JONELL SYSTEMS™

CYCLONIC SEPARATION

Making the world safer, healthier and more productive.

JONELL SYSTEMS™
Filtration Group®

Filtration Group®
Process Technologies

Facet and Jonell Systems have come together to deliver innovative filtration solutions.

Process Technologies brings the strengths, resources and experience of Jonell Systems and Facet, to provide comprehensive filtration solutions for a wide variety of applications. With an expansive range of vessels and innovative elements that have multiple media options, we optimize your filtration processes to improve safety, reliability, productivity and ultimately profitability.

Focused on solving customer challenges, we partner with the aviation, chemical, heavy equipment, marine, power generation, refining and oil & gas companies among others to address end to end filtration challenges.

We understand our customers rely on our flexibility, reliability, knowledge and experience for innovative solutions. Customers depend on us – we deliver.

Process Technologies is a part of Filtration Group, the fastest growing filtration company in the world. Together, we are making the world safer, healthier and more productive.

Facet
Filtration Group®

Facet, a global leader in aviation fuel filtration with more than 75 years of industry experience, is now part of Process Technologies, a Filtration Group Company.
Facet will continue to develop cutting-edge filtration technology to ensure contaminants such as water, dust and dirt do not negatively impact the performance and quality of equipment. With in-house research, product development and a state-of-the-art manufacturing facility, Facet creates contaminant management solutions that combine technology-driven products and advanced testing with outstanding service. Facet's customer focused approach, global footprint combined with an understanding of the filtration needs and challenges of the market, make its brand the partner of choice for customers worldwide.

JONELL SYSTEMS™
Filtration Group®

Jonell Systems, a Process Technologies brand, offers solutions to address the filtration and separation needs of energy customers and process industries worldwide. We partner with our customers to enhance operational efficiencies and decrease maintenance costs by providing innovative elements (cartridges) with multiple media options and well-designed housings (vessels) to accompany them.
We listen to our customers, understand their challenges and use our resources, experience and technology to develop a solution that best suits their needs. We rely on our in-house research and development, product design and manufacturing capabilities to ensure our customers receive the most optimized solutions while meeting all requirement standards, including environmental regulations.

As a part of Filtration Group, the world's fastest growing filtration company, we deliver solutions that best fit the needs of our customers and improve their processes. It is our mission to make the world safer, healthier and more productive.

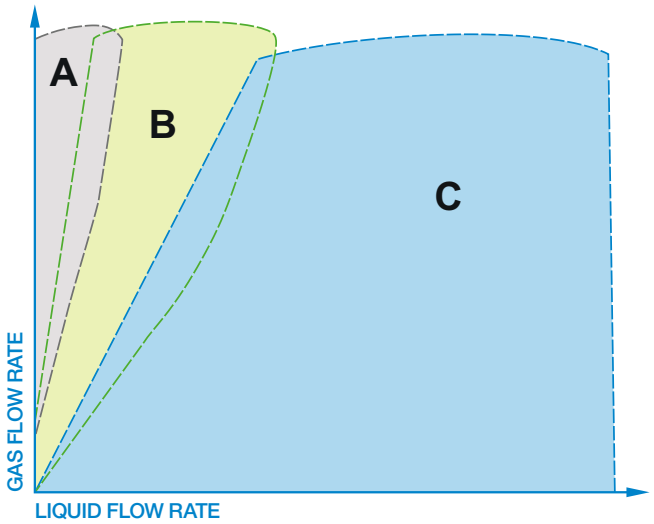
JONELL SYSTEMS™
Filtration Group®

Jonell Systems offers a full line of cyclonic separators and internals to meet any gas / liquid separation requirement.
Cyclonic separation has been a fixture in the oil and gas industry for decades, providing reliable, efficient separation with no moving parts.

Consult us to receive an engineered solution for your specific application.

PRODUCT SELECTION

- **REGION A**
  Horizontal Inline Recycling Separators
  Designed to separate liquid and solid contaminants from a gas dominant flow with low to moderate liquids.
- **REGION B**
  Vertical Recycling Separators
  Designed to separate liquid and solid contaminants from a gas dominant flow with moderate to high liquids.
- **REGION C**
  ALTA-Cyclone Inlet Device
  ALTA-Cyclone Vortex Tube Inlet Device is an inlet device designed to eliminate foam, improve separation, and break the momentum of the process fluid.

