



Laser Optics Catalog 2006

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High Quality, Economic Solution**

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Amerina Optoelectronic Co. Ltd. is a leading technology provider of advanced optical coatings and components. The company's products cover the fields of Laser Optics, Projection Displays, Protection and Safety Optics, and OLED displays.

Amerina specializes in laser coatings. We provide our customers high performance optical coatings with high laser induced damage threshold (LIDT) for high power/energy applications of laser cutting, welding, and marking. Our coating products cover a broad optical spectrum ranging from 193nm to 10.6 μ m. With our dedicated R&D team and our affiliate optical manufacturers, we provide customers various high quality optical coatings and components for projection HDTV light engine systems and auto darkening welding helmet systems. In addition, Amerina extends its products and services into OLED displays industry.

Amerina's current production lines are:

Laser Optics---High performance laser coatings with high LIDT and wide wavelengths ranging from 193nm to 10.6 μ m, and various windows, waveplates, and polarizers for solid state lasers and CO₂ lasers.

Projection HDTV Light Engine Components---High quality straight and tapered light pipes, waveplates, UV-IR blockers, AR coating components for light engine systems.

Protection and Safety Optics---High quality optical interference filters, lens and the related components for auto-darkening welding helmets. The products quality meets the standard of CE, ANSI Z87.1.

Glass lids---Wet etched, sandblasted, and hot pressed glass lids with high precision and high mechanic strength for OLED encapsulation and chemical sensor encapsulation applications.



Laser Optics

Windows

Windows are widely employed to separate different physical environments while allowing light to pass through. The material type, transmission and other physical specifications will be taken into account when a window is selected. Antireflection coatings are available upon customer's requirement.

A. BK7 Windows



Parameters	Standard grade	Precision grade			
Material	BK7	BK7			
Dimensional Tolerance	+0.0/-0.15	+0.0/-0.15			
Clear Aperture	>90%	>90%			
Surface Quality	S/D=60/40	S/D=20/10			
Parallelism	<1 minute	<30 seconds			
Flatness	@ 633nm per 25mm	/10 @ 633nm per 25mm			
Chamfer	0.25mm at 45°typical	0.25mm at 45°typical			
AR Coatings	Optional	Optional			
The regular dimension for precision grade Windows					
Part No.	WIN1110	WIN1112	WIN1125	WIN1130	WIN1150
Diameter (mm)	10.0	12.7	25.4	30.0	50.0
Thickness (mm)	6.0	6.0	6.35	6.35	10.0
The regular dimension for standard grade Windows					
Part No.	WIN1210	WIN1212	WIN1225	WIN1230	WIN1250
Diameter (mm)	10.0	12.7	25.4	30.0	50.0
Thickness (mm)	3.0	3.0	3.0	4.0	6.0

Note: Other dimension and specification are available upon request.



B. UV grade Fused Silica Windows

Parameters		Standard grade		Precision grade	
Material		UV grade Fused Silica		UV grade Fused Silica	
Dimensional Tolerance		+0.0/-0.15		+0.0/-0.15	
Clear Aperture		>90%		>90%	
Surface Quality		S/D=60/40		S/D=20/10	
Parallelism		<3 minutes		<30 seconds	
Flatness		$\lambda/2$ @ 633nm per 25mm		$\lambda/10$ @633nm per 25mm	
Chamfer		<0.25x45 deg		<0.25x45 deg	
AR Coatings		Optional		Optional	
The regular dimension for precision grade Windows					
Part No.	WIN2110	WIN2112	WIN2125	WIN2130	WIN2150
Diameter(mm)	10.0	12.7	25.4	30.0	50.0
Thickness(mm)	6.0	6.0	6.35	6.35	10.0
The regular dimension for standard grade Windows					
Part No.	WIN2210	WIN2212	WIN2225	WIN2230	WIN2250
Diameter(mm)	10.0	12.7	25.4	30.0	50.0
Thickness(mm)	3.0	3.0	3.0	3.0	5.0

Note: Other dimension and specification are available upon request. The Excimer, UV and IR grade fused silica all are available according to the customers' requirement.

C. Sapphire

Specifications					
Material		Optical Grade Sapphire Crystal			
Diameter Tolerance		+0.0/-0.15mm			
Thickness Tolerance		± 0.2 mm			
Clear Aperture		>90%			
Parallelism		< 3 minutes			
Surface Quality		S/D=80/50			
Flatness		1λ per 25mm @ 633nm			
AR Coatings		Optional			
Part No.	WIN4110	WIN4112	WIN4120	WIN4125	WIN4130
Diameter(mm)	10.0	12.7	20.0	25.4	30.0
Thickness(mm)	0.9	1.0	2.0	3.0	3.0

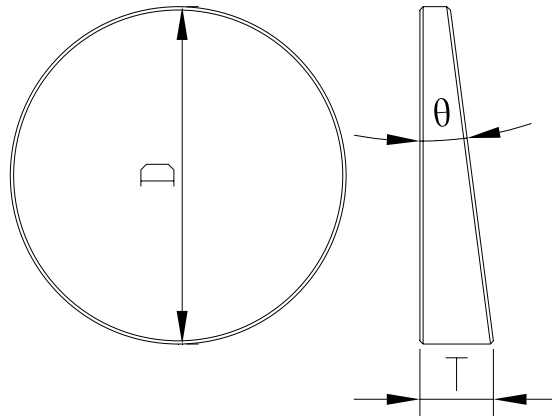
Note: Other dimension and specification are available upon request.

