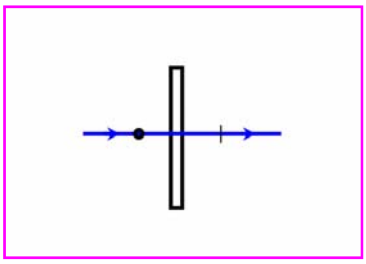
Quartz Waveplates for the UV

Bi-refringent materials such as crystal quartz can be used to retard the passage of the extra-ordinary ray resulting in a change of phase difference between the s– and p– states of polarization. By controlling the thickness of plates of quartz it is possible to achieve precise amounts of retardation. A quarter-wave plate has a net retardation of $(2k+1)\ \pi/2$ and changes the polarization state from linear to circular or vice-versa. A half-wave plate has a net retardation of $(2k+1)\pi$ and rotates the plane of polarization by 90°.

These waveplates are quartz plates with known amounts of retardation at a specific wavelength. The retardation tolerance is $\lambda/500$. They are available un-mounted or mounted in a metal cell.

It is also possible to provide zero order waveplates, in which two plates of opposite retardation are crossed and air-spaced to provide a zero order net retardation of $\pi/2$ (quarter wave) and π (half wave). These air-spaced zero order waveplates are mounted in a metal cell.



Waveplates are normally provided as circular plates of 10, 20 or 30 mm diameter, providing a clear aperture of 8, 18 and 25 mm respectively when mounted. Inch sizes can also be supplied.

Each plate has a small flat indicating the direction of the optic axis. The nominal thickness of these plates is 1 mm (2mm for zero-order). They are anti-reflection coated at the design wavelength.

Waveplates can be supplied for UV wavelengths over 245nm including these popular lines: 248, 266, 308, 337, 355, 364 nm.

Typical Specifications

Material:	Crystal Quartz
Cell:	Aluminium (black anodized)
Transmitted Wavefront:	$\lambda/10$ @ 633nm
Retardation Tolerance:	$\lambda/500$ @ 20°C
Surface quality:	10-5
Diameter:	+0.0 / -0.2 mm
Thickness:	~ 1 mm
Clear aperture:	>85%
Parallelism:	<1 arcsec
A/R coating:	R <0.25% per surface

To request a quote or to order, please specify:

Quantity — Diameter — Multiple or Zero Order — Wavelength — Mounted / Un-mounted

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For a quotation — please phone, fax or email us with details of your requirements.