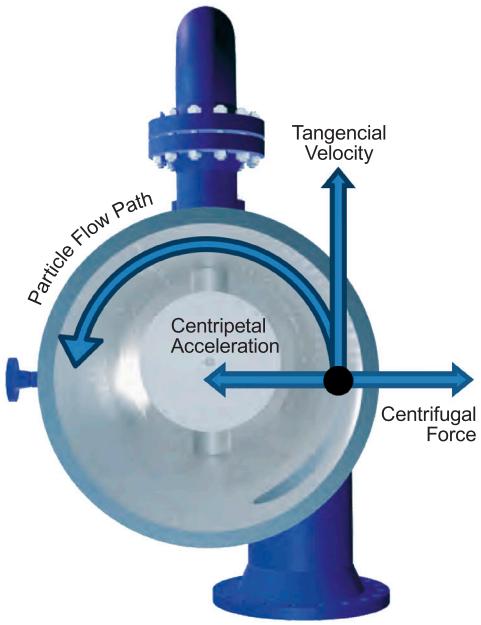


HOW CYCLONIC SEPARATION WORKS

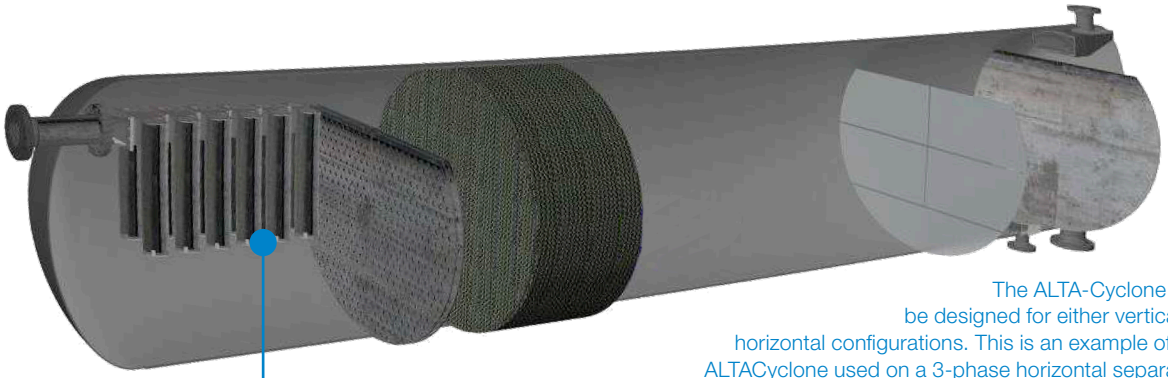
Process fluid experiences significant centripetal acceleration by flowing geither through a tangential inlet or over a vane type axial device.

The centrifugal force exerted on the process fluid overcomes buoyancy and drag forces, resulting in the heavier particles (liquids/solids) migrating to the outer wall of the cyclonic device and the lighter particles (gas) to the central axis where they are separated.

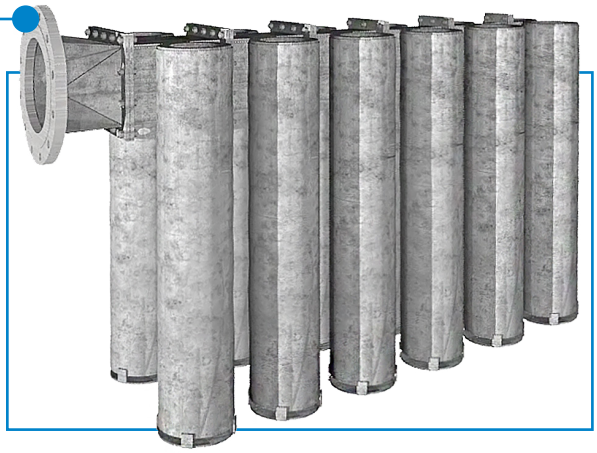
At design conditions, the acceleration experienced by individual particles can be up to several hundred times the acceleration due to gravity, allowing reduced retention times in comparison with conventional separation.



ALTA-CYCLONE VORTEX TUBE INLET DEVICE



The ALTA-Cyclone can be designed for either vertical or horizontal configurations. This is an example of the ALTACyclone used on a 3-phase horizontal separator.



The Jonell Systems ALTA-Cyclone is a cyclonic inlet device that utilizes a tangential entry to create centrifugal acceleration.

