

Teflon Axial Flow Cell

For Highly Corrosive Processes and/or Trace Metal Contamination Sensitivity

GUIDED WAVE'S Teflon® Axial Flow Cell was developed for sample streams that are either extremely corrosive or intolerant to metal contamination, where even trace metal impurities can cause significant process problems. This long pathlength non-metallic flow cell will meet these challenges with pathlengths of 25 to 100 mm.

Process Resistant Construction

Since no metal parts come in contact with the liquid stream, the design is ideal for processes where even parts per billion levels of metals contamination can create serious problems as in HF semiconductor baths, fab etching and cleaning steps. The Teflon Axial Flow Cell also performs well in the presence of extremely corrosive streams containing strong acids, bases, peroxides or halogenated compounds.

- Non-Corrosive
- No Metal
- Excellent for Semiconductor Processes / Applications
- Compatible with most Fiber Optic Based Spectroscopic Instruments

Unique Design

The standard Teflon Axial Flow Cell has no wetted metal components. It is available with a Teflon (PTFE) body with Teflon o-rings and either sapphire or fused silica windows depending on the spectral range. Teflon seals prevent leakage and protect the flow cells vital internal optics. Other major components are polyether ether ketone (PEEK), glass or fused silica lenses, and non-wetted Viton o-rings.

Effective For Low Level Detection

Like other Guided Wave optical probes and flow cells, the Teflon Axial Flow Cell provides exceptional optical performance. The Teflon Axial Flow Cell peak transmission exceeds 30% which is considerably higher than other flow cells on the market. That means more signal, lower measurement noise and lower limits of detection.

Integration with Most Spectroscopic Analyzers

Like other Guided Wave optical probes and flow cells, the Teflon Axial Process Flow Cell is manufactured to facilitate full integration with any fiber optic based system configured with SMA 905 connectors. Keep in mind that operation with fibers having a core diameter of 400 to 600 micron will provide the best optical performance.



Why Choose A Teflon Axial Flow Cell

Perhaps the most critical decision in designing a successful online analyzer system is the selection of the sample interface.

While an insertion probe approach can often reduce installation costs, sometimes safety, servicing, and/or sample conditioning requirements make it necessary to integrate a sampling loop or slip stream. In those cases, a flow cell is the preferred optical interface device.

A Teflon Axial Flow Cell design is called for when pathlengths exceed 20 mm and small flow volumes are required. It is a convenient, compact, rugged sample interface that is easy to install.

Flow cell performance strongly affects the overall system performance of a process spectrometer or a filter photometer. High optical efficiency and low sensitivity to environmental factors are essential to sensitive, reliable measurements. Achieving optimal system performance requires a flow cell that is insensitive to vibration, temperature and pressure changes. Guided Wave's Teflon Axial Flow Cell provides exceptional immunity to the environment. For more information on similar flow cells see:

- Axial Process Flow Cell (Publication #1043)
- Teflon PFA/PEEK Process Flow Cell (Publication#1045)
- Teflon Process Flow Cell (Publication #1011)

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Features — A Simple, Serviceable Design

- Non-corrosive, no metal design
- High optical throughput for low noise spectroscopy
- Suitable for liquids and vapors
- Collimated beam for consistently accurate measurements
- Reproducible pathlength permits servicing in the field
- Compatible with 200 through 600 micron fiber
- O-ring sealed optics to prevent ambient moisture infiltration
- Compatible with most fiber optic based spectroscopic instruments
- Excellent for semiconductor processes / applications

Custom Design Options

At Guided Wave we work with you to develop the best solution for your particular process installation needs. We have a large variety of probes and flow cells as well as offering custom design services. Please contact us for help in selecting the correct style of probe or flow cell for the sample under consideration. If we do not have a probe or flow cell that meets your precise need, Guided Wave has the experience and expertise to design one.

Why Choose Guided Wave

Our reputation, experience and design compatibility have made Guided Wave the “go-to” provider worldwide for direct insertion probes and sample flow cells.

By partnering with Guided Wave, customers gain the advantage of 30+ years of experience in online process monitoring and stream sample analysis. Our entire product line is designed and developed to meet the challenges of the most demanding production environments with lab quality results for *control you can measure*.

Specifications

Pathlength, mm	25, 50, 75, 100
Spectral Range	UV-Vis (200 – 600 nm), Vis-NIR (380 - 2100 nm)
Optics	Fused Silica (UV); BK7 (Vis-NIR)
Connector Type	SMA 905
Process Connection:	1/4 inch NPT to 6 mm Tube, PTFE compression fittings supplied
Optical Efficiency (%T)	≥35% transmission from 800 to 1650 nm for pathlengths ≤50 mm ≥30% transmission from 800 to 1650 nm for pathlengths >50 mm ≥25% transmission from 200 to 500 nm for pathlengths ≤50 mm ≥20% transmission from 200 to 500 nm for pathlengths >50 mm
Temperature Range	0 °C to 150 °C
Pressure Range	0 to 100 psig
Body Material	Teflon
Window Material	Sapphire (230 - 2100 nm) or Fused Silica (Deep UV) (200 -600 nm)
Window Seal	Teflon



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