

*Do you need to measure spectral properties (absorbance, transmittance and reflectance) of diverse optical samples?*

### GENERAL DESCRIPTION

The Reflectometer allows the user to measure spectral properties (absorbance, transmittance and reflectance) of diverse optical samples. Applications in diffractive optics, diffraction gratings, refractive and reflective coatings, thin films and parts with irregular surfaces make this a powerful tool for any telecom optics or more general photonics effort.

Built from stainless steel this Reflectometer accepts single monolithic samples up to 350-mm diameter or a multitude of smaller samples. Samples are most commonly 25, 30 or 50-mm diameters up to 10-mm thick. Clean construction of internal working parts and the chamber insure compatibility with a wide range of samples.

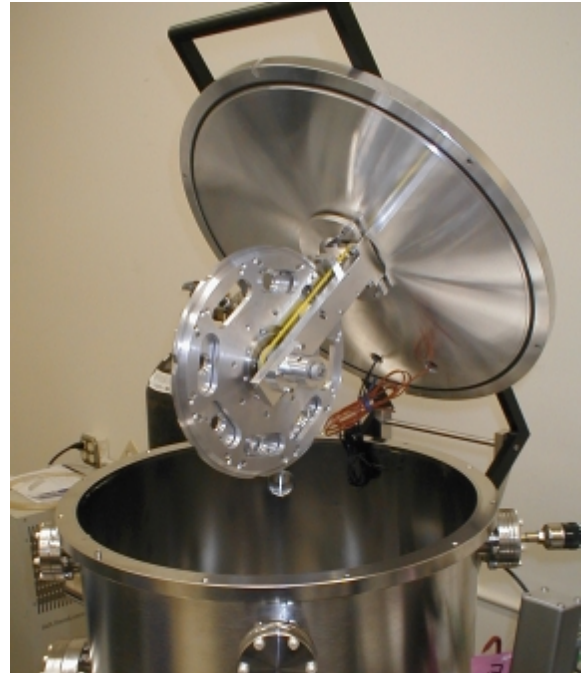
Optimum detection efficiency is achieved with internal detection system. This design places the detector photocathode close to the sample under test for best signal to noise at any wavelength.

### EXTREME WAVELENGTH RANGE

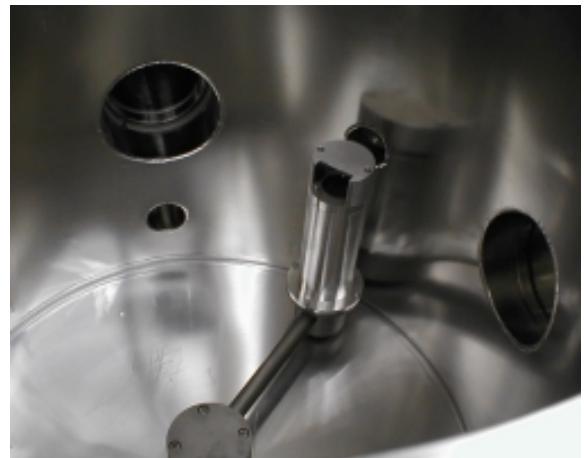
Spectral Analysis systems are complete with monochromators, light sources and detectors as required for the wavelength range of interest. The principle ranges of operation are:

- 200-nm to 3-um and beyond, UV-Vis-IR
- 185 to 400-nm, UV
- 115 to 350-nm, DUV (vacuum or purge)
- 10 to 120-nm, EUV (vacuum)

Spectral analysis to better than  $\pm 0.1$ -percent precision with wavelength resolution variable from 0.01 to 8-nm. The design features include high efficiency optical systems, collimated sample probe beam, balanced and equal sample and reference path (true dual beam mode) and high gain photomultiplier detectors for optimum signal to noise.



*Reflectometer with easy-access top cover and eight position 30-mm diameter sample holder)*



*The internal detector assembly (a photomultiplier tube.) Many other types of detectors may be used including channel electron multipliers in the Vacuum Ultraviolet and solid state detectors in the Infrared.*

*Clean interior assures compatibility with a wide variety of samples. In cases where contamination could be an issue this chamber can be thoroughly cleaned.*

**Measurement Modes:** Specular Reflectance  
Transmittance  
Scatter / Diffuse Reflectance  
Thin Film Analysis

**Wavelength Range** 1-nm to 10-um

**Sample Angles:** 5 to 180-degrees  
**Sample Readout:** External scale, encoder optional  
**Emission Angles:** < 10 to 180-degrees  
**Emission Readout:** External scale, encoder optional

**Sample sizes:** from: 25-mm diameter x 2-mm  
to: 350-mm diameter x 60-mm

**Sample Heater:** Available as option  
**Cryocooler:** Available as option  
**Vacuum System:** Available as option  
**Gas Purge System:** Available as option

**Material:** Stainless steel  
**Environment:** Vacuum, purge, atmosphere

Samples may be measured from five to 180-degrees with corresponding detector angles from 10 to 180-degrees. Theta/2-theta measurements and off-specular and scatter measurement are allowed. Some versions are available with integrating spheres for diffuse measurements.

