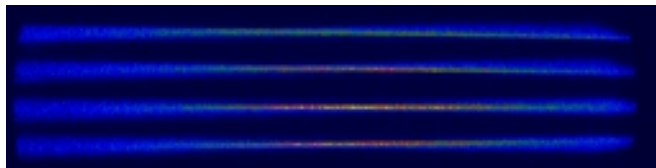


### GENERAL FEATURES

**VERSATILITY** - Used in air the spectral range of these instruments extends from 185-nm to 78- $\mu$ m, and with vacuum down to 105-nm (depends on the grating.) For intermediate ranges a purge gas can be used (Nitrogen, for example.) McPherson's SNAP IN gratings allow the alignment-free use of many different gratings. Easily view a wider spectral range or obtain higher resolution! You can retrofit years later and not have to worry about alignment with the McPherson SNAP IN approach. Our dual grating turret also accept these gratings.

McPherson optics are Aluminum coated with a top layer of Magnesium Fluoride. This coating provides extremely good response in a broad spectral range. If required by your application other coatings (Gold, Silver, Aluminum, etc.) can be provided.

Well equipped, these instruments feature: multiple entrance and exit ports, high precision wavelength drives, extended range operation, Echelle, and oversize grating mounting capabilities. Optional features include grating turrets, imaging optics, multi-source, and multi-detector turrets further increasing versatility.



**IMAGING SPECTROGRAPH** - These instruments can be equipped with imaging optics. Adapters for all popular CCD and photodiode array detectors (even those for the Infrared) can be supplied. Larger focusing optics fully illuminate a 50-mm wide focal plane. (In some cases we can even supply photographic adapters!)

**SPECTRAL SOFTWARE** - McPherson executable LabView™ software provides a simple user interface for instrument control. All spectrometer functions supported by device controllers, etc. can be automated. A selection of choice signal recovery devices from EGG, Keithley and Stanford Research can also be controlled.

### **BETTER THROUGHPUT and WIDER RANGE -**

McPherson Czerny-Turner instruments with focal lengths greater than 0.67-meters allow you to use larger 120-mm x 140-mm grating or a 110-mm x 110-mm grating. The large grating offers almost 40% more area, achieving a faster f/number, and more throughput. In these models the grating can also rotate through an auxiliary 20° for extension of wavelength range. For the 1200-g/mm grating the high wavelength changes from 1300-nm to 1575-nm (more than 20% extra wavelength coverage!)

### **HIGH PERFORMANCE DRIVE -**

All instruments use a digital scanning motor directly coupled to a mechanical lead screw wavelength drive. The mechanical screw and sine arm enable manual positioning and generate the sinusoidal motion required for linear wavelength readout when scanning a spectrometer. The mechanical sub-step is more expensive to produce than the direct worm drive design and it insures stability and repeatability. In addition this approach allows users to manually set up experiments and tune without computer support.

### **REDUCED STRAY LIGHT -**

In the UV-VIS and near IR wavelength range, our excellent stray light characteristics can be further improved by installing the McPherson Model 608 Prism Predisperser. The predisperser may also be used as a spectral order sorter when Echelle gratings are installed. The Model 608 can be retrofit to instruments already in the field.

### **BILATERAL SLITS -**

All instruments come with bilateral slits that are continuously adjustable by precision micrometer from 5 to 4000- $\mu$ m. Micrometer readout is in 10-micron thimble divisions. Interpolation may allow reading and setting of smaller intervals. Slit height can be varied by a stepped aperture from 2 to 20-mm. To meet your configuration requirement monochromator slits may be positioned at the axial (end) or lateral (side) ports of the monochromator. Optional stepper motorized slit micrometers can be provided. Also, optional curved slits can be provided for coma correction – even at extreme slit heights.

### **ACCESSORIES -**

McPherson supplies a full line of accessories including sources and detectors for use with air path and vacuum instruments. Equipped these instruments with multi-fiber imaging systems, sample compartments, filter wheels, choppers, sources, detectors, etc. Call today! We stand ready to advise.

