

# DUST COLLECTORS



*6,000 CFM Cartridge Dust Collector with inlet duct and storage drum exhausting a sandblasting and paint spraying operation*



*Cartridge Dust Collection system exhausting machining operations at an automotive plant*

The **Monroe Environmental®** Cartridge Dust Collector is designed to provide continuous-duty collection and removal of airborne dust and particulate matter produced by manufacturing and processing operations at 99+% efficiency on many installations. Through the use of a Monroe Cartridge Dust Collector, these operations can discharge clean, filtered air back into the work area thereby reducing climate control costs.

Continuous collection and removal of airborne dry dust and particulate matter (PM) with reverse pulse cleaning of bags or cartridges allows operation without shutdown.

- Long life pleated cartridge dust filters
- Broad range of dust collector filter media available
- Applications up to 350°F
- Easily install and remove dust collector cartridges
- Modular construction
- Capacities from 500 – 50,000 CFM

- Ductwork can be provided — including evaluation, recommendations, and design
- AMCA rated fans on the outlet side of the collector
- Integral pressure gauges indicate filter performance
- **Specialty filters available for MQL machining applications**

## Top Performance with Better Cartridge Filter Cleaning

The cartridges in the Monroe collector are mounted in a vertical position. This assures that when the collected dust is pulsed from the cartridges, it falls to the bottom of the collector.

In units with horizontal cartridges, dust pulsed from above cartridges falls onto cartridges below. This reduces filtration capability and requires additional maintenance for rotating cartridges. This is avoided in the Monroe unit. The Monroe cartridges are easily accessed with pull out racks when replacement is necessary.



*Vertically mounted, pleated fabric filters ensure high efficiencies for both dust collection and filter cleaning*

## Applications

- Bulk solids handling
- Chemical processing
- Dry machining operations
- Grinding
- Powder coating
- Shot blast
- Welding operations
- MQL machining
- And many others



# EXPLOSIVE DUST COLLECTION

## Wet or Dry Collection?

Monroe Environmental has extensive experience with explosive dust collection. We offer both wet and dry collection solutions depending on your specific application.

Several factors must be taken into account before selecting the best explosive dust collection method. Both wet and dry systems can be utilized depending on the physical properties of the dust such as particle size, moisture content, ignition potential, and dust concentrations.

In general, wet collection systems suppress and neutralize the dust's explosive properties so that it no longer poses an explosion threat. Additionally, wet systems can better handle highly abrasive dusts that may tear, shred, and damage dry filter media. However, by design these wet systems consume fresh water and generate wastewater that must be treated, impacting the operating cost of the units.

Dry collection systems are designed not only to prevent explosions, but to contain and minimize the dangerous effects of explosions should they occur. Dry collectors are often required to have several NFPA approved mechanical instruments and fire suppression components such as explosion vents, spark arrestors, back draft dampers, smoke detectors, and emergency sprinkler systems which can significantly impact the cost of the unit.



*Monroe Cartridge Dust Collector with explosion control system*



*Monroe Cartridge Dust Collectors equipped with fire suppression systems operating in the field*

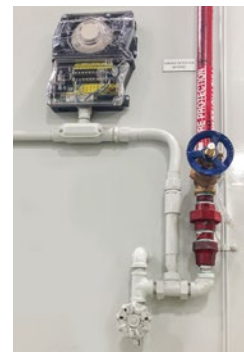
In general, the following application and site data should be taken into account when determining the best solution for explosive dust collection:

- Process to be exhausted
- Physical properties of the dust
- Particle size, shape, and concentration
- Moisture content
- Ignition sources/potential
- Kst and Pmax values
- Site layout, ductwork, and enclosure/hood design
- Water sources
- Wastewater treatment/disposal capabilities
- Worker exposure and safety

Monroe Environmental offers a wide variety of state-of-the-art features to maximize worker safety and minimize equipment damage, including fire and explosion suppression options for hazardous applications.



