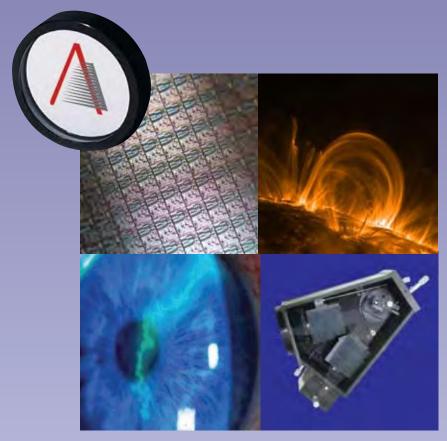


# OPTICS & COATINGS

120nm - 1064nm



Semiconductor

Aerospace

Laser

Analytic Instrument

#### Narrow, Broad and Wideband

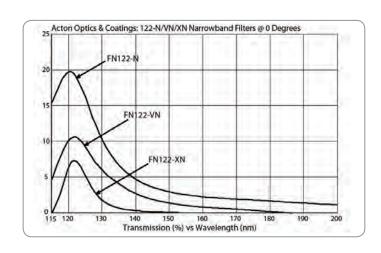
Acton's standard bandpass filters are made from the highest quality optical materials for use in research and industrial applications. Filters are visually and optically inspected before they are shipped, and include individual transmittance curves to show the filter's performance characteristics. Detailed "rejection" curves may be purchased at the time of manufacture. Image quality filters are available on request. Other wavelengths and sizes are available. Please feel free to contact us with details of your OEM filter requirements.

See the following page for examples of transmission traces from selected Acton bandpass filters.



#### **VUV Filter Characteristics**

Acton Optics & Coatings' 121.6nm Lyman Alpha filters demonstrate the effect of bandwidth on transmission in VUV-UV filters. Overall filter transmission is limited due to material and deposition constraints. As bandwidth is decreased, the peak transmission decreases in response. The benefit is added rejection in the UV-VIS range, illustrated by the combined curve diagram to the right, which shows three variations of Acton's 122nm bandpass filters. Depending on the application's required bandwidth, peak transmission and rejection are all factors in the design of the filter. See the following page for examples of transmission traces from selected Acton bandpass filters.





#### **Available Designs for Standard Bandpass Filters**

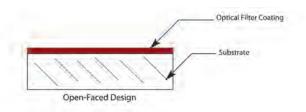
**Open-Faced** - The open-faced design includes a substrate with an optical filter coating on one surface. Open-faced filters must be handled with care as the soft filter coating is exposed. Potential damage from moisture, atmospheric contaminants or handling can be reduced by sealing the filter with a protective fused silica cover, as shown below (available above 190nm only).

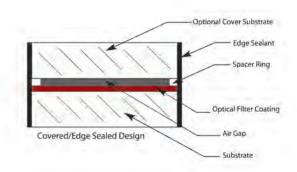
Covered / Edge Sealed - Filters above 190nm may be supplied with a fused silica cover for protective purposes. As shown in the diagram, a spacer ring is placed between the substrates to form a small air gap, then the edges are sealed. This design enables the filter to be handled without risk of touching the delicate filter coating. Please note that covering a filter decreases its transmission by 2-3%.

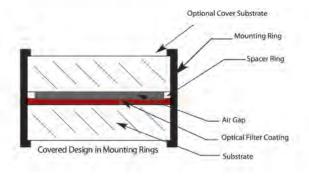
Edge sealing adds approximately 0.010" (0.254mm) to the diameter of the filter. Total thickness for a covered and edge sealed filter is approximately twice that of an open-faced design. Exact dimensions are available from the Optics Sales Department.

**Mounted** - Open-faced or covered filters (without edge sealant) can be supplied in metal mounting rings, if desired. The rings are constructed from aluminum and are black

anodized. Mounting a filter reduces clear aperture and increases the outside diameter as outlined below.







### Diameter Information for -N, -B, -W and -VBB Filters Unmounted Diameter Mounted Filter Unmounted M

Unmounted Filter Diameter	Diameter Tolerance	Mounted Filter Diameter ±0.005"	Unmounted Filter Thickness	Mounted Thickness	Clear Aperture
0.5" (12.7mm)	+0.00"/-0.005" (+0/-0.127mm)	0.625" (15.88mm)	2mm	0.300" (7.62mm)	0.450" (11.43mm)
1.0" (25.4mm)	+0.00"/-0.005" (+0/-0.127mm)	1.200" (30.48mm)	2.5mm	0.375" (9.53mm)	0.800" (20.32mm)
2.0" (50.8mm)	+0.00"/-0.005" (+0/-0.127mm)	2.225" (56.52mm)	4mm	0.500" (12.7mm)	1.900" (48.26mm)

NOTE: Filters are supplied open-faced unless otherwise specified

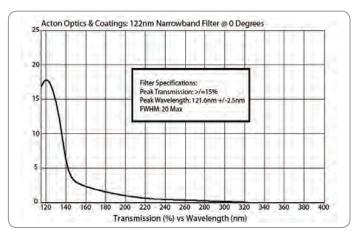
\* 2.0" Diameter 122-157nm filters are 5mm thick