D. CaF₂

Specifications					
Material		Calcium Fluoride Single Crystal			
Transmission Range		0.17-7.8 μ m			
Diameter Tolerance		+0.0/-0.15mm			
Thickness Tolerance		± 0.2 mm			
Clear Aperture		>90% Diameter			
Parallelism		< 3 minutes			
Surface Quality		S/D=80/50			
Flatness		$\lambda/2$ @ 633nm per 25mm			
AR Coatings		Optional			
Part No.	WIN3110	WIN3112	WIN3125	WIN3130	WIN3150
Diameter(mm)	10.0	12.7	25.4	30.0	50.0
Thickness(mm)	1.0	2.0	3.0	3.0	8.0

Note: Other dimension and specification are available upon request.

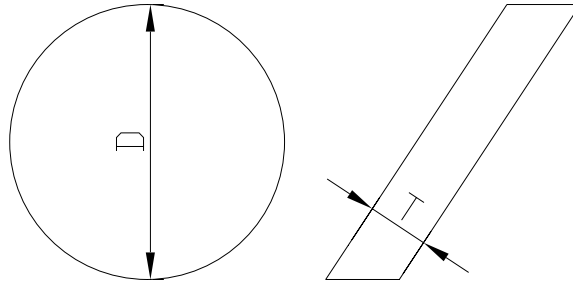
E. Wedges



Specifications	
Material	UV grade fused silica or BK7 glass
Diameter Tolerance	+0.0/-0.15mm
Thickness Tolerance	±0.20mm
Wedge Angle	1°, 2°, 3° or Customized
Wedge Tolerance	±6 minutes
Surface Quality	S/D=10/5 laser quality
Transmitted wavefront distortion	$\lambda/10@ 633\text{nm}$
Clear Aperture	>90%
Chamfer	0.25mm at 45° typical
AR Coatings	Optional
Regular Diameter	25.4mm



F. Brewster Plates



BK7 Brewster Plate

Part No.	Diameter(mm)	Thickness(mm)
BWT1112	12.7	4
BWT1115	15.0	5
BWT1125	25.4	6
BWT1150	50.0	12

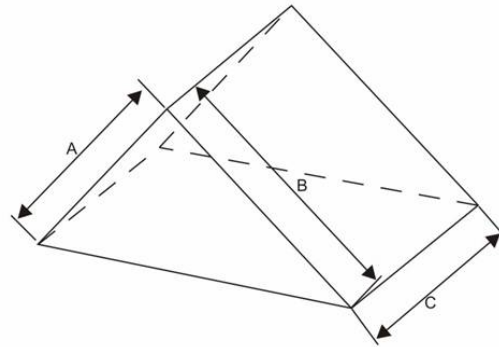


Fused Silica Brewster Plate

Part No.	Diameter(mm)	Thickness(mm)
BWT2112	12.7	4
BWT2115	15.0	5
BWT2125	25.4	6
BWT2150	50.0	12

Prisms

A. Right Angle Prisms

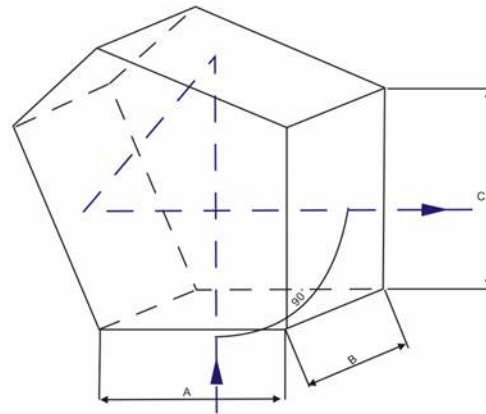


Specifications					
Material		BK7 glass or UV grade fused silica			
Dimension Tolerances		±0.1mm			
Clear Aperture		>80% Dimension			
Surface Quality		S/D=60/40 or 20/10			
Surface Flatness		λ/8 or λ/4 @633nm			
Chamfer		0.3 ± 0.1mm			
Coating		Optional			
Part No.	A=B(mm)	C(mm)	Surface Quality	Flatness	Angle Tolerance
PRA1110	10.0	10.0	60-40	λ/2	< 3 arc mins
PRA1112	12.7	12.7	60-40	λ/2	< 3 arc mins
PRA1115	15.0	15.0	60-40	λ/2	< 3 arc mins
PRA1120	20.0	20.0	60-40	λ/2	< 3 arc mins
PRA1125	25.4	25.4	60-40	λ/2	< 3 arc mins
PRA1150	50.8	50.8	60-40	λ/2	< 3 arc mins
PRA1203	3.2	3.2	20-10	λ/8	< 30 arc secs
PRA1205	5.0	5.0	20-10	λ/8	< 30 arc secs
PRA1210	10.0	10.0	20-10	λ/8	< 30 arc secs
PRA1212	12.7	12.7	20-10	λ/8	< 30 arc secs
PRA1220	20.0	20.0	20-10	λ/8	< 30 arc secs
PRA1225	25.4	25.4	20-10	λ/8	< 30 arc secs
PRA1250	50.8	50.8	20-10	λ/8	< 30 arc secs

Note: Other dimension are available upon request.



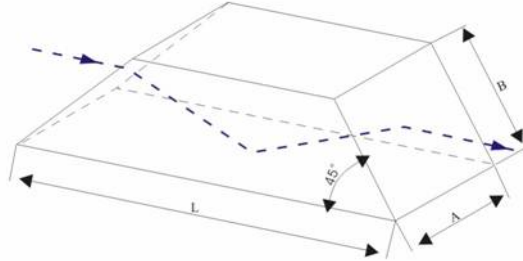
B. Penta Prisms



Specifications			
Material		BK7 or UV grade fused silica	
Dimension Tolerances		±0.1mm	
Clear Aperture		>80% Dimension	
Surface Quality		S/D=60/40	
Surface Flatness		λ/4@ 633nm	
Angle Tolerance		<10 seconds	
Chamfer		0.3mm±0.1mm	
Coating		Aluminized and black paint overcoated	
A=B(mm)	C(mm)	<30 sec deviation	<10 sec deviation
10.0	10.0	PPT1110	PPT1210
12.7	12.7	PPT1112	PPT1212
15.0	15.0	PPT1115	PPT1215
20.0	20.0	PPT1120	PPT1220
25.4	25.4	PPT1125	PPT1225
40.0	40.0	PPT1140	PPT1240

Note: Other dimension are available upon request.

