# meadowlark optics

Dual-Wavelength Retarder

Dual wavelength retarders can provide the same retardance at two wavelengths that are separated in wavelength by more than the span covered by an achromatic retarder. They can also provide different specified retardances at two different wavelengths.

Traditionally these retarders have been made using crystal quartz and are multiorder retarders at both wavelengths. Our dual wavelength retarders use polymers instead. They are usually much lower order and consequently have a slower change in retardance with angle of incidence as shown in the graph. On average the order is about 20% of that for a comparable quartz dual wavelength retarder.

Call for a quote on a custom coating on these normally uncoated retarders. The retardance tolerance is ±0.01waves at both wavelengths. Many custom combinations not listed in the catalog are available. Please call for a quote on your custom requirement. Standard unmounted sizes are 0.50 inches and 1.00 inches.

Dual Wavelength Field of View

Graph: Fractional Wave Retardance vs Angle of Incidence (°), comparing Quartz and Polymer.
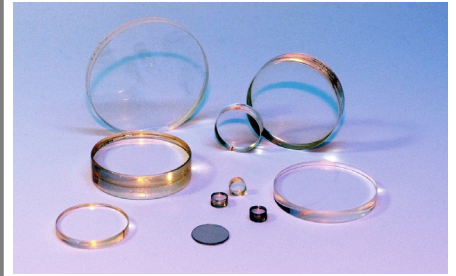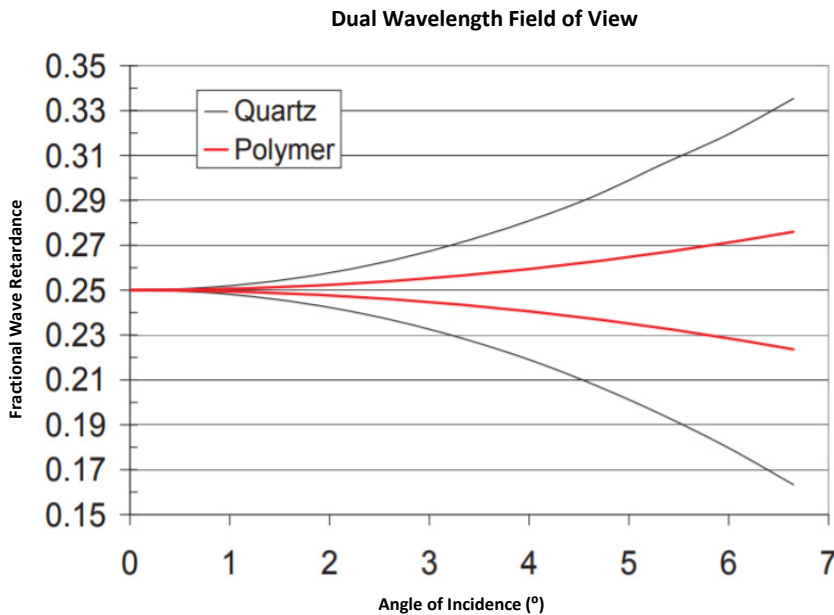
Key Features

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Low order

Wide angular field

Broad wavelength coverage

Coated or Uncoated Available

Mounted or Unmounted Available

Waveplate Suite

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Precision Retarder
Precision Achromatic Retarder
Precision Superachromatic Retarder
Dual-Wavelength Retarder
Wide Field Retarder
Liquid Crystal Variable Retarder
Polymer Film Retarder
Raptor Applied Polymer Retarder
Large Aperture Retarder
Bi-Crystalline Achromatic Retarder

POLARIZERS • SPATIAL LIGHT MODULATORS • WAVEPLATES • LIQUID CRYSTAL DEVICES • OTHER CAPABILITIES

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SPECIFICATIONS

Retarder Material	Birefringent Polymer
Substrate Material	N-BK7
Retardance Accuracy	≤ λ/100 at both wavelengths
Transmitted Wavefront Distortion	≤ λ/4
Beam Deviation	≤ 1 arc-min
Reflectance (per surface)	~ 4% at normal incidence
Storage Temperature	design dependent
Operating Temperature	design dependent

Custom anti-reflection coatings to provide less than 0.5% reflection at both wavelengths are available. Please call your Meadowlark Optics sales engineer for a quote.

ORDERING INFORMATION

Thickness in. (mm)	Dimensions in. (mm)	Part Number
0.14 (3.6 mm)	0.50 (Ø12.7 mm)	D R1 R2 – d – λ1/λ2
0.27 (6.9 mm)	1.00 (Ø25.4 mm)	D R1 R2 – d – λ1/λ2

R1,R2 = Q for quarter wave, H for half wave
d = Diameter (e.g. -100 is 1" OD)
λ1,λ2 = Design wavelengths. (e.g. -0488 is 488 nm)
DQH-200-λ1,λ2 => 2" Quarter Waveplate @ λ1, Half @ λ2.