

# Optics

Optical Systems

Free Space Isolators

E-O Devices

Spherical Singlets

Multi-Element Lenses

Cylindrical Lenses

Aspheric Lenses

Mirrors

Diffusers & Lens Arrays

Windows

Prisms

Gratings

Polarization Optics

Beamsplitters

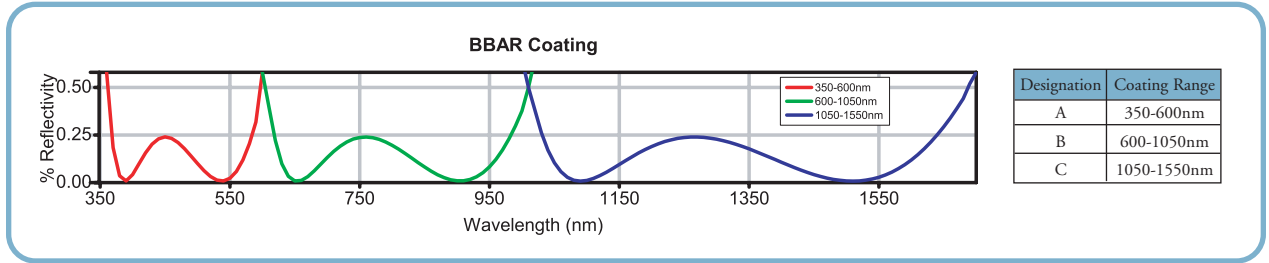
Filters & Attenuators

Gas Cells

## Molded Aspheric Lenses by Rochester Precision

MOUNTED ITEM#	UNMOUNTED ITEM#	PAGE	EFFECTIVE FOCAL LENGTH (mm)	OUTER DIAMETER (mm)	NA	WORKING DISTANCE (mm)	CLEAR APERTURE (mm)
A414TM	A414	745	3.30	4.5	0.47	1.94	3.52
A230TM	A230	749	4.51	6.33	0.54	2.91	4.95
A390TM	A390	750	4.60	6.0	0.53	2.89	4.89
A110TM	A110	752	6.24	7.2	0.42	3.39	5.0
A375TM	A375	753	7.50	6.5	0.30	5.90	4.50
A240TM	A240	754	8.00	9.94	0.50	5.92	8.00
A220TM	A220	754	11.00	7.2	0.26	7.97	5.50
A397TM	A397	755	11.00	7.2	0.30	9.64	6.59

