.

Specifications

Model	BSG-216H
Airflow Capacity (m^3/h)	2000
Size (L×W×H mm) (w/o Alfa Extraction Arm)	641*701*1460
Purification Efficiency	≥99%
Power Consumption (KW)	1.6kw

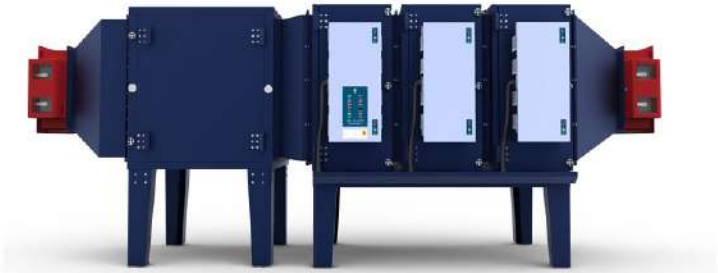
Mobile Stand-alone Treatment

Centralized Treatment

Multiple positions extraction

Centralized processing

Centralized Oil Mist Collector for Metalworking Fume & Vapor



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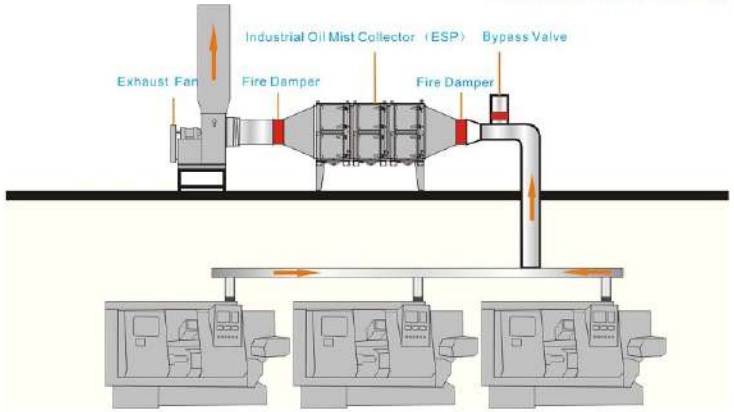
Features

1.Enormous efficiency:
Oil Mist Removal efficiency≥99%,
Particulate removal efficiency≥99% (at rated airflow capacity).
2.Quantity of waste oil collected by the ESP system can be huge and the oil features a comparatively high purity, thus the financial investment in this system can pay off over a short period of time.
3. Maximum security against fire hazards: consummate electrical protection functions, complemented with an efficient Fire detection and Suppression system, leaving no fire hazards undetected and no open flame unquenched.
4. Modular structure, plus multi-power control, ensuring the proper performance of the whole system even if some of the power packs failed to work.
5. Ease of cleaning and maintenance: Filter cells are washable and can be easily accessible through the cell access door.
6. Intelligent control system: optional HMI touch panel with self-test and malfunction-display functions.

Specifications

Model	Airflow Capacity	Size (mm)			Net Weight	Power Consumption
	m³/h	L	W	H	KG	KW
BSG-216-4K	4000	870	2060	2560	492	1.4
BSG-216-8K	8000	1743	2060	2560	883	2.8
BSG-216-12K	12000	2616	2060	2560	1273	4.2
BSG-216-16K	16000	3489	2060	2560	1664	5.7
BSG-216-20K	20000	4362	2060	2560	2122	7.1
BSG-216-24K	24000	5235	2060	2560	2513	8.5

Centralized Treatment



We'd recommend our centralized metalworking fume & vapor collection station for workplaces with multiple fume & vapor emission points. Such centralized system situated at a convenient location somewhere at the end of a well-sealed ventilation system, which probably include extraction hoods over workbenches, can effectively capture metalworking fume & vapor at source from any number of fume & vapor emission points, such as CNC machine tools, fasteners and fixings process lines, multiple welding stations, laser/plasma cutting machines, etc, while at the same time offers quieter operation at the workplaces and reduces the frequencies of air changes for the workshops, thus is a versatile and cost-effective solution offering improved working conditions and reduced load on the environment

Applications

Workshop extraction

Centralized Treatment

Why Choose KLEAN ESP

Patented Cylindrical Honeycomb Structure Electric Field

Maximized corona discharging uniformity & electric field intensity, hence maximized purification efficiency. Superior mechanical strength compared with other conventional electric fields, which are apt to get deformed easily during the maintenance and cleaning procedures.

High-Performance Power Pack

High-frequency high-voltage solid-state transformer with epoxy resin encapsulation, driven by half-bridge switching converter, and is powerful, stable and energy-saving.

Additional Neutralization Device

Neutralizer is introduced to modulate the resistivity of the particles in order to improve the collection efficiency as well as shorten the maintenance cycle of the electrostatic precipitator.

International-standard Safety

Our products are CE certified and UL 867 and UL 710 tested, epitomizing the internationally accredited safety of our ESP' s.

Consummate Control Circuit

Perfect circuit control can make sure the facility have the following functions, soft startup, invariable current output, arc extinction and auto reposition, short circuit protection, power over loading protection, transformer over-heated protection and malfunction diagnosis.

Flexible Assembly Combinations

Modular design, allowing for flexible assembly combinations of electric field cells as well as of the whole ESP set. Almost all components can be easily knocked-down and assembled.