

Table of Contents

Optics

COATINGS	1.2	PRISMS	1.50
High Reflectivity Coatings	1.2	Wedge Prisms	1.50
Partial Reflecting Coatings	1.3	Laser Dispersing Prisms	1.51
Laser Harmonic Separators	1.3	Pellin-Broca Prisms	1.52
Anti-Reflection Coatings	1.4	Right Angle Prisms	1.52
Metallic Coatings	1.5	Corner Cubes	1.53
		Non-Polarizing Cube Beamsplitters	1.54
WINDOWS & FILTERS	1.6	POLARIZING OPTICS	1.55
Curved Windows	1.6	Brewster Windows	1.55
Elliptical Windows	1.8	Thin Film Laser Polarizers	1.55
Flat Windows	1.8	Cube Polarizing Beamsplitters	1.60
Precision Thin Round Windows	1.9	High Energy Polarizing Cube Beamsplitters	1.61
Precision Windows	1.10	Glan Laser Polarizing Prisms	1.62
Optical Flats	1.12	Wollaston Prisms	1.63
Crystalline Materials for Optical UV Band Pass Filters	1.12	Rochon Polarizing Prisms	1.63
Notch Filters	1.13	Zero Order Optically Contacted Waveplates	1.65
Neutral Density Absorption Type Filters	1.14	Zero Order Air-Spaced Waveplates	1.66
Neutral Density Reflective Type Filters	1.15	Achromatic Air-Spaced Waveplates	1.67
Color Glass Filters	1.16	Zero Order Dual Wavelength Waveplates	1.68
Laser Safety Eyewear	1.17	Low Order Waveplates	1.68
Visualizer	1.17	Multiple Order Waveplates	1.69
Laser Detection Cards	1.18	Multiple Order Dual Wavelength Waveplates	1.70
		Polarization Plane Rotators	1.71
MIRRORS	1.19	Fresnel Rhombs	1.72
Dielectric Mirrors	1.19	UV & IR OPTICS	1.73
Dichroic Mirrors	1.24	Lithium Fluoride (LiF) Components	1.73
Metal Coated Mirrors	1.25	Magnesium Fluoride (MgF ₂) Components	1.74
		Calcium Fluoride (CaF ₂) Components	1.75
LENSES (UV FS, BK7, CaF₂)	1.34	Barium Fluoride (BaF ₂) Components	1.76
Plano-Convex Lenses	1.34	Sapphire (Al ₂ O ₃) Components	1.78
Biconvex Lenses	1.37	Zinc Selenide (ZnSe) Components	1.79
Plano-Concave Lenses	1.39	Silicon (Si) Components	1.80
Biconcave Lenses	1.41	Germanium (Ge) Components	1.81
Conical Lenses (Axicons)	1.42		
Precision Aspherical Lenses	1.43		
Plano-Cylindrical Lenses	1.44		
Lens Kits	1.47		

Crystals

NONLINEAR CRYSTALS	2.2	TERAHERTZ CRYSTALS	2.23
Lithium Triborate – LBO	2.2	Semiconductor Terahertz Crystals – GaSe, ZnTe	2.23
Beta Barium Borate – BBO	2.4		
Cesium Lithium Borate – CLBO	2.6	RAMAN CRYSTALS	2.24
Potassium Dideuterium Phosphate – KDP, DKDP	2.7	Crystals for Stimulated Raman	
Potassium Titanyl Phosphate – KTP	2.9	Scattering – KGW, Ba(NO ₃) ₂	2.24
Potassium Titanyl Arsenate – KTA	2.11	Passive Q-switching Crystals	2.25
Lithium Niobate – LiNbO ₃	2.12	POSITIONERS & HOLDERS	2.26
Lithium Iodate – LiIO ₃	2.13	Ring Holders for Nonlinear Crystals 830-0001	2.26
Infrared Nonlinear Crystals	2.14	Kinematic Positioning Mount 840-0193	2.27
Ultrathin Nonlinear Crystals	2.17	Positioning Mount for Nonlinear	
		Crystal Housing 840-0199	2.27
LASER CRYSTALS	2.19	CRYSTAL OVENS	2.28
Neodymium Doped Yttrium		Temperature Controller TC2 with Oven CO1	2.28
Aluminium Garnet – Nd:YAG	2.19	Heatpoint Crystal Ovens	2.29
Yb-Doped Potassium Gadolinium			
Tungstate – Yb:KGW, Yb:KYW	2.20		
Nd-Doped Potassium Gadolinium			
Tungstate – Nd:KGW	2.21		
Titanium Doped Sapphire – Ti:Sapphire	2.22		

Nd:YAG LaserLine Components

Nd:YAG LASER OPTICS

Laser Mirrors	3.2
Laser Harmonic Separators	3.5
Laser Output Couplers	3.6
Laser Rear Mirrors	3.9
Laser Beamsplitters	3.10
Laser Line Anti-Reflection Coated Precision Windows	3.12
AR Coated Lens Kits	3.13
Thin Film Laser Polarizers	3.17
Zero Order Optically Contacted Waveplates	3.20
Zero Order Air-Spaced Waveplates	3.20

Low Order Waveplates	3.21
Multiple Order Waveplates	3.21
Multiple Order Dual Wavelength Waveplates	3.22
Polarization Plane Rotators	3.22
Variable Attenuators for Nd:YAG Linearly Polarized Laser Beam 990-0070÷0073	3.23

Nd:YAG LASER & NONLINEAR CRYSTALS

Nd:YAG Crystals (Standard Rods)	3.27
Nonlinear Crystals for SHG@1064 nm	3.28
Nonlinear Crystals for THG@1064 nm	3.29
Nonlinear Crystals for 4HG@1064 nm	3.29

Femtoline Components

FEMTOLINE OPTICS

Laser Mirrors	4.2
Dual Band Laser Mirrors	4.4
High Power IBS Coated Laser Mirrors	4.6
Broadband Low GDD Ultrafast Mirrors	4.5
Enhanced Silver Mirrors	4.7
Laser Harmonic Separators	4.10
Laser Output Couplers	4.12
Laser Rear Mirrors	4.13
Laser Beamsplitters	4.15
Broadband Laser Beamsplitter	4.17
Thin Lenses	4.18
AR Coated Lens Kits	4.20
Thin Film Laser Polarizers	4.22
Zero Order Optically Contacted Waveplates	4.25
Zero Order-Air Spaced Waveplates	4.26
Zero Order Dual Wavelength Waveplates	4.26
Low Oder Waveplates	4.27

Multiple Order Dual Wavelength Waveplates	4.27
Polarization Plane Rotators	4.28
Group Velocity Delay (GVD) Compensation Plates	4.29
Crystal Windows for Continuum Generation	4.30
Variable Attenuator for Femtosecond Linearly Polarized Laser Beam 990-0070÷0073	4.31

FEMTOLINE CRYSTALS

Ti:Sapphire Laser Line and Harmonics	4.36
Thin BBO Crystals for SHG and THG of Ti:Sapphire Laser Wavelength	4.37
Femtokits for Third Harmonic Generation of Femtosecond Ti:Sapphire Laser	4.40
Thin AgGaS ₂ Crystals for DFG → 2.5-1.3 μm	4.42
Yb:KGW and Yb:KYW Crystals Laser Lines and Harmonics	4.43
BBO and LBO Crystals for SHG of Yb:KGW/KYW Laser Frequency Conversion	4.44

Optical Systems

F-Theta Lens	5.3
Compact Beam Expander	5.4
Zoom Beam Expander	5.4
FBS Top Hat Beam Shaping Lens	5.5
Continuously Variable Attenuator / Beamsplitter 990-0060	5.8
Variable Attenuators for Linearly Polarized Laser Beam 990-0070	5.9
Motorized Variable Attenuator for Linearly Polarized Laser Beam 990-0070M	5.10
Broadband Variable Attenuator 990-0070HBBi70	5.11
Variable Attenuators for Linearly Polarized Laser Beam 990-0071	5.12

Motorized Variable Attenuator for Linearly Polarized Laser Beam 990-0071M	5.13
Variable Attenuator for Linearly Polarized Laser Beam 990-0072	5.14
Variable Attenuator for Linearly Polarized Laser Beam 990-0073	5.15
Compact Laser Power Attenuator 990-0075	5.16
Compact Variable Laser Power Attenuator 990-0076	5.17
Filters Holder with 90° Flip 990-0400	5.18
Air-cooled Beam Dump 990-0800	5.19
Water-cooled Beam Dump 990-0820	5.19

Opto-Mechanics

Optical Tables (700)	6.1
Brackets & Rails (810)	6.2
Base Mounts & Accessories (820)	6.3
Optical Mounts (830)	6.5
Optical Positioners (840)	6.6
Base Positioners (850)	6.9
Translation & Rotation Stages (860)	6.10
Adjustment Screws (870)	6.12
Motorized Positioners and Controllers (900)	6.12

Appendixes

Useful Formulas & Constants	A.1
Optical Components Cleaning Instructions	A.3
Tweezers / Forceps for Optical Components	A.3
Crystals Handling Safety Guide	A.4

Optical Components

Table of Contents



COATINGS

High Reflectivity Coatings	1.2
Laser Line Coatings	1.2
Broadband Coatings	1.2
Partial Reflecting Coatings	1.3
Laser Harmonic Separators	1.3
Anti-Reflection Coatings	1.4
Laser Line Anti-Reflection Coatings	1.4
Dual Band Anti-Reflection Coatings	1.4
Broadband Anti-Reflection Coatings	1.4
Metallic Coatings	1.5

WINDOWS & FILTERS

Curved Windows	1.6
Plano-Concave Windows	1.6
Plano-Convex Windows	1.8
Elliptical Windows	1.8
Flat Round and Rectangular Windows	1.9
Precision Thin Round Windows	1.10
Precision Windows – Round and Rectangular	1.10
Optical Flats	1.12
Crystalline Materials for Optical UV Band Pass Filters	1.12
Notch Filters	1.13
Neutral Density Absorption Type Filters at 450-650 nm	1.14
Neutral Density Reflective Type Filters at 400-2000 nm	1.15
Color Glass Filters	1.16
Laser Safety Eyewear	1.17
Visualizer with a Holder	1.17
Laser Detection Cards	1.18

MIRRORS

Laser Mirrors	1.19
Laser Line Mirrors	1.19
Dual Band Mirrors	1.20
Broadband Laser Mirrors	1.21
UV FS Broadband and Laser Line Mirrors for AOI from 0 to 45°	1.21
High Power IBS Coated Laser Mirrors for Picosecond Applications	1.22
Dichroic Mirrors	1.24
Metal Coated Mirrors	1.25
Protected Aluminium Mirrors	1.25
Protected Silver Mirrors	1.28
Protected Gold Mirrors	1.31

LENSES

Plano-Convex Lenses	1.34
BK7, UVFS Plano-Convex Lenses	1.34
CaF ₂ Plano-Convex Lenses	1.36
Biconvex Lenses	1.37
BK7, UVFS Biconvex Lenses	1.37
Plano-Concave Lenses	1.39
BK7, UVFS Plano-Concave Lenses	1.39
CaF ₂ Plano-Concave Lenses	1.40
Biconcave Lenses	1.41
BK7 Biconcave Lenses	1.41
UVFS Biconcave Lenses	1.42

1.2

Axicons (BK7, UVFS)	1.42
Precision Aspherical Lenses	1.43
Plano-Cylindrical Lenses	1.44
BK7 Plano-Convex Cylindrical Lenses	1.44
UVFS Plano-Convex Cylindrical Lenses	1.45
BK7 Plano-Concave Cylindrical Lenses	1.45
UVFS Plano-Concave Cylindrical Lenses	1.46
Lens Kits (BK7, UVFS)	1.47

PRISMS

Standard Wedge Prisms (BK7, UVFS)	1.50
Precision Wedge Prisms (BK7, UVFS)	1.51
Laser Dispersing Prisms (BK7, UVFS, SF11)	1.51
Pellin-Broca Prisms (BK7, UVFS)	1.52
Right Angle Prisms (BK7, UVFS)	1.52
Corner Cubes (BK7, UVFS)	1.53
Non-Polarizing Broadband Cube Beamsplitters	1.54

POLARIZING OPTICS

Brewster Windows	1.55
Thin Film Polarizers	1.55
Cube Polarizing Beamsplitters (BK7, UVFS)	1.60
High Energy Polarizing Cube Beamsplitters	1.61
Natural Calcite Glan Laser Prisms	1.62
α-BBO Glan Laser Laser Prisms	1.63
Wollaston Prisms (Natural Calcite)	1.64
Rochon Polarizing Prisms (α-BBO)	1.64
Retardation Plates	1.65
Zero Order Optically Contacted Waveplates	1.65
Zero Order Air-Spaced Waveplates	1.66
Achromatic Air-Spaced Waveplates	1.67
Zero Order Dual Wavelength Waveplates	1.68
Low Order Waveplates	1.68
Multiple Order Waveplates	1.69
Multiple Order Dual Wavelength Waveplates	1.70
Polarization Plane Rotators	1.71
Fresnel Rhombs	1.72

UV & IR OPTICS

Lithium Fluoride Components – Windows	1.73
Magnesium Fluoride Components – Windows	1.74
Calcium Fluoride Components – Windows	1.75
Barium Fluoride Components – Windows	1.76
Barium Fluoride Components – Lenses	1.76
Barium Fluoride Optical Crystals for Cross Polarized Wave Generation	1.77
Sapphire Components – Windows	1.78
Zinc Selenide Components – Windows	1.79
Zinc Selenide Components – Lenses	1.79
Silicon Components – Mirrors	1.80
Silicon Components – Windows	1.80
Germanium Components – Windows	1.81

Optical Components Cleaning Instructions	A.4
--	-----

Coatings

For appropriate coating, please add the number of the chosen coating to the required optical component catalogue number.

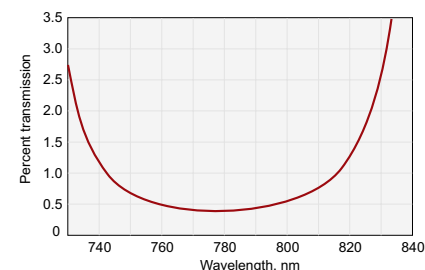
These multilayer coatings are stacks intended to achieve the highest possible reflectivity at specific laser line wavelengths at normal or 45 degrees incidence. Laser line high reflectivity coatings are intended for external beam manipulation applications where even slight losses may be intolerable.

HIGH REFLECTIVITY COATINGS

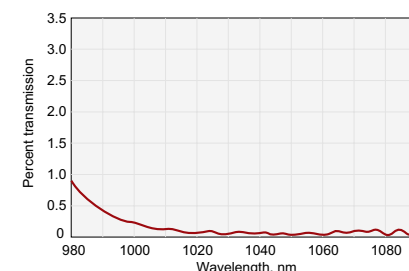
LASER LINE COATINGS

Wavelength, nm	AOI = 0°		AOI = 45°		Recommended substrate	Damage threshold, J/cm² in 10 ns
	Reflectivity, %	Coating number	Reflectivity, %	Coating number		
226	>99	1007-i0	>99	1007-i45	UV FS	1
248	>99	1009-i0	>99	1009-i45	UV FS	1.5
266	>99.5	1011-i0	>99	1011-i45	UV FS	1.5
308	>99.5	1013-i0	>99.2	1013-i45	UV FS	1.5
325	>99.5	1015-i0	>99.2	1015-i45	UV FS	1.5
337	>99.7	1017-i0	>99.5	1017-i45	UV FS	1.5
355	>99.7	1019-i0	>99.5	1019-i45	UV FS	1.5
400	>99.7	1021-i0	>99.5	1021-i45	UV FS	1.5
473	>99.7	1023-i0	>99.5	1023-i45	UV FS, BK7	1.5
488-515	>99.7	1024-i0	>99.5	1024-i45	UV FS, BK7	1.5
532	>99.7	1025-i0	>99.5	1025-i45	UV FS, BK7	5
589	>99.7	1027-i0	>99.5	1027-i45	UV FS, BK7	5
616	>99.7	1029-i0	>99.5	1029-i45	UV FS, BK7	5
633	>99.7	1030-i0	>99.5	1030-i45	UV FS, BK7	5
780	>99.7	1031-i0	>99.5	1031-i45	UV FS, BK7	5
800	>99.7	1032-i0	>99.5	1032-i45	UV FS, BK7	5
830	>99.7	1033-i0	>99.5	1033-i45	UV FS, BK7	5
852	>99.7	1034-i0	>99.5	1034-i45	UV FS, BK7	5
946	>99.7	1035-i0	>99.5	1035-i45	UV FS, BK7	5
1064	>99.7	1037-i0	>99.5	1037-i45	UV FS, BK7	5
1320	>99.7	1039-i0	>99.5	1039-i45	UV FS, BK7	1.5
1550	>99.7	1045-i0	>99.5	1045-i45	UV FS, BK7	1.5
2000	>99	1047-i0	>99	1047-i45	UV FS, Sapphire	1.5
2100	>99	1049-i0	>99	1049-i45	UV FS, Sapphire	1.5

Contact us for other wavelengths and AOI's values.



1031. HR>99.5% @ 780 nm, AOI = 45°.

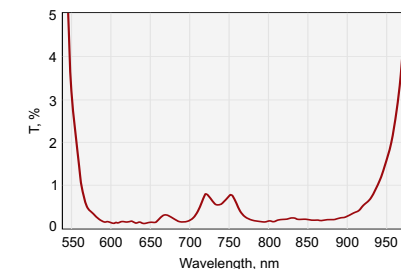


1037. HR>99.8% @ 1064 nm, AOI = 0°.

BROADBAND COATINGS

Wavelength, nm	AOI = 0°		AOI = 45°		Recommended substrate	Damage threshold, J/cm² in 10 ns
	Reflectivity, %	Coating number	Reflectivity, %	Coating number		
220-250	>99	1106-i0	>99	1106-i45	UV FS	1
260-340	>99	1110-i0	>99	1110-i45	UV FS	1
350-450	>99	1114-i0	>99	1114-i45	UV FS	1
420-680	>99	1116-i0	>99	1116-i45	UV FS, BK7	1
600-900	>99	1130-i0	>99	1130-i45	UV FS, BK7	1
720-880	>99	1132-i0	>99	1132-i45	UV FS, BK7	1
760-840	>99	1133-i0	>99	1133-i45	UV FS, BK7	1
900-1100	>99	1142-i0	>99	1142-i45	UV FS, BK7	1.5
1100-1400	>99	1144-i0	>99	1144-i45	UV FS, BK7	1.5

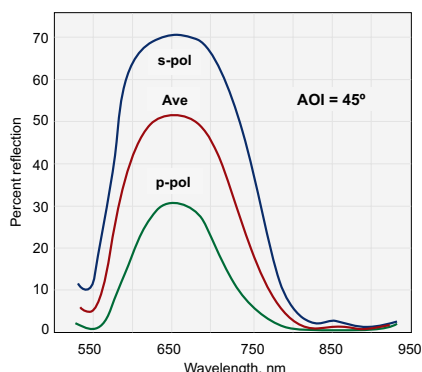
Contact us for other wavelengths and AOI's values.



1130. HR>99% @ 600-900nm, AOI= 0°.

PARTIAL REFLECTING COATINGS

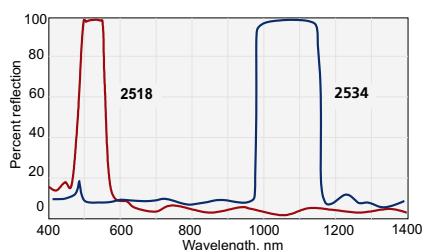
Partial reflecting coatings are durable multilayer dielectric coatings intended for efficient beam splitting as well as for output coupling in laser cavities. They are used in high power laser applications. Please refer to the Substrates for Laser Mirrors or Windows section for substrates for these coatings.



Wavelength, nm	Reflectivity, %	Coating number		Recommended substrate	Damage threshold, J/cm ² in 10 ns
		AOI = 0°	AOI = 45°		
248	25±3	2012-i0	2012-i45	UV FS	1
	50±3	2015-i0	2015-i45		
	75±3	2017-i0	2017-i45		
266	25±3	2022-i0	2022-i45	UV FS	1
	50±3	2025-i0	2025-i45		
	75±3	2027-i0	2027-i45		
308	25±3	2032-i0	2032-i45	UV FS	1
	50±3	2035-i0	2035-i45		
	75±3	2037-i0	2037-i45		
355	25±3	2042-i0	2042-i45	UV FS	2
	50±3	2045-i0	2045-i45		
	75±3	2047-i0	2047-i45		
400	25±3	2052-i0	2052-i45	UV FS	3
	50±3	2055-i0	2055-i45		
	75±3	2057-i0	2057-i45		
532	25±3	2062-i0	2062-i45	UV FS, BK7	3
	50±3	2065-i0	2065-i45		
	75±3	2067-i0	2067-i45		
633	25±3	2069-i0	2069-i45	UV FS, BK7	1.5
	50±3	2070-i0	2070-i45		
	75±3	2071-i0	2071-i45		
800	25±3	2072-i0	2072-i45	UV FS, BK7	3
	50±3	2075-i0	2075-i45		
	75±3	2077-i0	2077-i45		
852	25±3	2079-i0	2079-i45	UV FS, BK7	1
	50±3	2080-i0	2080-i45		
	75±3	2081-i0	2081-i45		
1064	25±3	2082-i0	2082-i45	UV FS, BK7	3
	50±3	2085-i0	2085-i45		
	75±3	2087-i0	2087-i45		
1550	25±3	2089-i0	2089-i45	UV FS, BK7	2
	50±3	2090-i0	2090-i45		
	75±3	2091-i0	2091-i45		

Contact us for other wavelengths and AOI's values.

LASER HARMONIC SEPARATORS



These harmonic separators comprise a dichroic reflector coating and should be applied on the front surface of high precision windows. They are used to separate the various harmonic components of frequency

doubled laser systems by selective spectral reflection and transmission. In all cases one wavelength is selected out by reflection and the other wavelengths are transmitted.

Wavelength, nm	AOI = 0°			AOI = 45°			Recommended substrate	Damage threshold, J/cm ² in 10 ns
	R, %	T, %	Coating number	R, %	T, %	Coating number		
355 / 532+1064	>99.0	>93	2510-i0	>99.0	>90	2510-i45	UV FS	1
380-420 / 720-820	>99.0	>90	2514-i0	>99.0	>90	2514-i45	UV FS, BK7	1
532 / 1064	>99.5	>95	2518-i0	>99.5	>95	2518-i45	UV FS, BK7	1
600 / 1200	>99.5	>95	2522-i0	>99.5	>95	2522-i45	UV FS, BK7	2
800 / 400	>99.5	>90	2526-i0	>99.5	>90	2526-i45	UV FS, BK7	2
1064 / 400-700	>99.5	>85	2530-i0	>99.5	>80	2530-i45	UV FS, BK7	2
1064 / 532	>99.5	>93	2534-i0	>99.5	>90	2534-i45	UV FS, BK7	2

Contact us for other wavelengths and AOI's values.

ANTI-REFLECTION COATINGS

These multilayer anti-reflection coatings are designed for reducing the reflectivity of a component to near-zero for one very specific wavelength. Therefore, valuable laser energy is efficiently transferred through complex

optical systems rather than being lost to glare and scatter. Our AR coatings are intended for use at normal incidence, and when used in this way will achieve maximum efficiency transmission.

LASER LINE ANTI-REFLECTION COATINGS

Standard Laser Line Anti-Reflection Coatings

Wavelength, nm	Reflection per surface (AOI=0°)	Laser Damage Threshold *, J/cm ²	Coating suffix	Price, EUR	
				Ø25.4	Ø50.8
266	R<0.4%	2	AR266	54	67
333 – 353	R<0.5%	3	AR343	35	60
355	R<0.25%	4	AR355	35	60
380 – 420	R<0.5%	3	AR400	35	60
500 – 530	R<0.3%	5	AR515	35	60
532	R<0.2%	5	AR532	35	60
760 – 840	R<0.4%	8	AR800	42	67
1000 – 1060	R<0.3%	10	AR1030	35	60
1064	R<0.2%	20	AR1064	35	60

* Measured at design wavelength, 10 ns, 50 Hz.

IBS Laser Line Anti-Reflection Coatings

Wavelength, nm	Reflection per surface (AOI=0°)	Laser Damage Threshold *, J/cm ²	Coating suffix	Price, EUR	
				Ø25.4	Ø50.8
266	R<0.3%	3.5	AR266HT	135	250
333 – 353	R<0.2%	4	AR343HT	135	250
355	R<0.2%	4	AR355HT	135	250
380 – 420	R<0.2%	4	AR400HT	105	180
500 – 530	R<0.1%	7	AR515HT	105	180
532	R<0.1%	7	AR532HT	105	180
760 – 840	R<0.1%	10	AR800HT	105	180
1000 – 1060	R<0.1%	15	AR1030HT	105	180
1064	R<0.1%	15	AR1064HT	105	180
1530 – 1570	R<0.1%	10	AR1550HT	105	180
1530 – 1570	R<0.01%	10	AR1550HHT	155	285

Other laser line coatings are available for the wavelength range from 193 nm to 12 µm.

DUAL BAND ANTI-REFLECTION COATINGS

Standard Dual Band Anti-Reflection Coatings

Wavelength, nm	Reflection per surface (AOI=0°)	Laser Damage Threshold *, J/cm ²	Coating suffix	Price, EUR	
				Ø25.4	Ø50.8
343 + 515	R<0.5%	2	ARD515	54	84
355 + 532	R<0.5%	2	ARD532	54	84
515 + 1030	R<0.5%	4	ARD1030	42	67
532 + 1064	R<0.5%	4	ARD1064	42	67

IBS Dual Band Anti-Reflection Coatings

Wavelength, nm	Reflection per surface (AOI=0°)	Laser Damage Threshold *, J/cm ²	Coating suffix	Price, EUR	
				Ø25.4	Ø50.8
400 + 800	R<0.2%	4	ARD800HT	125	205
515 + 1030	R<0.1%	10	ARD1030HT	115	195
532 + 1064	R<0.1%	10	ARD1064HT	115	195

* Measured at design wavelength, 10 ns, 50 Hz.

Other dual band coatings are available in the wavelength range from 193 nm to 12 µm.

BROADBAND ANTI-REFLECTION COATINGS

Standard Broadband Anti-Reflection Coatings

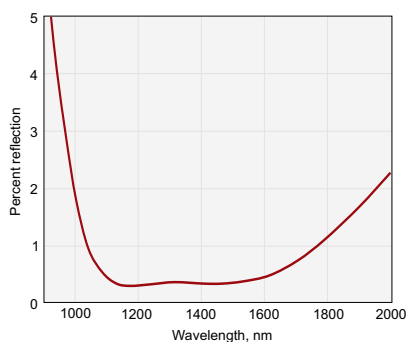
Wavelength, nm	Reflection per surface (AOI=0°)	Laser Damage Threshold *, J/cm ²	Coating suffix	Price, EUR	
				Ø25.4	Ø50.8
210 – 400	R<2%	1	ARB300	84	102
400 – 700	R<0.9%	2	ARB550	67	80
350 – 900	R<1.5%	2	ARB625	72	94
650 – 1100	R<0.7%	3	ARB825	73	86
700 – 900	R<0.5%	3	ARB800	60	82
1050 – 1700	R<0.7%	2	ARB1375	91	107

IBS Broadband Anti-Reflection Coatings

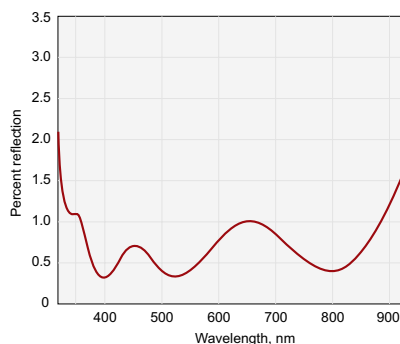
Wavelength, nm	Reflection per surface (AOI=0°)	Laser Damage Threshold *, J/cm ²	Coating suffix	Price, EUR	
				Ø25.4	Ø50.8
700 – 900	R<0.1%	5	ARB800HT	115	195
900 – 1100	R<0.1%	5	ARB1000HT	115	195

* Measured at design wavelength, 10 ns, 50 Hz.

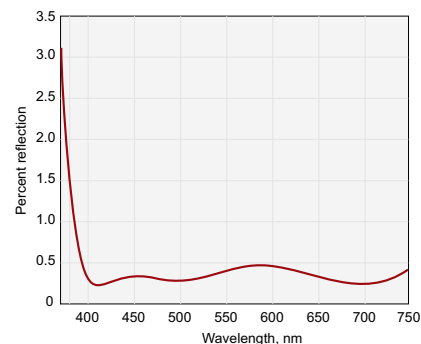
Other broadband coatings are available for the wavelength range from 193 nm to 12 µm.



ARB1375. $R < 0.7\%$ @ 1050–1700 nm, AOI = 0°.



ARB625. $R < 1.5\%$ @ 350–900 nm, AOI = 0°.

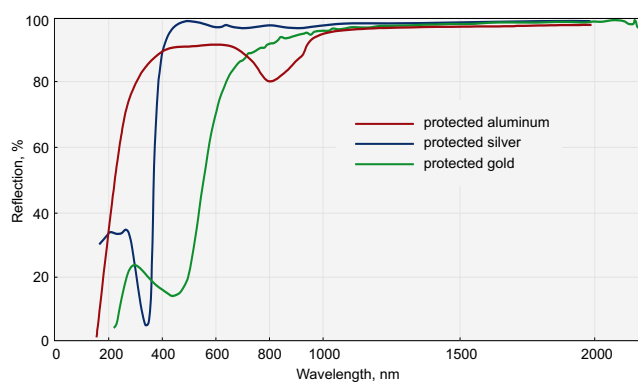


ARB550. $R < 0.9\%$ @ 400–700 nm, AOI = 0°.

METALLIC COATINGS

Protected metallic coatings provide a moderate level of reflection over a very broad spectral range and are widely used as mirrors. These coatings are protected by a thin layer of dielectric material in order to make them durable. Enhanced metallic coatings provide greater reflection across the operating bandwidth. These coatings are enhanced by adding a multilayer dielectric stack.

Metal coatings modify the state of polarization of an incident beam of light and are therefore inappropriate for most polarization sensitive applications.



Features

- Protected gold
- Protected aluminium
- Protected silver
- Enhanced aluminium

Wavelength, nm	Average reflection, %	Type	Laser Induced Damage Threshold at 1064 nm, 50 Hz, 11 nsec, J/cm ²	Coating number	Price, EUR	
					Ø25	Ø50
250–350	>88	UV enhanced aluminium	0.25	0005	41	52
450–650	>91	VIS enhanced aluminium	0.25	0010	30	40
300–IR	>86	Protected aluminium	0.25	0015	20	28
400–IR	>96	Protected silver	1.8	0025	67	76
900–IR	>98	Protected gold	1.0	0030	98	107

Please contact us for other wavelengths and AOI's.

Windows & Filters

CURVED WINDOWS

Features

- Made from BK7 glass or UV grade fused silica
- Polished to high surface quality
- Standard substrates are available with a variety of radii of concave curvature

We offer two substrate materials spanning a range of thermal expansion coefficients. For applications in which thermal shock is absent and thermal stability is not critical, BK7 glass is a suitable and inexpensive material. For applications requiring high thermal stability or involving severe thermal shock, UV grade fused silica is a good choice.

Specifications

Material	BK7, UV FS
S1/S2 Surface Quality	20 – 10 scratch & dig (MIL-PRF-13830B)
S1/S2 Surface Flatness	$\lambda/10$ @ 633 nm
Curved Surface Radius Tolerance	$\pm 1\%$
Diameter Tolerance	+0.00 / -0.12 mm
Thickness Tolerance	± 0.2 mm

PLANO-CONCAVE WINDOWS

Presented substrates are *uncoated*.

For appropriate coating, please refer to the *Coatings section*.

Diameter D, mm	Edge thickness ET, mm	ROC, mm	BK7		UV FS	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR
12.7	3.0	-25	010-0101E	32	010-1101E	57
12.7	3.0	-50	010-0103E	32	010-1103E	57
12.7	3.0	-75	010-0104E	32	010-1104E	57
12.7	3.0	-100	010-0105E	32	010-1105E	57
12.7	3.0	-150	010-0107E	32	010-1107E	57
12.7	3.0	-200	010-0108E	32	010-1108E	57
12.7	3.0	-250	010-0110E	32	010-1110E	57
12.7	3.0	-300	010-0111E	32	010-1111E	57
12.7	3.0	-400	010-0109E	32	010-1109E	57
12.7	3.0	-500	010-0115E	32	010-1115E	57
12.7	3.0	-1000	010-0120E	32	010-1120E	57
12.7	3.0	-1500	010-0123E	32	010-1123E	57
12.7	3.0	-2000	010-0125E	32	010-1125E	57
12.7	3.0	-3000	010-0130E	32	010-1130E	57
12.7	3.0	-4000	010-0140E	32	010-1140E	57
12.7	3.0	-5000	010-0150E	32	010-1150E	57

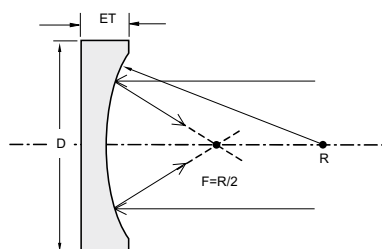
Diameter D, mm	Edge thickness ET, mm	ROC, mm	BK7		UV FS	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR
12.7	6.0	-25	010-0101T6	33	010-1101T6	58
12.7	6.0	-50	010-0103T6	33	010-1103T6	58
12.7	6.0	-75	010-0104T6	33	010-1104T6	58
12.7	6.0	-100	010-0105T6	33	010-1105T6	58
12.7	6.0	-150	010-0107T6	33	010-1107T6	58
12.7	6.0	-200	010-0108T6	33	010-1108T6	58
12.7	6.0	-250	010-0110T6	33	010-1110T6	58
12.7	6.0	-300	010-0111T6	33	010-1111T6	58
12.7	6.0	-400	010-0109T6	33	010-1109T6	58
12.7	6.0	-500	010-0115T6	33	010-1115T6	58
12.7	6.0	-1000	010-0120T6	33	010-1120T6	58
12.7	6.0	-1500	010-0123T6	33	010-1123T6	58
12.7	6.0	-2000	010-0125T6	33	010-1125T6	58
12.7	6.0	-3000	010-0130T6	33	010-1130T6	58
12.7	6.0	-4000	010-0140T6	33	010-1140T6	58
12.7	6.0	-5000	010-0150T6	33	010-1150T6	58

Diameter D, mm	Edge thickness ET, mm	ROC, mm	BK7		UV FS	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR
25.4	6.0	-50	010-0201E	55	010-1201E	75
25.4	6.0	-75	010-0207E	55	010-1207E	75
25.4	6.0	-100	010-0202E	55	010-1202E	75
25.4	6.0	-125	010-0208E	55	010-1208E	75
25.4	6.0	-150	010-0203E	55	010-1203E	75
25.4	6.0	-200	010-0204E	55	010-1204E	75
25.4	6.0	-250	010-0205E	55	010-1205E	75
25.4	6.0	-300	010-0206E	55	010-1206E	75
25.4	6.0	-350	010-0211E	55	010-1211E	75
25.4	6.0	-400	010-0209E	55	010-1209E	75
25.4	6.0	-500	010-0210E	55	010-1210E	75
25.4	6.0	-600	010-0212E	55	010-1212E	75
25.4	6.0	-700	010-0214E	55	010-1214E	75
25.4	6.0	-750	010-0215E	55	010-1215E	75
25.4	6.0	-800	010-0216E	55	010-1216E	75
25.4	6.0	-900	010-0217E	55	010-1217E	75
25.4	6.0	-1000	010-0220E	55	010-1220E	75
25.4	6.0	-1500	010-0222E	55	010-1222E	75
25.4	6.0	-2000	010-0225E	55	010-1225E	75
25.4	6.0	-2500	010-0226E	55	010-1226E	75
25.4	6.0	-3000	010-0227E	55	010-1227E	75
25.4	6.0	-4000	010-0229E	55	010-1229E	75
25.4	6.0	-5000	010-0230E	55	010-1230E	75
25.4	6.0	-6000	010-0235E	55	010-1235E	75
25.4	6.0	-8000	010-0240E	65	010-1240E	80
25.4	6.0	-10000	010-0250E	65	010-1250E	80

Diameter D, mm	Edge thickness ET, mm	ROC, mm	BK7		UV FS	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR
50.8	10.0	-100	010-0501E	110	010-1501E	210
50.8	10.0	-150	010-0508E	110	010-1508E	210
50.8	10.0	-200	010-0502E	110	010-1502E	210
50.8	10.0	-250	010-0503E	110	010-1503E	210
50.8	10.0	-300	010-0506E	110	010-1506E	210
50.8	10.0	-400	010-0504E	110	010-1504E	210
50.8	10.0	-500	010-0505E	110	010-1505E	210
50.8	10.0	-600	010-0507E	110	010-1507E	210
50.8	10.0	-750	010-0510E	110	010-1510E	210
50.8	10.0	-800	010-0511E	110	010-1511E	210
50.8	10.0	-1000	010-0515E	110	010-1515E	210
50.8	10.0	-1500	010-0518E	110	010-1518E	210
50.8	10.0	-2000	010-0520E	110	010-1520E	210
50.8	10.0	-2500	010-0521E	110	010-1521E	210
50.8	10.0	-3000	010-0522E	110	010-1522E	210
50.8	10.0	-4000	010-0524E	110	010-1524E	210
50.8	10.0	-5000	010-0525E	110	010-1525E	210
50.8	10.0	-6000	010-0530E	110	010-1530E	210
50.8	10.0	-8000	010-0540E	110	010-1540E	210
50.8	10.0	-10000	010-0550E	110	010-1550E	210

Diameter D, mm	Edge thickness ET, mm	ROC, mm	BK7		UV FS	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR
76.2	12.7	-200	010-0705E	195	010-1705E	285
76.2	12.7	-300	010-0708E	195	010-1708E	285
76.2	12.7	-400	010-0710E	195	010-1710E	285
76.2	12.7	-500	010-0712E	195	010-1712E	285
76.2	12.7	-600	010-0714E	195	010-1714E	285
76.2	12.7	-800	010-0720E	195	010-1720E	285
76.2	12.7	-1000	010-0725E	195	010-1725E	285
76.2	12.7	-1500	010-0730E	195	010-1730E	285
76.2	12.7	-2000	010-0735E	195	010-1735E	285
76.2	12.7	-3000	010-0745E	195	010-1745E	285

Diameter D, mm	Edge thickness ET, mm	ROC, mm	BK7		UV FS	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR
101.6	15.0	-300	010-0808E	440	010-1808E	540
101.6	15.0	-400	010-0810E	440	010-1810E	540
101.6	15.0	-500	010-0812E	440	010-1812E	540
101.6	15.0	-600	010-0814E	440	010-1814E	540
101.6	15.0	-800	010-0820E	440	010-1820E	540
101.6	15.0	-1000	010-0825E	440	010-1825E	540
101.6	15.0	-1500	010-0830E	440	010-1830E	540
101.6	15.0	-2000	010-0835E	440	010-1835E	540
101.6	15.0	-3000	010-0845E	440	010-1845E	540



Housing accessories

Kinematic Mirror Mount 840-0020

Find more at EksmaOptics.com



PLANO-CONVEX WINDOWS

Presented substrates are **uncoated**.

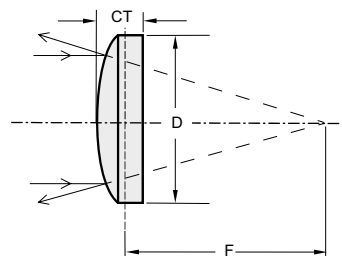
For appropriate coating, please refer to the **Coatings Section**.

Diameter D, mm	Center thickness CT, mm	ROC, mm	BK7		UV FS	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR
12.7	6.0	+50	011-0103E	34	011-1103E	60
12.7	6.0	+100	011-0105E	34	011-1105E	60
12.7	6.0	+150	011-0107E	34	011-1107E	60
12.7	6.0	+200	011-0108E	34	011-1108E	60
12.7	6.0	+300	011-0111E	34	011-1111E	60
12.7	6.0	+400	011-0113E	34	011-1113E	60
12.7	6.0	+500	011-0115E	34	011-1115E	60

Diameter D, mm	Center thickness CT, mm	ROC, mm	BK7		UV FS	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR
50.8	10.0	+100	011-0502E	120	011-1502E	220
50.8	10.0	+150	011-0503E	120	011-1503E	220
50.8	10.0	+200	011-0504E	120	011-1504E	220
50.8	10.0	+300	011-0505E	120	011-1505E	220
50.8	10.0	+400	011-0506E	120	011-1506E	220
50.8	10.0	+500	011-0509E	120	011-1509E	220
50.8	10.0	+600	011-0510E	120	011-1510E	220
50.8	10.0	+800	011-0512E	120	011-1512E	220
50.8	10.0	+1000	011-0515E	120	011-1515E	220
50.8	10.0	+1500	011-0518E	120	011-1518E	220
50.8	10.0	+2000	011-0520E	120	011-1520E	220
50.8	10.0	+3000	011-0522E	120	011-1522E	220
50.8	10.0	+4000	011-0525E	120	011-1525E	220

We provide a wide selection of shapes and sizes, with plano, spherical or cylindrical surfaces.

