

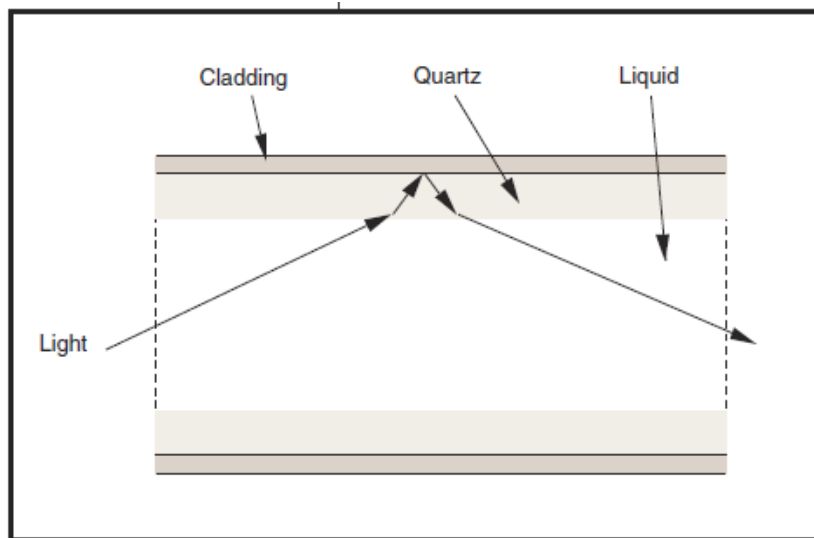
## Astoria-Pacific's 50mm LWCC



Astoria-Pacific partnered with World Precision Instruments to provide a Liquid Waveguide Capillary Cell (LWCC), which is easily incorporated into our Astoria Analyzers. Our 50mm LWCC is a low volume flow cell for UV and VIS absorbance analysis with a wavelength range of 200 - 1000 nm. The sample cell fluid/light path consists of PEEK, fused silica and Teflon. Optical fiber(s) are used to transport light from the Astoria Analyzer light source to the flow cell and from the flow cell to detector with total internal reflection at the core/wall of the flow cell. Finger tight fittings are used to connect the flowcell to the analytical cartridge.

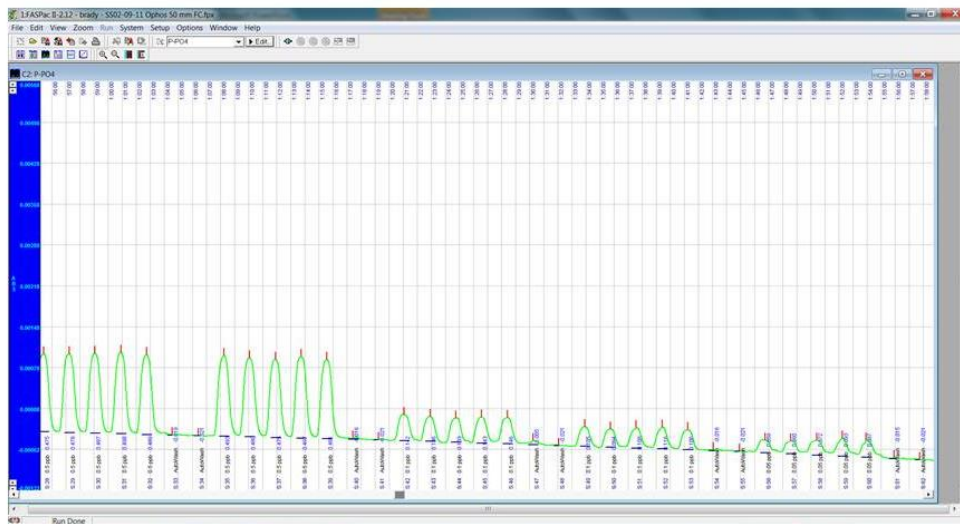
WPI pioneered LWCCs during ten years of intensive research in design. Similar to optical fibers, light is confined within the (liquid) core of an LWCC by total internal reflection at the core/wall interface. Optical fibers are then used to transport light to and from the sensor cell. Designed for use with fiber optics, LWCCs require only small sample volumes and have a high optical throughput. Astoria-Pacific's LWCC is made from fused silica tubing with an outer coating of a low refractive index polymer. The core liquid is contained by the synthetic silica tube coated with the low refractive index cladding material. Placing the refractive surface outside the silica protects it from undesirable effects of the liquid. Astoria-Pacific's LWCC also offers improved signal stability and easier removal of any air bubbles trapped at its hydrophilic cell wall.

**Example of light through the LWCC below:**



The 50mm LWCC increases detection capabilities of the Astoria Analyzer by 5X – 10X—**THAT** is a tenfold increase! As an example, a low-level Orthophosphate cartridge (PN A203-A02), normally has a PQL of 0.5 ppb. By adding an LWCC, the same cartridge can obtain 0.1 ppb and, under ideal conditions, 0.05 ppb. Refractive Index from brackish water samples are also minimized.

