

# R100 PIPELINE FILTERS

DESIGN PRESSURES TO 3000 PSIG



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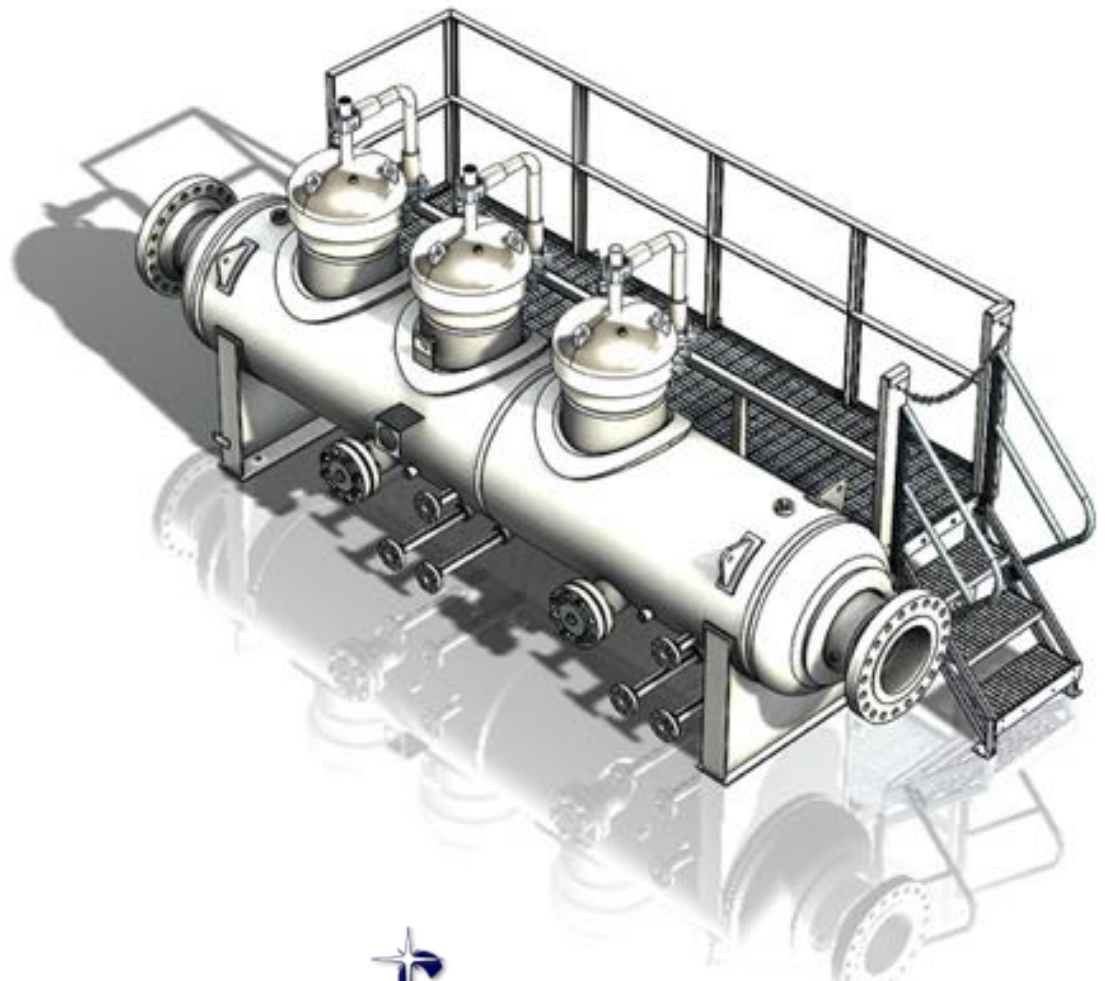
Make the switch - Return on investment can be captured in as little as 9 months

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About us - For more than 35 years, Shawndra Products™, Inc. has provided air and gas filters for critical industrial applications.



