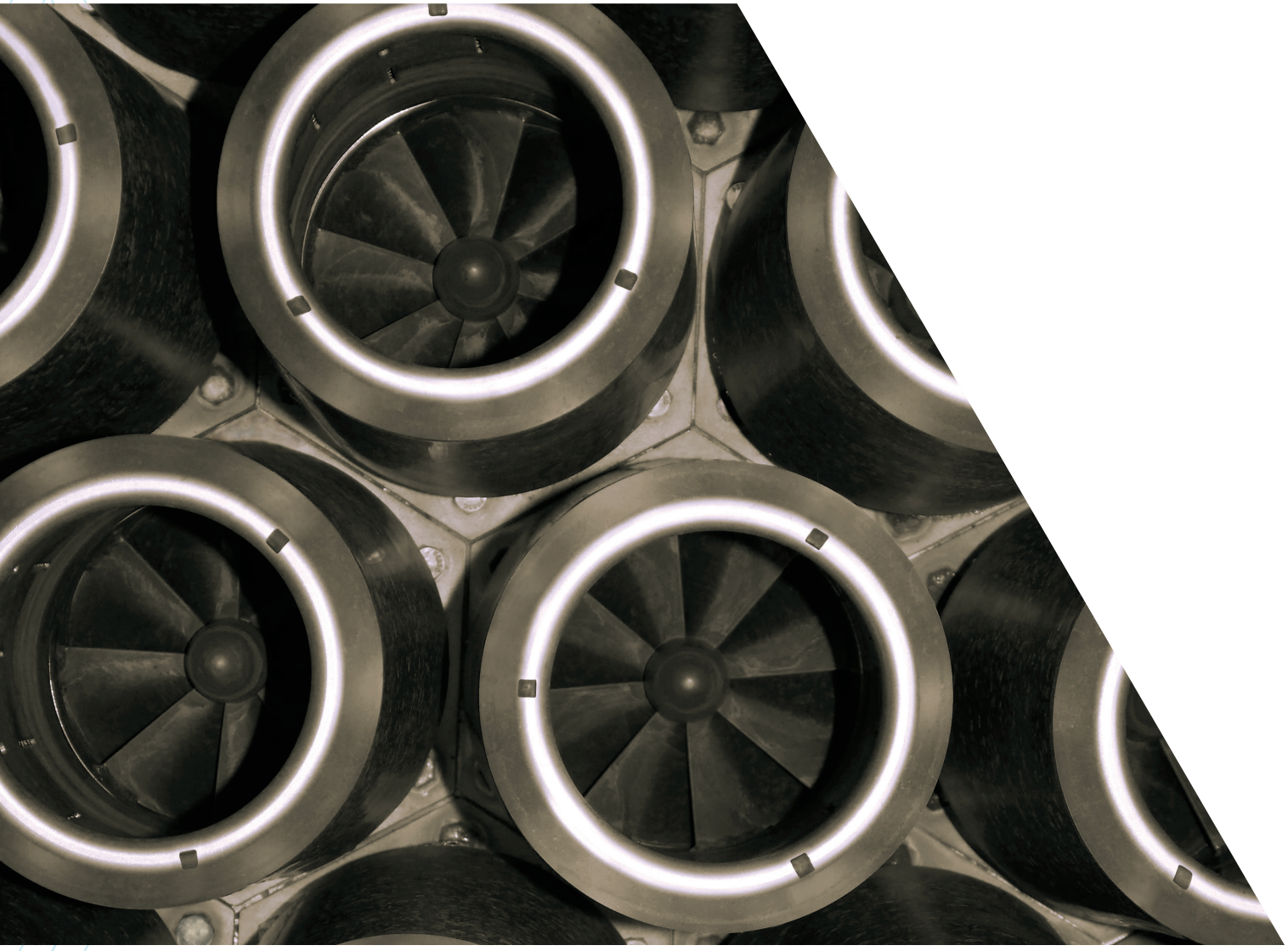
VORSOMAX®

CYCLONE MIST ELIMINATOR AND CYCLONIC INLET DEVICE



KOCH-GLITSCH™

A KOCH ENGINEERED SOLUTIONS BUSINESS

REDUCE NEW VESSEL SIZE OR INCREASE CAPACITY IN HIGH-PRESSURE APPLICATIONS.

