

**PELHAM RESEARCH OPTICAL L.L.C.**

Specializing in Precision  
VUV/UV Optical Coating and Service

**PRO**

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Thank you for your interest in Pelham Research Optical (PRO), we are proud to offer our complete catalog of standard filters and broadband VUV broadband metallic mirrors. In the following pages you will find our standard narrowband filters, broadband filters as well as UV beamsplitters, neutral density filters and broadband reflective coatings. Custom coatings and mounts can be designed specifically to your application, please contact our sales staff with you requirements. All coatings can be provided on Pelham Research Optical's standard substrates as well as custom sizes and customer supplied material.

For over 30 years we have been involved in designing and coating VUV/UV optical components for analytical, astronomy and semi-conductor metrology markets. Our team has had the pleasure of working on aerospace projects which include TRACE Program, UVCS-SOHO Mission and WFPC II - Wide Field Planetary Camera on the Hubble Space Telescope and the AFM- Actuated Fold Mirror for the 1993 Hubble Servicing Mission. Pelham Research Optical state-of-the-art coating chambers have designed specifically for the difficult requirements of VUV/UV optical coating applications.

Pelham Research Optical's in-house metrology capabilities include UV-VIS-NIR spectrometers and vacuum (VUV) monochromators for reflectance and transmission measurements. To ensure consistent quality and coating performance, filters are measured for transmission (0 degree Angle of Incidence) and all broadband reflection coatings are measured in reflectance at normal incidence (12 degrees Angle of Incidence). A detail spectral curve is provided with all shipments. All optics and coatings are visually inspected to MIL-SPEC specification prior to shipment.

We look forward to working with you on your VUV/UV coating requirements

Thank you  
Michael J. Laforge  
President



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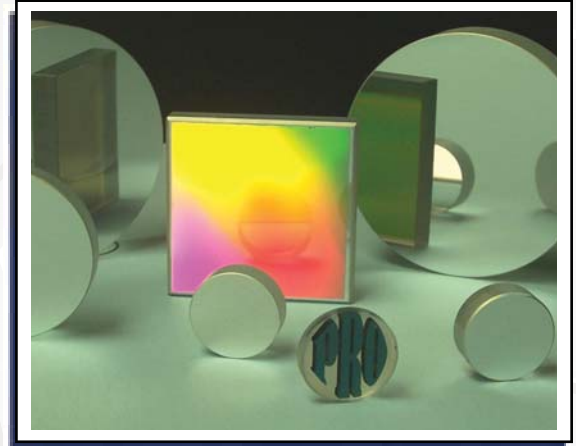
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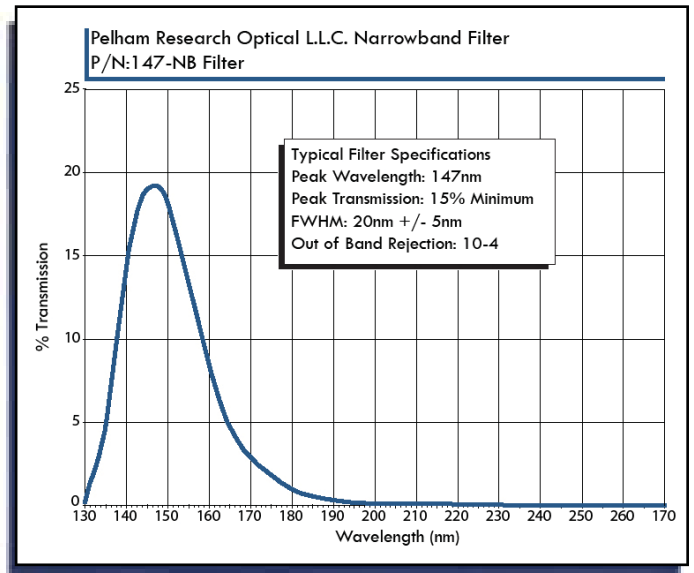
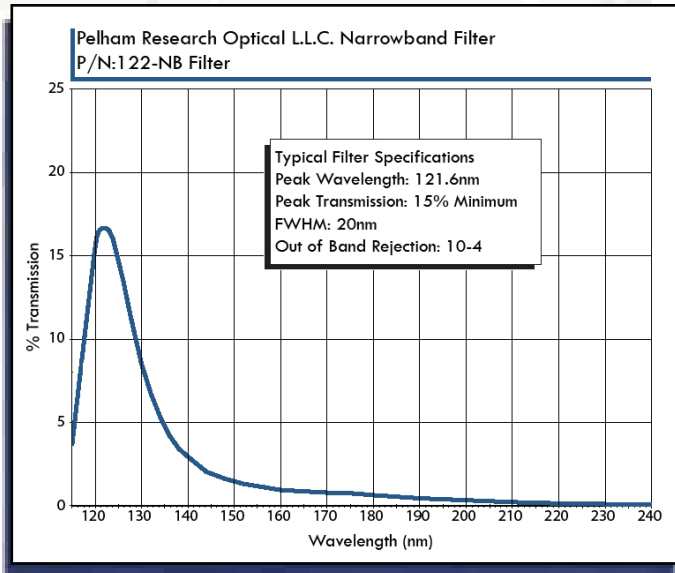


