

# Peerless Absolute Separators



## FOR MAXIMUM SEPARATION EFFICIENCY OF SUB MICRON LIQUID DROPLETS IN CRITICAL SERVICES

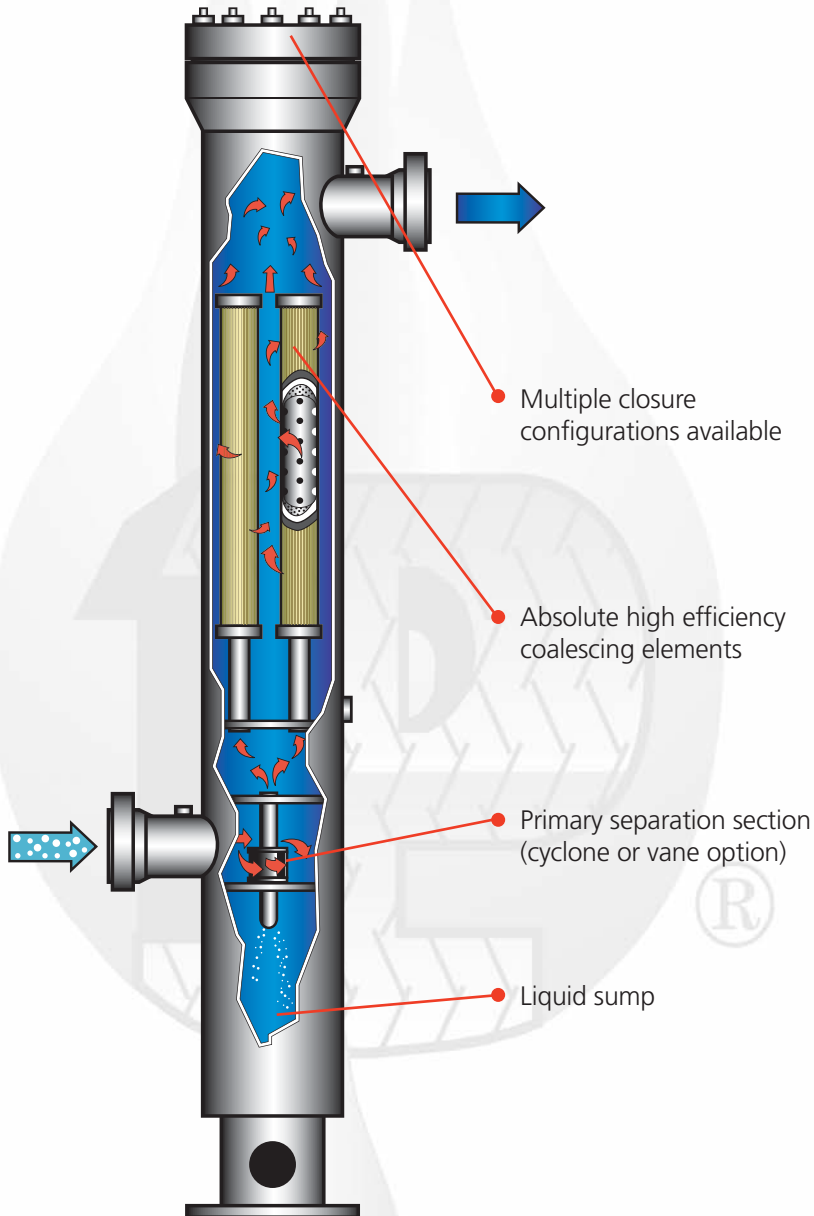
### PEERLESS PERFORMANCE FEATURES

The Peerless absolute separator is a single or multi-stage device. At the inlet of the primary separation section, small diameter cyclones or vanes remove liquid and solid particles by utilising the dynamics of centrifugal force and gravity. By removing the bulk of the entrained liquid in this stage, the Peerless design increases the life of the high efficiency coalescing elements and holds the pressure drop buildup to a minimum. This allows for more time between changing the elements, reducing operating costs and downtime.

Replacement of the coalescer elements can be accomplished in a minimum amount of time and effort through the use of a full diameter closure. Both cyclone or vane mist extractor separators are completely maintenance-free, self-cleaning and contain no replacement or moving parts to cause a shutdown.

