Rochester Precision Optics

Company Overview & Standard Products

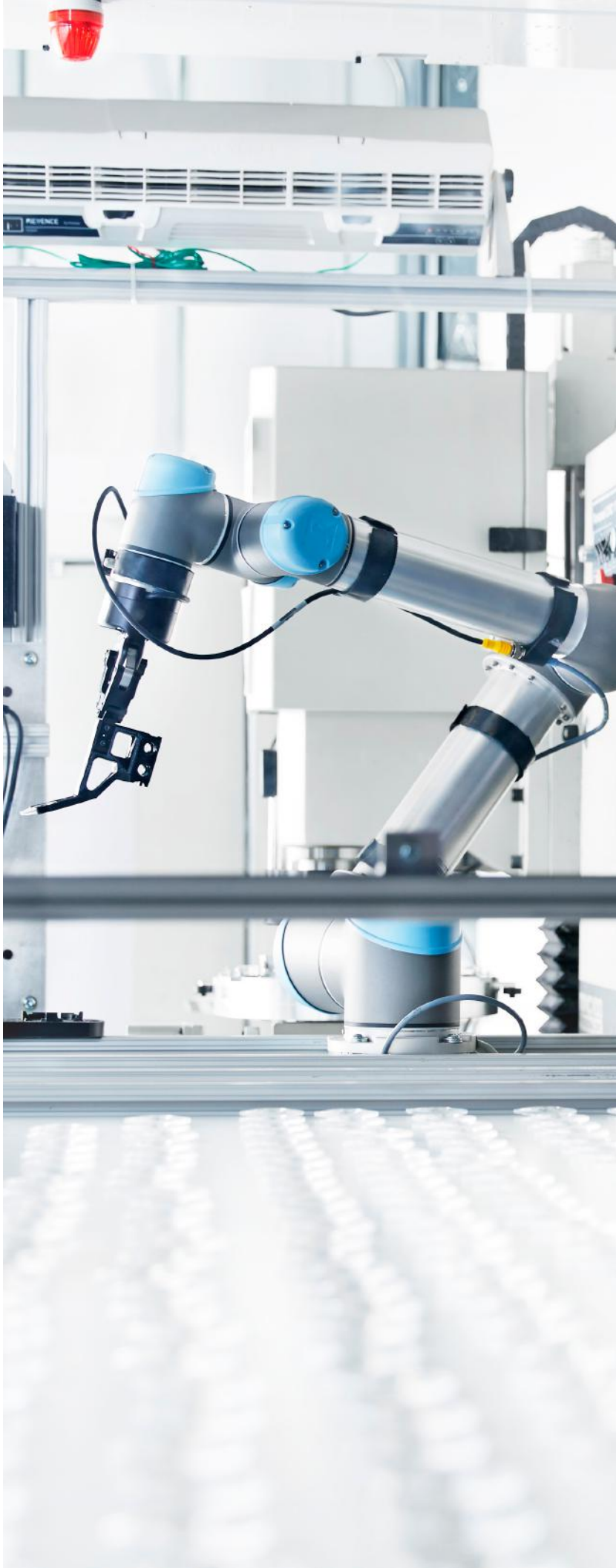
www.rpoptics.com

Contents

Section 1

Section 2

Section 3




rpo
Rochester
Precision Optics
850

rpo
Rochester Precision Optics

About RPO

Rochester Precision Optics (RPO) is a world-class vertically-integrated manufacturer of precision optical product solutions headquartered in the Greater Rochester, NY area. A Proud U.S. Manufacturer, RPO offers complete Design for Manufacturing support with high-volume production capabilities including Precision Glass Molding, Injection-Molded Plastics Optics, Precision Machined Parts, Clean Room Assembly, Electro-Optical Systems Assembly, and standard or custom InfraRed (IR) Glass Materials fabrication.

RPO is a premier supplier to leading manufacturers — offering precision optical solutions from design through prototype and full-rate production.

As a customer-centric supplier, RPO is dedicated to developing creative engineering solutions for customer requirements and ensuring on-time delivery of qualified products to the highest industry quality standards.

Capabilities

RPO's Vertical Integration ensures global material sourcing to meet Buyer demands for performance, price, & delivery. When the best materials are not commonly available, RPO invests in the in-house development, examples include our custom polymer materials.

RPO'S Design for Manufacturing Approach

RPO's Design & Engineering team provides up front optical component or complete optical systems engineering and integration solutions from concept through prototype. Upon completion of prototype, test and evaluation, RPO's vertically integrated manufacturing facility provides LRIP through volume manufacturing; including: Component Fabrication, Precision Plastic and Glass Molding, Thin Film Coating, Optical Assembly, and Final Assembly and Test.

