



JONELL SYSTEMS™
Filtration Group®

FILTRATION APPLICATIONS FOR THE REFINING & PETROCHEMICAL INDUSTRIES

Making the world safer, healthier
and more productive.

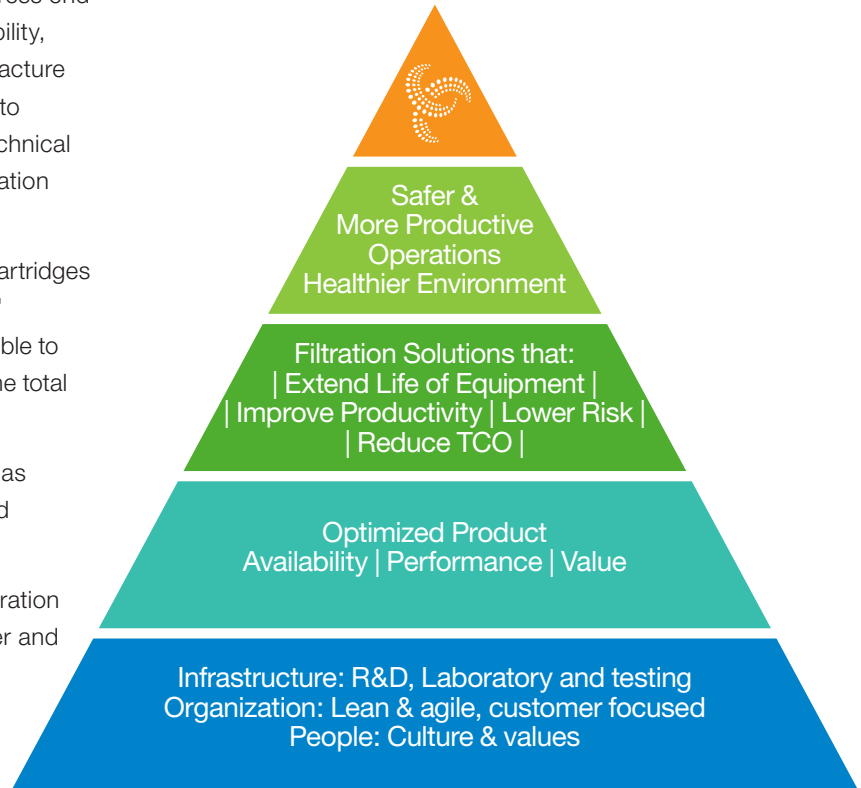
Jonell Systems, a Filtration Group brand, partners with oil, gas, refining, chemical and power companies worldwide to address end to end filtration challenges to improve process safety, reliability, productivity and ultimately business profitability. We manufacture complete systems, vessels and a wide range of cartridges to optimize your filtration processes. This coupled with our technical expertise, allows us to solve even the most challenging filtration applications.

Jonell Systems has a long history of developing innovative cartridges for the oil & gas industry including the two piece Twist-LOK™ cartridge for gas coalescing which allows customers to be able to change only half of the cartridge as needed thus reducing the total cost of ownership for the solution.

Jonell Systems also introduced SentinelTL™, a horizontal gas coalescer with 10X greater solid capacity, 35X greater liquid capacity to deliver up to 40% cost savings for customers.

As a part of Filtration Group, the world's fastest growing filtration company, it is our mission to make the world safer, healthier and more productive.

JONELL SYSTEMS ADVANTAGE



We understand our customers rely on our knowledge, expertise and experience for innovative filtration solutions.

Customers depend on us – we deliver.

Our brands include:



Filtration Applications for the Refinery & Petrochemical Industry

GAS FILTER ELEMENTS

Gas Filters - Pleated / Depth
Gas Coalescing Filters - Pleated / Depth

LIQUID FILTER ELEMENTS

Liquid Filters – Pleated / Depth
Bag Style Filters
Activated Carbon
Liquid / Liquid Coalescing & Separation

FILTER VESSELS

High Flow Vessels
Bag Vessels
Fabricated Strainers
Vertical & Horizontal Coalescers
Backwashable Filter Systems

FILTRATION SUPPORT SERVICES

Process Optimization
Filtration Solution Customization
Custom Product Stocking Program
Filtration/Separation Cartridge Replacement

In the Refinery and Petrochemical Industry, an efficient filtration/separation system is critical to the reliability and performance of the physical assets that process petroleum products. Optimizing the reliability of these filtration systems is essential in maximizing your operational performance.

Jonell Systems™ has worked diligently to advance the economics of Petroleum Filtration, delivering a variety of filtration/separation solutions to meet your specific needs. Our custom-designed solutions have consistently proven to enhance maintenance operations while increasing operating efficiencies.

Expertly designed filtration systems are paramount for the reliability and efficiency of your processes. That's why Jonell Systems takes the time to understand your unique challenges and application needs.

