

## Filtration & Separation

Design • Engineering • Manufacturing • Total Systems Integration  
Gases • Solids • Liquids • Filtration Services

# ENGINEERED SYSTEMS

**NATIONAL FILTRATION SYSTEMS** is a leader in the supply of process equipment for the natural gas production and transmission, power generation, and general processing industries. Our in-house staff of experienced engineers partner with customers to design unique, cost-effective approaches to your most demanding process needs. The design phase is just the beginning – **NATIONAL FILTRATION SYSTEMS** is an integrated, total-capabilities manufacturer. **NATIONAL FILTRATION SYSTEMS** brings your ideas to life in a deliverable product ready to go online, on time. Our project management team oversees the entire design, approval and production process to ensure that all of your requirements are met. From a small heater package for your aeroderivative combustion turbine to a complete filtration/separation system for your process needs, **NATIONAL FILTRATION SYSTEMS'** engineers have the solution for you.

## Project Management

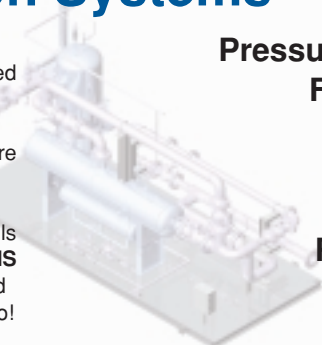
In-house project managers handle every aspect of your project, from initial design and development through manufacturing, delivery and commissioning. Our project managers are your interface with **NATIONAL FILTRATION SYSTEMS**. They will communicate with you and work to ensure that we exceed all of your requirements.

**Chemical Processing**  
**Natural Gas Production & Distribution**  
**Refining**  
**Power Generation**  
**Petro-Chemical**  
**Industrial Gases**  
**Pulp & Paper**  
**Utilities & Power Plants**



## Pre-Assembled Filtration and Separation Systems

**NATIONAL FILTRATION SYSTEMS** can engineer and build pre-assembled and tested process systems that can be delivered to your job site ready to go. No more lost components. No more waiting to find out allowable nozzle loads. No more looking for the installation manual. Leave all the details to **NATIONAL FILTRATION SYSTEMS** and have your tested, pre-assembled system delivered on time, ready to go!



**Pressure Regulating Stations**  
**Flow Metering Systems**  
**Heating Modules**  
**Pumping Stations**  
**Fuel Forwarding Skids**  
**Receivers, Drain Tanks**  
**Custom / Proprietary**



## Modular Skid Systems

**NATIONAL FILTRATION SYSTEMS** designs and manufactures modular skids that can easily be tied together once the units arrive at your facility. When your process system is too large to fit on just one skid, **NATIONAL FILTRATION SYSTEMS** has your solution.



**Landfill Gas Conditioning Systems**  
**Primary Pressure Regulating Systems**  
**Fuel Gas Conditioning Systems**  
**Secondary Pressure Regulating**  
**Compressed Air Systems**  
**Flow Metering Systems**  
**Custom Applications**



Developing unique  
solutions to your most  
difficult challenges.

# LIQUID FILTRATION & SEPARATION

## Liquid Filter Vessels

ASME Code and Non-Code simplex vessels and duplex systems for a variety of industrial filtration applications.

**Filtration Efficiencies to meet critical applications**

**Flows to 3000 GPM**

**Pressures to 5000 PSI**

## Transfer Valves

HYCOA's patented design is the leader in transfer valve technology. Utilizing the HYCOA "zero-leak" valve ensures positive indication and optimum performance in critical applications.

**Construction in CS, 304 SS, 316 SS**

**Sizes from 1 1/2" to 10"**

**Easy Retrofit for Kraissl, HILCO and HAYWARD**



## Filter Systems

Standard and Engineered Side-Arm Filter Systems. Self-contained rugged industrial systems utilizing a variety of cartridge elements and/or filter bags.

**Standard Flows to 20 GPM**

**Stationary or Portable**

**Hi-Flow and Custom Configurations**



## Liquid Bag Vessels

Standard Bag housings in a variety of sizes to meet application flow rates. Rugged construction utilizing a complete line of filter bags, strainers and inserts.

**Construction in CS, 304 SS, 316 SS**

**Pressures to 5000 PSI**

**ASME Code compliance available**



## Hydraulic & Recirculating Oil Systems

Hydraulic and Lube Oil Systems for critical industrial, automotive and commercial applications. Systems and controls designed to customer specifications and applications.