C. Dove Prisms

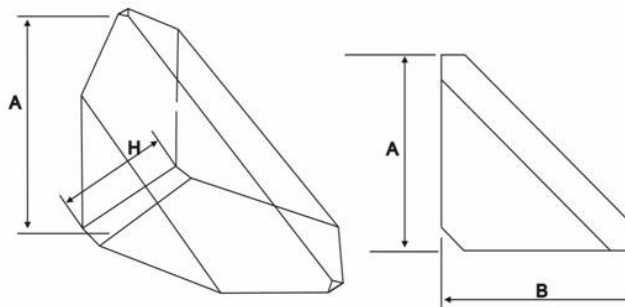


Specifications	
Material	BK7 glass or UV grade fused silica
Dimension Tolerances	±0.1mm
Clear Aperture	>80%
Surface Quality	S/D=60/40
Surface Flatness	λ/4@ 633nm
Angle Tolerance	±3 minutes
Chamfer	0.3mm±0.1mm
Coating	Optional

Part No.	A(mm)	B(mm)	L(mm)
PDV1105	5.0	7.07	21.14
PDV1110	10.0	14.14	42.28
PDV1115	15.0	21.21	63.41
PDV1120	20.0	42.43	84.55

Note: Other dimension are available upon request.

D. Roof Prisms



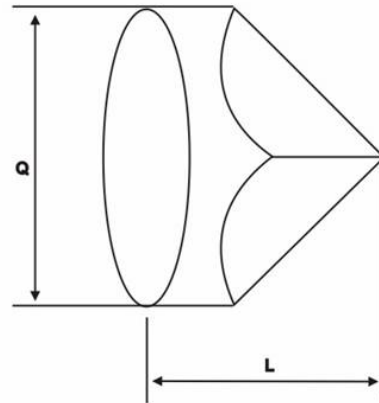
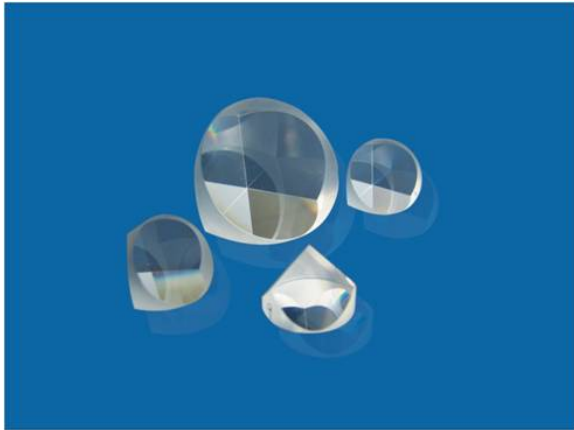
Specifications	
Material	BK7 or UV grade fused silica
Dimension Tolerances	±0.1mm
Clear Aperture	>80%
Surface Quality	S/D=60/40
Surface Flatness	λ/4@633nm



Angle Tolerance		±30 arc secs	
Chamfer		0.3mm±0.1mm	
Coating		Optional	
Part No.	A(mm)	B(mm)	H(mm)
PRF1110	15.0	15.0	12.0
PRF1115	23.0	23.0	18.0
PRF1120	31.5	31.5	23

Note: Other dimension are available upon request.

E. Retroreflector

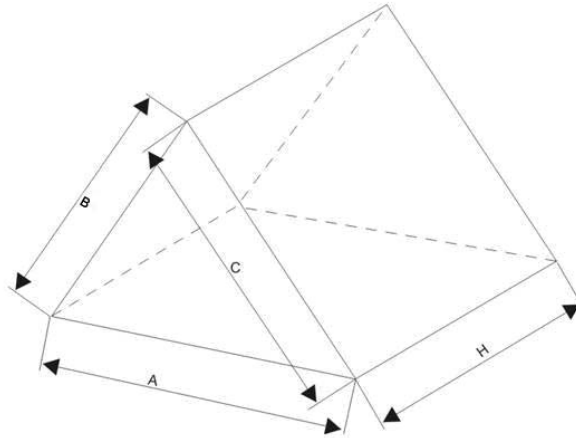


Specifications		
Material	BK7 or UV grade fused silica	
Dimension Tolerances	±0.1mm	
Clear Aperture	>80%	
Surface Quality	S/D=60/40	
Surface Flatness	λ/4@ 633nm for big surface, λ/4@ 633nm for other surface	
Angle Tolerance	180° ±5 Seconds	
Chamfer	0.3mm±0.1mm	
Coating	Aluminized and black paint on small surfaces	
Part No.	Diameter (mm)	L(mm)
PRR1115	15.0	11.3
PRR1125	25.4	19.0
PRR1130	38.0	28.5
PRR1150	50.8	37.5

Note: Other dimension are available upon request.