### SPECIAL FEATURES



- **Highest Throughput Commercial Instrument**
  - Patented "Snap-In" gratings
    - Large focal plane
    - Imaging Optics
  - Multiple slit locations
  - Rugged Construction
- Extended wavelength range setting
  - Double Pass optics (option)
    - Echelle gratings(option)
  - Prism predisperser (option)

### DETAIL SPECIFICATION AND GRATING SELECTION

<b>Focal Length</b>	0.67-meter, Czerny Turner design Spectrometer with Patented "Snap-In" gratings
<b>Slit Locations</b>	Axial and lateral with optional extra entrance and exit port selection mirrors
<b>f No.</b>	4.7 (5.8 with smaller grating)
<b>Grating Size</b>	120 x 140-mm (or 110 x 110-mm) - Echelle gratings up to 220-mm wide
<b>Accuracy</b>	0.05 nm (with 1200-g/mm grating)
<b>Reproducibility</b>	±0.005 nm (with 1200-g/mm grating)
<b>Focal Plane</b>	50-mm maximum width, multiply dispersion by the width of your detector for range
<b>Wavelength Range</b>	refer to grating of interest for range, in extended position increase top limit 20%

Grating Groove Density (g/mm)	3600	2400	1800	1200	600	300	150	75
Resolution** (nm)	0.012	0.018	0.02	0.03	0.06	0.12	0.24	0.48
Dispersion (nm/mm)	0.43	0.62	0.53	1.24	2.48	4.96	9.92	19.84
Wavelength Range	185 - 430 nm	185 - 650 nm	185 - 860 nm	185 - 1300 nm	185 - 2600 nm	185 nm - 5.2 um	185 nm - 10.4 um	185 nm - 20.8 um
Available Grating Blazes	Holographic* 240	Holographic* 240 300	Holographic* 400 500	Holographic* 250 300 500 750 1 um	Holographic* 300 500 750 1 um 1.85 um	300 500 750 1 um 3 um 4 um	300 500 1.25 um 2.5 um 4 um 6 um 8 um	2 um 3 um 8 um 10 um 12 um

(\* Holographic gratings are available where noted.)

\*\* Spectral resolution typically measured at 313.1 nm

All specifications are for single pass operation.

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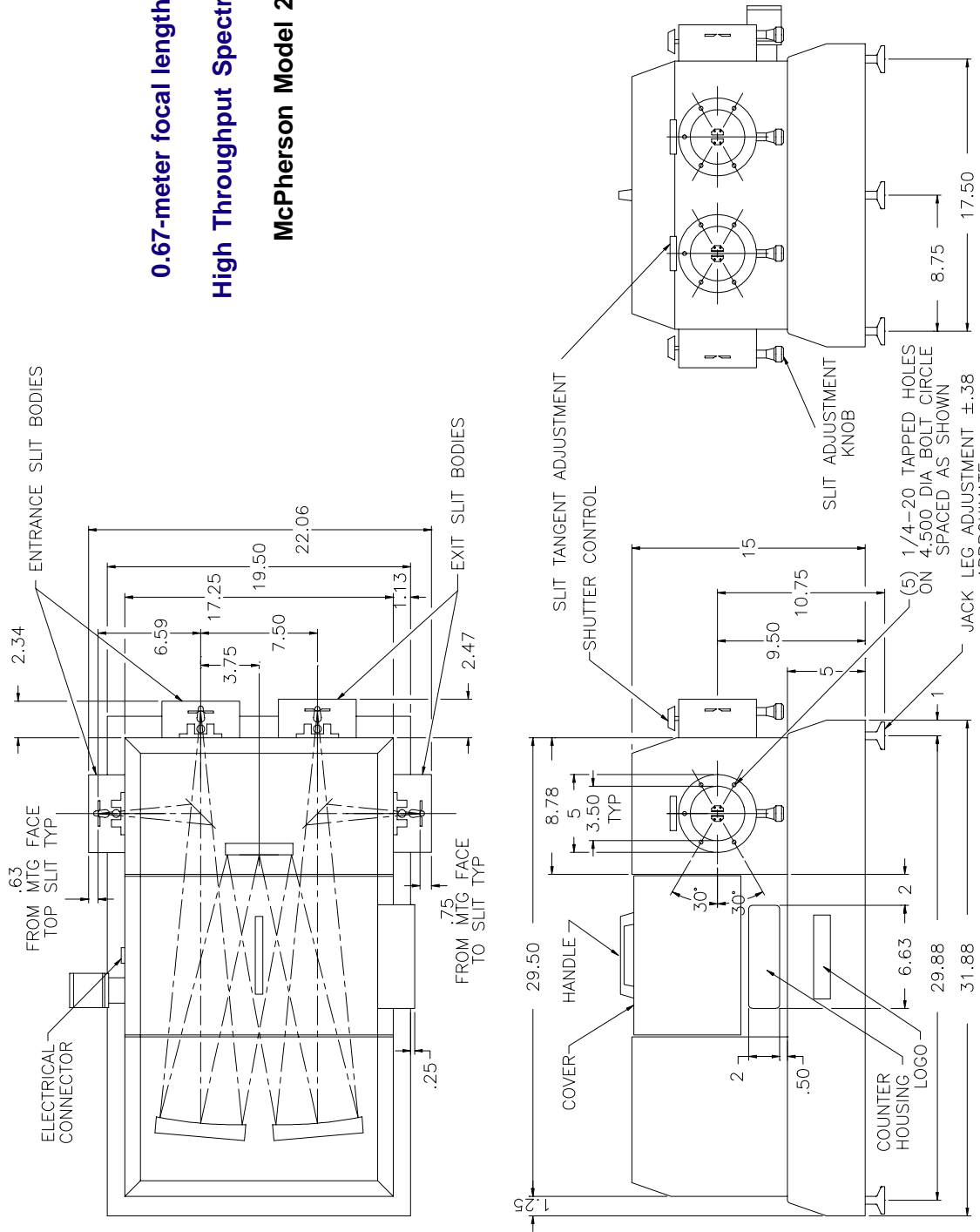
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서울시 송파구 가락동 10-9 현성 B/D 2F