VORSOMAX® cyclone mist eliminators consist of single or multiple elements mounted onto a deck plate. Each element contains an activator which generates centrifugal force to provide the separation of vapor and liquid(s). The units are provided in easily- handled subassemblies, which are installed through vessel manways. If the vessel is equipped with a body flange, the elements may be consolidated into a single piece for installation via the body flange.

Extremely high gas capacity

VORSOMAX cyclone mist eliminators deliver very high gas-handling capacity combined with excellent droplet removal efficiency even at elevated pressures.

NEW CONSTRUCTION

- For grassroots projects involving high pressure separators, cyclone mist eliminators can provide the lowest overall cost solution by minimizing the diameter and height requirements of the vessel. This reduction in footprint can result in several benefits to the end user such as: faster vessel delivery, lower transportation costs, simplified installation and lower overall vessel costs.

RETROFITS

- For existing high-pressure separators, where significant additional capacity is required, cyclone mist eliminators can extend the gas capacity well beyond any other mist elimination technology available from Koch-Glitsch.

BENEFITS

- Minimizes grassroots vessel diameter and weight, which is particularly important in high-pressure applications
- Ideal for debottlenecking existing separators for capacity upgrades
- High gas turndown
- Easily installed through vessel manways

MATERIALS OF CONSTRUCTION

- All common metal alloys

DESIGN PARAMETERS

The design and selection of cyclone mist eliminators are based on:

- Gas and liquid physical properties
- Liquid loading
- Desired efficiency and pressure drop

DEMISTER-PLUS TYPE MC-V MIST ELIMINATORS WITH VORSOMAX® CYLONIC INLET DEVICE AND VORSOMAX® CYCLONE MIST ELIMINATOR

The advanced design DEMISTER-PLUS mist eliminator can achieve even greater increases in capacity over conventional mist elimination equipment. The well-proven DEMISTER-PLUS mist eliminator design features a feed inlet device and a one- or two-stage mist eliminator, combining the efficiency of the DEMISTER® mist eliminator with the high throughput capacity of the VORSOMAX® cyclone mist eliminator.

FUNCTIONS OF SEPARATOR INTERNALS

1. Gas and liquid enter the feed nozzle of the separator. As vapor and liquid enter the manifold of the VORSOMAX® cyclonic inlet device, internal distributors peel material and tangentially feed separation cans that are arranged around the manifold. The centrifugal force generated inside each of the separation cans drives the high efficiency removal of liquid from vapor, such that the entrainment load to downstream mist elimination devices is reduced.

2. The mist-laden vapor then passes through a horizontally-mounted YORKMESH knitted wire mesh agglomerator, which can be supplied with or without a separate liquid drainage system. The agglomerator enlarges the entrained droplets such that they are easier to remove by the downstream mist eliminator.

3. The vapor and remaining mist enter the VORSOMAX® cyclone mist eliminator.

- The vapor and mist enter the bottom of the cyclone (inlet) and flow through an activator element that imparts a very high centrifugal force. The droplets are flung outward and are coalesced into a liquid film on the cyclone inner wall.
- The liquid film and a small portion of the vapor flow are purged out of the cyclone through openings in the wall into an outer chamber where the gas and liquid separate.
- The bulk vapor is discharged from the top of the element (outlet).
- The collected liquid is drained from the cyclone deck via downcomer pipe.

VORSOMAX® CYCLONIC INLET DEVICE

VORSOMAX® cyclone mist eliminators deliver very high gas-handling capacity combined with excellent droplet removal efficiency even at elevated pressures.

VORSOMAX® cyclonic inlet device decreases the momentum of the feed stream entering an inlet nozzle. This is performed in a controlled manner which allows:

- Removal of bulk liquid and some solids
- Good distribution of vapor over downstream internals
- Minimization of droplet shatter, which prevents creation of additional fine entrainment

- Reduction of forces acting on liquid surface below the feed

BENEFITS

- Due to high efficiency separation of liquid from vapor, reduces liquid load to mist elimination equipment
- Foam breaking or suppression
- Compact design compared to conventional inlet cyclones
- Prevents shear forces acting on liquid levels which can lead to re-entrainment of previously collected liquid
- Modular construction allows for easy installation through vessel manways
- Custom engineered for vertical or horizontal vessels

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