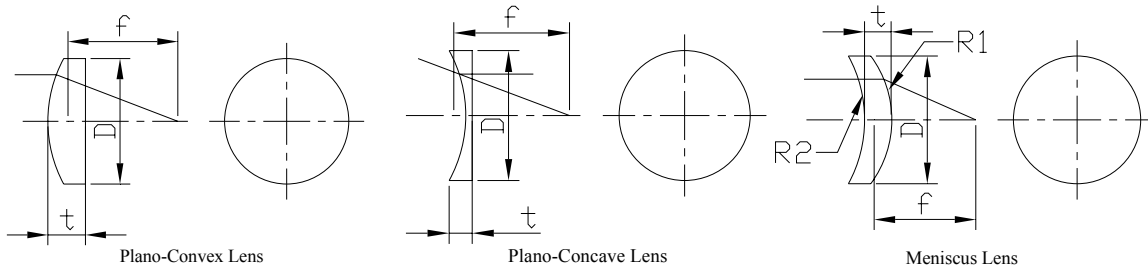
F. Dispersion Prisms



Specifications			
Material	BK7 or UV grade fused silica		
Dimension Tolerances	±0.1mm		
Clear Aperture	>80%		
Surface Quality	S/D=60/40		
Surface Flatness	$\lambda/4@ 633\text{nm}$		
Angle Tolerance	$60^\circ \pm 3 \text{ minutes}$		
Chamfer	$0.3\text{mm} \pm 0.1\text{mm}$		
Coatings	Optional		
Regular dimension for Dispersion Prisms			
Part No.	Material	A=B=C(mm)	H(mm)
PDP1115	BK7	15.0	15.0
PDP1125	BK7	25.0	25.0
PDP1140	BK7	40.0	40.0
PDP0115	F2	15.0	15.0
PDP0125	F2	25.0	25.0

Lenses

A. Spherical Singlet Lenses



Specifications	
Material	BK7, UV grade fused silica, Sapphire, ZnSe, Si, Ge, YAG and CaF ₂
Dimension Tolerance	+0.0~0.1mm
Center Thickness	±0.2mm
Focal Length Tolerance	±1%
Surface Quality	S/D=60/40 up to 10 ⁻⁵
Surface Figure	λ/10@ 633nm
Clear Aperture	>90%
Centration	<5 minutes (f≤50mm), or <3 minutes (f>50mm)
Chamfer	0.25mm at 45° typical
Coating	Optional

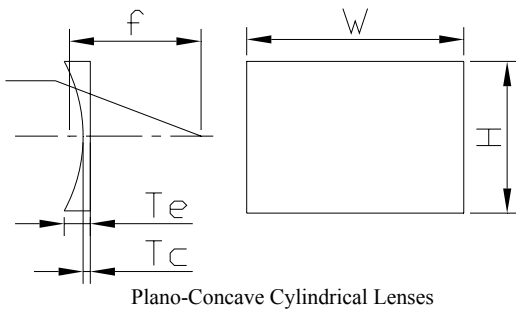
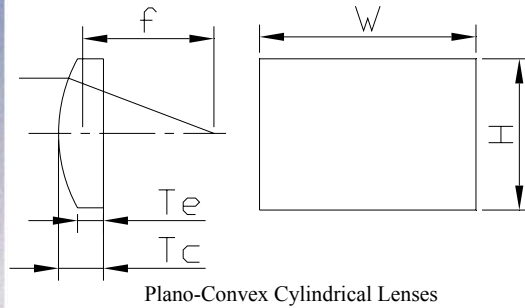
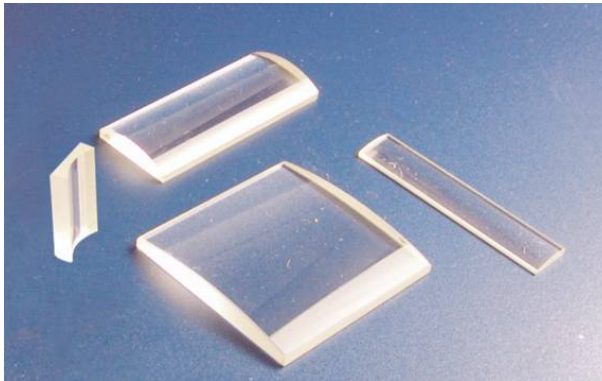
Note:

1. Material can be designed by OEM customer or Amerina
2. Micro lenses with diameter less than 1.0 mm are available
3. Large lenses with diameter larger than 200mm are available
4. Special optical parameters available upon request
5. BBAR coatings are available upon request
6. High LIDT laser coatings available upon request.



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Shanghai Amerina Optoelectronic Co., Ltd.

B. Cylindrical Lenses



Specifications	
Material	BK7, UV grade fused silica or other optical materials
Dimension Tolerance	+0.0~-0.1mm
Center Thickness	±0.2mm
Focal Length Tolerance	±1%
Surface Quality	S/D=60/40
Surface Figure	$\lambda/2@ 633\text{nm}$ on plano side
Clear Aperture	>90%
Parallelism	<1 minute
Chamfer	0.25mm at 45°typical
Coating	Optional

Note: Other dimension and specification are available upon request.



Part No.	H (mm)	W (mm)	f (mm)	R (mm)	Tc (mm)	Te (mm)
LCX1101	10.0	10.0	20.0	10.29	3.3	2.0
LCX1102	10.0	20.0	12.7	6.54	4.3	2.0
LCX1104	10.0	20.0	25.0	12.87	3.0	2.0
LCX1201	20.0	40.0	50.0	25.73	4.0	2.0
LCX1203	20.0	40.0	100.0	51.47	4.0	3.0
LCX1204	20.0	40.0	150.0	77.20	3.7	3.0
LCX1205	20.0	40.0	200.0	102.93	3.5	3.0
LCX1206	20.0	40.0	250.0	128.67	3.4	3.0
LCX1208	20.0	40.0	500.0	257.33	3.2	3.0
LCV1101	10.0	10.0	-20.0	-10.29	2.0	3.3
LCV1102	10.0	20.0	-20.0	-10.29	2.0	3.3
LCV1104	10.0	20.0	-25.0	-12.87	2.0	2.8
LCV1201	20.0	40.0	-50.0	-25.73	2.0	4.0
LCV1203	20.0	40.0	-100.0	-51.47	3.0	4.0
LCV1204	20.0	40.0	-150.0	-77.20	3.0	3.7
LCV1205	20.0	40.0	-200.0	-102.93	3.0	3.5
LCV1206	20.0	40.0	-250.0	-128.67	3.0	3.4
LCV1208	20.0	40.0	-500.0	-257.33	3.0	3.2



Mirror Substrates

A. BK7

Specifications	
Material	BK7
Diameter Tolerance	+0.0~-0.25mm
Thickness Tolerance	±0.25mm
Radius Tolerance	±1%
Surface Quality	S/D=10/5 laser quality
Surface Figure	$\lambda/10@633\text{nm}$
Clear Aperture	>90%
Centration	<5 minutes($f \leq 50\text{mm}$) or <3 minutes($f > 50\text{mm}$)
Chamfer	0.25mm at 45°typical
Coating	Optional

Note: High Laser Induced Damage Threshold coatings are available upon request.

