Half Waveplates

Half wave plates are convenient means for reorienting the polarization in order to meet the requirements for a particular optical configuration, without rotating the laser. Half wave plates convert left circularly or elliptically polarized beams into right circularly or elliptically polarized light, and vice versa.

The thickness of a half waveplate is such that the phase difference is 1/2-wavelength (ture-zero order) or some multiple of 1/2-wavelength (multiple order).

A linearly polarized beam incident on a half waveplate emerges as a linearly polarized beam but rotated such that its angle to the optical axis is twice that of the incident beam. Therefore, half-waveplates can be used as continuously adjustable polarization rotators. Half-waveplates are used in rotating the plane of polarization, electro-optic modulation and as a variable ratio beamsplitter when used in conjunction with a polarization cube.

Specifications:

- Materials: **Crystal Quartz**
- Optical Axis: Normal to flat edge on circumference of Retarder
- Angle of Incidence: 0°
- Retardation Tolerance : <λ/500
- Diameter Tolerance: +0/-0.20 mm
- Thickness: ≈ 1.0mm
- Wavefront distortion: λ /8 over central 90% of aperture at 632.8 nm
- Parallelism: 1 arc second
- Surface Quality: 20/10 scratch and dig
- AR/AR Coating: Ultrahard antireflection coating on all air-quartz interfaces
- Coating Clear Aperture: Central 90% of diameter