Multi-Order Wave Plates

WPMQ05M-780

WPMQ05M-633

Specifications

- **Material:** Crystal Quartz
- **Diameter:** 12.7mm +0.00/-0.01 Unmounted 25.4mm Mounted
- **Retardation:** λ/200
- **Wavefront Distortion:** λ/10
- **Surface Quality:** 10-5 Scratch-Dig
- **Damage Threshold:** 2MW/cm² CW, 2J/cm² 10ns Pulse
- **AR Coated:** <0.25% Reflectivity

See price box for coating wavelengths.

Thorlabs' multi-order wave plates are made from high-quality crystalline quartz and are available for specific retardances at a variety of popular wavelengths. The wave plate housing is engraved with a line indicating the orientation of the fast axis, as well as text indicating whether it is λ/4 or λ/2, and the wavelength for which the wave plate was designed.

The term "multi-order" refers to the fact that the retardance of a light path will undergo a certain number of full wavelength shifts (i.e. orders m) in addition to the fractional design retardance. Compared to their zero-order counterparts, the retardance of multi-order wave plates is more sensitive to wavelength and temperature changes; however, they are less expensive and find use in many applications where the increased sensitivities are not an issue.

Thorlabs offers a multi-order dual wave plate for the wavelength combination of 1064 and 532nm. By carefully choosing the order (m) of the multi-order wave plate, the retardance of a single piece of crystalline quartz will simultaneously be λ/4 for one of the wavelengths and λ/2 for the other wavelength in the combination.

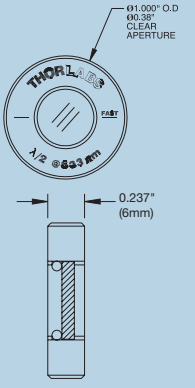
Quarter-Wave Plates

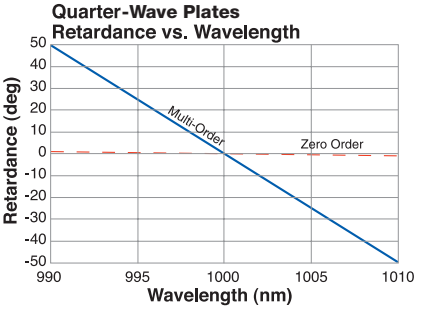
Quarter-wave plates add λ/4 of retardation making them useful for converting linearly polarized light into circularly polarized light. Conversely, they will convert circularly polarized light back into linear. Combined with a linear polarizer, quarter wave plates can be used as an isolator to reject back reflections.

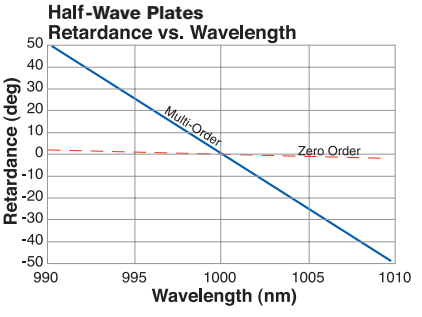
Half-Wave Plates

Half-wave plates introduce a retardance of λ/2, which makes them useful for rotating the polarization state of an input. A linearly polarized input will produce a linear output rotated by 2θ (where θ is the angle between the input polarization and the wave plate fast axis).

Air Spaced for Maximum Power Handling







Mounted Multi-Order Wave Plates

QUARTER-WAVE PLATE ITEM#	HALF-WAVE PLATE ITEM#	$	£	€	RMB	COATING
WPMQ05M-266	WPMH05M-266	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 266nm
WPMQ05M-308	WPMH05M-308	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 308nm
WPMQ05M-355	WPMH05M-355	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 355nm
WPMQ05M-488	WPMH05M-488	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 488nm
WPMQ05M-514	WPMH05M-514	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 514nm
WPMQ05M-532	WPMH05M-532	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 532nm
WPMQ05M-546	WPMH05M-546	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 546nm
WPMQ05M-633	WPMH05M-633	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 633nm
WPMQ05M-670	WPMH05M-670	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 670nm
WPMQ05M-780	WPMH05M-780	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 780nm
WPMQ05M-808	WPMH05M-808	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 808nm
WPMQ05M-830	WPMH05M-830	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 830nm
WPMQ05M-980	WPMH05M-980	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 980nm
WPMQ05M-1053	WPMH05M-1053	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 1053nm
WPMQ05M-1064	WPMH05M-1064	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 1064nm
WPMQ05M-1310	WPMH05M-1310	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 1310nm
WPMQ05M-1550	WPMH05M-1550	$ 227.00	£ 143.00	€ 211,10	¥ 2,167.90	AR Coated 1550nm
WPDM05M-532H-1064Q		$ 319.00	£ 201.00	€ 296,70	¥ 3,046.50	Multi-Order Dual Wave Plate λ/2@532nm, λ/4@1064nm
WPDM05M-1064H-532Q		$ 319.00	£ 201.00	€ 296,70	¥ 3,046.50	Multi-Order Dual Wave Plate λ/4@532nm, λ/2@1064nm

DUAL WAVE PLATES