B. UV grade fused silica

Specifications	
Material	UV grade fused silica
Diameter Tolerance	+0.0~-0.25mm
Thickness Tolerance	±0.25mm
Radius Tolerance	±1%
Surface Quality	S/D=10/5 laser quality
Surface Figure	$\lambda/10@633\text{nm}$
Clear Aperture	>90%
Centration	<5 minutes($f \leq 50\text{mm}$) or <3 minutes($f > 50\text{mm}$)
Chamfer	0.25mm at 45°typical
Coating	Optional

Note: High Laser Induced Damage Threshold coatings are available upon request.

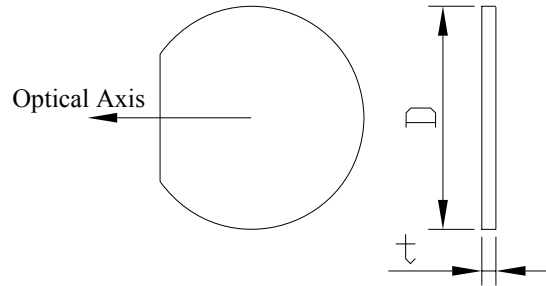
C. CaF₂

Specifications	
Material	IR grade CaF ₂
Diameter Tolerance	+0.0~-0.25mm
Thickness Tolerance	±0.25mm
Radius Tolerance	±1%
Surface Quality	S/D=10/5 laser quality
Surface Figure	$\lambda/10@633\text{nm}$
Clear Aperture	>90%
Centration	<5 minutes($f \leq 50\text{mm}$) or <3 minutes($f > 50\text{mm}$)
Chamfer	0.25mm at 45°typical
Coating	Optional

Polarizers

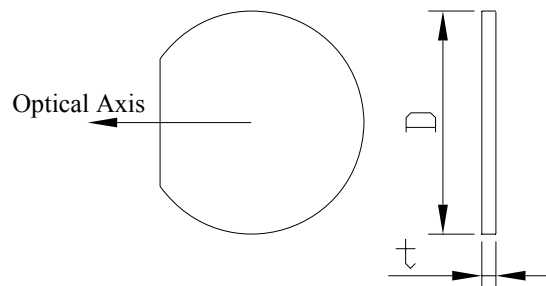
A. Waveplates

Multi-Order Waveplates



Specifications	
Material	Quartz crystal
Diameter tolerance	+0.0~-0.15mm
Parallelism	<1 second
Surface quality	S/D=20/10
Wavefront distortion	< $\lambda/10$ @ 633nm
Retardation tolerance	< $\lambda/300$
Thickness	0.5-1.0 mm
AR coating	Optional

Low-Order Waveplates



Specifications	
Material	Quartz crystal
Diameter tolerance	+0.0~-0.15mm
Parallelism	<1 second
Surface quality	S/D=20/10
Wavefront distortion	< $\lambda/10$ @ 633nm

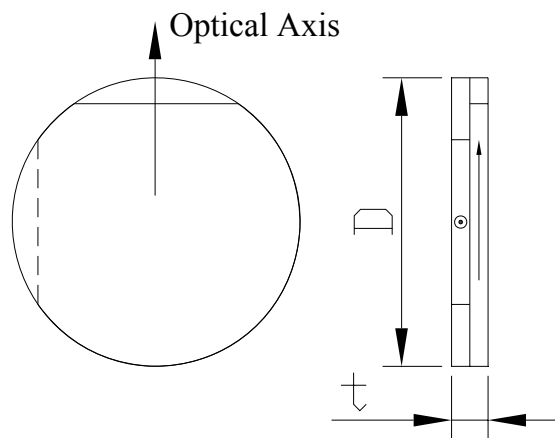


Retardation tolerance	$<\lambda/300$
Thickness	$<0.5\text{mm}$
AR coating	Optional

Waveplates	Multi-Order	Low-Order
Diameter(mm)	Part No.	Part No.
10.0	WPM5110	WPL5110
12.7	WPM5112	WPL5112
15.0	WPM5115	WPL5115
20.0	WPM5120	WPL5120
25.4	WPM5125	WPL5125

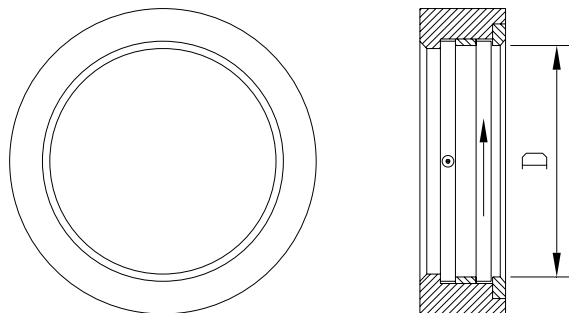
Note: Other dimension and specification are available upon request.

