

MIST COLLECTORS

Monroe Environmental® Mist Collectors provide oil mist, smoke, and vapor removal from metal cutting fluids, metal processing coolants, synthetic fiber processing oils, parts washer exhaust, and many other mist applications. Because of our experience, Monroe is able to provide mist collection equipment and services to meet in-plant level criteria of 0.5mg/m³ or less. We are the leaders in mist collection technologies for nearly every application.

Self-Contained, Single Unit Design

Monroe offers several collector designs with proven capabilities exceeding 99% efficiency on many installations. After installation of a Monroe Mist Collector, high production machining areas using water soluble, synthetic, or mineral coolants can discharge clean, filtered air back into the work area, significantly reducing climate control costs.

Monroe Environmental Mist Collectors, with longer operating cycles and higher efficiencies, outperform all other collectors. Because of slower internal velocities through the collector, media replacement and maintenance labor costs are reduced. Collected mist and solids



Fiber Bed Mist Collector



Mist Collection system exhausting machining operations at an automotive plant

are continuously drained from the media without shut-down, significantly prolonging filter life and lowering overall operating costs. Monroe can integrate new units into existing ductwork and ventilation systems or design and furnish new ductwork depending on customer requirements.

Air processed by a Monroe Mist Collector meets air quality standards for in-plant discharge as well as outside exhaust.

- Oil, mist, smoke, and vapor removal
- Efficiencies to 99.9% on 0.3 micron
- 500 – 80,000 CFM standard unit capacities, special designs available depending on plant requirements
- Ductwork can be provided, including evaluation, recommendations, design, and manufacture
- Continuous drain for oil/coolant removal and reclamation
- Reduced costs associated with maintenance, energy requirements, and climate control
- Single units to fit an existing operation, or multiple mist collectors for complete in-plant air-quality control
- Ergonomic considerations — Ease of access to all key points on the mist collector
- HEPA filter option is available as final filter stage

Applications

- Machining operations
- Metal cutting
- Metal forming
- Steel and aluminum
- Rolling mills
- Tool and die
- Parts washer exhaust
- Food processing
- Packaging systems
- Produced oils and coolants
- Asphalt operations
- And many others

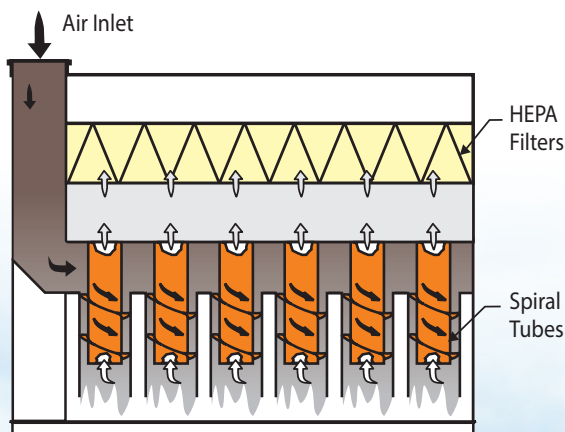
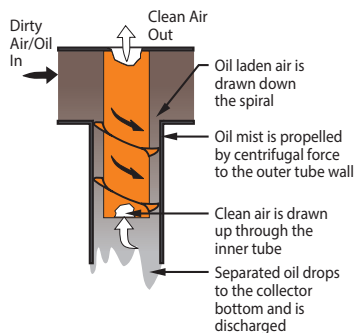
MIST COLLECTOR DESIGNS



Spiral Tube Mist Collector

Spiral Tube Mist Collector

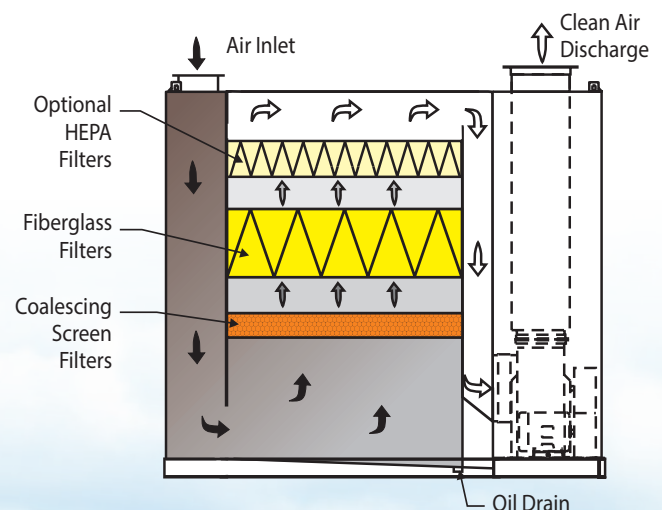
The Spiral Tube Mist Collector is a two-stage mist collector that uses spiral tubes to provide a high level of mist agglomeration and removal without using filters. Centrifugal force and impaction provide the mechanism for primary mist removal. Stainless steel separation tubes provide lower lifetime maintenance costs than filter bags which must be periodically replaced.