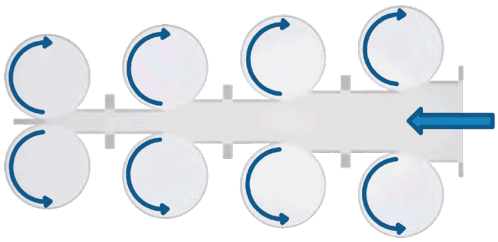
The device can be used in vertical or horizontal vessels intended for gas or liquid dominant flow. The device provides improvement in three important aspects of separation:

- Eliminates Foam
- Breaks Momentum of Process Fluid
- Enhances Gas/Liquid Separation

The ALTA-Cyclone consists of a series of cylindrical tubes internally mounted on a manifold that is either welded or flanged to the inlet nozzle of the vessel. Retrofit designs are available for existing vessels where welding to the vessel wall is not an option.

Process fluid enters the Vortex Assembly through a common header specifically engineered to evenly distribute the flow to each tube. The flow is then directed into the vertical tubes through a tangential opening at the top of each tube, which causes the process fluid to undergo centripetal acceleration. This acceleration imparts significant forces on the process fluid, separating heavier particles (liquid/solids) from gas.

Due to the extremely high forces exerted on the fluid, separation occurs at a faster rate than it would in a conventional vessel, significantly reducing the retention time required to separate a given droplet size. The advantages of decreasing retention time include a reduction of separator size or an increase in throughput.



Profile of Jonell Systems Cyclonics showing flow path into each tube.

Do you have high operating expenses due to expensive defoaming chemicals?
The ALTA-Cyclone can eliminate foam and the resulting expenses providing a significant return on investment (ROI).

Nomenclature

JCX	-	12	-	06	-	14	-	72	-	R
Series JCX		Manifold diameter		Number of tubes		Tube diameter		Tube Length		Removable

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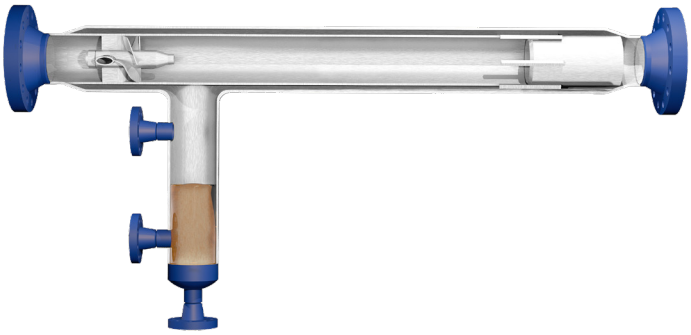
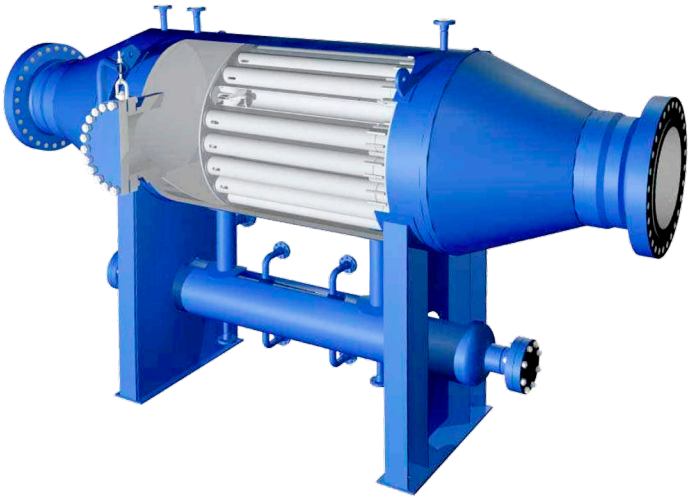
HORIZONTAL INLINE RECYCLING SEPARATORS



A horizontal recycling separator capable of processing high volumes of gas and low to moderate amount of liquids.
The JCH1 includes a single tube and liquid sump.

A horizontal recycling separator capable of processing high volumes of gas and low to moderate amount of liquids.
The JCH2 includes multiple tubes and single liquid sump.



The Model JCH3 is a horizontal recycling separator capable of processing high volumes of gas and low to moderate amount of liquids.
The Model JCH3 includes multiple tubes and two liquid sumps.

The inline recycling separator is ideal for process streams with high gas/liquid ratios. High separation efficiencies are achievable, commonly 99.99% removal of 10 micron and larger liquid droplets.

Jonell Systems offers standard tube sizes up to 8” NPS.

Inline recycling separators can utilize single tube designs such as the Model JCH1, or multiple tube designs such as models JCH2 or JCH3. Multiple tube designs are required when the desired capacity exceeds the capability of a single tube design.

The process fluid enters the inline tubes where a vaned hub spins the flow. Heavier particles such as liquids or solids are forced to the outer edge of the tube where it is removed through a gap and drained.