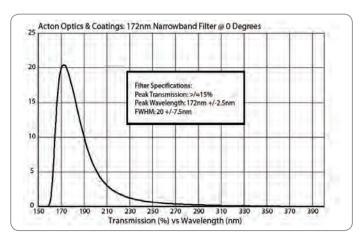
#### Filter Material Information

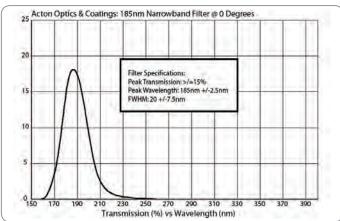
Wavelengths
Substrate Material

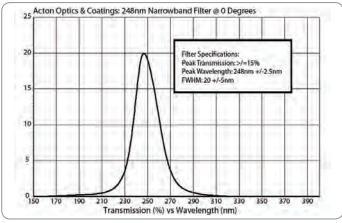
120-150nm VUV MgF<sub>2</sub> 157nm VUV CaF<sub>2</sub> 170-320nm UV Grade Fused Silica

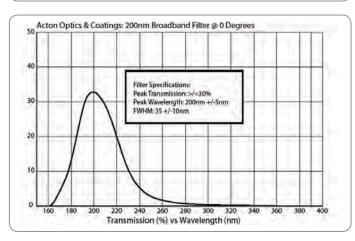
### Narrow, Broad and Wideband Filters

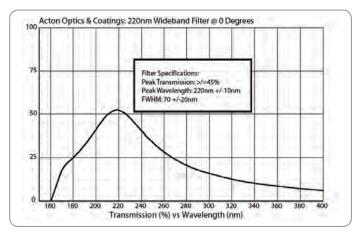






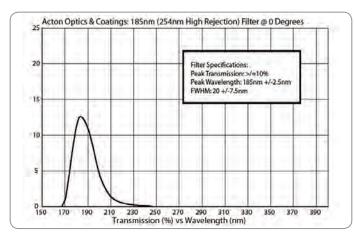


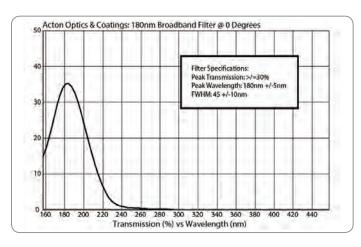


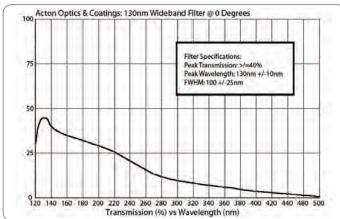


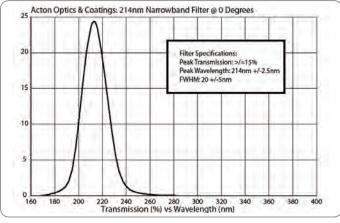


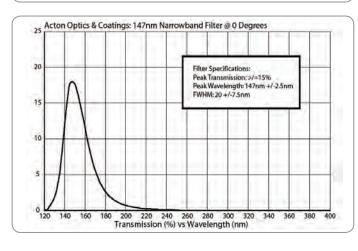
### Narrow, Broad and Wideband Filters

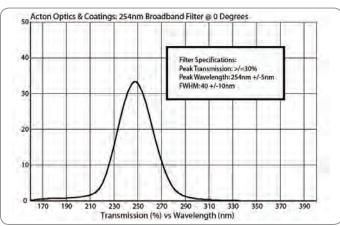












### Narrowband Filter Specifications/Part Numbers

Peak /avelength (nm)	FWHM (nm)	Min. Peak Transmission	0.5" Diameter 2mm Thick	1.0" Diameter 2.5mm Thick	2.0" Diameter 4mm thick
122 +/-2.5nm	10 max.	5%	FN122-XN5D	FN122-XN-1D	FN122-XN-2D
122 +/-2.5nm	15 max.	10%	FN122-VN5D	FN122-VN-1D	FN122-VN-1D
122 +/-2.5nm	20 max.	15%	FN122-N5D	FN122-N-1D	FN122-N-2D
126 +/-2.5nm	20 +/-5	15%	FN126-N5D	FN126-N-1D	FN126-N-2D
130 +/-2.5nm	20 +/-5	15%	FN130-N5D	FN130-N-1D	FN130-N-2D
135 +/-2.5nm	20 +/-7.5	15%	FN135-N5D	FN135-N-1D	FN135-N-2D
140 +/-2.5nm	20 +/-5	15%	FN140-N5D	FN140-N-1D	FN140-N-2D
147 +/-2.5nm	20 +/-7.5	15%	FN147-N5D	FN147-N-1D	FN147-N-2D
150 +/-2.5nm	20 +/-5	15%	FN150-N5D	FN150-N-1D	FN150-N-2D
155 +/-2.5nm	20 +/-5	12%	FN155-N5D	FN155-N-1D	FN155-N-2D
157 +/-2.5nm	20 +/-5	12%	FN157-N5D	FN157-N-1D	FN1 <i>57-</i> N-2D
160 +/-2.5nm	20 +/-7.5	12%	FN160-N5D	FN160-N-1D	FN160-N-2D
172 +/-2.5nm	20 +/-7.5	15%	FN172-N5D	FN172-N-1D	FN172-N-2D
180 +/-2.5nm	20 +/-7.5	15%	FN180-N5D	FN180-N-1D	FN180-N-2D
185 +/-2.5nm	20 +/-7.5	15%	FN185-N5D	FN185-N-1D	FN185-N-2D
185 +/-2.5nm	20 +/-7.5	10%	FN185-HR5D	FN185-HR-1D	FN185-HR-2D
190 +/-2.5nm	20 +/-5	15%	FN190-N5D	FN190-N-1D	FN190-N-2D
193 +/-2.5nm	20 +/-5	15%	FN193-N5D	FN193-N-1D	FN193-N-2D
200+/-2.5nm	20 +/-5	15%	FN200-N5D	FN200-N-1D	FN200-N-2D