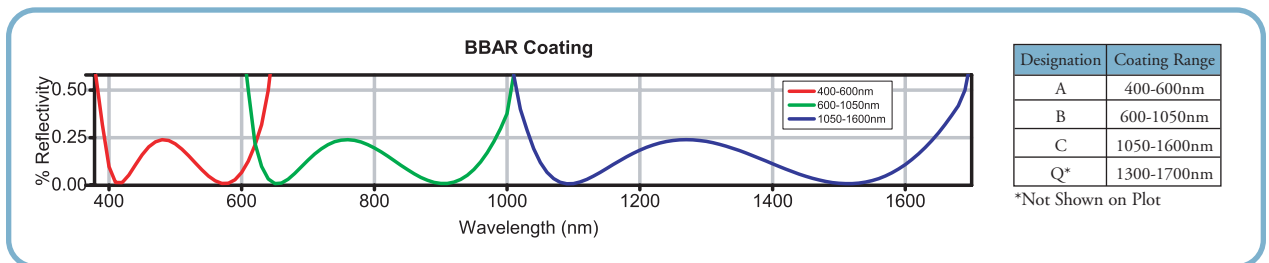
## Rochester Precision AR Coatings



## Geltech™ Molded Aspheric Lenses, Manufactured by LightPath® Technologies

MOUNTED ITEM#	UNMOUNTED ITEM#	PAGE	EFFECTIVE FOCAL LENGTH (mm)	OUTER DIAMETER (mm)	NA	WORKING DISTANCE (mm)	CLEAR APERTURE (mm)
C200TM	350200	740	1.14	2.4	0.43	1.16/4.93	1.13
C140TM	350140	740	1.45	2.4	0.55	0.88	1.6
C710TM	350710	741	1.49	2.65	0.50	1.1	1.5
C890TM	370890-Q	741	1.8	1.85	0.30	1.1	1.08
C150TM	350150	742	2.0	3.0	0.50	1.09	2.0
C390TM	350390	742	2.75	4.0	0.68	1.56	3.6
C570TM	350570	743	2.84	5.4	0.67	1.56	4
C440TME	352440	743	2.95	4.7	0.53	2.66/6.91	4.2
C660TM	350660	744	2.97	4.0	0.60	1.56	3.6
C330TME	352330	744	3.1	6.33	0.68	1.76	5.0
C610TM	350610	745	4.0	6.33	0.60	1.73	4.8
C940TM	370940-Q	746	4.0	1.825	0.17	3.36	1.37
C671TME	352671	747	4.02	6.325	0.60	2.39	4.8
C340TM	350340	747	4.03	6.33	0.62	1.76	5.0
C350TME	352350	748	4.5	4.7	0.42	2.38	3.7
C230TME	352230	748	4.51	6.33	0.55	2.91	4.95
C430TM	350430	750	5.0	2.0	0.15	4.36	1.5
C170TME	352170	751	6.16	4.7	0.30	4.37	3.7
C110TME	352110	752	6.24	7.2	0.40	3.39	5.0
C240TM	350240	753	8.0	9.94	0.50	5.92	8.0
C220TME	352220	755	11.0	7.2	0.25	7.96	5.5
C560TM	350560	756	13.86	6.33	0.18	11.99	5.10
C260TME	352260	756	15.29	6.5	0.16	14.00	5.0
C280TME	352280	757	18.4	6.5	0.15	17.10	5.5

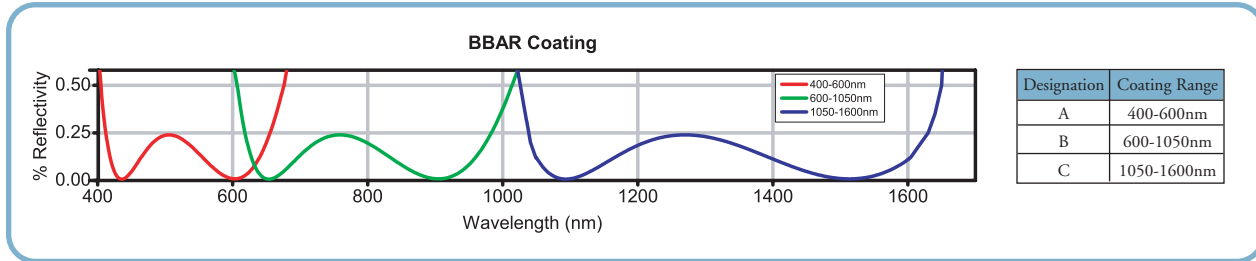
## LightPath® AR Coatings



Large Diameter Precision Ground Aspheric Lenses by Asphericon

UNMOUNTED ITEM#	PAGE	EFFECTIVE FOCAL LENGTH (mm)	OUTER DIAMETER (mm)	NA	WORKING DISTANCE (mm)	CLEAR APERTURE (mm)
AL108	760	8.0	10	0.547	6.00	9.00
AL1210	760	10.0	12	0.545	7.61	11.25
AL1512	761	12.0	15	0.546	8.96	13.50
AL1815	761	15.0	18	0.534	11.41	16.50
AL2018	762	18	20	0.488	13.84	18.0
AL2520	762	20	25	0.543	15.70	22.5
AL3026	762	26	30	0.522	20.54	28.0
AL4532	763	32	45	0.612	24.12	41.0
AL5040	763	40	50	0.554	31.42	46.0
AL7560	764	60	75	0.619	36.60	69.0
AL100100	764	100	100	0.478	76.27	92.0

