



EVERFIBRE

MIST ELIMINATOR

EVERFIBRE MIST ELIMINATORS

INTRODUCTION

FIBRE BED Mist Eliminators are used to provide the highest possible collection efficiency for process conditions requiring stringent performance levels.

The EVERFIBRE Bed Mist Eliminator is the cumulative result of detailed investigation of mist characteristics, laboratory studies of fibre and surface treatments. Evergreen has over thirty five years of experience in the design, manufacturing and installation of Candle Filter Elements/Fibre Bed Mist Eliminators.

CONSTRUCTION

The unit consists of fibres packed between a pair of concentric screens. Both screens are made of suitable corrosion resistant materials. The type, orientation, fibre bed depth and packing density are tailored to the needs of specific applications.

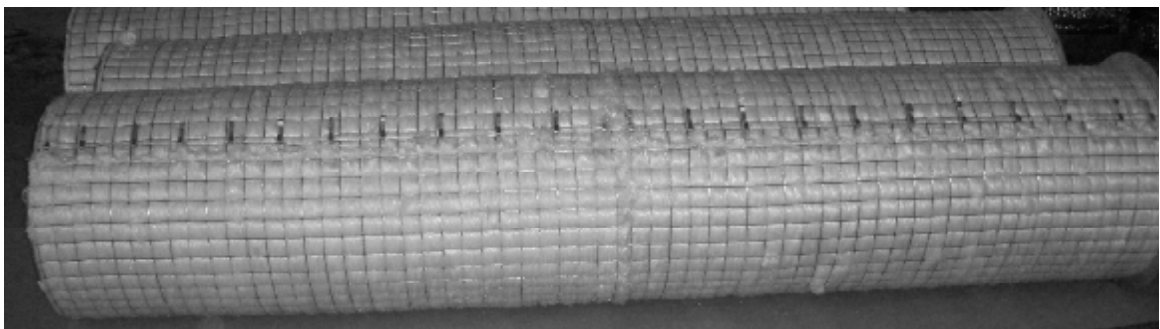
PRINCIPLE

The coarse mist particles are removed by impaction and direct interception. Finer particles are whisked away through Brownian diffusion. These particles coalesce into a liquid film, which is then forced downstream by gas flow. The liquid then flows into the drain with the help of gravity.

APPLICATIONS

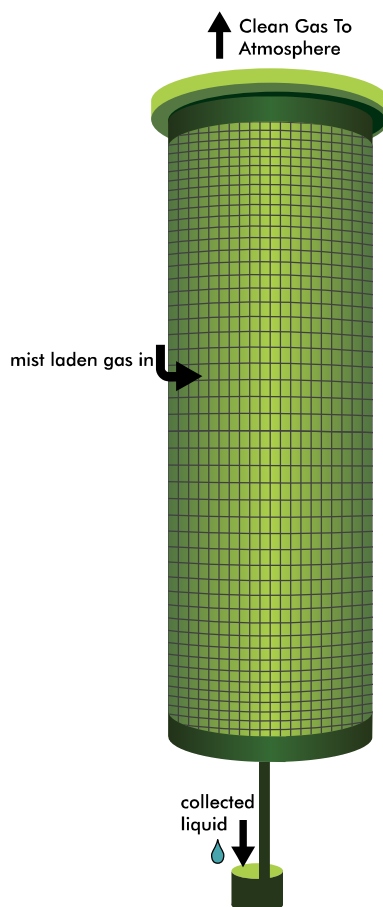
The EVERFIBRE Bed Mist Eliminator is designed to rid air/gases of emissions which could harm human and plant life, affect downstream equipment and cause plume opacity. The world is concerned about an endangered environment and for industries conscious of the perils of pollution, the EVERFIBRE Bed Mist Eliminator is a viable solution to a vexing problem. The EVERFIBRE Bed Mist Eliminator finds wide applications in plants working with sulphuric acid, sulphonation, chlorine, nitric acid, ammonium nitrate and compressed gases.

Today, hundreds of these mist eliminators help in cleaning the air in process plants throughout the world. Plant managers report that these devices are working satisfactorily and our experienced technical team has successfully carried out a number of field trials at customer locations to assist them in selecting the optimum configuration for their application.



SALIENT FEATURES

- Mist loading fluctuations (within design values) do not interfere with particle removal efficiencies. Stable operation is ensured at high turndown ratios.
- Designs are computerised for an optimum sized unit selection based on separation efficiency and allowable pressure drop with an aim to maintain minimum installation and operating costs.
- Efficiency of unit is guaranteed to conform to mist emission standards set by pollution boards in India (MINAS) as well as those stipulated by Environmental Protection Agency (EPA), U.S.A.
- High removal efficiency of sub-micron particles.
- Reduce or eliminate visible stack plumes.
- Maximum protection of downstream equipment.
- Interchangeable with existing fibre bed equipment.
- Repacking of existing elements is possible.
- Provide unlimited turndown from design capacity with no efficiency reduction.