Nomenclature

JCH1	-	4	-	6	-	1440	-	1
Series JCH1 JCH2 JCH3		Tube Size		Vessel Diameter		Design Pressure		Number of tubes

VERTICAL RECYCLING SEPARATORS

Vertical Recycling Cyclonic Separators use two stages of separation to remove liquid and solid contaminants and achieve high separation efficiency.

A tangential inlet on the separator creates centrifugal force that causes the heavier liquid and solid particles to migrate toward the vessel wall, thus forcing the lighter particles such as gas, into the center of the vessel.

This gas enters the cyclone tube, while the liquid and solid contaminant continues toward the bottom of the vessel.

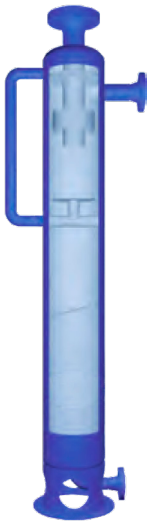
The gas stream is still spinning as it enters the cyclone tube, where liquid droplets still entrained in the gas are forced to the outer wall of the tube.

This liquid, along with a small percentage of the gas, exit the cyclone tube and are forced through a recycling system where it is reintroduced to the inlet of the cyclone tube.

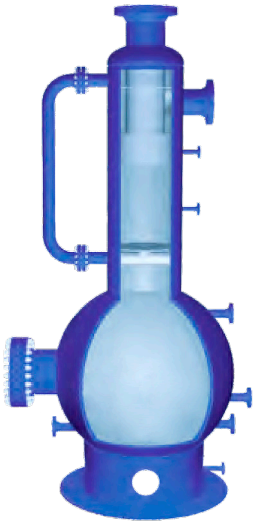
This recycling system gives the smaller entrained droplets a second chance at separation, which increases the efficiency approximately 10% over a conventional cyclone separator.

The liquid chamber in the bottom of the vessel contains vortex breakers to dissipate energy and prevent reentrainment. The liquid section can be sized as large or as small as necessary to accommodate proper retention times, and may be constructed for gravity separation of immiscible liquids such as oil and water to meet the customer's specific requirements.

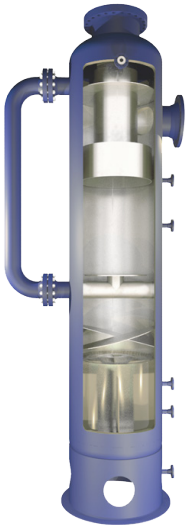
Vertical recycling separators are used in applications with medium to high liquid / gas ratios and moderate liquid slugs. Variations are available for increased gas or liquid handling capacity, depending on your process requirements.



The Model JCV1 is a vertical recycling separator capable of processing high volumes of gas and moderate amount of liquids when compared to conventional separation technologies.



When additional liquid handling capacity is required, a vertical recycling separator (either a Model JCV1 or JCV3) can be equipped with an enlarged sump. The size and shape of the sump will be optimized



The JCV3 is designed specifically to process higher gas/liquid ratios when compared to the equivalent size JCV1.

Nomenclature

JCV1	-	6	-	12	-	1440	-	12
Series JCV1 JCV2 JCV3		Outlet Nozzle Size		Vessel Diameter		Design Pressure		Sump diameter (model JCV2)

INQUIRY INFORMATION

As a minimum, the following information is required for Cyclonic Separation sizing and pricing inquiries.

If the request is for a full pressure vessel, please attach the relevant design information and specifications.

VORTEX TUBE ASSEMBLIES

Gas Flow Rate: _____ S.G.: _____

Gas Analysis Attached: ☐ YES ☐ NO

Oil Flow Rate: _____ S.G.: _____

Oil Viscosity: _____

Oil Surface Tension: _____ S.G.: _____

Water Flow Rate: _____

Water Viscosity: _____

Water Surface Tension: _____

Operating Pressure Range: _____

Operating Temperature Range: _____

New or Existing Vessel: _____

HORIZONTAL INLINE OR VERTICAL RECYCLING SEPARATOR

Gas Flow Rate: _____ S.G.: _____

Gas Analysis Attached: ☐ YES ☐ NO

Oil Flow Rate: _____ S.G.: _____

Oil Viscosity: _____

Oil Surface Tension: _____ S.G.: _____

Water Flow Rate: _____

Water Viscosity: _____

Water Surface Tension: _____

Operating Pressure Range: _____

Operating Temperature Range: _____

Allowable Pressure Drop: _____

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