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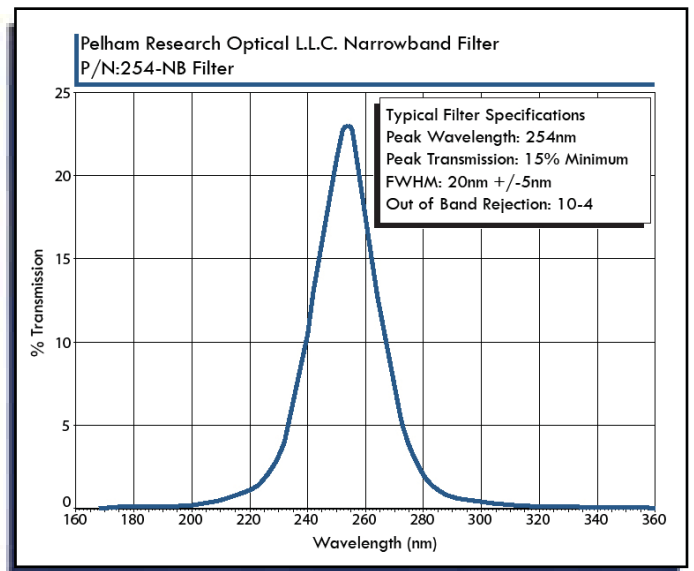
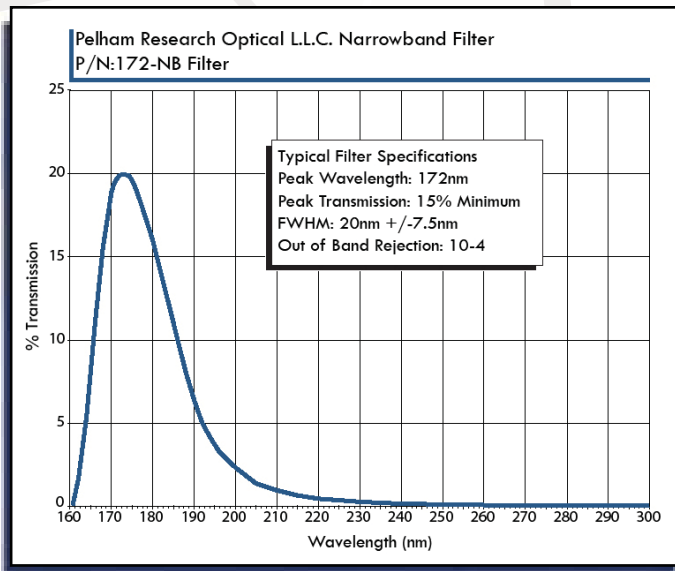
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## Narrowband Filters

All of Pelham Research Optical (PRO) filters supplied with individual VUV-UV % transmission calibration curve detailing their VUV-UV spectral performance. VUV-UV narrowband (NB) optical filters are used in applications requiring a narrow spectral bandwidth (FWHM) and a high signal-to-noise ratio. Filters from 130nm to 170 nm are manufactured on high purity VUV grade MgF<sub>2</sub>, CaF<sub>2</sub>, and cultured quartz substrates. Filters from 180nm to 320nm are manufactured on UV grade fused silica substrate and can be covered and edge sealed for added protection. Please see page 10 for covered and sealed information and filter substrate specifications. Image quality filters available by request. OEM and Research Applications: analytical and biotechnology instrumentation, environmental monitoring, spectroscopy, element analysis, and space exploration.



Typical Transmission Curves for Narrowband Filters



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## Narrowband Filter Part Numbers

Pelham Research Optical (PRO) manufactures a standard product line of VUV-UV NARROWBAND (NB) optical filters. Narrowband (NB) filter designs have a bandwidth of ~20nm FWHM with a minimum transmission of 15%. Visible rejection for PRO filter is typically 10-4. Standard VUV-UV Narrowband (NB) filters are available on ½" (12.7mm), 1" (25.4mm), and 2" (50.8mm) diameter substrates, please see page 10 for filter substrate specifications. PRO filter coatings can be applied to custom sized substrates as well as customer supplied material.

