

Wire Mesh Mist Eliminators / Demisters

Construction Materials

- Stainless steels, duplex steel
- Alloy C276, 400, 625, 825, 20, etc...
- Plastics (PP, FEP, ETFE, ECTFE)
- Fibrous components (PTFE, Polyester, Glass fibres)

Typical Applications

There is a very large range of applications which are mainly in the following fields:

- Knock-out drums
- Evaporator systems
- Scrubbing systems and absorbers
- Glycol dehydration
- Gas processing
- Inert gas scrubbers
- Sulphuric acid drying towers
- Sulphur condensers
- Steam drums
- Inlet separators
- Turbo-expander suction drums
- Dew-point separators
- Compressor suction drums
- MSF/MED desalination

Characteristics

Wire Mesh Mist Eliminators are easy to install cost effective separators that are able to collect liquid particles 2 to 10 microns in diameter with essentially 100% efficiency if designed properly to the process conditions. They are available in almost any size or shape and can be manufactured in a broad range of metals or plastics.



They are produced as multiple layers of knitted mesh making it a dense pack and presenting a large surface area to the droplets entrained in the gas stream. The separation of the droplets is achieved by impingement on, and capture by, the wires of the mesh where the droplets coalesce and drain.

Most of the wire mesh mist eliminators are supplied complete with rigid open area support grids allowing direct installation onto support structures such as beams and rings. The mist eliminator is made out of sections allowing easy handling and access through the vessel man ways. Additional accessories such as tie wire, bolting, clamps and support beams can be delivered if needed.

Benefits

- High collection efficiency
- Low installed cost
- Low pressure drop
- Fast delivery and service

The version of the Souders-Brown equation commonly used for mist eliminators establishes a variable K called the vapour load factor—also known as the system load factor, Souders-Brown velocity, or K factor—as follows:

$$K = \frac{V_G}{\sqrt{\frac{(\rho_L - \rho_G)}{\rho_G}}}$$

- K = vapour load factor (Souders Brown velocity) in same units as V_G (m/s or ft/s)
- V_G = gas velocity in same units as K (m/s or ft/s)
- ρ_L = liquid density in same units as ρ_G (kg/m³ or lbs/ft³)
- ρ_G = gas density in same units as ρ_L (kg/m³ or lbs/ft³)

The K factor can be considered an effective gas velocity for the purpose of expressing the throughput capacity limit, adjusted for the effects of liquid and gas density.

This parameter allows data gathered for a given mist eliminator and gas-liquid system—typically air and water—to be used in sizing mist eliminators of the same type for different gases and liquids.

In exceptional conditions such as liquid slugs or gas surge derating factors need to be applied to allow for a suitable safety margin. In several cases the K-value has to be optimized to suit specific process conditions and challenging physical properties such as low surface tension systems. The correct selection of K-value is critical and we therefore strongly recommend designs to be checked by our experienced engineering team.