

CHAPTERS

Optical Elements

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Optical Isolators

Optical Systems

Optics Kits

SECTIONS

Spherical Lenses

Achromatic Lenses

Aspheric Lenses

Cylindrical Lenses

Mirrors

Spectral Filters

ND Filters

Beamsplitters

Prisms

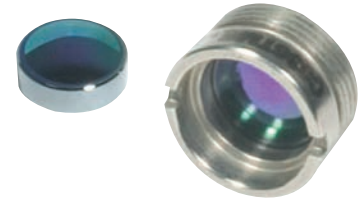
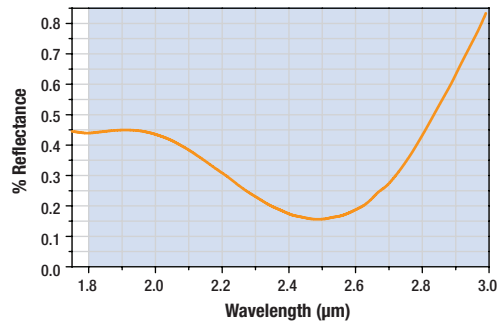
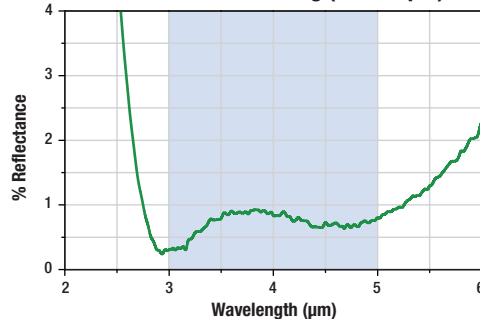
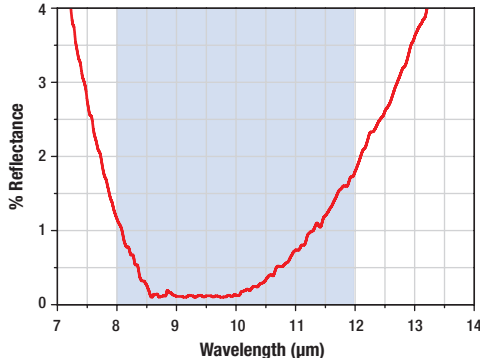
Gratings

Windows

Diffusers

Molded IR Aspheric Lenses (Page 1 of 2)

COATING RANGE	
-D	1.8 – 3 μm
-E	3 – 5 μm
-F	8 – 12 μm

NEW
productsIR Antireflection Coating (D: 1.8 - 3 μm)*IR Antireflection Coating (E: 3 - 5 μm)*IR Antireflection Coating (F: 8 - 12 μm)*

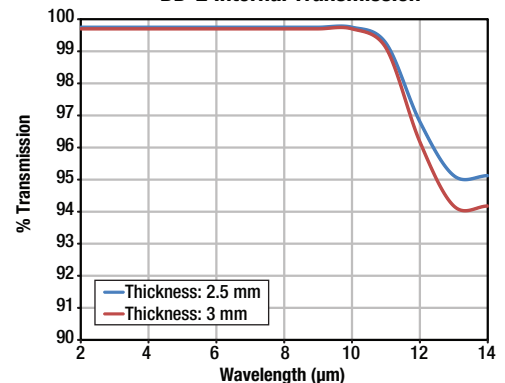
*NOTE: The highlighted region indicates the specified AR Coating range.

Features

- High NA (0.56 to 0.85)
- Diffraction-Limited Performance
- Broadband AR-Coated Optics
- Collimate or Focus Light with a Single Element
- Ideal for Collimating IR Laser Light

Aspheric lenses focus or collimate light without introducing spherical aberration into the transmitted wavefront. For monochromatic sources, spherical aberration is often what prevents a single spherical lens from achieving diffraction-limited performance when focusing or collimating light. Thus, an aspheric lens is often the best single element solution for many applications including collimating the output of a fiber or laser diode, coupling light into a fiber, spatial filtering, or imaging light onto a detector. These IR aspheric lenses are also ideal for collimating light from MWIR and LWIR lasers, including Quantum Cascade Lasers (QCL).

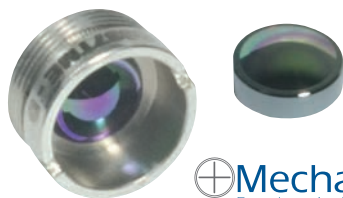
BD-2 Internal Transmission



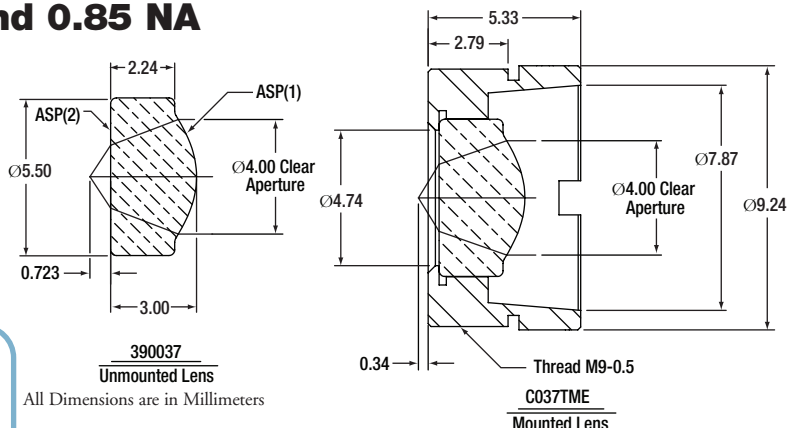
The Black Diamond™-2 (BD-2) material has several advantages over Germanium, which is traditionally used for aspheric IR optics. BD-2's coefficient of thermal expansion (CTE) and thermally stable refractive index (n) result in a smaller change in focal length as a function of temperature. While Germanium suffers from transmission loss as temperature increases, BD-2 aspheric lenses can be used in environments up to 130 °C. BD-2 is a Chalcogenide made up of an amorphous mixture of Germanium (28%), Antimony (12%), and Selenium (60%).

