

KOCKEN

SISTEMAS DE ENERGIA INC.

VORTEX TUBE RECYCLE SEPARATORS



The Vortex Tube Recycling Separator is ideally suited for separation processes containing moderate amounts of liquid in gas (< 250 barrels per MMscf). When correctly applied, Kocken Sistemas de Energía Inc. Vortex Tube Recycling Separators remove up to 99.9% of all liquid droplets larger than 4 microns from the gas stream. This technology has been applied for more than 40 years and has been continuously tested, proven, and improved allowing implementation of the perfect design for your application. It's compact, light-weight design allows for integration into any plot plan.

Primary separation of gas and liquid occurs when the fluid mixture enters the separator tangentially thereby imposing centrifugal force on the fluid stream and forcing the heavier liquid particles to the outer wall of the separator chamber. The liquids drain to the calming chamber in the lower section of the separator.

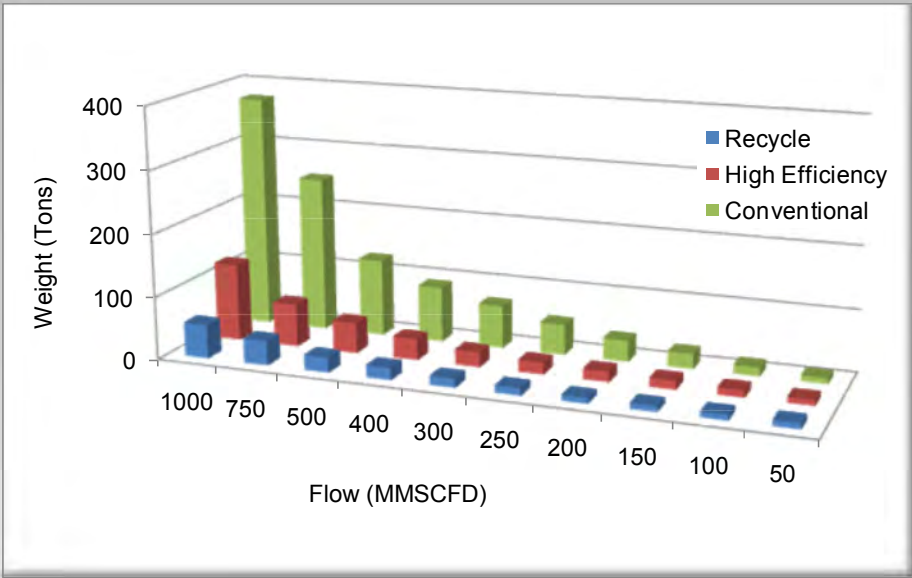
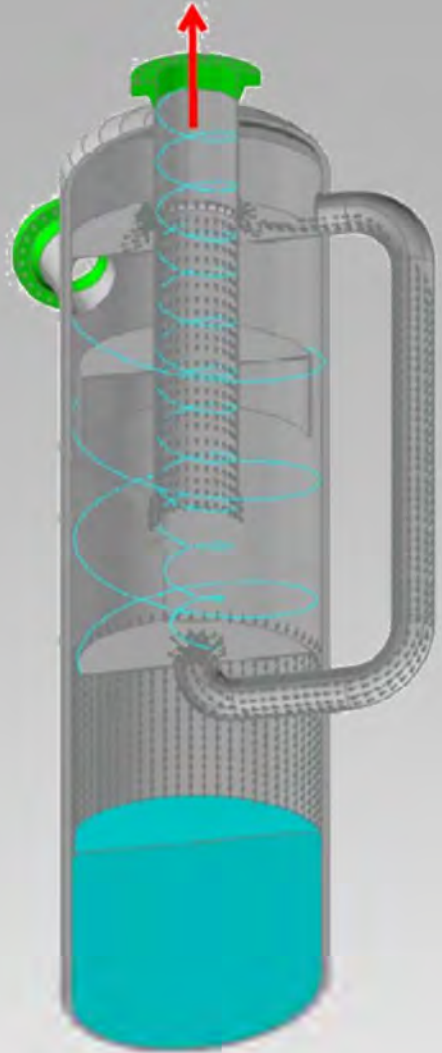
Secondary separation is achieved when the swirling gas converges at the centre of the separator and enters the vortex tube. Inside the vortex tube, the gas swirls at an increased velocity and forces any remaining entrained liquids to the outer wall of the vortex tube. This liquid is carried upward in the direction of the gas outlet. Before exiting the vessel, the liquid and 10% of the gas flow are expelled through a small opening in the vortex tube and refluxed to the primary separation section.

The swirling gas creates a low pressure area in the primary separation section and the subsequent differential pressure required draw the refluxed fluid back to the primary separation section.

Advantages:

- Reduced Footprint
- Reduced Weight
- ↑ Flow = ↑ Efficiency
- Foam Free Operation

Weight and footprint reductions associated with the vertical recycling separator are significantly amplified as vessel design pressures and gas flows increase. The chart shown below is based on a 0.65 SG gas containing 250 barrels of oil per MMSCF of gas. The operating pressure is 900 psig at 110°F. A liquid retention time of 1 minute is considered.



Applications:

- Gas Scrubbers
- Production Separators
- Test Separators
- Steam Separators
- Flare / Vent Knockouts
- Plant Inlet Separators
- Injection Separators
- Contactor Inlet Scrubbers
- Contactor After Scrubbers
- Dehydrator Inlet Scrubbers
- Production Separators
- Free Water Knockouts

DESIGN PARAMETERS

Operating Pressure	
Operating Temperature	
Flow of Gas	
Gas Molecular Weight	
Flow of Liquid	
Specific Gravity Liquid	
Efficiency Required	

APPLYING WORLD CLASS TECHNOLOGIES IN PURSUIT OF SUPERIOR EFFICIENCY

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