Cemented Zero-Order Waveplate



Specifications	
Material	Quartz crystal
Diameter tolerance	$+0.0\sim-0.15\text{mm}$
Parallelism	<3 second
Surface quality	S/D=20/10
Wavefront distortion	$<\lambda/10@633\text{nm}$
Retardation tolerance	$<\lambda/300$
AR coating	Optional

Airspaced Zero-Order Waveplate



Specifications



Material	Quartz crystal
Diameter tolerance	+0.0~-0.15mm
Parallelism	<1 second
Surface quality	S/D=20/10
Wavefront distortion	< λ /10@ 633nm
Retardation tolerance	< λ /300
AR coating	Optional

	Cemented Zero-Order	Airspaced Zero-Order
Diameter(mm)	Part No.	Part No.
10.0	WPZ5110	WPZ5210
12.7	WPZ5112	WPZ5212
15.0	WPZ5115	WPZ5215
20.0	WPZ5120	WPZ5220
25.4	WPZ5125	WPZ5225

True Zero-Order Waveplate

Amerina provides true zero order waveplate for fiber optics, light engine projection and laser optics.

Specifications	
Material	Quartz crystal
Dimension tolerance	+/-0.05mm
Parallelism	<1 second
Surface quality	S/D=20/10
Wavefront distortion	< λ /10@ 633nm
Orientation tolerance	<0.1 degree
Retardation tolerance	< λ /300
Chips	<0.05mm
AR coating	R<0.2% (Optional)
Waveplate type	$\lambda/2$, $3\lambda/4$
Wavelength(nm)	1585,1545,1485,1310,1064,550(cemented on a backplate)
Dimension(mm)	1x1,2x2,3x3,custom

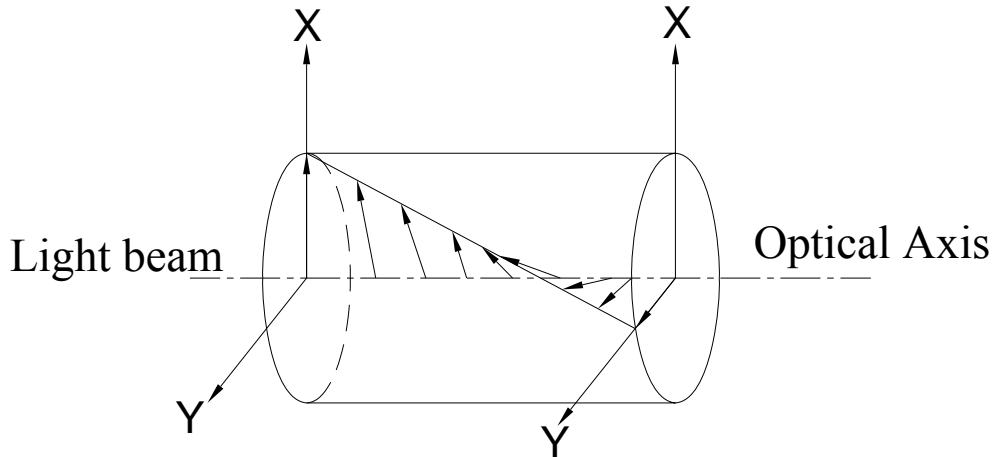
Dual Wavelength Waveplate

Dual wavelength waveplate provides a specific retardance at two different wavelengths. It is particularly used in conjunction with polarizations sensitive components to separate coaxial laser beams of different wavelength, like in the third harmonic generation laser system.

Type	Diameter(mm)/Part No.			
	10.0	12.7	15.0	20.0
1λ -1064nm; $\lambda/2$ -532nm	WPD5110	WPD5112	WPD5115	WPD5120
$\lambda/2$ -1064nm; λ -532nm	WPD5210	WPD5212	WPD5215	WPD5220
$\lambda/2$ -1064nm; $\lambda/4$ -532nm	WPD5310	WPD5312	WPD5315	WPD5320
$\lambda/4$ -1064nm; $\lambda/2$ -532nm	WPD5410	WPD5412	WPD5415	WPD5420

B. Polarization Rotator

A plane of linear polarization light will be rotated by Quartz crystal due to the birefringent characteristics.

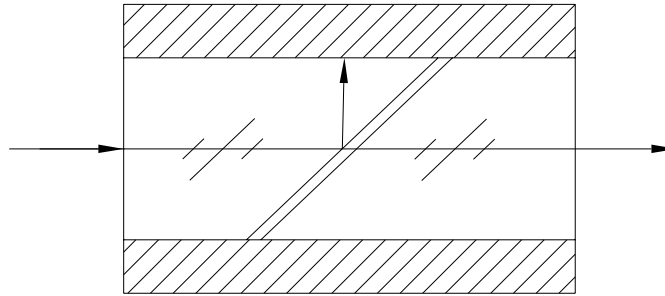


Specifications	
Material	Quartz crystal
Dimension tolerance	+/-0.05mm
Parallelism	<10 second
Surface quality	S/D=20/10
Wavefront distortion	< λ /10@ 633nm
Rotation tolerance	<0.5°
AR coating	R<0.2% (Optional)
Wavelength(nm)	248, 266, 355, 405, 488, 514, 532, 633, 780, 800, 850, 1064, 1310, 1550

Part No.	Diameter(mm)	Angle Rotation
QPR5110-45	10.0	45
QPR5110-90	10.0	90
QPR5112-45	12.7	45
QPR5112-90	12.7	90
QPR5115-45	15.0	45
QPR5115-90	15.0	90
QPR5120-45	20.0	45
QPR5120-90	20.0	90
QPR5125-45	25.4	45
QPR5125-90	25.4	90