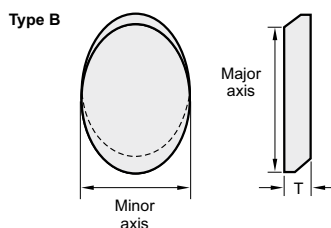
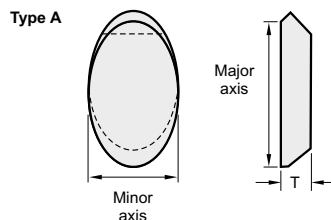
Diameter D, mm	Center thickness CT, mm	ROC, mm	BK7		UV FS	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR
25.4	6.0	+50	011-0201E	65	011-1201E	85
25.4	6.0	+75	011-0207E	65	011-1207E	85
25.4	6.0	+100	011-0202E	65	011-1202E	85
25.4	6.0	+150	011-0203E	65	011-1203E	85
25.4	6.0	+200	011-0204E	65	011-1204E	85
25.4	6.0	+300	011-0205E	65	011-1205E	85
25.4	6.0	+400	011-0206E	65	011-1206E	85
25.4	6.0	+500	011-0209E	65	011-1209E	85
25.4	6.0	+600	011-0210E	65	011-1210E	85
25.4	6.0	+800	011-0212E	65	011-1212E	85
25.4	6.0	+1000	011-0215E	65	011-1215E	85
25.4	6.0	+1500	011-0216E	65	011-1216E	85
25.4	6.0	+2000	011-0220E	65	011-1220E	85
25.4	6.0	+3000	011-0222E	65	011-1222E	85
25.4	6.0	+4000	011-0225E	65	011-1225E	85
25.4	6.0	+5000	011-0227E	65	011-1227E	85



ELLIPTICAL WINDOWS

Features

- Bend light at precise angles with minimum wave distortion



Elliptical windows bend light at precise angles with minimum wave distortion due to elongated major axis. Precision 45 degree elliptical flat mirrors are ideal for technical and astronomical applications.

Specifications

Material	BK7, UV FS
Surface Quality S1, S2	20 – 10 scratch & dig (MIL-PRF-13830B)
Surface Flatness S1, S2	$\lambda/4$ @ 633 nm
Axis Tolerance	+0.00 / -0.12 mm
Thickness Tolerance	± 0.25 mm
Parallelism	<3 min

Presented substrates are **uncoated**. For appropriate coating, please refer to the **Coatings Section**.

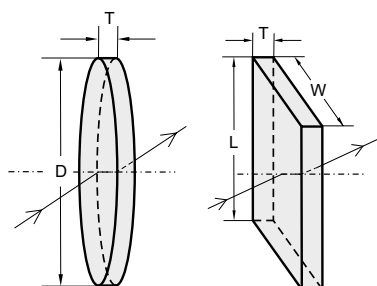
Material	Minor axis, mm	Major axis, mm	Thickness T, mm	Catalogue number	Price, EUR
BK7	18.0	25.0	3.0	020-0183	47
	25.0	35.0	4.0	020-0254	54
	30.0	42.5	4.0	020-0304	62
UV FS	18.0	25.0	3.0	020-1183	78
	25.0	35.0	4.0	020-1254	83
	30.0	42.5	4.0	020-1304	109

Please add letter A to the catalogue number for type A and letter B for type B.
Contact us for other size or precision requirements.

FLAT WINDOWS

Features

- Have high transmittance, low wavefront distortion and low scatter
- Are durable and strong
- BK7 glass is an economical and ideal choice for high-quality visible applications
- UV FS has the deepest UV range and the highest transmittance



Windows are used to allow optical radiation to pass from one environment to another without allowing other components of these environments to mix. Considerations in selecting windows may include transmission, scattering, wavefront distortion and resistance to certain environments. An ideal window allows an optical beam to pass from one medium to the next without changing the wavelength distribution of the beam, the transmitted wavefront or scatter any of the

light out of the beam. We offer windows made from three different materials, from which you may choose in view of the properties you need: BK7 or UV grade fused silica.

Windows can be anti-reflection coated.

*For a required coating, please refer to the **Coatings Section**. Diameters of up to 250 mm are available on request.*

Specifications

Material	BK7, UV FS
Surface quality	60 – 40 scratch & dig (MIL-PRF-13830B)
Clear aperture	>80% of the diameter
Diameter tolerance	+0.00 / -0.5 mm
Thickness tolerance	±0.2 mm
Surface flatness	1 λ per inch @ 633 nm
Parallelism	2 arcmin

ROUND WINDOWS

Housing accessories

Kinematic Mirror Mount 840-0020

Find more at [EksmaOptics.com](https://www.eksmaoptics.com)



Diameter D, mm		Thickness T, mm	BK7		UV FS	
Metric	English		Catalogue number	Price, EUR	Catalogue number	Price, EUR
12.5	12.7	2.0	210-0102	9	210-1102	18
12.5	12.7	3.0	210-0103	10	210-1103	19
25.0	25.4	2.0	210-0202	15	210-1202	25
25.0	25.4	3.0	210-0203	16	210-1203	26
40.0	38.1	2.0	210-0402	23	210-1402	40
40.0	38.1	3.0	210-0403	24	210-1403	41
50.0	50.8	2.0	210-0502	28	210-1502	48
50.0	50.8	3.0	210-0503	29	210-1503	49
75.0	76.2	6.3	210-0703	90	210-1703	150

Please add letter M to the catalogue number for metric dimensions and letter E for English.

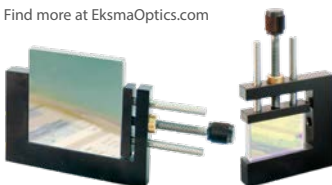
RECTANGULAR WINDOWS

Housing accessories

Rectangular Optics Holders

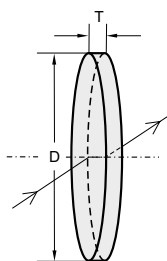
830-0100, 830-0110

Find more at [EksmaOptics.com](https://www.eksmaoptics.com)



Rectangular dimensions		Thickness T, mm	BK7		UV FS	
Width W, mm	Length L, mm		Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR
15.0	20.0	2.0	215-0122	11	215-1122	20
25.4	25.4	2.0	215-0222	15	215-1222	25
20.0	30.0	2.0	215-0232	16	215-1232	26
25.4	50.8	2.0	215-0252	20	215-1252	32
50.8	50.8	2.0	215-0552	28	215-1552	48
50.8	50.8	6.3	215-0556	33	215-1556	53

PRECISION THIN ROUND WINDOWS



Specifications

Material	UV FS
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Clear aperture	>90% of the diameter
Diameter tolerance	+0.00 / -0.12 mm
Thickness tolerance	±0.2 mm
Surface flatness	$\lambda/4$ or $\lambda/10$ @ 633 nm
Parallelism	<1 arcmin or <30 arcsec

Housing accessories

Optical Component Mount 830-0037

Find more at EksmaOptics.com



Plate Clamp 830-0055

Find more at EksmaOptics.com



Universal Plate Holder 830-0075

Find more at EksmaOptics.com



Diameter D, mm		Thickness T, mm	Flatness	Parallelism	Catalogue number	Price, EUR
Metric	English					
12.5	12.7	1.0	$\lambda/10$	30 arcsec	226-1111	60
12.5	12.7	2.0	$\lambda/10$	30 arcsec	226-1121	53
20.0	20.0	1.0	$\lambda/10$	30 arcsec	226-1191	75
20.0	20.0	2.0	$\lambda/10$	30 arcsec	226-1201	72
25.0	25.4	1.0	$\lambda/10$	30 arcsec	226-1211	80
25.0	25.4	2.0	$\lambda/10$	30 arcsec	226-1221	75
50.0	50.8	3.0	$\lambda/10$	30 arcsec	226-1531	165
12.5	12.7	1.0	$\lambda/4$	1 arcmin	226-1116	42
12.5	12.7	2.0	$\lambda/4$	1 arcmin	226-1126	38
25.0	25.4	1.0	$\lambda/4$	1 arcmin	226-1216	61
25.0	25.4	2.0	$\lambda/4$	1 arcmin	226-1226	55
50.0	50.8	1.0	$\lambda/4$	1 arcmin	226-1516	139
50.0	50.8	2.0	$\lambda/4$	1 arcmin	226-1526	131
50.0	50.8	3.0	$\lambda/4$	1 arcmin	226-1536	125

Please add letter M to the catalogue number for metric dimensions and letter E for English.

PRECISION WINDOWS

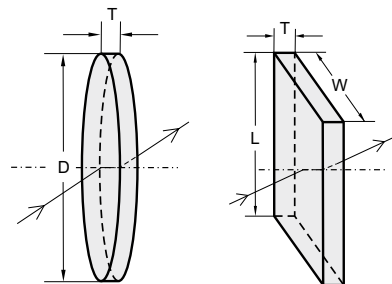
Features

- Manufactured from the high quality UV FS and BK7
- Precision polished on both surfaces and held parallel up to 3 arcsec

These windows are designed to be used in precision optical systems. The optical transmission is high with little distortion of the transmitted signal. $\lambda/10$ transmitted wavefront distortion is usually preferred but $\lambda/4$ is offered as an option when this is not an issue.

Windows can be anti-reflection coated. For required coating, please refer to the **Coatings Section**. Diameters of up to 250 mm are available on request.

Please refer to the UV and IR Optics section for windows made from other materials: LiF, ZnSe, Ge, Sapphire, etc.



Specifications

Material	BK7, UV FS
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Clear aperture	>90% of the diameter
Diameter tolerance	+0.00 / -0.12 mm
Thickness tolerance	±0.2 mm
Surface flatness	$\lambda/4$ or $\lambda/10$ @ 633 nm
Parallelism	<1 arcmin, <30 arcsec or <3 arcsec

ROUND WINDOWS

Housing accessories

Kinematic Mirror and Beamsplitter Mount 840-0030-02

Find more at EksmaOptics.com



Diameter D, mm		Thickness T, mm	Flatness	Parallelism	BK7		UV FS	
Metric	English				Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR
12.5	12.7	3.0	$\lambda/10$	30 arcsec	220-0101	28	220-1101	43
12.5	12.7	6.0	$\lambda/10$	30 arcsec	220-0161	25	220-1161	40
20.0	20.0	3.0	$\lambda/10$	30 arcsec	220-0191	35	220-1191	45
20.0	20.0	5.0	$\lambda/10$	30 arcsec	220-0211	31	220-1211	43
25.0	25.4	3.0	$\lambda/10$	30 arcsec	220-0231	44	220-1231	57
25.0	25.4	6.0	$\lambda/10$	30 arcsec	220-0201	39	220-1201	49
40.0	38.1	6.0	$\lambda/10$	30 arcsec	220-0462	56	220-1462	80
40.0	38.1	8.0	$\lambda/10$	30 arcsec	220-0402	51	220-1402	90
50.0	50.8	6.0	$\lambda/10$	30 arcsec	220-0562	78	220-1562	125
50.0	50.8	8.0	$\lambda/10$	30 arcsec	220-0582	71	220-1582	120
50.0	50.8	10.0	$\lambda/10$	30 arcsec	220-0502	65	220-1502	145
75.0	76.2	12.7	$\lambda/10$	30 arcsec	220-0722	165	220-1722	290
75.0	76.2	15.0	$\lambda/10$	30 arcsec	220-0752	150	220-1752	310
100.0	101.6	15.0	$\lambda/10$	30 arcsec	220-0852	240	220-1852	450
12.5	12.7	3.0	$\lambda/10$	3 arcsec	220-0103	44	220-1103	62
12.5	12.7	6.0	$\lambda/10$	3 arcsec	220-0163	41	220-1163	56
12.5	12.7	10.0	$\lambda/10$	3 arcsec	220-0193	37	220-1193	50
25.0	25.4	6.0	$\lambda/10$	3 arcsec	220-0203	69	220-1203	94
25.0	25.4	10.0	$\lambda/10$	3 arcsec	220-0293	62	220-1293	84
40.0	38.1	10.0	$\lambda/10$	3 arcsec	220-0403	89	220-1403	139
50.0	50.8	12.0	$\lambda/10$	3 arcsec	220-0503	119	220-1503	185
12.5	12.7	3.0	$\lambda/4$	1 arcmin	220-0106	19	220-1106	34
12.5	12.7	6.0	$\lambda/4$	1 arcmin	220-0166	17	220-1166	31
25.0	25.4	3.0	$\lambda/4$	1 arcmin	220-0236	23	220-1236	40
25.0	25.4	6.0	$\lambda/4$	1 arcmin	220-0206	22	220-1206	35
40.0	38.1	6.0	$\lambda/4$	1 arcmin	220-0466	38	220-1466	75
40.0	38.1	8.0	$\lambda/4$	1 arcmin	220-0406	37	220-1406	85
50.0	50.8	6.0	$\lambda/4$	1 arcmin	220-0566	55	220-1566	120
50.0	50.8	8.0	$\lambda/4$	1 arcmin	220-0586	52	220-1586	115
75.0	76.2	8.0	$\lambda/4$	1 arcmin	220-0786	145	220-1786	250
75.0	76.2	12.7	$\lambda/4$	1 arcmin	220-0726	135	220-1726	270

Please add letter M to the catalogue number for metric dimensions and letter E for English.

RECTANGULAR WINDOWS

Surface flatness: $\lambda/10$ @633nm. Parallelism: <30 arcsec

Rectangular dimensions		Thickness T, mm	BK7		UV FS	
Width W, mm	Length L, mm		Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR
15.0	20.0	3.0	225-0123	45	225-1123	78
15.0	20.0	6.0	225-0126	40	225-1126	70
25.4	25.4	6.0	225-0226	43	225-1226	76
20.0	30.0	6.0	225-0236	46	225-1236	110
25.4	50.8	10.0	225-0250	59	225-1250	135
50.8	50.8	10.0	225-0550	83	225-1550	189

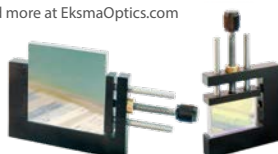
Related products

We offer AR Coated Precision Windows for Nd:YAG laser applications

See page 3.12

Rectangular Optics Holders
830-0100, 830-0110

Find more at EksmaOptics.com



For applications where fine adjustment is required, use Prism Holders 840-0160, 840-0170

Find more at EksmaOptics.com



OPTICAL FLATS

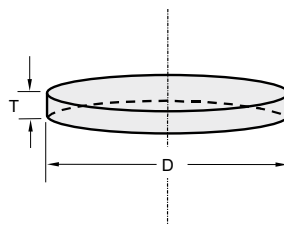
Features

- Flatness of reference surface $\lambda/20$

Optical flats are used for testing and evaluating other optical elements. An interference pattern is formed in the air between the flat and object being evaluated, and this pattern is usually more easily seen through the flat than through the object. The pattern consists of alternating bright and dark bands or fringes which are a contour map of the thickness of the air film. If the surface of the optic is significantly flatter than the surface being evaluated, it is correct to interpret the interference pattern directly as a contour map of the surface being evaluated. If the flat is used on the top of the object, and the interference pattern viewed through the flat, it is advantageous to have an anti-

reflection coating on the top surface of the flat (the surface which does not touch the object being evaluated).

For an appropriate AR coating, please refer to the **Coatings Section** (see pages 1.5-1.6).



Specifications

Material	UV FS
Diameter tolerance	+0.00 / -0.12 mm
Thickness tolerance	±0.2 mm
Surface flatness: 1st surface	$\lambda/20$ @ 633 nm
2nd surface	2λ @ 633 nm

Diameter D, mm		Thickness T, mm	Catalogue number	Price, EUR
Metric	English			
25.0	25.4	8.0	230-1208	123
40.0	38.1	10.0	230-1410	164

For metric dimensions please add to catalogue number letter M, for English – letter E.

CRYSTALLINE MATERIALS FOR OPTICAL UV BAND PASS FILTERS

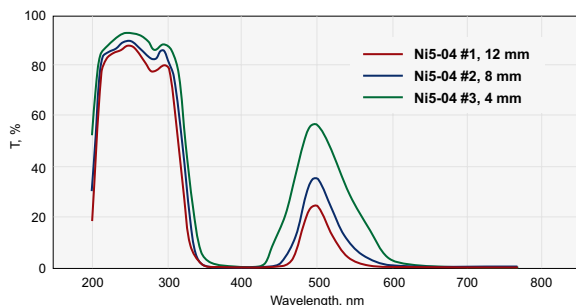
Almost all UV radiation (especially 240–280 nm) is absorbed by the Earth's ozone layer, and UV radiation that is created by some objects near the Earth surface can be detected only using special ozone filters. Crystalline materials are robust substrates from which optical filters of high purity and optical homogeneity can be fabricated. Available crystalline materials: $\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$ (NSH) and $\text{K}_2\text{Ni}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$ (KNSH).

Polished cylinders of $\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$ measuring up to $\varnothing 60 \times 40$ mm are available.

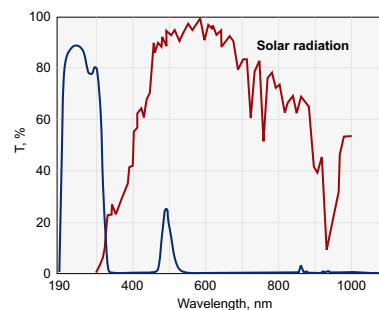
Polished cylinders of $\text{K}_2\text{Ni}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$ measuring up to $\varnothing 60 \times 40$ mm are available.

Specifications

Surface quality	60 – 40 scratch & dig (MIL-PRF-13830B)
Surface flatness	$\lambda - \lambda/2$ @ 633 nm
Parallelism	1 arcmin
Side surfaces	fine grinding
Coating	uncoated



Typical spectral transmittance curves of different thickness $\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$ elements



NOTCH FILTERS

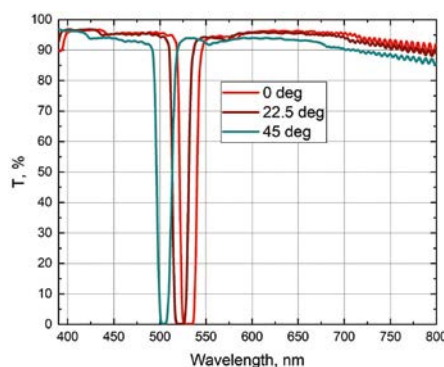
Notch filters are designed to block a specific narrow wavelength range (stop band) and to transmit broad wavelength ranges outside of this band (pass bands). These optical filters feature high optical density (OD), which is a logarithmic measurement of the percent transmission (T%): $OD = \log_{10} 1/T\%$. OD is specified for the center wavelength of the stop band.

EKSMA Optics Notch filters feature OD 6.0 (transmission less than 0.0001%) that ensures effective blocking of the designated laser wavelength. The back side of the filter is anti-reflection coated at pass band regions to minimize the reflection.

The spectral characteristics of Notch filters strongly depend on the angle of incidence (AOI). We specify OD for the design wavelength at 0° AOI. As angle of incidence increases, the stop band shifts to shorter wavelengths. We provide transmission curves for different AOI values (0°, 22.5°, 45°) for each of our standard Notch filters.

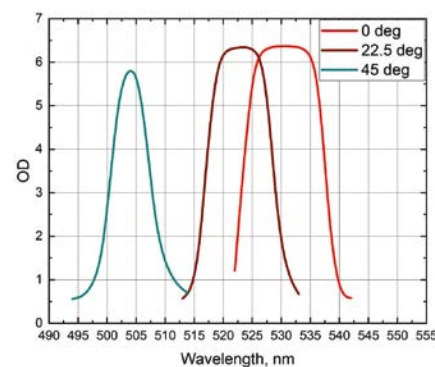
Specifications

Material	UV grade fused silica
Surface Flatness	$\lambda/2$ @ 633 nm
Surface Quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Outer Diameter	25.4 mm
Thickness	6 mm
Clear Aperture	Ø 22 mm
Coating	S1: Hard dielectric filter coating S2: BBAR coating
Optical Density	OD>6 at central wavelength ± 2 nm
Transmission at Passbands	$T_{ave} > 90\%$
Laser Damage Threshold	>1 J/cm ² 10 ns, 10 Hz at central wavelength



246-2506-532.

Typical transmission, design wavelength – 532 nm



246-2506-532.

Typical OD, design wavelength – 532 nm

Optical Density	Central Wavelength, nm	Pass Bands, nm	FWHM, nm	Catalogue number	Price, EUR
6.0	488	400-471 + 504-700	15	246-2506-488	450
6.0	514	400-496 + 532-700	17	246-2506-514	450
6.0	532	400-517 + 548-710	17	246-2506-532	450
6.0	561	425-542 + 580-740	19	246-2506-561	450

NEUTRAL DENSITY ABSORPTION TYPE FILTERS AT 450 – 650 nm

Specifications

Material	Neutral density colour glass
Surface quality	60 – 40 scratch & dig (MIL-PRF-13830B)
Surface flatness	1λ per inch @ 633 nm
Parallelism	3 arcmin
Diameter tolerance	+0.0 / -0.2 mm
Clear aperture	90% of the diameter
Design wavelength	450 – 650 nm
Optical density tolerance	±5% of density

Neutral density absorption type filters decrease the intensity of light without altering the relative spectral distribution of energy. They are used to filter the entire visible spectrum evenly, allowing light reduction without influencing the colour or contrast. Attenuation is accomplished by using light-absorbing glass.

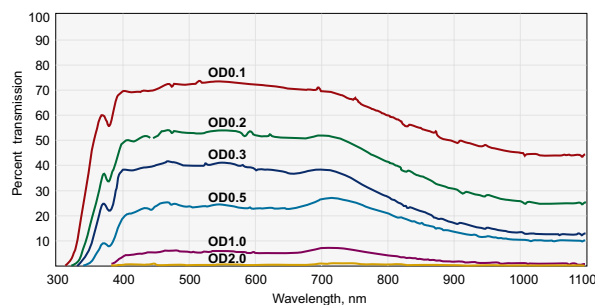
Related products

Variable Wheel Attenuator 990-0604

Find more at EksmaOptics.com

Filter Holder 830-0060A, 830-0070A

Find more at EksmaOptics.com



External transmission curves
(include reflections from uncoated surfaces)

Optical Density	Internal Transmittance, % @ 546 nm	Ø25.4 mm		25.4x25.4 mm		Ø50.8 mm		50.8x50.8 mm	
		Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR
0.05	89	240-2500	25	240-2600	26	240-5000	67	240-5600	66
0.1	80	240-2501	25	240-2601	26	240-5001	67	240-5601	66
0.2	63	240-2502	25	240-2602	26	240-5002	67	240-5602	66
0.3	50	240-2503	25	240-2603	26	240-5003	67	240-5603	66
0.4	40	240-2504	25	240-2604	26	240-5004	67	240-5604	66
0.5	32	240-2505	25	240-2605	26	240-5005	67	240-5605	66
0.6	25	240-2506	25	240-2606	26	240-5006	67	240-5606	66
0.7	20	240-2507	25	240-2607	26	240-5007	67	240-5607	66
0.8	15	240-2508	25	240-2608	26	240-5008	67	240-5608	66
0.9	12.5	240-2509	25	240-2609	26	240-5009	67	240-5609	66
1.0	10	240-2510	25	240-2610	26	240-5010	67	240-5610	66
1.5	3	240-2515	25	240-2615	26	240-5015	67	240-5615	66
2.0	1	240-2520	26	240-2620	28	240-5020	68	240-5620	67
3.0	0.1	240-2530	28	240-2630	29	240-5030	70	240-5630	68
4.0	0.01	240-2540	29	240-2640	30	240-5040	71	240-5640	70
5.0	0.001	240-2550	25	240-2650	26	240-5050	60	240-5650	59
6.0	0.0001	240-2560	26	240-2660	27	240-5060	61	240-5660	60

NEUTRAL DENSITY REFLECTIVE TYPE FILTERS AT 400 – 2000 nm

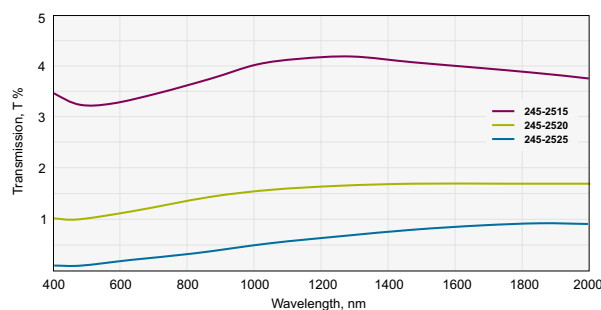
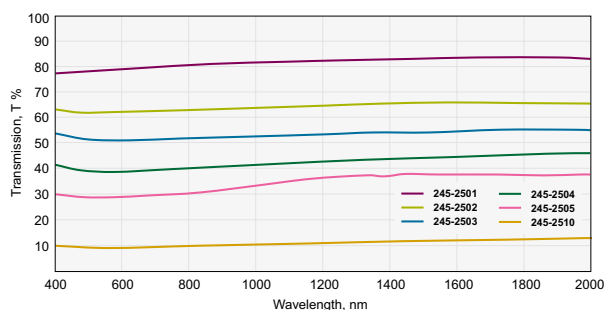
Neutral density reflective type filters of 1" (25.4 mm) size with optical density that varies from 0.1 to 2.5 are available.

Neutral density filters of Corning 7059 glass provide spectrally uniform attenuation from 400 nm to 2000 nm.

The reflective coatings enable to reduce thermal effects when these filters are used with moderate power lasers.

Specifications

Glass Material	Corning 7059 (Borosilicate)
Surface Quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Surface Flatness	λ @ 633 nm
Parallelism	<2 arcmin
Outer Diameter	25.4 mm +0.0/-0.2 mm
Thickness	1.1 mm $\pm$ 0.1 mm
Coating	Reflective
Laser Damage Threshold	20 mJ/cm ² (10 ns pulse)
Design Wavelength	400 – 2000 nm
Optical Density Tolerance	$\pm$ 10% Nominal



Optical Density	Transmission T, % @ 550 nm	Catalogue number	Price, EUR
0.1	79	245-2501	32
0.2	63	245-2502	32
0.3	50	245-2503	32
0.4	40	245-2504	32
0.5	32	245-2505	32
1.0	10	245-2510	32
1.5	3	245-2515	32
2.0	1	245-2520	32
2.5	0.3	245-2525	32

Related products

Plate Clamp 830-0055
Find more at [EksmaOptics.com](https://www.eksmaoptics.com)



Universal Plate Holder 830-0075
Find more at [EksmaOptics.com](https://www.eksmaoptics.com)



Variable Wheel Attenuator 990-0604-02
Find more at [EksmaOptics.com](https://www.eksmaoptics.com)



Filters Holder with 90° Flip 990-0400
See page 5.18



COLOR GLASS FILTERS

Color glass filters are made from optically polished highest quality Schott coloured optical glass. The spectral properties of these filters are uniform over the entire aperture and independent of the angle of incidence. Color glass filters can be used alone or in conjunction with monochromators or interference filters to isolate various spectral regions.

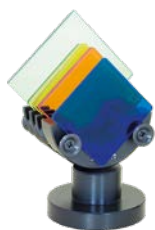
Specifications

Material	Schott colour glass
Surface quality	60 – 40 scratch & dig (MIL-PRF-13830B)
Surface flatness	1λ per inch @ 633 nm
Parallelism	3 arcmin
Diameter tolerance	+0.0 / -0.2 mm
Thickness	3.0 ± 0.2 mm
Clear aperture	90% of the diameter

Related products

Filter Holders 830-0070A

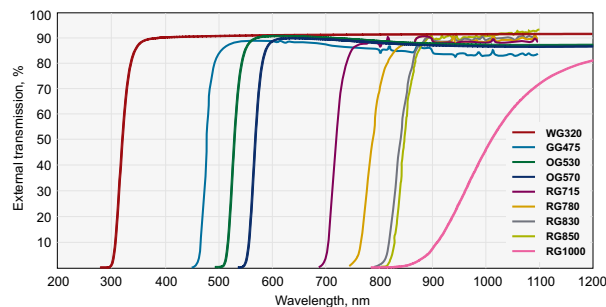
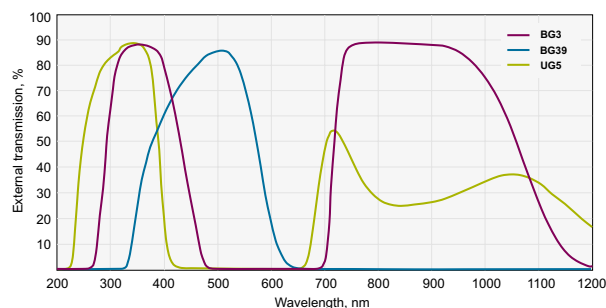
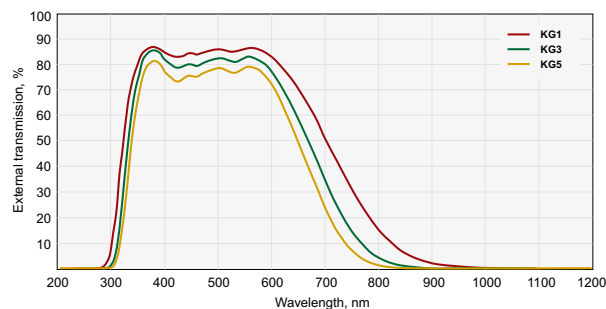
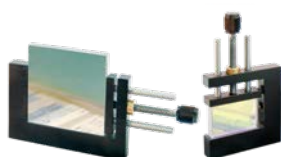
Find more at EksmaOptics.com



Rectangular Optics Holders

830-0100, 830-0110

Find more at EksmaOptics.com



External transmission curves
(include reflections from uncoated surfaces)

Material	Ø25.4 mm		25.4×25.4 mm		Ø50.8 mm		50.8×50.8 mm	
	Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR
BG3	241-2003	32	241-3003	31	241-5003	61	241-6003	64
UG5	241-2005	54	241-3005	53	241-5005	107	241-6005	106
BG39	241-2039	38	241-3039	37	241-5039	76	241-6039	74
KG1	242-2001	29	242-3001	28	242-5001	56	242-6001	55
KG3	242-2003	32	242-3003	31	242-5003	61	242-6003	60
KG5	242-2005	34	242-3005	32	242-5005	62	242-6005	61
WG320	243-2320	29	243-3320	28	243-5320	56	243-6320	55
GG475	243-2475	29	243-3475	28	243-5475	56	243-6475	55
OG530	243-2530	29	243-3530	28	243-5530	56	243-6530	55
OG570	243-2570	29	243-3570	28	243-5570	56	243-6570	55
RG715	243-2715	29	243-3715	28	243-5715	56	243-6715	55
RG780	243-2780	34	243-3780	32	243-5780	62	243-6780	61
RG830	243-2830	34	243-3830	32	243-5830	62	243-6830	61
RG850	243-2850	34	243-3850	32	243-5850	62	243-6850	61
RG1000	243-2990	29	243-3990	28	243-5990	56	243-6990	55

LASER SAFETY EYEWEAR

Features

- Wide spectrum of visibility
- Comfort and universal fit
- For Nd:YAG, Yb:KGW/KYW, Ti:sapphire applications



251-1064 Goggles

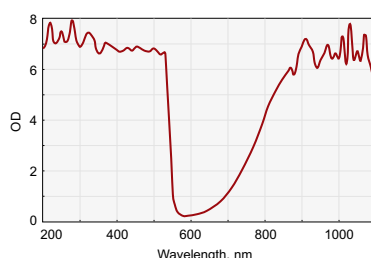


250-0800 Spectacles

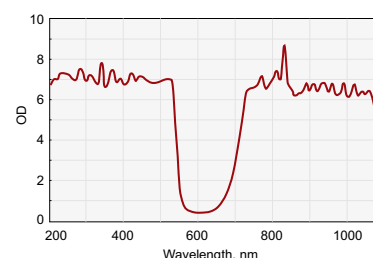
EKSMA Optics offers two different kinds of laser safety eyewear in two different styles: spectacles and goggles. The eyewear are amber colour and suitable for safe operation with Nd:YAG, Ti:Sapphire, Yb:KGW/KYW fundamental, second, third, fourth harmonics.

The eyewear absorbs laser radiation and gives perfect visibility. Both goggles and spectacles can be worn on prescription glasses. The goggles have air vents that prevent fogging. Laser beam cannot pass through the air vents. Goggles and spectacles come with protective case.

The models match the requirements for health and protection mentioned in the Directive of the European Community on Personal Protective Equipment (PPE) 89/686/EEC.



Nd:YAG and Harmonics, VLT 35%



Nd:YAG + Ti:Sapphire and Harmonics, VLT 11%

250-1064, 251-1064

Wavelength, nm	Optical Density
190–534	7+
850–925	5+
960–1064	7+
625–1070	6+

250-0800, 251-0800

Wavelength, nm	Optical Density
180–534	7+
720–730	5+
730–740	6+
740–1070	7+

Description	Catalogue number	Price, EUR
Spectacles for Nd:YAG + Ti:Sapphire applications	250-0800	260
Goggles for Nd:YAG + Ti:Sapphire applications	251-0800	260
Spectacles for Nd:YAG applications	250-1064	200
Goggles for Nd:YAG applications	251-1064	200

VISUALIZER WITH A HOLDER

Features

- Produces a diffused second-harmonic reflection (visible) from an infrared (invisible) beam
- High mechanical durability
- High sensitivity to laser radiation
- Damage threshold for pulse laser – 1 J/cm², 10 ns
- Damage threshold for CW laser – 400 W/cm²



990-0840

Laser Beam Visualizer 990-0840 is used for visualization of CW or pulsed laser radiation with wavelength 880 – 1070 nm. When CW or pulsed laser radiation of wavelength 880 – 1070 nm falls onto the working surface, the latter glows in the second harmonic of the beam. Use this item to adjust and check a shape of a laser beam. It helps to see the structure of a laser beam intensity distribution. Working surface diameter – 35 mm.

Laser Beam Visualizer 990-0841 visualize IR and UV coherent and incoherent radiation from various light sources, lasers and others. Made of rare-earth materials, it is an eco-friendly ceramic tablet.

Laser Beam Visualizer 990-0842 combines 990-0840 and 990-0841 in one for user convenience. One side visualizes radiation with wavelength 190-1600 nm by emitting red color and the other side visualizes radiation with 880-1070 nm by emitting green color.

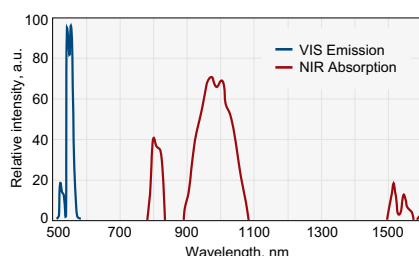
Spectral range, nm	Emitted light colour	Threshold sensitivity, W/cm ²	Catalogue number	Price, EUR
880 – 1070	Green	0.02	990-0840	114
190 – 1090 + 1470 – 1600	Red	0.01	990-0841	114
190 – 1090 + 1470 – 1600 / 880 – 1070	Red / Green	0.01 / 0.02	990-0842	179

LASER DETECTION CARDS

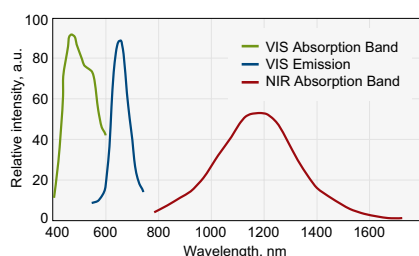


Features

- Covering Visible and Near-IR (NIR) spectral ranges
- Plastic, credit-card-sized (86 × 54 mm)
- Large sensor area (54 × 44 mm) extending to the edges



990-0847 NIR Detection Card



990-0846 VIS & IR Detection Card

Laser detection cards provide instant, fade free operation for simple alignment, location and safety purpose visualization of laser light. They are made of durable 0.8 mm plastic and have photosensitive region 44 x 54 mm that extends all the way to the three edges of the cards to facilitate use in laser alignment procedures.

990-0846 VIS & IR Laser Detection Card

Laser detection card has a sensitive active region which can be used to visualize weak power laser beams, to detect beam reflections or scattered IR laser light. Proper function of this card requires charging it with visible/ day light before use. Additionally, because emissions from the active region are not

persistent, the user must move the card around for optimal brightness of the beam spot.

990-0847 NIR Laser Detection Card does not require charging. The emission is persistent even when used in CW applications in a darkened room. In addition, when the active region is used in a darkened room with sufficiently bright source, the fluorescence from the activated photosensitive region can be seen through the back side or the photosensitive region can be activated by illuminating the back of the card. This is especially useful for aligning the overlap of two beams.

Specifications

Model	990-0846 VIS & IR Detection Card	990-0847 NIR Detection Card
Absorption Bands	400 – 640 nm 800 – 1700 nm	790 – 840 nm 870 – 1070 nm 1500 – 1590 nm
Emission Bands	Broadband 600 – 730 nm Peak @ 660 nm	520 – 580 nm Peak @ 550 nm
Persistence (stimulation removed)	VIS: 0.5 – 3 s, dependent on ambient light IR: <0.5 s	800 µs
Minimum Stimulation Continuous ¹⁾	<1 nW/cm ² @ 450 nm <25 µW/cm ² @ 950 nm	<2 µW/cm ² @ 808 nm <175 nW/cm ² @ 960 nm <100 µW/cm ² @ 1550 nm
Minimum Stimulation Pulsed ¹⁾	2 kW/cm ² @ 1064 nm, 7 ns, 10 Hz	250 kW/cm ² @ 1064 nm, 7 ns, 10 Hz
Maximum Stimulation Continuous	100 W/cm ² @ 512 nm	100 W/cm ² @ 1064 nm
Maximum Stimulation Pulsed	60 MW/cm ² @ 1064 nm, 7 ns, 10 Hz	35 MW/cm ² @ 1064 nm, 7 ns, 10 Hz
Typical Applications	Ar-Ion, HeNe, HeCd, 880 nm, 960-980 nm laser diodes, Yb:KGW, Nd:YLF, Nd:Glass, Nd:YAG	808 nm, 820 nm, 830 nm, 880 nm, 960-9680 nm laser diodes, Yb:KGW, Nd:YLF, Nd:Glass, Nd:YAG, 1550 nm telecommunications

¹⁾ Measured in darkened conditions.

Catalogue code	Spectral range	Price, EUR
990-0846	400 – 640 and 800 – 1700 nm	65
990-0847	790 – 840, 870 – 1070 and 1500 – 1590 nm	65

Mirrors

LASER MIRRORS

Laser mirrors are dielectric reflectors providing an optimised performance at stated wavelengths. High polishing quality is important for low wave front distortion, low scattering and high laser damage threshold. Mirrors are designed to work at 0 or 45 degrees.

Substrate

Material	UV grade fused silica or BK7 glass
S1 Surface Flatness	$\lambda/10$ typical at 633 nm
S1 Surface Quality	20 – 10 scratch & dig (MIL-PRF-13830B)
S2 Surface Quality	Commercial polish
Diameter Tolerance	+0.00 mm / -0.12 mm
Thickness Tolerance	± 0.25 mm
Wedge	< 3 min
Chamfer	0.3 mm at 45° typical

Coating

Technology	Electron beam multilayer dielectric or Ion beam sputtering
Adhesion and Durability	Per MIL-C-675A. Insoluble in lab solvents
Clear Aperture	Exceeds central 85% of diameter
Coated Surface Flatness	$\lambda/10$ at 633 nm over 85% of diameter available
Angle of Incidence	0 or 45°

LASER LINE MIRRORS

Substrate material: BK7, grade A. AOI = 45°. Laser damage threshold: 6 J/cm², 8 nsec pulse, 1064 nm typical.

Wavelength, nm	Application	R, % (s+p)/2	Ø12.7 × 3 mm	Ø12.7 × 6 mm	Price, EUR	Ø25.4 × 6 mm		Ø50.8 × 8 mm	
			Catalogue nr.			Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR
351 – 361	Nd:YAG 3H	99.5	031-0350	031-0350T6	65	032-0350	99	035-0350	141
380 – 420	Ti: Sa 2H	99.5	031-0400	031-0400T6	63	032-0400	98	035-0400	146
442	HeCd	99.5	031-0442	031-0442T6	63	032-0442	91	035-0442	146
488 – 515	Ar+	99.5	031-0490	031-0490T6	63	032-0490	91	035-0490	146
500 – 530	Yb:KGW/KYW 2H	99.5	031-0515	031-0515T6	62	032-0515	81	035-0515	121
527 – 532	Nd:YAG 2H	99.5	031-0530	031-0530T6	62	032-0530	81	035-0530	121
589	Dye	99.5	031-0590	031-0590T6	62	032-0590	90	035-0590	134
633 – 670	HeNe+Diode	99.5	031-0630	031-0630T6	62	032-0630	83	035-0630	134
694	Ruby	99.5	031-0694	031-0694T6	62	032-0694	83	035-0694	134
760 – 840	Ti:Sa 1H	99.5	031-0800	031-0800T6	67	032-0800	94	035-0800	146
780	Diode	99.5	031-0780	031-0780T6	63	032-0780	91	035-0780	134
852	Diode	99.5	031-0850	031-0850T6	63	032-0850	91	035-0850	146
980	Diode	99.5	031-0980	031-0980T6	63	032-0980	91	035-0980	134
1000 – 1060	Yb:KGW/KYW 1H	99.5	031-1030	031-1030T6	63	032-1030	83	035-1030	121
1047 – 1064	Nd:YAG 1H	99.5	031-1060	031-1060T6	63	032-1060	83	035-1060	121
1300 – 1320	YAG	99.5	031-1300	031-1300T6	67	032-1300	94	035-1300	151
1520 – 1570	Diode	99.5	031-1550	031-1550T6	67	032-1550	99	035-1550	153

Mirrors provided are of AOI=45°. Mirrors with AOI=0° can be ordered by adding -i0 to catalogue number. Reflectivity R (s+p)/2 for AOI=0° is 99.8%.

The examples:

031-0350-i0, 037-0400-i0.

BK7 Ø76.2×12.7 mm. AOI = 45°. Laser damage threshold: 6 J/cm², 8 nsec pulse, 1064 nm typical.