**Shawndra Products™, Inc.**  
makers of SparksFilters™

## R100™ COALESCING FILTER

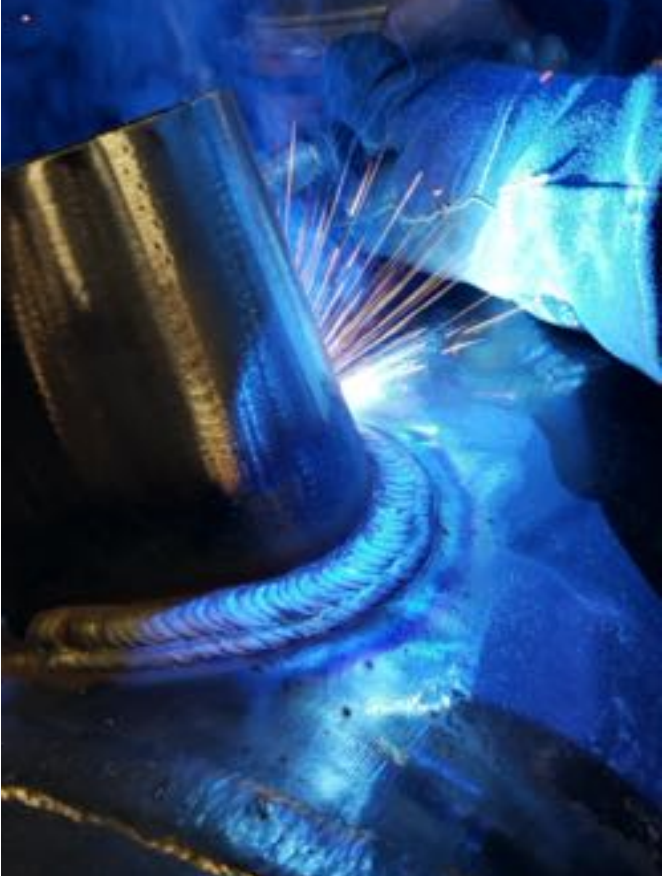
IMPROVED EFFICIENCY, REDUCED MAINTENANCE/OPERATING, MORE UP TIME

The R100™ is a slug catcher/particulate filter/coalescer - an all in one unit - it never bypasses and the filter elements last up to 25 times longer than the industry standard.

### R100 Features

- Much **longer filter life** - means fewer filter change outs, more pipeline up time, less filter element installation labor; **More uptime = More Revenue**
- Multiple capability: the R100 is a slug catcher (water/liquid), coalescer (water/liquid mist), particulate filter to 0.1 micron (check competitive products from 0.3 - 2 micron)
- Does not bypass - keeping your compressor or turbine equipment safe
- Same price or less than leading conventional but less-capable equipment
- Significant approvals in place – nearly 1,000 R100s™ are in service around the world, with corporate approvals from the leading pipeline companies, extractors, and utility companies.
- Best in the world - industry filtration experts consider the R100 the best filter coalescer in the world

R100™ in foreground, competitor in background.



R100™ in background, competitor in foreground.



## THE INCEPTION OF THE FIRST R100™

“ELEMENT SERVICE LIFE HAS BEEN EXTENDED TENFOLD”

Shawndra Products™ Inc. developed the first coalescing pipeline R100™ filter in response to the competition’s expensive-to-maintain and operate alternatives. The R100™ is specifically designed to reduce maintenance, downtime and element replacement costs. The R100™ series filter takes advantage of gravity in an advantageous way verse the competition, allowing liquid droplets to coalesce (**and drain without impeding on each individual element**) compared to the competitions horizontal loading designs, which creates a constantly liquid environment inside the vessel virtually ensuring downstream re-entrainment (See page 3/4).

Coalescing means “to grow together” - impinging on the filter media to grow to a droplet and fall into the bottom of the element (coalesce), and finally draining off the element. The R100™ series filter is a horizontal pipeline filter with extended surface area vertical elements. Element service life has been extended tenfold and more. A complete service can be accomplished with a single 3/4” adjustable wrench in less than 1.5 hours.