**0.67-meter focal length, f/4.7**  
**High Throughput Spectrometer**  
**McPherson Model 207**



### SPECIAL FEATURES



- **Excellent Spectral Resolution and Throughput**
  - Patented "Snap-In" gratings
    - Large focal plane
    - Imaging Optics
  - Multiple slit locations
  - Rugged Construction
- Extended wavelength range setting
  - Double Pass optics (option)
    - Echelle gratings(option)
  - Prism predisperser (option)

### DETAIL SPECIFICATION AND GRATING SELECTION

<b>Focal Length</b>	1-meter, Czerny Turner design Spectrometer with Patented "Snap-In" gratings
<b>Slit Locations</b>	Axial and lateral with optional extra entrance and exit port selection mirrors
<b>f No.</b>	7 (8.6 with smaller grating)
<b>Grating Size</b>	120 x 140-mm (or 110 x 110-mm) - Echelle gratings up to 220-mm wide
<b>Accuracy</b>	0.05 nm (with 1200-g/mm grating)
<b>Reproducibility</b>	±0.005 nm (with 1200-g/mm grating)
<b>Focal Plane</b>	50-mm maximum width, multiply dispersion by the width of your detector for range
<b>Wavelength Range</b>	refer to grating of interest for range, in extended position increase top limit 20%

Grating Groove Density (g/mm)	3600	2400	1800	1200	600	300	150	75
Resolution** (nm)	0.002	0.011	0.015	0.023	0.046	0.092	0.184	0.368
Dispersion (nm/mm)	0.30	0.42	0.56	0.83	1.66	3.32	6.64	13.3
Wavelength Range	185 - 430 nm	185 - 650 nm	185 - 860 nm	185 - 1300 nm	185 - 2600 nm	185 nm - 5.2 um	185 nm - 10.4 um	185 nm - 20.8 um
Available Grating Blazes	Holographic* 240	Holographic* 240 300	Holographic* 400 500	Holographic* 250 300 500 750 1 um	Holographic* 300 500 750 1 um 1.85 um	300 500 750 1 um 3 um 4 um	300 500 1.25 um 2.5 um 4 um 6 um 8 um	2 um 3 um 8 um 10 um 12 um

(\* Holographic gratings are available where noted.)