### TYPICAL APPLICATIONS:

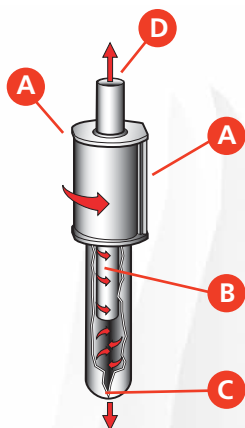
- Ammonia & urea plants
- Desiccant bed protection
- Chemical plants
- Oil mist removal
- Critical gas processes
- Fuel gas conditioning
- Molecular sieve protection
- Gas transmission/metering
- Power plants



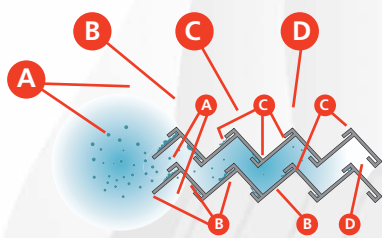
- Intrinsic 2-stage configuration
- Flexible primary stage separator designs
- A variety of coalescer media efficiencies
- Guaranteed performance

making energy safe, efficient and clean

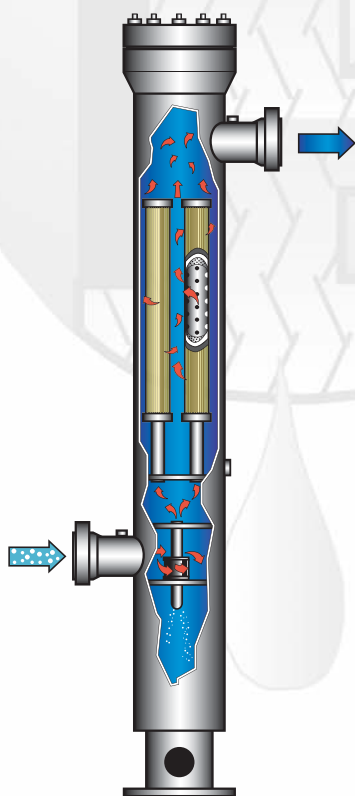
## CONSULT A PEERLESS SPECIALIST FOR YOUR SEPARATION, RETROFIT AND SPARES REQUIREMENTS



Peerless Cyclone Tube



Typical Peerless Vane Element



Absolute Separator

### PRINCIPLE OF OPERATION

#### Cyclone Tube

As the mist and solid-laden gas enters the Primary Separation Section of the vessel, the entrained liquids and solid particles are subjected to centrifugal force.

- (A) Contaminated gas enters the cyclone tube tangentially at two locations.
- (B) The tube housing forces the gas into a cyclonic flow pattern. Centrifugal force throws solids and liquids against the inner cyclone tube wall.
- (C) Solid and liquid particles drain down the cyclone tube walls and collect at the bottom of the vessel.
- (D) Clean gas flows down and then up through the center annulus and exits at the top.

#### Vane Element

In applications where solid particles are not a factor, vane mist extractors are used as the primary separator.

- (A) Contaminated gas entering the vane unit is directed into adjacent vertical channels where each one subjects the gas to rapid multiple changes in direction.
- (B) Inertial forces resulting from rapid direction change force liquid droplets against vane walls. Liquid droplets coalesce on the vane wall surface.
- (C) Gravity, surface tension, and momentum drive coalesced liquid into the vane pockets. Liquid flows down the pockets and collects in the liquid reservoir.
- (D) Clean gas exits the tail end of the vane pack.

#### Coalescing Element

The final separation section consists of multiple high efficiency coalescing elements. The gas and fine mists pass from the inside to the outside of the elements where the droplets diffuse and impinge on the closely spaced surfaces.

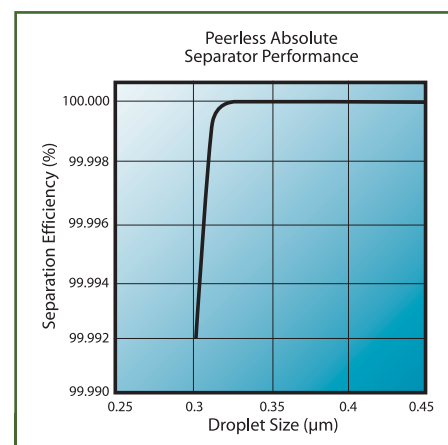


This Absolute Separator is installed in a metering station in Canada. Its 2500 mm ID housing utilises a full diameter, quick-opening closure.

The liquid then drains down the element and into the liquid collection chamber. Gas, free of liquid, exits through the outlet nozzle.

### PERFORMANCE GUARANTEE

Peerless absolute separators meet efficiencies of 99.999% of all droplets 0.3 microns in size and larger, with a maximum carryover of 0.001 PPM (1ppb) by mass depending on the coalescing media utilised.



A Peerless Absolute Separator can be designed to limit liquid carryover to less than 1ppb. High efficiency coalescing element selection depends on your specific application and efficiency requirements.

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