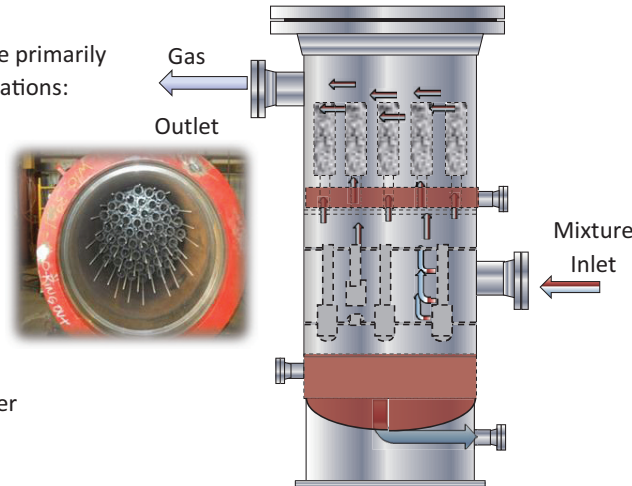


Reverse-Flow Coalescer

Reverse-Flow Coalescers are used where ultimate efficiency for separating smaller particles is required. These units can be combined with other separation devices to ensure proper efficiency and/or promote element life. These units are designed for 2-stage separation, similar to the filter separators; however in the coalescer configuration, the elements provide finer particle removal and flow from inside to out. Typically the first stage consists of a basic inlet baffle, multi-cyclone or vanes. The second stage elements coalesce the liquid droplets into larger particles that are gravity separated exiting the elements. These units are available in vertical installation.

Reverse-Flow Coalescers are primarily used in the following applications:

- Mole Sieve Protection
- Final Discharge Resip Compressor
- Compressor Seal Gas
- Glycol Carry-Over
- Foam & Paraffin
- Performance:
100% of Liquids .3 μ & larger



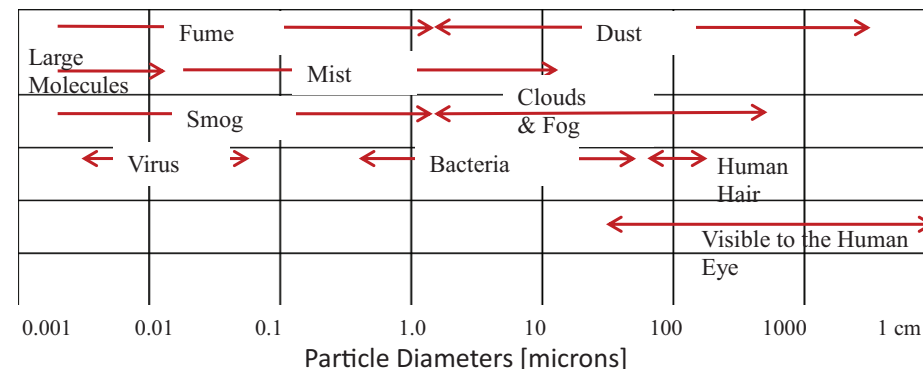
Separation Process

SPS utilizes mechanical separation in the following common applications:

- Solids from Gas or Liquids
- Liquid from Liquid w/ Gas (3-Phase)
- Liquids from Gas
- Solids & Liquids from Gas

Utilizing SPS's most efficient method of separation, we are able to remove .3 μ particles from the gas stream.

Particle Size Comparison



Schultz Process Services, Inc. (SPS) specializes in state of the art mechanical separation technology. Our product line offers the latest in separation technology and includes:

- Vane Separator (Patent Approved)
- Filter Separator
- Multi-Cyclone
- Reverse-Flow Coalescer
- Gas Filter
- LAPS (Laser Accuracy Performance Study)
- Fabrication
- 3-Phase Separator
- Fuel Gas Skid
- KO Drum
- Sand Trap Separator
- CFD Study
- Retrofit