Multi-Stage Mist Collector

Multi-Stage Mist Collectors

The Monroe Multi-Stage Mist Collector collects and removes airborne oil, mist, smoke, and sub-micron vapors generated by operations such as high production machining and cold forming. Using a series of filters to separate and remove mist from the air stream, the Multi-Stage Mist Collector includes a drop-out chamber, separator mesh elements, fiberglass filters, and an optional HEPA filtration stage.



Monroe is able to provide oil mist collection equipment and services to meet in-plant level criteria of $0.5\text{mg}/\text{m}^3$ or less.



Fiber Bed Box Mist Collector



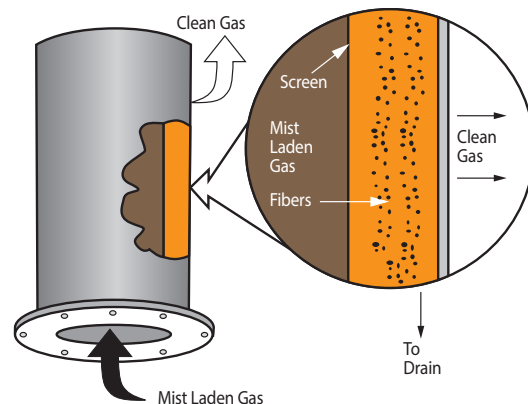
Fiber Bed Filters



Fiber Bed Mist Collector

Fiber Bed Mist Collectors

Custom designed mist collector consisting of a continuous-duty aerosol coalescing filter, fan assembly, and when needed, an optional pre-filter stage. Mist is collected using filter elements consisting of micro-fine fiberglass or synthetic fibers. These long-life filters can provide several years of service before replacement is necessary. When the mist contains heavy droplets and/or dust particles, pre-filtering is provided by separate filter screens. Efficiencies of 99.5% on 0.3 micron mists are typical.

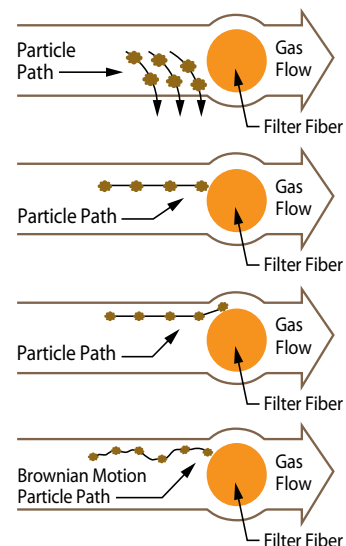


Fiber Bed Box Filters

Filtration Efficiency

The mist particles in the Monroe Fiber Bed Collector are deposited on the filter in four ways:

1. **Gravitational sedimentation** occurs for heavier particles or droplets in the first stage and for coalesced droplets in the final stage.
2. **Inertial impaction**. Particles are unable to adjust quickly enough to the abruptly changing streamlines in the vicinity of fibers (>3 microns).
3. **Interception**. Particles follow a gas stream line that comes within one particle radius of the surface of the fiber (1 to 3 microns).
4. **Diffusion or Brownian movement** greatly enhances the submicron particles tendency to attach themselves to fibers due to their random movement (<1 micron).

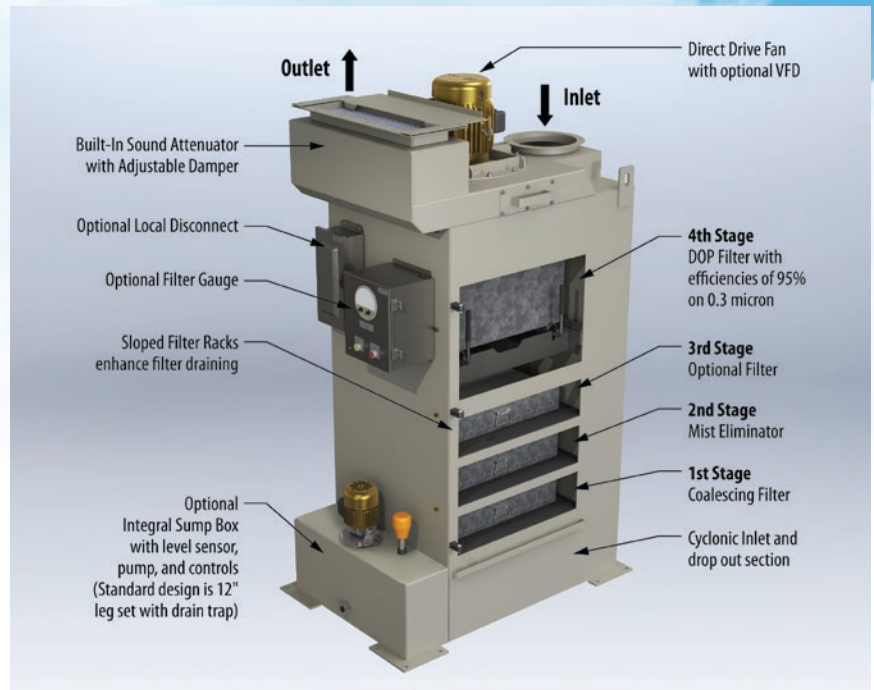


Materials of construction such as FRP, stainless steel, and others can be supplied for acid mist collection, washer exhaust, and other applications subject to corrosion.