**Operating pressures to 5000 PSI**

**Flow rates to 3000 GPM**

**Meets API specifications**



## Diversion Valves

HYCOA's 3-Way Diversion Valve incorporates an interflow design which requires no external actuator. The valve assures smooth, positive, uninterrupted high volume flow diversion and pump unloading.

**Eliminates "system shock & water hammer"**

**Wide range of sizes from 2" to 20"**

**Lowers overall piping costs**



**HYCOA capabilities in filtration, hydraulic system design and construction, diversion valves, air/oil lubrication systems, ISO modules and manifolds and SAE Flanges provides a diverse product line serving industries worldwide.**



# GAS FILTRATION & SEPARATION

## ANDERSON SEPARATOR (Mechanical Type)

From 1/4" NPT up, **ANDERSON SEPARATOR** has the mechanical separator for you. These units require no maintenance and deliver unprecedented liquid and solids removal efficiencies. **ANDERSON SEPARATOR** uses many different types of separating elements in order to meet your needs. If you do not see the arrangement that you need in our catalog, consult the factory for your specific requirement.

## Vane Type



**ANDERSON's** "Pocket Style" vanes are ideal for liquid removal to 8 microns. Available in standard 316 stainless steel and other materials to meet your application requirements.

**In-Line Vertical**  
**In-Line Horizontal**  
**Vertical Gas**



## Centrifugal



**ANDERSON's** line of standard and custom centrifugal units are excellent for your air and steam separation needs.

**Vertical Up Flow**  
**In-Line**  
**Exhaust Heads**  
**Combination Separator Traps**  
**Internal Steam Drum Purifiers**



## Multi-Cyclone



When your application requires **HIGH EFFICIENCIES** for both solids and liquids - the AMCS is the solution.

**In-Line Vertical**  
**In-Line Horizontal**  
**Vertical Gas**



**ANDERSON**<sup>®</sup>  
Separator

Anderson Separator offers stock mechanical separators for immediate delivery and custom engineered units for your most rigorous specification.

# GAS FILTRATION & SEPARATION

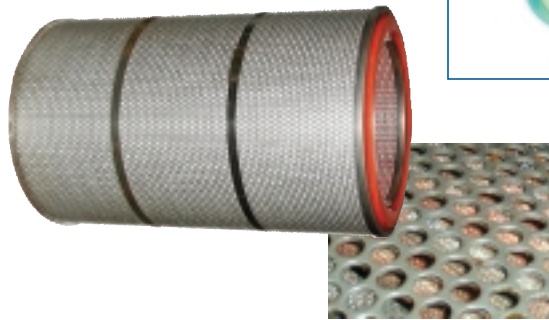
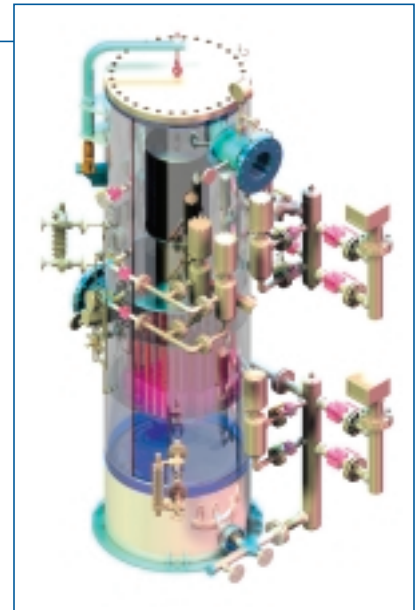
## Coalescing Separators

When your application calls for removing both liquids and solids smaller than 3 microns, **ANDERSON SEPARATOR** is your solution. We offer a wide range of media and element configuration to meet your most demanding needs. **ANDERSON SEPARATOR** manufactures its own line of coalescing and filter elements - delivering your requirements accurately, quickly and economically.



Vertical and Horizontal  
Coalescers and Filters

Multi-Stage and  
Single-Stage Designs



## Filter Separators

**ANDERSON SEPARATOR** is the source for all your filter separation needs. Our unique approach to filters combined with engineering and manufacturing capabilities offer you the most affordable and reliable separator.



High Temperature Elements

Small Line-Type Units

Multi-Stage Designs

Custom Designed





# REPLACEMENT FILTRATION ELEMENTS

## Chemicals • Gases • Fuels • Oils • Steam • Water

Clark-Reliance Filtration Group offers premium-quality, reliable filter elements for all industries. Our liquid and gas filter elements are designed with an emphasis on economy, strength, performance and service life.

