



**JONELL** SYSTEMS™  
Filtration Group®

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# FILTRATION APPLICATIONS FOR THE REFINING INDUSTRY

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Making the world safer, healthier  
and more productive®

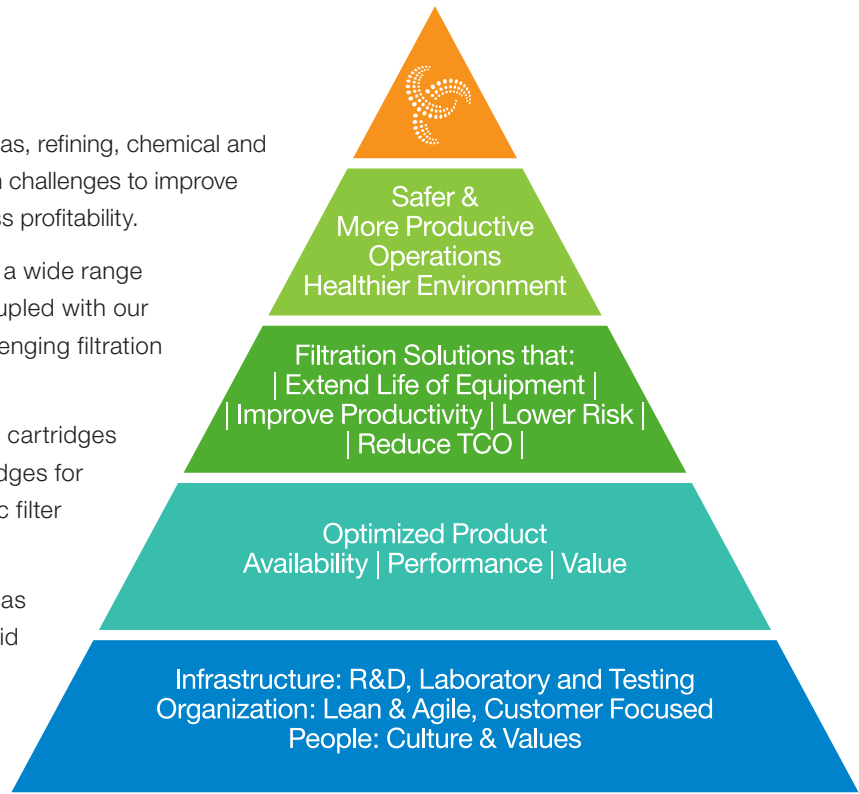
Jonell Systems, a Filtration Group brand, partners with oil, gas, refining, chemical and power companies worldwide to address end to end filtration challenges to improve process safety, reliability, productivity and ultimately business profitability.

We design & 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 high temperature cartridges for refining as well as ProGuard back wash systems and static filter housings.

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, 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:



Making the world safer, healthier and more productive®

# Filtration in Refinery Processes

In the energy industry, always-on transformation is becoming the default state with a wide variety of shifting dynamics, including huge swings in the prices of natural resources, ever-changing government regulations, and new technologies. Refineries today are facing increasing regulations regarding product specifications and refinery emissions. To succeed in this environment, refiners need to navigate change, evolve, and focus on operational excellence while maintaining profitability.

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 feedstock filtration, delivering a variety of filtration/ separation solutions to meet your specific needs including solutions for filtering feeds at high temperatures. Our custom-designed solutions including cartridge-based solutions, backwash systems and pressure leaf filters have consistently proven to enhance maintenance operations while increasing operating efficiencies.

Expertly designed filtration systems are vital for the reliability and efficiency of your processes.

## Common Filtration Challenges:

- Filtering a blended Heavy Coker Gas Oil in your Hydrocracker feed
- Semi-solid particles such as asphaltenes and polymers in you gas oil feed stream
- Increased reliance on opportunity crude stocks
- High temperature feed filtration

## Benefits of an Optimized Filtration & Separation System



**INCREASED PROCESS  
PERFORMANCE**



**DECREASED  
DOWNTIME**



**LOWER  
MAINTENANCE COSTS**



**IMPROVED OPERATING  
EFFICIENCIES**

# Key Applications in Refining



## CATALYST PROTECTION IN HYDROTREATING AND HYDROCRACKING

It is important to remove particulate from the hydrotreater feed to protect the catalyst bed in the reactors and maintain the run life on catalyst beds at minimal cost.

Our feed filtration solutions that include both cartridge based solutions & backwash systems can be implemented to deliver a clean feed to the reactor.

## SOLIDS & LIQUIDS REMOVAL FROM FUEL GAS

Fuel gas cleanliness is an important factor in the consistent operations of compressors, turbines, and Low NOx burners.

Poor removal of solids and liquids can lead to poor combustion, high fuel usage, as well as costly high VOC emissions.

## BIOFUELS FEED FILTRATION

Renewable diesel (RD) is an advanced biofuel that is biodegradable and is made from tallow and other natural sources requiring filtration to provide clean feed to the hydrotreater.

## DEEP WELL INJECTION PROTECTION

Particulate is removed from brine water prior to deep well injection to protect high pressure injection pumps as well as reducing back pressure in the injection formation.

## PIPELINE DIESEL & GASOLINE FILTRATION

Particulate is removed from pipeline fuels prior to the pipeline transfer pumps to protect the seals in the transfer pumps as well as to meet pipeline quality requirements.

## SOLIDS & HYDROCARBON REMOVAL FROM AMINE

Filtration is used to remove particulate and carryover hydrocarbons from the amine solution to protect the amine regeneration system as well as to improve amine process performance.