Asphericon AR Coatings



Plastic Aspheric Lenses by Philips

UNMOUNTED ITEM#	PAGE	EFFECTIVE FOCAL LENGTH (mm)	OUTER DIAMETER (mm)	NA	WORKING DISTANCE (mm)	CLEAR APERTURE (mm)
CAY033	766	3.30	7.4	0.40	1.98	2.7
CAY046	766	4.60	7.4	0.40	2.28	3.7
CAX100	767	10.0	6.3	0.20	8.33	4.1
CSX122	767	12.1	6.3	0.12	10.35	3.8
CAX183	767	18.33	6.3	0.12	16.48	4.3

GRIN Lenses

UNMOUNTED ITEM#	PAGE	EFFECTIVE FOCAL LENGTH (mm)	NA	PITCH	WORKING DISTANCE (mm)
GRIN2313A	768	1.94	0.46	0.23	0.24
GRIN2315A	768	1.94	0.46	0.23	0.24
GRIN2913	768	1.98	0.46	0.29	0.49
GRIN2915	768	1.99	0.46	0.29	0.50

Aspheric Lens Equation

Lens Design Formula

- Positive Radius Indicates That the Vertex is Located to the Left of the Center of Curvature
- Negative Radius Indicates That the Vertex is Located to the Right of the Center of the Curvature

Variable Definitions	
z	SAG as a Function of Y
R	Radius of Curvature
k	Conic Constant
A <sub>4</sub>	4th Order Aspheric Coefficient
A <sub>6</sub>	6th Order Aspheric Coefficient
A <sub>8</sub>	8th Order Aspheric Coefficient
A <sub>10</sub>	10th Order Aspheric Coefficient
A <sub>12</sub>	12th Order Aspheric Coefficient

$$z = \frac{Y^2}{R \left( 1 + \sqrt{1 - (1 + k) Y^2 / R^2} \right)} + A_4 Y^4 + A_6 Y^6 + A_8 Y^8 + A_{10} Y^{10} + A_{12} Y^{12}$$

- Optical Systems
- Free Space Isolators
- E-O Devices
- Spherical Singlets
- Multi-Element Lenses
- Cylindrical Lenses
- Aspheric Lenses**
- Mirrors
- Diffusers & Lens Arrays
- Windows
- Prisms
- Gratings
- Polarization Optics
- Beamsplitters
- Filters & Attenuators
- Gas Cells

# 350280 f = 18.4mm and 0.15 NA

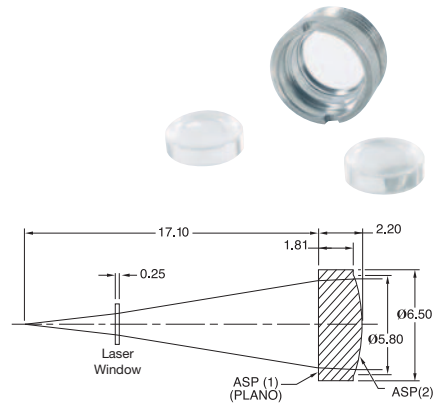
## Geltech™ Molded Glass Aspheric Lens

Optical Design Specifications

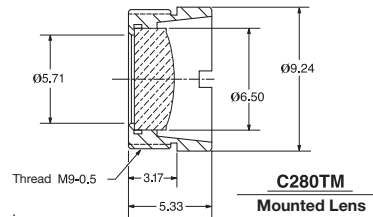
- Design Wavelength: 780nm
- Numerical Aperture: 0.15
- Clear Aperture: 5.5mm
- Effective Focal Length: 18.40mm
- Magnification: Infinite
- Laser Window Thickness: 0.25mm

- Laser Window Material/Index: BK7/1.51
- RMS WFE (Axial @ 632.8nm)<sup>1</sup>: <Diffraction Limit
- Scratch-Dig: 40-20
- Glass (Corning): C0550

<sup>1</sup> Averaged over full aperture  
Geltech™ lenses are manufactured by LightPath® Technologies



**350280**  
Unmounted Lens



All Dimensions  
Are in Millimeters

### Aspheric Coefficients

	R	k	A <sub>4</sub>	A <sub>6</sub>	A <sub>8</sub>	A <sub>10</sub>
ASP (2)	10.9838000	-0.5429290	-4.4947000E-06	-4.9161000E-08	-	-

