Sheffield SEPARATOR CO.
GAS AND LIQUID SEPARATORS

The Sheffield SS 1200-GF-S1-C

A stainless steel, 12" separator in gas service with 1 filter configured in series with dual chamber cooler

Designed and built for the most demanding applications where cooling is necessary to maintain a single phase sample

The **SS 1200-GF-S-C** is recommended for gas samples with heavy particulate and heavy to moderate condensable contamination. These demanding applications require the highest performance and the most reliable separator and filters. The addition of a cooler to the standard SS1200-GF-S1 provides the additional benefit of cooling the sample to increase condensation, thereby maintaining a single phase sample.

SS1200-GF-S1-C is also recommended for critical applications requiring infrequent filter changes. The Sheffield patented dual chamber separator with cooler provides maximum separation of condensable and immiscible contaminants while the second, polishing chamber provides final clean-up.

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

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

Features		Benefits
Integrated Cooler	→	Cost effective efficient cooling; identical footprint of standard SS1200 separator; uses available utilities
Extremely Versatile	→	Operates across a wide range of pressure, flow rates, and temperatures
Enhanced Cooling	→	Increases condensing, maintaining single phase resulting in a cleaner, dryer sample
Hydrophobic Fluorocarbon Teflon ® lined filters	→	Can handle significant amounts of free water or particulate with longer filter life
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
(Gas with 1 Filter in Series with Cooler)

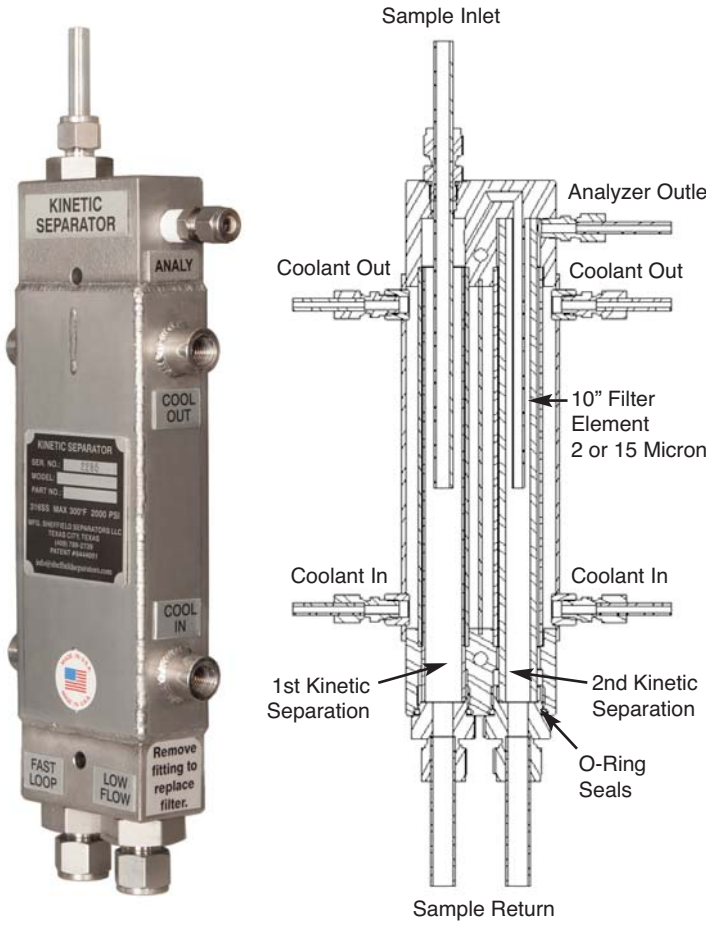
Initially, the flow path enters the first chamber. System pressure forces a reduced Bypass flow in the reverse direction; the main stream flow continues through the first chamber and exits the bottom of the separator. Gravity, inertia, and cooling cause kinetic separation of the Bypass stream because the representative sample is lighter than condensate and particulate in a gas sample.

The **First Chamber** of the Sheffield Kinetic Separator is designed for installation directly in-line to the Fast Loop sample transport system. 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 10", 2 or 15 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 particles as these impurities pass through the filter center with the sample return. 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.

SS1200GF-SI-C (COOLER MODEL)

The 12" Model has an integrated, dual cooling chamber with a thinner cylindrical design. This allows the external body of the separator to be surrounded by the cooler chambers. Both Kinetic separator chambers create a sudden pressure drop that creates cooling within both chambers. (Joule-Thomson Effect) Coupled with the external coolers the net result is a very efficient heat transfer. The dual, isolated, cooling chambers allows the first and second chambers to utilize separate cooling streams and different coolants which are isolated from the absorbed heat of the other chamber i.e., the 1st chamber could use water to reduce the Bypass flow while the 2nd could use instrument air or a Vortex Cooler to reduce the temperature of the slip stream. With significant differential temperature between the Sample Conditioning Cabinet and available instrument air or potable water, condensing will decrease the Dew Point of the sample. This can make the original temperature, which previously allowed condensing, to be a sufficient temperature to prevent condensing as the Slip Stream continues to the Analyzer.If the Slip Stream pressure can be regulated lower at or close to the Analyzer port of the separator it will also contribute to maintaining a single phase sample.



SPECIFICATIONS

Maximum Pressure: 2,000 PSIG
Minimum Pressure: 2 PSIG - Vacuum application with pump or eductor
Maximum Temperature: 300° F
Pressure Drop: 2 PSIG
Flow Rate:
The flow rate specified for the sample system is sufficient for the separator. For best results, the first chamber flow should exceed that of the second chamber.

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