

High Safety Process Flow Cell

GUIDED WAVE recommends the use of our High Safety Flow Cell (HSFC) for applications involving extremely hazardous materials. When processes involve extremely toxic or hazardous materials such as hydrofluoric acid, phosgene, isocyanates, etc., safety is paramount. Uncontrolled or undetected leaks cannot be tolerated. Guided Wave's patented High Safety Flow Cell was designed with leak prevention and early detection in mind. Built into a Class 300 flange, using welded construction, the HSFC uses double o-ring sealed sapphire windows. A weep or "tattletale" port connects to the space between the o-rings and when coupled to a sensor, can indicate o-rings in need of replacement. The HSFC is available in a variety of alloys and o-ring materials selected to be compatible with your process.



Design Features

The High Safety Flow Cell is a 2.25" thick, 1" Class 300 flange with double o-ring sealed sapphire windows. Precision mounted collimating lenses and fiber optic (SMA 905) connectors complete the optical design. Hardware is provided to connect protective conduit for the fiber optic cables. Standard optical pathlength are 20 mm and 30 mm. Other pathlengths are available by special request. Standard construction is 304 stainless steel; other alloys are available.

The early warning leak port is terminated in a 1/2" Class 300 flange. O-ring material must be specified by the customer to ensure process compatibility. Please consult appropriate resources for temperature specifications of various o-ring materials and chemical compatibility with your process.

The High Safety Flow Cell can be dismantled for o-ring replacement and cleaning. Repeatability of the pathlength on re-assembly is ensured by the design. Additional o-rings are used to prevent infiltration of environmental contaminants such as water, vapor, and dust.

Safety Features

As a patented (US Pat #5,452,082) safety feature, each sapphire window is double o-ring sealed. A passage from between the o-rings is brought to a common port terminated in a 1/2" Class 300 flange. It is highly recommended that a sensor sensitive to the process material be attached to this port with its alarm set at an appropriate level. An alarm condition would indicate that the first o-ring seal has failed and that immediate o-ring service is required. The second o-ring seals the process until the required service is accomplished.

Welded construction is used to connect the warning port. All HSFC's are hydrostatically tested prior to delivery.

For additional information on this flow cell or on any Guided Wave probe or analyzer, please visit our web site at www.guided-wave.com or send us an email at gwinfo@guided-wave.com.

High Safety Flow Cell

Specifications

Body Material:	304 SS (standard) ASME specified materials having yield strengths of 30 kpsi or greater at ambient temperature
O-Ring Material:	Kalrez® 4079 Kalrez® 2035 Viton EPDM Silicone Customer requested elastomer with a Durometer >70 and Shore of A or greater
Window Material:	Sapphire
Pathlength:	20 mm 30 mm Customer requested, subject to acceptance by Guided Wave

Fiber Termination:	SMA 905
Optical Beam:	Collimated
Maximum Pressure:	<300 psig [2000 kPa] (hydrostatically tested to 1000 psig [6900 kPa])
Maximum Temperature:	150 °C [300 °F]
Flange (Body) Specification:	1 inch Class 300 x 2.25 inches [57.2 mm] thick, other sizes available by request
Flange (Leak Port) Specification:	½ inch Class 300; MUST BE CONNECTED OR SEALED
Optical Efficiency:	>45% Transmission from 800 nm to 1650 nm

