Sheffield SEPARATOR CO.
GAS AND LIQUID SEPARATORS

The Sheffield SS 300-GF-S2

A stainless steel, 2.25" separator in gas service with 2 filters configured in series

Designed and built for everyday use in light to medium applications or as a replacement for the by-pass filter

The **SS 300-GF-S2** is recommended for gas samples with light to moderate particulate and light to moderate liquid contamination. These routine applications require a high performing, reliable separator with 2 excellent hydrophobic filters, providing more efficient filtration by using a 15 micron filter in the first chamber and a 2 micron filter in the second chamber. The SS 300-GF-S2 is recommended as a replacement for standard 2.25" by-pass loop filters. It may also be used as a light duty separator, or as a "fail-safe" filter to guard against analyzer problems during upsets or other extraordinary events. The Sheffield patented dual chamber separator provides the most economical separation and filtration with minimum lag time within the sample conditioning system.

Kinetic Separation Technology is the most innovative technology available today for sample conditioning.

The Sheffield patented dual chamber separator provides maximum separation of liquids and particulate. Although kinetic energy will physically separate impurities, it will not alter the chemical composition of the sample.

Features		Benefits
Small footprint separator with twice the filter surface area as standard by-pass filters	→	Fits easily into existing applications; easily installed in sample conditioning panels
Dual graduated porosity hydrophobic filtration in series	→	Heavier contaminates separated in first chamber and remainder contaminates polished in the second chamber results in the most efficient sample conditioning
Industry size filter	→	Easily replaces existing filters and is a stock item that can be quickly and easily installed
Extremely Versatile	→	Operates across a wide range of pressure, flow rates, andtemperatures
Hydrophobic Fluorocarbon Teflon ® Lined Filters	→	Can handle significant amounts of free water or particulate without clogging
Kinetic Energy Separation results in 4 fold expansion in first chamber and 254 magnitude in second chamber, producing cooling. Joule-Thomson effect.	→	The lower temperature at the kinetic separation results in greater condensing, further maximizing separation
Operates at 2psi or less differential pressure	→	Will not push water through the hydrophobic filter
Dual Chamber Construction	→	Maximizes separation and filtration; longer filter life
No Moving Parts	→	Less maintenance, greater reliability
Straight Fittings with O-ring Seals	→	Easier filter changes
No internal obstructions in first chamber	→	Minimal backpressure

The Sheffield Kinetic Separator uses kinetic energy to separate the representative analyzer sample from impurities found in a process stream. This is accomplished by establishing a flow path through the 1st chamber and reversing the flow of a relatively small Bypass sample. Solid contaminants and immiscible liquids in the liquid samples will not negotiate this complete reversal of flow direction and exit the bottom of the separator. The Kinetic Energy caused by this reversal initially removes the impurities from the Bypass stream through gravity and inertia. To further effect this separation and filtration a second kinetic chamber with a hydrophobic filter polishes the sample. The second chamber also experiences Kinetic Energy Separation and removes the remaining impurities from the Slip Stream. The sample is lighter than immiscible liquids and solids (particulates) in a liquid sample.