Wavelength, nm	Application	R, % (s+p)/2	Catalogue number	Price, EUR
380 – 420	Ti: Sa 2H	99.5	037-0400	219
500 – 530	Yb:KGW/KYW 2H	99.5	037-0515	204
527 – 532	Nd:YAG 2H	99.5	037-0530	204
760 – 840	Ti: Sa 1H	99.5	037-0800	219
1000 – 1060	Yb:KGW/KYW 3H	99.5	037-1030	204
1047 – 1064	Nd:YAG 1H	99.5	037-1060	204

Substrate material: UV grade Fused Silica. AOI = 45°. Laser damage threshold: 6 J/cm², 8 nsec pulse, 1064 nm typical.

Wavelength, nm	Application	R, % (s+p)/2	Ø12.7 × 3 mm	Ø12.7 × 6 mm	Ø12.7 mm	Ø25.4 × 6 mm	Ø50.8 × 8 mm
			Catalogue nr.		Price, EUR	Catalogue nr.	Price, EUR
244 – 248	KrF	99.0	041-0240	041-0240T6	78	042-0240	045-0240
262 – 266	Nd:YAG	99.0	041-0260	041-0260T6	78	042-0260	045-0260
257 – 275	Ti:Sa 3H	99.0	041-0266	041-0266T6	78	042-0266	045-0266
308	XeCl	99.2	041-0300	041-0300T6	76	042-0300	045-0300
325	HeCd	99.5	041-0325	041-0325T6	74	042-0325	045-0325
333 – 353	Yb:KGW/KYW 3H	99.5	041-0343	041-0343T6	85	042-0343	045-0343
347	Ruby	99.5	041-0347	041-0347T6	74	042-0347	045-0347
351 – 361	Nd:YAG 3H	99.5	041-0350	041-0350T6	74	042-0350	045-0350
380 – 420	Ti:Sa 2H	99.5	041-0400	041-0400T6	74	042-0400	045-0400
500 – 530	Yb:KGW/KYW 2H	99.5	041-0515	041-0515T6	68	042-0515	045-0515
527 – 532	Nd:YAG 2H	99.5	041-0530	041-0530T6	68	042-0530	045-0530
760 – 840	Ti:Sa 1H	99.5	041-0800	041-0800T6	83	042-0800	045-0800
1000 – 1060	Yb:KGW/KYW 1H	99.5	041-1030	041-1030T6	68	042-1030	045-1030
1047 – 1064	Nd:YAG 1H	99.5	041-1060	041-1060T6	68	042-1060	045-1060

Mirrors provided are of AOI=45°.
Mirrors with AOI=0° can be ordered by adding -i0 to catalogue number.
Reflectivity R (s+p)/2 for AOI=0° is 99.8%.

The examples:

042-0240-i0, 047-0266-i0.

Substrate material: UV grade Fused Silica Ø76.2x12.7 mm. AOI = 45°.

Laser damage threshold: 6 J/cm², 8 nsec pulse, 1064 nm typical.

Wavelength, nm	Application	R, % (s+p)/2	Catalogue number	Price, EUR
257 – 275	Ti:Sa 3H	99.0	047-0266	347
333 – 353	Yb:KGW/KYW 3H	99.5	047-0343	347
351 – 361	Nd:YAG 3H	99.5	047-0350	347
380 – 420	Ti:Sa 2H	99.5	047-0400	347
500 – 530	Yb:KGW/KYW 2H	99.5	047-0515	347
527 – 532	Nd:YAG 2H	99.5	047-0530	347
760 – 840	Ti:Sa 1H	99.5	047-0800	347
1000 – 1060	Yb:KGW/KYW 1H	99.5	047-1030	347
1047 – 1064	Nd:YAG 1H	99.5	047-1060	347

DUAL BAND MIRRORS

Substrate: BK7, grade A. AOI = 45°. Laser damage threshold: 3 J/cm², 8 nsec pulse, 1064 nm typical.

Wavelength, nm	Application	R, % (s+p)/2	Ø12.7 × 3 mm	Ø12.7 × 6 mm	Ø12.7 mm	Ø25.4 × 6 mm	Ø50.8 × 8 mm	Ø76.2 × 12.7 mm
			Catalogue number		Price, EUR	Catalogue number	Price, EUR	Catalogue number
390 – 410 + 780 – 820	Ti:Sa 2H+1H	99.5	051-4080	051-4080T6	94	052-4080	055-4080	057-4080
500 – 530 + 1000 – 1060	Yb:KGW/KYW 2H+1H	99.5	051-5103	051-5103T6	94	052-5103	055-5103	057-5103
532 + 1064	Nd:YAG 2H+1H	99.5	051-5306	051-5306T6	94	052-5306	055-5306	057-5306
633 + 1064	HeNe:Nd:YAG 1H	99.5	051-6306	051-6306T6	94	052-6306	055-6306	057-6306

Mirrors provided are of AOI=45°. Mirrors with AOI=0° can be ordered by adding -i0 to catalogue number. The price remains the same as for AOI=45°. An example: 042-4080-i0.

Substrate material: UV grade Fused Silica. AOI = 45°. Laser damage threshold: 5 J/cm², 8 nsec pulse, 1064 nm typical.

Wavelength, nm	Application	R, % (s+p)/2	Ø12.7 × 3 mm	Ø12.7 × 6 mm	Ø12.7 mm	Ø25.4 × 6 mm	Ø50.8 × 8 mm	Ø76.2 × 12.7 mm
			Catalogue number		Price, EUR	Catalogue number	Price, EUR	Catalogue number
266 + 355	Nd:YAG 4H+3H	99.0	061-2635	061-2635T6	138	062-2635	065-2635	067-2635
266 + 532	Nd:YAG 4H+2H	99.0	061-2653	061-2653T6	138	062-2653	065-2653	067-2653
355 + 532	Nd:YAG 3H+2H	99.5	061-3553	061-3553T6	127	062-3553	065-3553	067-3553
355 + 1064	Nd:YAG 3H+1H	99.0	061-3506	061-3506T6	127	062-3506	065-3506	067-3506
390-410 + 780-820	Ti:Sa 2H+1H	99.5	061-4080	061-4080T6	121	062-4080	065-4080	067-4080
500-530 + 1000-1060	Yb:KGW/KYW 2H+1H	99.5	061-5103	061-5103T6	121	062-5103	065-5103	067-5103
532 + 1064	Nd:YAG 2H+1H	99.5	061-5306	061-5306T6	120	062-5306	065-5306	067-5306
633 + 1064	HeNe:Nd:YAG 1H	99.5	061-6306	061-6306T6	120	062-6306	065-6306	067-6306

Mirrors provided are of AOI=45°. Mirrors with AOI=0° can be ordered by adding -i0 to catalogue number. The price remains the same as for AOI=45°. An example: 062-3553-i0.

BROADBAND LASER MIRRORS

Substrate: BK7, grade A. AOI = 45°. Laser damage threshold: 1 J/cm², 8 nsec pulse, 1064 nm typical.

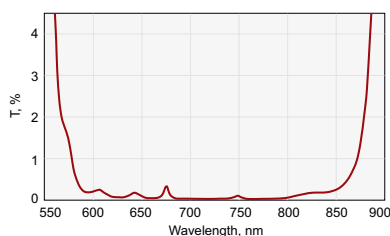
Wavelength, nm	Application	R, % (s+p)/2	Ø12.7 × 3 mm	Ø12.7 × 6 mm	Ø12.7	Ø25.4 × 6 mm		Ø50.8 × 8 mm	
			Catalogue number		Price, EUR	Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR
360 – 440	Ti:Sa 2H	99	071-3644	071-3644T6	107	072-3644	128	075-3644	181
420 – 540	Dye	99	071-4254	071-4254T6	102	072-4254	124	075-4254	174
520 – 650	Dye	99	071-5265	071-5265T6	102	072-5265	124	075-5265	174
600 – 850	Diode	99	071-6085	071-6085T6	102	072-6085	124	075-6085	174
730 – 950	Ti:Sa	99	071-7395	071-7395T6	103	072-7395	125	075-7395	176
800 – 1100	Diode,YAG	99	071-8011	071-8011T6	103	072-8011	125	075-8011	176

Mirrors provided are of AOI=45°. Mirrors with AOI=0° can be ordered by adding -i0 to catalogue number. The price remains the same as for AOI=45°. An example: **072-3644-i0**.

Substrate: UV grade Fused Silica. AOI = 45°. Laser damage threshold: 1 J/cm², 8 nsec pulse, 1064 nm typical.

Wavelength, nm	Application	R, % (s+p)/2	Ø12.7 × 3 mm	Ø12.7 × 6 mm	Ø12.7	Ø25.4 × 6 mm		Ø50.8 × 8 mm	
			Catalogue number		Price, EUR	Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR
260 – 380	Spectroscopy	99	081-2638	081-2638T6	162	082-2638	186	085-2638	299
360 – 440	Ti:Sa 2H	99	081-3644	081-3644T6	138	082-3644	167	085-3644	258
420 – 540	Dye	99	081-4254	081-4254T6	132	082-4254	154	085-4254	257
520 – 650	Dye	99	081-5265	081-5265T6	132	082-5265	154	085-5265	257
600 – 850	Diode	99	081-6085	081-6085T6	132	082-6085	154	085-6085	257
730 – 950	Ti:Sa	99	081-7395	081-7395T6	156	082-7395	178	085-7395	281
800 – 1100	Diode, YAG	99	081-8011	081-8011T6	144	082-8011	166	085-8011	269

Mirrors provided are of AOI=45°. Mirrors with AOI=0° can be ordered by adding -i0 to catalogue number. The price remains the same as for AOI=45°. An example: **082-2225-i0**.



071-6085. HR > 99% @ 600-850 nm

Related Products

Broadband Low GDD Ultrafast Laser Mirrors

See page 4.5

Kinematic Mirror/Beamsplitter Mounts 840-0056

Find more at EksmaOptics.com

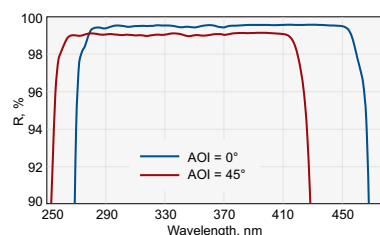


UV FS BROADBAND AND LASER LINE MIRRORS FOR AOI FROM 0 TO 45°

Features

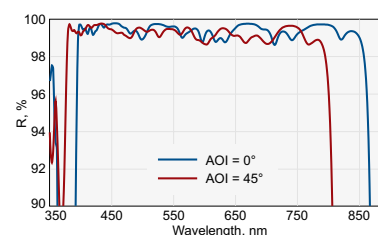
- R_{avg} > 99% for (s+p)/2 polarization that operates at all angles of incidence from 0 to 45°

EKSMA OPTICS introduces broadband and laser line dielectric mirrors with high reflectance (greater than 99% over specified range minimum) that operate at all angles of incidence from 0° to 45°. Broadband and laser line mirrors are available for 280-400 nm, 349-355 nm, 400-750 nm, 524-532 nm, 532+1064 nm, 750-1100 nm, 1047-1064 nm wavelength ranges.



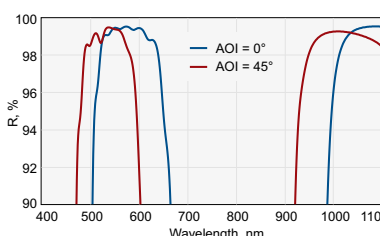
081-2840-i0-45.

HR>99% @ 280-400 nm, AOI from 0 to 45°



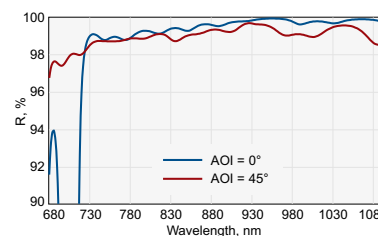
081-4075-i0-45.

HR>99% @ 400-750 nm, AOI from 0 to 45°



062-5306HHR-i0-45.

HR>99.7% @ 532+1064 nm, AOI from 0 to 45°



081-7511-i0-45.

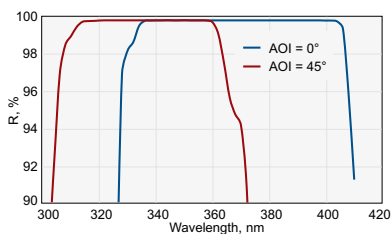
HR>99% @ 750-1100 nm, AOI from 0 to 45°

Substrate: UV grade Fused Silica

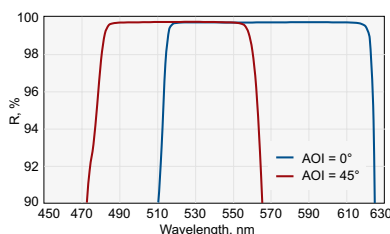
Wavelength, nm	AOI, deg	R, % (s+p)/2	LDT, J/cm ² 10 ns, 10 Hz	Ø12.7 × 6 mm		Ø25.4 × 6 mm		Ø50.8 × 8 mm	
				Catalogue number	Price, EUR	Catalogue number	Price, EUR	Catalogue number	Price, EUR
257	0-45	99.0	0.5	041-0257-i0-45	130	042-0257-i0-45	165	–	–
280 – 400	0-45	99.0	0.5	086-2840-i0-45	77	082-2840-i0-45	98	–	–
343 – 355	0-45	99.5	1	041-0350-i0-45	99	042-0350-i0-45	121	–	–
400 – 750	0-45	99.0	1	086-4075-i0-45	42	082-4075-i0-45	65	085-4075-i0-45	124
524 – 532	0-45	99.9	10	041-0530HHR-i0-45	90	042-0530HHR-i0-45	120	–	–
532 + 1064	0-45	99.7	3	061-5306HHR-i0-45	95	062-5306HHR-i0-45	125	–	–
750 – 1100	0-45	99.0	1	086-7511-i0-45	42	082-7511-i0-45	65	085-7511-i0-45	124
760 – 840 Low GDD	0-45	99.9	3	041-7684HHR-i0-45	110	042-7684HHR-i0-45	140	–	–
1047 – 1064	0-45	99.7	20	041-1060HHR-i0-45	90	042-1060HHR-i0-45	120	–	–

Substrate: BK7

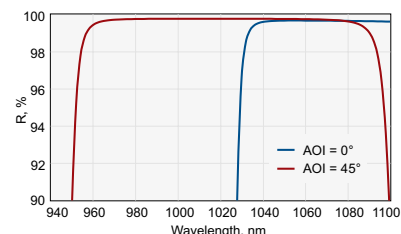
Wavelength, nm	AOI, deg	R, % (s+p)/2	LDT, J/cm ² 10 ns, 10 Hz	Ø12.7 × 6 mm		Ø25.4 × 6 mm		Ø50.8 × 8 mm	
				Catalogue number	Price, EUR	Catalogue number	Price, EUR	Catalogue number	Price, EUR
400 – 750	0-45	99.0	1	076-4076-i0-45	38	072-4075-i0-45	59	075-4075-i0-45	112
750 – 1100	0-45	99.0	1	076-7511-i0-45	38	072-7511-i0-45	59	075-7511-i0-45	112



042-0350-i0-45.
HR>99.5% @ 343-355 nm, AOI from 0 to 45°



042-0530HHR-i0-45.
HR>99.9% @ 524-532 nm, AOI from 0 to 45°



042-1060HHR-i0-45.
HR>99.7% @ 1047-1064 nm, AOI from 0 to 45°

Housing accessories

Kinematic Mirror Mount 840-0010

Find more at [EksmaOptics.com](#)



Adapter for Mirror at 45° 840-0115

Find more at [EksmaOptics.com](#)



HIGH POWER IBS COATED LASER MIRRORS FOR PICOSECOND APPLICATIONS

Substrate

Material	UV grade fused silica
S1 Surface Flatness	λ/10 at 633 nm
S1 Surface Quality	20 – 10 scratch & dig (MIL-PRF-13830B)
S2 Surface Quality	Commercial polish
Diameter Tolerance	+0.00 mm / -0.12 mm
Thickness Tolerance	±0.25 mm
Wedge	< 3 min
Chamfer	0.3 mm at 45° typical

Coating

Technology	Ion Beam Sputtering (IBS)
Adhesion and Durability	Per MIL-C-675A, Insoluble in lab solvents
Clear Aperture	Exceeds central 85% of diameter
Coated Surface Flatness	λ/10 at 633 nm over clear aperture

FOR PICOSECOND APPLICATIONS

Design wavelength – 343 nm. LIDT >0.9 J/cm², 10 ps pulse, 50 kHz, 343 nm typical.

Wavelength, nm	AOI, deg	R, % (s+p)/2	Ø 12.7 x 6 mm		Ø 25.4 x 6 mm		Ø 50.8 x 12 mm	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR	Catalogue number	Price, EUR
343	45	99.8	041-0343PHR	149	042-0343PHR	198	045-0343PHR	635
343	0	99.8	041-0343PHR-i0	149	042-0343PHR-i0	198	045-0343PHR-i0	635

Design wavelength – 515 nm. LIDT >1 J/cm², 10 ps pulse, 20 kHz, 515 nm typical.

Wavelength, nm	AOI, deg	R, % (s+p)/2	Ø 12.7 x 6 mm		Ø 25.4 x 6 mm		Ø 50.8 x 12 mm	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR	Catalogue number	Price, EUR
515	45	99.9	041-0515PHR	83	042-0515PHR	116	045-0515PHR	410
515	0	99.95	041-0515PHR-i0	83	042-0515PHR-i0	116	045-0515PHR-i0	410
515	0-45	99.9	041-0515PHR-i0-45	99	042-0515PHR-i0-45	132	045-0515PHR-i0-45	470

Design wavelength – 515 nm. LIDT >2.5 J/cm², 10 ps pulse, 20 kHz, 515 nm typical.

Wavelength, nm	AOI, deg	R, % (s+p)/2	Ø 12.7 x 6 mm		Ø 25.4 x 6 mm		Ø 50.8 x 12 mm	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR	Catalogue number	Price, EUR
515	45	99.9	041-0515PUHR	121	042-0515PUHR	171	045-0515PUHR	530
515	0	99.95	041-0515PUHR-i0	121	042-0515PUHR-i0	171	045-0515PUHR-i0	530

Design wavelength – 1030 nm. LIDT >1.5 J/cm², 10 ps pulse, 20 kHz, 1030 nm typical.

Wavelength, nm	AOI, deg	R, % (s+p)/2	Ø 12.7 x 6 mm		Ø 25.4 x 6 mm		Ø 50.8 x 12 mm	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR	Catalogue number	Price, EUR
1030	45	99.9	041-1030PHR	83	042-1030PHR	116	045-1030PHR	410
1030	0	99.95	041-1030PHR-i0	83	042-1030PHR-i0	116	045-1030PHR-i0	410
1030	0-45	99.9	041-1030PHR-i0-45	99	042-1030PHR-i0-45	132	045-1030PHR-i0-45	470

Design wavelength – 1030 nm. LIDT >3 J/cm², 10 ps pulse, 20 kHz, 1030 nm typical.

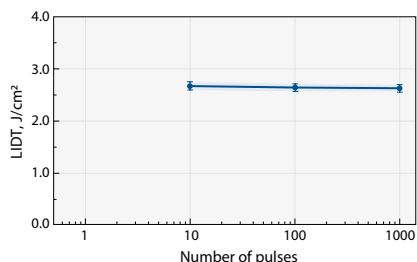
Wavelength, nm	AOI, deg	R, % (s+p)/2	Ø 12.7 x 6 mm		Ø 25.4 x 6 mm		Ø 50.8 x 12 mm	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR	Catalogue number	Price, EUR
1030	45	99.9	041-1030PUHR	127	042-1030PUHR	182	045-1030PUHR	550
1030	0	99.95	041-1030PUHR-i0	127	042-1030PUHR-i0	182	045-1030PUHR-i0	550

Design wavelength – 515 + 1030 nm. LIDT >1 J/cm², 10 ps pulse, 20 kHz, 515 and 1030 nm typical.

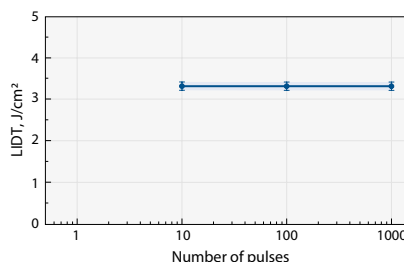
Wavelength, nm	AOI, deg	R, % (s+p)/2	Ø 12.7 x 6 mm		Ø 25.4 x 6 mm		Ø 50.8 x 12 mm	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR	Catalogue number	Price, EUR
515 + 1030	45	99.9	061-5103PHR	143	062-5103PHR	198	065-5103PHR	450
515 + 1030	0	99.9	061-5103PHR-i0	143	062-5103PHR-i0	198	065-5103PHR-i0	450

Design wavelength – 515 + 1030 nm. LIDT >2 J/cm², 10 ps pulse, 50 kHz, 515 and 1030 nm typical.

Wavelength, nm	AOI, deg	R, % (s+p)/2	Ø 12.7 x 6 mm		Ø 25.4 x 6 mm		Ø 50.8 x 12 mm	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR	Catalogue number	Price, EUR
515 + 1030	45	99.5	061-5103PUHR	182	062-5103PUHR	248	065-5103PUHR	650
515 + 1030	0	99.5	061-5103PUHR-i0	182	062-5103PUHR-i0	248	065-5103PUHR-i0	650



LIDT of High Power Laser Mirrors @ 515 nm



LIDT of High Power Laser Mirrors @ 1030 nm

DICHROIC MIRRORS

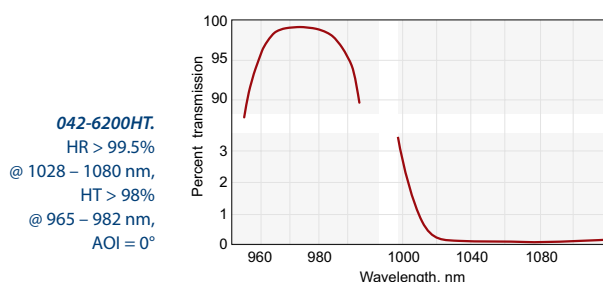
Features

- Laser Damage Threshold:
 $> 2 \text{ J/cm}^2$, 8 ns pulse, 1064 nm typical for BK7 substrates
 $> 5 \text{ J/cm}^2$, 8 ns pulse, 1064 nm typical for UV FS substrates
- Back side antireflection coated: $R < 0.5\%$
- Parallelism: 30 arcsec

Substrate

Material	UV grade fused silica or BK7 glass
S1 Surface Flatness	$\lambda/10$ typical at 633 nm
S1 Surface Quality	20 – 10 scratch & dig (MIL-PRF-13830B)
S2 Surface Flatness	$\lambda/10$ typical at 633 nm
S2 Surface Quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Diameter Tolerance	+0.00 mm / -0.12 mm
Thickness Tolerance	$\pm 0.25 \text{ mm}$
Parallelism	30 arcsec
Chamfer	0.3 mm at 45° typical

DICHROIC MIRRORS WITH HIGH TRANSMISSION



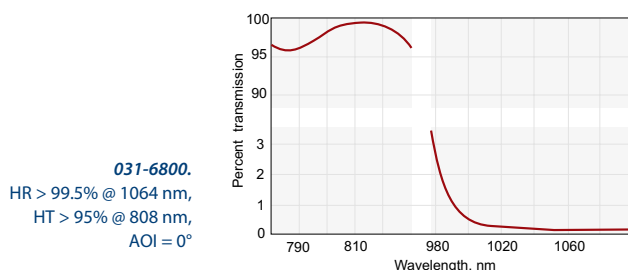
Coating

Technology	Ion Beam Sputtering (IBS)
Back side antireflection coated	$R < 0.1\%$ at AOI = 0° $R < 0.5\%$ at AOI = 45°

Reflected wavelength, nm, $R > 99.5\%$	Transmitted wavelength, nm	Transmission, %	AOI	Laser Damage Threshold ¹⁾ , J/cm^2	Substrate material	Ø12.7x3 mm		Ø25.4x6 mm	
						Catalogue number	Price, EUR	Catalogue number	Price, EUR
1064	808	>99	0	>10	UV FS	041-6800HT	193	042-6800HT	242
1064	808	>99	45	>10	UV FS	041-6805HT	209	042-6805HT	259
1028 – 1080	965 – 982	>98	0	>10	UV FS	041-6200HT	242	042-6200HT	286
1028 – 1080	965 – 982	>98	45	>3	UV FS	041-6205HT	275	042-6205HT	319
1028 – 1080	965 – 982	>98	22.5	>3	UV FS	041-6202HT	242	042-6202HT	286

¹⁾ Measured with 10 ns, 10 Hz pulse, 1064 nm typical.

STANDARD DICHROIC MIRRORS



Coating

Technology	Electron beam multilayer dielectric
Adhesion and Durability	Per MIL-C-675A. Insoluble in lab solvents
Clear Aperture	Exceeds central 85% of diameter
Laser Damage Threshold:	
BK7	2 J/cm^2 , 8 ns pulse, 1064 nm typical
UV FS	5 J/cm^2 , 8 ns pulse, 1064 nm typical
Coated Surface Flatness	$\lambda/10$ at 633 nm over 85% of diameter available

Reflected wavelength, nm, $R > 99.5\%$	Transmitted wavelength, nm	Transmission, %	AOI	Substrate material	Ø12.7x3 mm		Ø25.4x6 mm	
					Catalogue number	Price, EUR	Catalogue number	Price, EUR
633	1064	>95	45	BK7	041-6105	99	042-6105	127
1064	633	>90	45	BK7	041-6605	105	042-6605	132
1064	808	>95	0	BK7	031-6800	105	032-6800	132
1064	808	>95	45	BK7	031-6805	105	032-6805	132
1064	808	>95	0	UV FS	041-6800	132	042-6800	165
1064	808	>95	45	UV FS	041-6805	132	042-6805	165

METAL COATED MIRRORS

EKSMA OPTICS offers various size round, rectangular, spherical mirrors protected gold, silver or aluminium.

Metallic mirrors are widely used due to a moderate level of reflection over a very broad spectral range. Protected gold coatings have the highest reflectance in IR, silver is most efficient in VIS, while aluminium is economical reflector over entire 300-IR region.

A layer of dielectric material protects the coatings of the mirrors in order to make them durable. Enhanced metallic coatings provide greater reflection across the operating bandwidth.

As metallic coatings modify the state of polarization of an incident beam, they are inappropriate for polarization sensitive applications.

Type	Average reflection, %	Wavelength, nm	Laser Induced Damage Threshold at 1064 nm, 50 Hz, 11 nsec, J/cm ²
Protected aluminium	>86	300-IR	0.25
Protected silver	>96	400-IR	1.8
Protected gold	>98	900-IR	1.0

* Laser Induced Damage Threshold results are measured according to ISO 21254-2: 1000-on-1 test procedure.

Specifications for Flat Substrates

Material	BK7, UV FS
S1 Surface Flatness	$\lambda/10$ @ 633 nm
S1 Surface Quality	40 – 20 scratch & dig (MIL-PRF-13830B)
S2 Surface Quality	Commercial polish
Clear Aperture	>90% of the diameter
Wedge	<3 min

Specifications for Spherical Substrates

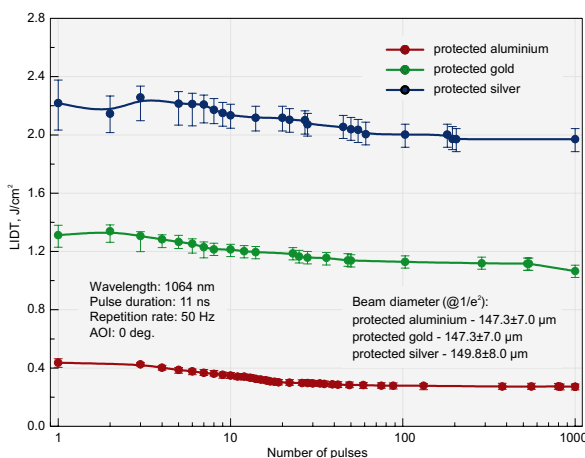
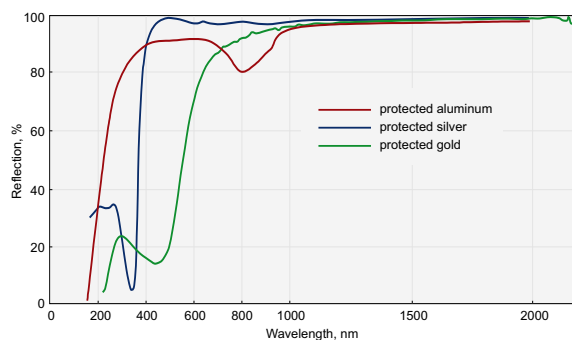
Material	BK7, UV FS
S1 (curved) Surface Flatness	$\lambda/10$ @ 633 nm
S1 (curved) Surface Quality	40 – 20 scratch & dig (MIL-PRF-13830B)
S2 (plane) Surface Quality	Commercial polish
Clear Aperture	>90% of the diameter
Diameter Tolerance	0.00 / -0.13 mm
Thickness Tolerance	± 0.2 mm

PROTECTED ALUMINIUM MIRRORS

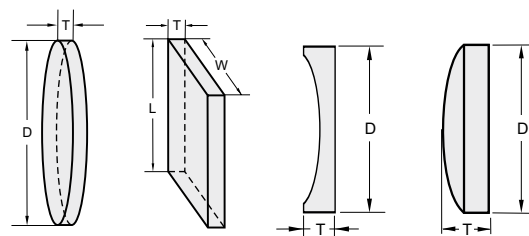
Features

- LIDT – 0.25 J/cm² at 1064 nm, 50 Hz, 11 nsec pulses*
- LIDT – 0.1 J/cm² at 355 nm, 50 Hz, 5.7 nsec pulses*
- Average Reflection >86% for 300 nm – IR
- BK7, UVFS, Zerodur® substrates available
- Round, Square and Flat or Spherical Mirrors available
- OEM capabilities - please contact for special pricing

* Laser Induced Damage Threshold results are measured according to ISO 21254-2: 1000-on-1 test procedure.



Comparison of Protected Ag, Al and Au Mirrors @ 1064 nm, 50 Hz, 11 nsec



Drawings of flat round, flat rectangular and spherical mirrors

Flat Rectangular Mirrors. Substrate type: plano-plano

Width W, mm	Length L, mm	Thickness T, mm	Substrate material	Catalogue number	Price, EUR
15.0	20.0	6.0	BK7	091-0315	22
20.0	30.0	6.0	BK7	092-0315	29
25.4	25.4	6.0	BK7	093-0315	27
25.4	50.8	10.0	BK7	094-0315	60
50.8	50.8	10.0	BK7	095-0315	90
15.0	20.0	6.0	UV FS	091-3315	36
20.0	30.0	6.0	UV FS	092-3315	47
25.4	25.4	6.0	UV FS	093-3315	45
25.4	50.8	10.0	UV FS	094-3315	95
50.8	50.8	10.0	UV FS	095-3315	135

Spherical Mirrors. Diameter, D = 12.7 mm. Thickness (edge for plano-concave, center for plano-convex), T = 6.0 mm

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-50	Plano-concave	BK7	091-0115R-50	35
-75	Plano-concave	BK7	091-0115R-75	35
-100	Plano-concave	BK7	091-0115R-100	35
-150	Plano-concave	BK7	091-0115R-150	35
-200	Plano-concave	BK7	091-0115R-200	35
-250	Plano-concave	BK7	091-0115R-250	35
-300	Plano-concave	BK7	091-0115R-300	35
-400	Plano-concave	BK7	091-0115R-400	35
-500	Plano-concave	BK7	091-0115R-500	35
-1000	Plano-concave	BK7	091-0115R-1000	35
-1500	Plano-concave	BK7	091-0115R-1500	35
-2000	Plano-concave	BK7	091-0115R-2000	35
-50	Plano-concave	UV FS	091-3115R-50	45
-75	Plano-concave	UV FS	091-3115R-75	45
-100	Plano-concave	UV FS	091-3115R-100	45
-150	Plano-concave	UV FS	091-3115R-150	45
-200	Plano-concave	UV FS	091-3115R-200	45
-250	Plano-concave	UV FS	091-3115R-250	45
-300	Plano-concave	UV FS	091-3115R-300	45
-400	Plano-concave	UV FS	091-3115R-400	45

Spherical Mirrors. Diameter, D = 25.4 mm. Thickness (edge for plano-concave, center for plano-convex), T = 6.0 mm

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-50	Plano-concave	BK7	092-0115R-50	55
-75	Plano-concave	BK7	092-0115R-75	55
-100	Plano-concave	BK7	092-0115R-100	55
-150	Plano-concave	BK7	092-0115R-150	55
-200	Plano-concave	BK7	092-0115R-200	55
-250	Plano-concave	BK7	092-0115R-250	55
-300	Plano-concave	BK7	092-0115R-300	55
-400	Plano-concave	BK7	092-0115R-400	55
-500	Plano-concave	BK7	092-0115R-500	55
-600	Plano-concave	BK7	092-0115R-600	55
-750	Plano-concave	BK7	092-0115R-750	55
-800	Plano-concave	BK7	092-0115R-800	55
-1000	Plano-concave	BK7	092-0115R-1000	55
-1500	Plano-concave	BK7	092-0115R-1500	55
-2000	Plano-concave	BK7	092-0115R-2000	55
-2500	Plano-concave	BK7	092-0115R-2500	55
-3000	Plano-concave	BK7	092-0115R-3000	55
-4000	Plano-concave	BK7	092-0115R-4000	55
-5000	Plano-concave	BK7	092-0115R-5000	55
-6000	Plano-concave	BK7	092-0115R-6000	55
-8000	Plano-concave	BK7	092-0115R-8000	55

Flat Round Mirrors. Substrate type: plano-plano

Diameter D, mm	Thickness T, mm	Substrate material	Catalogue number	Price, EUR
12.7	3.0	BK7	091-0015	20
12.7	6.0	BK7	091-0015T6	20
25.4	6.0	BK7	092-0015	25
50.8	8.0	BK7	095-0015	80
76.2	12.7	BK7	097-0015	160
101.6	15.0	BK7	098-0015	260
12.7	3.0	UV FS	091-3015	30
12.7	6.0	UV FS	091-3015T6	30
25.4	6.0	UV FS	092-3015	35
50.8	8.0	UV FS	095-3015	120
76.2	12.7	UV FS	097-3015	195
101.6	15.0	UV FS	098-3015	340

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-500	Plano-concave	UV FS	091-3115R-500	45
-1000	Plano-concave	UV FS	091-3115R-1000	45
-1500	Plano-concave	UV FS	091-3115R-1500	45
-2000	Plano-concave	UV FS	091-3115R-2000	45
+50	Plano-convex	BK7	091-0215R+50	37
+75	Plano-convex	BK7	091-0215R+75	37
+100	Plano-convex	BK7	091-0215R+100	37
+150	Plano-convex	BK7	091-0215R+150	37
+200	Plano-convex	BK7	091-0215R+200	37
+300	Plano-convex	BK7	091-0215R+300	37
+400	Plano-convex	BK7	091-0215R+400	37
+500	Plano-convex	BK7	091-0215R+500	37
+50	Plano-convex	UV FS	091-3215R+50	48
+75	Plano-convex	UV FS	091-3215R+75	48
+100	Plano-convex	UV FS	091-3215R+100	48
+150	Plano-convex	UV FS	091-3215R+150	48
+200	Plano-convex	UV FS	091-3215R+200	48
+300	Plano-convex	UV FS	091-3215R+300	48
+400	Plano-convex	UV FS	091-3215R+400	48
+500	Plano-convex	UV FS	091-3215R+500	48

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-50	Plano-concave	UV FS	092-3115R-50	70
-75	Plano-concave	UV FS	092-3115R-75	70
-100	Plano-concave	UV FS	092-3115R-100	70
-150	Plano-concave	UV FS	092-3115R-150	70
-200	Plano-concave	UV FS	092-3115R-200	70
-250	Plano-concave	UV FS	092-3115R-250	70
-300	Plano-concave	UV FS	092-0115R-300	70
-400	Plano-concave	UV FS	092-0115R-400	70
-500	Plano-concave	UV FS	092-3115R-500	70
-600	Plano-concave	UV FS	092-3115R-600	70
-750	Plano-concave	UV FS	092-3115R-750	70
-800	Plano-concave	UV FS	092-3115R-800	70
-1000	Plano-concave	UV FS	092-3115R-1000	70
-1500	Plano-concave	UV FS	092-3115R-1500	70
-2000	Plano-concave	UV FS	092-3115R-2000	70
-2500	Plano-concave	UV FS	092-3115R-2500	70
-3000	Plano-concave	UV FS	092-0115R-3000	70
-4000	Plano-concave	UV FS	092-3115R-4000	70
-5000	Plano-concave	UV FS	092-3115R-5000	70
-6000	Plano-concave	UV FS	092-0115R-6000	70
-8000	Plano-concave	UV FS	092-0115R-8000	70

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
+50	Plano-convex	BK7	092-0215R+50	59
+75	Plano-convex	BK7	092-0215R+75	59
+100	Plano-convex	BK7	092-0215R+100	59
+150	Plano-convex	BK7	092-0215R+150	59
+200	Plano-convex	BK7	092-0215R+200	59
+300	Plano-convex	BK7	092-0215R+300	59
+400	Plano-convex	BK7	092-0215R+400	59
+500	Plano-convex	BK7	092-0215R+500	59
+600	Plano-convex	BK7	092-0215R+600	59
+800	Plano-convex	BK7	092-0215R+800	59
+1000	Plano-convex	BK7	092-0215R+1000	59
+1500	Plano-convex	BK7	092-0215R+1500	59
+2000	Plano-convex	BK7	092-0215R+2000	59
+4000	Plano-convex	BK7	092-0215R+4000	59
+5000	Plano-convex	BK7	092-0215R+5000	59

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
+50	Plano-convex	UV FS	092-3215R+50	75
+75	Plano-convex	UV FS	092-3215R+75	75
+100	Plano-convex	UV FS	092-3215R+100	75
+150	Plano-convex	UV FS	092-3215R+150	75
+200	Plano-convex	UV FS	092-3215R+200	75
+300	Plano-convex	UV FS	092-3215R+300	75
+400	Plano-convex	UV FS	092-3215R+400	75
+500	Plano-convex	UV FS	092-3215R+500	75
+600	Plano-convex	UV FS	092-3215R+600	75
+800	Plano-convex	UV FS	092-3215R+800	75
+1000	Plano-convex	UV FS	092-3215R+1000	75
+1500	Plano-convex	UV FS	092-3215R+1500	75
+2000	Plano-convex	UV FS	092-3215R+2000	75
+4000	Plano-convex	UV FS	092-3215R+4000	75
+5000	Plano-convex	UV FS	092-3215R+5000	75

Spherical Mirrors. Diameter, D = 50.8 mm. Thickness (edge for plano-concave, center for plano-convex), T = 10.0 mm

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-100	Plano-concave	BK7	095-0115R-100	118
-150	Plano-concave	BK7	095-0115R-150	118
-200	Plano-concave	BK7	095-0115R-200	118
-250	Plano-concave	BK7	095-0115R-250	118
-300	Plano-concave	BK7	095-0115R-300	118
-400	Plano-concave	BK7	095-0115R-400	118
-500	Plano-concave	BK7	095-0115R-500	118
-600	Plano-concave	BK7	095-0115R-600	118
-800	Plano-concave	BK7	095-0115R-800	118
-1000	Plano-concave	BK7	095-0115R-1000	118
-1500	Plano-concave	BK7	095-0115R-1500	118
-2000	Plano-concave	BK7	095-0115R-2000	118
-2500	Plano-concave	BK7	095-0115R-2500	118
-3000	Plano-concave	BK7	095-0115R-3000	118
-4000	Plano-concave	BK7	095-0115R-4000	118
-5000	Plano-concave	BK7	095-0115R-5000	118
-6000	Plano-concave	BK7	095-0115R-6000	118
-8000	Plano-concave	BK7	095-0115R-8000	118
-10000	Plano-concave	BK7	095-0115R-10000	118
-100	Plano-concave	UV FS	095-3115R-100	143
-150	Plano-concave	UV FS	095-3115R-150	143
-200	Plano-concave	UV FS	095-3115R-200	143
-250	Plano-concave	UV FS	095-3115R-250	143
-300	Plano-concave	UV FS	095-3115R-300	143
-400	Plano-concave	UV FS	095-3115R-400	143
-500	Plano-concave	UV FS	095-3115R-500	143
-600	Plano-concave	UV FS	095-3115R-600	143
-800	Plano-concave	UV FS	095-3115R-800	143
-1000	Plano-concave	UV FS	095-3115R-1000	143
-1500	Plano-concave	UV FS	095-3115R-1500	143
-2000	Plano-concave	UV FS	095-3115R-2000	143
-2500	Plano-concave	UV FS	095-3115R-2500	143
-3000	Plano-concave	UV FS	095-3115R-3000	143
-4000	Plano-concave	UV FS	095-3115R-4000	143
-5000	Plano-concave	UV FS	095-3115R-5000	143
-6000	Plano-concave	UV FS	095-3115R-6000	143
-8000	Plano-concave	UV FS	095-3115R-8000	143
-10000	Plano-concave	UV FS	095-3115R-10000	143

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
+100	Plano-convex	BK7	095-0215R+100	127
+150	Plano-convex	BK7	095-0215R+150	127
+200	Plano-convex	BK7	095-0215R+200	127
+300	Plano-convex	BK7	095-0215R+300	127
+400	Plano-convex	BK7	095-0215R+400	127
+500	Plano-convex	BK7	095-0215R+500	127
+600	Plano-convex	BK7	095-0215R+600	127
+800	Plano-convex	BK7	095-0215R+800	127
+1000	Plano-convex	BK7	095-0215R+1000	127
+1500	Plano-convex	BK7	095-0215R+1500	127
+2000	Plano-convex	BK7	095-0215R+2000	127
+100	Plano-convex	UV FS	095-3215R+100	153
+150	Plano-convex	UV FS	095-3215R+150	153
+200	Plano-convex	UV FS	095-3215R+200	153
+300	Plano-convex	UV FS	095-3215R+300	153
+400	Plano-convex	UV FS	095-3215R+400	153
+500	Plano-convex	UV FS	095-3215R+500	153
+600	Plano-convex	UV FS	095-3215R+600	153
+800	Plano-convex	UV FS	095-3215R+800	153
+1000	Plano-convex	UV FS	095-3215R+1000	153
+1500	Plano-convex	UV FS	095-3215R+1500	153
+2000	Plano-convex	UV FS	095-3215R+2000	153

Related Products

Curved Windows. See page 1.6

Kinematic Mirror Mount 840-0010

Find more at [EksmaOptics.com](#)



Adapter for Mirror at 45° 840-0115

Find more at [EksmaOptics.com](#)



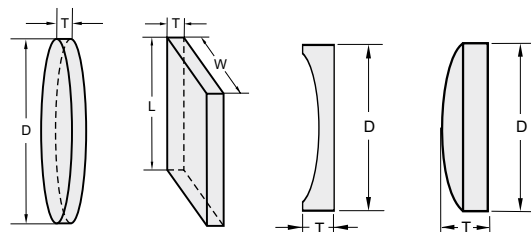
PROTECTED SILVER MIRRORS

Features

- LIDT – 0.25 J/cm² at 800 nm, 50 Hz, 94 fsec pulses*
- LIDT – 1.8 J/cm² at 1064 nm, 50 Hz, 11 nsec pulses*
- Average Reflection >97% for 400 nm – IR
- BK7, UVFS, Zerodur® substrates available
- Round, Square and Flat or Spherical Mirrors available
- OEM capabilities – please contact for special pricing
- Test samples are available on request

* Laser Induced Damage Threshold results are measured according to ISO 21254-2: 1000-on-1 test procedure.