205 +/-2.5nm	20 +/-5	15%	FN205-N5D	FN205-N-1D	FN205-N-2D
210 +/-2.5nm	20 +/-5	15%	FN210-N5D	FN210-N-1D	FN210-N-2D
214 +/-2.5nm	20 +/-5	15%	FN214-N5D	FN214-N-1D	FN214-N-2D
220 +/-2.5nm	20 +/-5	15%	FN220-N5D	FN220-N-1D	FN220-N-2D
222 +/-2.5nm	20 +/-5	15%	FN222-N5D	FN222-N-1D	FN222-N-2D
230 +/-2.5nm	20 +/-5	15%	FN230-N5D	FN230-N-1D	FN230-N-2D
240 +/-2.5nm	20 +/-5	15%	FN240-N5D	FN240-N-1D	FN240-N-2D
250 +/-2.5nm	20 +/-5	15%	FN250-N5D	FN250-N-1D	FN250-N-2D
254 +/-2.5nm	20 +/-5	15%	FN254-N5D	FN254-N-1D	FN254-N-2D

Broadband and Wideband Filter Specifications/Part Numbers

Peak Vavelength (nm) Broadband	FWHM (nm)	Min. Peak Transmission	0.5" Diameter 2mm Thick	1.0" Diameter 2.5mm Thick	2.0" Diameter 4mm thick
130 +/-5nm	40 +/-10	30%	FB130-B5D	FB130-B-1D	FB130-B-2D
140 +/-5nm	60 +/-10	30%	FB140-B5D	FB140-B-1D	FB140-B-2D
150 +/-5nm	60 +/-10	30%	FB150-B5D	FB150-B-1D	FB150-B-2D
180 +/-5nm	40 +/-10	30%	FB180-B5D	FB180-B-1D	FB180-B-2D
190 +/-5nm	35 +/-10	30%	FB190-B5D	FB190-B-1D	FB190-B-2D
200 +/-5nm	35 +/-10	30%	FB200-B5D	FB200-B-1D	FB200-B-2D
210 +/-5nm	35 +/-10	30%	FB210-B5D	FB210-B-1D	FB210-B-2D
214 +/-5nm	35 +/-10	30%	FB214-B5D	FB214-B-1D	FB214-B-2D
220 +/-5nm	35 +/-10	30%	FB220-B5D	FB220-B-1D	FB220-B-2D
230 +/-5nm	35 +/-10	30%	FB230-B5D	FB230-B-1D	FB230-B-2D
240 +/-5nm	35 +/-10	30%	FB240-B5D	FB240-B-1D	FB240-B-2D
250 +/-5nm	40 +/-10	30%	FB250-B5D	FB250-B-1D	FB250-B-2D
254 +/-5nm	40 +/-10	30%	FB254-B5D	FB254-B-1D	FB254-B-2D
Peak Navelength (nm) Wideband	FWHM (nm)	Min. Peak Transmission	0.5" Diameter 2mm Thick	1.0" Diameter 2.5mm Thick	2.0" Diameter 4mm thick
130+/-10nm	100 +/-25	40%	FW130-W5D	FW130-W-1D	FW130-W-20
160 +/-10nm	100 +/-25	45%	FW160-W5D	FW160-W-1D	FW160-W-2D
200 +/-10nm	60+/-20	45%	FW200-W5D	FW200-W-1D	FW200-W-20
250 +/-10nm	80 +/-20	45%	FW250-W5D	FW250-W-1D	FW250-W-20
300 +/-10nm	100 +/-25	45%	FW300-W5D	FW300-W-1D	FW300-W-2D

Filters are available for all wavelengths up to 320nm. Specifications for FWHM, peak transmission and peak wavelength fall within peak wavelength ranges listed above.