Filters available for all wavelengths in the range of 120-320nm, filter specifications fall within the ranges specified below. Please contact our sales staff for your custom filter requirements

Peak Wavelength (nm)	FWHM (nm)	Minimum Peak %T	0.5" Dia. Part Number	1.0" Dia. Part Number	2.0" Dia. Part Number
122 +/- 2.5 Lyman Alpha	~10	5	122-NBX-.5D	122-NBX-1D	122-NBX-2D
122 +/- 2.5 Lyman Alpha	~15	15	122-NBV-.5D	122-NBV-1D	122-NBV-2D
122 +/- 2.5 Lyman Alpha	~20	15	122-NB-.5D	122-NB-1D	122-NB-2D
125 +/- 2.5	20 +/- 5	15	125-NB-.5D	125-NB-1D	125-NB-2D
130 +/- 2.5	20 +/- 5	15	130-NB-.5D	130-NB-1D	130-NB-2D
135 +/- 2.5	20 +/- 7.5	15	135-NB-.5D	135-NB-1D	135-NB-2D
147 +/- 2.5	20 +/- 5	15	147-NB-.5D	147-NB-1D	147-NB-2D
150 +/- 2.5	20 +/- 5	15	150-NB-.5D	150-NB-1D	150-NB-2D
155 +/- 2.5 C IV	20 +/- 5	12	155-NB-.5D	155-NB-1D	155-NB-2D
158 +/- 2.5 F Laser	20 +/- 5	12	158-NB-.5D	158-NB-1D	158-NB-2D
160 +/- 2.5	20 +/- 5	12	160-NB-.5D	160-NB-1D	160-NB-2D
172 +/- 2.5 Xe Laser	20 +/- 7.5	15	172-NB-.5D	172-NB-1D	172-NB-2D
180 +/- 2.5	20 +/- 7.5	15	180-NB-.5D	180-NB-1D	180-NB-2D
184.9 +/- 2.5 Hg	20 +/- 7.5	15	185-NB-.5D	185-NB-1D	185-NB-2D
190 +/- 2.5	20 +/- 5	15	190-NB-.5D	190-NB-1D	190-NB-2D
193 +/- 2.5 ArF Laser	20 +/- 5	15	193-NB-.5D	193-NB-1D	193-NB-2D
200 +/- 2.5	20 +/- 5	15	200-NB-.5D	200-NB-1D	200-NB-2D
210 +/- 2.5	20 +/- 5	15	210-NB-.5D	210-NB-1D	210-NB-2D
214 +/- 2.5 Zn	20 +/- 5	15	214-NB-.5D	214-NB-1D	214-NB-2D
220 +/- 2.5	20 +/- 5	15	220-NB-.5D	220-NB-1D	220-NB-2D
222 +/- 2.5 KrCl Laser	20 +/- 5	15	222-NB-.5D	222-NB-1D	222-NB-2D
230 +/- 2.5	20 +/- 5	15	230-NB-.5D	230-NB-1D	230-NB-2D
240 +/- 2.5	20 +/- 5	15	240-NB-.5D	240-NB-1D	240-NB-2D
248 +/- 2.5 KrF Laser	20 +/- 5	15	248-NB-.5D	248-NB-1D	248-NB-2D
253.7 +/- 2.5 Hg	20 +/- 5	15	253.7-NB-.5D	253.7-NB-1D	253.7-NB-2D
260 +/- 2.5	20 +/- 5	15	260-NB-.5D	260-NB-1D	260-NB-2D
266 +/- 2.5	20 +/- 5	15	266-NB-.5D	266-NB-1D	266-NB-2D
280 +/- 2.5	20 +/- 5	15	280-NB-.5D	280-NB-1D	280-NB-2D
282 +/- 2.5 XeBr Laser	20 +/- 5	15	282-NB-.5D	282-NB-1D	282-NB-2D
290 +/- 2.5	20 +/- 5	15	290-NB-.5D	290-NB-1D	290-NB-2D
296.7 +/- 2.5 Hg	20 +/- 5	15	296.7-NB-.5D	296.7-NB-1D	296.7-NB-2D
300 +/- 2.5	20 +/- 7.5	15	300-NB-.5D	300-NB-1D	300-NB-2D
308 +/- 2.5 XeCl Laser	20 +/- 7.5	15	308-NB-.5D	308-NB-1D	308-NB-2D
320 +/- 2.5	20 +/- 7.5	15	320-NB-.5D	320-NB-1D	320-NB-2D

Note\*

Filter part numbers are shown as open faced, to specify a part number as covered and sealed add -C&S to the part number

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