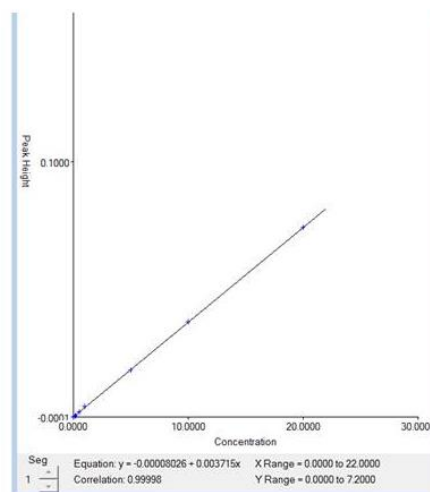
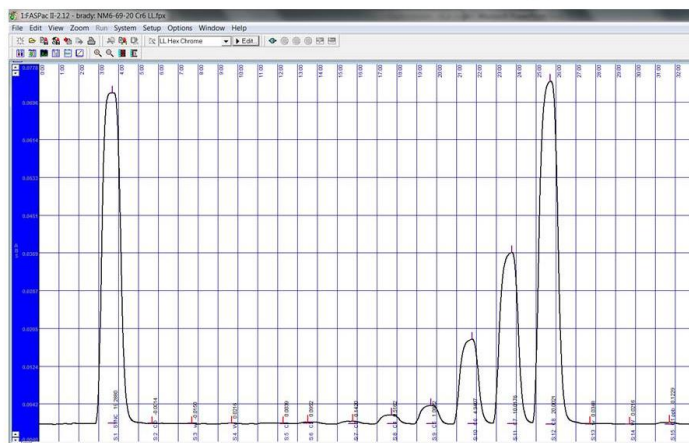
### 0.05, 0.1 and 0.5 ppb Peaks shown



The 50mm LWCC can increase detection capabilities of any cartridge. Below is a low-level Hexavalent Chromium cartridge with a new range of 0.1 – 20 ppb.

### Hex-Chrome – 1<sup>st</sup> Order Curve

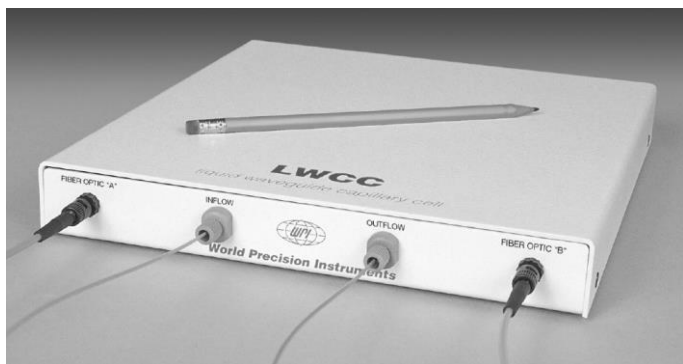
#### Hex-Chrome Calibration: 0.1 – 20 ppb



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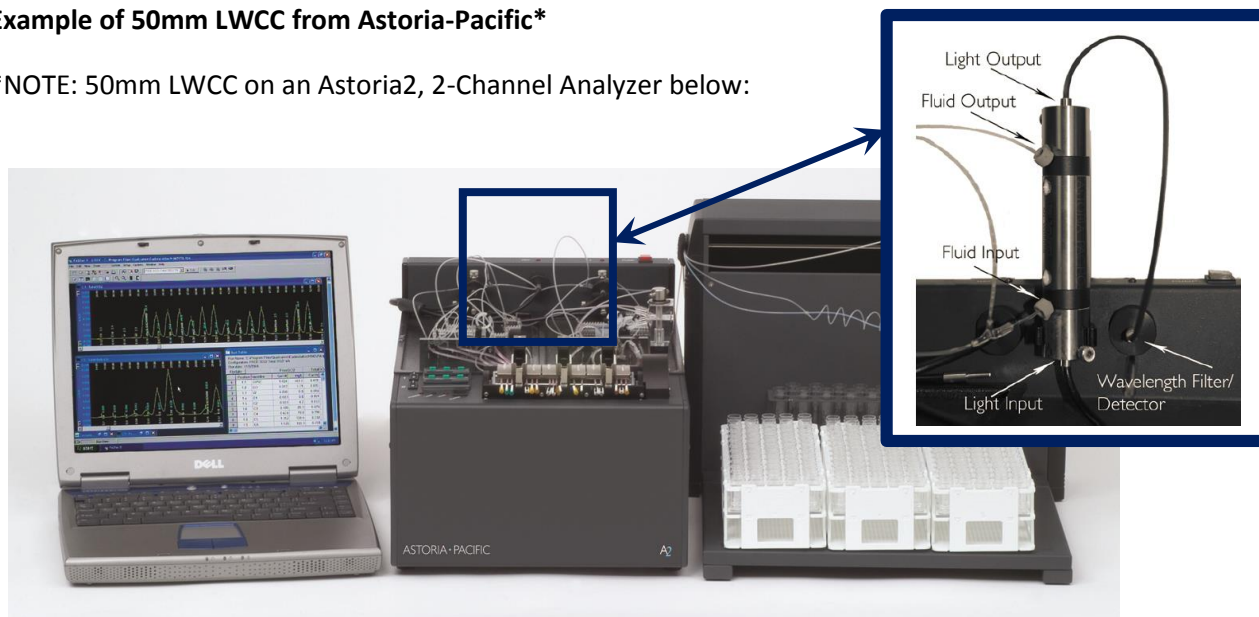
Optimize your system to achieve the ultimate performance. Other CFA manufacturers require additional spectrophotometers to incorporate LWCC technology. By contrast, Astoria-Pacific seamlessly integrates this technology into our digital detector design.

**Example of 50cm – 500cm LWCC and peripheral detectors offered by other CFA manufacturers**



**Example of 50mm LWCC from Astoria-Pacific\***

\*NOTE: 50mm LWCC on an Astoria2, 2-Channel Analyzer below:



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## SPECIFICATIONS

### Physical Dimensions

- Optical length: 50 mm
- Physical length: 128 mm
- Width: 25 mm
- Weight: 401 g

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