Enhanced Demister-Plus™ Mist Eliminators

Features

- *Extend existing KO drums/scrubbers capacity as much as 300%*
- *Reduce new vessel size by 25% to 40%*
- *Increase any operating range while removing 99%+ of liquid load*
- *Extend replacement life of internals up to 5 times*
- *Can eliminate equipment fouling*
- *Easy installation without welding or recertification of existing vessel*

What are Enhanced Demister-Plus mist eliminators?

In most mist control applications the use of a conventional demisters and Enhanced Vanes mist eliminators alone will provide the most cost efficient solution. In some situations, however, Enhanced Demister technology can extend mist elimination technology with Demister-Plus systems or combinations of devices, to improve separation efficiency, obtain higher throughput capacity, improve the handling of solids and/or high liquid load applications.

How do Enhanced Demister-Plus mist eliminators work?

To achieve the required performance, experienced process engineers with advanced design programs identify the source of difficult separation and provide a solution from the widest selection of Demisters, Enhanced Vanes, and Cyclonic mist eliminators.

Where are Enhanced Demister-Plus Mist Eliminators systems used?

- *Upstream, Midstream and Downstream Oil & Gas industry* which has hundreds of applications where separators optimized capacity of trays or packing and protecting downstream compressors, heat exchangers
- *Petrochemical and chemical plants* requiring higher product purity and increased production capacity with lower operating costs
- *Stringent environmental effluent applications* such as in the Sulfuric Acid, Phosphoric Acid, chrome plating, Edible Oils and Chlor-Alkalide plants.
- *Pulp and paper mills* with ever increasing evaporator volume requirements and troublesome fibrous entrainment.
- *Food processing facilities* plagued with oily solid mists, fouling plant processes and plant air quality.

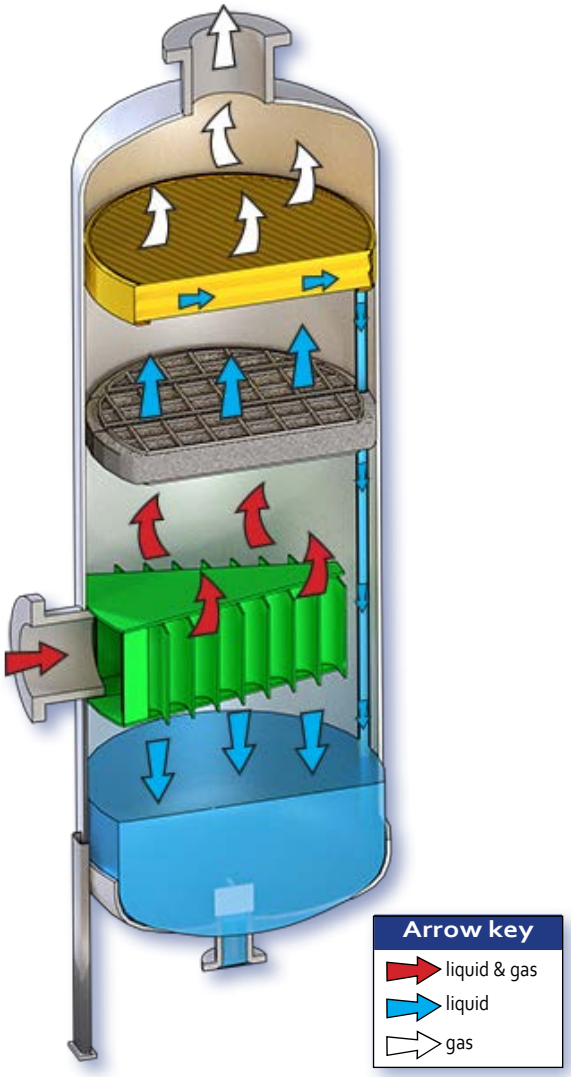


Figure 1
To improve both efficiency and capacity, this vessel was retrofitted with an Enhanced Demister Wire Mesh Pre-conditioner followed by an Enhanced Vane Mist Eliminator.

Enhanced Demister-Plus Systems are also available to upgrade operations limited with unusually high liquid loadings and/or solids. Figure 3 illustrates a vessel designed with a first stage special Enhanced Vane Mist Eliminator to remove bulk entrainment and 99% of solids which could otherwise flood or plug the downstream mist eliminator. This is followed by an ultra-efficient Enhanced Demister Mist Eliminator.