C. Polarization Beam Splitters

Glan Taylor Polarizer

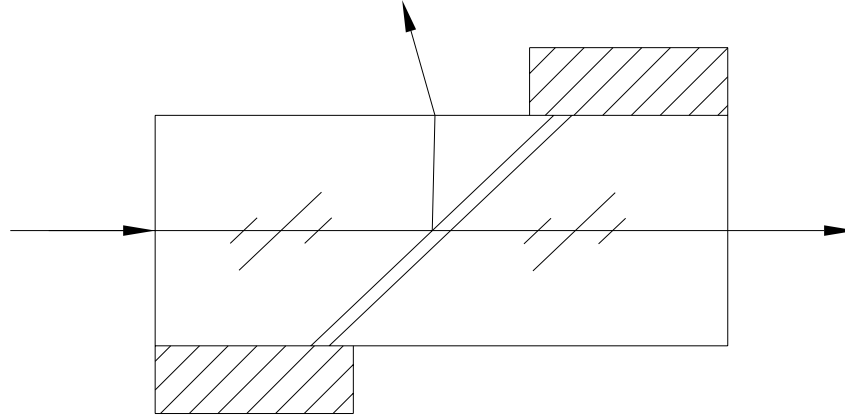


Air space structure
Maximum 2 Watt of CW laser power
High polarization purity

Specifications	
Material	Calcite crystal and α -BBO crystal
Dimension tolerance	+/-0.1mm
Surface quality	S/D=20/10
Extinction ratio	>200000:1
Beam deviation	< 3 arc mins
Wavelength range	350-2300nm for Calcite, 200-3500 for α -BBO
AR coating	As required
Housing	Black anodized Aluminum

Part No.	Material	Wavelength range	Field angle	C.A.	Mounting dimension
PGT7108	Calcite	350-2300nm	>7.5°	Φ 8mm	Φ 25.0×23.0mm
PGT7110	Calcite	350-2300nm	>7.5°	Φ 10mm	Φ 25.0×23.0mm
PGT7115	Calcite	350-2300nm	>7.5°	Φ 15mm	Φ 30.0×26.0mm
PGT9108	α -BBO	200-280nm	>6°	Φ 8mm	Φ 25.0×23.0mm
PGT9110	α -BBO	200-280nm	>6°	Φ 10mm	Φ 25.0×23.0mm
PGT9115	α -BBO	200-280nm	>6°	Φ 15mm	Φ 30.0×26.0mm
PGT9208	α -BBO	300-2000nm	>6°	Φ 8mm	Φ 25.0×23.0mm
PGT9210	α -BBO	300-3000nm	>6°	Φ 10mm	Φ 25.0×23.0mm
PGT9215	α -BBO	300-2000nm	>6°	Φ 15mm	Φ 30.0×26.0mm
PGT9308	α -BBO	700-3500nm	>6°	Φ 8mm	Φ 25.0×23.0mm
PGT9310	α -BBO	700-3500nm	>6°	Φ 10mm	Φ 25.0×23.0mm
PGT9315	α -BBO	700-3500nm	>6°	Φ 15mm	Φ 30.0×26.0mm

Glan Laser Polarizer

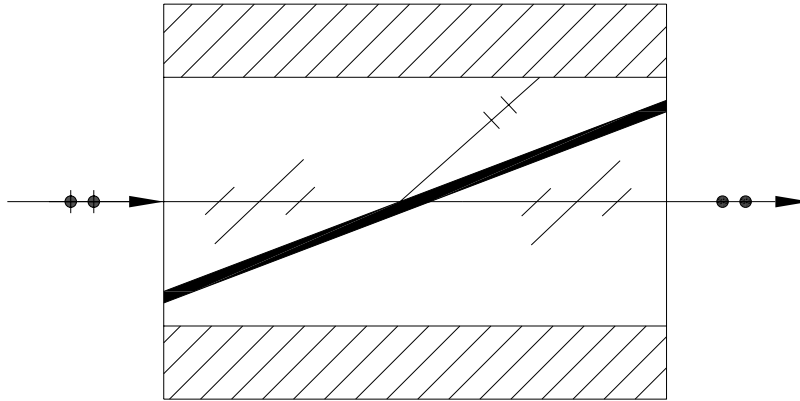


High laser damage threshold: 500MW/cm² for Calcite; 1GW/cm² for α -BBO
High polarization purity
Air space structure

Specifications	
Material	Calcite crystal and α -BBO crystal
Dimension tolerance	+/-0.1mm
Surface quality	S/D=20/10
Extinction ratio	>200000:1
Beam deviation	< 3 arc mins
Wavelength range	350-2300nm for Calcite, 200-3500 for α -BBO
AR coating	As required
Housing	Black anodized Aluminum

Part No.	Material	Wavelength range	Field angle	C.A.	Mounting dimension
PGL7108	Calcite	350-2300nm	>7.5°	Φ 8mm	Φ 25.0×26.0mm
PGL7110	Calcite	350-2300nm	>7.5°	Φ 10mm	Φ 25.0×28.0mm
PGL7115	Calcite	350-2300nm	>7.5°	Φ 15mm	Φ 30.0×35.0mm
PGL9108	α -BBO	200-280nm	>6°	Φ 8mm	Φ 25.0×32.0mm
PGL9110	α -BBO	200-280nm	>6°	Φ 10mm	Φ 25.0×34.0mm
PGL9115	α -BBO	200-280nm	>6°	Φ 15mm	Φ 30.0×40.0mm
PGL9208	α -BBO	300-2000nm	>6°	Φ 8mm	Φ 25.0×29.0mm
PGL9210	α -BBO	300-3000nm	>6°	Φ 10mm	Φ 25.0×31.0mm
PGL9215	α -BBO	300-2000nm	>6°	Φ 15mm	Φ 30.0×36.0mm
PGL9308	α -BBO	700-3500nm	>6°	Φ 8mm	Φ 25.0×29.0mm
PGL9310	α -BBO	700-3500nm	>6°	Φ 10mm	Φ 25.0×31.0mm
PGL9315	α -BBO	700-3500nm	>6°	Φ 15mm	Φ 30.0×36.0mm

