

SOFT X-RAY & EUV FLAT FIELD SPECTROGRAPH

The McPherson 251MX is an ideal spectrometer for use in the Extreme Ultraviolet (EUV) wavelength region. It provides a robust optical system, good efficiency and good spectral resolution. The spectrometer uses two different flat-field gratings with similar optical geometries. The gratings disperse the 1 to 5nm and the 5 to 20nm range and are interchangeable under vacuum.

The 251MX has a detector mount that aligns the position and angle of the detector with the spectrum. The 25mm wide focal plane adapts easily. The 251MX spectrometer can be operated with a variety of detectors. Most popular flat, multi channel detectors will work. Some ideal choices: windowless, back illuminated CCDs. Also useful, microchannel plate intensifiers with fiber or lens coupled CCD for readout. MCPs can provide gating for temporal studies of plasma evolution, etc.

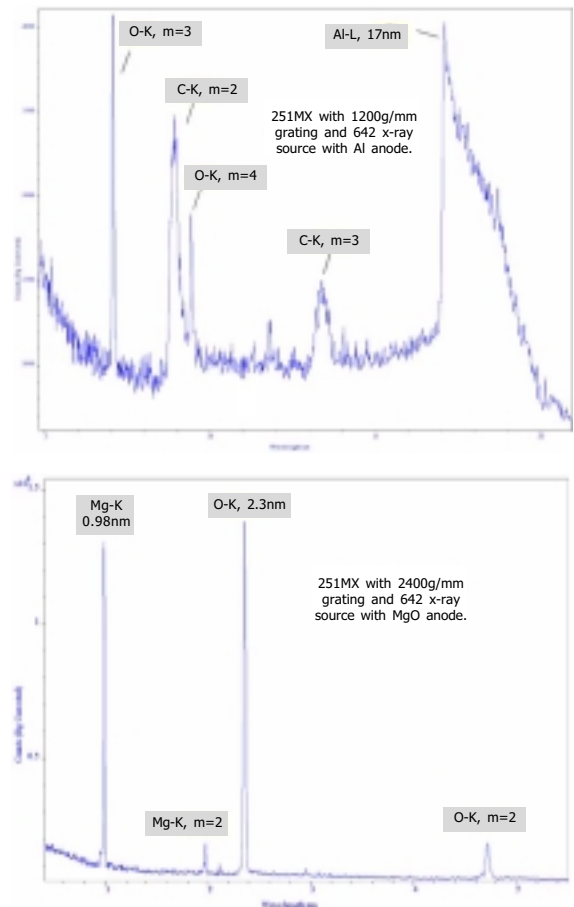
This is a perfect instrument for Extreme UV work, lithography or high harmonic lasers. **We quote the instrument and complete systems** with sensitive windowless back-illuminated CCD detectors, solid anode calibration sources (refer to the Model 642) and vacuum pumping systems.

SPECIALITY GRATINGS

Varied line space gratings are at the heart of the 251MX. The gratings have laminar groove profiles and suppress higher orders. They are corrected for best resolution and flat field, not imaging. These gratings have high-fidelity surfaces and do not preferentially scatter in the dispersion plane like ruled gratings do. Holographic mastering and ion etching provide a smooth surface and low stray light. The grating design and aspheric wavefront exposure techniques insure high resolution.



The McPherson Model 251MX flat-field spectrograph works to 10^{-6} torr vacuum or better. UHV optionally available.



