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Birefringent Filter Plates

Product Description:

The two classical designs of birefringent filters are Lyot filters and Solc filters. Birefringent quartz plates are one of the essential parts. These two filters offer an extremely narrow bandwidth with wide angular fields or tuning capability.

A Lyot filter consists of a set of birefringent quartz plates separated by parallel polarizers. Each plate has half the thickness of next one. In each plate, the ordinary and extraordinary polarization components of a light beam experience a different refractive index and thus have a different phase velocity. Therefore, the polarization state of an arbitrary wavelength will in general be modified and the intensity will be attenuated in a subsequent polarizer. For certain wavelengths, however, the phase retardation is an integer multiple of 2π, the polarization state keeps same and the loss is very small. The separation and narrowness of the transmission peaks depend on the number of elements, plate thicknesses and orientations.

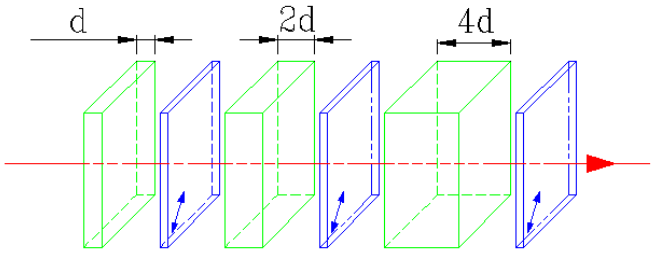


Figure 1: A Lyot filter with threes elements. Blue color shows polarizers and green color indicates birefringent quartz plates.

A Solc filter consists of a set of birefringent waveplates sandwiched between two parallel polarizers. Each plate is oriented at a consecutive angle which is a product of a predefined azimuth and an odd number.

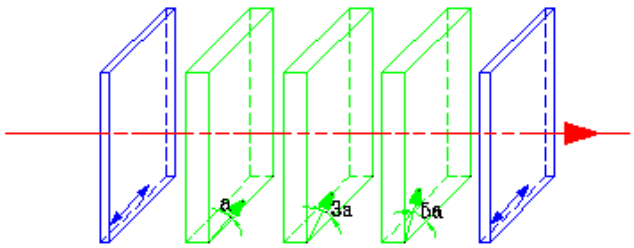


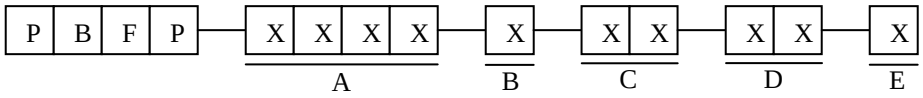
Figure 2: A Lyot filter with threes elements. Blue color shows polarizers and green color indicates birefringent quartz plates.

You may refer to this page (http://www.pmoptics.com/quartz_crystal.html) for material properties

Specifications:

Dimensional Tolerance	±0.05mm
Optical Axis Orientation	±0.5°
Parallelism	<3 arc sec
Flatness	λ/8 @ 632.8nm
Surface Quality	20~10
Wavefront Distortion	λ/8 @ 632.8nm
AR Coating	Specified by customer

Ordering Information:



A	**Wavelength**	**1550=1550nm**
		980=0980nm
		XXXX= Your Application Wavelength
B	**Material**	**1=Crystal Quartz**
C	**Diameters**	**00=Custom Diameters**
D	**Thickness**	**00=Custom Thickness**
E	**AR Coating**	**1=Yes**
		0=No