Protected Silver (Ag) Mirrors feature higher reflectance than aluminium throughout the visible and near-infrared spectral region. Our protected silver mirrors has excellent durability.



Drawings of flat round, flat rectangular and spherical mirrors

Flat Rectangular Mirrors. Substrate type: plano-plano

Width W, mm	Length L, mm	Thickness T, mm	Substrate material	Catalogue number	Price, EUR
15.0	20.0	6.0	BK7	091-0325	36
20.0	30.0	6.0	BK7	092-0325	48
25.4	25.4	6.0	BK7	093-0325	46
25.4	50.8	10.0	BK7	094-0325	70
50.8	50.8	10.0	BK7	095-0325	100
15.0	20.0	6.0	UV FS	091-3325	50
20.0	30.0	6.0	UV FS	092-3325	66
25.4	25.4	6.0	UV FS	093-3325	64
25.4	50.8	10.0	UV FS	094-3325	105
50.8	50.8	10.0	UV FS	095-3325	145

Flat Round Mirrors. Substrate type: plano-plano

Diameter D, mm	Thickness T, mm	Substrate material	Catalogue number	Price, EUR
12.7	3.0	BK7	091-0025	26
12.7	6.0	BK7	091-0025T6	26
25.4	6.0	BK7	092-0025	39
50.8	8.0	BK7	095-0025	90
76.2	12.7	BK7	097-0025	180
101.6	15.0	BK7	098-0025	330
12.7	3.0	UV FS	091-3025	36
12.7	6.0	UV FS	091-3025T6	36
25.4	6.0	UV FS	092-3025	44
50.8	8.0	UV FS	095-3025	96
76.2	12.7	UV FS	097-3025	215
101.6	15.0	UV FS	098-3025	410

Spherical Mirrors. Diameter, D = 12.7 mm. Thickness (edge for plano-concave, center for plano-convex), T = 6.0 mm

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-50	Plano-concave	BK7	091-0125R-50	42
-75	Plano-concave	BK7	091-0125R-75	42
-100	Plano-concave	BK7	091-0125R-100	42
-150	Plano-concave	BK7	091-0125R-150	42
-200	Plano-concave	BK7	091-0125R-200	42
-250	Plano-concave	BK7	091-0125R-250	42
-300	Plano-concave	BK7	091-0125R-300	42
-400	Plano-concave	BK7	091-0125R-400	42
-500	Plano-concave	BK7	091-0125R-500	42
-1000	Plano-concave	BK7	091-0125R-1000	42
-1500	Plano-concave	BK7	091-0125R-1500	42
-2000	Plano-concave	BK7	091-0125R-2000	42
-50	Plano-concave	UV FS	091-3125R-50	52
-75	Plano-concave	UV FS	091-3125R-75	52
-100	Plano-concave	UV FS	091-3125R-100	52
-150	Plano-concave	UV FS	091-3125R-150	52
-200	Plano-concave	UV FS	091-3125R-200	52
-250	Plano-concave	UV FS	091-3125R-250	52
-300	Plano-concave	UV FS	091-3125R-300	52
-400	Plano-concave	UV FS	091-3125R-400	52
-500	Plano-concave	UV FS	091-3125R-500	52
-1000	Plano-concave	UV FS	091-3125R-1000	52
-1500	Plano-concave	UV FS	091-3125R-1500	52
-2000	Plano-concave	UV FS	091-3125R-2000	52

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
+50	Plano-convex	BK7	091-0225R+50	44
+100	Plano-convex	BK7	091-0225R+100	44
+150	Plano-convex	BK7	091-0225R+150	44
+200	Plano-convex	BK7	091-0225R+200	44
+300	Plano-convex	BK7	091-0225R+300	44
+400	Plano-convex	BK7	091-0225R+400	44
+500	Plano-convex	BK7	091-0225R+500	44
+50	Plano-convex	UV FS	091-3225R+50	55
+100	Plano-convex	UV FS	091-3225R+100	55
+150	Plano-convex	UV FS	091-3225R+150	55
+200	Plano-convex	UV FS	091-3225R+200	55
+300	Plano-convex	UV FS	091-3225R+300	55
+400	Plano-convex	UV FS	091-3225R+400	55
+500	Plano-convex	UV FS	091-3225R+500	55

Spherical Mirrors. Diameter, D = 25.4 mm. Thickness (edge for plano-concave, center for plano-convex), T = 6.0 mm

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-50	Plano-concave	BK7	092-0125R-50	65
-75	Plano-concave	BK7	092-0125R-75	65
-100	Plano-concave	BK7	092-0125R-100	65
-150	Plano-concave	BK7	092-0125R-150	65
-200	Plano-concave	BK7	092-0125R-200	65
-250	Plano-concave	BK7	092-0125R-250	65
-300	Plano-concave	BK7	092-0125R-300	65
-400	Plano-concave	BK7	092-0125R-400	65
-500	Plano-concave	BK7	092-0125R-500	65
-600	Plano-concave	BK7	092-0125R-600	65
-750	Plano-concave	BK7	092-0125R-750	65
-800	Plano-concave	BK7	092-0125R-800	65
-1000	Plano-concave	BK7	092-0125R-1000	65
-1500	Plano-concave	BK7	092-0125R-1500	65
-2000	Plano-concave	BK7	092-0125R-2000	65
-2500	Plano-concave	BK7	092-0125R-2500	65
-3000	Plano-concave	BK7	092-0125R-3000	65
-4000	Plano-concave	BK7	092-0125R-4000	65
-5000	Plano-concave	BK7	092-0125R-5000	65
-6000	Plano-concave	BK7	092-0125R-6000	65
-8000	Plano-concave	BK7	092-0125R-8000	65
-50	Plano-concave	UV FS	092-3125R-50	80
-75	Plano-concave	UV FS	092-3125R-75	80
-100	Plano-concave	UV FS	092-3125R-100	80
-150	Plano-concave	UV FS	092-3125R-150	80
-200	Plano-concave	UV FS	092-3125R-200	80
-250	Plano-concave	UV FS	092-3125R-250	80
-300	Plano-concave	UV FS	092-0125R-300	80
-400	Plano-concave	UV FS	092-0125R-400	80
-500	Plano-concave	UV FS	092-3125R-500	80
-600	Plano-concave	UV FS	092-3125R-600	80
-750	Plano-concave	UV FS	092-3125R-750	80
-800	Plano-concave	UV FS	092-3125R-800	80
-1000	Plano-concave	UV FS	092-3125R-1000	80
-1500	Plano-concave	UV FS	092-3125R-1500	80

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-2000	Plano-concave	UV FS	092-3125R-2000	80
-2500	Plano-concave	UV FS	092-3125R-2500	80
-3000	Plano-concave	UV FS	092-0125R-3000	80
-4000	Plano-concave	UV FS	092-3125R-4000	80
-5000	Plano-concave	UV FS	092-3125R-5000	80
-6000	Plano-concave	UV FS	092-0125R-6000	80
-8000	Plano-concave	UV FS	092-0125R-8000	80
+50	Plano-convex	BK7	092-0225R+50	69
+100	Plano-convex	BK7	092-0225R+100	69
+150	Plano-convex	BK7	092-0225R+150	69
+200	Plano-convex	BK7	092-0225R+200	69
+300	Plano-convex	BK7	092-0225R+300	69
+400	Plano-convex	BK7	092-0225R+400	69
+500	Plano-convex	BK7	092-0225R+500	69
+600	Plano-convex	BK7	092-0225R+600	69
+800	Plano-convex	BK7	092-0225R+800	69
+1000	Plano-convex	BK7	092-0225R+1000	69
+1500	Plano-convex	BK7	092-0225R+1500	69
+2000	Plano-convex	BK7	092-0225R+2000	69
+4000	Plano-convex	BK7	092-0225R+4000	69
+5000	Plano-convex	BK7	092-0225R+5000	69
+50	Plano-convex	UV FS	092-3225R+50	85
+100	Plano-convex	UV FS	092-3225R+100	85
+150	Plano-convex	UV FS	092-3225R+150	85
+200	Plano-convex	UV FS	092-3225R+200	85
+300	Plano-convex	UV FS	092-3225R+300	85
+400	Plano-convex	UV FS	092-3225R+400	85
+500	Plano-convex	UV FS	092-3225R+500	85
+600	Plano-convex	UV FS	092-3225R+600	85
+800	Plano-convex	UV FS	092-3225R+800	85
+1000	Plano-convex	UV FS	092-3225R+1000	85
+1500	Plano-convex	UV FS	092-3225R+1500	85
+2000	Plano-convex	UV FS	092-3225R+2000	85
+4000	Plano-convex	UV FS	092-3225R+4000	85
+5000	Plano-convex	UV FS	092-3225R+5000	85

Spherical Mirrors. Diameter, D = 50.8 mm. Thickness (edge for plano-concave, center for plano-convex), T = 10.0 mm

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-100	Plano-concave	BK7	095-0125R-100	164
-150	Plano-concave	BK7	095-0125R-150	164
-200	Plano-concave	BK7	095-0125R-200	164
-250	Plano-concave	BK7	095-0125R-250	164
-300	Plano-concave	BK7	095-0125R-300	164
-400	Plano-concave	BK7	095-0125R-400	164
-500	Plano-concave	BK7	095-0125R-500	164
-600	Plano-concave	BK7	095-0125R-600	164
-800	Plano-concave	BK7	095-0125R-800	164
-1000	Plano-concave	BK7	095-0125R-1000	164
-1500	Plano-concave	BK7	095-0125R-1500	164
-2000	Plano-concave	BK7	095-0125R-2000	164
-2500	Plano-concave	BK7	095-0125R-2500	164
-3000	Plano-concave	BK7	095-0125R-3000	164
-4000	Plano-concave	BK7	095-0125R-4000	164
-5000	Plano-concave	BK7	095-0125R-5000	164
-6000	Plano-concave	BK7	095-0125R-6000	164
-8000	Plano-concave	BK7	095-0125R-8000	164
-10000	Plano-concave	BK7	095-0125R-10000	164

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-100	Plano-concave	UV FS	095-3125R-100	189
-150	Plano-concave	UV FS	095-3125R-150	189
-200	Plano-concave	UV FS	095-3125R-200	189
-250	Plano-concave	UV FS	095-0125R-250	189
-300	Plano-concave	UV FS	095-3125R-300	189
-400	Plano-concave	UV FS	095-3125R-400	189
-500	Plano-concave	UV FS	095-3125R-500	189
-600	Plano-concave	UV FS	095-3125R-600	189
-800	Plano-concave	UV FS	095-3125R-800	189
-1000	Plano-concave	UV FS	095-3125R-1000	189
-1500	Plano-concave	UV FS	095-3125R-1500	189
-2000	Plano-concave	UV FS	095-3125R-2000	189
-2500	Plano-concave	UV FS	095-3125R-2500	189
-3000	Plano-concave	UV FS	095-3125R-3000	189
-4000	Plano-concave	UV FS	095-3125R-4000	189
-5000	Plano-concave	UV FS	095-3125R-5000	189
-6000	Plano-concave	UV FS	095-0125R-6000	189
-8000	Plano-concave	UV FS	095-0125R-8000	189
-10000	Plano-concave	UV FS	095-3125R-10000	189

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
+100	Plano-convex	BK7	095-0225R+100	174
+150	Plano-convex	BK7	095-0225R+150	174
+200	Plano-convex	BK7	095-0225R+200	174
+300	Plano-convex	BK7	095-0225R+300	174
+400	Plano-convex	BK7	095-0225R+400	174
+500	Plano-convex	BK7	095-0225R+500	174
+600	Plano-convex	BK7	095-0225R+600	174
+800	Plano-convex	BK7	095-0225R+800	174
+1000	Plano-convex	BK7	095-0225R+1000	174
+1500	Plano-convex	BK7	095-0225R+1500	174
+2000	Plano-convex	BK7	095-0225R+2000	174

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
+100	Plano-convex	UV FS	095-3225R+100	199
+150	Plano-convex	UV FS	095-3225R+150	199
+200	Plano-convex	UV FS	095-3225R+200	199
+300	Plano-convex	UV FS	095-3225R+300	199
+400	Plano-convex	UV FS	095-3225R+400	199
+500	Plano-convex	UV FS	095-3225R+500	199
+600	Plano-convex	UV FS	095-3225R+600	199
+800	Plano-convex	UV FS	095-3225R+800	199
+1000	Plano-convex	UV FS	095-3225R+1000	199
+1500	Plano-convex	UV FS	095-3225R+1500	199
+2000	Plano-convex	UV FS	095-3225R+2000	199

Spherical Mirrors. Diameter, D = 76.2 mm. Thickness (edge for plano-concave, center for plano-convex), T = 12.7 mm

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-200	Plano-concave	BK7	097-0125R-200	250
-300	Plano-concave	BK7	097-0125R-300	250
-400	Plano-concave	BK7	097-0125R-400	250
-500	Plano-concave	BK7	097-0125R-500	250
-600	Plano-concave	BK7	097-0125R-600	250
-800	Plano-concave	BK7	097-0125R-800	250
-1000	Plano-concave	BK7	097-0125R-1000	250
-2000	Plano-concave	BK7	097-0125R-2000	250
-3000	Plano-concave	BK7	097-0125R-3000	250
-200	Plano-concave	UV FS	097-3125R-200	340
-300	Plano-concave	UV FS	097-3125R-300	340
-400	Plano-concave	UV FS	097-3125R-400	340
-500	Plano-concave	UV FS	097-3125R-500	340
-600	Plano-concave	UV FS	097-3125R-600	340
-800	Plano-concave	UV FS	097-3125R-800	340
-1000	Plano-concave	UV FS	097-3125R-1000	340
-2000	Plano-concave	UV FS	097-3125R-2000	340
-3000	Plano-concave	UV FS	097-3125R-3000	340

Spherical Mirrors. Diameter, D = 101.6 mm. Thickness (edge for plano-concave, center for plano-convex), T = 15.0 mm

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-300	Plano-concave	BK7	098-0125R-300	590
-400	Plano-concave	BK7	098-0125R-400	590
-500	Plano-concave	BK7	098-0125R-500	590
-600	Plano-concave	BK7	098-0125R-600	590
-800	Plano-concave	BK7	098-0125R-800	590
-1000	Plano-concave	BK7	098-0125R-1000	590
-2000	Plano-concave	BK7	098-0125R-2000	590
-3000	Plano-concave	BK7	098-0125R-3000	590
-300	Plano-concave	UV FS	098-3125R-300	690
-400	Plano-concave	UV FS	098-3125R-400	690
-500	Plano-concave	UV FS	098-3125R-500	690
-600	Plano-concave	UV FS	098-3125R-600	690
-800	Plano-concave	UV FS	098-3125R-800	690
-1000	Plano-concave	UV FS	098-3125R-1000	690
-2000	Plano-concave	UV FS	098-3125R-2000	690
-3000	Plano-concave	UV FS	098-3125R-3000	690

Related Products

Curved Windows. See page 1.6

Kinematic Mirror Mount 840-0010

Find more at EksmaOptics.com



Adapter for Mirror at 45° 840-0115

Find more at EksmaOptics.com



Non Standard Metal Coated Mirrors are available for fast off-the-shelf delivery. Check the availability at www.eksmaoptics.com



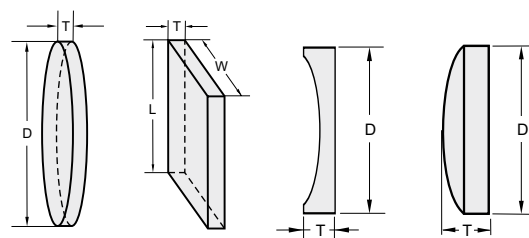
PROTECTED GOLD MIRRORS

Features

- LIDT – 1.0 J/cm² at 1064 nm, 50 Hz, 11 nsec pulses*
- Average Reflection >98% for 900 nm – IR
- BK7, UVFS, Zerodur® substrates available
- Round, Square and Flat or Spherical Mirrors available
- OEM capabilities - please contact for special pricing
- Test samples are available on request
- Bare Gold coated mirrors are available as an option

* Laser Induced Damage Threshold results are measured according to ISO 21254-2: 1000-on-1 test procedure.

Protected Gold (Au) Mirrors have the highest reflectance in infrared. Enhanced metallic coatings provide greater reflection across the operating bandwidth.



Drawings of flat round, flat rectangular and spherical mirrors

Flat Rectangular Mirrors. Substrate type: plano-plano

Width W, mm	Length L, mm	Thickness T, mm	Substrate material	Catalogue number	Price, EUR
15.0	20.0	6.0	BK7	091-0330	55
20.0	30.0	6.0	BK7	092-0330	69
25.4	25.4	6.0	BK7	093-0330	52
25.4	50.8	10.0	BK7	094-0330	95
50.8	50.8	10.0	BK7	095-0330	105
15.0	20.0	6.0	UV FS	091-3330	69
20.0	30.0	6.0	UV FS	092-3330	87
25.4	25.4	6.0	UV FS	093-3330	83
25.4	50.8	10.0	UV FS	094-3330	130
50.8	50.8	10.0	UV FS	095-3330	175

Flat Round Mirrors. Substrate type: plano-plano

Diameter D, mm	Thickness T, mm	Substrate material	Catalogue number	Price, EUR
12.7	3.0	BK7	091-0030	35
12.7	6.0	BK7	091-0030T6	35
25.4	6.0	BK7	092-0030	43
50.8	8.0	BK7	095-0030	115
76.2	12.7	BK7	097-0030	210
101.6	15.0	BK7	098-0030	430
12.7	3.0	UV FS	091-3030	45
12.7	6.0	UV FS	091-3030T6	45
25.4	6.0	UV FS	092-3030	48
50.8	8.0	UV FS	095-3030	155
76.2	12.7	UV FS	097-3030	245
101.6	15.0	UV FS	098-3030	510

Spherical Mirrors. Diameter, D = 12.7 mm. Thickness (edge for plano-concave, center for plano-convex), T = 6.0 mm

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-50	Plano-concave	BK7	091-0130R-50	52
-75	Plano-concave	BK7	091-0130R-75	52
-100	Plano-concave	BK7	091-0130R-100	52
-150	Plano-concave	BK7	091-0130R-150	52
-200	Plano-concave	BK7	091-0130R-200	52
-250	Plano-concave	BK7	091-0130R-250	52
-300	Plano-concave	BK7	091-0130R-300	52
-400	Plano-concave	BK7	091-0130R-400	52
-500	Plano-concave	BK7	091-0130R-500	52
-1000	Plano-concave	BK7	091-0130R-1000	52
-1500	Plano-concave	BK7	091-0130R-1500	52
-2000	Plano-concave	BK7	091-0130R-2000	52
-50	Plano-concave	UV FS	091-3130R-50	52
-75	Plano-concave	UV FS	091-3130R-75	62
-100	Plano-concave	UV FS	091-3130R-100	62
-150	Plano-concave	UV FS	091-3130R-150	62
-200	Plano-concave	UV FS	091-3130R-200	62
-250	Plano-concave	UV FS	091-3130R-250	62
-300	Plano-concave	UV FS	091-3130R-300	62
-400	Plano-concave	UV FS	091-3130R-400	62
-500	Plano-concave	UV FS	091-3130R-500	62
-1000	Plano-concave	UV FS	091-3130R-1000	62
-1500	Plano-concave	UV FS	091-3130R-1500	62
-2000	Plano-concave	UV FS	091-3130R-2000	62

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
+50	Plano-convex	BK7	091-0230R+50	54
+100	Plano-convex	BK7	091-0230R+100	54
+150	Plano-convex	BK7	091-0230R+150	54
+200	Plano-convex	BK7	091-0230R+200	54
+300	Plano-convex	BK7	091-0230R+300	54
+400	Plano-convex	BK7	091-0230R+400	54
+500	Plano-convex	BK7	091-0230R+500	54
+50	Plano-convex	UV FS	091-3230R+50	65
+100	Plano-convex	UV FS	091-3230R+100	65
+150	Plano-convex	UV FS	091-3230R+150	65
+200	Plano-convex	UV FS	091-3230R+200	65
+300	Plano-convex	UV FS	091-3230R+300	65
+400	Plano-convex	UV FS	091-3230R+400	65
+500	Plano-convex	UV FS	091-3230R+500	65

Spherical Mirrors. Diameter, D = 25.4 mm. Thickness (edge for plano-concave, center for plano-convex), T = 6.0 mm

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-50	Plano-concave	BK7	092-0130R-50	95
-75	Plano-concave	BK7	092-0130R-75	95
-100	Plano-concave	BK7	092-0130R-100	95
-150	Plano-concave	BK7	092-0130R-150	95
-200	Plano-concave	BK7	092-0130R-200	95
-250	Plano-concave	BK7	092-0130R-250	95
-300	Plano-concave	BK7	092-0130R-300	95
-400	Plano-concave	BK7	092-0130R-400	95
-500	Plano-concave	BK7	092-0130R-500	95
-600	Plano-concave	BK7	092-0130R-600	95
-750	Plano-concave	BK7	092-0130R-750	95
-800	Plano-concave	BK7	092-0130R-800	95
-1000	Plano-concave	BK7	092-0130R-1000	95
-1500	Plano-concave	BK7	092-0130R-1500	95
-2000	Plano-concave	BK7	092-0130R-2000	95
-2500	Plano-concave	BK7	092-0130R-2500	95
-3000	Plano-concave	BK7	092-0130R-3000	95
-4000	Plano-concave	BK7	092-0130R-4000	95
-5000	Plano-concave	BK7	092-0130R-5000	95
-6000	Plano-concave	BK7	092-0130R-6000	95
-8000	Plano-concave	BK7	092-0130R-8000	95
-50	Plano-concave	UV FS	092-3130R-50	110
-75	Plano-concave	UV FS	092-3130R-75	110
-100	Plano-concave	UV FS	092-3130R-100	110
-150	Plano-concave	UV FS	092-3130R-150	110
-200	Plano-concave	UV FS	092-3130R-200	110
-250	Plano-concave	UV FS	092-3130R-250	110
-300	Plano-concave	UV FS	092-3130R-300	110
-400	Plano-concave	UV FS	092-3130R-400	110
-500	Plano-concave	UV FS	092-3130R-500	110
-600	Plano-concave	UV FS	092-3130R-600	110
-750	Plano-concave	UV FS	092-3130R-750	110
-800	Plano-concave	UV FS	092-3130R-800	110
-1000	Plano-concave	UV FS	092-3130R-1000	110
-1500	Plano-concave	UV FS	092-3130R-1500	110

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-2000	Plano-concave	UV FS	092-3130R-2000	110
-2500	Plano-concave	UV FS	092-3130R-2500	110
-3000	Plano-concave	UV FS	092-3130R-3000	110
-4000	Plano-concave	UV FS	092-3130R-4000	110
-5000	Plano-concave	UV FS	092-3130R-5000	110
-6000	Plano-concave	UV FS	092-3130R-6000	110
-8000	Plano-concave	UV FS	092-3130R-8000	110
+50	Plano-convex	BK7	092-0230R+50	99
+100	Plano-convex	BK7	092-0230R+100	99
+150	Plano-convex	BK7	092-0230R+150	99
+200	Plano-convex	BK7	092-0230R+200	99
+300	Plano-convex	BK7	092-0230R+300	99
+400	Plano-convex	BK7	092-0230R+400	99
+500	Plano-convex	BK7	092-0230R+500	99
+600	Plano-convex	BK7	092-0230R+600	99
+800	Plano-convex	BK7	092-0230R+800	99
+1000	Plano-convex	BK7	092-0230R+1000	99
+1500	Plano-convex	BK7	092-0230R+1500	99
+2000	Plano-convex	BK7	092-0230R+2000	99
+4000	Plano-convex	BK7	092-0230R+4000	99
+5000	Plano-convex	BK7	092-0230R+5000	99
+50	Plano-convex	UV FS	092-3230R+50	115
+100	Plano-convex	UV FS	092-3230R+100	115
+150	Plano-convex	UV FS	092-3230R+150	115
+200	Plano-convex	UV FS	092-3230R+200	115
+300	Plano-convex	UV FS	092-3230R+300	115
+400	Plano-convex	UV FS	092-3230R+400	115
+500	Plano-convex	UV FS	092-3230R+500	115
+600	Plano-convex	UV FS	092-3230R+600	115
+800	Plano-convex	UV FS	092-3230R+800	115
+1000	Plano-convex	UV FS	092-3230R+1000	115
+1500	Plano-convex	UV FS	092-3230R+1500	115
+2000	Plano-convex	UV FS	092-3230R+2000	115
+4000	Plano-convex	UV FS	092-3230R+4000	115
+5000	Plano-convex	UV FS	092-3230R+5000	115

Related Products

Curved Windows. See page 1.6

Kinematic Mirror Mount 840-0010

Find more at EksmaOptics.com



Adapter for Mirror at 45° 840-0115

Find more at EksmaOptics.com



Spherical Mirrors. Diameter, D = 50.8 mm. Thickness (edge for plano-concave, center for plano-convex), T = 10.0 mm

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
-100	Plano-concave	BK7	095-0130R-100	174
-150	Plano-concave	BK7	095-0130R-150	174
-200	Plano-concave	BK7	095-0130R-200	174
-250	Plano-concave	BK7	095-0130R-250	174
-300	Plano-concave	BK7	095-0130R-300	174
-400	Plano-concave	BK7	095-0130R-400	174
-500	Plano-concave	BK7	095-0130R-500	174
-600	Plano-concave	BK7	095-0130R-600	174
-800	Plano-concave	BK7	095-0130R-800	174
-1000	Plano-concave	BK7	095-0130R-1000	174
-1500	Plano-concave	BK7	095-0130R-1500	174
-2000	Plano-concave	BK7	095-0130R-2000	174
-2500	Plano-concave	BK7	095-0130R-2500	174
-3000	Plano-concave	BK7	095-0130R-3000	174
-4000	Plano-concave	BK7	095-0130R-4000	174
-5000	Plano-concave	BK7	095-0130R-5000	174
-6000	Plano-concave	BK7	095-0130R-6000	174
-8000	Plano-concave	BK7	095-0130R-8000	174
-10000	Plano-concave	BK7	095-0130R-10000	174
-100	Plano-concave	UV FS	095-3130R-100	199
-150	Plano-concave	UV FS	095-3130R-150	199
-200	Plano-concave	UV FS	095-3130R-200	199
-250	Plano-concave	UV FS	095-3130R-250	199
-300	Plano-concave	UV FS	095-3130R-300	199
-400	Plano-concave	UV FS	095-3130R-400	199
-500	Plano-concave	UV FS	095-3130R-500	199
-600	Plano-concave	UV FS	095-3130R-600	199
-800	Plano-concave	UV FS	095-3130R-800	199
-1000	Plano-concave	UV FS	095-3130R-1000	199
-1500	Plano-concave	UV FS	095-3130R-1500	199
-2000	Plano-concave	UV FS	095-3130R-2000	199
-2500	Plano-concave	UV FS	095-3130R-2500	199
-3000	Plano-concave	UV FS	095-3130R-3000	199
-4000	Plano-concave	UV FS	095-3130R-4000	199
-5000	Plano-concave	UV FS	095-3130R-5000	199
-6000	Plano-concave	UV FS	095-3130R-6000	199
-8000	Plano-concave	UV FS	095-3130R-8000	199
-10000	Plano-concave	UV FS	095-3130R-10000	199

Radius, mm	Substrate type	Substrate material	Catalogue number	Price, EUR
+100	Plano-convex	BK7	095-0230R+100	173
+150	Plano-convex	BK7	095-0230R+150	173
+200	Plano-convex	BK7	095-0230R+200	173
+300	Plano-convex	BK7	095-0230R+300	173
+400	Plano-convex	BK7	095-0230R+400	173
+500	Plano-convex	BK7	095-0230R+500	173
+600	Plano-convex	BK7	095-0230R+600	173
+800	Plano-convex	BK7	095-0230R+800	173
+1000	Plano-convex	BK7	095-0230R+1000	173
+1500	Plano-convex	BK7	095-0230R+1500	173
+2000	Plano-convex	BK7	095-0230R+2000	173
+100	Plano-convex	UV FS	095-3230R+100	209
+150	Plano-convex	UV FS	095-3230R+150	209
+200	Plano-convex	UV FS	095-3230R+200	209
+300	Plano-convex	UV FS	095-3230R+300	209
+400	Plano-convex	UV FS	095-3230R+400	209
+500	Plano-convex	UV FS	095-3230R+500	209
+600	Plano-convex	UV FS	095-3230R+600	209
+800	Plano-convex	UV FS	095-3230R+800	209
+1000	Plano-convex	UV FS	095-3230R+1000	209
+1500	Plano-convex	UV FS	095-3230R+1500	209
+2000	Plano-convex	UV FS	095-3230R+2000	209

Most of Metal Coated mirrors are available for fast off-the-shelf delivery. Check the availability at www.eksmaoptics.com



Lenses (UV FS, BK7, CaF₂)

PLANO-CONVEX LENSES

Features

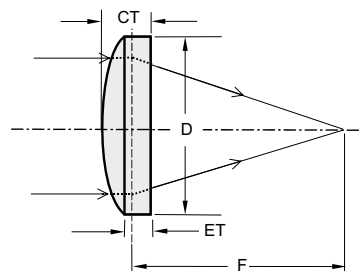
- Positive focal length
- Converge incident light
- Form both real and virtual images
- Very close to the form minimising spherical aberration for infinite conjugate applications

These simplest form lenses have flat surface on one side and spherical surface on the other. They are widely used in telescopes, microscopes, collimators, optical transceivers, magnifiers, condenser systems and eyepieces.

Upon customer's request, lenses may be anti-reflection coated. For a required coating, please refer to the *Coatings Section*.

Standard lenses have a range of focal lengths – from 25 mm to 10000 mm, and diameters – from 12.7 mm to 50.8 mm.

Most of the Lenses are available for fast off-the-shelf delivery. Check the availability at www.eksmaoptics.com



Specifications

Material	BK7, UV FS, CaF ₂	
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)	
Clear aperture	90% of the diameter	
Diameter tolerance	+0.00 / -0.12 mm	
Thickness tolerance	±0.5 mm	
Surface irregularity	λ/8 @ 633 nm	
Surface irregularity for CaF ₂	λ/4 @ 633 nm	
Concentricity	3 arcmin	
Paraxial focal length	BK7	±2% @ 546 nm
	UV FS	±2% @ 355 nm
	CaF ₂	±2% @ 2940 nm

Please contact us if you can not find the lens that you need. We can provide a wide range of special focal lengths, diameters and coatings.

BK7 PLANO-CONVEX LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
20.0	12.7	4.5	2.3	10.4	110-0104E	15
25.0	12.7	4.0	2.3	13.0	110-0105E	15
30.0	12.7	3.5	2.1	15.6	110-0106E	15
40.0	12.7	3.0	2.0	20.7	110-0107E	15
50.0	12.7	3.0	2.2	25.9	110-0109E	15
60.0	12.7	3.0	2.3	31.1	110-0111E	15
75.0	12.7	3.0	2.5	38.9	110-0115E	15
100.0	12.7	3.0	2.6	51.9	110-0117E	15
150.0	12.7	3.0	2.7	77.8	110-0121E	15
200.0	12.7	3.0	2.8	103.7	110-0123E	15
250.0	12.7	3.0	2.8	129.7	110-0125E	15
300.0	12.7	3.0	2.9	155.6	110-0126E	15
350.0	12.7	3.0	2.9	181.6	110-0127E	15
500.0	12.7	2.1	2.0	259.4	110-0129E	15

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
1000.0	12.7	2.1	2.1	518.7	110-0135E	15
1500.0	12.7	2.1	2.1	778.1	110-0145E	15
30.0	25.4	8.5	1.9	15.6	110-0205E	25
40.0	25.4	6.1	1.8	20.7	110-0207E	20
50.0	25.4	5.0	1.7	25.9	110-0209E	19
60.0	25.4	4.4	1.7	31.1	110-0211E	19
75.0	25.4	4.0	1.9	38.9	110-0215E	19
90.0	25.4	3.8	2.0	46.7	110-0218E	19
100.0	25.4	3.5	1.9	51.9	110-0219E	19
125.0	25.4	3.2	1.9	64.8	110-0223E	19
150.0	25.4	3.0	2.0	77.8	110-0227E	19
175.0	25.4	3.0	2.1	90.8	110-0229E	18
200.0	25.4	3.0	2.2	103.7	110-0231E	18
250.0	25.4	3.0	2.4	129.7	110-0235E	18

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
300.0	25.4	3.0	2.5	155.6	110-0239E	18
350.0	25.4	3.0	2.6	181.6	110-0241E	18
400.0	25.4	3.0	2.6	207.5	110-0243E	18
450.0	25.4	3.0	2.7	233.4	110-0245E	18
500.0	25.4	3.0	2.7	259.4	110-0247E	18
550.0	25.4	3.0	2.7	285.3	110-0248E	18
600.0	25.4	3.0	2.7	311.2	110-0249E	18
700.0	25.4	3.0	2.8	363.1	110-0251E	18
800.0	25.4	3.0	2.8	415.0	110-0255E	18
900.0	25.4	3.0	2.8	466.8	110-0257E	18
1000.0	25.4	3.0	2.8	518.7	110-0259E	18
1200.0	25.4	3.0	2.9	622.5	110-0263E	18
1250.0	25.4	3.0	2.9	648.4	110-0264E	18
1300.0	25.4	3.0	2.9	674.3	110-0265E	18
1400.0	25.4	3.0	2.9	726.2	110-0266E	18
1500.0	25.4	3.0	2.9	778.1	110-0267E	18
1600.0	25.4	3.0	2.9	830.0	110-0268E	18
1750.0	25.4	3.0	2.9	907.8	110-0269E	18
1900.0	25.4	3.0	2.9	985.6	110-0270E	18
2000.0	25.4	3.0	2.9	1037.4	110-0271E	18
2500.0	25.4	3.0	2.9	1296.8	110-0275E	18
3000.0	25.4	3.0	2.9	1556.2	110-0281E	18
4000.0	25.4	3.0	3.0	2074.9	110-0285E	18
5000.0	25.4	3.0	3.0	2593.6	110-0289E	18
10000.0	25.4	3.0	3.0	5187.2	110-0295E	18
50.0	38.1	12.0	3.7	25.9	110-0405E	37
63.5	38.1	8.0	1.9	32.9	110-0406E	32
75.0	38.1	7.3	2.3	38.9	110-0407E	32
100.0	38.1	6.5	2.9	51.9	110-0409E	29
150.0	38.1	5.1	2.7	77.8	110-0411E	29
200.0	38.1	4.3	2.5	103.7	110-0415E	29
250.0	38.1	4.0	2.6	129.7	110-0417E	29
300.0	38.1	4.0	2.8	155.6	110-0419E	29
350.0	38.1	4.0	3.0	181.6	110-0421E	29

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
400.0	38.1	4.0	3.1	207.5	110-0423E	29
500.0	38.1	4.0	3.3	259.4	110-0427E	29
700.0	38.1	4.0	3.5	363.1	110-0435E	28
1000.0	38.1	4.0	3.7	518.7	110-0445E	28
2500.0	38.1	4.0	3.8	1296.8	110-0450E	28
5000.0	38.1	4.0	3.9	2593.6	110-0455E	28
75.0	50.8	12.3	2.9	38.9	110-0502E	55
100.0	50.8	10.4	3.8	51.9	110-0505E	49
150.0	50.8	7.2	2.9	77.8	110-0507E	46
200.0	50.8	6.1	2.9	103.7	110-0509E	45
250.0	50.8	5.4	2.9	129.7	110-0511E	45
300.0	50.8	5.0	2.9	155.6	110-0515E	45
350.0	50.8	4.7	2.9	181.6	110-0519E	45
400.0	50.8	5.5	3.9	207.5	110-0523E	45
500.0	50.8	5.2	4.0	259.4	110-0525E	45
600.0	50.8	5.0	4.0	311.2	110-0527E	45
650.0	50.8	5.0	4.0	337.2	110-0528E	45
700.0	50.8	5.0	4.1	363.1	110-0529E	45
800.0	50.8	5.0	4.2	415.0	110-0531E	45
1000.0	50.8	5.0	4.4	518.7	110-0535E	45
1500.0	50.8	5.0	4.6	778.1	110-0540E	45
2000.0	50.8	5.0	4.7	1037.4	110-0545E	45
5000.0	50.8	5.0	4.9	2593.6	110-0555E	45
10000.0	50.8	5.0	4.9	5187.2	110-0565E	45
250.0	76.2	12.7	7.0	129.7	110-0711E	120
300.0	76.2	11.7	7.0	155.6	110-0715E	120
400.0	76.2	10.5	7.0	207.5	110-0723E	120
500.0	76.2	9.8	7.0	259.4	110-0725E	120
750.0	76.2	8.9	7.0	389.0	110-0730E	120
1000.0	76.2	8.4	7.0	518.7	110-0735E	120
1500.0	76.2	7.9	7.0	778.1	110-0740E	120
2000.0	76.2	7.7	7.0	1037.4	110-0745E	120
3000.0	76.2	7.5	7.0	1556.2	110-0748E	120

UV FS PLANO-CONVEX LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
25.0	12.7	4.0	2.2	11.9	110-1105E	48
30.0	12.7	3.7	2.2	14.3	110-1106E	48
40.0	12.7	2.5	1.1	19.0	110-1108E	48
50.0	12.7	3.0	2.1	23.8	110-1109E	48
75.0	12.7	3.0	2.4	35.7	110-1111E	48
80.0	12.7	3.5	2.5	38.0	110-1112E	48
90.0	12.7	3.5	3.0	42.8	110-1114E	48
100.0	12.7	3.0	2.6	47.6	110-1115E	48
125.0	12.7	3.0	2.7	59.4	110-1117E	47
150.0	12.7	3.0	2.7	71.3	110-1119E	47
175.0	12.7	3.0	2.8	83.2	110-1121E	47
200.0	12.7	3.0	2.8	95.1	110-1123E	47
250.0	12.7	3.0	2.8	118.9	110-1127E	47
300.0	12.7	3.0	2.9	142.7	110-1129E	47
350.0	12.7	3.0	2.9	166.4	110-1131E	47
400.0	12.7	3.0	2.9	190.2	110-1133E	47
750.0	12.7	3.0	2.9	357.1	110-1141E	47
30.0	25.4	9.75	2.0	14.3	110-1203E	70
40.0	25.4	7.0	2.1	19.0	110-1204E	70
50.0	25.4	6.0	2.3	23.8	110-1205E	70
60.0	25.4	5.0	2.0	28.5	110-1207E	70
75.0	25.4	4.5	2.2	35.7	110-1209E	70
80.0	25.4	4.6	2.4	38.0	110-1210E	70

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
100.0	25.4	4.0	2.3	47.6	110-1211E	70
125.0	25.4	4.0	2.6	59.4	110-1216E	70
150.0	25.4	4.0	2.9	71.3	110-1217E	65
175.0	25.4	4.0	3.0	83.2	110-1218E	65
200.0	25.4	4.0	3.1	95.1	110-1219E	65
250.0	25.4	4.0	3.3	118.9	110-1221E	65
300.0	25.4	4.0	3.4	142.7	110-1223E	65
350.0	25.4	4.0	3.5	166.4	110-1225E	65
400.0	25.4	4.0	3.6	190.2	110-1227E	60
500.0	25.4	4.0	3.7	237.8	110-1233E	60
550.0	25.4	4.0	3.7	261.5	110-1234E	60
600.0	25.4	4.0	3.7	285.3	110-1235E	60
700.0	25.4	4.0	3.8	332.9	110-1238E	60
750.0	25.4	4.0	3.8	356.6	110-1239E	60
800.0	25.4	4.0	3.8	380.4	110-1240E	60
1000.0	25.4	4.0	3.8	475.5	110-1245E	60
1100.0	25.4	4.0	3.8	523.1	110-1246E	60
1500.0	25.4	4.0	3.9	713.3	110-1255E	60
2000.0	25.4	4.0	3.9	951.0	110-1265E	60
5000.0	25.4	4.0	4.0	2377.5	110-1275E	60
50.0	38.1	13.5	3.9	23.8	110-1405E	113
75.0	38.1	8.6	3.1	35.7	110-1409E	113
100.0	38.1	6.9	2.9	47.6	110-1411E	113

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
150.0	38.1	5.4	2.8	71.3	110-1415E	113
200.0	38.1	4.0	2.1	95.1	110-1419E	113
250.0	38.1	4.0	2.5	118.9	110-1423E	113
300.0	38.1	4.0	2.7	142.7	110-1427E	111
350.0	38.1	4.0	3.0	181.6	110-1421E	111
400.0	38.1	4.0	3.0	190.2	110-1431E	111
500.0	38.1	4.0	3.2	237.8	110-1435E	111
600.0	38.1	4.0	3.4	285.3	110-1439E	111
1000.0	38.1	4.0	3.6	475.5	110-1445E	111
1500.0	38.1	4.0	3.7	713.3	110-1455E	111
2500.0	38.1	4.0	3.8	1296.8	110-1450E	111
3000.0	38.1	4.0	3.9	1426.5	110-1465E	111
5000.0	38.1	4.0	3.9	2377.5	110-1475E	111
75.0	50.8	12.2	1.6	35.7	110-1505E	141
100.0	50.8	9.6	2.2	47.6	110-1509E	138
150.0	50.8	6.5	1.8	71.3	110-1511E	138
200.0	50.8	6.0	2.5	95.1	110-1515E	138
250.0	50.8	6.0	3.3	118.9	110-1517E	138
300.0	50.8	6.0	3.7	142.7	110-1519E	138
350.0	50.8	6.0	4.1	166.6	110-1521E	138
400.0	50.8	6.0	4.3	190.2	110-1523E	138
500.0	50.8	6.0	4.6	237.8	110-1527E	138
600.0	50.8	6.0	4.9	285.3	110-1531E	138
700.0	50.8	6.0	5.0	332.9	110-1533E	138
800.0	50.8	6.0	5.2	380.4	110-1535E	138
900.0	50.8	6.0	5.2	428.5	110-1540E	138
1000.0	50.8	6.0	5.3	475.5	110-1545E	138
1500.0	50.8	6.0	5.5	713.3	110-1550E	138
2000.0	50.8	6.0	5.7	951.0	110-1555E	138

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
2500.0	50.8	6.0	5.7	1188.8	110-1565E	138
3000.0	50.8	6.0	5.8	1426.5	110-1564E	138
4000.0	50.8	6.0	5.8	1902.0	110-1566E	138
5000.0	50.8	5.0	4.9	2377.5	110-1567E	138
250.0	76.2	9.0	2.7	118.9	110-1717E	350
300.0	76.2	8.0	2.8	142.7	110-1719E	350
500.0	76.2	7.0	3.9	237.8	110-1727E	350
1000.0	76.2	6.0	4.5	475.5	110-1745E	350
1500.0	76.2	6.0	5.0	713.3	110-1750E	350
2000.0	76.2	6.0	5.2	951.0	110-1755E	350

We can supply custom cutting, edging, coating or complete fabrication if required.