In some installations, the high efficiency separation of a single stage Demister is desired, but velocities exceed the allowable design limits of a vertical flow profile. This can happen when an existing system is pushed for more production or when there is limited space or weight restriction with a new vessel. One solution, shown in Figure 4, is an Enhanced Demister-Plus System that converts vertical flow to a horizontal two-stage flow design. The first stage is always an Enhanced Demister Mist Eliminator which operates as a droplet coalescer at high velocities. The second stage is an ultra-efficient Enhanced Vane Mist Eliminator. This system operates proficiently on the re-entrained droplets by moving droplet bell curve to the right where the larger droplets are easier to capture and remove from gas (see Figure 2).

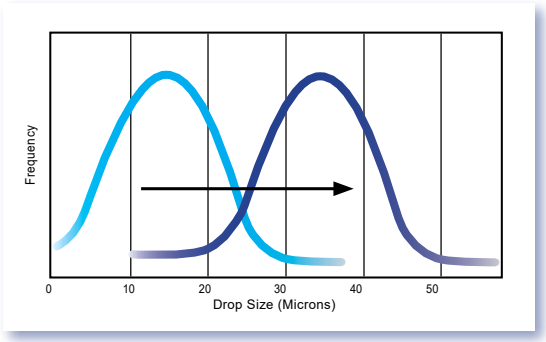
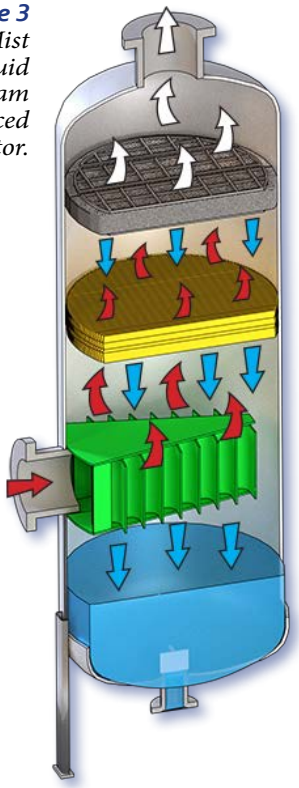


Figure 2
First stage Enhanced Mesh Mist eliminators function as preconditioners at high velocities shift droplet size distribution.

Another solution in advanced separation technology to achieve the highest capacity level, in either vertical up-flow or horizontal flow installations, is to incorporate a two stage system with an Enhanced Cyclonic Mist Eliminators downstream (Figure 5). This system allows the fine droplets to coalesce in the first stage to a larger size, which pass to the second stage to be captured in cyclonic tubes, collected and drained in downcomer pipes.

Figure 3
First stage Enhanced Vane Mist Eliminator removes bulk liquid and solids protecting downstream performance of Enhanced Demister Mist Eliminator.



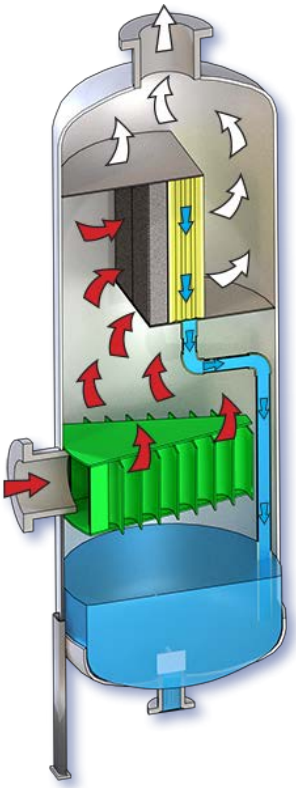


Figure 4
First stage horizontal flow Enhanced Mesh Mist eliminators/preconditioner at high velocities shift droplet size distribution followed by Enhanced Vane Mist Eliminator.

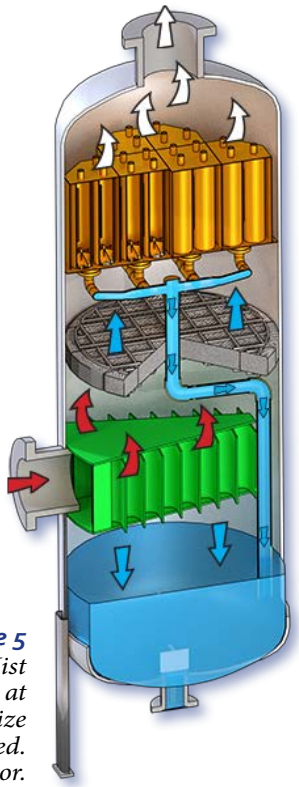


Figure 5
First stage Enhanced Mesh Mist eliminators/preconditioner at highest velocities shift droplet size distribution followed by Enhanced. Cyclonic Mist Eliminator.

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