Fujifilm Micro Filter

AstroPore

All Metal Gas Line Filter

For Semiconductor Industry

All Metal Gas Line Filter capable of withstanding high-temperature baking

All Metal Gas Line Filter—a new face to the Fujifilm Micro Filter AstroPore series of gas line filters which have gained great popularity among industrial users.
Gases used for semiconductor processes require an extremely high purity. To achieve such an ultra-high purity, not only the gas production process, but also the filling, transport, storage and supply systems must be perfectly clean. The AstroPore All Metal Gas Line Filter is capable of withstanding high-temperature baking because all of its components are fabricated from SUS316L stainless steel. If gas contaminants such as H_2O can be removed by high-temperature baking, nonuniformity on high-integration wafers of 16 megabits or even higher is reduced, resulting in a substantial improvement of the yield rate. Depending on the type of gas, silica or other particulates may be generated as a result of the reaction of gas with H_2O. High-temperature baking treatment is very useful for obtaining high purity gases by removing such gaseous contaminants as H_2O.
Fabricated from the highly heat-resistant stainless steel in compact design, the AstroPore All Metal Gas Line Filter ensures that the gas is supplied to the end-use point without loss of purity.

Specific Features

1. Capable of withstanding high-temperature baking

The AstroPore All Metal Gas Line Filter uses SUS316L for all components including the filter element and housing. It is extremely heat-resistant and withstands high-temperature baking.

2. High retention capability

Fabricated from sintered SUS316L stainless steel fibers, the filter media of this All Metal Gas Line Filter offers an exceptionally high retention rate more over 99.999999% of 0.01 µm particles.

3. Ultracleaning for quick use

All components of the filter are subjected to ultracleaning and its fabrication takes place in the clean room so that residual particulates are scarce and the filter is quickly ready for use. The remaining amount of ions has also decreased.

4. Mirror-smooth-finished inner surface maintained by special welding technique -there is no brown oxide skin

The inner surface of the housing is mirror-smooth-finished and forming a passive layer on it for excellent corrosion resistance and cleanness by special electropolishing. Because proper control of inert gas is effected in the welding process so that there is no brown oxide skin, released dust of the housing has been eliminated and the amount of gaseous contaminants has been reduced.

5. Mechanical Seal

The filter element is mechanically fitted to the housing without welding. Therefore, there is no concern of decrease in retention performance resulting from the brown oxide skin of the housing or the thermal deformation of the filter element.

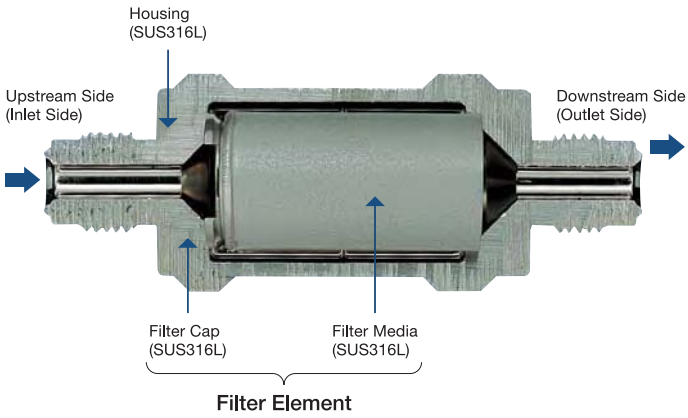
6. Consistent quality control

An integrity test, pressure test and gastightness test are performed on each unit and a serial number is marked on it.

Major Applications

Purification of process gases (general and specific) and vacuum systems used in the semiconductor industry.
Installed in a gas line, the filter captures various particulates such as fine metal particles generated as a result of the action of pressure reducing valves, pressure gauges, valves, etc. It is especially useful for processes in which the yield rate of wafers of 16 megabits or more can be improved by high-temperature baking.