R-Series™ filters remove the solid particles and liquids from natural gas, vastly reducing or eliminating service to engines, turbines and other compressors, valves and meters. Superior filtration is achieved first through inertial impaction, secondly through gravitational settling, and thirdly through a nearly vertical coalescing multi-stage filter element with efficiencies of 99.99% of 0.1 micron and higher. Our media has been independently lab tested using various oils as contaminants with lab data available upon request.

## A FIELD PROVEN FILTER DESIGN

NEARLY 1000 R100™ CURRENTLY IN SERVICE GLOBALLY

The largest natural gas supplier in the Appalachian basin installed the first Sparks™ R100™ coalescing pipeline filters at five coal bed methane operations in Virginia and West Virginia. The first two of these filter units were in continuous, service-free operation for six months and more. One-unit (See image left) processes seven million cubic feet per day of natural gas, filtered at the manifold head of seven gas wells, to remove water, liquid mist, coal dust, and sand to protect two downstream Caterpillar engines and two compressors. R-Series filters remove the solid particles and liquids from natural gas, utilizing multistage filtration technology vastly reducing maintenance service and downtime to compressors, engines, turbines and other gas fired equipment.

This same pipeline filter (See image left) replaced a competitive unit (See image left) that required seven 4” x 36” elements. The new Sparks Series R100™ filter with only three elements operated continuously for six months without needing any service. **The competitors handled only (1) well, while the R100™ handled (7) wells, saving this CBM producer seventy-five hours of remote field maintenance and over \$20,000 in replacement filter elements in 2005.**

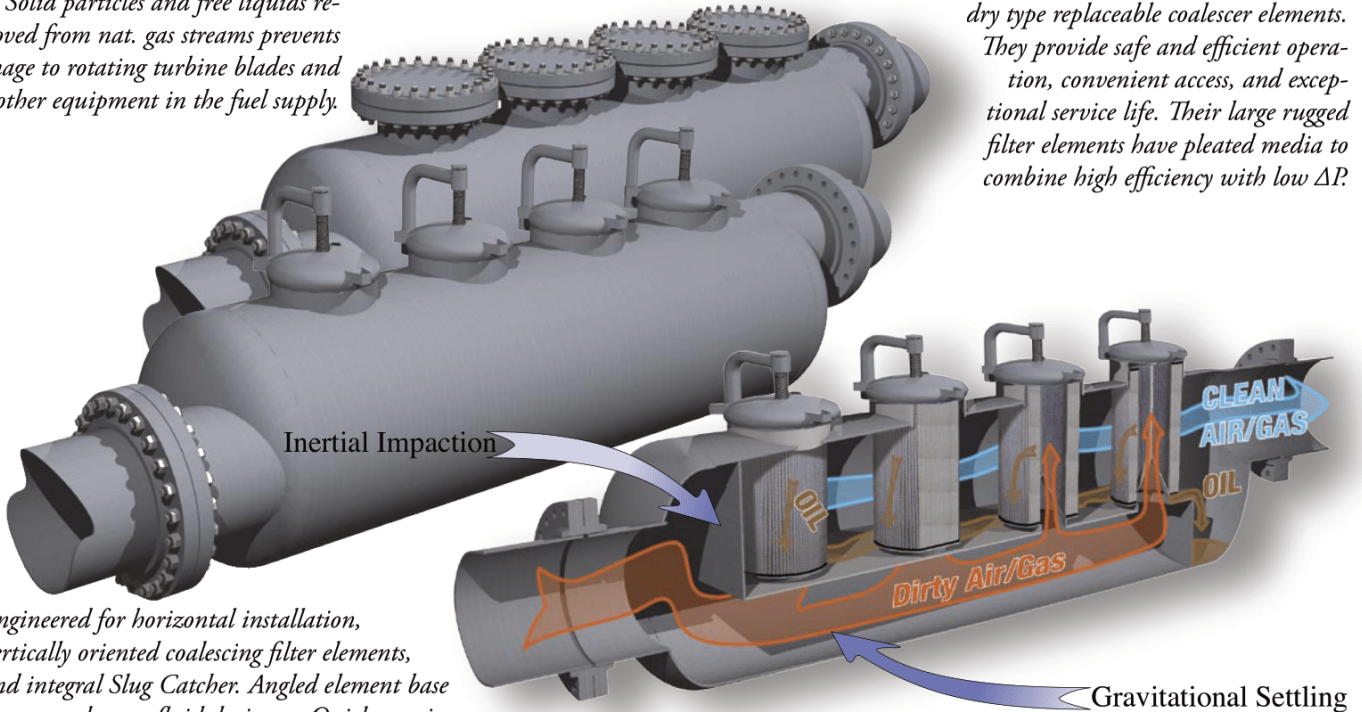
More importantly perhaps, it now takes just one person, one hour, once per year to change the filter elements, versus the prior experience of three people eight hours, 26 times/year to changeouts filters! The cost savings of filter purchases alone is enough to justify the R100, let alone the revenue from 26 days of uptime!

