

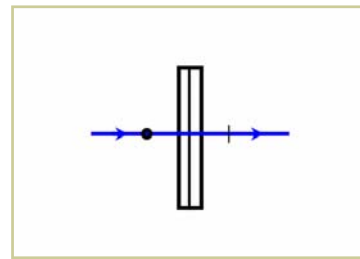
Zero Order Quartz Waveplates



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 $\pi/2$ and changes the polarization state from linear to circular or vice-versa. A half-wave plate has a net retardation of π and rotates the plane of polarization by 90° .

These waveplates are quartz plates with known amounts of retardation at a specific wavelength. Two such plates of opposite retardation are joined together so that the net retardation is of true zero-

order. The retardation tolerance is $\lambda/500$. The plates are joined by cementing, optically contacting or may be air-spaced. Cemented and optically contacted waveplates are available un-mounted or mounted in a metal cell. Air-spaced waveplates must be mounted.



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 part of the plate has a small flat indicating the direction of the optic axis. The nominal thickness of these plates is between 2 and 3 mm. They are anti-reflection coated at the design wavelength.

Waveplates can be supplied for any wavelength in the range 248 – 2500 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:	~ 2-3 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 — Cemented, Contacted or Air-spaced — Diameter — Wavelength
— Mounted / Un-mounted

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