Ordering of Coated Lenses

Please choose relevant coating from anti-reflection coatings section (pages 1.5 - 1.6). The coating code and price should be added to the lens code and price.

Example:

BK7 pl/cx lens Ø12.7 mm, F=1500 mm, coated AR/AR@400-700 nm, AOI=0°

Code: **110-0145E** + **ARB550**,

Lens code Coating code

Price: 15 + 67 EUR= 82 EUR/pc.



CaF₂ PLANO-CONVEX LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
25.0	12.7	4.1	2.0	10.5	110-5105E	70
50.0	12.7	3.0	2.0	20.9	110-5109E	70
75.0	12.7	2.6	2.0	31.4	110-5111E	70
100.0	12.7	2.5	2.0	41.8	110-5115E	70
150.0	12.7	2.3	2.0	62.7	110-5119E	70
200.0	12.7	2.2	2.0	83.6	110-5123E	70
250.0	12.7	2.2	2.0	104.6	110-5127E	70
500.0	12.7	2.1	2.0	209.1	110-5135E	70
1000.0	12.7	3.0	3.0	418.2	110-5145E	70
40.0	25.4	7.9	2.1	16.7	110-5204E	75
50.0	25.4	7.3	3.0	20.9	110-5205E	75
75.0	25.4	5.7	3.0	31.4	110-5209E	75
100.0	25.4	5.0	3.0	41.8	110-5211E	75
125.0	25.4	5.0	3.4	52.3	110-5213E	75
150.0	25.4	4.3	3.0	62.7	110-5217E	75
200.0	25.4	4.0	3.0	83.6	110-5219E	75
250.0	25.4	3.8	3.0	104.6	110-5221E	75
300.0	25.4	3.7	3.1	125.5	110-5222E	75
400.0	25.4	3.5	3.0	167.3	110-5228E	75
500.0	25.4	3.4	3.0	209.1	110-5223E	75
650.0	25.4	3.3	3.0	271.8	110-5229E	75
750.0	25.4	3.0	2.7	313.7	110-5225E	75
1000.0	25.4	3.2	3.0	418.2	110-5227E	75
1500.0	25.4	3.2	3.1	627.3	110-5235E	75

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
2000.0	25.4	3.1	3.0	836.5	110-5240E	75
3000.0	25.4	3.1	3.0	1254.7	110-5245E	75
75.0	50.8	15.9	2.9	31.4	110-5509E	320
100.0	50.8	11.6	3.0	41.8	110-5511E	280
150.0	50.8	8.4	3.0	62.7	110-5517E	260
200.0	50.8	7.0	3.1	83.6	110-5519E	250
250.0	50.8	5.6	2.5	104.6	110-5520E	250
300.0	50.8	5.6	3.0	125.5	110-5522E	250
400.0	50.8	5.6	3.7	167.3	110-5524E	250
500.0	50.8	5.0	3.5	209.1	110-5523E	250
750.0	50.8	5.0	4.0	313.7	110-5528E	250
1000.0	50.8	5.0	4.2	418.2	110-5535E	250
1500.0	50.8	5.0	4.5	627.3	110-5545E	250
1700.0	50.8	5.0	4.5	711.0	110-5550E	250
2000.0	50.8	5.0	4.6	836.5	110-5555E	250

Housing accessories

Self-Centering Lens Mounts 830-0010, 830-0020

Find more at EksmaOptics.com



BICONVEX LENSES

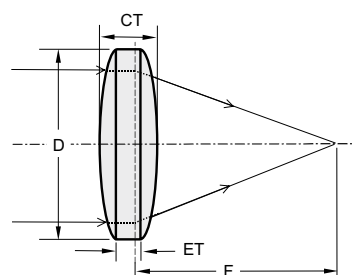
Features

- Have positive focal lengths
- Converge incident light
- Form both real and virtual images
- Minimise spherical aberration as well as cancel coma and distortion at a unit conjugate ratio

Biconvex lenses are all symmetrical, having equal radii on both sides. They are recommended for virtual imaging of real objects and for positive conjugate ratios from 0.2 up to 5. Outside this ratio range plano-convex lenses are usually more suitable. Biconvex lenses are used as magnifiers, objectives, some condensing systems.

Since both surfaces contribute to the power of biconvex lenses, they have shorter focal lengths than plano-convex lenses of equal diameter and surface radius.

Upon customer's request, lenses may be anti-reflection coated. For a required coating please refer to [Coatings Section](#).



Specifications

Material	BK7, UV FS	
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)	
Clear aperture	90% of the diameter	
Diameter tolerance	+0.00 / -0.12 mm	
Thickness tolerance	±0.5 mm	
Surface irregularity	λ/8 @ 633 nm	
Concentricity	3 arcmin	
Paraxial focal length	BK7	±2% @ 546 nm
	UV FS	±2% @ 355 nm

Please contact us if you can not find the lens that you need. We can provide a wide range of special focal lengths, diameters and coatings.

BK7 BICONVEX LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
12.7	12.7	4.8	1.3	12.3	111-0104E	16
25.0	12.7	3.5	1.9	25.3	111-0108E	16
40.0	12.7	2.5	1.5	41.1	111-0114E	16
50.0	12.7	2.5	1.7	51.4	111-0116E	16
60.0	12.7	2.5	1.8	61.8	111-0118E	16
75.0	12.7	2.5	2.0	77.4	111-0120E	15
100.0	12.7	2.0	1.6	103.4	111-0124E	15
125.0	12.7	2.0	1.7	129.3	111-0128E	15
150.0	12.7	2.0	1.7	155.3	111-0132E	15
200.0	12.7	2.0	1.8	207.1	111-0136E	15
250.0	12.7	2.0	1.8	259.0	111-0140E	15
300.0	12.7	2.0	1.9	310.9	111-0144E	15
400.0	12.7	2.0	1.9	414.6	111-0148E	15
500.0	12.7	3.0	2.9	518.2	111-0152E	15
25.0	25.4	9.0	1.8	24.3	111-0204E	21
30.0	25.4	7.5	1.8	29.8	111-0206E	21
40.0	25.4	6.0	1.9	40.4	111-0208E	21
50.0	25.4	6.0	2.8	50.8	111-0210E	19
60.0	25.4	4.0	1.4	61.6	111-0214E	19
75.0	25.4	4.0	1.9	77.1	111-0216E	19
100.0	25.4	4.0	2.4	103.1	111-0218E	17
150.0	25.4	4.0	3.0	154.9	111-0222E	17
200.0	25.4	4.0	3.2	206.8	111-0226E	17
250.0	25.4	4.0	3.4	258.7	111-0228E	17
300.0	25.4	4.0	3.5	310.5	111-0229E	17
500.0	25.4	4.0	3.7	518.0	111-0234E	17
700.0	25.4	4.0	3.8	725.5	111-0240E	17
1000.0	25.4	4.0	3.8	1036.8	111-0250E	17

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
50.0	38.1	10.5	3.0	50.0	111-0404E	31
100.0	38.1	6.0	2.4	102.7	111-0410E	31
150.0	38.1	5.0	2.6	154.8	111-0414E	31
200.0	38.1	5.0	3.2	206.6	111-0418E	31
250.0	38.1	5.0	3.6	258.5	111-0422E	31
300.0	38.1	5.0	3.8	310.4	111-0426E	31
400.0	38.1	5.0	4.1	414.1	111-0430E	31
500.0	38.1	5.0	4.3	517.9	111-0434E	30
700.0	38.1	5.0	4.5	725.4	111-0440E	30
1000.0	38.1	5.0	4.6	1036.6	111-0450E	30
50.0	50.8	15.6	1.4	49.1	111-0504E	51
75.0	50.8	10.0	1.3	76.1	111-0508E	48
100.0	50.8	8.5	2.1	102.3	111-0510E	48
150.0	50.8	6.1	1.9	154.6	111-0512E	47
200.0	50.8	5.0	1.9	206.6	111-0514E	47
300.0	50.8	5.0	2.9	310.4	111-0518E	47
400.0	50.8	5.0	3.4	414.1	111-0522E	47
500.0	50.8	5.0	3.8	517.9	111-0526E	47
750.0	50.8	5.0	4.2	777.2	111-0534E	47
1000.0	50.8	5.0	4.4	1036.6	111-0544E	47
1200.0	50.8	5.0	4.5	1244.1	111-0550E	47
1500.0	50.8	5.0	4.6	1555.3	111-0555E	47

Housing accessories

Self-Centering Lens Mounts 830-0010, 830-0020

Find more at EksmaOptics.com



UV FS BICONVEX LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
12.7	12.7	6.0	2.0	11.0	111-1104E	49
25.0	12.7	3.5	1.7	23.2	111-1108E	48
50.0	12.7	3.0	2.1	47.1	111-1114E	48
75.0	12.7	2.5	1.9	70.9	111-1118E	48
100.0	12.7	2.3	1.9	94.7	111-1122E	48
150.0	12.7	2.2	1.9	142.3	111-1126E	48
25.0	25.4	10.0	2.0	22.1	111-1204E	71
40.0	25.4	7.1	2.6	36.9	111-1207E	71
50.0	25.4	6.0	2.5	46.6	111-1210E	71
75.0	25.4	4.0	1.7	70.8	111-1214E	65
100.0	25.4	4.0	2.3	94.6	111-1218E	65
150.0	25.4	3.2	2.1	142.3	111-1222E	65
200.0	25.4	3.0	2.1	189.9	111-1226E	65
250.0	25.4	3.0	2.3	237.6	111-1230E	65
300.0	25.4	3.0	2.4	285.2	111-1234E	60
400.0	25.4	3.0	2.6	380.4	111-1238E	60
500.0	25.4	3.0	2.7	475.6	111-1240E	60
750.0	25.4	3.0	2.8	713.6	111-1250E	60
1000.0	25.4	3.0	2.8	951.7	111-1260E	60

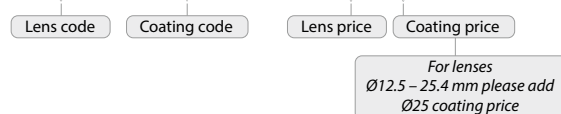
Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
50.0	38.1	11.0	2.7	45.8	111-1404E	116
100.0	38.1	5.4	1.5	94.3	111-1410E	116
150.0	38.1	5.0	2.4	142.0	111-1414E	116
200.0	38.1	5.0	3.1	189.6	111-1418E	116
250.0	38.1	4.0	2.5	237.4	111-1422E	114
300.0	38.1	5.0	3.7	284.8	111-1426E	114
400.0	38.1	5.0	4.0	380.1	111-1430E	114
500.0	38.1	5.0	4.2	475.3	111-1434E	113
700.0	38.1	5.0	4.5	665.7	111-1440E	113
1000.0	38.1	4.7	4.3	951.4	111-1460E	113
50.0	50.8	17.3	1.4	44.6	111-1504E	149
75.0	50.8	11.0	1.4	69.6	111-1508E	148
100.0	50.8	10.0	3.0	93.6	111-1514E	147
150.0	50.8	7.5	2.9	141.6	111-1517E	147
175.0	50.8	6.6	2.7	165.6	111-1520E	147
200.0	50.8	7.0	3.6	189.3	111-1522E	147
250.0	50.8	6.0	3.3	237.1	111-1526E	147
300.0	50.8	6.0	3.7	284.7	111-1530E	146
500.0	50.8	6.0	4.6	474.1	111-1534E	146
1000.0	50.8	6.0	5.3	951.2	111-1550E	146

Ordering of Coated Lenses

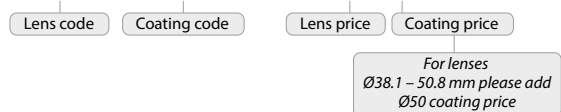
Please choose relevant coating from anti-reflection coatings section (pages 1.5 - 1.6). The coating code and price should be added to the lens code and price.

Example:

1) BK7 bi/cx lens Ø12.7 mm, F=400 mm, coated AR/AR@400-700 nm, AOI=0°
Code: **111-0148E** + **ARB550**, Price: 15 + 67 EUR= 82 EUR/pc.



2) BK7 bi/cx lens Ø38.1 mm, F=1000 mm, coated AR/AR@400-700 nm, AOI=0°
Code: **111-0450E** + **ARB550**, Price: 30 + 80 EUR= 110 EUR/pc.



PLANO-CONCAVE LENSES

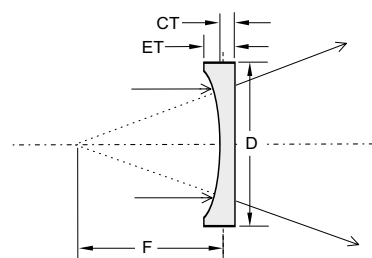
Features

- Have negative focal lengths
- Diverge collimated incident light
- Form only virtual images which are seen through the lens
- Reduce spherical aberration, coma and distortion at negative-infinite or near-infinite conjugate ratios
- With the concave surface facing the longest conjugate distance

These lenses are thicker at the edge than in the centre and flat on one side. The plano- concave lenses are used to expand light beams or to increase focal lengths in optical systems. They are often employed for beam expansion of high peak power pulsed lasers. A beam incident on a concave surface will be focused to a point outside the instrument.

Air heating and ionisation at the unwanted focal point are possible with corresponding mode disruption or material damage. To avoid this problem, the input lens should be reversed so that no concave surface faces a parallel beam.

A variety of anti-reflection coatings is available for these lenses. For an appropriate coating, please refer to the *Coatings Section*.



Specifications

Material	BK7, UV FS, CaF ₂	
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)	
Clear aperture	90% of the diameter	
Diameter tolerance	+0.00 / -0.12 mm	
Thickness tolerance	±0.5 mm	
Surface irregularity	λ/8 @ 633 nm	
Surface irregularity for CaF ₂	λ/4 @ 546 nm	
Concentricity	3 arcmin	
Paraxial focal length	BK7	±2% @ 546 nm
	UV FS	±2% @ 355 nm
	CaF ₂	±2% @ 2940 nm

Please contact us if you can not find the lens that you need. We can provide a wide range of special focal lengths, diameters and coatings.

Most of the Lenses are available for fast off-the-shelf delivery. Check the availability at www.eksmaoptics.com



BK7 PLANO-CONCAVE LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-25.0	12.7	1.9	3.5	-13.0	112-0105E	14
-50.0	12.7	2.7	3.5	-25.9	112-0109E	14
-60.0	12.7	2.4	3.1	-31.1	112-0112E	14
-75.0	12.7	2.9	3.4	-38.9	112-0115E	14
-100.0	12.7	3.0	3.4	-51.9	112-0117E	14
-125.0	12.7	3.1	3.4	-64.8	112-0119E	14
-150.0	12.7	3.2	3.5	-77.8	112-0121E	14
-200.0	12.7	3.3	3.5	-103.7	112-0123E	14
-250.0	12.7	3.3	3.5	-129.7	112-0125E	14
-300.0	12.7	2.9	3.0	-155.6	112-0127E	14
-30.0	25.4	1.4	7.9	-15.6	112-0205E	18
-40.0	25.4	1.7	6.0	-20.7	112-0207E	18
-50.0	25.4	2.7	6.0	-25.9	112-0209E	18
-75.0	25.4	2.9	5.0	-38.9	112-0215E	17
-100.0	25.4	3.1	4.7	-51.9	112-0219E	17
-125.0	25.4	3.0	4.3	-64.8	112-0223E	17
-150.0	25.4	2.7	3.7	-77.8	112-0227E	17
-200.0	25.4	3.0	3.8	-103.7	112-0231E	17
-250.0	25.4	3.1	3.7	-129.7	112-0235E	17
-300.0	25.4	3.1	3.6	-155.6	112-0239E	17

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-400.0	25.4	3.6	4.0	-207.5	112-0243E	17
-450.0	25.4	3.6	3.9	-233.4	112-0245E	17
-500.0	25.4	3.7	4.0	-259.4	112-0247E	17
-650.0	25.4	3.7	4.0	-337.2	112-0250E	17
-750.0	25.4	3.8	4.0	-389.0	112-0252E	17
-1000.0	25.4	3.8	4.0	-518.7	112-0259E	17
-1500.0	25.4	3.9	4.0	-778.1	112-0260E	17
-2000.0	25.4	3.9	4.0	-1037.4	112-0261E	17
-3000.0	25.4	3.9	4.0	-1556.2	112-0263E	17
-5000.0	25.4	4.0	4.0	-2593.6	112-0265E	17
-100.0	38.1	2.0	5.5	-51.9	112-0409E	28
-150.0	38.1	3.3	5.6	-77.8	112-0411E	28
-200.0	38.1	4.2	5.8	-103.7	112-0415E	28
-300.0	38.1	4.8	5.6	-155.6	112-0419E	28
-75.0	50.8	3.0	12.0	-38.9	112-0502E	55
-100.0	50.8	3.4	10.0	-51.9	112-0505E	49
-125.0	50.8	4.8	10.0	-64.8	112-0506E	48
-150.0	50.8	4.7	9.0	-77.8	112-0507E	46
-200.0	50.8	4.8	8.0	-103.7	112-0509E	45
-250.0	50.8	5.0	7.5	-129.7	112-0511E	45

UV FS PLANO-CONCAVE LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-25.0	12.7	1.2	3.0	-11.9	112-1105E	47
-50.0	12.7	2.1	3.0	-23.8	112-1109E	47
-60.0	12.7	2.3	3.0	-28.5	112-1110E	47
-75.0	12.7	2.4	3.0	-35.7	112-1111E	46
-80.0	12.7	2.5	3.0	-38.1	112-1112E	46
-90.0	12.7	2.5	3.0	-42.8	112-1114E	46
-100.0	12.7	2.6	3.0	-47.6	112-1115E	46
-125.0	12.7	2.7	3.0	-59.4	112-1117E	46
-150.0	12.7	2.7	3.0	-71.3	112-1119E	46
-175.0	12.7	2.8	3.0	-83.3	112-1121E	46
-200.0	12.7	2.8	3.0	-95.2	112-1123E	46
-250.0	12.7	2.8	3.0	-118.9	112-1127E	46
-30.0	25.4	1.6	9.3	-14.3	112-1203E	75
-50.0	25.4	1.9	5.5	-23.8	112-1205E	70
-75.0	25.4	3.1	5.4	-35.7	112-1209E	70
-100.0	25.4	3.0	4.7	-47.6	112-1211E	70
-125.0	25.4	3.0	4.4	-59.5	112-1215E	70
-150.0	25.4	3.1	4.2	-71.3	112-1217E	65
-200.0	25.4	3.1	4.0	-95.2	112-1219E	65

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-250.0	25.4	3.3	4.0	-118.9	112-1221E	65
-300.0	25.4	3.4	4.0	-142.8	112-1223E	65
-400.0	25.4	3.6	4.0	-190.4	112-1227E	60
-500.0	25.4	3.7	4.0	-237.8	112-1233E	60
-750.0	25.4	3.8	4.0	-357.1	112-1239E	60
-1000.0	25.4	3.8	4.0	-475.5	112-1245E	60
-2000.0	25.4	3.9	4.0	-952.4	112-1250E	60
-5000.0	25.4	2.0	2.0	-2380.0	112-1255E	60
-100.0	38.1	2.4	6.4	-47.6	112-1411E	110
-150.0	38.1	3.0	5.5	-71.4	112-1415E	110
-200.0	38.1	3.0	4.9	-95.1	112-1419E	110
-300.0	38.1	4.3	5.6	-142.7	112-1427E	110
-100.0	50.8	5.0	11.9	-47.6	112-1509E	138
-150.0	50.8	3.2	7.9	-71.4	112-1512E	138
-250.0	50.8	3.1	5.7	-118.9	112-1517E	138
-300.0	50.8	3.5	5.8	-142.8	112-1519E	138
-500.0	50.8	4.7	6.0	-237.8	112-1527E	138
-2000.0	50.8	5.8	6.0	-951.0	112-1540E	138

CaF₂ PLANO-CONCAVE LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-25.0	12.7	1.9	4.0	-10.5	112-5105E	70
-50.0	12.7	2.0	3.0	-20.9	112-5109E	70
-75.0	12.7	2.4	3.0	-31.4	112-5111E	70
-100.0	12.7	2.5	3.0	-41.8	112-5115E	70
-150.0	12.7	2.7	3.0	-62.7	112-5120E	70
-200.0	12.7	1.8	2.0	-83.6	112-5125E	70
-250.0	12.7	1.8	2.0	-104.6	112-5130E	70
-500.0	12.7	1.9	2.0	-209.1	112-5135E	70
-40.0	25.4	2.5	8.3	-16.7	112-5204E	75
-50.0	25.4	2.7	7.0	-20.9	112-5205E	75
-75.0	25.4	2.8	5.5	-31.4	112-5209E	75
-100.0	25.4	3.0	5.0	-41.8	112-5211E	75
-150.0	25.4	2.7	4.0	-62.7	112-5217E	75
-200.0	25.4	3.0	4.0	-83.6	112-5219E	75
-250.0	25.4	3.2	4.0	-104.6	112-5223E	75
-300.0	25.4	3.4	4.0	-125.5	112-5225E	75
-400.0	25.4	3.5	4.0	-167.3	112-5228E	75
-500.0	25.4	2.6	3.0	-209.1	112-5230E	75
-1000.0	25.4	2.8	3.0	-418.2	112-5235E	75
-200.0	50.8	3.6	7.5	-83.6	112-5519E	180
-300.0	50.8	3.0	5.6	-125.5	112-5525E	180
-500.0	50.8	4.0	5.5	-209.1	112-5530E	180

We can supply custom cutting, edging, coating or complete fabrication if required. If you do not find what you need in our catalogue, please send your specification or drawings for a custom quotation.

Housing accessories

Adjustable Lens Mounts 830-0030

Find more at [EksmaOptics.com](https://www.eksmaoptics.com)



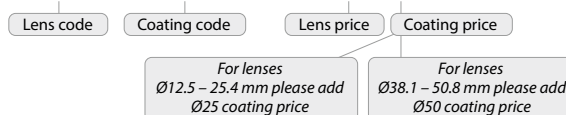
Ordering of Coated Lenses

Please choose relevant coating from anti-reflection coatings section (*pages 1.5 - 1.6*). The coating code and price should be added to the lens code and price.

Example:

BK7 p/cv lens Ø12.7 mm, F=-250 mm, coated AR/AR@400-700 nm, AOI=0°

Code: **112-0125E + ARB550**, Price: 14 + 67 EUR= 81 EUR/pc.



BICONCAVE LENSES

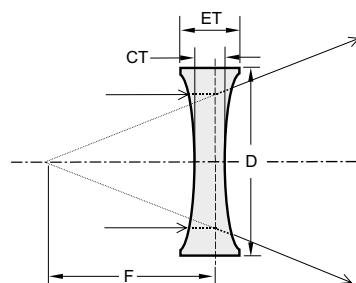
Features

- Have negative focal lengths, diverge collimated incident light
- Form only virtual images which are seen through the lens
- Minimise spherical aberration, coma and distortion at unit conjugate ratio

These lenses are symmetrical, having equal radii on both sides. Biconcave lenses are often used to expand light beams or to increase focal lengths in optical systems, and are normally used in combination with other lenses. Among the many devices utilising biconcave lenses are laser beam expanders, optical character readers, viewers and projection systems.

A variety of anti-reflection coatings is available for these lenses. For appropriate coating, please refer to the [Coatings Section](#).

Most of the Lenses are available for fast off-the-shelf delivery. Check the availability at www.eksmaoptics.com



Specifications

Material	BK7, UV FS	
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)	
Clear aperture	90% of the diameter	
Diameter tolerance	+0.00 / -0.12 mm	
Thickness tolerance	±0.5 mm	
Surface irregularity	λ/8 @ 633 nm	
Concentricity	3 arcmin	
Paraxial focal length	BK7	±2% @ 546 nm
	UV FS	±2% @ 355 nm

Please contact us if you can not find the lens that you need. We can provide a wide range of special focal lengths, diameters and coatings.

BK7 BICONCAVE LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-12.7	12.7	3.2	5.5	-13.7	114-0104E	15
-25.0	12.7	2.2	3.2	-26.3	114-0106E	15
-40.0	12.7	2.4	3.1	-41.9	114-0108E	15
-50.0	12.7	2.6	3.1	-52.3	114-0110E	15
-60.0	12.7	2.6	3.0	-62.7	114-0112E	15
-75.0	12.7	2.7	3.0	-78.3	114-0114E	15
-100.0	12.7	2.8	3.0	-104.2	114-0118E	15
-125.0	12.7	1.7	2.0	-130.0	114-0120E	14
-150.0	12.7	1.8	2.0	-155.9	114-0124E	14
-200.0	12.7	1.8	2.0	-207.8	114-0128E	14
-250.0	12.7	1.8	2.0	-259.7	114-0132E	14

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-25.0	25.4	4.8	10.2	-26.7	114-0204E	19
-40.0	25.4	2.7	6.2	-42.0	114-0206E	19
-50.0	25.4	4.5	7.5	-52.6	114-0208E	19
-60.0	25.4	2.6	5.2	-62.7	114-0210E	19
-75.0	25.4	3.7	5.5	-78.4	114-0212E	18
-100.0	25.4	3.2	4.6	-104.3	114-0214E	17
-125.0	25.4	3.1	4.3	-130.2	114-0218E	17
-150.0	25.4	3.0	4.0	-156.1	114-0220E	17
-200.0	25.4	2.8	3.6	-208.0	114-0224E	17
-250.0	25.4	2.9	3.5	-259.9	114-0228E	17
-400.0	25.4	3.2	3.6	-415.5	114-0234E	17
-500.0	25.4	3.2	3.5	-519.3	114-0238E	17

Housing accessories

Variable Lens Holder 830-0040

Find more at EksmaOptics.com



Ordering of Coated Lenses

Please choose relevant coating from anti-reflection coatings section (pages 1.5 - 1.6). The coating code and price should be added to the lens code and price.

Example:

BK7 bi/cv lens Ø12.7 mm, F=-250 mm, coated AR/AR@400-700 nm, AOI=0°
Code: **114-0132E + ARB550**, Price: 14 + 67 EUR= 81 EUR/pc.

Lens code	Coating code	Lens price	Coating price
114-0132E	ARB550	14	67
For lenses Ø12.5 – 25.4 mm please add Ø25 coating price			

UV FS BICONCAVE LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-12.7	12.7	3.7	6.7	-12.6	114-1104E	49
-25.0	12.7	2.8	4.0	-24.2	114-1108E	49
-30.0	12.7	3.0	4.0	-29.0	114-1110E	49
-50.0	12.7	2.6	3.2	-48.0	114-1114E	49
-75.0	12.7	2.7	3.1	-71.8	114-1118E	49
-100.0	12.7	2.8	3.0	-95.5	114-1122E	47
-25.0	25.4	5.3	12.0	-24.6	114-1204E	71
-30.0	25.4	3.0	7.5	-29.0	114-1205E	71
-50.0	25.4	2.6	6.0	-48.0	114-1208E	71
-75.0	25.4	3.8	6.1	-71.9	114-1212E	71
-100.0	25.4	3.6	5.3	-95.7	114-1216E	71
-150.0	25.4	4.4	5.3	-143.4	114-1220E	71
-200.0	25.4	3.0	3.8	-190.7	114-1224E	70

Please contact us for other size, focus or precision requirements.

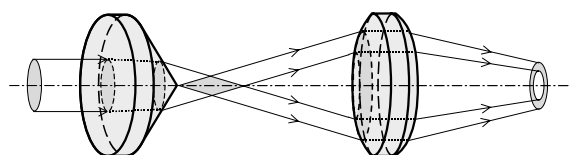
CONICAL LENSES (AXICONS)

Features

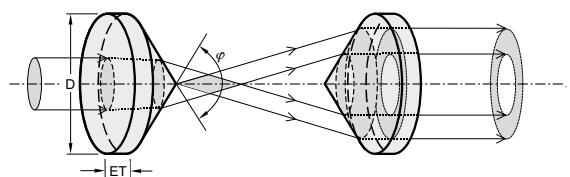
- Precision and standard grade axicons
- Can be made from most optical materials
- Can be supplied with AR and BBAR coatings

We can supply custom cutting, edging, coating or complete fabrication if required. If you cannot find your axicons needed, please send your specification or drawings for a custom quotation.

An axicon with a spherical lens produces an annular focus.



Two axicons together produce a thick-walled hollow "pipe" of light.



PRECISION GRADE PLANO-CONVEX AXICONS

Apex angle ϕ , deg	Diameter D, mm	Edge thickness ET, mm	Centre thickness CT, mm	Catalogue number	Price, EUR
90	25.4	3.5	16.2	131-1290	360
130	25.4	3.5	9.4	131-1230	360
140	25.4	3.5	8.1	131-1240	360
160	25.4	3.5	5.7	131-1260	360
165	25.4	3.5	5.2	131-1265	360
170	25.4	3.5	4.6	131-1270	360
175	25.4	3.5	4.1	131-1275	360
176	25.4	3.5	3.9	131-1276	360
177	25.4	3.5	3.8	131-1277	360
178	25.4	3.5	3.7	131-1278	360
179	25.4	3.5	3.6	131-1279	360
160	50.8	5	9.4	131-1560	685
170	50.8	5	7.2	131-1570	685
176	50.8	5	5.9	131-1576	685
178	50.8	5	5.4	131-1578	685
179	50.8	5	5.2	131-1579	685

Specifications

Material	UVFS
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.00 / -0.1 mm
Angle tolerance	$\pm 0.05^\circ$ (± 3 arcmin)
Surface irregularity	S1 (conical): $\pm 0.5 \mu\text{m}$ S2 (flat): $\lambda/4$ @ 633 nm
Apex rounding	< $\varnothing 1$ mm

Housing accessories

Universal Adjustable Lens/Optics Mount 830-0035

Find more at EksmaOptics.com



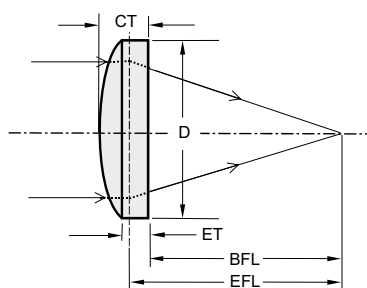
STANDARD PLANO-CONVEX AXICONS

Apex angle ϕ , deg	Diameter D, mm	Edge thickness ET, mm	Centre thickness CT, mm	BK7		UV FS	
				Catalogue number	Price, EUR	Catalogue number	Price, EUR
140	25.4	8	12.6	130-0240	160	130-1240	283
160	25.4	8	10.2	130-0260	160	130-1260	283
165	25.4	8	9.7	130-0265	160	130-1265	283
170	25.4	8	9.1	130-0270	160	130-1270	283
175	25.4	8	8.6	130-0275	160	130-1275	283
178	25.4	8	8.2	130-0278	160	130-1278	283

Specifications

Material	BK7, UV FS
Surface quality	60 – 40 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.00 / -0.12 mm
Angle tolerance	$\pm 0.5^\circ$
Surface irregularity	S1 (conical): $\pm 2.5 \mu\text{m}$ S2 (flat): $\lambda @ 633 \text{ nm}$

PRECISION ASPHERICAL LENSES



Aspherical lenses are designed to reduce spherical aberration. Complex multi-lens systems designed for compensation of spherical aberration can often be replaced with a single aspheric lens. We can produce aspherical lenses of custom design using your drawings or specifications in our CNC lens polishing facility.

Specifications

Standard material [Refractive index]	N-BK7 [1.517] S-LAH64 [1.788] UVFS [1.453]
Design wavelength	780 nm
Surface quality	40 – 20 scratch & dig (uncoated)
Clear aperture	>90% of diameter
Diameter tolerance	+0.0 / -0.05 mm
Bevel	0.3 mm max @ 45°
Center thickness tolerance	$\leq 0.05 \text{ mm}$
EFL tolerance	$\leq 0.1\%$
Asphere figure error P-V	$\pm 1 \mu\text{m}$
Surface form deviation RMS	$\leq 0.5 \mu\text{m}$

Aspheric lenses with surface figure error P-V $< 0.6 \mu\text{m}$ are available on request.

Substrate	D, mm	EFL, mm	BFL, mm	CT, mm	CA, mm	NA	Catalogue number	Price, EUR
S-LAH64	12.5	10	7.6	4.3	11.3	0.544	116-1210	130
UVFS	12.7	20	17	4.4	11.4	0.275	117-1220	245
UVFS	12.7	25	22	3.8	11.4	0.223	117-1225	245
N-BK7	12.5	25	22.4	4.0	11.3	0.227	115-1225	130
UVFS	12.7	15	11.4	5.3	11.4	0.356	117-1215	245
UVFS	12.7	30	27.6	3.5	11.4	0.187	117-1230	245
UVFS	12.7	40	36.2	5.5	11.4	0.144	117-1240	245
S-LAH64	25	20	15.7	7.6	22.5	0.543	116-2520	170
N-BK7	25	50	46	6.0	22.5	0.232	115-2550	170
N-BK7	25	32	27.4	7.0	22.5	0.359	115-2532	170
UVFS	25.4	20	9.9	14.7	22.9	0.496	117-2520	320
UVFS	25.4	25	17.8	10.5	22.9	0.416	117-2525	320
UVFS	25.4	30	24.5	8.0	22.9	0.398	117-2530	320
UVFS	25.4	40	35.9	6.0	22.9	0.292	117-2540	320
UVFS	25.4	50	46.6	5.0	22.9	0.232	117-2550	320
UVFS	25.4	60	56.6	5.0	22.9	0.192	117-2560	320
S-LAH64	50	40	31.3	15.5	45.0	0.554	116-5040	310
N-BK7	50	100	93.4	10.0	45.0	0.237	115-5100	310
UVFS	50.8	50	37.0	18.9	45.7	0.416	117-5050	590
UVFS	50.8	60	49.5	15.2	45.7	0.356	117-5060	570
UVFS	50.8	75	66.7	12.1	45.7	0.292	117-5075	560
UVFS	50.8	100	93.6	9.4	45.7	0.223	117-5100	550

PLANO-CYLINDRICAL LENSES

Features

- Condense or expand light in one dimension only
- Ideal for producing line images, for scanning and projection

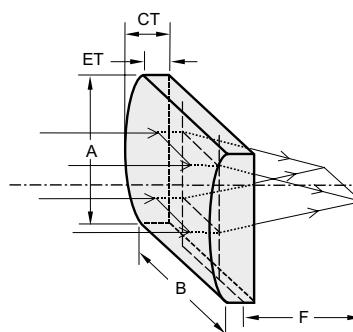
We offer a selection of cylindrical lenses that are either plano-convex or plano-concave in form and rectangular in shape. These lenses are used to focus light to a thin line in laser scanners, spectroscopy, dye lasers, acousto-optics, optical processors and other similar applications. They are the best for circularisation of diode laser outputs, energy collection for linear detectors or for coupling to a slit input.

Earlier remarks made about plano-convex and plano-concave spherical lenses with regard to aberrations and conjugate ratios are also applicable to cylindrical lenses.

A variety of anti-reflection coatings is available for these lenses. For an appropriate coating, please refer to the *Coatings Section*.

Please contact us for other size, focus or precision requirements.

We can supply custom cutting, edging, coating or complete fabrication if required.



Specifications

Material	BK7, UV FS	
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)	
Clear aperture	90% of the diameter	
Size tolerance	±0.5 mm	
Thickness tolerance	±0.5 mm	
Surface irregularity	$\lambda/4$ @ 633 nm	
Paraxial focal length	BK7	±2% @ 546 nm
	UV FS	±2% @ 355 nm

BK7 PLANO-CONVEX CYLINDRICAL LENSES

Focal length F, mm	Dimensions		Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
	A, mm	B, mm					
15	12.7	12.7	4.8	1.5	7.8	120-0105E	40
25	19.1	25.4	6.1	2.0	13.0	120-0110E	60
25	25.4	25.4	14	2.5	13.0	120-0202E	60
30	25.4	25.4	8.5	2.0	15.6	120-0201E	60
40	25.4	25.4	6.4	2.0	20.7	120-0203E	60
50	25.4	25.4	5.2	2.0	25.9	120-0204E	55
50	25.4	50.8	5.2	2.0	25.9	120-0205E	85
75	25.4	25.4	4.1	2.0	38.9	120-0209E	55
75	25.4	50.8	4.1	2.0	38.9	120-0210E	85
100	25.4	25.4	3.5	2.0	51.9	120-0214E	55
100	25.4	50.8	3.5	2.0	51.9	120-0215E	85
150	25.4	25.4	3.0	2.0	77.8	120-0219E	55
150	25.4	50.8	3.0	2.0	77.8	120-0220E	85
200	25.4	25.4	2.8	2.0	103.7	120-0224E	55
200	25.4	50.8	2.8	2.0	103.7	120-0225E	85
300	25.4	25.4	2.5	2.0	155.6	120-0229E	55
300	25.4	50.8	2.5	2.0	155.6	120-0230E	85
500	25.4	25.4	2.4	2.0	259.4	120-0234E	59
500	25.4	50.8	2.4	2.0	259.4	120-0235E	95
1000	25.4	25.4	2.3	2.0	518.7	120-0239E	59
1000	25.4	50.8	2.3	2.0	518.7	120-0240E	95
1500	25.4	25.4	2.2	2.0	778.1	120-0244E	59
1500	25.4	50.8	2.2	2.0	778.1	120-0245E	95

UV FS PLANO-CONVEX CYLINDRICAL LENSES

Focal length F, mm	Dimensions		Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
	A, mm	B, mm					
15	12.7	12.7	4.9	2.0	7.1	120-1104E	69
25	19.1	25.4	8.0	3.0	11.9	120-1105E	97
30	25.4	25.4	10.0	2.5	14.3	120-1201E	97
40	25.4	25.4	8.0	3.1	19.0	120-1203E	97
50	25.4	25.4	7.1	3.5	23.8	120-1204E	95
50	25.4	50.8	7.1	3.5	23.8	120-1205E	170
75	25.4	25.4	5.6	3.3	35.7	120-1209E	91
75	25.4	50.8	5.6	3.3	35.7	120-1210E	170
100	25.4	25.4	4.7	3.0	47.6	120-1214E	87
100	25.4	50.8	4.7	3.0	47.6	120-1215E	161
125	25.4	25.4	4.4	3.0	59.4	120-1217E	87
150	25.4	25.4	4.1	3.0	71.3	120-1219E	87
150	25.4	50.8	4.1	3.0	71.3	120-1220E	161
200	25.4	25.4	4.3	3.5	95.1	120-1224E	87
200	25.4	50.8	4.3	3.5	95.1	120-1225E	161
250	25.4	25.4	4.2	3.5	118.9	120-1226E	87
250	25.4	50.8	4.2	3.5	118.9	120-1227E	161
300	25.4	25.4	4.1	3.5	142.7	120-1229E	87
300	25.4	50.8	4.1	3.5	142.7	120-1230E	161
500	25.4	25.4	3.8	3.5	237.8	120-1234E	95
500	25.4	50.8	3.8	3.5	237.8	120-1235E	177
1000	25.4	25.4	2.5	2.3	475.5	120-1239E	95
1000	25.4	50.8	2.5	2.3	475.5	120-1240E	177
1500	25.4	25.4	2.2	2.0	713.3	120-1244E	95
1500	25.4	50.8	2.2	2.0	713.3	120-1245E	177

BK7 PLANO-CONCAVE CYLINDRICAL LENSES

Focal length F, mm	Dimensions		Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
	A, mm	B, mm					
-15	12.7	12.7	1.4	3.7	-7.8	122-0105E	40
-25	19.1	25.4	2.0	6.0	-13.0	122-0110E	60
-50	25.4	25.4	2.0	5.2	-25.9	122-0204E	55
-50	25.4	50.8	2.0	5.2	-25.9	122-0205E	85
-75	25.4	25.4	2.0	4.1	-38.9	122-0209E	55
-75	25.4	50.8	2.0	4.1	-38.9	122-0210E	85
-100	25.4	25.4	2.0	3.5	-51.9	122-0214E	55
-100	25.4	50.8	2.0	3.5	-51.9	122-0215E	85
-150	25.4	25.4	2.0	3.0	-77.8	122-0219E	55
-150	25.4	50.8	2.0	3.0	-77.8	122-0220E	85
-200	25.4	25.4	2.0	2.8	-103.7	122-0224E	55
-200	25.4	50.8	2.0	2.8	-103.7	122-0225E	85
-250	25.4	25.4	2.0	2.7	-129.7	122-0226E	55
-250	25.4	50.8	2.0	2.7	-129.7	122-0227E	85
-300	25.4	25.4	2.0	2.5	-155.6	122-0229E	55
-300	25.4	50.8	2.0	2.5	-155.6	122-0230E	85
-500	25.4	25.4	2.0	2.4	-259.4	122-0234E	59
-500	25.4	50.8	2.0	2.4	-259.4	122-0235E	95

UV FS PLANO-CONCAVE CYLINDRICAL LENSES

Focal length F, mm	Dimensions		Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
	A, mm	B, mm					
-15	12.7	12.7	2.0	4.9	-7.1	122-1104E	69
-25	19.1	25.4	3.0	8.0	-11.9	122-1105E	97
-30	25.4	25.4	2.5	10.0	-14.3	122-1201E	97
-50	25.4	25.4	3.5	7.1	-23.8	122-1204E	95
-50	25.4	50.8	3.5	7.1	-23.8	122-1205E	199
-75	25.4	25.4	3.3	5.6	-35.7	122-1209E	95
-75	25.4	50.8	3.3	5.6	-35.7	122-1210E	199
-100	25.4	25.4	3.0	4.7	-47.6	122-1214E	95
-100	25.4	50.8	3.0	4.7	-47.6	122-1215E	199
-150	25.4	25.4	3.0	4.1	-71.3	122-1219E	95
-150	25.4	50.8	3.0	4.1	-71.3	122-1220E	199
-200	25.4	25.4	3.8	4.6	-95.1	122-1224E	95
-200	25.4	50.8	3.8	4.6	-95.1	122-1225E	199
-300	25.4	25.4	3.5	4.1	-142.7	122-1229E	95
-300	25.4	50.8	3.5	4.1	-142.7	122-1230E	199
-500	25.4	25.4	3.5	3.8	-237.8	122-1234E	113
-500	25.4	50.8	3.5	3.8	-237.8	122-1235E	209

Ordering of Coated Lenses

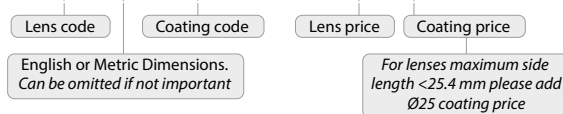
Please choose relevant coating from anti-reflection coatings section (pages 1.5 - 1.6). The coating code and price should be added to the lens code and price.