How It Works

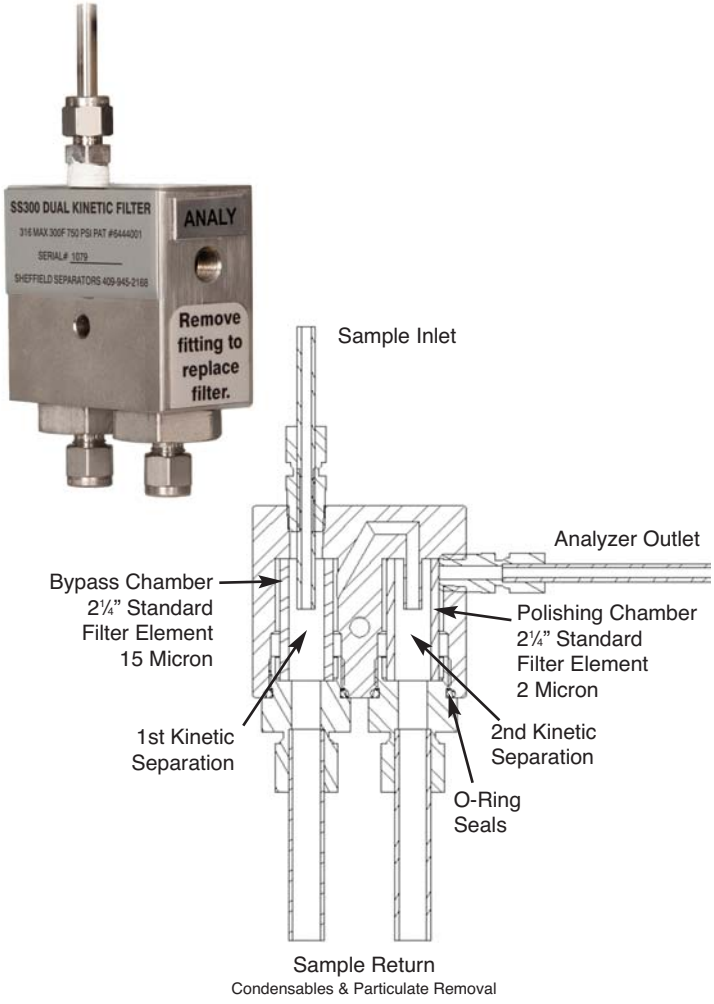
SS 300-GF-S2
Gas with 2 Filters in Series

Initially, the flow path enters the first chamber. System pressure forces a reduced Bypass flow in the reverse direction; the main stream flow continues through the first chamber and exits the bottom of the separator. Gravity, inertia, and cooling create Kinetic Energy Separation of the Bypass stream. The sample is lighter than condensate and particulate in gas sample.

The **First Chamber** of the Sheffield Kinetic Separator is designed for installation in the Bypass Loop within the sample conditioning system. This model embodies a special 2.25 inch, 15 micron Teflon-lined (hydrophobic) self-cleaning low pressure drop Fluorocarbon filter. The Kinetic Effect acts as a pre-filter. Most of the heavier contaminates are separated in the first chamber.

The **Second Chamber** separates and filters only the relatively small amount of Slip Stream sample going to the analyzer which greatly enhances filter life. The second chamber is a Kinetic Energy polishing chamber, aided with a special 2.25 inch, 2 micron Teflon®-lined, hydrophobic, self-cleaning low pressure drop filter. The filter element in this chamber has a special Teflon®-lined interior, which repels water and particulate as these impurities pass through the filter. Finally, both chambers exit the bottom of the separator to a common juncture with the return flow. These attributes combine to make the Sheffield Kinetic Separator virtually maintenance free.

The **SS300GF-S2** is designed for normal particulate and light water contamination in a gas sample stream. Unlike older filter technology, the SS300 is designed to protect the analyzer from unexpected particulate loading and condensables which may occur during upset conditions. In normal operation it furnishes 2 kinetic energy separations as it filters the sample twice, through two filters in a series with graduated porosity. Thus, it delivers considerably more protection than existing separators or filters during normal operation with enough capacity to protect the analyzer during upset conditions. Kinetic Energy Separation technology has proven to be significantly superior to existing separation technology while furnishing efficient dual porosity hydrophobic filtration.



SPECIFICATIONS

Max. Pressure: 750 PSIG
Max. Temperature: 300°F
Max. Flow: 25 SCFH - 10 GAL/HR
Pressure Drop: 2 PSIG
Materials of Construction: 316 SS
Dimensions: 1.5″ x 3″ x 3″
Inlet: 1/4″ TUBE
Outlet to Analyzer: 1/8″ TUBE LIQ
1/4″ TUBE GAS

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