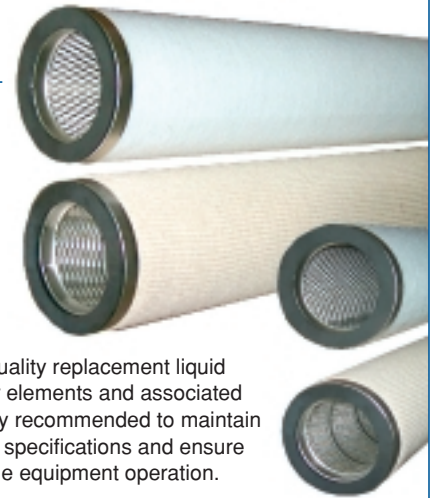
### Liquid Filter Elements

Micron Ratings from 1  $\mu\text{m}$  to 25  $\mu\text{m}$

Beta Ratings  $\geq 200$

High Efficiency Dualglass Media

High Capacity Prefilter Layer



The use of quality replacement liquid and gas filter elements and associated parts is highly recommended to maintain performance specifications and ensure safe & reliable equipment operation.

### Gas Filter Elements



Duplexed Horizontal Filter/Separator



Multiple Layers

Micron Ratings from 0.3  $\mu\text{m}$

Liquid Coalescing up to 99.98% Removal Efficiency

Custom Sizing for Specific Requirements

### Industrial Filter Elements Replacement Filter Bags



Variety of Bag Sizes and Fibers with Multi-layer Capabilities. Ratings from 1  $\mu\text{m}$  to 1500  $\mu\text{m}$



Extensive Range of Standard Sizes and Media. Ratings from 1/2  $\mu\text{m}$  to 100  $\mu\text{m}$

### Mahle Filters



Mahle Filters: Suction Line, Low-pressure, Medium-pressure, Hydraulic Filtration, Air Application Filtration, Fluid Process Applications and Oil Separators in Compressors.

# INSTRUMENTATION



The Clark-Reliance Corporation offers a complete and complementary line of instrumentation & control products that are "in-house" and readily available. Industry-leading brand names and premium quality instrumentation ensures total performance and reliability with an emphasis on economy, strength, performance and service life.

Liquid Level Gages \_\_\_\_\_

Magnetic Level Gages \_\_\_\_\_

Radar (TDR) Devices \_\_\_\_\_

Sight Flow Indicators \_\_\_\_\_

Magnetostrictive Transmitters \_\_\_\_\_

Boiler Trim Controls \_\_\_\_\_

Point Level Switches \_\_\_\_\_

Valves of all Types \_\_\_\_\_

Level Indicators \_\_\_\_\_

Side Mounted Float Switches \_\_\_\_\_

Level Switches \_\_\_\_\_

Side Mounted Float Switches \_\_\_\_\_

Capacitance Products \_\_\_\_\_

Non-Contact Ultrasonics \_\_\_\_\_

Non-Contact Switches \_\_\_\_\_

Tuning Fork Switches \_\_\_\_\_

Sight Windows & Lights \_\_\_\_\_

External Cage Switches \_\_\_\_\_

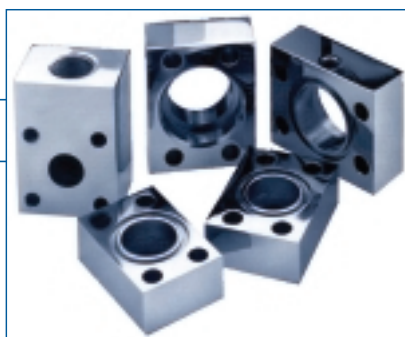
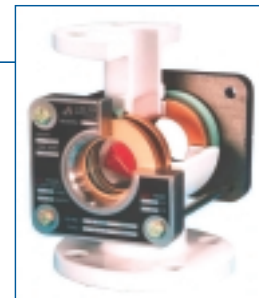
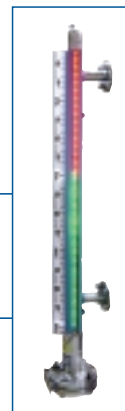
Steam Traps \_\_\_\_\_

Ultra Sonic Transmitters \_\_\_\_\_

SAE Hydraulic Flanges \_\_\_\_\_

Electro-Mechanical Products \_\_\_\_\_

Fluid Recovery Pumps \_\_\_\_\_





# **Clark Reliance<sup>®</sup>** Filtration Group

Authorised Distributor:



46, Jalan SS 22/21, Damansara Jaya,  
47400 Petaling Jaya, Selangor Darul Ehsan, Malaysia.

Email: [nog@nog.com.my](mailto:nog@nog.com.my)

Web access: <http://www.nog.com.my>