Example:

BK7 pl/cx cylindrical lens, dimensions: 10x10 mm, F = 15 mm, coated AR/AR @ 400-700 nm, AOI=0°

Code: **120-0105 E + ARB550**,

Price: 40 + 67 EUR= 107 EUR/pc.



Housing accessories

Rectangular Optics Holders 830-0100, 830-0110

Find more at EksmaOptics.com



For applications where fine adjustment is required, use Prism Holders 840-0160, 840-0170

Find more at EksmaOptics.com



LENS KITS



Lens kits contain different types (plano-convex, biconvex, plano-concave, biconcave) of Ø25.4 mm lenses with various focal lengths. Kits are packed into foam lined plastic the new plastic boxes for safe handling and storage.

Large lens kit consists of 40 lenses and small lens kit consists of 15 lenses made either of N-BK7 glass or UVFS. Kits are available uncoated, as well as BBAR coated or with AR coatings for particular laser wavelengths.

SPHERICAL N-BK7 LENS KITS



Small Lens Kit

Please refer to Nd:YAG Laser Line (see page 3.13) or Femtoline (see page 4.20) section for lens kits with AR coated lenses for particular laser applications.

Small kit of 15 pcs. N-BK7 lenses

Coating	Catalogue number	Price, EUR
uncoated	140-0215	341
BBAR @ 400 – 700 nm, R<0.9%	140-0215-AR400-700	1089
BBAR @ 650 – 1100 nm, R<1.0%	140-0215-AR650-1100	1155
BBAR @ 1050 – 1700 nm, R<1.0%	140-0215-AR1050-1700	1265
AR @ 532 + 1064 nm, R<0.5%	140-0215-AR532+1064	847
AR @ 1064 nm, R<0.25%	140-0215-AR1064	770
AR @ 532 nm, R<0.25%	140-0215-AR532	770

Small BK7 Lens Kit

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	30	110-0205E
pl/cx	25.4	40	110-0207E
pl/cx	25.4	50	110-0209E
pl/cx	25.4	60	110-0211E
pl/cx	25.4	75	110-0215E
pl/cx	25.4	100	110-0219E
pl/cx	25.4	150	110-0227E
pl/cx	25.4	200	110-0231E

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	500	110-0247E
pl/cx	25.4	1000	110-0259E
pl/cv	25.4	-40	112-0207E
pl/cv	25.4	-50	112-0209E
pl/cv	25.4	-75	112-0215E
pl/cv	25.4	-100	112-0219E
pl/cv	25.4	-150	112-0227E

Large kit of 40 pcs. N-BK7 lenses

Coating	Catalogue number	Price, EUR
uncoated	140-0240	858
BBAR @ 400 – 700 nm, R<0.9%	140-0240-AR400-700	2002
BBAR @ 650 – 1100 nm, R<1.0%	140-0240-AR650-1100	2123
BBAR @ 1050 – 1700 nm, R<1.0%	140-0240-AR1050-1700	2233
AR @ 532 + 1064 nm, R<0.5%	140-0240-AR532+1064	1925
AR @ 1064 nm, R<0.25%	140-0240-AR1064	1705
AR @ 532 nm, R<0.25%	140-0240-AR532	1705

Large BK7 Lens Kit

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	30	110-0205E
pl/cx	25.4	40	110-0207E
pl/cx	25.4	50	110-0209E
pl/cx	25.4	60	110-0211E
pl/cx	25.4	75	110-0215E
pl/cx	25.4	100	110-0219E
pl/cx	25.4	125	110-0223E
pl/cx	25.4	150	110-0227E
pl/cx	25.4	200	110-0231E
pl/cx	25.4	250	110-0235E
pl/cx	25.4	300	110-0239E
pl/cx	25.4	350	110-0241E
pl/cx	25.4	400	110-0243E
pl/cx	25.4	500	110-0247E

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	700	110-0251E
pl/cx	25.4	1000	110-0259E
bi/cx	25.4	25	111-0204E
bi/cx	25.4	30	111-0206E
bi/cx	25.4	40	111-0208E
bi/cx	25.4	50	111-0210E
bi/cx	25.4	60	111-0214E
bi/cx	25.4	75	111-0216E
bi/cx	25.4	100	111-0218E
bi/cx	25.4	150	111-0222E
bi/cx	25.4	200	111-0226E
bi/cx	25.4	250	111-0228E
bi/cx	25.4	500	111-0234E
bi/cx	25.4	1000	111-0250E

Type	Dia, mm	F, mm	Catalogue nr.
pl/cv	25.4	-40	112-0207E
pl/cv	25.4	-50	112-0209E
pl/cv	25.4	-75	112-0215E
pl/cv	25.4	-100	112-0219E
pl/cv	25.4	-150	112-0227E
pl/cv	25.4	-200	112-0231E
bi/cv	25.4	-25	114-0204E
bi/cv	25.4	-50	114-0208E
bi/cv	25.4	-75	114-0212E
bi/cv	25.4	-100	114-0214E
bi/cv	25.4	-150	114-0220E
bi/cv	25.4	-200	114-0224E

SPHERICAL UV FS LENS KITS



Large Lens Kit

Related products

Tweezers/Forceps for Optical Components
260-1050

See page A.4



Small kit of 15 pcs. UV FS lenses

Coating	Catalogue number	Price, EUR
uncoated	140-1215	1023
BBAR @ 210 – 400 nm, R<2%	140-1215-AR210-400	2013
BBAR @ 350 – 900 nm, R<1.5%	140-1215-AR350-900	1826
BBAR @ 760 – 840 nm, R<0.4%	140-1215-AR760-840	1683
BBAR @ 700 – 900 nm, R<0.8%	140-1215-AR700-900	1771
BBAR @ 650 – 1100 nm, R<1%	140-1215-AR650-1100	1837
AR @ 532 + 1064 nm, R<0.5%	140-1215-AR532+1064	1529
AR @ 1064 nm, R<0.25%	140-1215-AR1064	1452
AR @ 532 nm, R<0.25%	140-1215-AR532	1452
AR @ 355 nm, R<0.25%	140-1215-AR355	1485
AR @ 266 nm, R<0.4%	140-1215-AR266	1518
AR @ 1030 nm, R<0.25%	140-1215-AR1030	1452
AR @ 515 nm, R<0.25%	140-1215-AR515	1452
AR @ 343 nm, R<0.3%	140-1215-AR343	1485
AR @ 258 nm, R<0.4%	140-1215-AR258	1518

Small UV FS Lens Kit

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	30	110-1203E
pl/cx	25.4	50	110-1205E
pl/cx	25.4	75	110-1209E
pl/cx	25.4	100	110-1211E
pl/cx	25.4	125	110-1216E
pl/cx	25.4	150	110-1217E
pl/cx	25.4	200	110-1219E
pl/cx	25.4	300	110-1223E

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	500	110-1233E
pl/cx	25.4	1000	110-1245E
pl/cv	25.4	-50	112-1205E
pl/cv	25.4	-75	112-1209E
pl/cv	25.4	-100	112-1211E
pl/cv	25.4	-125	112-1215E
pl/cv	25.4	-150	112-1217E

Large kit of 40 pcs. UV FS lenses

Coating	Catalogue number	Price, EUR
uncoated	140-1240	2376
BBAR @ 210 – 400 nm, R<2%	140-1240-AR210-400	3839
BBAR @ 350 – 900 nm, R<1.5%	140-1240-AR350-900	3619
BBAR @ 760 – 840 nm, R<0.4%	140-1240-AR760-840	3344
BBAR @ 700 – 900 nm, R<0.8%	140-1240-AR700-900	3531
BBAR @ 650 – 1100 nm, R<1%	140-1240-AR650-1100	3641
AR @ 532 + 1064 nm, R<0.5%	140-1240-AR532+1064	3443
AR @ 1064 nm, R<0.25%	140-1240-AR1064	3223
AR @ 532 nm, R<0.25%	140-1240-AR532	3223
AR @ 355 nm, R<0.25%	140-1240-AR355	3333
AR @ 266 nm, R<0.4%	140-1240-AR266	3443
AR @ 1030 nm, R<0.25%	140-1240-AR1030	3223
AR @ 515 nm, R<0.25%	140-1240-AR515	3223
AR @ 343 nm, R<0.3%	140-1240-AR343	3333
AR @ 258 nm, R<0.4%	140-1240-AR258	3443

Large UV FS Lens Kit

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	30	110-1203E
pl/cx	25.4	50	110-1205E
pl/cx	25.4	75	110-1209E
pl/cx	25.4	80	110-1210E
pl/cx	25.4	100	110-1211E
pl/cx	25.4	125	110-1216E
pl/cx	25.4	150	110-1217E
pl/cx	25.4	200	110-1219E
pl/cx	25.4	250	110-1221E
pl/cx	25.4	300	110-1223E
pl/cx	25.4	350	110-1225E

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	400	110-1227E
pl/cx	25.4	500	110-1233E
pl/cx	25.4	600	110-1235E
pl/cx	25.4	750	110-1239E
pl/cx	25.4	1000	110-1245E
bi/cx	25.4	25	111-1204E
bi/cx	25.4	40	111-1207E
bi/cx	25.4	50	111-1210E
bi/cx	25.4	75	111-1214E
bi/cx	25.4	100	111-1218E
bi/cx	25.4	150	111-1222E

Type	Dia, mm	F, mm	Catalogue nr.
bi/cx	25.4	200	111-1226E
bi/cx	25.4	250	111-1230E
bi/cx	25.4	300	111-1234E
bi/cx	25.4	400	111-1238E
bi/cx	25.4	500	111-1240E
bi/cx	25.4	1000	111-1260E
pl/cv	25.4	-50	112-1205E
pl/cv	25.4	-75	112-1209E
pl/cv	25.4	-100	112-1211E

Type	Dia, mm	F, mm	Catalogue nr.
pl/cv	25.4	-150	112-1217E
pl/cv	25.4	-200	112-1219E
pl/cv	25.4	-300	112-1223E
bi/cv	25.4	-25	114-1204E
bi/cv	25.4	-50	114-1208E
bi/cv	25.4	-75	114-1212E
bi/cv	25.4	-100	114-1216E
bi/cv	25.4	-150	114-1220E
bi/cv	25.4	-200	114-1224E

CYLINDRICAL N-BK7 LENS KIT

Cylindrical Lens Kit of 12 pcs. N-BK7 lenses

Coating	Catalogue number	Price, EUR
uncoated	140-0212	1045
BBAR @ 400 – 700 nm, R<0.9%	140-0212-AR400-700	1925
BBAR @ 650 – 1100 nm, R<0.7%	140-0212-AR650-1100	1997
BBAR @ 1050 – 1700 nm, R<0.7%	140-0212-AR1050-1700	2222
AR @ 1064 nm, R<0.25%	140-0212-AR1064	1705
AR @ 532 + 1064 nm, R<0.5%	140-0212-ARD1064	1782

Cylindrical N-BK7 lens kit

Type	Size, mm	F, mm	Catalogue nr.
pl/cx	25.4 x 50.8	50	120-0205E
pl/cx	25.4 x 50.8	75	120-0210E
pl/cx	25.4 x 50.8	100	120-0215E
pl/cx	25.4 x 50.8	150	120-0220E
pl/cx	25.4 x 50.8	200	120-0225E
pl/cx	25.4 x 50.8	300	120-0230E
pl/cx	25.4 x 50.8	500	120-0235E

Type	Size, mm	F, mm	Catalogue nr.
pl/cx	25.4 x 50.8	1000	120-0240E
pl/cv	25.4 x 50.8	-50	122-0205E
pl/cv	25.4 x 50.8	-75	122-0210E
pl/cv	25.4 x 50.8	-100	122-0215E
pl/cv	25.4 x 50.8	-150	122-0220E

CYLINDRICAL UV FS LENS KIT

Cylindrical Lens Kit of 12 pcs. UV FS lenses

Coating	Catalogue number	Price, EUR
uncoated	140-1212	1870
BBAR @ 210 – 400 nm, R<2%	140-0212-ARB300	2992
BBAR @ 350 – 900 nm, R<1.5%	140-0212-ARB625	2893
BBAR @ 700 – 900 nm, R<0.5%	140-0212-ARB800	2750
BBAR @ 700 – 900 nm, R<0.1%	140-0212-ARB800HT	3740
BBAR @ 650 – 1100 nm, R<0.7%	140-0212-ARB825	2805
BBAR @ 900 – 1100 nm, R<0.1%	140-0212-ARB1000HT	3740
AR @ 515 + 1030 nm, R<0.5%	140-0212-ARD1030	2607
AR @ 515 + 1030 nm, R<0.1%	140-0212-ARD1030HT	3630
AR @ 1000 – 1060 nm, R<0.3%	140-0212-AR1030	2530

Cylindrical UV FS lens kit

Type	Size, mm	F, mm	Catalogue nr.
pl/cx	25.4 x 50.8	50	120-1205E
pl/cx	25.4 x 50.8	75	120-1210E
pl/cx	25.4 x 50.8	100	120-1215E
pl/cx	25.4 x 50.8	150	120-1220E
pl/cx	25.4 x 50.8	200	120-1225E
pl/cx	25.4 x 50.8	300	120-1230E
pl/cx	25.4 x 50.8	500	120-1235E

Type	Size, mm	F, mm	Catalogue nr.
pl/cx	25.4 x 50.8	1000	120-1240E
pl/cv	25.4 x 50.8	-50	122-1205E
pl/cv	25.4 x 50.8	-75	122-1210E
pl/cv	25.4 x 50.8	-100	122-1215E
pl/cv	25.4 x 50.8	-150	122-1220E

Prisms

WEDGE PRISMS

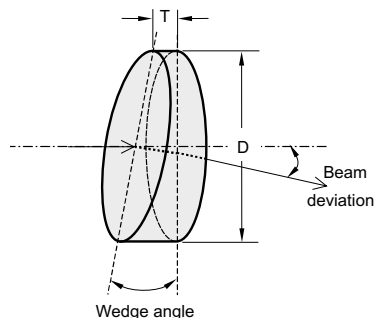
Features

- Steer beams in optical systems
- Can be used in pairs for continuous angular adjustment

Having selected an appropriate wedge, it is easy to create a precise beam deviation without affecting other beam parameters. If two wedges are used together with the sloping surfaces in close proximity, it is possible to produce a continuous variation of beam deviation by counter – rotating the wedges.

Wedge prisms are made from alternative materials, such as UV grade fused silica, and different shapes and sizes or with various anti-reflection coatings.

Contact us for other types of prisms
e.g. trapezoidal, various isosceles, Dove, Amici, Penta, etc.



Specifications

Material	BK7, UV FS
Clear aperture	90% of the diameter
Diameter tolerance	+0.00 / -0.12 mm
Wedge tolerance	±3 arcmin

STANDARD WEDGE PRISMS

Surface quality: 40 – 20 scratch & dig (MIL-PRF-13830B). Surface flatness: $\lambda/4$ @ 633 nm.

Material: BK7

Wedge, deg	Beam Deviation, deg		Ø12.7 × 3 mm		Ø25.4 × 3 mm	
	@ 1064	@ 532	Catalogue number	Price, EUR	Catalogue number	Price, EUR
0.5	0.25	0.26	310-0100E	25	310-0200E	30
1	0.51	0.52	310-0101E	25	310-0201E	30
2	1.01	1.04	310-0102E	25	310-0202E	30
3	1.52	1.56	310-0103E	25	310-0203E	30
5	2.54	2.60	310-0105E	25	310-0205E	30

Material: UV FS

Wedge, deg	Beam Deviation, deg			Ø12.7 × 3 mm		Ø25.4 × 3 mm	
	@ 1064	@ 532	@ 355	Catalogue number	Price, EUR	Catalogue number	Price, EUR
0.5	0.22	0.23	0.24	310-1100E	40	310-1200E	50
1	0.45	0.46	0.48	310-1101E	40	310-1201E	50
2	0.90	0.92	0.95	310-1102E	40	310-1202E	50
3	1.35	1.38	1.43	310-1103E	40	310-1203E	50
5	2.26	2.31	2.39	310-1105E	40	310-1205E	50

Most of the Prisms
are available for fast
off-the-shelf delivery.
Check the availability at
www.eksmaoptics.com



PRECISION WEDGE PRISMS

Surface quality: 20 – 10 scratch & dig (MIL-PRF-13830B). Surface flatness: $\lambda/10$ @ 633 nm.

Material: BK7

Wedge, deg	Beam Deviation, deg		Ø12.7 × 6 mm		Ø25.4 × 6 mm	
	@ 1064	@ 532	Catalogue number	Price, EUR	Catalogue number	Price, EUR
0.5	0.25	0.26	311-0100E	35	311-0200E	45
1	0.51	0.52	311-0101E	35	311-0201E	45
2	1.01	1.04	311-0102E	35	311-0202E	45
3	1.52	1.56	311-0103E	35	311-0203E	45
5	2.54	2.60	311-0105E	35	311-0205E	45

Material: UV FS

Wedge, deg	Beam Deviation, deg			Ø12.7 × 6 mm		Ø25.4 × 6 mm	
	@ 1064	@ 532	@ 355	Catalogue number	Price, EUR	Catalogue number	Price, EUR
0.5	0.22	0.23	0.24	311-1100E	50	311-1200E	60
1	0.45	0.46	0.48	311-1101E	50	311-1201E	60
2	0.90	0.92	0.95	311-1102E	50	311-1202E	60
3	1.35	1.38	1.43	311-1103E	50	311-1203E	60
5	2.26	2.31	2.39	311-1105E	50	311-1205E	60

Housing accessories

Stable Steel Mirror/Beamsplitter Mount 840-0036

Find more at EksmaOptics.com



LASER DISPERSING PRISMS

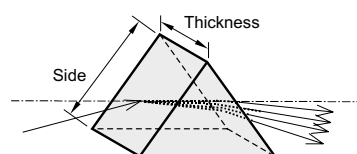
Features

- Separate light by wavelength
- Are made so that entrance and exit beams pass through at the Brewster angle

Like Brewster angle windows, laser dispersing prisms can be used inside the cavity of a laser operating on very low gain laser transitions, where even slight reflection losses may be intolerable.

Contact us for other types of prisms e.g. trapezoidal, various isosceles, Dove, Amici, Penta, etc.

Custom fabrication also available: coating, cutting, edging, drilling according to your specification.



Specifications

Material	BK7, UV FS, SF11
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Surface flatness	$\lambda/4$ @ 633 nm
Apex angle tolerance	± 2 arcmin
Design wavelength	800 nm

Most of the Prisms are available for fast off-the-shelf delivery. Check the availability at www.eksmaoptics.com



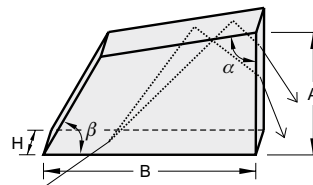
Material	Maximum input beam diameter, mm	Side length, mm	Thickness, mm	Apex angle	Catalogue number	Price, EUR
BK7	6.0	15	10	67°	320-0110	40
UV FS	6.0	15	10	69°	320-1110	72
SF11	6.0	15	10	59°	320-8110	49
BK7	12.0	25	18	67°	320-0218	69
UV FS	12.0	25	18	69°	320-1218	125
SF11	12.0	25	18	59°	320-8218	95
BK7	22.0	50	25	67°	320-0525	140
UV FS	22.0	50	25	69°	320-1525	260
SF11	22.0	50	25	59°	320-8525	195

PELLIN-BROCA PRISMS

Features

- Extremely small loss of a p-polarized beam
- Light separated by wavelength is conveniently turned at an 90° angle with minimum deviation
- UV FS prisms provide 1.26° separation between 532 nm and 1064 nm

In a Pellin-Broca prism, an ordinary dispersing prism is split in half along the bisector of the apex angle. Using a right angle prism, the two halves are joined to create a dispersing prism with an internal right angle bend obtained by total internal reflection. The entrance beam is deviated at an 90° angle to its initial direction.



Specifications

Material	BK7, UV FS
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Surface flatness	$\lambda/10$ @ 633 nm
Angles	$\alpha = 79.5^\circ \pm 0.5^\circ$, $\beta = 60^\circ \pm 1^\circ$
Design wavelength	546.1 nm
Dimensions	± 0.2 mm
Clear aperture	> 80% of dimensions

Housing accessories

Tilt/Rotation Stage 860-0110

Find more at EksmaOptics.com



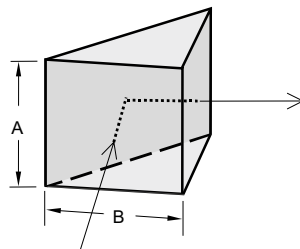
Material	A, mm	B, mm	H, mm	Catalogue number	Price, EUR
BK7	11.0	20.0	6.4	325-0206	57
	23.5	40.0	12.7	325-0412	63
UV FS	11.0	20.0	6.4	325-1206	110
	15.0	26.0	15.0	325-1215	121
	23.5	40.0	12.7	325-1412	150

RIGHT ANGLE PRISMS

Features

- 45–45–90 degree prisms
- Can be used as internal or external reflectors or as retro-reflectors

These prisms are used to direct beams at 90° degrees by using a hypotenuse face in total internal reflection (TIR). Right angle prisms are often preferable to an inclined mirror in applications involving severe acoustic or inertial loads, because they are easier to mount and deform much less than a mirror in response to external mechanical stress. As long as acceptance angle limitations for TIR from the roof faces are not exceeded, right angle prisms can serve as a retro reflector, turning beams back to the original direction.



Specifications

Material	BK7, UV FS
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Surface flatness	$\lambda/4$ @ 633 nm
Clear aperture	80% of the face size
90° angle tolerance	± 2 arcmin or ± 5 arcsec
Pyramidal tolerance	± 1 arcmin or ± 30 arcsec
Dimensions	± 0.25 mm

Size of face, A × B mm	90° angle tolerance	Pyramidal tolerance	BK7		UV FS	
			Catalogue number	Price, EUR	Catalogue number	Price, EUR
5.0 × 5.0	2 arcmin	1 arcmin	330-0052	18	330-1052	45
10.0 × 10.0	2 arcmin	1 arcmin	330-0102	20	330-1102	49
12.5 × 12.5	2 arcmin	1 arcmin	330-0122	22	330-1122	51
15.0 × 15.0	2 arcmin	1 arcmin	330-0152	25	330-1152	55
20.0 × 20.0	2 arcmin	1 arcmin	330-0202	31	330-1202	59
25.0 × 25.0	2 arcmin	1 arcmin	330-0252	37	330-1252	70
10.0 × 10.0	5 arcsec	30 arcsec	330-0105	42	330-1105	93
12.5 × 12.5	5 arcsec	30 arcsec	330-0125	44	330-1125	95
15.0 × 15.0	5 arcsec	30 arcsec	330-0155	50	330-1155	103
20.0 × 20.0	5 arcsec	30 arcsec	330-0205	57	330-1205	116
25.0 × 25.0	5 arcsec	30 arcsec	330-0255	73	330-1255	142

Custom fabrication also available: coating, cutting, edging, drilling according to your specification.

For various HR or AR coatings, please refer to the Coatings section.

Housing accessories

Prism Holders 840-0160, 840-0170

Find more at EksmaOptics.com



Contact us for other types of prisms
e.g. trapezoidal, various isosceles, Dove, Amici, Penta, etc.

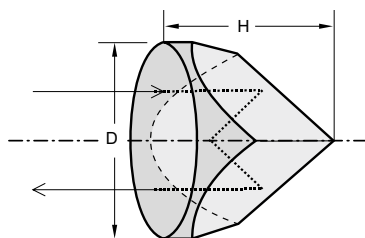
CORNER CUBES

Features

- Incident light deviates by 180 degrees independently of the angle of incidence

These prisms have 3 mirror surfaces making angles of 90° to each other, juxtaposed to form the corner of a cube with the entrance face perpendicular to the cube diagonal. Respective of an incident direction, all beams are reflected back to the original direction. Solid corner cubes are used in high precision applications or with lasers over very long distances. These "angle insensitive" mirrors therefore find frequent applications in situations where orientation is difficult or impossible to control and where a mirror would therefore be unsatisfactory.

Contact us for other types of prisms
e.g. trapezoidal, various isosceles,
Dove, Amici, Penta, etc.



Specifications

Material	BK7, UV FS
Surface quality	60 – 40 scratch & dig (MIL-PRF-13830B)
Surface flatness	$\lambda/4$ at 633 nm
Angle tolerances	± 5 arcsec
Beam deviation	$180^\circ \pm 30$ sec
Diameter tolerance	$+0.0 / -0.3$ mm
Clear aperture	$>80\%$
Coating	uncoated

Material	Diameter D, mm	Height H, mm	Catalogue number	Price, EUR
BK7	22.0	17.5	340-0217	120
	25.4	17.5	340-0217M	140
	25.4	19.0	340-0219	135
	38.1	28.5	340-0329	175
	50.8	38.0	340-0538	180
	63.5	48.0	340-0648	250
UV FS	22.0	17.5	340-1217	165
	25.4	17.5	340-1217M	185

Models 340-0217M and 340-1217M are mounted into black anodized aluminium ring Ø25.4 mm and clear aperture Ø17 mm.

Mounting Suggestion



Housing accessories

Kinematic Mirror and Beamsplitter Mount
840-0020

Find more at EksmaOptics.com



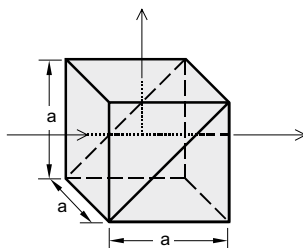
Most of the Corner Cubes
are available for fast
off-the-shelf delivery.
Check the availability at
www.eksmaoptics.com



NON-POLARIZING BROADBAND CUBE BEAMSPLITTERS

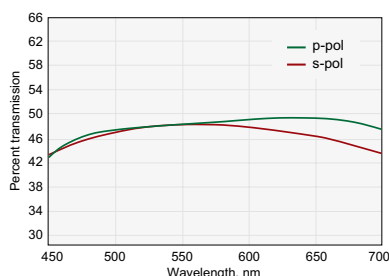
Features

- Cemented for low power applications
- Typical damage threshold:
>0.1 J/cm², 10 ns, 10 Hz at 1064 nm
- Four sides broadband antireflection coated:
R < 1% @ 450 – 700 nm or R < 1% @
750 – 1100 nm



Specifications

Material	BK7
Size tolerance	±0.25 mm
Surface quality	40 – 20 scratch & dig
Surface flatness	λ/4 at 633 nm
Beam deviation	<5 arcmin
Clear aperture	>80% of size
Absorption	<10%
Reflection/Transmission ratio	50/50 ± 5%
Transmission	T _p = T _s = 45 ± 5%

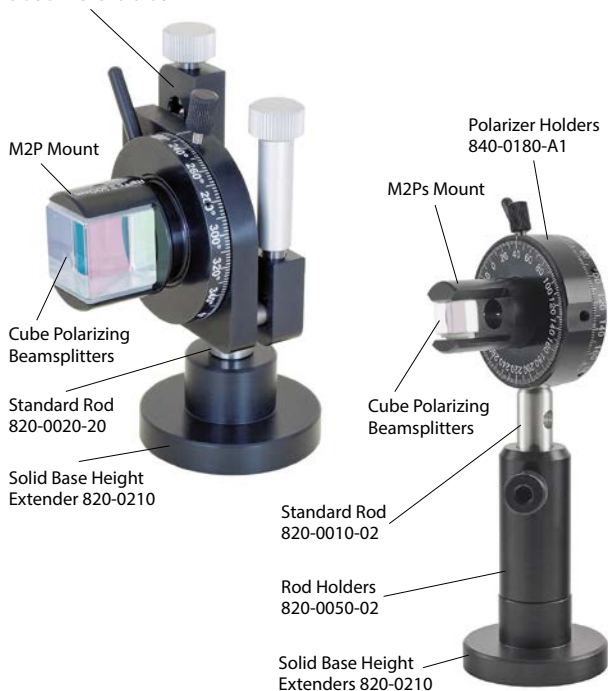


Typical transmission curve @ 450 – 700 nm

Operating wavelength, nm	Size, mm	Unmounted		Mounted	
		Catalogue number	Price, EUR	Catalogue number	Price, EUR
450 – 700	10 × 10	351-0107	135	351-0107-M2Ps	185
450 – 700	15 × 15	351-0157	150	351-0157-M2Ps	205
450 – 700	20 × 20	351-0207	155	351-0207-M2P	225
450 – 700	25 × 25	351-0257	170	351-0257-M2P	245
750 – 1100	10 × 10	351-0108	135	351-0108-M2Ps	185
750 – 1100	15 × 15	351-0158	150	351-0158-M2Ps	205
750 – 1100	20 × 20	351-0208	155	351-0208-M2P	225
750 – 1100	25 × 25	351-0258	170	351-0258-M2P	245

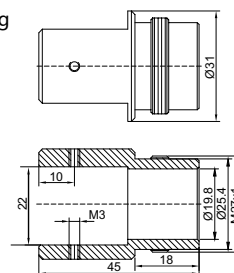
Mounting Suggestion

Adjustable Polarizer Holder of Side Driver 840-0195



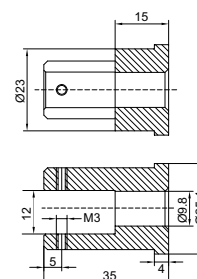
Mounting

Example of **M2P** mount for Cube Polarizing Beamsplitters of 20×20 mm standard dimensions.



M2P mount can be used with 840-0180, 840-0195, 840-0020.

Example of **M2Ps** mount for Cube Polarizing Beamsplitters of 10×10 mm dimensions.



M2Ps mount can be used with 840-0180, 840-0020.

Drawings of M2P and M2Ps for prisms of other dimensions are available on request.

Polarizing Optics

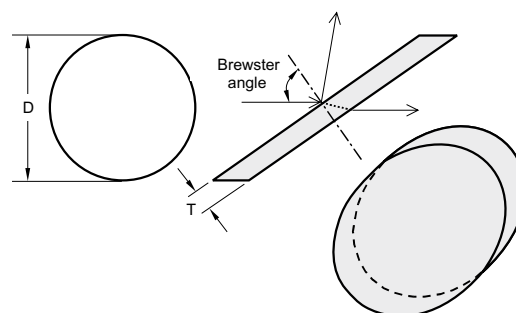
BREWSTER WINDOWS

Features

- Transmit 100% p-polarization components
- Reflect 20% s-polarization components

Brewster windows are intended for high energy laser beams intra cavity usage.

Please contact us for other Brewster windows size or precision requirements.



Specifications

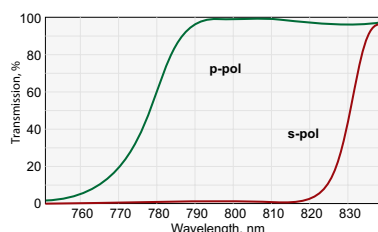
Material	BK7, UV FS
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Wavefront distortion	$\lambda/10$ @ 633 nm
Clear aperture	90% of diameter
Parallelism	< 10 arcsec
Axis tolerance	+0.00 / -0.12 mm
Thickness tolerance	± 0.2 mm

Minor axis D, mm	Thickness T, mm	BK7		UV FS	
		Catalogue number	Price, EUR	Catalogue number	Price, EUR
8.0	2.0	410-0082	55	410-1082	70
12.5	3.0	410-0123	65	410-1123	87
25.0	5.0	410-0255	75	410-1255	145
40.0	8.0	410-0408	99	410-1408	195
50.0	8.0	410-0508	130	410-1508	250

THIN FILM LASER POLARIZERS (56° Angle of Incidence)

Features

- Provide the achievement of strictly linear polarization of laser radiation
- Utilise the polarization which occurs on reflection from a plane surface



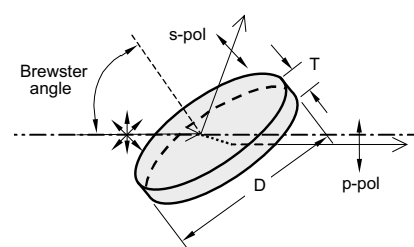
420-0126.

Transmission @ 800 nm, Rs/Tp > 99.5/95.0 %

Thin Film Polarizers are designed for use in the most demanding lasers. Due to a high laser damage threshold reaching 10 J/cm^2 @ 1064 nm 8 ns, they are used as an alternative to Glan laser polarizing prisms or cube polarizing beamsplitters.

Typical applications are intracavity Q-switch hold-off polarizers or extracavity attenuators for Nd:YAG lasers.

Thin Film Polarizers can be used at an $> 40^\circ$ angle of incidence, but polarization is most efficient and appears in a broad wavelength range at 56° AOI (Brewster angle). Typical polarization ratio T_p/T_s is 200:1. Standard size is up to $\varnothing 50 \text{ mm}$ (2"), while max. available dimensions are $100 \times 200 \text{ mm}$. For optimal transmission a Thin Film Polarizer should be mounted in an appropriate holder for angular adjustment.