# Coalescing Pipeline Filters Multiple Stage

Design Pressures to 3000 psig std.

*Solid particles and free liquids removed from nat. gas streams prevents damage to rotating turbine blades and other equipment in the fuel supply.*

*These coalescing filter-separators use dry type replaceable coalescer elements. They provide safe and efficient operation, convenient access, and exceptional service life. Their large rugged filter elements have pleated media to combine high efficiency with low ΔP.*



*Engineered for horizontal installation, vertically orientated coalescing filter elements, and integral Slug Catcher. Angled element base support enhances fluid drainage. Quick opening closures and alternate element stacks are available.*

## HOW IT WORKS

### R100™ DESIGN

A horizontal vessel with vertical orientated coalescing filter elements, multistage filtration - utilizes gravitational settling and inertial impaction. Our filter elements incorporate particulate and coalescing sub-micron filtration. The R100™ is an integral slug catcher with (2) sump holding chambers (with additional external options available) providing ease in maintenance and service. To date, nearly 1000's units are in successful service globally utilizing our vertical filtration (not horizontal or vane packs).

The R100™ is a proven vertical coalescing system, a technology improving efficiency and maintenance down time while expanding element life. With our quick opening closures, they require no compressors or impact tools – drastically reducing maintenance time.

More uptime = More Revenue

## TRADITIONAL SEPARATORS

### IMPROVED EFFICIENCY, REDUCED MAINTENANCE AND OPERATING COST

Vane Separators - Pockets and drain piping can easily plug with solids. Difficult to clean and relatively expensive. Vane Separators look great when first fabricated - but not so great after a few months in service, 10-20 micron at best (See image right)

Mesh Separators - Very susceptible to plugging. Highly susceptible to corrosion. Expensive. (See image right)

Centrifugal & Cyclone - Lower efficiency than vane separators. A trap device is needed for liquid collection. Limited liquid handling capacity.

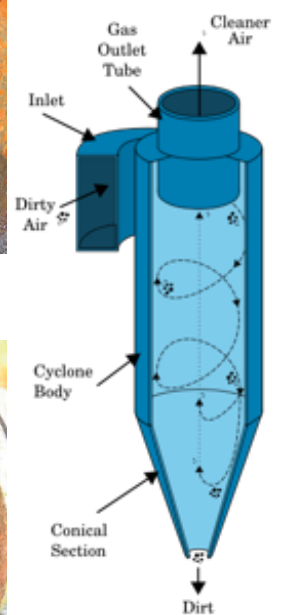
## THE R100™ ADVANTAGE

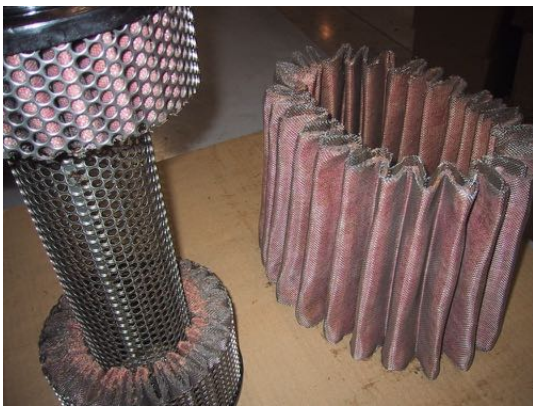
### IMPROVED EFFICIENCY, REDUCED MAINTENANCE AND OPERATING COST

The first R100™ replaced a competitive horizontal element unit that required seven 4" x 36" elements, with change out needed every two weeks. The Sparks™ series R100™ filter with only three elements operated continuously for six months without needing any service saving the owner seventy-five hours of remote field maintenance and over \$20,000 in replacement filter elements.

