

# HILCO® OIL MIST ELIMINATORS



SAFE, ECONOMIC SOLUTIONS FOR ELIMINATING OIL MIST  
AND MAINTAINING A SAFE WORK ENVIRONMENT



**HILCO®**  
FILTRATION SYSTEMS

# What is a Mist Eliminator?



The HILCO® mist eliminator removes visible oil vapor from the air stream of vents in lubricating oil systems of large, high-speed rotating equipment such as gas turbines, steam turbines, turbo compressors, turbo generators, reciprocating engines, high speed couplings and gear boxes. The mist eliminator prevents oil mist from contaminating air or soil, helping facilities comply with environmental regulations. It also makes for a cleaner, safer work environment by eliminating oily residue build-up on engine room floors, enclosures and stairwells, while improving indoor/outdoor air quality and reducing fire hazards.

The HILCO® mist eliminator also saves money by returning oil to the sump that would normally be lost during the venting process, greatly reducing make-up costs. There are currently three versions available: Blower Assisted, Mist Eliminator with Heat Exchanger, and a Coalescer-Only model. All models eliminate oil mist with an efficiency of 99.97% removal of all airborne contaminant regardless of particle size.

## MIST ELIMINATOR APPLICATIONS

### Gas & Steam Turbines

Rolls Royce / Allison  
Dresser-Rand  
GE Frame Engines  
GE Aeroderivatives  
Solar Turbines  
Pratt & Whitney  
Mitsubishi  
Siemens Westinghouse

## RECIPROCATING ENGINE & COMPRESSOR APPLICATIONS

Caterpillar  
Dresser-Rand  
GE Frame Engines  
Cooper  
Ingersoll-Rand  
MAK  
Superior  
Waukesha  
White





# Operation of Mist Eliminator

## What is Oil Mist?

Oil used for the lubrication of bearings in turbines, reciprocating engines, compressors, gearboxes, etc, becomes oil mist when "sheared" at high temperatures.

## What is an Oil Mist Eliminator?

A coalescer used to remove oil mist from the air flow of lube oil reservoir vents on high speed rotating equipment.

## Typical Oil Mist Size Distribution

Majority of oil mist particles are less than 1 micron (60% to 80% < .5 microns)

## What is Coalescing?

By definition coalescing means "to join together". It is a continuous process by which small aerosols come in contact with the fibers in the filter media, combining with other collected aerosols and growing to emerge as a droplet on the downstream surface of the media, which is capable of being gravitationally drained away.

## How is the Oil Mist Eliminated?

**Impaction:** If the velocity and mass of the particle are high enough it will leave the flow stream and Impact on a fiber.

**Interception:** When the pore size of a media is less than the diameter of the particle; the particle will be intercepted.

**Brownian Movement:** Random movements made by the oil mist which cause the particles to collide with one another or a fiber.

## How to size an Oil Mist Eliminator?

What is the flow from reservoir?

What is the allowable back pressure or desired pressure drop?

What is the nominal pipe size?

What is the oil temperature?

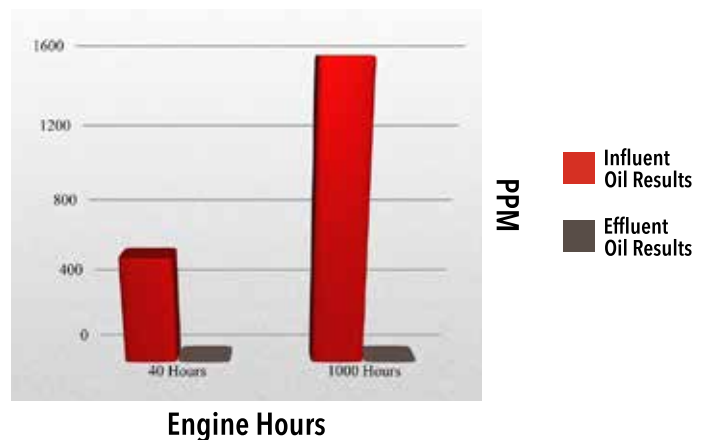
What is the power rating (MW, HP, etc)?



With new environmental regulations and growing concerns with health and workplace safety, Power Generation Facilities look to HILCO® to provide a solution for fumes emissions.

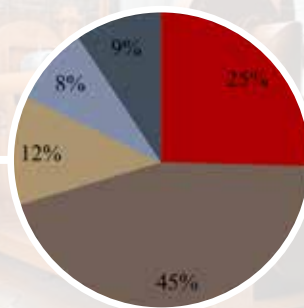
As a proven leader within the Industrial Filtration Industry for over 90 years, HILCO® was the logical choice to provide an answer to the emissions control problem. In collaboration with a major OEM engine manufacturer, HILCO® developed a fuel disposal system with a current efficiency rating of 99.97% at .03 microns. The HILCO® Oil Mist Eliminator is installed to the equipment's ventilation system and oil mist is filtered from the vented fumes.

