

Argon-Gap™ UV Filters



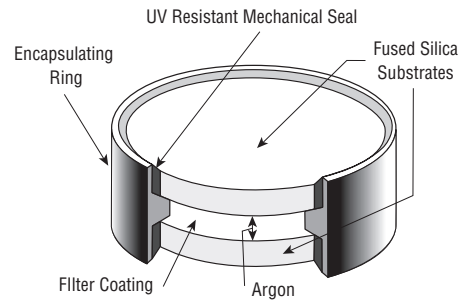
- Out-of-band blocking to less than 0.01% (10^{-4})
- Center wavelengths available from 214 nm to 313 nm
- Excellent temperature stability
- 25.4 mm diameter size available from stock
- Superior lifetime in harsh environmental conditions

Newport Ultraviolet Bandpass Filters are manufactured using methods and materials designed to deliver the highest spectral performance while providing a robust construction capable of withstanding variable climatic conditions and ultraviolet radiation. Our UV filters in the 214 nm to 300 nm range are fabricated using our Argon-Gap™ Technology. These filters demonstrate superior spectral stability and field lifetime in demanding applications such as water purification and environmental monitoring. Argon-Gap™ technology employs a proprietary sealing process that eliminates sources of solarization by-products, such as epoxy sealants. Solarization by-products, which are created by the chemical breakdown of organic materials resulting from exposure to ultraviolet light, are a principal cause of premature failure of short-UV filters. Argon-Gap™ 254nm bandpass filters have exceeded exposures of 1000 hours of intense UV radiation with no physical or spectral degradation.

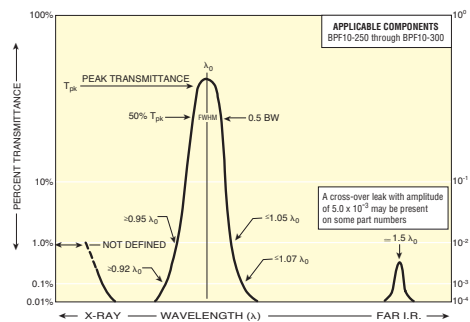
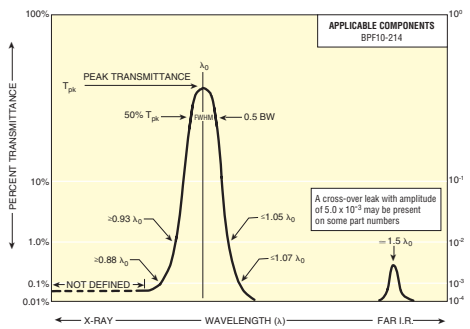
Argon-Gap™ UV filters are available from inventory in 25.4 mm diameter size with an approximate 10 nm bandwidth at a number of commonly used wavelengths including 214, 254, and 280 nm. They are also available on a custom basis for OEM applications in sizes, bandwidths, and at wavelengths as required by the application. Many of the specifications provided for the catalog products are typical of what is commonly required for many OEM applications. However, these specifications can be modified to meet specific needs.

Catalog Product Specifications

Minimum Active Area	20.2 mm diameter
Surface Quality	80-50 scratch-dig; F/F per MIL-F-48616
Size Tolerance	+0/-0.5 mm
Thickness	≤7.6 mm
Out-of-Band Blocking	Xray-Far IR, $T \leq 0.01\%$ or 10^{-4} (a crossover leak may be present on some models - see data curves)
Wavelength Shift with Temperature	0.01 to 0.02 nm/° C
Specification Temperature	23 °C
Temperature Range	-50°C to +100°C (70°C for Mercury Line Filters)
Humidity Resistance	Per MIL-STD-810E, method 507.3, procedure III, modified to 5 cycles
Cleaning	Non-abrasive method, acetone or isopropyl alcohol on lens tissue recommended
Damage Threshold	Not for high power lasers
Data Curve Information	Bandshape specifications and marker wavelengths are provided as approximate reference data only



Argon-Gap filter construction



Catalog Product Ordering Information

Center Wavelength (nm)	FWHM (nm)	Minimum Peak Transmission (%)	Effective Index of Refraction n_e	Data Curve	Model
					25.4 mm diameter
214±3	11±3	12	1.39	1	10BPF10-214
250±3	11±3	12	1.39	2	10BPF10-250
253.7±3	11±3	12	1.39	2	10MLF10-254
260±3	11±3	12	1.39	2	10BPF10-260
270±2	12±2	12	1.39	2	10BPF10-270
280±2	12±2	12	1.39	2	10BPF10-280
289±2	12±2	12	1.39	2	10BPF10-289
300±2	12±2	12	1.39	2	10BPF10-300
312.6±3	10±2	15	1.9	2	10MLF10-313

UVX™ Ultraviolet Filters



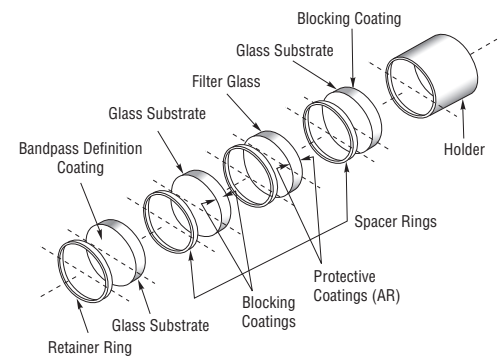
- Qualified for high temperature (400 °C)
- Wavelength stability in any environment
- Wavelength availability: 260 - 400 nm
- Low autofluorescence
- Qualified for high humidity - MIL-STD-810E, Method 507.3, Procedure III, 30 cycles
- High transmission: >50% typical for a 340 nm bandpass filter
- Photometric or image quality

Newport's UVX™ ultraviolet filters have been specifically designed for the most severe environments where ultraviolet filters are used. UVX™ filters are manufactured using all-dielectric thin-film designs featuring Newport's patented Stabilife® coating technology which produces highly dense, virtually indestructible films. These films are incorporated into a product design that eliminates the causes of solarization - the leading cause of failure of UV filters.

Capability Specifications

Minimum Active Area	≥ 80% of diameter (typical, defined by holder)
Surface Quality	80-50 scratch-dig; F/F per MIL-F-48616
Size Tolerance	+0.0, -0.5 mm (typical)
Thickness	≤ 7.6 mm (typical)
Out-of-Band Blocking	X-ray – Far IR, %Tavg ≤ 0.001% or 10 ⁻⁵ (typical)
Wavelength Shift with Temperature	0.01 to 0.02 nm/°C
Temperature Range	-50°C to +400°C (typical)
Humidity Resistance	Per MIL-STD-810E, Method 507.3, Procedure III, modified to 30 cycles
Damage Threshold	Not for high power lasers

UVX™ filters are available on a custom basis for OEM applications in sizes, bandwidths, and at wavelengths as required by the application.



Multi-element construction of a UVX™ ultraviolet filter



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