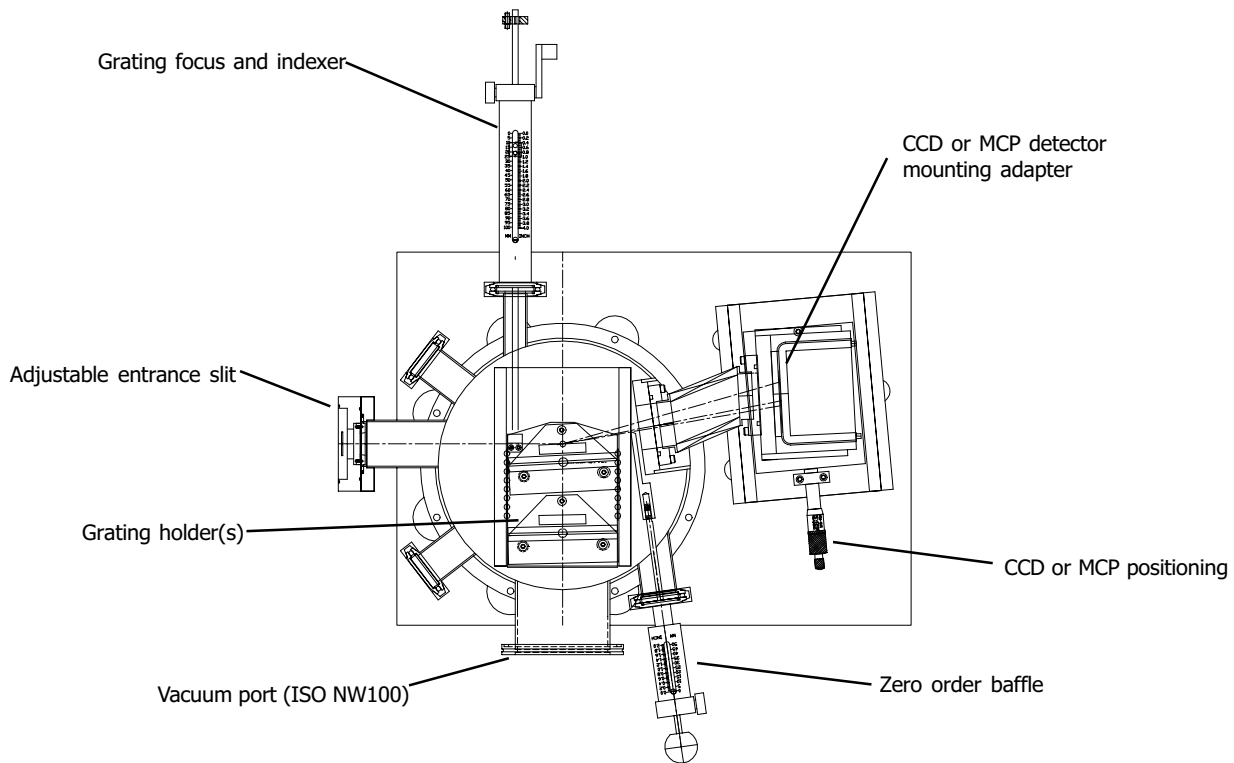
Grating Groove Density (g/mm)	Resolution (nm)	Deviation Angle (°)	Focal Plane Width (mm)	Wavelength Range (nm)	Energy Range (eV)
1200	0.03	167	25	5 to 20	248 to 62
2400	0.01	172	25	<1 to 6	>1240 to 210

Advantages of the McPherson 251MX

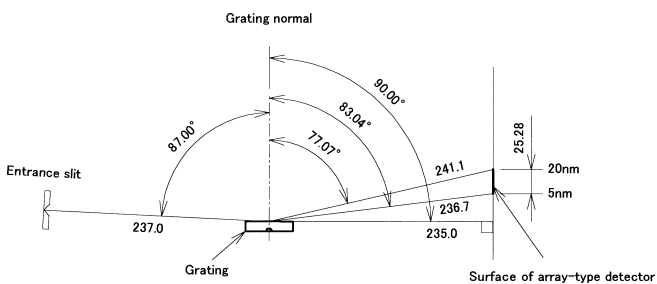
- Precision adjustable slit (0.05 to 3mm)
- Adjustable baffle for best grating illumination
- In vacuum grating focus adjustment & indexing
- Holds up to two gratings
- In vacuum adjustable zero order baffle
- In vacuum adjustable detector mount to optimize focus across planar detector

Flat field spectrometers are used for:

- Plasma physics / fundamental research
- High harmonic lasers and frequency comb generation
- EUV source development & diagnostics, monitoring EUV light source operation
- Characterizing material interaction with EUV light sources



Design for the Low Energy Grating (LEG)



Design for the High Energy Grating (HEG)