Specifications

Material	BK7, UV FS
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Transmitted wavefront distortion	$\lambda/10$ @ 633 nm
Parallelism	< 30 arcsec
Clear aperture	> 90%
Angle of incidence (AOI)	$56 \pm 2^\circ$
Diameter tolerance	+0.0 / -0.12 mm
Thickness tolerance	± 0.2 mm
Transmission efficiency	$T_p > 95\%$
Extinction ratio T_p/T_s	> 200:1
Laser damage threshold	10 J/cm^2 10 nsec pulse at 1064 nm typical

BK7 ROUND THIN FILM POLARIZERS

Rs / Tp > 99.5 / 95.0%. Extinction ratio for transmitted light Tp/Ts >200:1

Wavelength, nm	Diameter D, mm	Thickness T, mm	Catalogue number	Price, EUR
515	12.7	3.0	420-0114E	124
532	12.7	3.0	420-0124E	124
633	12.7	3.0	420-0125E	124
775	12.7	3.0	420-0127E	124
800	12.7	3.0	420-0126E	124
780 – 820	12.7	3.0	420-0136E	184
1030	12.7	3.0	420-0118E	132
1010 – 1050	12.7	3.0	420-0138E	184
1064	12.7	3.0	420-0128E	132
515	25.4	3.0	420-0244E	147
532	25.4	3.0	420-0254E	147
633	25.4	3.0	420-0255E	147
775	25.4	3.0	420-0257E	147
800	25.4	3.0	420-0256E	147
780 – 820	25.4	3.0	420-0266E	217
1030	25.4	3.0	420-0248E	178
1010 – 1050	25.4	3.0	420-0268E	217
1064	25.4	3.0	420-0258E	178
1550	25.4	3.0	420-0259E	242
515	50.8	6.0	420-0514E	237
532	50.8	6.0	420-0504E	237
633	50.8	6.0	420-0505E	237
775	50.8	6.0	420-0507E	247
800	50.8	6.0	420-0506E	351
780 – 820	50.8	6.0	420-0526E	355
1030	50.8	6.0	420-0518E	293
1010 – 1050	50.8	6.0	420-0528E	385
1064	50.8	6.0	420-0508E	293

BK7 RECTANGULAR THIN FILM LASER POLARIZERS

Rs / Tp > 99.5 / 95.0%. Extinction ratio for transmitted light Tp/Ts >200:1

Wavelength, nm	Rectangular dimensions Length, mm Width, mm	Thickness T, mm	Catalogue number	Price, EUR
515	28.6 14.3	3.0	420-0274	163
532	28.6 14.3	3.0	420-0284	163
633	28.6 14.3	3.0	420-0285	163
775	28.6 14.3	3.0	420-0287	163
800	28.6 14.3	3.0	420-0286	163
780-820	28.6 14.3	3.0	420-0296	253
1030	28.6 14.3	3.0	420-0278	196
1010-1050	28.6 14.3	3.0	420-0298	253
1064	28.6 14.3	3.0	420-0288	196

Housing accessories

Adapters for Polarizer
at 56° 840-0117, 840-0118

Find more at EksmaOptics.com



Variable Attenuators for
Linearly Polarized Laser
Beam 990-0070, -0071

See page 5.9



UV FS ROUND THIN FILM LASER POLARIZERS

Rs / Tp > 99.5 / 95.0%. Extinction ratio for transmitted light Tp/Ts >200:1

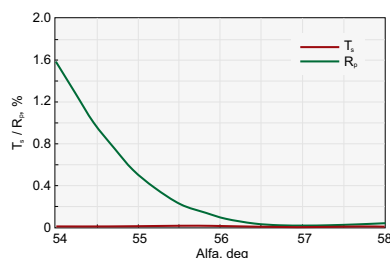
Wavelength, nm	Diameter D, mm	Thickness T, mm	Catalogue number	Price, EUR
266	12.7	3.0	420-1110E	207
343	12.7	3.0	420-1112E	189
355	12.7	3.0	420-1122E	189
400	12.7	3.0	420-1123E	151
515	12.7	3.0	420-1114E	151
532	12.7	3.0	420-1124E	151
800	12.7	3.0	420-1126E	151
780 – 820	12.7	3.0	420-1136E	225
1030	12.7	3.0	420-1118E	167
1010 – 1050	12.7	3.0	420-1138E	225
1064	12.7	3.0	420-1128E	167
266	25.4	3.0	420-1240E	230
343	25.4	3.0	420-1242E	209
355	25.4	3.0	420-1252E	209
390 – 410	25.4	3.0	420-1253B	266
400	25.4	3.0	420-1253E	177
515	25.4	3.0	420-1244E	177
532	25.4	3.0	420-1254E	177
800	25.4	3.0	420-1256E	177
780 – 820	25.4	3.0	420-1266E	266
1030	25.4	3.0	420-1248E	207
1010 – 1050	25.4	3.0	420-1268E	266
1064	25.4	3.0	420-1258E	207
1530 – 1570	25.4	3.0	420-1269E	299
266	50.8	6.0	420-1510E	412
343	50.8	6.0	420-1512E	374
355	50.8	6.0	420-1502E	374
390 – 410	50.8	6.0	420-1503B	465
400	50.8	6.0	420-1503E	339
515	50.8	6.0	420-1514E	339
532	50.8	6.0	420-1504E	339
800	50.8	6.0	420-1506E	351
780 – 820	50.8	6.0	420-1526E	465
1030	50.8	6.0	420-1518E	362
1010 – 1050	50.8	6.0	420-1528E	465
1064	50.8	6.0	420-1508E	362

UV FS RECTANGULAR THIN FILM LASER POLARIZERS

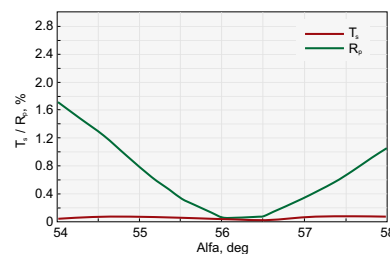
Rs / Tp > 99.5 / 95.0%. Extinction ratio for transmitted light Tp/Ts >200:1

Wavelength, nm	Rectangular dimensions Length, mm Width, mm	Thickness T, mm	Catalogue number	Price, EUR
266	28.6 14.3	3.0	420-1270	322
343	28.6 14.3	3.0	420-1272	293
355	28.6 14.3	3.0	420-1282	293
390 – 410	35.0 20.0	3.0	240-1383B	416
400	28.6 14.3	3.0	420-1283	247
515	28.6 14.3	3.0	420-1274	247
532	28.6 14.3	3.0	420-1284	247
800	28.6 14.3	3.0	420-1286	247
780 – 820	28.6 14.3	3.0	420-1296	362
1030	28.6 14.3	3.0	420-1278	259
1010 – 1050	28.6 14.3	3.0	420-1298	362
1064	28.6 14.3	3.0	420-1288	259
266	35.0 20.0	3.0	420-1370	370
343	35.0 20.0	3.0	420-1372	337
355	35.0 20.0	3.0	420-1382	337
400	35.0 20.0	3.0	420-1383	284
515	35.0 20.0	3.0	420-1374	284
532	35.0 20.0	3.0	420-1384	284
800	35.0 20.0	3.0	420-1386	284
780 – 820	35.0 20.0	3.0	420-1396	416
1030	35.0 20.0	3.0	420-1378	298
1010 – 1050	35.0 20.0	3.0	420-1398	416
1064	35.0 20.0	3.0	420-1388	298
1530 – 1570	35.0 20.0	3.0	420-1399	449

ULTRA HIGH TRANSMISSION THIN FILM POLARIZERS



420-1254UHT.
Ultra High Transmission @ 532 nm,
 $T_s < 0.2\%$, $R_p < 0.2\%$, AOI = 56°

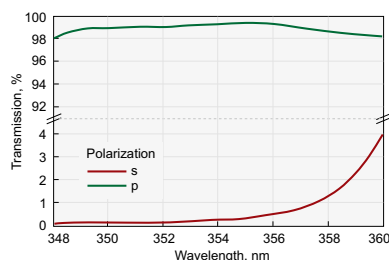


420-1258UHT.
Ultra High Transmission @ 1064 nm,
 $T_s < 0.2\%$, $R_p < 0.2\%$, AOI = 56°

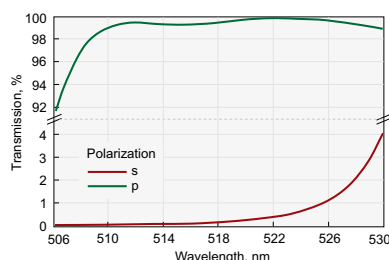
Round Polarizers. Material – UV FS. $T_s < 0.2\%$, $R_p < 0.2\%$. Extinction ratio for transmitted light $T_p/T_s > 500:1$

Wavelength, nm	Diameter D, mm	Thickness T, mm	Catalogue number	Price, EUR
532	25.4	3	420-1254UHT	299
800	25.4	3	420-1256UHT	299
1030	25.4	3	420-1248UHT	350
1064	25.4	3	420-1258UHT	350

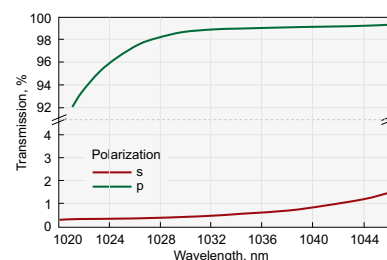
HIGH TRANSMISSION THIN FILM POLARIZERS



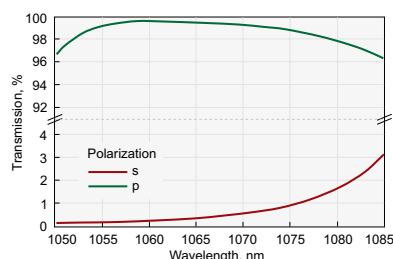
420-1252HT.
High Transmission @ 355 nm,
 $R_s/T_p > 99.5/99.0\%$



420-1244HT.
High Transmission @ 515 nm,
 $R_s/T_p > 99.5/99.0\%$



420-1248HT.
High Transmission @ 1030 nm,
 $R_s/T_p > 99.5/99.0\%$



420-1258HT.
High Transmission @ 1064 nm,
 $R_s/T_p > 99.5/99.0\%$

Round Polarizers. Material – UV FS. $R_s / T_p > 99.5 / 99.0\%$. Extinction ratio for transmitted light $T_p/T_s > 200:1$

Wavelength, nm	Diameter D, mm	Thickness T, mm	Catalogue number	Price, EUR
343	25.4	3	420-1242HT	273
355	25.4	3	420-1252HT	273
515	25.4	3	420-1244HT	230
532	25.4	3	420-1254HT	230
800	25.4	3	420-1256HT	230
1030	25.4	3	420-1248HT	269
1064	25.4	3	420-1258HT	269

Rectangular Polarizers.

Material – UV FS. $R_s / T_p > 99.5 / 99.0\%$. Extinction ratio for transmitted light $T_p/T_s > 200:1$

Wavelength, nm	Rectangular dimensions		Thickness T, mm	Catalogue number	Price, EUR
	Length, mm	Width, mm			
1030	28.6	14.3	3	420-1278HT	311
1064	28.6	14.3	3	420-1288HT	311

Related Products

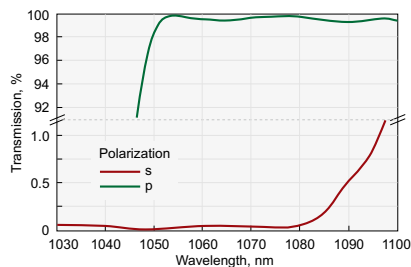
Glan Laser Polarizing Prisms

See page 1.62

Wollaston Prisms

See page 1.64

THIN FILM POLARIZERS WITH HIGH EXTINCTION RATIO



420-1258HE.
Tp > 98%, Ts < 0.1%

Round Polarizers. Material – UV FS. Rs / Tp > 99.5 / 99.0%. Extinction ratio for transmitted light Tp/Ts >200:1

Wavelength, nm	Diameter D, mm	Thickness T, mm	Catalogue number	Price, EUR
343	25.4	3	420-1242HE	251
355	25.4	3	420-1252HE	251
515	25.4	3	420-1244HE	213
532	25.4	3	420-1254HE	213
780 – 820	25.4	3	420-1266HE	316
800	25.4	3	420-1256HE	213
1030	25.4	3	420-1248HE	248
1064	25.4	3	420-1258HE	248

Rectangular Polarizers.

Material – UV FS. Rs / Tp > 99.5 / 99.0%. Extinction ratio for transmitted light Tp/Ts >200:1

Wavelength, nm	Rectangular dimensions		Thickness T, mm	Catalogue number	Price, EUR
	Length, mm	Width, mm			
532	20	15	6	420-1484HE	178
532	30	20	6	420-1584HE	242
1030	20	15	6	420-1478HE	190
1030	30	20	6	420-1578HE	253
1064	20	15	6	420-1488HE	190
1064	30	20	6	420-1588HE	253

Housing accessories

Adapters
for Polarizer at 56°
840-0117, 840-0118
Find more at
EksmaOptics.com

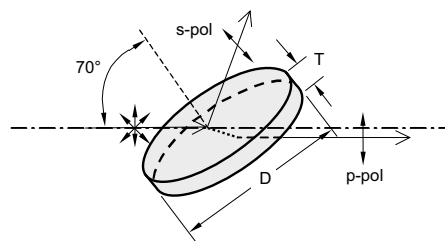


Variable Attenuators
for Linearly Polarized
Laser Beam
990-0070, -0071
See page 5.9



THIN FILM POLARIZERS (70° Angle of Incidence)

Broadband thin film polarizers separate the s- and p-polarization components in broad region at 70° angle of incidence (AOI). These polarizers are designed to be used in high energy laser systems, typically as extracavity attenuators for femtosecond lasers. Polarizers are made from UV fused silica and feature a high laser damage threshold – up to 50 mJ/cm².



Specifications

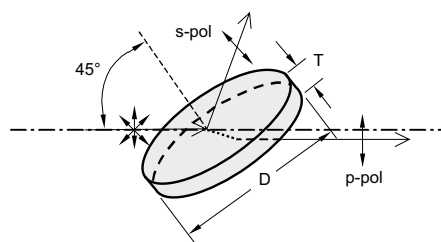
Substrate material	UV FS
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Transmitted wavefront distortion	$\lambda/10$ @ 633 nm
Clear aperture	>90% of diameter
Angle of incidence (AOI)	$70 \pm 2^\circ$
Parallelism	<30 arcsec

Rectangular Polarizers. Material – UV FS. Rs / Tp > 99.5 / 95.0%. Extinction ratio for transmitted light Tp/Ts >200:1

Operating wavelength region, nm	Centre wavelength, nm	Rectangular dimensions		Thickness T, mm	Catalogue number	Price, EUR
		Length, mm	Width, mm			
750 – 850	800	60.0	20.0	4.0	420-1696BBi70	500
980 – 1080	1030	60.0	20.0	4.0	420-1698BBi70	500

THIN FILM POLARIZERS (45° Angle of Incidence)

These thin film polarizers separate or combine the s- and p-polarization components at 45° angle of incidence. They are designed for use in high energy lasers. Polarizers are made from UV FS and feature high laser damage threshold reaching 10 J/cm² at 1064 nm.



Specifications

Substrate material	UV FS
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Clear aperture	>90% of diameter
Angle of incidence (AOI)	45 ± 2°
Parallelism	<30 arcsec

THIN FILM POLARIZERS WITH HIGH EXTINCTION RATIO

Round Polarizers.

Material – UV FS. Tp > 98%, Ts < 0.1%; Extinction ratio for transmitted light Tp/Ts: >1000:1

Wavelength, nm	Diameter D, mm	Thickness T, mm	Catalogue number	Price, EUR
343	25.4	3.0	420-1242i45HE	377
355	25.4	3.0	420-1252i45HE	377
515	25.4	3.0	420-1244i45HE	339
532	25.4	3.0	420-1254i45HE	339
800	25.4	3.0	420-1256i45HE	351
1030	25.4	3.0	420-1248i45HE	362
1053	25.4	3.0	420-1238i45HE	362
1064	25.4	3.0	420-1258i45HE	362
343	50.8	6.0	420-1512i45HE	736
355	50.8	6.0	420-1502i45HE	736
515	50.8	6.0	420-1514i45HE	638
532	50.8	6.0	420-1504i45HE	638
800	50.8	6.0	420-1506i45HE	679
1030	50.8	6.0	420-1518i45HE	713
1053	50.8	6.0	420-1538i45HE	713
1064	50.8	6.0	420-1508i45HE	713

STANDARD THIN FILM POLARIZERS

Round Polarizers.

Material – UV FS. Rs / Tp > 99.5 / 95.0%. Extinction ratio for transmitted light Tp/Ts >200:1

Wavelength, nm	Diameter D, mm	Thickness T, mm	Catalogue number	Price, EUR
343	25.4	3.0	420-1242i45	274
355	25.4	3.0	420-1252i45	274
515	25.4	3.0	420-1244i45	230
532	25.4	3.0	420-1254i45	230
1030	25.4	3.0	420-1248i45	259
1053	25.4	3.0	420-1238i45	259
1064	25.4	3.0	420-1258i45	259
343	50.8	6.0	420-1512i45	523
355	50.8	6.0	420-1502i45	523
515	50.8	6.0	420-1514i45	454
532	50.8	6.0	420-1504i45	454
1030	50.8	6.0	420-1518i45	506
1053	50.8	6.0	420-1538i45	506
1064	50.8	6.0	420-1508i45	506

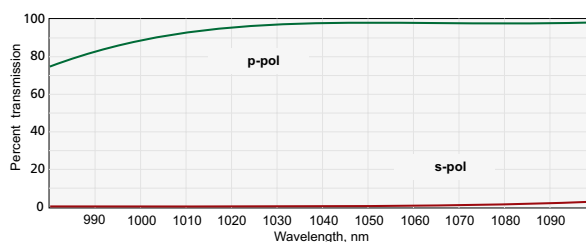
CUBE POLARIZING BEAMSPLITTERS

Features

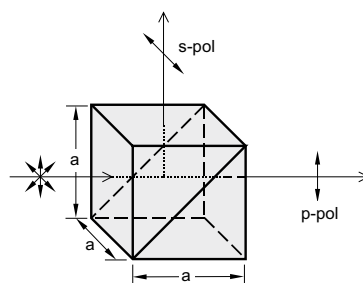
- Durable and convenient
- Optimised for popular laser wavelengths

Polarizing film is coated on the internal face of a cube beamsplitter. Thin film polarizers utilize the polarization which occurs on reflection deviated by 90° angle. Cube polarizing beamsplitters can be optimized for a particular wavelength to give superior performance for laser application can be optimised for a particular wavelength to give superior performance for laser applications.

The four outer faces are all anti-reflection coated.



Typical transmission curve @ 1064 nm



Specifications

Material	BK7, UV FS
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Surface flatness	$\lambda/4$ @ 633 nm
Clear aperture	90% of the face size
Beam deviation	<3 arcmin
Dimension tolerance	± 0.3 mm
Laser damage threshold	0.3 J/cm ² 10 ns pulses at 1064 nm

Please contact us for polarizing cubes
with an extinction ratio of up to $T_p/T_s > 500:1$

BK7 GLASS, $T_p/T_s > 200:1$

Wavelength range, nm	Reflection s-pol, %	Transmission p-pol, %	Side axa, mm	Unmounted		Mounted	
				Catalogue number	Price, EUR	Catalogue number	Price, EUR
532	$R_s > 99.5$	$T_p > 95$	10 × 10	430-0101	135	430-0101-M2Ps	185
532	$R_s > 99.5$	$T_p > 95$	15 × 15	430-0151	165	430-0151-M2P	215
532	$R_s > 99.5$	$T_p > 95$	20 × 20	430-0201	185	430-0201-M2P	235
532	$R_s > 99.5$	$T_p > 95$	25 × 25	430-0251	215	430-0251-M2P	265
633	$R_s > 99.5$	$T_p > 95$	10 × 10	430-0104	135	430-0104-M2Ps	185
633	$R_s > 99.5$	$T_p > 95$	15 × 15	430-0154	165	430-0154-M2P	215
633	$R_s > 99.5$	$T_p > 95$	20 × 20	430-0204	185	430-0204-M2P	235
633	$R_s > 99.5$	$T_p > 95$	25 × 25	430-0254	215	430-0254-M2P	265
780	$R_s > 99.5$	$T_p > 95$	10 × 10	430-0102	135	430-0102-M2Ps	185
780	$R_s > 99.5$	$T_p > 95$	15 × 15	430-0152	165	430-0152-M2P	215
780	$R_s > 99.5$	$T_p > 95$	20 × 20	430-0202	185	430-0202-M2P	235
780	$R_s > 99.5$	$T_p > 95$	25 × 25	430-0252	215	430-0252-M2P	265
1064	$R_s > 99.5$	$T_p > 95$	10 × 10	430-0103	135	430-0103-M2Ps	185
1064	$R_s > 99.5$	$T_p > 95$	15 × 15	430-0153	165	430-0153-M2P	215
1064	$R_s > 99.5$	$T_p > 95$	20 × 20	430-0203	185	430-0203-M2P	235
1064	$R_s > 99.5$	$T_p > 95$	25 × 25	430-0253	215	430-0253-M2P	265

UV FS, $T_p/T_s > 100:1$

Wavelength range, nm	Reflection s-pol, %	Transmission p-pol, %	Side axa, mm	Unmounted		Mounted	
				Catalogue number	Price, EUR	Catalogue number	Price, EUR
308	$R_s > 99$	$T_p > 90$	10 × 10	430-1105	280	430-1105-M2Ps	330
308	$R_s > 99$	$T_p > 90$	15 × 15	430-1155	340	430-1155-M2P	390
308	$R_s > 99$	$T_p > 90$	20 × 20	430-1205	380	430-1205-M2P	430
355	$R_s > 99$	$T_p > 90$	10 × 10	430-1107	270	430-1107-M2Ps	320
355	$R_s > 99$	$T_p > 90$	15 × 15	430-1157	330	430-1157-M2P	380
355	$R_s > 99$	$T_p > 90$	20 × 20	430-1207	380	430-1207-M2P	430

Please contact us if you need polarizing beamsplitters of other wavelengths, other sizes or other configurations.

Housing accessories

for unmounted cube polarizing beamsplitters

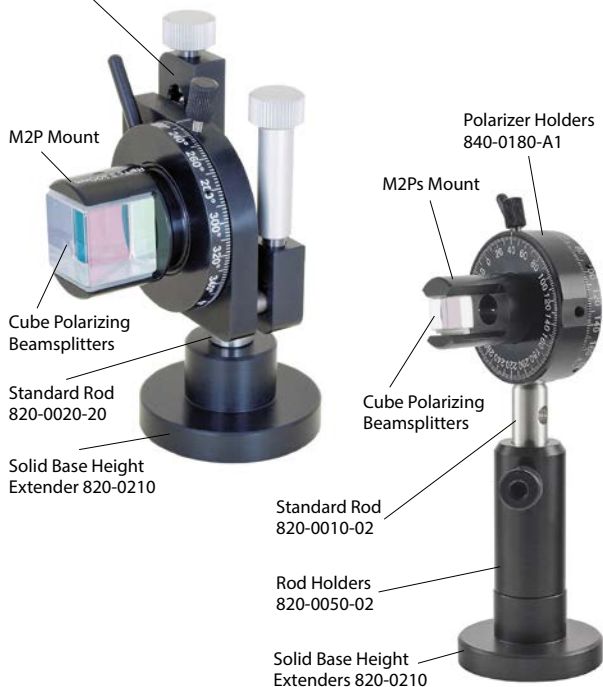
Prism Holders

840-0160, 840-0170

Find more at
EksmaOptics.com

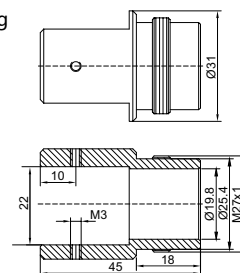
Mounting Suggestion

Adjustable Polarizer Holder of Side Driver 840-0195



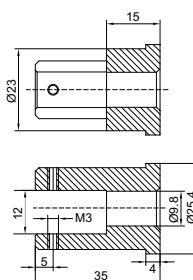
Mounting

Example of **M2P** mount for Cube Polarizing Beamsplitters of 20×20 mm standard dimensions.



M2P mount can be used with 840-0180, 840-0195, 840-0020.

Example of **M2Ps** mount for Cube Polarizing Beamsplitters of 10×10 mm dimensions.



M2Ps mount can be used with 840-0180, 840-0020.

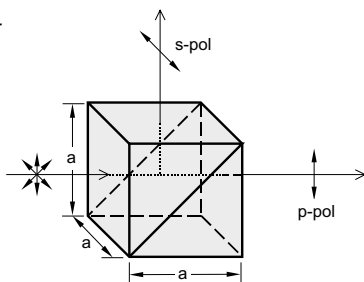
Drawings of M2P and M2Ps for prisms of other dimensions are available on request.

HIGH ENERGY POLARIZING CUBE BEAMSPLITTERS

Features

- Optically contacted for high power applications
- Typical damage threshold: $>15 \text{ J/cm}^2$, 10 ns, 10 Hz at 1064 nm
- Precision surface quality
- High extinction ratio

The four outer faces are all anti-reflection coated.



Specifications

Material	UV FS (laser line) N-SF2 (broadband) N-SF15 (dual wavelength)
Size tolerance	$\pm 0.2 \text{ mm}$
Extinction ratio	$>1:500$
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Wavefront distortion	$\lambda/10$ at 633 nm
Beam deviation	<3 arcmin
Clear aperture	$>85\%$ of size
Reflection s-polarization	$>99.5\%$
Transmission p-polarization	$>97\%$ for laser line
	$>90\%$ for broadband

Housing accessories

for unmounted cube polarizing beamsplitters

Prism Holders 840-0160, 840-0170

Find more at EksmaOptics.com



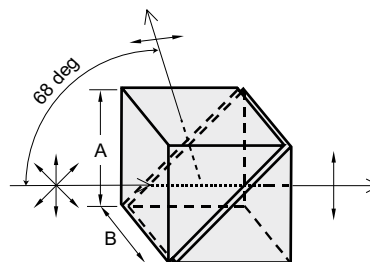
Operating wavelength, nm	Material	Laser Damage threshold, 10 ns, 10 Hz	Side a × a, mm	Unmounted		Mounted	
				Catalogue number	Price, EUR	Catalogue number	Price, EUR
343	UV FS	$>3 \text{ J/cm}^2$ at 343 nm	12.7×12.7	435-1128	375	435-1128-M2Ps	425
355	UV FS	$>3 \text{ J/cm}^2$ at 355 nm	12.7×12.7	435-1127	375	435-1127-M2Ps	425
515	UV FS	$>6 \text{ J/cm}^2$ at 515 nm	12.7×12.7	435-1128	350	435-1128-M2Ps	400
532	UV FS	$>6 \text{ J/cm}^2$ at 532 nm	12.7×12.7	435-1121	350	435-1121-M2Ps	400
800	UV FS	$>8 \text{ J/cm}^2$ at 800 nm	12.7×12.7	435-1122	350	435-1122-M2Ps	400
800	UV FS	$>8 \text{ J/cm}^2$ at 800 nm	25.4×25.4	435-1222	450	435-1222-M2P	500
1030	UV FS	$>15 \text{ J/cm}^2$ at 1030 nm	12.7×12.7	435-1124	350	435-1124-M2Ps	400
515 + 1030	N-SF15	$>10 \text{ J/cm}^2$ at 1030 nm	25.4×25.4	435-1224D	550	435-1224D-M2P	600
1064	UV FS	$>15 \text{ J/cm}^2$ at 1064 nm	12.7×12.7	435-1123	350	435-1123-M2Ps	400
420 – 680	N-SF2	$>1 \text{ J/cm}^2$ at 532 nm	12.7×12.7	436-1121	375	436-1121-M2Ps	425
700 – 1080	N-SF2	$>2 \text{ J/cm}^2$ at 1064 nm	12.7×12.7	436-1123	375	436-1123-M2Ps	425

GLAN LASER POLARIZING PRISMS

Features

- Transmit a linearly polarized extraordinary beam without deviation from its initial direction
- Reflect an ordinary ray out of the prism into either the black glass or the escape port
- Air-spaced prisms
- Available with two, one or no escape ports in mounts for extra power capacity

Glan laser polarizers are manufactured from the finest optical grade natural calcite or α -BBO. They are useful in applications requiring a high degree of polarization purity, high total transmission and low, medium or high power requirements.



We also provide Glan Thompson, Beamsplitting Thompson prisms, Beam Displacers, Laser Polarizing Beamsplitters, etc. Please contact us for more information.

NATURAL CALCITE GLAN LASER PRISMS

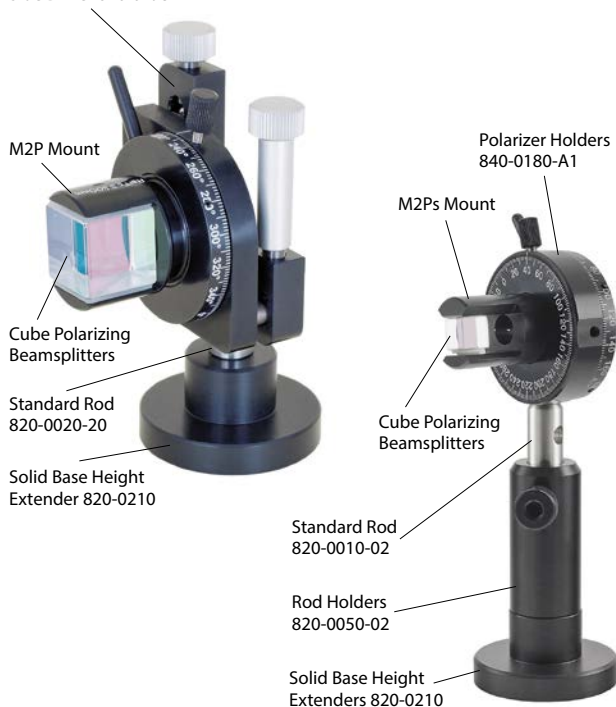
Specifications

Material	Natural calcite
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Wavefront distortion	$\lambda/4$ at 633 nm
Beam deviation	<3 arcmin
Wavelength range	350 – 2100 nm
Extinction ratio	1 : 100 000
Laser damage threshold	>5 J/cm ² , 10 ns pulses, 1064 nm

Standard dimensions A × B, mm	Unmounted		Mounted	
	Catalogue number	Price, EUR	Catalogue number	Price, EUR
10 × 10	440-2010	570	440-2010-M2Ps	630
12 × 12	440-2012	690	440-2012-M2Ps	750
14 × 14	440-2014	948	440-2014-M2Ps	1008
20 × 20	440-2020	2280	440-2020-M2P	2340

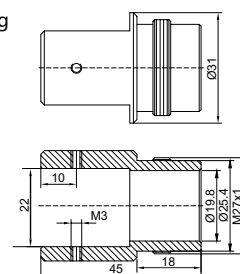
Mounting Suggestion

Adjustable Polarizer Holder of Side Driver 840-0195



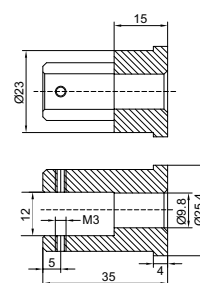
Mounting

Example of **M2P** mount for Cube Polarizing Beamsplitters of 20×20 mm standard dimensions.



M2P mount can be used with 840-0180, 840-0195, 840-0020.

Example of **M2Ps** mount for Cube Polarizing Beamsplitters of 10×10 mm dimensions.



M2Ps mount can be used with 840-0180, 840-0020.

Drawings of M2P and M2Ps for prisms of other dimensions are available on request.

WOLLASTON PRISMS

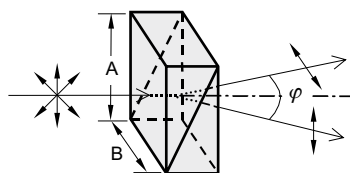
Features

- Split a beam into two orthogonally polarized divergent beams
- Made from the finest optical grade natural calcite

Wollaston prism polarizers consist of two equal calcite prisms. Both output beams are almost equally deviated. Angular separation of output beams depends on wavelength. The use of highest grade calcite provides useful transmission covering the 300–2200 nm range.

Prisms mounted in black aluminium mounts M2P or M2Ps are available.

For mount's drawing and mounting suggestion, see page 1.62.



Specifications

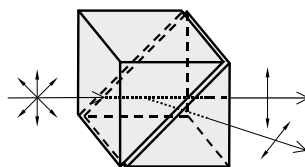
Material	Natural calcite
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Wavelength range	300–2200 nm
Extinction ratio	1 : 100 000
Separation angle	10 or 20 deg
Dimension tolerance	±0.25 mm

Standard dimensions A × B, mm	Beam separation φ, deg	Unmounted		Mounted	
		Catalogue number	Price, EUR	Catalogue number	Price, EUR
10 × 10	10	450-2101	514	450-2101-M2Ps	574
12 × 12	10	450-2121	620	450-2121-M2Ps	680
14 × 14	10	450-2141	654	450-2141-M2P	714
10 × 10	20	450-2102	562	450-2102-M2Ps	622
12 × 12	20	450-2122	666	450-2122-M2Ps	726
14 × 14	20	450-2142	698	450-2142-M2P	758

Other sizes, better quality, different spectral ranges or AR coatings are available on request.

ROCHON POLARIZING PRISMS

Rochon polarizer is made of two α-BBO prisms cemented together. The first prism, cut parallel to the optic axis, receives the light; the second, with the optic axis at right angles, transmits the ordinary ray without deviation but the extraordinary ray is deflected. A Rochon prism can be used to produce plane-polarized light and it can also be used with ultraviolet light. Any separation angle can be designed for specific wavelength upon request.



Specifications

Material	α-BBO
Wavelength range	200–3500 nm
Extinction ratio	1 : 100 000
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Wavefront distortion	λ/4 at 633 nm
Beam deviation	<3 arcmin
Separation angle	8–14 deg (8 deg @ 1064 nm)
Clear aperture	90%
Coating	Single layer MgF ₂
Mount	Black anodized aluminium

Side a × a, mm	Outer mount Ø, mm	Catalogue number	Price, EUR
8 × 8	25.4	455-2108	659
10 × 10	25.4	455-2110	839
15 × 15	30.0	455-2115	1140

RETARDATION PLATES

Features

- Made from high quality optical grade crystalline quartz
- Quarter wave and half wave retardation versions available
- Multiple-order, low-order or zero-order plates
- Suitable for high and low power laser applications

They rotate the direction of polarization ($\lambda/2$) or convert linear into circular polarization or vice versa ($\lambda/4$).

ZERO ORDER OPTICALLY CONTACTED WAVEPLATES

Features

- Easily aligned
- Temperature insensitive
- Moderately insensitive to wavelength

These are formed from two thin sections which are polished to different thicknesses to have a retardation difference exactly equal to the required. These component plates have orthogonal optic axis directions, so that the roles of the ordinary and extraordinary rays are interchanged in passing from one plate to the other. Retardation error versus wavelength is reduced, therefore they are suitable for fs lasers or laser diode applications.

Most of the Retardation Plates are available for fast off-the-shelf delivery. Check the availability at www.eksmaoptics.com



Specifications

Material	Single crystal quartz
Optical axis	normal to facet on circumference of retarder
Nominal thickness of waveplate	1.5–2.5 mm
Wavefront distortion	$\lambda/10$ @ 633 nm
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Retardation tolerance	$< \lambda/300$ over wavelength range
Parallelism	< 10 arcsec
AR coating	$R < 0.4\%$
Laser damage threshold	$> 0.5 \text{ J/cm}^2$, 10 nsec pulse, 1064 nm typical

Ø12.7 mm waveplates. Clear aperture Ø11 mm, unmounted

Wavelength, nm	Retardation $\lambda/2$		Retardation $\lambda/4$	
	Catalogue number	Price, EUR	Catalogue number	Price, EUR
1550	460-4201D12	165	460-4401D12	165
1064	460-4205D12	165	460-4405D12	165
1030	460-4208D12	165	460-4408D12	165
852	460-4213D12	165	460-4413D12	165
800	460-4215D12	165	460-4415D12	165
780	460-4220D12	165	460-4420D12	165
633	460-4225D12	165	460-4425D12	165
532	460-4230D12	165	460-4430D12	165
515	460-4232D12	165	460-4432D12	165
488	460-4233D12	165	460-4433D12	165
400	460-4235D12	165	460-4435D12	165
355	460-4240D12	175	460-4440D12	175
343	460-4241D12	175	460-4441D12	175
266	460-4245D12	185	460-4445D12	185
257	460-4246D12	185	460-4446D12	185

Please contact us for other wavelength, size or precision requirements.

Housing accessories

Adjustable Polarizer Holder of Side Drive 840-0195

Find more at EksmaOptics.com



Polarizer Holders 840-0180

Find more at EksmaOptics.com



Ø20 mm waveplates. Clear aperture Ø17 mm, mounted into Ø25.4 mm ring holder

Wavelength, nm	Retardation $\lambda/2$		Retardation $\lambda/4$	
	Catalogue number	Price, EUR	Catalogue number	Price, EUR
1550	460-4201	245	460-4401	245
1064	460-4205	245	460-4405	245
1053	460-4206	245	460-4406	245
1030	460-4208	245	460-4408	245
950	460-4210	245	460-4410	245
852	460-4213	245	460-4413	245
800	460-4215	245	460-4415	245
780	460-4220	245	460-4420	245
770	460-4221	245	460-4421	245
633	460-4225	245	460-4425	245
589	460-4228	245	460-4428	245
532	460-4230	245	460-4430	245
527	460-4231	245	460-4431	245
515	460-4232	245	460-4432	245
488	460-4233	245	460-4433	245
400	460-4235	245	460-4435	245
355	460-4240	270	460-4440	270
343	460-4241	270	460-4441	270
266	460-4245	280	460-4445	280
257	460-4246	280	460-4446	280
244	460-4248	280	460-4448	280

Please contact us for other wavelength, size or precision requirements.

ZERO ORDER AIR-SPACED WAVEPLATES

Features

- For high power laser application



Most of the Retardation Plates are available for fast off-the-shelf delivery. Check the availability at www.eksmaoptics.com



Housing accessories

Polarizer Holders 840-0180

Find more at EksmaOptics.com



Specifications

Material	Single crystal quartz
Optical axis	Normal to facet on circumference of retarder
Wavefront distortion	$\lambda/10$ @ 633 nm
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Retardation tolerance	$<\lambda/300$ over wavelength range
Parallelism	< 10 arcsec
AR coating	$R < 0.5\%$
Laser damage threshold	10 J/cm ² , 10 nsec pulse, 1064 nm

Ø20 mm waveplates. Clear aperture Ø17 mm, mounted into Ø25.4 mm ring holder.

Center wavelength, nm	Retardation $\lambda/2$		Retardation $\lambda/4$	
	Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR
1550	464-4201	310	464-4404	310
1064	464-4205	310	464-4405	310
1030	464-4208	310	464-4408	310
800	464-4215	310	464-4415	310
780	464-4220	310	464-4420	310
532	464-4230	310	464-4430	310
515	464-4232	310	464-4432	310
400	464-4235	310	464-4435	310
355	464-4240	335	464-4440	335
343	464-4241	335	464-4441	335
266	464-4245	345	464-4445	345
257	464-4246	345	464-4446	345

Ø20 mm waveplates. Clear aperture Ø40 mm, mounted into Ø50.8 mm ring holder.

Center wavelength, nm	Retardation $\lambda/2$		Retardation $\lambda/4$	
	Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR
800	464-4215D50	950	464-4415D50	950

ACHROMATIC AIR-SPACED WAVEPLATES



Achromatic waveplates are made from two different materials: crystal quartz and magnesium fluoride with highly efficient broadband antireflection coatings in an air spaced design.

Retardation tolerance of our achromatic waveplates is better than $\lambda/100$ over the entire wavelength range. The flat response of these waveplates is ideal for use with tunable lasers, multiple laser-line systems and other broad spectrum sources.

Our achromatic waveplates are available for four wavelength ranges: VIS (450 – 680 nm), NIR (700 – 1000 nm), 950 – 1300 nm, 1200 – 1650 nm. The waveplates are provided in a black anodized aluminum housing.

Specifications

Material	Single crystal quartz and MgF ₂
Clear aperture	Ø12.7 mm
Ring mount outer diameter	25.4 +0.0 / -0.12 mm
Ring mount thickness	8.0 ± 0.2 mm
Retardation tolerance	< $\lambda/100$ over wavelength range
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Wavefront distortion	< $\lambda/8$ @ 632 nm
Parallelism	< 1 arcmin
AR coating	R < 0.8%
Laser damage threshold	> 3 J/cm ² , 10 nsec, 1064 nm typical

Operating wavelength, nm	Retardation $\lambda/2$		Retardation $\lambda/4$	
	Catalogue nr.	Price, EUR	Catalogue nr.	Price, EUR
450 – 680	467-4205	480	467-4405	480
700 – 1000	467-4210	480	467-4410	480
950 – 1300	467-4215	480	467-4415	480
1200 – 1650	467-4220	480	467-4420	480

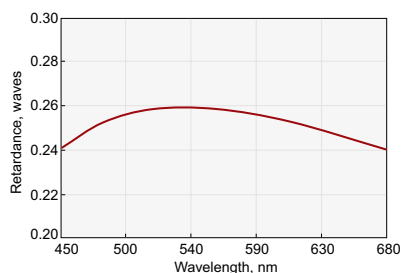
Housing accessories

High Precision Rotation
Polarizer, Waveplate
Mount 840-0186

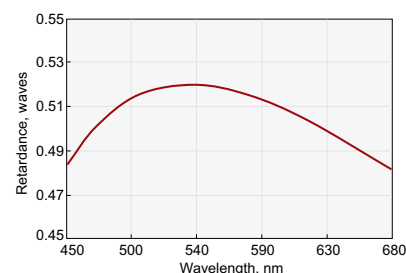
Find more at EksmaOptics.com



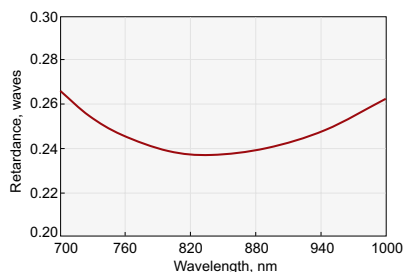
RETARDATION CURVE SAMPLES



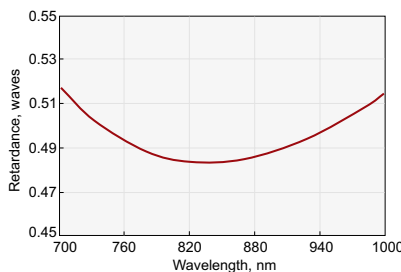
$\lambda/4$ @ 450-680 nm



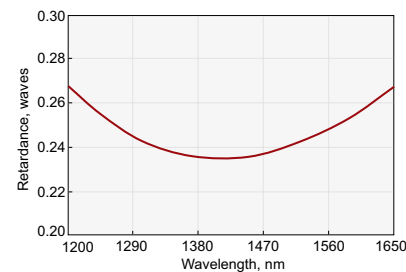
$\lambda/2$ @ 450-680 nm



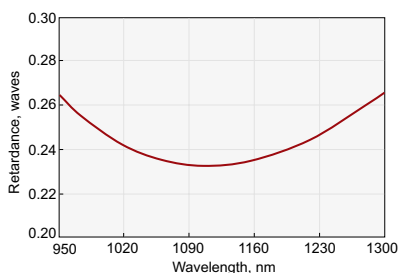
$\lambda/4$ @ 700-1000 nm



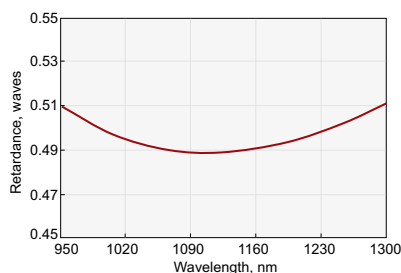
$\lambda/2$ @ 700-1000 nm



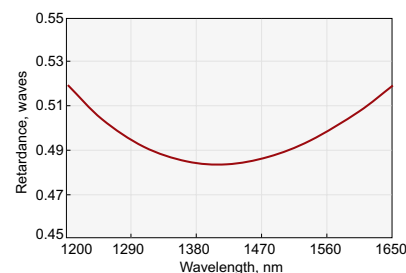
$\lambda/4$ @ 1200-1650 nm



$\lambda/4$ @ 950-1300 nm



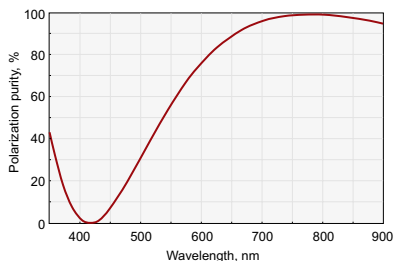
$\lambda/2$ @ 950-1300 nm



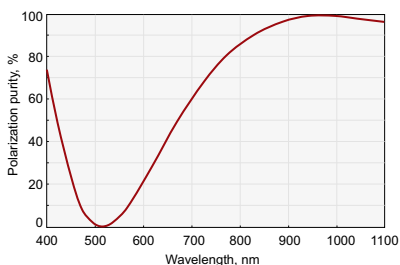
$\lambda/2$ @ 1200-1650 nm

ZERO ORDER DUAL WAVELENGTH WAVEPLATES

When optical axis is turned by 45 degrees to input polarization, the waveplate rotates polarization of Ti:Sapphire laser fundamental (800 nm) by 90 degrees and the polarization of Ti:Sapphire second harmonic (400 nm) remains the same.



