

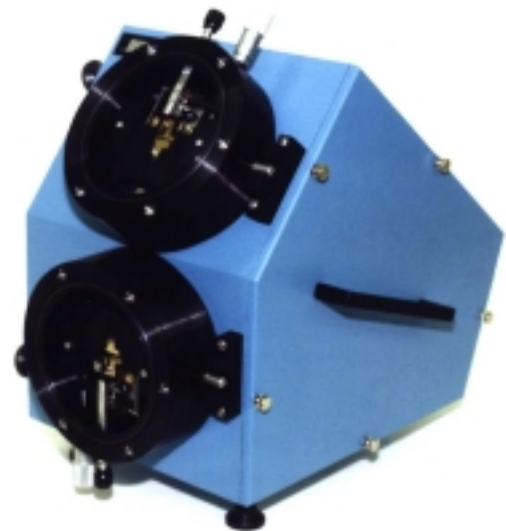
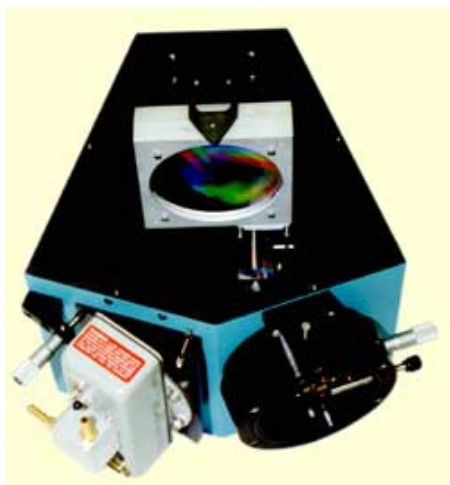
GENERAL DESCRIPTION

The Model 272 monochromator contains a large, 100-mm diameter diffraction grating. This guarantees a large solid angle of light collection. The gratings corrected design reduces optical aberrations. This improves the spectral resolution of this high throughput optical system. The Model 272 is a versatile research grade monochromator. It delivers high throughput and moderate spectral resolution. Usable in any attitude, standard features of much larger McPherson monochromators have found home in this high efficiency f/2 system.

The Model 272 opto-mechanical system is ruggedly constructed for use in any environment. The lapped wavelength drive screw will provide years of accurate wavelength positioning. The grating scans are controlled by the optional Model 789A-3 digital scan drive system. McPherson signal recovery and control software can be used. Most McPherson accessories work with this instrument. It is best to inquire to make sure the f/2 beams work at full capacity.

ARRAY DETECTION

The Model 272 uses a concave grating that focuses and disperses light. The grating has aberration correction to minimize spherical aberration and astigmatism. When used with a focal plane array the detector must be brought to the instrument focal plane that forms along a modified Rowland circle. There may be mechanical, width and mounting restrictions so please contact us to discuss the options.



Model 272 High Throughput f/2 Monochromator Aberration Corrected Grating Design

- Fast f/2 Optical System
- Wavelength Range from 185-nm to NIR
- Aberration Corrected Grating
- Use for Scanning or Array Detection
- Many Optional Fiber Accessories
- Compact, Lightweight Construction
- Operates in any attitude

SPECIFICATIONS

(with 1200 g/mm grating, where applicable)

Focal Length 200-mm
Aperture Ratio f/2
Wavelength Range 185 to 2500-nm

Wavelength Accuracy ± 1 -nm (on mechanical counter)
Repeatability ± 0.05 nm Vis
Spectral Resolution 2-nm

Grating Exchange single gratings in pre-aligned holders

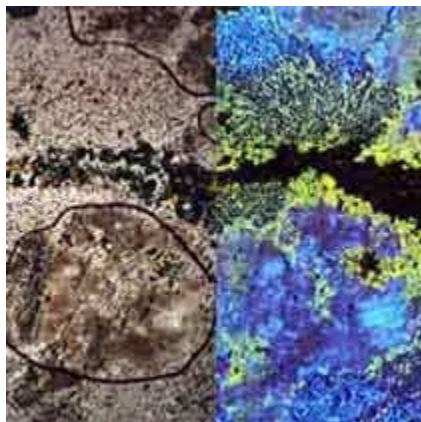
HIGH INTENSITY MONOCHROMATIC ILLUMINATION

The Model 272 is available with fitted light sources, fiber optic accessories or post-monochromator optics for imaging the exit slit to a sample plane. The Model 272 shown here is equipped with an f/2 matched light source (100-Watt tungsten halogen source, Model 618) and an output lens assembly for projecting light to samples.



Performance of the Model 272 with Various Groove Density Gratings

Grating Groove Density (g/mm)	2280	1710	1140	570
Resolution (nm)	0.7	0.9	1.6	3.7
Dispersion (nm/mm)	2	3	4	8
Wavelength Range	185 to 650 nm	185 to 950 nm	185 to 1250 nm	185 to 2500 nm
Available Grating Blaze (nm)	Holographic 450	Holographic 550	Holographic 650	Holographic 1200



CATHODE LUMINESCENCE MICROSCOPY APPLICATION

The images at left show a thin slice of rock (biotite-hornblende). The photo (far left) was taken in transmission mode as typical in conventional microscopy. The photo (near left) was excited by cathode luminescence (CL). The samples on the microscope stage are excited by a 20 keV electron beam until they emit light, which subsequently is analyzed spectrally with the McPherson Model 272. The same sample is shown in both photos. The cathode luminescence excitation and spectral analysis reveals details like never before! The Model 272 simplifies spectral identification of the elements involved.