*Dust Collector explosion panel*

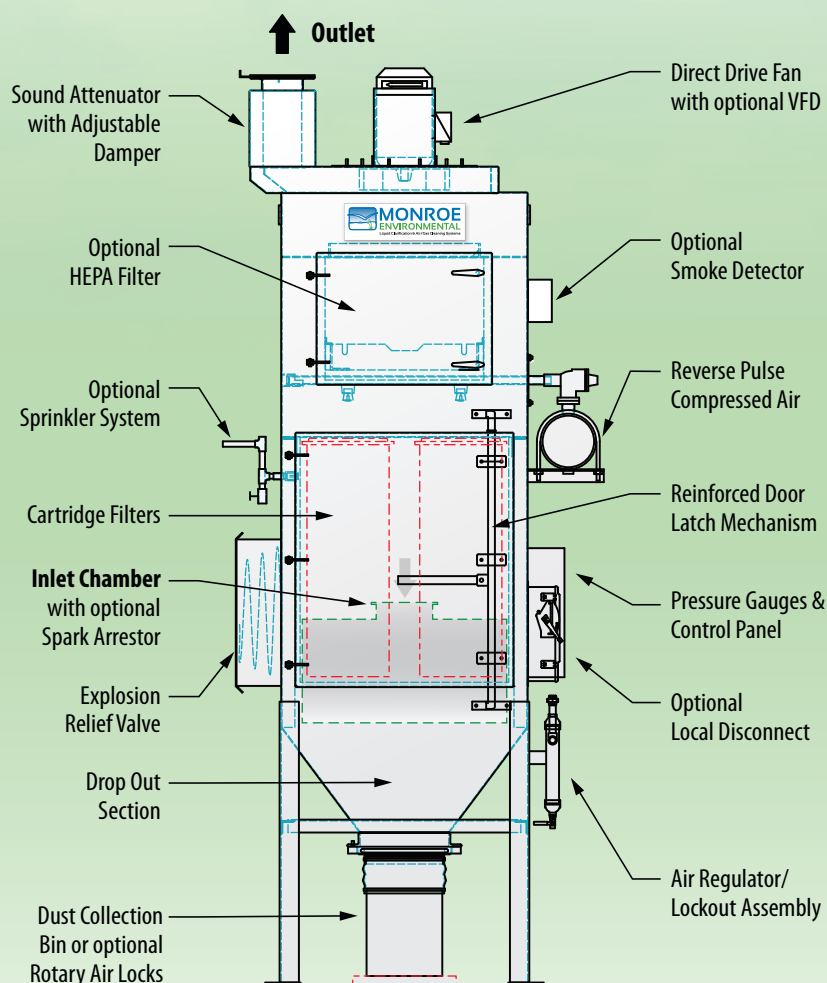


*Smoke detector and sprinkler system options*

## Explosive Dust Applications

- Aluminum
- Magnesium
- Titanium
- Zinc
- Coal dust
- TNT
- Wood products
- Specialty textiles
- Grain, sugar, and starch
- And many more

## Dry Dust/MQL Collection



## Fire/Explosion Suppression Options



- **Backdraft Damper**  
NFPA 69-2014 Compliant. Heavy duty, welded steel, no return explosion isolation valve with locking mechanism. Additional options can include microswitch, capacitive dust level sensor, and control panel with status lights.
- **Explosion Relief Valve**  
On the collector; carbon steel, flameless, resealing pressure relief valve with opening detection
- **Spark Detection Sensor**  
Ductwork mounted single-infrared (IR) spark/ flame detection sensor with bayonet mount and die cast zinc alloy housing
- **Spark Arrestor**  
Inline ductwork spark arrestor to smother and quench sparks and embers
- **Smoke Detector**
- **Sprinkler System with Flow Switch**
- **Inlet/Outlet Chemical Suppression**
- **Flame Retardant Filters**
- **Spark Resistant Fan**
- **Explosion Proof Motor**



## Wet Dust Collection: Dual Throat Venturi Scrubber

The Monroe Dual Throat Venturi Scrubber is a wet type dust collector that provides efficient collection and suppression of explosive dusts for a variety of applications. It is designed to provide continuous-duty collection and removal of airborne dust and particulate matter produced by manufacturing and processing operations at 99+% efficiency on many installations.