### PAYBACK ON INVESTMENT IN AS LITTLE AS 9 MONTHS

-- Similar success stories continue





# HORIZONTAL VS VERTICAL COALESCING

## CHANGE FEW OR MANY

Long tube type horizontal coalescing filters can “wet” out and lose up to one third useful area - Element installation and maintenance can be extremely tedious, time consuming and costly

*How many are totally wet or useless?*

*Vertical filters drain towards the bottom – only 1-2” are wet*



R100™	Shawndra Products,™ Inc. <i>makers of SparksFilters™</i>	Competitor
YES	Service in 1-2 Hours	NO
YES	Inline Connection	NO
YES	Inertial Impaction	NO
YES	Gravitational Settling	NO
YES	Slug Catching	NO
NO (not needed but optional)	Secondary Sump	Yes



## ENVIRONMENTAL IMPACT

### NEARLY 1000 R100™ CURRENTLY IN SERVICE GLOBALLY

Due to the R100™ vertical design, filter elements not only last longer and require fewer change outs but the R100™ is more environmentally friendly than the competition. With each change out, operators are becoming more and more challenged with proper disposal and growing EPA laws.

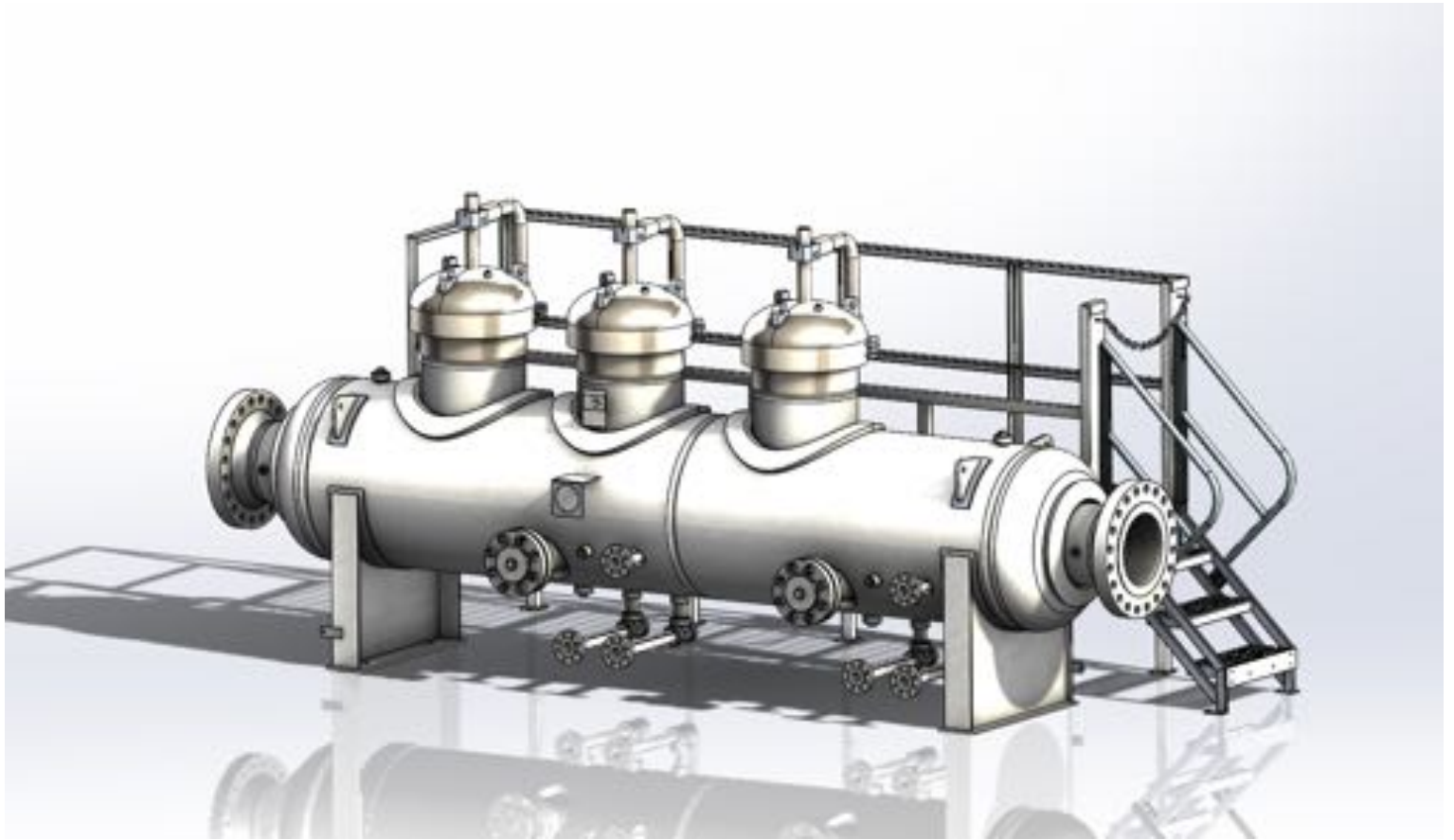