Glan-Thompson Polarizer

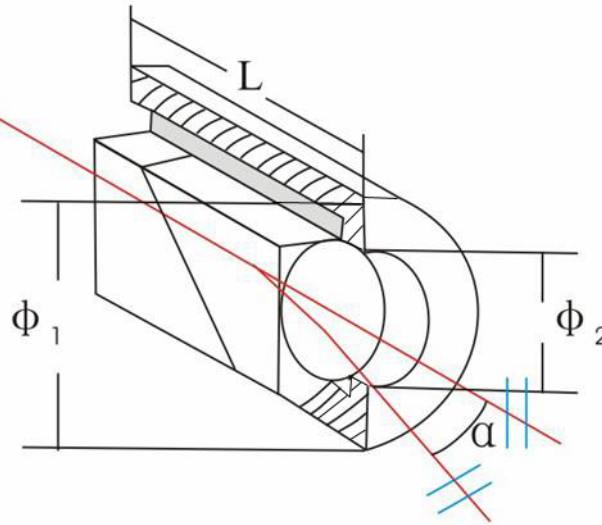


Cemented Structure
Large acceptance angle

Specifications	
Material	Calcite crystal
Dimension tolerance	+/-0.1mm
Surface quality	S/D=60/40
Extinction ratio	>50000:1
Beam deviation	< 3 arc mins
Wavelength range	350-2300nm
AR coating	As required
Housing	Black anodized Aluminum

Part No.	Material	Wavelength range	Field angle	C.A.	Mounting dimension
PGS7108	Calcite	350-2300nm	>14°	Φ 8mm	Φ 25.0×33.0mm
PGS7110	Calcite	350-2300nm	>14°	Φ 10mm	Φ 25.0×33.0mm
PGS7115	Calcite	350-2300nm	>14°	Φ 15mm	Φ 30.0×45.0mm

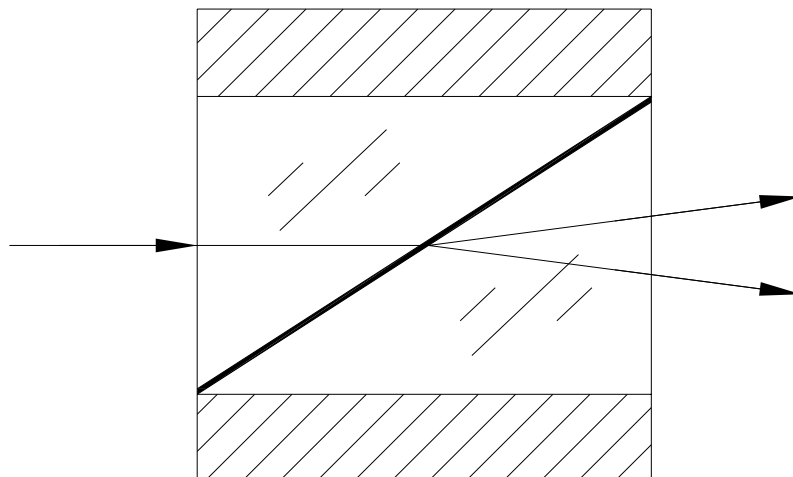
Rochon Polarizer



Specifications	
Material	α -BBO
Wavelength range	200-3500nm
Dimension tolerance	+/-0.2mm
Surface quality	S/D=20/10
Extinction ratio	$<1 \times 10^{-6}$
Transmission wavefront distortion	$\lambda/4@633\text{nm}$
Transmission efficiency	T>95%
Coating	Protective coating on both surfaces

Part No.	Beam Deviation	Field angle	C.A.	Outside Diameter
PRH9108	8° @1064nm	>6.9°	Φ 8mm	Φ 25.4×23.0mm
PRH9110	8° @1064nm	>6.9°	Φ 10mm	Φ 25.4×23.0mm
PRH9115	8° @1064nm	>6.9°	Φ 15mm	Φ 30.0×26.0mm

Wollaston Polarizer

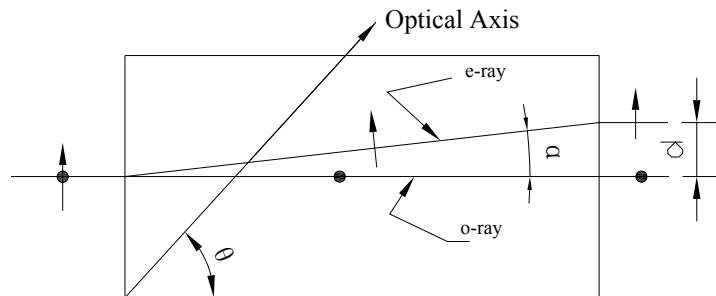




Specifications	
Material	Calcite crystal
Wavelength range	350-2300nm
Dimension tolerance	+/-0.1mm
Surface quality	S/D=60/40
Extinction ratio	>50000:1
Beam deviation	<3 arc mins
Housing	Black anodized Aluminum

Part No.	Material	Wavelength range	Separation angle	C.A.	Mounting Dimension
PWS7108	Calcite	350-2300nm	15° @633nm	Φ 8mm	Φ 25.0×20.0mm
PWS7110	Calcite	350-2300nm	15° @633nm	Φ 10mm	Φ 25.0×22.0mm
PWS7115	Calcite	350-2300nm	15° @633nm	Φ 15mm	Φ 30.0×26.0mm

Beam Displacer



Specifications	
Dimension tolerance	+/-0.05mm
Optical axis orientation	± 0.5°
Parallelism	<15 arc secs
Perpendicularity	<10 arc min
Flatness	λ/4@633nm
Surface quality	10-5
AR Coating	R<0.25%@1550±40nm or other wavelength