Quartz Waveplates | QWP

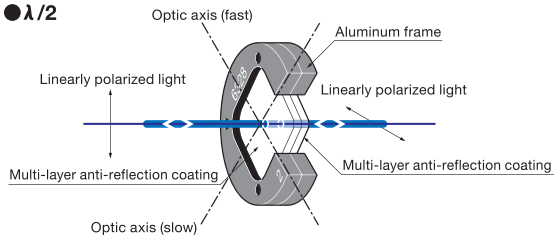
RoHS

Quartz waveplates are zero-order retardation plates (phase plates) which are assembled from pairs of optically contacted crystalline quartz plates and are mounted on aluminum frames. Unlike multiple-order (higher-order) waveplates that are made from a single quartz plate, the net retardations of zero-order waveplates are almost not affected by temperature change.

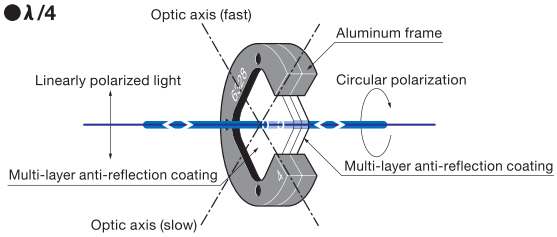
- These products utilize birefringence of quartz and give phase difference of λ/4 (π/2, 90°) or λ/2 (π, 180°) to the input beams. λ/4 retarders convert linearly polarization to circularly and circularly polarization to linearly. λ/2 retarders convert the direction of polarization in 90 degrees.
- Usually linearly polarized beams are input to the waveplates in a leaning of 45 degrees against its optic axis.

Schematic

●λ/2



●λ/4



Specifications

Material	Optical grade crystalline quarts
Material of frame	Aluminum Finishing: Black anodized
Clear aperture	17×17mm
Surface flatness of substrate	λ/10
Angular deviation of beam	<5″
Coating	Both surfaces: Narrowband multi-layer anti-reflection coating
retardation tolerance	<λ/50 (λ<400nm) λ/100 – λ/200 (400nm<λ<700nm) λ/200 – λ/500 (700nm<λ)
Transmittance	>99%
Laser Damage Threshold	1J/cm² (Laser pulse width 10ns, repetition frequency 20Hz)
Surface Quality (Scratch–Dig)	20–10

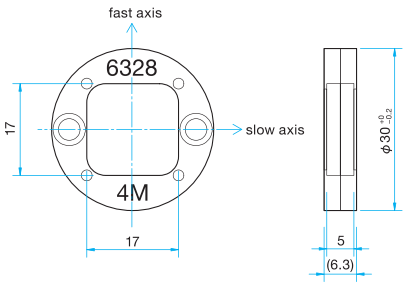
Guide

▶Please contact our International Sales Division for customized products. (Customized on size etc.)

Attention

▶These products can be used for the beams which wavelengths are in +/–1% of rated wavelengths.
▶The surface flatness is the reflected wavefront distortion of the surface before coating.
▶Be sure to wear laser safety goggles when checking optical path and adjusting optical axis.

Outline Drawing (in mm)



Compatible Optic Mounts

NPH-30-ARS / NPH-30-ARS

Application Systems
Machine Vision
Manual Positions
Motion Control Products
Optical & Mirror Holder
F A Parts
Measurement &Control
FA Electrical Parts
Tool & Measure
Cleanroom & AntiStatic
Index
Mirrors
Beamsplitters
Filters
Polarizers
Lenses
Multi-Element Optics
Prisms
Substrates & Windows
Holder & Vibration isolator

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λ/2

Part Number	Wavelength Range [nm]	Theoretical retardation [nm]	Laser Type
QWP-2660-2M	266	133.0	YAG4ω
QWP-3250-2M	325	162.5	He-Cd
QWP-3550-2M	355	177.5	YAG3ω
QWP-4050-2M	405	202.5	LD
QWP-4100-2M	410	205.0	LD
QWP-4416-2M	441.6	220.8	He-Cd
QWP-4579-2M	457.9	229.0	Ar
QWP-4880-2M	488	244.0	Ar
QWP-5145-2M	514.5	257.3	Ar
QWP-5320-2M	532	266.0	YAG2ω
QWP-5900-2M	590	295.0	DYE
QWP-6328-2M	632.8	316.4	He-Ne
QWP-6700-2M	670	335.0	LD
QWP-6943-2M	694.3	347.2	RUBY
QWP-7800-2M	780	390.0	LD
QWP-8300-2M	830	415.0	LD
QWP-10640-2M	1064	532.0	YAG
QWP-11500-2M	1150	575.0	He-Ne
QWP-13000-2M	1300	650.0	LD
QWP-15500-2M	1550	775.0	LD

λ/4

Part Number	Wavelength Range [nm]	Theoretical retardation [nm]	Laser Type
QWP-2660-4M	266	66.5	YAG4ω
QWP-3250-4M	325	81.3	He-Cd
QWP-3550-4M	355	88.8	YAG3ω
QWP-4050-4M	405	101.3	LD
QWP-4100-4M	410	102.5	LD
QWP-4416-4M	441.6	110.4	He-Cd
QWP-4579-4M	457.9	114.5	Ar
QWP-4880-4M	488	122.0	Ar
QWP-5145-4M	514.5	128.6	Ar
QWP-5320-4M	532	133.0	YAG2ω
QWP-5900-4M	590	147.5	DYE
QWP-6328-4M	632.8	158.2	He-Ne
QWP-6700-4M	670	167.5	LD
QWP-6943-4M	694.3	173.6	RUBY
QWP-7800-4M	780	195.0	LD
QWP-8300-4M	830	207.5	LD
QWP-10640-4M	1064	266.0	YAG
QWP-11500-4M	1150	287.5	He-Ne
QWP-13000-4M	1300	325.0	LD
QWP-15500-4M	1550	387.5	LD