

## Precision Achromatic Retarders

Meadowlark Optics Precision Achromatic Retarders are designed to provide a nearly constant retardance over a broad wavelength region. Standard quarter- and half-wave devices are available for common wavelength regions in the visible and near infrared.

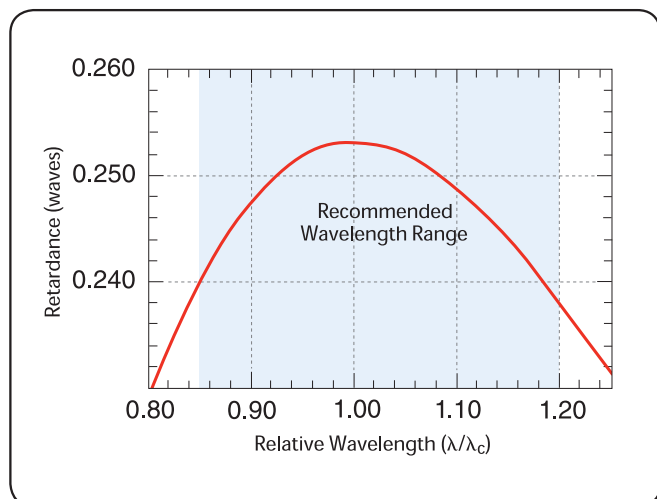


Fig. 2-13 Quarter-wave Achromatic Retarder performance

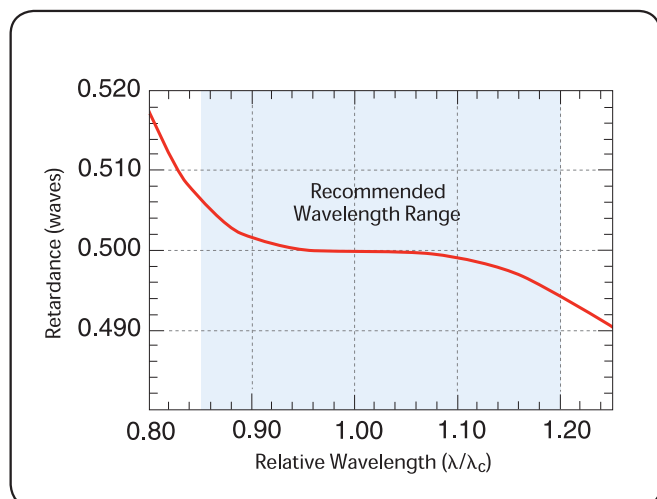


Fig. 2-14 Half-wave Achromatic Retarder performance

Our Precision Achromatic Retarders consist of carefully aligned birefringent polymer sheets laminated between precision polished, optically flat BK 7 windows. Assembly is quite similar to the assembly of our Precision Retarders.

Optical transmittance varies slightly from the Precision Retarder because several polymer layers are used in each Achromatic Retarder.

We provide retardance accurate to  $\lambda/100$  for all wavelengths in the operating range. Achromatic retarders are an excellent choice for applications requiring broad wavelength use.

### Key Benefits

- Broad spectral range
- Superior field of view

SPECIFICATIONS	
Retarder Material	Birefringent Polymer Stack
Substrate Material	BK 7 Grade A, fine annealed
Standard Wavelength (nm)	Operating Range (nm)
545	485 - 630
630	555 - 730
720	630 - 835
840	735 - 985
1060	920 - 1240
1400	1200 - 1650
Retardance	$\lambda/4$ and $\lambda/2$
Retardance Accuracy	$\leq \lambda/100$
Transmitted Wavefront Distortion (at 632.8 nm)	$\leq \lambda/4$
Surface Quality	40-20 scratch and dig
Beam Deviation	$\leq 1$ arc min
Reflectance (per surface)	$\leq 0.5\%$ at normal incidence
Diameter Tolerance	
Mounted	$\pm 0.005$ in.
Unmounted	$+0/-0.010$ in.
Thickness Tolerance	$\pm 0.020$ in.
Temperature Range	$-20^\circ\text{C}$ to $+50^\circ\text{C}$
Recommended Safe Operating Limit	500 W/cm <sup>2</sup> , CW 300 mJ/cm <sup>2</sup> , 10 ns, visible 500 mJ/cm <sup>2</sup> , 10 ns, 1064 nm

ORDERING INFORMATION				
Mounted				
Diameter (in.)	Clear Aperture (in.)	Thickness (in.)	$\lambda/4$ Wave Part No.	$\lambda/2$ Wave Part No.
1.00	0.40	0.25	AQM-050- $\lambda$	AHM-050- $\lambda$
1.00	0.70	0.35	AQM-100- $\lambda$	AHM-100- $\lambda$
Unmounted				
Diameter (in.)	Clear Aperture (in.)	Thickness (in.)	$\lambda/4$ Wave Part No.	$\lambda/2$ Wave Part No.
0.50	0.40	0.14	AQ-050- $\lambda$	AH-050- $\lambda$
1.00	0.80	0.28	AQ-100- $\lambda$	AH-100- $\lambda$

Please include the standard wavelength  $\lambda$  in nanometers when ordering. Custom sizes or center wavelengths can be specified for your application.

Custom sizes are available. Please contact your Meadowlark Optics sales engineer for assistance.