

Waveplate

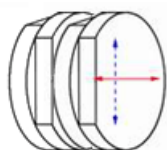
- Achromatic Waveplate

Achromatic waveplate (AWP) is similar to zero order waveplate except that the two plates are made from different birefringent crystals (such as crystal quartz and magnesium fluoride plates.). Since the dispersion of the birefringence of two materials is different, it is possible to specify the retardation values at a broad wavelength range. So, the retardation will be less sensitive to wavelength change. In other words, it can be used at a broadband wavelength range.

Achromatic waveplates play one of the central roles in constructing universal birefringent filters (UBF).

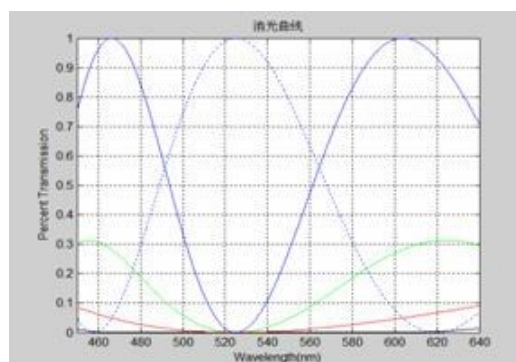
For tunable sources or lasers with large spectral widths, you will want an AWP - one whose performance is nearly independent of wavelength.

Our AWP's are designed to effectively eliminate the wavelength dependence over a wide spectral range, typically several hundred nanometers. The standard versions are air-spaced. Custom assemblies, including cemented versions, are available to meet your specific requirements. Send us your drawing for a quote on a custom AWP.



Specifications:

Material: Quartz
Wavelength bandwidth: 420-640nm
Type: Cemented
Dimension Tolerance: +0.0, -0.1
Wavefront distortion: $\lambda/8@633\text{nm}$
Retardation Tolerance: $\lambda/30$
Parallelism: <1 arc second
Surface Quality: 20-10 scratch/dig
Clear Aperture: Central 90%
AR coating: $R_{\text{avg}} < 0.5\%$ 420-640nm



Quarter Waveplates P/N#	Half Waveplates P/N#	Diameter(mm)
WPB210Q	WPB210H	10.0x10.0
WPB212Q	WPB212H	12.7x12.7
WPB215Q	WPB215H	15.0x15.0
WPB220Q	WPB220H	20.0x20.0
WPB225Q	WPB225H	25.4x25.4

Call for OEM quantity pricing.

A wide variety of custom zero waveplates are available, please contact us with your custom requirement.

Other Specification products are upon requirement.

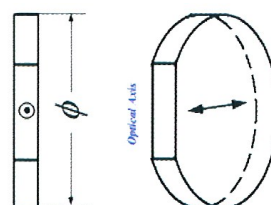
- Waveplate

Zero Order Waveplates

The zero order waveplate is designed to give a retardance of zero full waves, plus the desired fraction. Zero order waveplate shows better performances than multiple order waveplates, it has broad bandwidth and a lower sensitivity to temperature and wavelength changes.

Specifications

Material:	Quartz
Dimension Tolerance:	+0.0, -0.13 mm
Wavefront Distortion:	$< \lambda/8$ @ 632.8 nm
Retardation Tolerance:	$< \lambda/500$ (typical)
Parallelism:	< 3 arc second
Surface Quality:	20-10 scratch and dig
Clear aperture:	Central 90%
AR/AR Coating:	$R < 0.2\%$ at central wavelength



We provides standard waveplate wavelengths (nm) listed as below:
266 355 532 632.8 780 808 850 980 1064 1310 1480 1550

Note: Other wavelengths within the ranger of 200-2300nm are also available upon request.

Cemented Zero Order Waveplate

This type of zero order waveplate is constructed of two multiple order waveplates with their axes crossed. Thus, the effect of the first plate is canceled by the second, except for the residual difference between them.

Zero Order Waveplate s-Optically Contacted

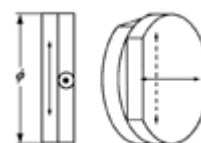
Optically Contacted

AR Coated, $R < 0.2\%$

High Damage Threshold

Better Temperature Bandwidth

Wide Wavelength Bandwidth



Diameter (mm)	Quarter Waveplates P/N#	Half Waveplates P/N#
10.0	WPO210-4	WPO210-2
12.7	WPO212-4	WPO212-2
15.0	WPO215-4	WPO215-2
20.0	WPO220-4	WPO220-2
25.4	WPO225-4	WPO225-2
30.0	WPO230-4	WPO230-2

Zero Order Waveplate Air-spaced

Double Retardation Plates
AR Coated, $R < 0.2\%$ and Mounted
High Damage Threshold
Better Temperature Bandwidth
Wide Wavelength Bandwidth

Mount Diameter (mm)	Wave-plate Diameter (mm)	Thickness (mm)	Quarter Waveplates P/N #	Half Waveplates P/N #
25.4	10.0	8.0	WPA210-4	WPA210-2
25.4	12.7	8.0	WPA212-4	WPA212-2
25.4	15.0	8.0	WPA215-4	WPA215-2
30.0	20.0	8.0	WPA220-4	WPA220-2
30.0	25.4	8.0	WPA225-4	WPA225-2

True Zero Order Waveplates-Cemented

This type of zero order waveplate is constructed of a true zero order waveplate and a BK7 substrate. As the waveplate is very thin and easy to be damaged, the Bk7 plate's function is to strengthen the

Cemented by Epoxy
Wide Angle Acceptance
Better Temperature Bandwidth
Wide Wavelength Bandwidth
AR Coated, $R < 0.2\%$



Standard Wavelength Applied:

Quarter: 532nm, 632.8nm, 780nm, 808nm, 850nm, 980nm, 1064nm, 1310nm, 1480nm, 1550nm
Half : 532 nm, 632.8nm, 780nm, 808nm, 850nm, 980nm, 1064nm, 1310nm, 1480nm, 1550nm

Diameter (mm)	Quarter Waveplates P/N#	Half Waveplates P/N#
10.0	WPF210-4	WPF210-2
12.7	WPF212-4	WPF212-2
15.0	WPF215-4	WPF215-2
20.0	WPF220-4	WPF220-2
25.4	WPF225-4	WPF225-2
30.0	WPF230-4	WPF230-2



Optics Leading the Light

RONAR-SMITH® Laser Optics & IR Imaging



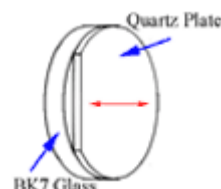
Introduction

RONAR-SMITH®
Laser Optics

Zero Order Waveplates-Cemented by Epoxy

This type of zero order waveplate is constructed of two multiple order waveplate with their axes crossed. Thus, the effect of the first plate is canceled by the second, except for the residual difference between them.

Cemented by Epoxy
Better Temperature Bandwidth
Wide Wavelength Bandwidth
AR Coated, R<0.2%



Diameter (mm)	Quarter Waveplates P/N#	Half Waveplates P/N#
10.0	WPF210-4	WPF210-2
12.7	WPF212-4	WPF212-2
15.0	WPF215-4	WPF215-2
20.0	WPF220-4	WPF220-2
25.4	WPF225-4	WPF225-2
30.0	WPF230-4	WPF230-2