With the first R100™ in service, the CMB producer implemented the R100™ to service (7) well heads, replacing units that only serviced (1). The competitive unit required (7) elements to be changed out 26 times a year... times (7) well heads, that equals 1,274 elements a year to the R100's (3)!



	R100™	Competitor	R100™2	Competitor2	R100™3	Competitor3
Vessel OD	36"	36"	36"	42"	36"	48"
# Of Elements	3	31	4	38	5	56
Element Length	30"	72"	30"	72"	30"	72"
Total Sq. Ft.	243	224	325	274	405	404





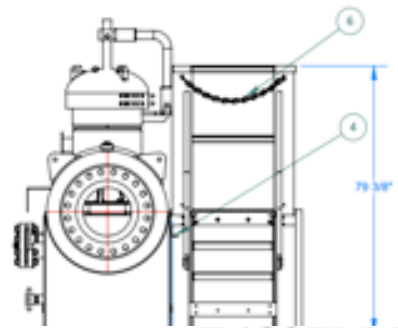
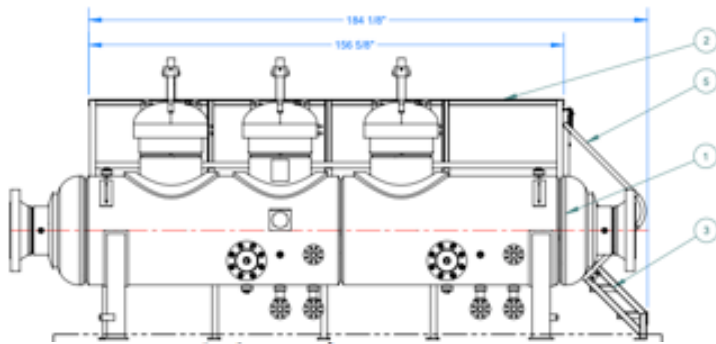
## MAKE THE SWITCH TODAY

NEARLY 1000 UNITS IN SERVICE GLOBALLY

With nearly 1000 units in service to date and growing, there is no risk in choosing the R100™! Return on investment can be captured in as little as 9 months. We custom design our units to match our customers exact requirements, unlike the competition. If you want extra ancillary ports, changes in orientation etc. don't worry, we will make the changes quickly, without change fees and ensure an optimally engineered solution for your needs, and we do this in days, not months.

**Need a solution quick?** We have stock units available and can fabricate our 1,2, and 3 stack options in **6 weeks ARO**. Leasing options also available upon request.