The Dual Throat Venturi Scrubber contacts the dust with water to reduce its explosion potential and transfer the particulate into the water stream. The water droplets and particulates are then removed from the air stream through separation, baffling, and mist elimination stages. This unit is excellent for explosive dust applications.

*Dual Throat Venturi Scrubber with particulate reclamation system, integral mist eliminators, fan, sound attenuator, and controls.*





*5,000 CFM Cartridge Dust Collector to capture exhaust from CNC plasma cutting operation*



*Custom configurations, including ceiling or roof designs, are available where a standard collector cannot be used. 30,000 CFM Dust Collector with multiple pyramid hoppers and screw conveyor options.*



*15,000 CFM Cartridge Dust Collector with rotary air lock, explosion proof panel, and floor mounted fan options*

## MQL Applications

The Monroe Cartridge Dust Collector can also be fitted with specialty polypropylene cartridge filters to accommodate MQL (minimum quantity lubricant) machining operations, which is a highly attractive waste and energy reducing machining technology gaining acceptance in a variety of production plants.

## Many Configurations Available

**An AMCA rated fan** on the outlet side of the collector with either a direct coupled motor or an optional "V" belt drive.

**Quiet operation.** Flexible duct connections, fan mounting isolators sound attenuators and fan closures are available.

**Integral pressure gauges** are available to indicate when filter maintenance is required.

**Standard dust removal is via a slide gate.** Options include rotary air locks or an integral screw conveyor.

**Complete electrical controls** are available to meet customer requirements.

## Special 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, are provided for inspection and cartridge servicing.
- Monroe can provide complete ductwork systems from a variety of construction materials for each dry dust collector — including ductwork evaluation, recommendations, and design.

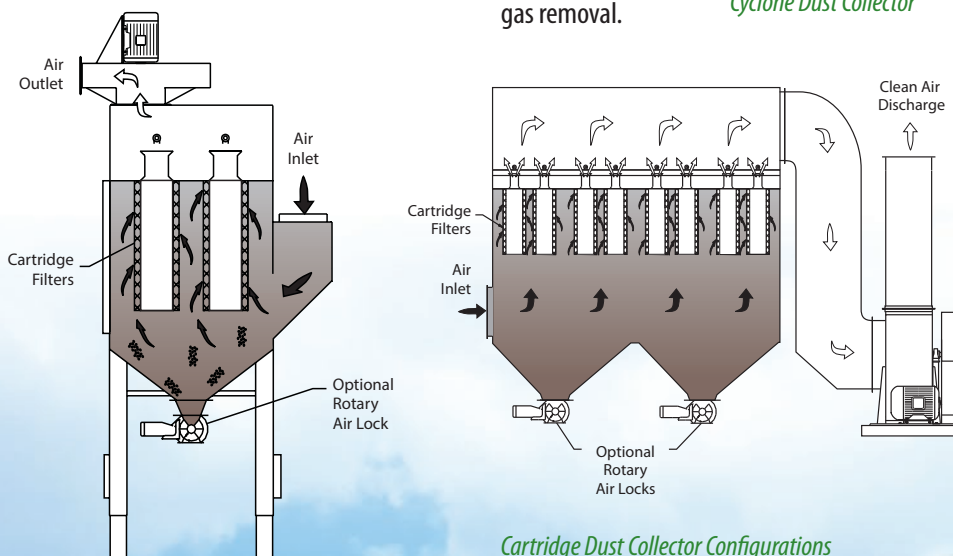
## Baghouse & Cyclone Dust Collectors

Monroe Environmental also offers baghouse and cyclone dust collectors when required.

Our experience and engineering capabilities allow us to offer the most economical and appropriate dust collector design for your specific application, including high temperature and dry injection fabric filter applications for acid gas removal.



*Cyclone Dust Collector*



*Cartridge Dust Collector Configurations*