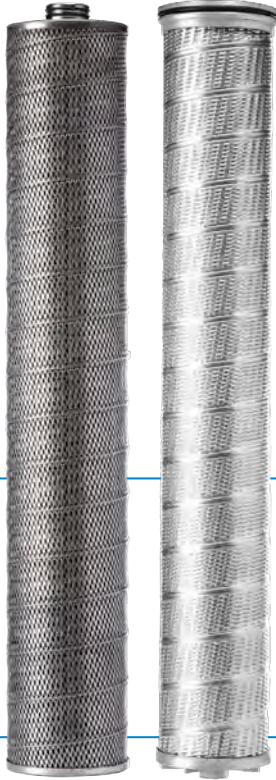
## SOLIDS REMOVAL FROM PROCESS SOLVENTS

Solid particulates cause foaming resulting in reduced process flow and the injection of costly foaming inhibitors to regain control. Fouling also occurs from excessive particulate concentrations and reduces operating efficiencies in distillation and recovery towers, heat exchangers, and other downstream equipment.

## DELAYED COKING

Delayed coking filters remove coke fines and solid contaminants from the process feed.

# Refining Filtration Solutions Portfolio



## HIGH TEMPERATURE CARTRIDGE FILTRATION SOLUTIONS

Jonell Systems has cartridge based feed filtration solutions that can filter feeds at up to 500 °F (260 °C).

## HIGH FLOW SOLUTIONS

Jonell Systems has proven, field-tested high flow filtration technology, designed to provide quality filtration at higher flow rates. Built to ASME Section VIII Div. 1 Code, available in both vertical and horizontal configurations, the application will determine the design and the type of cartridge.



## PROGUARD AUTOMATED BACKWASH FILTRATION

The ProGuard automatic backflushing filter is specifically designed for the robust requirements of refinery streams for catalyst bed protection. It is important to remove particulate from the hydrotreater and hydrocracker feeds to protect the catalyst bed in the reactors and maintain the run life on catalyst beds at minimal cost. These can filter feeds up to 750 °F (400 °C).

# Refining Filtration Solutions Portfolio

## CRICKETFILTER & PRESSURE LEAF FILTER

Especially suited for separating solids and particulate from fluids, these large filtration systems with a small footprint are hermetically closed system and can be fully automated.

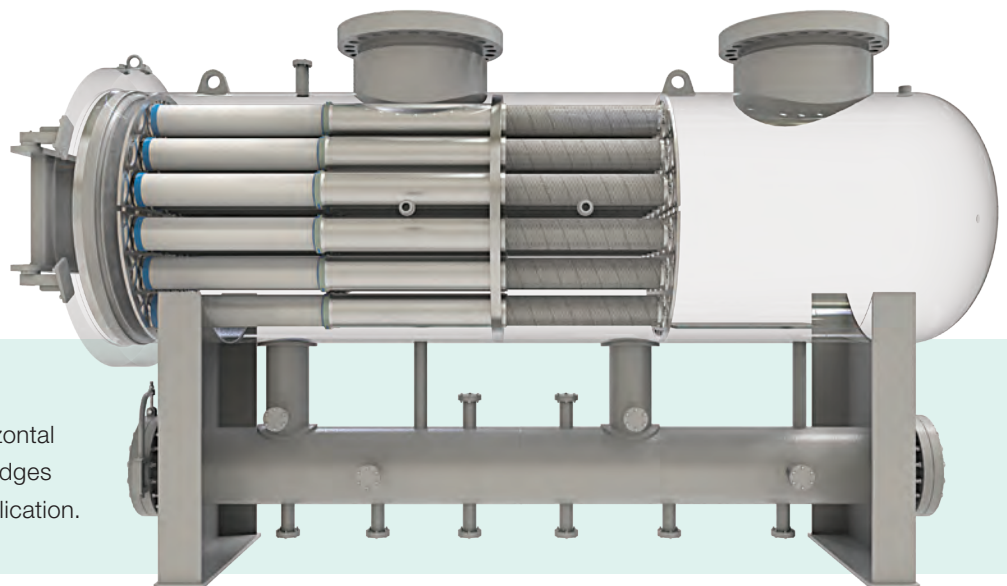


## CARBON VESSELS

Activated carbon canister type adsorber is designed to remove entrained hydrocarbons from glycol and amine streams which eliminates fouling and maintains operating efficiency. Canister type carbon cartridges are the most economical type of activated carbon adsorbers for flow rates up to 20 gpm.

## GAS COALESCERS

Jonell Systems has both vertical and horizontal gas coalescers with a wide range of cartridges that can be customized based on the application.



# R&D and Engineering combined with Extensive Field experience



Our decades of field experience is supported by in house lab testing facilities to analyze feeds, spent cartridges and more to accurately identify existing issues and propose the right solution for the filtration & process challenge.

Jonell Systems has field tried & tested solutions that can be rapidly customized using standard parts to build the appropriate solution needed for the specific refinery process with in house engineering and manufacturing.

Jonell Systems has solved many refinery challenges by applying innovation in the field on the use of standard filtration solutions including using backwashable systems and cartridge based solutions together to solve feed filtration challenges.

**Our solutions are installed in over 300 refineries Worldwide.  
Get in touch to discuss your filtration challenge today!**

## Success Stories from the Field



A European refinery processing approximately 13.5 Million ton/a of crude oil relies on Jonell Systems' High Flow filters to reduce the overall costs of coalescing elements by 50% by decreasing the change out frequency.



A large Texas refinery was experiencing major issues with a high temperature gas oil backwash feed filter system in the Hydrocracking unit. Jonell Systems recommended a high temperature cartridge based pre-filtration systems saving approximately \$2 million per year in filter maintenance expense.



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

Scan QR Code to find our locations



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