Contact us today and learn why our solution is the **BEST** solution for your pipeline application!



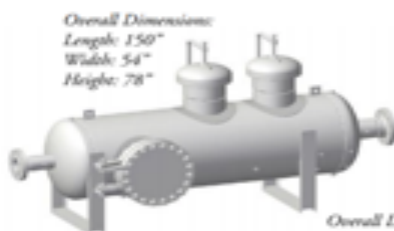
**R100™ Mini**

## R100™ Multiple Stack Options

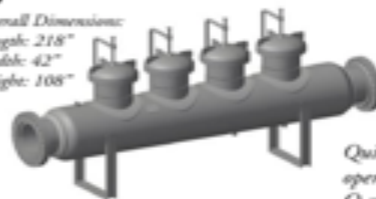
for high pressure/high flows  
All units ASME U stamp with  
National Board Registration

**Options include:**

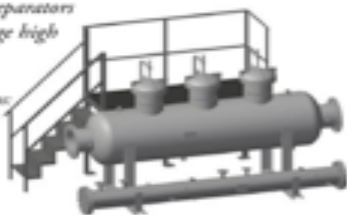
- Relief Valves
- Dump Valves
- Float Valves
- Sight Glass
- Ladders/Platform
- Assorted gages & piping
- Pads of mesh or directional separators
- One, Two, Three or Four stage high flow elements available



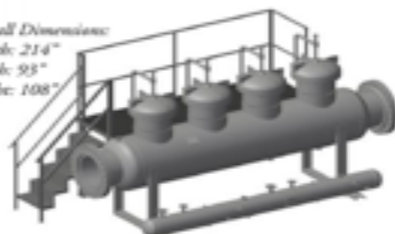
Overall Dimensions:  
Length: 150"  
Width: 54"  
Height: 78"



Overall Dimensions:  
Length: 218"  
Width: 42"  
Height: 108"



Overall Dimensions:  
Length: 178"  
Width: 93"  
Height: 104"



Overall Dimensions:  
Length: 214"  
Width: 95"  
Height: 108"

2 Chamber sump tank

Low pressure  
bolted closure



Connection sizes  
6" & smaller  
(Eliminates the  
need for (3)  
vessels in gas  
piping meter runs)



Quick  
opening  
O-ring  
closure

Adjustable legs available

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## SHAWNDRRA PRODUCTS, ™ INC.

### ABOUT US

For more than 35 years, Shawndra Products™, Inc. has provided air and gas filters for critical industrial applications. Shawndra™ includes three divisions: [Sparks Filters™](#) (replacement and custom filter elements), [Rush Certified](#) (ASME Code Stamp Holder for Pressure Vessel fabrication), and [A&E Testing](#) (Non-Destructive Testing services).

We manufacture quality direct [replacement elements](#) for Dollinger, Consler (Graver), Ingersoll-Rand, Atlas Copco, IFM, Sunshine, Endustra, Universal Silencer, NAFCO, and many others. Shawndra™ provides lube oil filters, sewn end filters, panels, and a full line of molded-end filters.

Our [R100™](#) is a slug-catcher, coalescer, and particulate filter vessel in a single unit. The R100™ offers filter element life up to 30 times that of the industry leaders and is quickly becoming known as a best-in-the-world product.

Our filter vessels are designed to serve a wide range of industries including natural gas, chemical processing, and power generation. We offer efficient systems that are safer to operate and offer enormous operating savings over the industry-leading systems.

We have a wide range of customized design, engineering, and fabrication capabilities. Our [staff](#) is dedicated to providing excellent service and solutions for your specific application. We work with our customers to provide specialized [ASME Code filter vessels](#), [low-pressure sheet metal housings](#), and [filter elements](#). Our welding capabilities also allow us to fabricate vessels to your drawings.

[A&E Testing](#) provides in-house Non-Destructive Testing services. This wholly owned subsidiary provides Shawndra™ with the capability to produce ASME Code stamped vessels with lead times much shorter than industry standards.

[Shawndra Products™, Inc.](#)

Rush Certified and [A&E Testing](#)

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