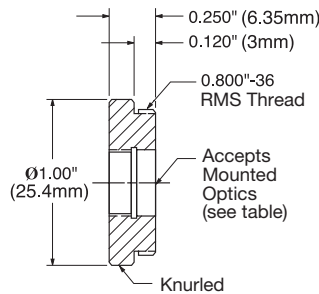
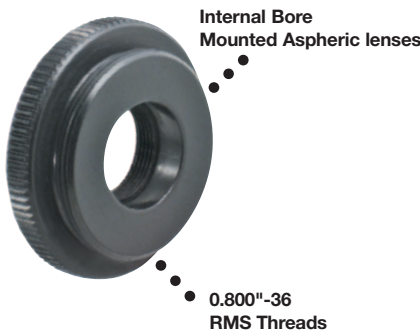
### Unmounted AR Coated Aspheric Lenses

ITEM #	\$	£	€	RMB	DESCRIPTION
352280-A	\$ 75.00	£ 47.30	€ 69,80	¥ 716.30	Lens, AR Coated 400-600nm
352280-B	\$ 75.00	£ 47.30	€ 69,80	¥ 716.30	Lens, AR Coated 600-1050nm
352280-C	\$ 75.00	£ 47.30	€ 69,80	¥ 716.30	Lens, AR Coated 1050-1600nm

### Mounted AR Coated Aspheric Lenses

ITEM #	\$	£	€	RMB	DESCRIPTION
C280TME-A	\$ 79.00	£ 49.80	€ 73,50	¥ 754.50	Mounted Lens, AR Coated 400-600nm
C280TME-B	\$ 79.00	£ 49.80	€ 73,50	¥ 754.50	Mounted Lens, AR Coated 600-1050nm
C280TME-C	\$ 79.00	£ 49.80	€ 73,50	¥ 754.50	Mounted Lens, AR Coated 1050-1600nm

## RMS Aspheric Lens Adapters



This adapter is used to convert the threading on the mounted aspheric lens to RMS Microscope threading while also providing an extension tube. This allows the aspheric lens to be used as a replacement for a microscope objective in some applications.

**E12RMS**  
Compatible with:  
A240TM



This internally and externally threaded ring is used to adapt external RMS threading to external SM1 threading.

ITEM #	\$	£	€	RMB	MOUNTS
RMS12	\$ 19.40	£ 12.20	€ 18,00	¥ 185.30	Microscope Threads on OD and M12-0.5 Threaded ID
RMS09	\$ 19.40	£ 12.20	€ 18,00	¥ 185.30	Microscope Threads on OD and M9-0.5 Threaded ID
RMS08	\$ 19.40	£ 12.20	€ 18,00	¥ 185.30	Microscope Threads on OD and M8-0.5 Threaded ID
RMS06	\$ 19.40	£ 12.20	€ 18,00	¥ 185.30	Microscope Threads on OD and M6-0.5 Threaded ID
RMS11P	\$ 19.40	£ 12.20	€ 18,00	¥ 185.30	Microscope Threads on OD and M11-0.5 Threaded ID
E09RMS	\$ 31.00	£ 19.50	€ 28,80	¥ 296.10	Extended Adapter, RMS Threads on OD and M9-0.5 Threaded
E12RMS	\$ 31.20	£ 19.70	€ 29,00	¥ 298.00	Extended Adapter, RMS Threads on OD and M12-0.5 Threaded
SM1A3	\$ 18.40	£ 11.60	€ 17,10	¥ 175.70	External RMS to External SM1 Thread Adapter

- Optical Systems
- Free Space Isolators
- E-O Devices
- Spherical Singlets
- Multi-Element Lenses
- Cylindrical Lenses
- Aspheric Lenses**
- Mirrors
- Diffusers & Lens Arrays
- Windows
- Prisms
- Gratings
- Polarization Optics
- Beamsplitters
- Filters & Attenuators
- Gas Cells