COMPACT MIST COLLECTOR DESIGNS



750 CFM Compact Spiral Mist Collector on legs



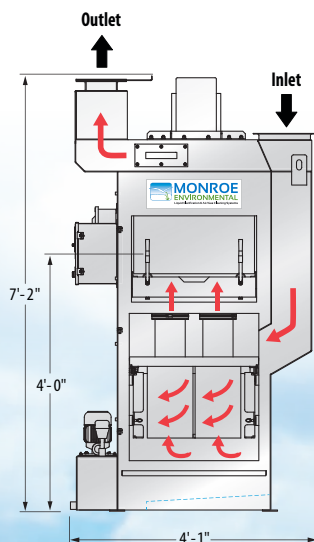
Compact Collectors

Low-Profile, Reduced Footprint Designs

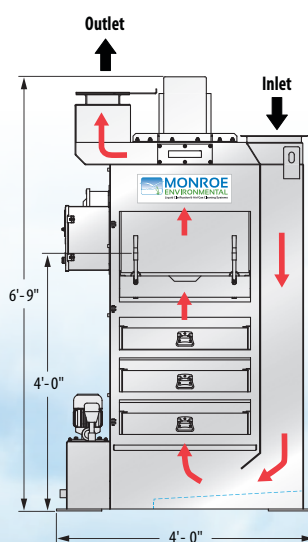
Monroe's most popular Mist Collectors now available in smaller footprint designs. These units combine cost saving and maintenance-reducing benefits with low-profile, reduced-footprint designs that saves floor space and minimizes integration and layout challenges in the modern production plant.

The Compact Mist Collectors are designed to meet the most demanding ergonomic, service, and performance standards of 21st century production plants. The unit can be integrated into any machining operation or can stand alone to exhaust operations using straight oil or water soluble, synthetic, or mineral cutting fluids.

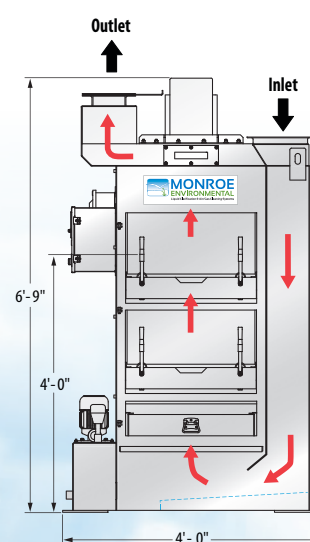
These units are available with spiral tubes, coalescing filters, multi-stage filters, or fiber bed box filters.



Compact Spiral Mist Collector



Monroe CMC Mist Collector



Compact Multi-Stage or Fiber Bed Mist Collector



The Leader in Mist Collectors – Performance and Design

Monroe Environmental has been the premier supplier of mist collection equipment for over 40 years. The largest manufacturing companies in the world have routinely looked to Monroe to solve their most challenging in-plant mist problems, and there are several reasons why they keep coming back to Monroe for their oil mist collection needs.

We know that every company and every plant is different. That's why Monroe designs and builds Mist Collectors to meet the specific standards of your unique plant. You provide the standards that you would like your equipment built to, then we provide a unit that meets those standards at a cost comparable to competitive off-the-shelf units.

Don't be fooled by the competition — no company in the world can provide a collector that will outperform the Monroe Mist Collector. If you have an under performing mist collector that was provided by another company, we can help. We know the competition inside and out, and we can evaluate your system and make recommendations to get the most out of your existing equipment.

HEPA Type Filters

Monroe Mist Collectors are available with specially constructed HEPA type fiberglass filter cartridges as the optional final filter system. These filters are normally supplied with a 95% efficiency rating at 0.3 micron. These filters have a long service life, normally 4,500 hours or more, because the majority of contaminants are removed during the preceding stages and are continuously drained from the unit.

Air processed by a Monroe Mist Collector meets air quality standards for in-plant discharge as well as outside exhaust. Discharging clean, filtered air back into the work area can significantly reduce climate control costs.



Multi-Stage Mist Collector at an engine machining plant



Custom designed ductwork system with supports for recirculating climate controlled clean air after filtration through a 30,000 CFM Mist Collector



Monroe is your source for replacement oil mist collector filters.

Features

- Heavy gauge steel is used for most installations, but special construction materials are available to meet specific applications.
- Welded seams and built-in lifting hooks provide rugged durability.
- Large easy to open access doors, each with air-tight seals, for all serviceable areas.
- An AMCA rated fan on the outlet side of the collector with either a direct coupled motor or a "V" belt drive.
- Quiet operation. Flexible duct connections, fan mounting isolators, sound attenuators and fan enclosures are available.
- Integral pressure gauges are available to indicate when filter maintenance is required.
- Complete electrical controls to meet customer requirements are available.