Polarization purity of zero order dual waveplate.
 $\lambda/2@800 \text{ nm} + \lambda/400 \text{ nm}$



Polarization purity of zero order dual waveplate.
 $\lambda/2@1030 \text{ nm} + \lambda/515 \text{ nm}$

Specifications

Material	Single crystal quartz
Optical axis	normal to facet on circumference of retarder
Clear aperture	Ø17 mm
Ring mount outer diameter	25.4 +0.0 / -0.12 mm
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Retardation tolerance	$<\lambda/100$ over wavelength range
Wavefront distortion	$\lambda/10 @ 633 \text{ nm}$
Parallelism	$<10 \text{ arcsec}$
AR coating	$R < 0.5\%$
Laser damage threshold:	
Optically contacted (465-4211, 465-4212)	$>10 \text{ mJ/cm}^2$, 50 fsec pulse, 800 nm typical
Air-spaced (466-4211, 466-4212)	100 mJ/cm^2 , 50 fsec pulse, 800 nm typical

Description	AR coated	Catalogue number	Price, EUR
Optically contacted; $\lambda/2@800 \text{ nm} + \lambda@400 \text{ nm}$	800+400 nm	465-4211	345
Optically contacted; $\lambda/2@1030 \text{ nm} + \lambda@515 \text{ nm}$	1030+515 nm	465-4212	345
Air-spaced; $\lambda/2@800 \text{ nm} + \lambda@400 \text{ nm}$	800+400 nm	466-4211	410
Air-spaced; $\lambda/2@1030 \text{ nm} + \lambda@515 \text{ nm}$	1030+515 nm	466-4212	410

Housing accessories

Polarizer Holders 840-0180

Find more at EksmaOptics.com



LOW ORDER WAVEPLATES

Features

- Thinner than multiple order
- Less than 8 order
- Less temperature and wavelength dependent than multiple order

Specifications

Material	Single crystal quartz
Optical axis	normal to facet on circumference of retarder
Nominal thickness of waveplate	0.15–0.35 mm
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Retardation tolerance	$<\lambda/300$ over wavelength range
Wavefront distortion	$\lambda/10 @ 633 \text{ nm}$
Parallelism	$<10 \text{ arcsec}$
AR coating	$R < 0.4\%$
Laser damage threshold	10 J/cm^2 , 10 nsec pulse, 1064 nm typical

Ø12.7 mm waveplates. Clear aperture Ø11 mm, unmounted

Wavelength, nm	Retardation $\lambda/2$		Retardation $\lambda/4$	
	Catalogue number	Price, EUR	Catalogue number	Price, EUR
1550	461-4201D12	105	461-4401D12	105
1064	461-4205D12	105	461-4405D12	105
1053	461-4206D12	105	461-4406D12	105
1030	461-4208D12	105	461-4408D12	105
800	461-4215D12	105	461-4415D12	105
780	461-4220D12	105	461-4420D12	105
633	461-4225D12	105	461-4425D12	105
532	461-4230D12	105	461-4430D12	105
515	461-4232D12	105	461-4432D12	105
355	461-4240D12	115	461-4440D12	115

Please contact us for other wavelength, size or precision requirements.

Ø20 mm waveplates. Clear aperture Ø17 mm, mounted into Ø25.4 mm ring holder

Wavelength, nm	Retardation $\lambda/2$		Retardation $\lambda/4$	
	Catalogue number	Price, EUR	Catalogue number	Price, EUR
1550	461-4201	160	461-4401	160
1064	461-4205	160	461-4405	160
1053	461-4206	160	461-4406	160
1030	461-4208	160	461-4408	160
950	461-4210	160	461-4410	160
852	461-4213	160	461-4413	160
800	461-4215	160	461-4415	160
780	461-4220	160	461-4420	160
770	461-4221	160	461-4421	160
633	461-4225	160	461-4425	160
589	461-4228	160	461-4428	160
532	461-4230	160	461-4430	160
527	461-4231	160	461-4431	160
515	461-4232	160	461-4432	160
488	461-4233	160	461-4433	160
400	461-4235	160	461-4435	160
355	461-4240	192	461-4440	192
343	461-4241	192	461-4441	192

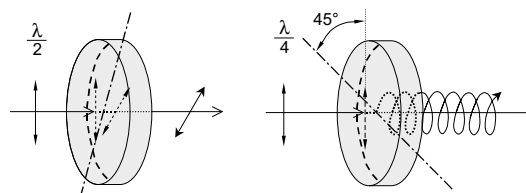
Please contact us for other wavelength, size or precision requirements.

MULTIPLE ORDER WAVEPLATES

Features

- Made from a single crystalline plate
- Polished to 1–1.5 mm thickness

Their retardation is only slightly more temperature dependent compared with the zero order ones.



Specifications

Material	Single crystal quartz
Optical axis	normal to facet on circumference of retarder
Nominal thickness of waveplate	1–1.5 mm
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Retardation tolerance	$< \lambda/300$ over wavelength range
Wavefront distortion	$\lambda/10$ @ 633 nm
Parallelism	< 10 arcsec
AR coating	$R < 0.4\%$
Laser damage threshold	10 J/cm ² , 10 nsec pulse, 1064 nm typical

Ø12.7 mm waveplates. Clear aperture Ø11 mm, unmounted

Wavelength, nm	Retardation $\lambda/2$		Retardation $\lambda/4$	
	Catalogue number	Price, EUR	Catalogue number	Price, EUR
1550	462-4201D12	90	462-4401D12	90
1064	462-4205D12	90	462-4405D12	90
1053	462-4206D12	90	462-4406D12	90
1030	462-4208D12	90	462-4408D12	90
800	462-4215D12	90	462-4415D12	90
780	462-4220D12	90	462-4420D12	90
633	462-4225D12	90	462-4425D12	90
532	462-4230D12	90	462-4430D12	90
515	462-4232D12	90	462-4432D12	90
355	462-4240D12	95	462-4440D12	95

Please contact us for other wavelength, size or precision requirements.

Housing accessories

High Precision
Rotation Polarizer,
Waveplate Mount
840-0186

Find more at
EksmaOptics.com



Polarizer Holders 840-0180

Find more at
EksmaOptics.com



Ø20 mm waveplates. Clear aperture Ø17 mm, mounted into Ø25.4 mm ring holder

Wavelength, nm	Retardation $\lambda/2$		Retardation $\lambda/4$	
	Catalogue number	Price, EUR	Catalogue number	Price, EUR
1550	462-4201	138	462-4401	138
1064	462-4205	138	462-4405	138
1053	462-4206	138	462-4406	138
1030	462-4208	138	462-4408	138
950	462-4210	138	462-4410	138
852	462-4213	138	462-4413	138
800	462-4215	138	462-4415	138
780	462-4220	138	462-4420	138
770	462-4221	138	462-4421	138
633	462-4225	138	462-4425	138
589	462-4228	138	462-4428	138
532	462-4230	138	462-4430	138
527	462-4231	138	462-4431	138
515	462-4232	138	462-4432	138
448	462-4233	138	462-4433	138
400	462-4235	138	462-4435	138
355	462-4240	143	462-4440	143
343	462-4241	143	462-4441	143
266	462-4245	153	462-4445	153
257	462-4246	153	462-4446	153

Please contact us for other wavelength, size or precision requirements.

MULTIPLE ORDER DUAL WAVELENGTH WAVEPLATES

Features

- Operate at both first and second Nd:YAG laser harmonics
- Retardation tolerance $< \lambda/300$

Housing accessories

High Precision
Rotation Polarizer,
Waveplate Mount
840-0186

Find more at
EksmaOptics.com



Polarizer Holders
840-0180

Find more at
EksmaOptics.com



Specifications

Material	Single crystal quartz
Optical axis	normal to facet on circumference of retarder
Wavefront distortion	$\lambda/10$ @ 633 nm
Clear aperture	Ø17 mm
Ring mount outer diameter	25.4 +0.0 / -0.12 mm
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Retardation tolerance	$< \lambda/200$ over wavelength range
Parallelism	< 10 arcsec
AR coating	R $< 0.5\%$
Nominal thickness of waveplate	0.2-1.2 mm
Laser damage threshold	5 J/cm ² , 10 nsec pulse, 1064 nm typical

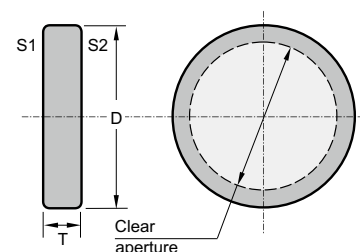
Retardation and Wavelength	Catalogue number	Price, EUR
λ @ 1064nm + $\lambda/2$ @ 532 nm	463-4120	215
λ @ 1064nm + $\lambda/4$ @ 532 nm	463-4140	215
$\lambda/2$ @ 1064nm + λ @ 532 nm	463-4210	215
$\lambda/2$ @ 1064nm + $\lambda/2$ @ 532 nm	463-4220	215
$\lambda/2$ @ 1064nm + $\lambda/4$ @ 532 nm	463-4240	215
$\lambda/4$ @ 1064nm + λ @ 532 nm	463-4410	215
$\lambda/4$ @ 1064nm + $\lambda/2$ @ 532 nm	463-4420	215
$\lambda/4$ @ 1064nm + $\lambda/4$ @ 532 nm	463-4440	215
λ @ 800nm + $\lambda/2$ @ 400nm	463-4121	215
λ @ 800nm + $\lambda/4$ @ 400nm	463-4141	215
$\lambda/2$ @ 800nm + λ @ 400nm	463-4211	215
$\lambda/2$ @ 800nm + $\lambda/2$ @ 400nm	463-4221	215
$\lambda/2$ @ 800nm + $\lambda/4$ @ 400nm	463-4241	215
$\lambda/4$ @ 800nm + λ @ 400nm	463-4411	215
$\lambda/4$ @ 800nm + $\lambda/2$ @ 400nm	463-4421	215
$\lambda/4$ @ 800nm + $\lambda/4$ @ 400nm	463-4441	215

POLARIZATION PLANE ROTATORS

Features

- Made of crystalline quartz
- Intended to rotate a beam polarization plane strictly to an appropriate angle using the circular birefringent effect

As compared to a waveplate, a rotator has an intrinsic advantage, being independent of rotation around its own optical axis. It needs no adjustment, only to be installed normal to incident radiation. A polarization plane rotator is normally used for the specific wavelength. It is only slightly dependent on ambient temperature.



Polarization plane rotators for any wavelength from 200 to 2300 nm are available.

Specifications

Material	Single crystal quartz
Optical axis	Normal to faces S1, S2 of rotator
Clear aperture	Ø17 mm
Ring mount outer diameter	D = 25.4 +0.0 / -0.12 mm
Mount thickness	T = 6–20 mm (depending on wavelength and rotation angle)
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Wavefront distortion	$\lambda/10$
Parallelism	< 10 arcsec
AR coating	R < 0.2% both sides
Laser damage threshold	5 J/cm ² , 10 nsec pulse, 1064 nm typical

Center wavelength, nm	Rotation angle of polarization plane, deg	Catalogue number	Price, EUR
1064	45	470-4644	247
1064	90	470-4649	247
1030	45	470-4904	247
1030	90	470-4909	247
800	45	470-4804	224
800	90	470-4809	224
780	45	470-4784	224
780	90	470-4789	224
633	45	470-4634	224
633	90	470-4639	224
532	45	470-4534	224
532	90	470-4539	224
515	45	470-4514	224
515	90	470-4519	224
413	45	470-4414	224
413	90	470-4419	224
400	45	470-4044	224
400	90	470-4049	224
355	45	470-4354	224
355	90	470-4359	224
343	45	470-4344	224
343	90	470-4349	224
266	45	470-4264	282
266	90	470-4269	282
257	45	470-4254	282
257	90	470-4259	282
244	45	470-4244	282
244	90	470-4249	282

Please contact us for other size or wavelengths requirements.

Housing accessories

Kinematic Mirror and Beamsplitter Mount 840-0020

Find more at EksmaOptics.com



Kinematic Positioning Mount 840-0193

Find more at EksmaOptics.com



FRESNEL RHOMBS

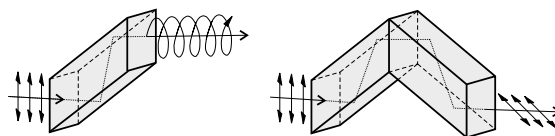
Features

- Rotate polarization, operates over a wide wavelength range
- $\lambda/2$ rhomb is two optically contacted $\lambda/4$ rhombs

Due to unequal phase shifts arising in orthogonally polarized components of an incident wave at total internal reflection, Fresnel Rhombs are used to alter the polarization type of radiation. They are designed so that two full internal reflections inside a rhomb provide $\pi/2$ phase difference between the orthogonally polarized components of radiation. Hence, if there is a 45° angle between the polarization of the linearly polarized incident plane, the emerging beam is circularly polarized, i. e. the rhomb effect is similar to that of a quarter-waveplate. Therefore, two identical Fresnel rhombs, installed in series, will provide $\pi/2$ phase difference similar to that of a half-waveplate, i. e. the device can rotate the beam polarization plane by 90° , leaving the beam direction invariable.

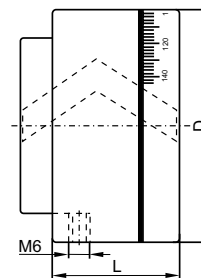
Due to the low dispersion of the refractive index of the materials being used Fresnel rhombs are achromatic over a wide spectral range.

Air-Spaced Fresnel Rhombs are available on request for high power applications.



$\lambda/4$ Fresnel rhomb

$\lambda/2$ Fresnel rhomb



$\lambda/2$ rhomb with mount

Specifications

Material	BK7, UV FS
Operating spectral range	BK7: 400–2000 nm
	UV FS: 210–400 nm
Surface quality	20 – 10 scratch & dig (MIL-PRF-13830B)
Surface flatness	$\lambda/10$ @ 633 nm (all polished surfaces)
Retardation tolerance	$\pm 2^\circ$
Broad band AR coating	$R < 1\%$
Laser damage threshold	$> 0.5 \text{ J/cm}^2$, 10 nsec pulse, 1064 typical

Unmounted

Material	Wavelength range, nm	Retardation	Clear aperture, mm	Catalogue number	Price, EUR
BK7	600–900	$\lambda/2$	10	481-0210	442
		$\lambda/4$	10	481-0410	223
	400–700	$\lambda/2$	10	481-0212	442
		$\lambda/4$	10	481-0414	223
UV FS	210–400	$\lambda/2$	10	481-1210	589
		$\lambda/4$	10	481-1410	355

Fresnel rhombs with other dimensions and parameters or coatings as well as unmounted rhombs are available upon request.

Mounted

Material	Wavelength range, nm	Retardation	Clear aperture, mm	Holder diameter D, mm	Holder length L, mm	Catalogue number	Price, EUR
BK7	600–900	$\lambda/2$	10	73	55	480-0210	791
		$\lambda/4$	10	65	25	480-0410	403
	400–700	$\lambda/2$	10	73	55	480-0212	791
		$\lambda/4$	10	65	25	480-0414	403
UV FS	210–400	$\lambda/2$	10	73	55	480-1210	938
		$\lambda/4$	10	65	25	480-1410	535

Fresnel rhombs with other dimensions and parameters or coatings as well as unmounted rhombs are available upon request.

Mounting Suggestion



LITHIUM FLUORIDE (LiF) COMPONENTS

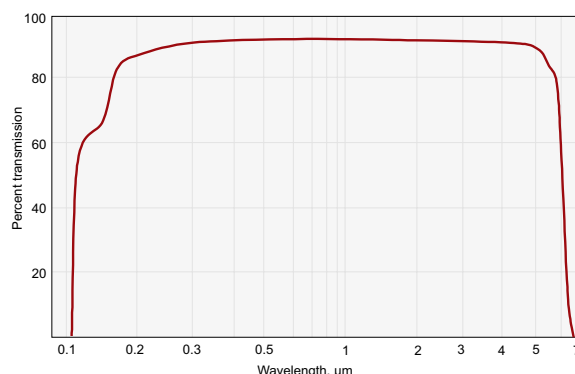
Features

- Optically isotropic, medium hard, hygroscopic, insoluble in water
- Wide transmission range from 150 nm to 6000 nm

Lithium fluoride crystals are well-suited for manufacturing of optical elements (mirrors, windows, lenses) for UV, visible and IR applications.

LiF is very useful for x-ray monochromators and for the study of fundamental properties and defects in crystals.

LiF lenses, Brewster windows, prisms are available upon request.



External transmission of LiF window of 10 mm thickness

Physical properties

Crystal type	cubic
Lattice constant, Å	a = 4.026
Density, g/cm ³	2.64
Melting point, °C	870
Refractive index @ 1.0 μm	n = 1.387
Transmission range, μm	0.12 – 6

Specifications for LiF windows

Material	optical quality LiF crystal ($\Delta n/cm < 0.5 \times 10^{-5}$)
Spectral range	UV, VIS, IR
Surface quality	60 – 40 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.0 / -0.1 mm
Thickness tolerance	±0.2 mm
Surface flatness	$\lambda/4$ @ 633 nm
Parallelism	< 3 arcmin

Housing accessories

Optical Component Mount 830-0037

Find more at [EksmaOptics.com](https://www.eksmaoptics.com)



Diameter, mm	Thickness, mm	Substrate	Catalogue number	Price, EUR
25.4	3.0	UV grade LiF	510-5253	122
38.1	4.0	UV grade LiF	510-5384	258
50.8	6.0	UV grade LiF	510-5506	378

Please contact us for other size, shape or precision requirements.

MAGNESIUM FLUORIDE (MgF₂) COMPONENTS

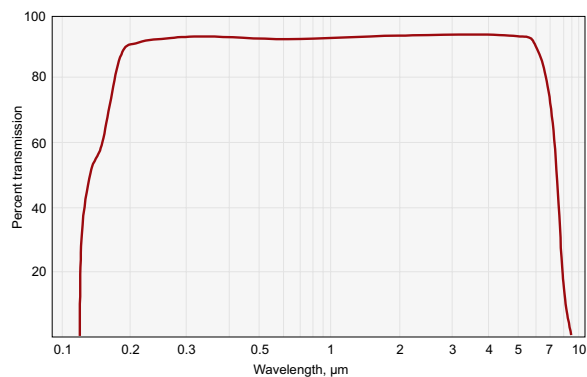
Features

- Very hard and rugged
- Resistant to mechanical and thermal shock
- The only optical material combining a wide spectral transmission band with the birefringence phenomenon

Magnesium fluoride is a proven material for high energy lasers, and in particular for lasers operating in the UV range.

Generally all optical elements are manufactured with the working surface perpendicular to the c-axis of MgF₂ crystal.

MgF₂ lenses, windows, mirrors, prisms are available upon request.



External transmission of MgF₂ window of 10 mm thickness

Physical properties

Crystal type	tetragonal
Lattice constant, Å	a = 4.60, c = 3.06
Density, g/cm ³	3.177
Melting point, °C	1255
Refractive index @ 1.0 μm	n _o = 1.3796, n _e = 1.3852
Transmission range, μm	0.12 – 7

Specifications

Material	optical quality MgF ₂ crystal ($\Delta n/cm < 0.5 \times 10^{-5}$)
Spectral range	UV, IR
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.0 / -0.1 mm
Thickness tolerance	±0.2 mm
Surface flatness	$\lambda/4$ @ 633 nm
Parallelism	< 3 arcmin
Maximum available size of optical components	up to 50 mm

Diameter, mm	Thickness, mm	Substrate	Catalogue number	Price, EUR
25.4	3.0	UV grade MgF ₂	520-5253	130
38.1	5.0	UV grade MgF ₂	520-5385	230
50.8	6.0	UV grade MgF ₂	520-5506	370
25.4	3.0	IR grade MgF ₂	520-6253	110
38.1	5.0	IR grade MgF ₂	520-6385	215
50.8	6.0	IR grade MgF ₂	520-6506	350

Please contact us for other size, shape or precision requirements.

Housing accessories

Kinematic Mirror / Beamsplitter Mounts 840-0032, 840-0033

Find more at EksmaOptics.com



CALCIUM FLUORIDE (CaF₂) COMPONENTS

Features

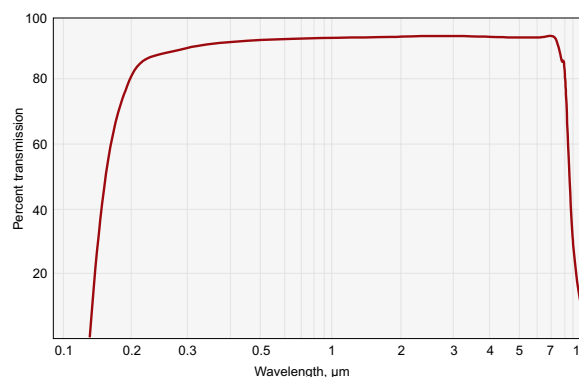
- Useful transmission over the spectral range from 0.2 to 8.0 microns
- Low solubility

Two grades of materials are available: one for UV and the other for IR applications. Low solubility and a wide transmission range makes it useful for many applications, including:

- mirror substrate for UV laser systems;
- substrate for manufacturing windows, lenses for UV, IR applications.

Due to its composition CaF₂ has a much longer useful life than most materials when used in a fluorine environment.

CaF₂ lenses, windows, mirrors, prisms, beamsplitters and beamselectors are available upon request.



External transmission of CaF₂ window of 10 mm thickness

Physical properties

Crystal type	cubic
Lattice constant, Å	a = 5.462
Density, g/cm ³	3.18
Melting point, °C	1360
Refractive index @ 1.0 μm	n = 1.4289
Transmission range, μm	0.13 – 10

CaF₂ WINDOWS

Specifications

Material	optical quality CaF ₂ crystal (Δn/cm < 0.5×10 ⁻⁵)
Spectral range	UV, VIS, IR
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.0 / -0.13 mm
Thickness tolerance	±0.2 mm
Surface flatness	λ/4 @ 633 nm
Parallelism	3 arcmin
Maximum available size of optical components up to dia	120 × 20 mm

Diameter, mm	Thickness, mm	Substrate	Catalogue number	Price, EUR
25.4	1.0	UV grade CaF ₂	530-6251	80
25.4	2.0	UV grade CaF ₂	530-6252	76
25.4	3.0	UV grade CaF ₂	530-5253	70
38.1	5.0	UV grade CaF ₂	530-5385	150
50.8	6.0	UV grade CaF ₂	530-5506	250
25.4	3.0	IR grade CaF ₂	530-6253	60
38.1	5.0	IR grade CaF ₂	530-6385	99
50.8	6.0	IR grade CaF ₂	530-6506	175
70.0	10.0	IR grade CaF ₂	530-6710	230
75.0	6.0	IR grade CaF ₂	530-6756	300

Please contact us for other size, shape or precision requirements.

IR GRADE CaF₂ PROTECTIVE WINDOWS FOR SPECTROSCOPY APPLICATION (optically polished)

Specifications

Material	optical quality CaF ₂ crystal (Δn/cm < 0.5×10 ⁻⁵)
Surface quality	80 – 50 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.0 / -0.13 mm
Thickness tolerance	±0.2 mm
Surface flatness	optically polished
Parallelism	<10 arcmin

Diameter, mm	Thickness, mm	Substrate	Catalogue number	Price, EUR
12.0	1	IR grade CaF ₂	530-6121	5
25.4	1.5	IR grade CaF ₂	530-6131	20
50.8	2.0	IR grade CaF ₂	530-6151	60

Housing accessories

Flipping Mirror / Beamsplitter Mounts 840-0155

Find more at EksmaOptics.com



BARIUM FLUORIDE (BaF₂) COMPONENTS

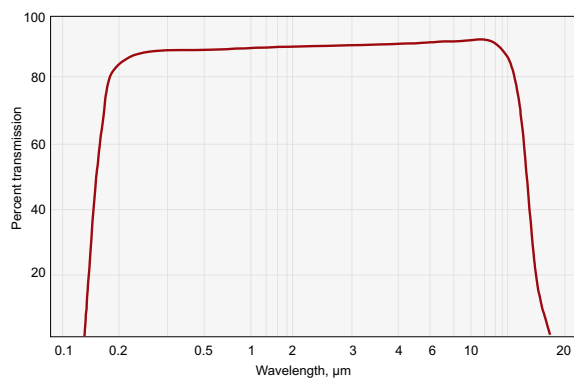
Features

- Useful transmission range covers 0.265 – 10 µm
- Most resistant to high energy radiation among fluorides listed in this catalogue

Barium fluoride is used for optical windows, prisms and lenses transmitting from ultraviolet into infrared, it can be used as an infrared laser window or lens. BaF₂ is recommended for use as a vacuum ultraviolet window where high radiation resistance is required.

BaF₂ is less soluble than LiF, but relatively more soluble than MgF₂ and CaF₂.

BaF₂ lenses, Brewster windows, mirrors, prisms are available on request.



External transmission of BaF₂ window of 10 mm thickness

Physical properties

Crystal type	cubic
Density, g/cm ³	4.89
Melting point, °C	1386
Refractive index	@ 0.265 µm, n = 1.51217 @ 10.3 µm, n = 1.39636
Transmission range, µm	0.15 – 12

BaF₂ WINDOWS

Specifications

Material	BaF ₂
Surface quality	60 – 40 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.0 / -0.25 mm
Thickness tolerance	± 0.2 mm
Surface flatness	1λ per inch @ 633 nm
Parallelism	3 arcmin

Diameter, mm	Thickness, mm	Catalogue number	Price, EUR
25.4	2	540-7252	60
25.4	3	540-7251	60
44.6	3.5	540-7445	100
50.8	3	540-7503	220

Please contact us for other size, shape, precision or coating requirements.

BaF₂ LENSES

Specifications

Material	BaF ₂
Surface quality	60 – 40 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.0 / -0.5 mm
Focal length	± 2% @ 3 µm
Surface irregularity	λ/4 @ 633 nm
Centration	3 arcmin
Maximum available size of optical components	up to Ø100 mm

Diameter, mm	Focal length, mm	Type	Catalogue number	Price, EUR
12.7	25	plano-convex	541-7105	89
25.4	40	plano-convex	541-7204	145
25.4	50	plano-convex	541-7205	134
25.4	75	plano-convex	541-7207	120
25.4	100	plano-convex	541-7210	109
25.4	125	plano-convex	541-7212	109
25.4	150	plano-convex	541-7213	109
25.4	200	plano-convex	541-7214	109
25.4	250	plano-convex	541-7225	109
25.4	300	plano-convex	541-7230	109
25.4	750	plano-convex	541-7275	109
25.4	1000	plano-convex	541-7250	109
12.7	-25	plano-concave	542-7105	89
25.4	-50	plano-concave	542-7205	134
25.4	-75	plano-concave	542-7207	120
25.4	-100	plano-concave	542-7210	109
25.4	-250	plano-concave	542-7225	109
25.4	-1000	plano-concave	542-7250	109
25.4	-2000	plano-concave	542-7270	109

Please contact us for other size, shape or precision requirements.

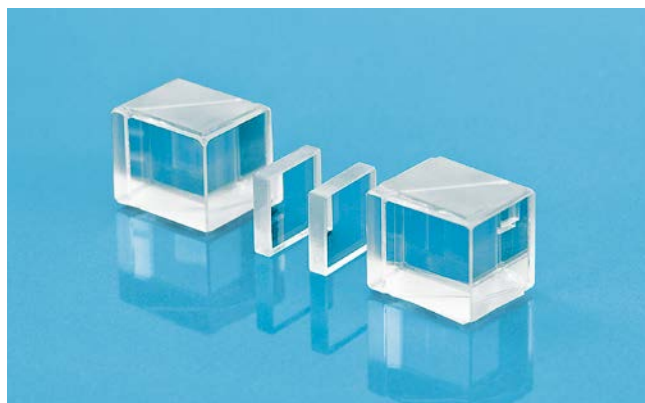
Housing accessories

Self-Centring Lens Mounts 830-0010

Find more at EksmaOptics.com



BaF₂ OPTICAL CRYSTALS FOR CROSS POLARIZED WAVE GENERATION



Cross-Polarized Wave (XPW) generation is a nonlinear third order process during which fundamental and generated waves have the same frequency; however, generated wave is perpendicularly polarized to pump wave polarization. Phase matching occurs over large bandwidth in XPW generation process. This means the same phase and group velocities for fundamental wave and XPW.

Cross-polarized wave (XPW) generation process is driven by the third order nonlinearity of the crystal, $\chi_{xxxx}^{(3)}$ and the anisotropy $\sigma = (\chi_{xxxx}^{(3)} - 3\chi_{xxyy}^{(3)}) / \chi_{xxxx}^{(3)}$ of the $\chi^{(3)}$ tensor.

The typical optical material used for cross-polarized wave (XPW) generation is Barium Fluoride (BaF₂) crystal with z ([001]) or holographic ([011]) crystallographic orientation. Theory predicts a maximum XPW energy conversion efficiency around 35% when using [011]-cut BaF₂ crystal with a concomitant pulse shortening factor of $\sqrt{3}$ corresponding to a pure third-order nonlinear process [1].

EKSMA OPTICS offers [011] orientation BaF₂ optical crystals (XPW crystals) for Cross-Polarized Wave (XPW) generation. BaF₂ optical crystals with orientation [001] as well CaF₂ optical crystals are available on request.

Physical properties

Crystal type	cubic
Density, g/cm ³	5.27
Melting point, °C	1525
Refractive index	@ 0.265 μm, n = 1.51217 @ 10.3 μm, n = 1.39636
Transmission range, μm	0.135 – 15

Specifications

Material	BaF ₂
Surface quality	60 – 40 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.0 / -0.25 mm
Thickness tolerance	± 0.2 mm
Surface flatness	λ/2 @ 633 nm
Parallelism	3 arcmin

Characteristics of the different Cross Polarized Wave (XPW) crystals at 2.1 μm [2]

	BaF ₂	CaF ₂	CVD-Diamond
Orientation	h-cut [011]	h-cut [011]	z-cut [001]
Length, mm	2	2	1.2
n	1.464	1.426	2.383
$\chi_{xxxx}^{(3)} \cdot 10^{-22} \text{ m}^2/\text{V}^2$	1.53	0.94	11
σ	-1.2	-0.6	-1.8
GVD, fs ² /mm	-6	-27	63

[1] L. Canova, S. Kourtev, N. Minkovski, A. Jullien, R. Lopez-Martens, O. Albert, and S.M. Saltiel, Appl. Phys. Lett. 92, 231102 (2008)

[2] Ricci, A., Silva, F., Jullien, A., Cousin, S. L., Austin, D. R., Biegert, J., Lopez-Martens, R. Generation of High-Fidelity few-cycle pulses at 2.1 μm via cross-polarized wave generation. Optics Express 9711, 2013.04.22. Vol. 21, No. 8. DOI:10.1364/OE.21.009711

UNMOUNTED

Size, mm	Thickness, mm	Orientation	Catalogue number	Price, EUR
10x10	0.5	[011]	540-7105	180
10x10	1.0	[011]	540-7110	180
10x10	1.5	[011]	540-7115	180
10x10	2.0	[011]	540-7120	180
10x10	2.5	[011]	540-7125	180
10x10	3.0	[011]	540-7130	180

MOUNTED INTO OPEN RING HOLDER

Size, mm	Thickness, mm	Orientation	Catalogue number	Price, EUR
10x10	0.5	[011]	540-7105M	230
10x10	1.0	[011]	540-7110M	230
10x10	1.5	[011]	540-7115M	230
10x10	2.0	[011]	540-7120M	230
10x10	2.5	[011]	540-7125M	230
10x10	3.0	[011]	540-7130M	230

SAPPHIRE (Al₂O₃) COMPONENTS

Features

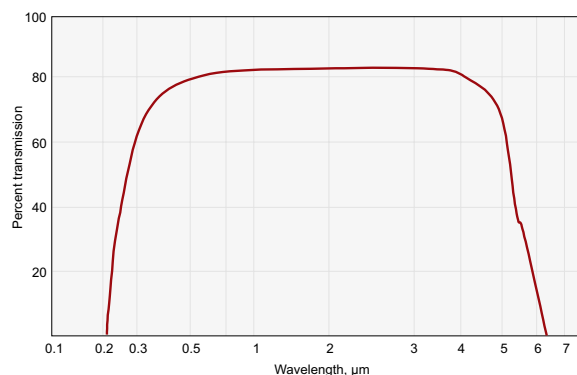
- The hardest of the oxide crystals
- Excellent transparency and thermal properties
- Chemically inert and insoluble
- Can be safely made much thinner than windows from glass or other crystals

Single crystal sapphire combines excellent optical, physical and chemical properties. Chemically inert and almost insoluble, sapphire in many ways is a superior material for windows. It is transparent from 150 nm up to 6 μm in the middle infrared.

Sapphire exhibits anisotropy in many optical and physical properties. Difference in the index of refraction in orthogonal directions is 0.008.

The high index of sapphire makes magnesium fluoride almost an ideal single layer anti-reflection coating.

Exact parameters depend on the orientation of optical axis or c-axis relative to the surface.



External transmission of Al₂O₃ window of 1 mm thickness

Physical properties

Crystal type	Hexagonal
Density, g/cm ³	3.97
Melting point, °C	2040
Refractive index	@ 0.3 μm, n = 1.814 @ 5 μm, n = 1.623
Transmission range, μm	0.17 – 5.5

Specifications for Sapphire windows

Material	Al ₂ O ₃
Surface quality	60 – 40 scratch & dig (MIL-PRF-13830B)
Clear aperture	80% of the diameter
Diameter tolerance	+0.0 / -0.13 mm
Thickness tolerance	±0.2 mm
Surface flatness	1 λ per inch @ 633 nm
Parallelism	3 arcmin
Orientation	C-cut

Diameter, mm	Thickness, mm	Catalogue number	Price, EUR
12.7	0.5	550-7120	29
12.7	1	550-7121	28
12.7	2	550-7122	28
12.7	3	550-7123	28
12.7	4	550-7124	30
12.7	6	550-7126	33
20.0	0.5	550-7200	39
20.0	1	550-7201	39
20.0	2	550-7202	39
25.4	0.5	550-7250	50
25.4	1	550-7251	50
25.4	2	550-7252	50
25.4	3	550-7253	50
25.4	4	550-7254	50
25.4	5	550-7255	55
38.1	2	550-7382	120
50.0	2	550-7502	173
50.0	3	550-7503	182

Please contact us for other size, shape or precision requirements. Coatings are available upon request.

Housing accessories

Mirror / Beamsplitter Mount 840-0036

Find more at [EksmaOptics.com](https://www.eksmaoptics.com)



ZINC SELENIDE (ZnSe) COMPONENTS

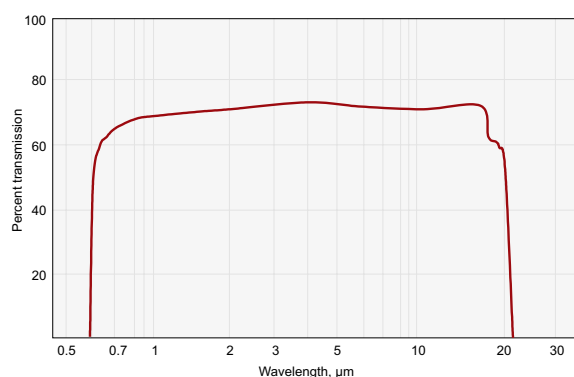
Features

- Low absorption in the red end of the visible spectrum
- Not hygroscopic
- Quite stable in the laboratory environment

Zinc selenide is the most popular material for infrared applications. Due to a very wide transmission range covering 0.6–22 μm chemical vapor deposition grown ZnSe as a high optical quality material is used to manufacture optical components (windows, mirrors, lenses) for high power IR lasers.

Because of a high refractive index, single and double layer antireflection coatings can be unusually effective.

ZnSe Brewster windows, mirrors, prisms, beamsplitters and beamselectors are available upon request.



External transmission of ZnSe window of 10 mm thickness

Physical properties

Crystal type	cubic	
Density, g/cm ³	5.27	
Melting point, °C	1525	
Refractive index	@ 8 – 13 μm	$n = 2.417\text{--}2.385$
	@ 10.6 μm	$n = 2.403$
Transmission range, μm	0.6 – 21	
Bulk absorption coefficient, cm ⁻¹	@ 10.6 μm	$0.6 - 1.0 \times 10^{-3}$
Coefficient of linear thermal expansion, °C ⁻¹	8.56×10^{-6}	

ZnSe WINDOWS

Specifications

Material	ZnSe
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.0 / -0.13 mm
Thickness tolerance	± 0.1 mm @ 10.6 μm
Surface flatness	$\lambda/40$ per inch @ 10.6 μm over clear aperture
Parallelism	3 arcmin
Coating	both surfaces AR coated @ 10.6 μm , $R \leq 0.5\%$ per surface

Uncoated

Diameter, mm	Thickness, mm	Catalogue number	Price, EUR
12.7	2.0	560-6120	55
12.7	3.0	560-6121	57
25.4	2.0	560-6250	69
25.4	3.0	560-6251	73
38.1	3.0	560-6381	135
50.8	3.0	560-6501	270
50.8	5.0	560-6503	340

Coated AR/AR @ 10.6 μm , AOI=0°

Diameter, mm	Thickness, mm	Catalogue number	Price, EUR
12.7	2.0	560-6122	85
25.4	3.0	560-6253	130
38.1	3.0	560-6383	205
50.8	5.0	560-6505	410
76.2	6.4	560-6766	995

Please contact us for other size, shape, precision or coating requirements.

ZnSe PLANO-CONVEX LENSES

Specifications

Material	ZnSe
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Focal length tolerance	±2%
Diameter tolerance	+0.0 / -0.13 mm
Thickness tolerance	±0.1 mm
Coating	both surfaces AR coated @ 10.6 μm , $R \leq 0.5\%$ per surface

Diameter, mm	Focal length, mm	Catalogue number	Price, EUR
12.7	25.4	561-6122	125
19.1	38.1	561-6192	130
19.1	50.8	561-6193	130
25.4	50.8	561-6251	195
25.4	63.5	561-6252	195
25.4	76.2	561-6253	195
25.4	101.6	561-6254	195
25.4	127	561-6255	190

Diameter, mm	Focal length, mm	Catalogue number	Price, EUR
25.4	150	561-6256	190
25.4	200	561-6257	190
25.4	254	561-6258	190
38.1	63.5	561-6382	315
38.1	127	561-6385	308
38.1	190.5	561-6388	308
50.8	127	561-6502	580
76.2	254	561-6765	1390

Please contact us for other size, shape, precision or coating requirements.

ZnSe MENISCUS LENSES

Specifications

Material	ZnSe
Surface quality	40-20 scratch & dig (MIL-PRF-13830B)
Focal length tolerance	±2%
Diameter tolerance	+0.0 -0.13 mm
Thickness tolerance	±0.1 mm
Clear Aperture	90% of the diameter
Coating	both surfaces AR coated @ 10.6 µm, R≤0.5% per surface

Housing accessories

Variable Lens Holder 830-0040

Find more at [EksmaOptics.com](https://www.eksmaoptics.com)



Diameter, mm	Focal length, mm	Catalogue number	Price, EUR
12.7	38.1	565-6122	215
25.4	25.4	565-6251	224
25.4	38.1	565-6252	224
25.4	50	565-6253	217
25.4	63.5	565-6255	217
25.4	75	565-6256	217
25.4	100	565-6257	217
25.4	127	565-6258	217
38.1	63.5	565-6382	345
38.1	127	565-6385	345
38.1	254	565-6388	345
50.8	127	565-6502	612
76.2	254	565-6765	1450

Please contact us for other size, shape, precision or coatings requirements.

SILICON (Si) COMPONENTS

Coated silicon substrates are most common used as mirrors for CO₂ lasers. Its advantages are good durability, thermal stability and relatively low cost.

The total reflectors are used as rear reflectors and fold mirrors and externally as beam benders in beam delivery systems.

Specifications

Material	Si
Density, g/cm ³	2.33
Operation wavelength	10.6 µm
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Surface flatness	λ/4 @ 633 nm
Clear aperture	>80% of diameter
Diameter tolerance	+0.0 / -0.2 mm
Thickness tolerance	±0.25 mm

SILICON (Si) MIRRORS

Specifications

Coating	protected gold
Reflectivity for unpolarised radiation	> 99%

Diameter, mm	Thickness, mm	Catalogue number	Price, EUR
25.4	3	575-6250	59
38.1	4	575-6380	94
50.8	5	575-6500	159

SILICON (Si) WINDOWS

Specifications

Coating	uncoated
Parallelism	3 arcmin

Diameter, mm	Thickness, mm	Catalogue number	Price, EUR
25.4	3	575-6250U	95
50.8	3	575-6500U	160

GERMANIUM (Ge) COMPONENTS

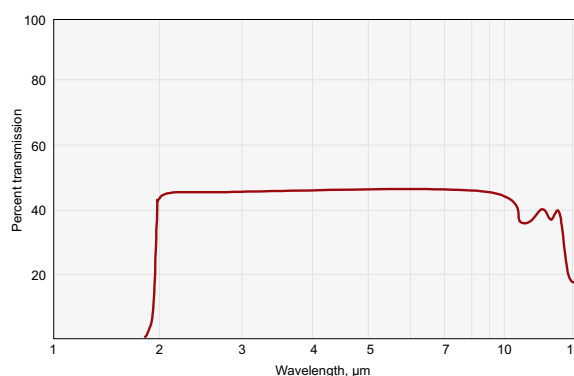
Features

- Wide IR transmission range covering 1.8 – 16 μm
- Opaque in the visible range

Ge based optical components are widely used for IR applications. Ge is well suited for manufacturing windows and lenses for IR applications in lasers and optical systems. Ge components are used with AR coatings because of high surface reflectivity of substrate.

The high refractive index ensures an exceptional single wavelength performance for a “best form” singlet constructed from germanium.

Ge lenses, Brewster windows, mirrors and beamsplitters are available upon request.



External transmission for Ge window of 10 mm thickness

Physical properties

Crystal type	cubic
Lattice constant, Å	$a = 5.657$
Density, g/cm^3	5.33
Melting point, °C	936
Refractive index @ 10.6 μm	$n = 4.0034$
Transmission band, μm	1.8 – 17

Specifications

Material	optical quality Ge crystal ($\Delta n/\text{cm} < 0.5 \times 10^{-5}$)
Surface quality	60 – 40 scratch & dig (MIL-PRF-13830B)
Clear aperture	80% of the diameter
Diameter tolerance	$+0.0 / -0.1 \text{ mm}$
Thickness tolerance	$\pm 0.2 \text{ mm}$
Surface flatness	$< 1.5 \lambda$ per inch @ 633 nm
Parallelism	$< 3 \text{ arcmin}$

Coating	Diameter, mm	Thickness, mm	Catalogue number	Price, EUR
uncoated	25.4	3.0	580-6023	99
	38.1	4.0	580-6034	210
	50.8	5.0	580-6055	299
AR/AR @ 10.6 μm	25.4	3.0	580-6123	159
	38.1	4.0	580-6134	269
	50.8	5.0	580-6155	370

Please contact us for other sizes or required specifications of coating.

Housing accessories

Kinematic Mirror and Beamsplitter Mount 840-0020

Find more at EksmaOptics.com