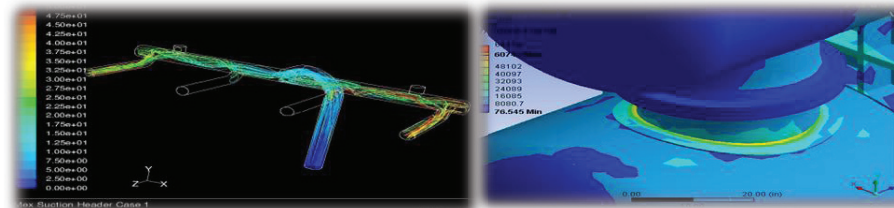
SPS utilizes over 150 years experience specializing in the separation industry to provide the most efficient & economical solution for your processing needs. We are dedicated to working with clients to achieve their processing requirements and offering alternative solutions on a case-by-case basis. SPS prides itself on service to our customers and has a proven track record of managing projects efficiently while providing quick turn-around proposals as well as expediting deliveries.

"Service may be our last name, but it's our first priority"

- Don Schultz, President

Product Support

SPS is committed to providing high quality products that operate efficiently and effectively. Support is continuously verified through use of the latest technology including FEA, CFD, Laser Accuracy Performance Services (LAPS), production prototype testing, both in house and in the field.



Keeps the Energy Industry Moving



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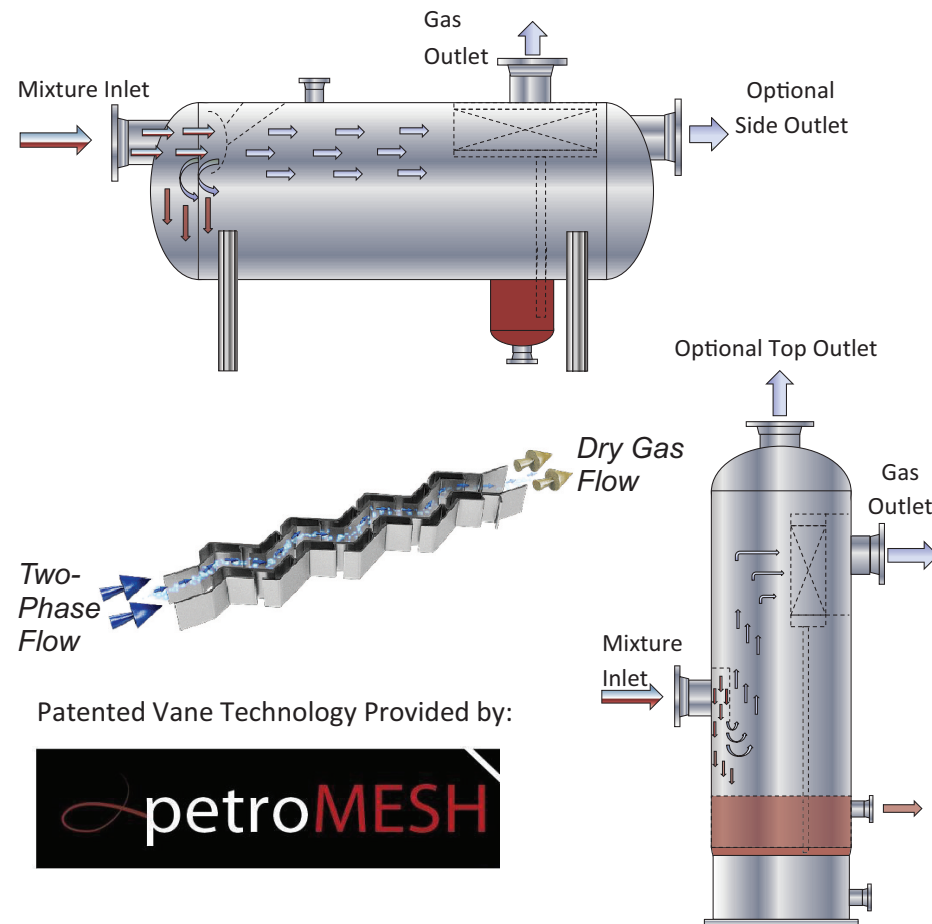
www.spshouston.com

Vane-Type Separator

SPS utilizes enhanced double-pocket (EDP-Patented) vane technology under a license agreement with Petromesh-Canada. The “EDP” vane technology offers higher capacity using innovative compact designs that allows greater vapor flow with better efficiency. Vane-Type Separators are designed to remove liquid particles from a vapor stream with high efficiency and low pressure drops. The entrained liquid particles are captured and removed through impaction against the vane blades & channeled from the vapor stream. SPS can design these separators for either Horizontal or Vertical installation.