Benefits of an Optimized Filtration & Separation System:

- Increased Process Performance
- Decreased Downtime
- Lower Maintenance Costs
- Improved Operating Efficiencies

To meet the most demanding petroleum applications, Jonell Systems' filter elements are available in a wide variety of materials including: polyester, polypropylene, cotton, nylon, Teflon®, Nomex®, metals, micro-fiberglass, resin-bonded cellulose, and more.

Research & Development for the Refinery & Petrochemical Industry

We are committed to improving our clients' process operations and helping them create value.

How we achieve this:

1. Build extensive experience.

Our team of filtration specialists has extensive experience in developing creative and cost-effective solutions to difficult problems across multiple applications.

2. Develop a deep understanding of both filtration media and processes.

Our R&D facility has extensive quality testing equipment to help ensure our products perform to the highest standard, even in the most extreme environments.

3. Drive continuous improvement.

Jonell Systems not only makes better filters; we are constantly striving to make our filters better – incorporating the latest in filtration and separation technology.

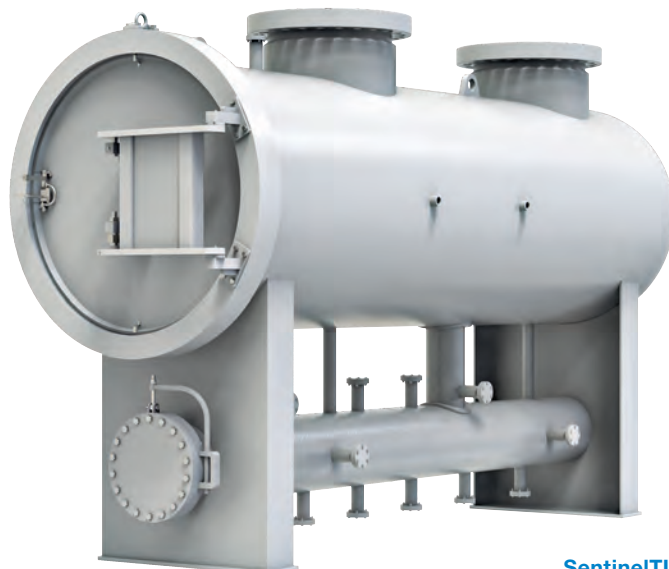
Filtration Housings and Vessels

We have a full range of aftermarket solutions for our filter vessels as well as the ability to retrofit your existing filter housings.

Filtration is an important process in the oil & gas industry to protect downstream equipment such as compressors, gas turbines, amine or glycol absorbers, molecular sieves, PSA's, metering stations, mercury guard beds, gas fired heaters or furnaces, and heat exchangers. Depending on process requirements, filtration removes a wide range of contaminants including solids, liquids and semi-solids providing a clean process for downstream equipment and customers.

At Jonell Systems, vessels are specifically designed to help optimize the performance and reliability of our customer's processes. Vessels are designed to ASME code and where applicable, vessels are mounted with quick opening closures for ease of use and element accessibility ensuring minimum downtime during element change outs. Our horizontal housings are designed for safety and increased productivity by allowing easy filter cartridge replacements without the need for ladders and platforms.

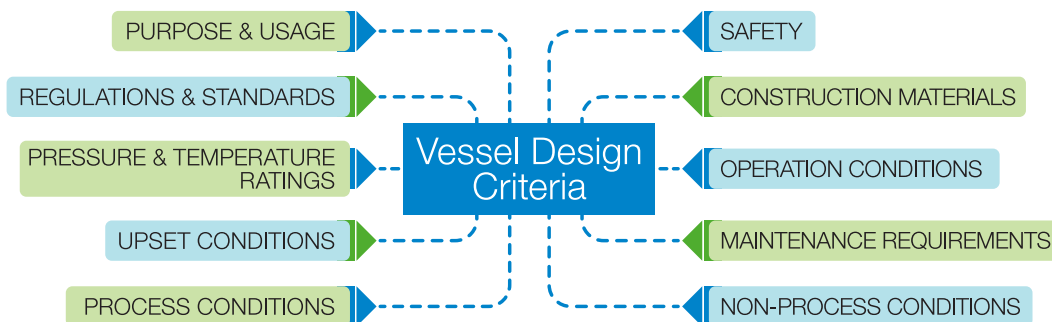
There are several factors to consider when looking for a filtration solution. The application and process details determine the type, size and design of the vessel. Commercial and regulatory requirements also influence the choices.



SentinelTL™
Customizable Multi-Stage Horizontal Gas Coalescer



HF Series
High Flow Filter Housings



Petrochemical Filtration Applications

Jonell Systems helps clients in the Petrochemical Industry improve their bottom line by optimizing filtration operations, thereby minimizing downtime and increasing operating efficiencies. A few of our typical petrochemical filtration applications include:

Additional Petrochemical Filtration Applications:

- Amine Contactor Protection
- Boiler Feed Water
- Feedstock Filtration
- Hydraulic and Lubricating Fluids
- Oily Water Treatment
- Polymer Process Water Filtration
- Pre-filtration of Reactor Feed Streams
- Production Transfer Protection
- Quench Water Filtration
- Turbo Machinery Protection
- Wastewater Treatment



RICH AMINE TREATMENT

Problem:

Improve the reliability of the amine regenerator by removing liquid hydrocarbons and solids.