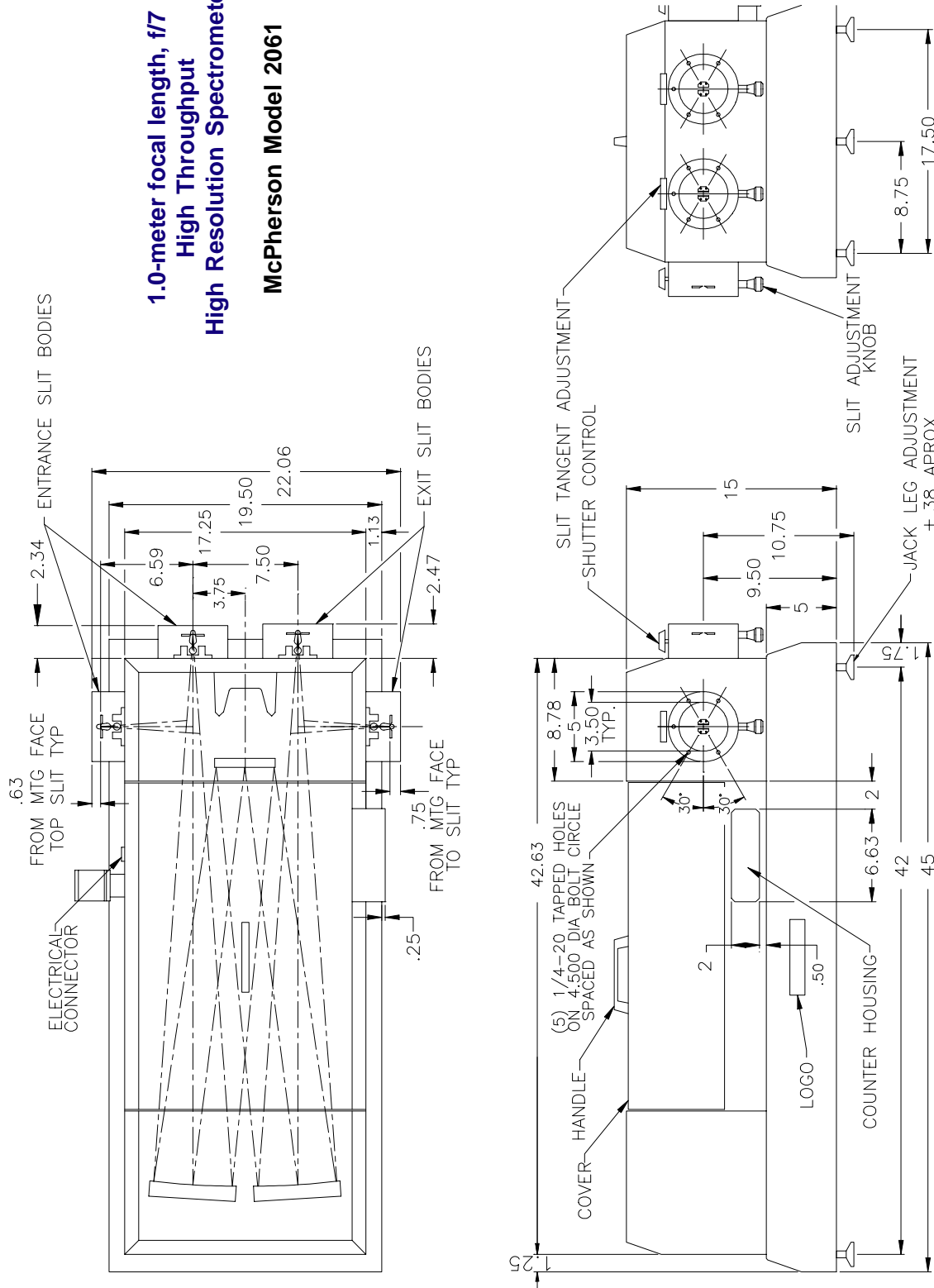
\*\* Spectral resolution typically measured at 313.1 nm

All specifications are for single pass operation.

specsh/pm1075/2061

**1.0-meter focal length, f/7  
High Throughput  
High Resolution Spectrometer**

**McPherson Model 2061**



### SPECIAL FEATURES

- Exceptional Spectral Resolution
- Patented "Snap-In" gratings
- Large focal plane
- Imaging Optics
- Multiple slit locations
- Rugged Construction
- Extended wavelength range setting
- Double Pass optics (option)
- Echelle gratings(option)
- Prism predisperser (option)



### DETAIL SPECIFICATION AND GRATING SELECTION

<b>Focal Length</b>	1.33-meter, Czerny Turner design Spectrometer with Patented "Snap-In" gratings
<b>Slit Locations</b>	Axial and lateral with optional extra entrance and exit port selection mirrors
<b>f No.</b>	9.4 (11.6 with smaller grating)
<b>Grating Size</b>	120 x 140-mm (or 110 x 110-mm) - Echelle gratings up to 220-mm wide
<b>Accuracy</b>	0.05 nm (with 1200-g/mm grating)
<b>Reproducibility</b>	±0.005 nm (with 1200-g/mm grating)
<b>Focal Plane</b>	50-mm maximum width, multiply dispersion by the width of your detector for range
<b>Wavelength Range</b>	refer to grating of interest for range, in extended position increase top limit 20%

Grating Groove Density (g/mm)	3600	2400	1800	1200	600	300	150	75
Resolution** (nm)	0.004	0.005	0.007	0.01	0.02	0.04	0.08	0.16
Dispersion (nm/mm)	0.21	0.31	0.41	0.62	1.24	2.48	4.96	9.92
Wavelength Range	185 - 430 nm	185 - 650 nm	185 - 860 nm	185 - 1300 nm	185 - 2600 nm	185 nm 5.2 um	185 nm 10.4 um	185 nm 20.8 um
Available Grating Blazes	Holographic* 240	Holographic* 240 300	Holographic* 400 500	Holographic* 250 300 500 750 1 um	Holographic* 300 500 750 1 um 1.85 um	300 500 750 1 um 3 um 4 um	300 500 1.25 um 2.5 um 4 um 6 um 8 um	2 um 3 um 8 um 10 um 12 um

\*\* Spectral resolution typically measured at 313.1 nm

All specifications are for single pass operation.