## Typical Field Results



## Typical Oil Mist Size Distribution

Majority of oil mist particles are less than 1 micron (60% to 80% < .5 microns)



Legend for Typical Oil Mist Size Distribution:

- < 0.25 µm
- 0.25 µm - 0.5 µm
- 0.5 µm - 1.0 µm
- 1.0 µm - 1.5 µm
- 1.5 µm - 2.5 µm



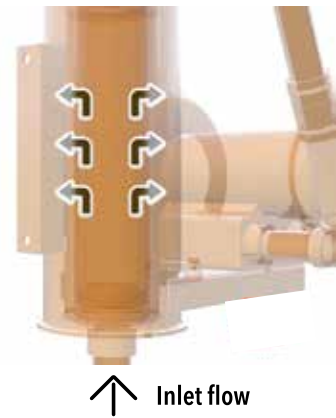
# ator & Coalescer Element

1



2

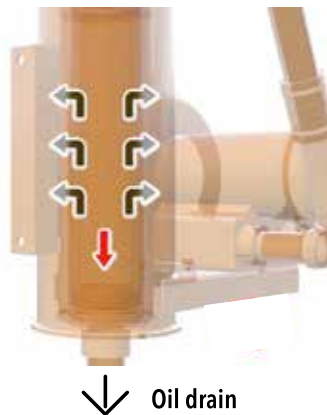
**DEMISTER  
CARTRIDGE**  
INSIDE OUT FLOW



3

**DEMISTER  
CARTRIDGE**  
INSIDE OUT FLOW

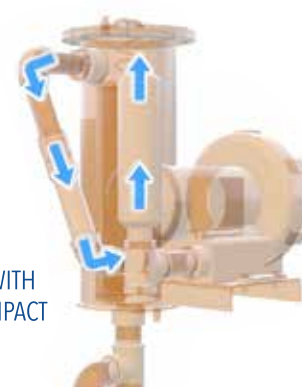
TRAPS OIL FROM THE AIR  
STREAM AND RETURNS IT  
FOR RE-USE



4

**CLEAN AIR  
DISCHARGED  
TO  
ATMOSPHERE**

CLEAN AIR RELEASED WITH  
NO ENVIRONMENTAL IMPACT



**COALESCING  
ELEMENT**



At the core of every HILCO® Mist Eliminator is our highly developed Demister Cartridge which utilizes an inside out flow in order to trap the oil from the air stream and return it to the oil reservoir for reuse. The resulting clear air can be safely released to the atmosphere with no environmental impact whatsoever.

The HILCO® Oil Mist Eliminator provides many industries with an essential, reliable system to minimize the environmental impact of essential operations.

Utilizing HILCO's technology and oil mist elimination systems will help your facility exceed current and future environmental regulations set forth by the U.S. Government and the EPA. Furthermore by doing so, this will prove the commitment of your facility to protecting the environment and Going Green. For more information contact a HILCO® representative today.





# Oil Mist Eliminators

## Why Choose HILCO®?

### Blower-Assisted Mist Eliminator:

This model is designed for oil systems that cannot withstand back pressure or where back pressure may not be desirable. It can be installed with an airflow-restriction device to pull vacuum. It is also designed to maintain atmospheric condition in the oil system.



### Mist Eliminator with Heat Exchanger:

This model is often used where the oil can reach excessively high temperatures (200° F and above). By cooling the air stream, the oil mist becomes easier to coalesce and therefore more efficient.



### Non Blower-Assisted Oil Mist Eliminator:

This model is appropriate for use where back pressure on an oil system is not a concern. It can be sized large enough to meet pressure-drop requirements. It also can be used where an existing blower is present to assist flow.

Visible plume is defined as particles in the 0.3- to 0.5-micron-size range. The technically advanced, designed, and constructed HILCO® coalescing mist eliminator elements are 99.97% efficient down to 0.3 microns and have a MERV rating of 16.



### ALL MODELS

- Ease of Use / Operation
- Simplicity
- Easy to Maintain
- OEM Specified
- Self Regulating
- Constant Monitoring Not Required

### INDUSTRIAL MARKETS

- Electronics
- Automotive
- Food and Beverage
- Textile
- Paper and Pulp
- Iron and Steel

### BENEFITS

- Removes Visible Plume
- Ensures Environmental Compliance
- Reduces Oil Make-Up Cost
- Keeps Surfaces Oil-Free

### FEATURES

- Compact Design
- Easy to Install
- Quick Element Replacement
- High Efficiency
- Minimal Flow Resistance







## HILCO® Lab Services



Hilliard Corporation's HILCO® division has over 90 years of experience designing filtration products that extend the life of the equipment used in industrial processes. Whether your need is fluid filtration and conditioning or fluid recovery, reclamation and restoration for re-use, HILCO® filters and filtration systems are used in applications across a wide range of industries.

The efficacy of our filtration research and development is supported by our commercially available HILCO® Laboratory Services. HILCO® Laboratory Services provide a full suite of rigorous world-class test capabilities to support industrial filtration and fluids analysis.

Our Laboratory Services are used in product development, evaluating potential customer problems or needs, and competitor performance.

Our laboratory houses uncommon testing systems such as:

- high flow rate systems
- low pressure tests
- collapse integrity tests
- water test stands
- multi-pass testing stands
- static discharge testing stands

HILCO® Laboratory Services is the proving ground for the system you invest in and trust to protect your vital processes from wear and downtime due to contamination and incomplete filtration.

HILCO's deep filtration systems experience combined with our Laboratory Services will help your company identify the best solution to meet current challenges with filters and filtration equipment.

## HILCO® Optional Equipment

**Work Mezzanines:** The HILCO® work mezzanines will allow two workers to change coalescing elements at the same time to ensure safety and also reduce the time it takes to replace the elements. There are two styles available which are compatible with the 1500 CFM and 2500 CFM Mist Eliminators.



### Silencer / Outlet Vent:

HILCO® offers outlet piping configurations to meet your needs. Ask a representative about your specific custom piping application. HILCO® offers: Outlet Piping Only, Outlet Piping with Silencer, and Silencer Only.

# ENGINEERED SOLUTIONS SINCE 1905



ALL HILLIARD PRODUCTS ARE DESIGNED AND MANUFACTURED IN ELMIRA, NEW YORK.



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