Construction



Flow Rate Characteristics

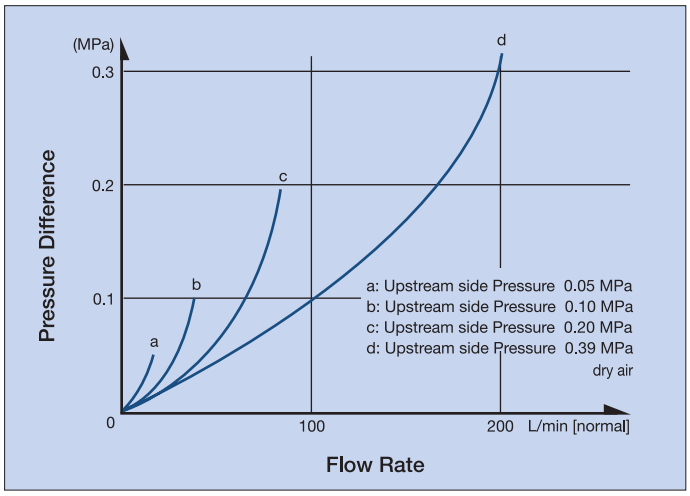
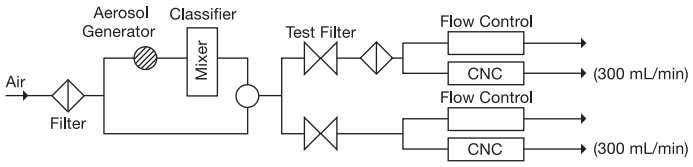


Table of Performance Characteristics

Item			Unit	Performance	Remarks
Configuration	Filter Element			Cylindrical Type	
Object				Various gases (general and special) for semiconductor production and vacuum-systems.	
Connection	Type			Gasket	(Note 1)
	Size			1/4 (6.35 mm)	
Filter Media	Material			Sintered SUS316L stainless steel fibers (without binder)	
	Effective Filtration Area		cm^2	21	
Body	Material			SUS316L	
	Span		mm	84	(Note 2)
	Inner Surface Finishing			Special Electropolishing	
Retention Rate				More over 99.999999% of 0.01 μm particles	(Note 3)
Max. differential pressure	Housing Design Pressure		MPa	0.97	
	Filter Element	Forward Pressure	MPa	< 0.39	
		Backward Pressure	MPa	< 0.07	
Gastightness	Helium Gas		μPa·L/s	< 5	
Max. heat resistance			˚C	460	
Package				Anti-static double layer bag	

(Note 1) Gasket type compatible with VCR®.
(Note 2) See Outlook Dimensions diagram.
(Note 3) Testing method : Evaluation of ultrafine particle removal performance with condensed nuclear particle counter.
[Measuring Instruments]
• Electrostatic Aerosol Classifier, Model 3071 (by TSI)
• Condensed Nuclear Particle Counter, Model 3020 (by TSI)

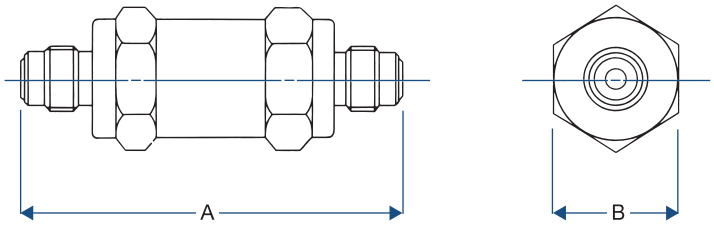
Measurement Flow Chart



Product Codes

MGS VC 21 UP
- MG .... All Metal Gas Line Filter
- S ..... Material : SUS316L
- VC .... Fitting Configuration : Gasket type (VCR® compatible)
- A ..... Fitting size : 1/4
- 21 ..... Effective area of filter media : 21 cm^2
- UP .... Grade of inner surface finishing

Outlook Dimensions (Unit: mm)

Schematic Drawing	Dimensions	
	Span (A)	Hexagonal section (B)
	84	27

*MCG®, JSK®, and Super JSK® fittings may also be available on request.