The Following Table Provides Performance Parameters Of Typical Fibre Materials & Specifications

HIGH EFFICIENCY	GLASS FIBRE(GFR/GFM)	SMALLEST FIBRE DIA. POSSIBLE	HANGING OR STANDING TYPE
COLLECTION MECHANISM	BROWNIAN DIFFUSION	INTERCEPTION	IMPACTION
SELECTION CRITERIA	HIGHEST EFFICIENCY	INVISIBLE STACK EMISSION<20MG/NM3	CORROSION PROTECTION
DESIGN CRITERIA	MIST REMOVAL 100% REMOVAL>3 MICRON 99% REMOVAL<3 MICRON	150-250 MM H2O PRESSURE LOSS	LESS THAN 0.25 M/SEC BED VELOCITY
HIGH FLOW	GLASS FIBRE(GFC)	COARSE FIBRE DIAMETER	STANDING TYPE
COLLECTION MECHANISM	COALESCENCE	INTERCEPTION	IMPACTION
SELECTION CRITERIA	HIGH GAS VOLUME THROUGHPUT	LIMITED SPACE	DRAINAGE METAL MESH OPTIONAL
DESIGN CRITERIA	100% REMOVAL>3 MICRON 70-95% REMOVAL<0.5-3 MICRON	100-200 MM H2O PRESSURE LOSS	0.8-2.0 M/SEC BED VELOCITY
POLYPROPYLENE MEDIA	POLYPROPYLENE FIBRE (FPM)	SMALLEST FIBRE DIAMETER	HANGING OR STANDING TYPE
COLLECTION MECHANISM	BROWNIAN DIFFUSION	INTERCEPTION	IMPACTION
SELECTION CRITERIA	HIGHEST EFFICIENCY MIST REMOVAL	ALKALINE PROCESS CONDITION	AIR / HYDROGEN SERVICE
DESIGN CRITERIA	100% REMOVAL>3 MICRON 95% REMOVAL<1-3 MICRON 90% REMOVAL 0.5-1 MICRON	120-250 MM H2O PRESSURE LOSS	< 0.2 M/SEC BED VELOCITY



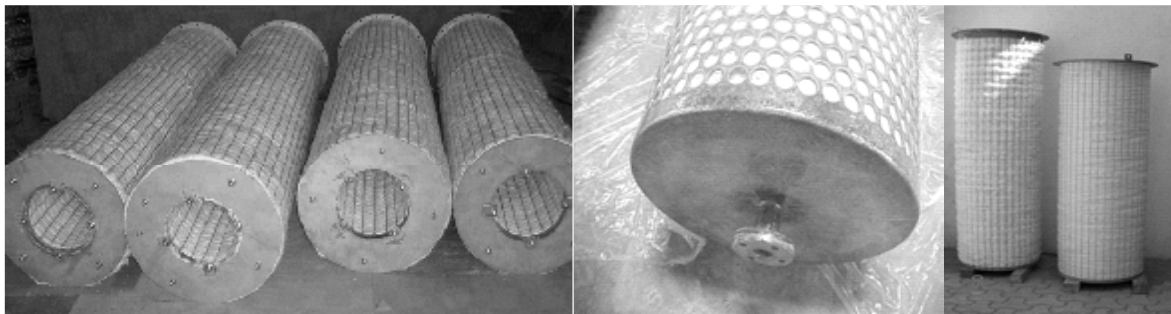
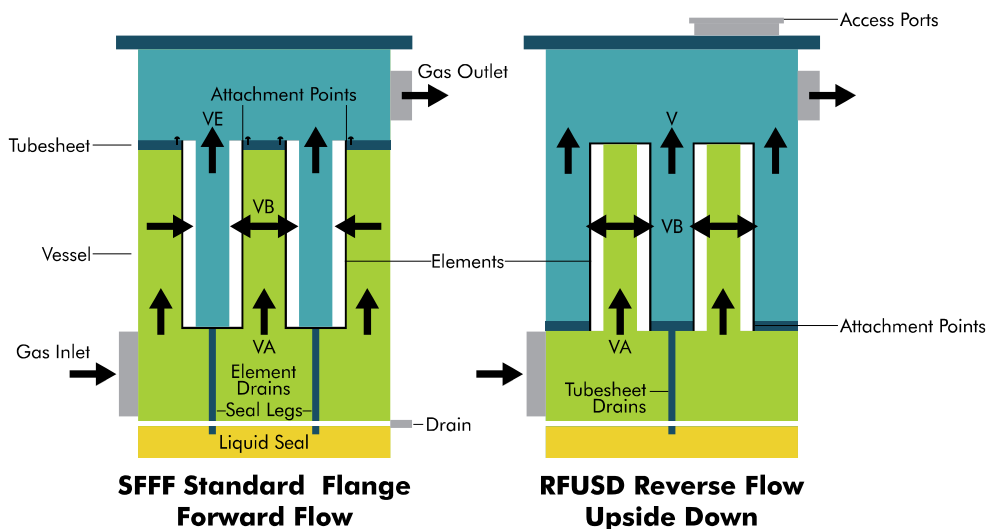
INSTALLATION CONFIGURATIONS

Illustrated here are the main type of candle filter type mist eliminators- standing on or hanging from a support plate. Two possible installation configurations are available:

1. Standard flange forward flow (SFFF) in which the element hangs from a tubesheet. In this option, the mist laden gases flow from outside the element and clean gas exists through the inner centre core. This installation features ease of installation and maintenance. The head room requirements is also high but its operational & maintenance benefits are unmatched. The High Efficiency elements are recommended in this configuration.
2. Reverse-flow upside down (RFUSD) in which the mist eliminator is placed vertically on the tube sheet. In this option, the mist laden gases flow from inside the central core of the element and the clean gas exists through the outside. This installation will result in reduction of housing vessel size. Both the HE HF series mist eliminators are available in this configuration. However due to exit velocity re-entrainment consideration The High Flow elements are recommended only in this configuration.

SPECIAL DESIGNS

In addition to the standard high efficiency and high flow (or capacity) version, Evergreen also offers energy saver versions incorporating multiple layer configurations. These included spirally wound filter media and/or drainage media for re-entrainment control. Special designs also incorporate intermediate drainage zones to take case of applications with high liquid/mist loading at the fibre bed mist eliminator inlet.



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