Gas Separators are primarily used in the following applications:

- Slug Catchers
- Metering stations
- Compression Stations
- Pipelines
- Chemical Plants
- Performance:
100% of Liquids 8-10 μ & larger

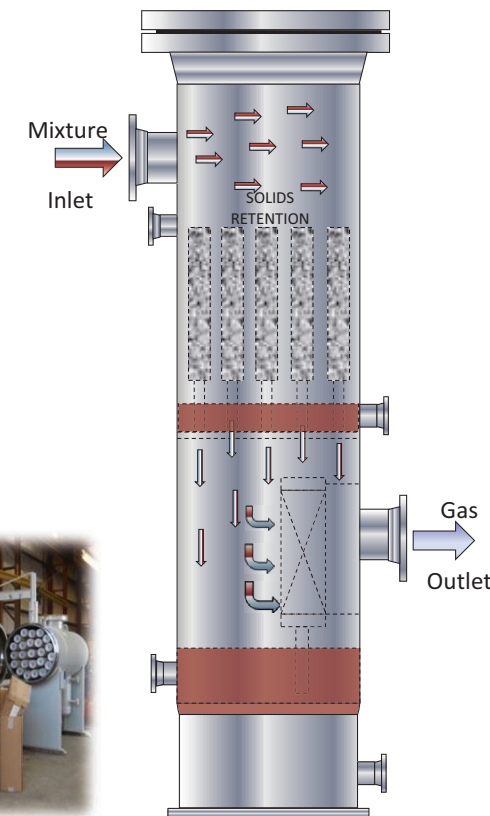
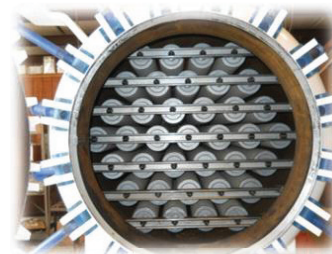


Filter Separator

Filter Separators are utilized when higher efficiency for separating smaller particles are required. Filters are typically used on suction stages of compressor runs, where solids and other particulate are present. Filter Separators incorporate 2 technologies (Filter Cartridge & Vane Unit); when in unison, these technologies are able to offer 3 μ removal efficiency. These units are also available in either Horizontal or Vertical configuration. SPS has designed a compact model for use with fuel gas that requires only 1 set of instrumentation for liquid level control.

Filter Separators are primarily used in the following applications:

- Fuel Gas Condition for Engines and Turbines
- Compression Stations
- Chemical Process
- Performance: 100% of Solids AND Liquids 3 μ & larger;
99.5% of Solids .3 μ & larger



Multi-Cyclone Separator

Multi-Cyclones are designed to remove solids, heavy liquids & large amounts of debris from a vapor current. SPS has standardized on 316/316L cyclone construction, creating a very robust mechanical design that has the capacity to remove: wax, rust, foam, paraffin, solids, heavy particulate, emulsions, & various difficult applications. Since the removal efficiency is directly related to the radius of curvature, SPS has standardized on installing a fixed radius of multiple cyclones in a separator varying on process conditions. While the only drawbacks associated with cyclones are turndown restrictions and pressure drop, multi-cyclones NEVER require maintenance and depending on allowable ΔP , are designed to fit in smaller vessels.

Multi-Cyclones are primarily used in the following applications:

- Slug Catchers
- Difficult Applications
- Compression Stations
- Pipelines
- Foam & Paraffin
- Performance:
100% of Liquids 8-10 μ & larger
100% of Solids 5-7 μ & larger



As seen in Fig. A, the solid and liquid particles are removed from the gas current through centrifugal separation. Particulates enter the scroll openings and are forced down the cone in a cyclonic motion, creating a film-type layer of solids and liquids inside the bullet nose shell. The stream continues down into the nose until it reaches the lower mid portion of the cone. Only the lighter phase (vapor stream) can make the turn into the exit tube; the heavier phase contaminates (liquids and solids) are forced down the cone and exit through the bottom outlet.

