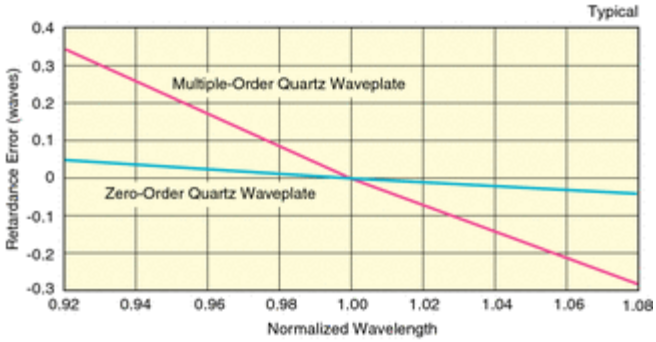
Polarization Optics Selection Guide

Selecting the proper **Waveplate or Polarizer** for your application requires making a number of choices. A few of the many considerations include: polarization function, extinction ratio, transmission efficiency, laser damage resistance, wavefront distortion, and certainly cost. The information in this section should help in comparing the available choices from Newport.

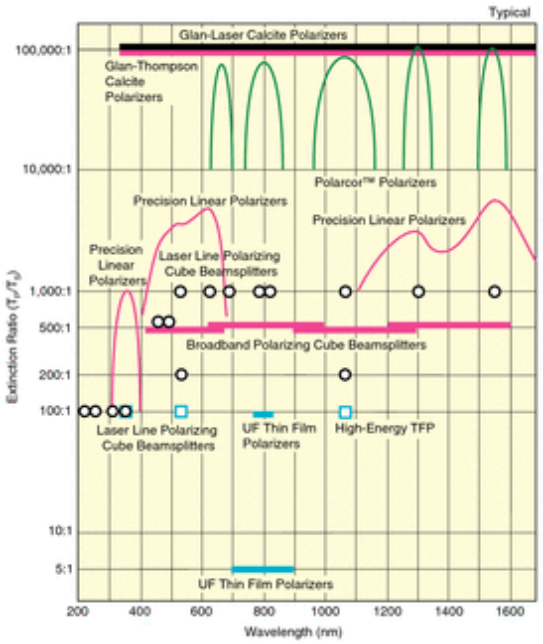
Selecting an Polarization Optic

Click **Waveplates and Polarizers** to shop or browse all of our standard models, or select a product family below for more information. We also offer a wide variety of **Optical Mounts** for mounting your polarization optic.



Wave Plates

Description		Retardation Accuracy	Features/Applications	Cost	Laser Damage Threshold
	Multiple-Order Quartz Wave Plates	±λ/300	Dual wavelength multiple-order wave plates available	Low	2 MW/cm^2 CW, 2 J/cm^2 with 10 nsec pulses, typical
	Zero-Order Quartz Wave Plates	±λ/300	Air spaced for high damage threshold, less sensitive to wavelength and temperature variation than multiple-order wave plates	Moderate	2 MW/cm^2 CW, 2 J/cm^2 with 10 nsec pulses, typical
	Zero-Order Precision Wave Plates	±λ/350	Least sensitive to wavelength variation, best angular acceptance, large clear apertures available	Low/Moderate	500 W/cm^2 CW, 4 J/cm^2 with 20 nsec pulses at 1064 nm, typical
	Achromatic Zero-Order Quartz-MgF2 Wave Plates	From ±λ/50 to ±λ/100	Superior broadband performance, higher damage threshold than achromatic polymer film wave plates	Moderate	500 W/cm^2 CW, 2 J/cm^2 with 8 nsec pulses at 1064 nm, typical
	Achromatic Zero-Order Wave Plates	±λ/100	Superior broadband performance, less sensitive to wavelength change and better angular acceptance than achromatic quartz-MgF_2 wave plates	High	500 W/cm^2 CW, 0.3 J/cm^2 with 10 nsec pulses, visible; 0.5 J/cm^2 with 10 nsec pulses at 1064 nm, typical



Polarizers

Description		Extinction Ratio T_p/T_s	Transmission Efficiency	Features/Applications	Laser Damage Threshold
	Glan-Thompson Calcite Polarizers	>100,000:1	T_s >90%	Extreme polarization purity, very broadband, cemented calcite prism design for lower power laser use, large acceptance angle permits use with diverging and converging beams	=1,Damage Threshold (uncoated)
	Glan-Laser Calcite Polarizers	>100,000:1	T_p >92%–95%	Extreme polarization purity, very broadband, air spaced design for high damage threshold, exit apertures provide for safe escape of rejected polarization	500 W/cm^2 CW, 4 J/cm^2 with 10 nsec pulses, typical (uncoated)
	Polarcor™ Linear Polarizers	>10,000:1	T_p >79-94%	Very high polarization purity, large acceptance angle, compact design, less expensive than calcite polarizers	1000 W/cm^2 CW, 6 J/cm^2 with 13 nsec pulses at 1064 nm (pass), typical 30 W/cm^2 CW, 0.17 J/cm^2 with 13 nsec pulses at 1064 nm (block), typical
	Precision Linear Polarizers	>150–4,000:1		Large apertures available, for lower power laser applications	1 W/cm^2 CW, 0.2 J/cm^2 with 20 nsec pulses, visible, typical
	High-Energy Nd:YAG Laser Thin Film Polarizers	>100:1	T_p >95%	High damage threshold, high transmission efficiency at Nd:YAG wavelengths	5 MW/cm^2 CW, 5 J/cm^2 with 10 nsec pulses at 10 Hz @ 1064 nm
	Thin Film Polarizers For Ultrashort Pulses	T_p/T_s>5:1 & 95:1	T_p>95% avg.	Low dispersion minimizes pulse broadening, high transmission efficiency over the Ti:Sapphire tuning range	