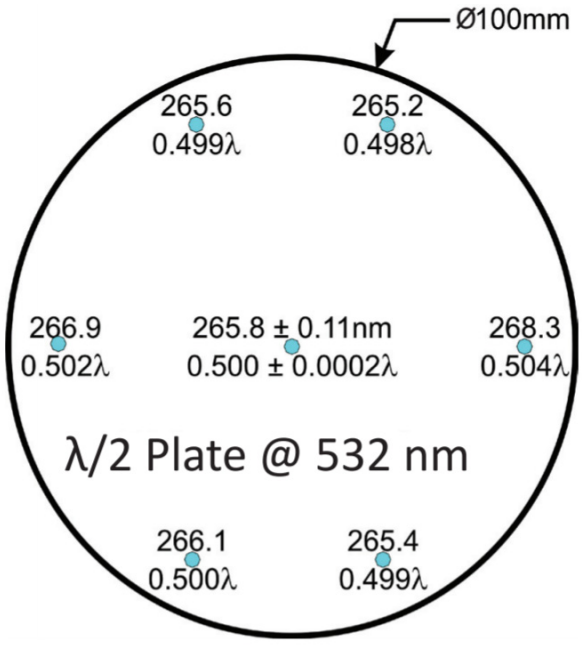
Large Aperture Retarder

For many astronomical, aerospace, and defense projects, large aperture retarders are required. Meadowlark Optics has over thirty-five years of retarder manufacturing expertise and is able to manufacture from a wide variety of materials to facilitate high or low power applications.

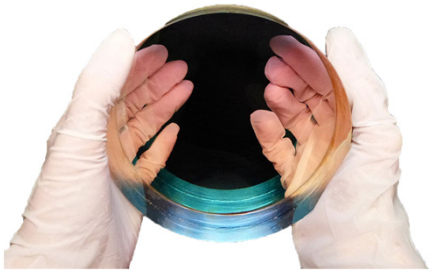
Waveplates up to 150 mm diameter are available. Some materials allow retarders to be used over different wavelengths from the ultraviolet, through the visible and into the near infrared.

Meadowlark Optics uses proprietary methods to ensure the best spatial uniformity of its polymer and crystalline retarders. These retarders have a spatial uniformity of better than two percent across the clear aperture and with the correct substrates, can have a wavefront distortion that is on par with Meadowlark Optics' Precision Retarders.

Meadowlark Optic's liquid crystal variable retarders can also be built with large clear apertures. Please contact your Meadowlark Optics Sales Engineer for assistance and a custom quote.



Actual spatial retardance data from a 100mm Large Aperture Retarder



Key Features

- Outer diameter up to 6 inches
- Clear aperture > 90%
- Custom size retardance and wavelength range available
- Spatial uniformity less than 2% across clear aperture
- Various materials available: (polymer, quartz, sapphire, magnesium fluoride, liquid crystal)
- Less than 15mm Thickness
- True Zero-Order
- Broad Wavelength ranges

Waveplate Suite

- 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

SPECIFICATIONS	
Retarder (Birefringent) Material Options	Polymer Crystalline Quartz Magnesium Fluoride Sapphire Liquid Crystal†
Wavelength	300-2500 nm (please specify)
Retardances	0 to 100s of λ
Retardance Accuracy	
Center **Spatial Uniformity**	≤ λ/100 to ≤ λ/350 ≤ λ/10 to ≤ λ/100
Transmitted Wavefront Distortion	≤ λ to ≤ λ/5 (P-V @ 633) λ/4 to λ/20 (RMS @ 633)]
Surface Quality	40 – 20 scratch-dig to 80 – 50 scratch-dig
Outside Dimensions	Up to 150 mm

Large Aperture retarders are available in a variety of different sizes and shapes with custom retardances at specific wavelengths. Combinations of different materials allow custom achromatic, athermal or wide angle designs. Please contact your Meadowlark Optics Sales Engineer for a custom quote.