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#### HIGH RESOLUTION PERFORMANCE

The McPherson Model 2062DP is the highest resolution diffraction spectrometer commercially available. This unique 2 meter focal length Czerny Turner can be equipped with large gratings (up to 220 mm wide). Grating rotation in excess of 70 degrees is allowed and double pass optics can be installed. These double the dispersion and resolution without influencing the f/no. or aperture ratio.

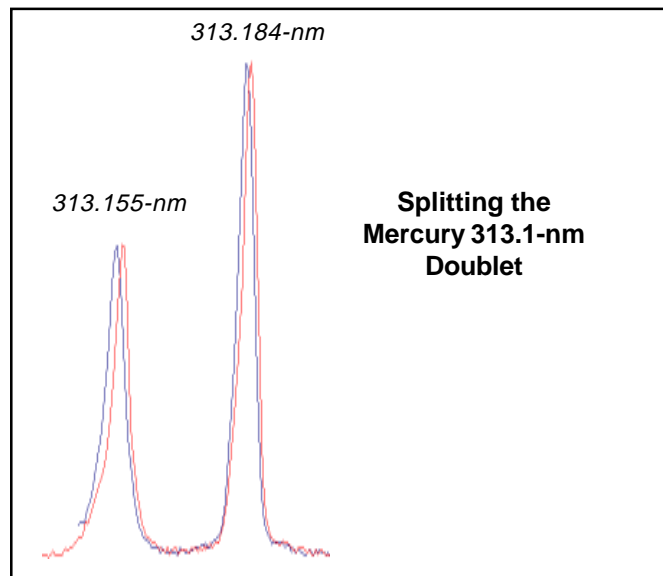
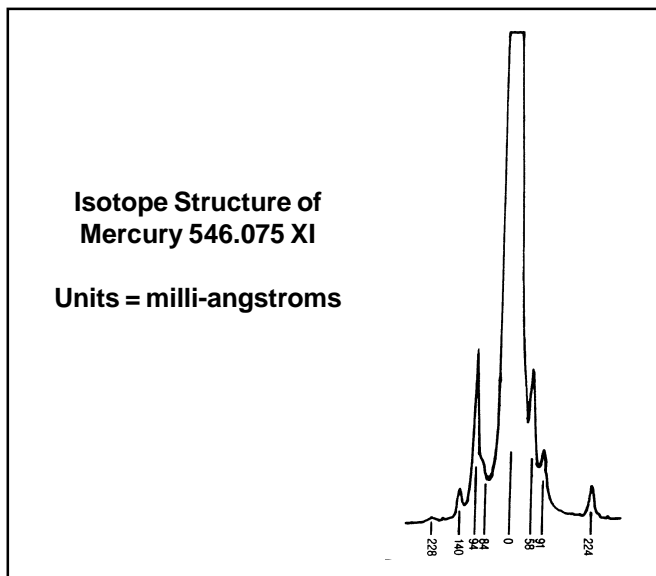
The graphs below show the actual performance of the McPherson 'DP' or Double Pass systems dispersion doubles. Performance data is based on a system equipped with a 316 g/mm Echelle grating working in 10th diffracted order, rotated to 71.69 degrees and operating at a central wavelength of 600 nm.



McPherson Model 2062 shown with axial and lateral slits, double pass central slit and water channel equipped base (for best thermal stability.)

Please see the Model 2062 data sheet for details.

<i>Data based on theory</i>	Effective Slit Width (mm)	Single Pass Resolution (nm)	Single Pass Resolving Power	Double Pass Resolution (nm)	Double Pass Resolving Power
Simple Geometric slit width	0.010	0.0004	1,445,054	0.0002	2,890,107
Diffraction (220-mm grating)	0.027	0.0011	528,072	0.0006	1,056,146
Aberration (single pass)	0.033	0.0014	439,698	~	~
Aberration (double pass)	0.038	~	~	0.0008	753,325



Pm1075-2