JONELL SYSTEMS SOLUTIONS

PhasePUR™, LiquiPleat™ and TRI-SHIELD™ Series liquid coalescing elements to remove free liquid hydrocarbons from the rich amines solvent prior to regeneration.



GLYCOL CONTACTOR PROTECTION

Problem: Prevent hydrocarbons or amine aerosols and solids from contaminating the glycol system; which could result in foaming, solvent losses, and off-specification gas.

JONELL SYSTEMS SOLUTIONS

Micro-DEP™ and Micro-LOK™ Series vapor phase coalescing elements to remove finely dispersed liquid droplets and solids from the gas before it enters the glycol system.



COMPRESSOR PROTECTION

Problem: Condensable hydrocarbons, water, and solids can reduce the viscosity of lube oil, resulting in damaged pistons due to increase friction.

JONELL SYSTEMS SOLUTIONS

Depth-LOK™ Series fiberglass gas elements to remove finely dispersed liquids and solids.



MOLECULAR SIEVE DRIER PROTECTION

Problem: Increase cycle time between regeneration of the molecular sieve drier and extend the bed life.

JONELL SYSTEMS SOLUTIONS

Micro-DEP™ and Micro-LOK™ Series vapor phase coalescing elements to remove finely dispersed liquid droplets before they enter the molecular sieve fines.

Refinery Applications

Benefit from Jonell Systems' extensive experience in integrated refinery solutions covering major critical process applications including:



AMINE SWEETING & TAIL GAS TREATING UNITS

Problem: Liquid hydrocarbons and particulates from the amine system can cause contactor fouling and foaming.

JONELL SYSTEMS SOLUTIONS

Micro-DEP™ and **Micro-LOK™**

Series vapor phase reverse flow coalescing elements to remove liquid hydrocarbons from feed gas and minimize foaming.

PhasePUR™ Series liquid coalescing elements for liquid separation after flash tank.

LiquiPleat™ Series pleated liquid elements to remove fine particulates from recirculating amine.

CarboPUR™ Series activated carbon adsorption elements to remove hydrocarbons from recirculating amine stream.



AMINE AND SULFUR RECOVERY

Problem: Carryover amine can contaminate catalyst at the sulfur recovery unit, while carryover hydrocarbons and treating chemicals will cause foaming in amine contactors.

JONELL SYSTEMS SOLUTIONS

Micro-DEP™, **Micro-LOK™**, **LiquiPleat™** and **TRI-SHIELD™**

Series vapor phase coalescing elements to remove carryover amine and hydrocarbons.

CarboPUR™ Series activated carbon adsorption elements to reduce foaming.



REFINERY FUEL GAS

Problem:

Liquid and solids will foul and plug burners and combustors.

Low NOx burners are very sensitive to plugging.

JONELL SYSTEMS SOLUTIONS

Micro-DEP™ and **Micro-LOK™ Series**

vapor phase coalescing elements to remove liquids and particulates from fuel gas and to ensure minimal pollutant formation without sacrificing operational efficiency.



CATALYST PROTECTION

Problem: Water and solid particulates can lead to:

- Furnace and Exchanger Fouling
- Feed Quality – high contamination.
- Product Quality
- Reactor pressure drop
- Catalyst Deactivation
- Effluent exchanger fouling and corrosion (NH₄Cl, NH₄HS)
- Tower Stripper operation, fouling and corrosion

JONELL SYSTEMS SOLUTIONS

Micro-DEP™ and **Micro-LOK™** Series coalescing elements to remove liquids and solids from a gas stream.

GasPleat™ Series pleated gas elements to remove solid particulates.

LiquiPleat™ and **High Temperature JHT Series** pleated liquid elements to remove solid particulates.

PhasePUR™ Series liquid coalescing elements to remove water.

ProGuard™ Backwash Filter Systems for catalyst bed protection.



**ProGuard™
Backwash Filter**
for Catalyst Bed Protection

Our end to end solutions for catalyst bed protection allow us to optimize the filtration process for your application based on your specific requirements.



FINAL PRODUCTS FILTRATION

Problem:

Contaminants such as rust, scales, solids, and suspended water can damage equipment and lower product specifications.

JONELL SYSTEMS SOLUTIONS

LiquiPleat™ Series pleated synthetic liquid elements to remove particulates.

PhasePUR™ Series liquid coalescing elements to remove entrained water.

Additional Refinery Applications:

- Aromatics
- Boiler Feed Water
- Caustics / Amine Treatment
- Compressor Lube Oil Protection
- Desalter Debottlenecking
- Inlet Separation
- Mercury Guard Bed Protection
- Mol Sieve / PSA Dryer Bed Protection
- Recycle Gas Compressor Protection
- Slop Oil Treatment / Reprocessing
- Sour Water Stripper Protection
- Syngas Clean Up
- Water Purification



For specific advice on filtration applications, replacement needs, or help troubleshooting process issues, contact an approved Jonell Systems representative or contact us.



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