Molded IR Aspheric Lenses (Page 2 of 2)

390037 $f = 1.873$ mm and 0.85 NA



Mechanical
Drawings Available on the
WEB



All Dimensions are in Millimeters

Aspheric Coefficients

	R	k	A_4	A_6	A_8	A_{10}
ASP(1)	-3.00	-0.06201888	4.0274230E-03	8.5007833E-04	-4.5098755E-06	-
ASP(2)	-	-	-	-	-	-

Unmounted, AR-Coated IR Aspheric Lenses

ITEM #	\$	£	€	RMB	DESCRIPTION
390037-D	\$ 285.00	£ 205.20	€ 247.95	¥ 2,271.45	Lens, AR-Coated: 1.8 – 3 μ m
390037-E	\$ 285.00	£ 205.20	€ 247.95	¥ 2,271.45	Lens, AR-Coated: 3 – 5 μ m
390037-F	\$ 285.00	£ 205.20	€ 247.95	¥ 2,271.45	Lens, AR-Coated: 8 – 12 μ m

Mounted, AR-Coated IR Aspheric Lenses

ITEM #	\$	£	€	RMB	DESCRIPTION
C037TME-D	\$ 310.00	£ 223.20	€ 269.70	¥ 2,470.70	Mounted Lens, AR-Coated: 1.8 – 3 μ m
C037TME-E	\$ 310.00	£ 223.20	€ 269.70	¥ 2,470.70	Mounted Lens, AR-Coated: 3 – 5 μ m
C037TME-F	\$ 310.00	£ 223.20	€ 269.70	¥ 2,470.70	Mounted Lens, AR-Coated: 8 – 12 μ m

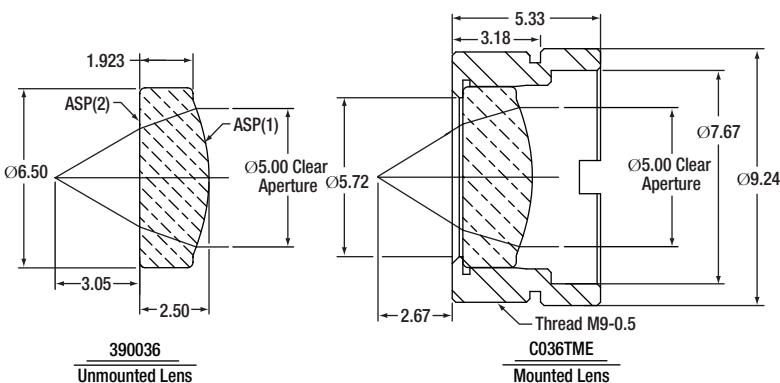
Black Diamond™-2 Molded Glass Aspheric Lens

Optical Design Specifications

- Design Wavelength: 9.5 μ m
- Numerical Aperture: 0.85
- Clear Aperture: \varnothing 4.00 mm
- Effective Focal Length: 1.873 mm
- Unmounted Working Distance: 0.723 mm
- Mounted Working Distance: 0.34 mm
- Magnification: Infinite
- Diffraction-Limited Range: 4.2 – 15 μ m
- Surface Quality: 80-50 Scratch-Dig
- Glass: BD-2

Black Diamond™ lenses are manufactured by LightPath™ Technologies

390036 $f = 4.0$ mm and 0.56 NA



All Dimensions are in Millimeters

Aspheric Coefficients

	R	k	A_4	A_6	A_8	A_{10}
ASP(1)	-6.52	0.2819169	9.7637443E-04	1.4399786E-05	-	-
ASP(2)	-	-	-	-	-	-

Unmounted, AR-Coated IR Aspheric Lenses

ITEM #	\$	£	€	RMB	DESCRIPTION
390036-D	\$ 285.00	£ 205.20	€ 247.95	¥ 2,271.45	Lens, AR-Coated: 1.8 – 3 μ m
390036-E	\$ 285.00	£ 205.20	€ 247.95	¥ 2,271.45	Lens, AR-Coated: 3 – 5 μ m
390036-F	\$ 285.00	£ 205.20	€ 247.95	¥ 2,271.45	Lens, AR-Coated: 8 – 12 μ m

Mounted, AR-Coated IR Aspheric Lenses

ITEM #	\$	£	€	RMB	DESCRIPTION
C036TME-D	\$ 310.00	£ 223.20	€ 269.70	¥ 2,470.70	Mounted Lens, AR-Coated: 1.8 – 3 μ m
C036TME-E	\$ 310.00	£ 223.20	€ 269.70	¥ 2,470.70	Mounted Lens, AR-Coated: 3 – 5 μ m
C036TME-F	\$ 310.00	£ 223.20	€ 269.70	¥ 2,470.70	Mounted Lens, AR-Coated: 8 – 12 μ m

Black Diamond™-2 Molded Glass Aspheric Lens

Optical Design Specifications

- Design Wavelength: 2.5 μ m
- Numerical Aperture: 0.56
- Clear Aperture: \varnothing 5.00 mm
- Effective Focal Length: 4.00 mm
- Unmounted Working Distance: 3.05 mm
- Mounted Working Distance: 2.67 mm
- Magnification: Infinite
- Diffraction-Limited Range: 2 – 15 μ m
- Surface Quality: 80-50 Scratch-Dig
- Glass (Corning): BD-2

Black Diamond™ lenses are manufactured by LightPath™ Technologies