The Vertical Integration Advantage

RPO takes great pride in a comprehensive approach to vertical integration, supporting every step of the product development process, from optical materials selection, sourcing and/or fabrication, to precision component fabrication, optical assembly and electro-optical subsystem integration.

RPO is the industry's only manufacturer capable of design, molding & machining all three precision optical substrates: Glass, Plastic & IR; this unique capability allows RPO to offer unparalleled value to customers.

By eliminating the need for multiple suppliers and streamlining production processes, RPO ensures cost efficiency, superior consistency, and faster time-to-market for customer products. RPO's expertise and state-of-the-art facilities in one U.S. location provides a single, trusted partner capable of delivering superior quality, precision and innovation. RPO's Vertical Integration is an integral part of the Commitment to being #1 in Product Quality and On Time Delivery.

Substrate	Design & Engineering	Precision Glass Molding (PGM)	Advanced Plastic Molding	Diamond Turning	Optical Assembly	Electro Optical Integration
Glass	X	X			X	X
Plastic	X		X	X	X	X
IR Materials	X	X		X	X	X

Product Assurance

Committed to Being #1 in Product Quality & On Time Delivery

RPO's Product Assurance enables in-house testing and optical performance analysis for all of RPO's products from component to system level. RPO is committed to being ranked #1 in Product Quality & On Time Delivery.

In-House Test & Analysis Capabilities

- Advanced Optical System-Level Testing
  - Extensive MTF Capabilities (visible through LWIR)
  - Distortion
  - Concentricity
  - Stray light & Veiling Glare
- Environmental testing
  - Full suite of Mil-Spec standard testing
  - Commercial (IP68 et al.) testing
- Quality Engineering
- Statistical Process Control (SPC)
- ISO 9001:2015
- Robust metrology capabilities
  - State of the art instrumentation
  - Enabled by dedicated Manufacturing Engineering

Quality & Certifications

As a customer-centric optical solutions supplier, RPO has a total commitment to product quality. As ISO-9001:2015 certified company, RPO ensures the delivery of quality, reliable products and services through excellence in design, workmanship, and statistical control methods, with a continual drive for improvement.

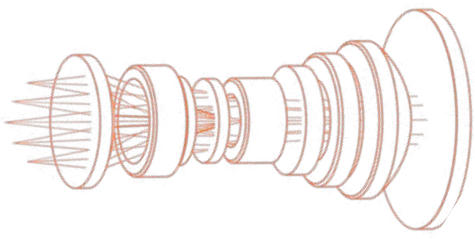
Global Supply Chain

RPO has an established off-shore office to support supply chain management of global partners, procuring optics and materials for RPO's commercial and industrial markets. RPO is capable of supplying optics from qualified manufacturers with RPO's in-house test and metrology.

Contract Manufacturing

RPO's Contract Manufacturing capabilities are driven by a commitment to meet and exceed Buyer requirements. RPO's unrivaled expertise in leading Security & Commercial products manufacturing & system-level assembly, including the technical prowess and discernment to intimately understand end-use requirements, along with rigorous quality control measures, enables the highest level of product assurance as a contract manufacturing solutions provider. RPO is dedicated to delivering products that meet the most stringent specifications, providing customers with peace of mind and confidence in the reliability of their supply chain partners.

Design & Engineering



Industry-leading optical & mechanical designers support Design for Manufacturing (DFM) of visible and infrared optical components & assemblies.

Expert Engineering from Concept through Production

Unparalleled expertise through every step of product development:

- Optical and mechanical designers and engineers
- Engineering and lab technicians
- Material scientists and embedded software developers

Collaborate with customers in industry-standard software:

- ZEMAX, Code V, LightTools
- SolidWorks, CAD
- MSC Marc Mentat, Nastran
- MATLAB, Mathematica

Design for Manufacturing (DFM)

Enhanced SWaP-C efficiency with Precision Optical Engineering

RPO's experienced optical Design & Engineering team excels in Design for Manufacturing (DFM), enhancing SWaP-C (Size, Weight, Performance, and Cost) efficiency through precision optical engineering.

The RPO Difference:

Streamlined Manufacturing: RPO's multidisciplinary engineering team optimizes product designs for cost-effective solutions & reduced lead times.

Cutting-Edge Results: RPO's approach ensures products meet rigorous performance requirements.

Competitive Edge: RPO's DFM approach keeps customer programs ahead in demanding markets with superior SWaP-C designs.

rpoptics.com/contact

Precision Glass Molded Optics

Proudly molded in the United States, RPO is the world's leading expert in Precision Glass Molding, supplying high volume production of aspheric lenses with superior part-to-part consistency & affordable per unit cost.

Molded Glass Aspheres

Proprietary PGM technology for volume production

Rochester Precision Optics utilizes Precision Glass Molding (PGM) technology for rapid production of aspheric lenses.

The proprietary approach provides significant cost and lead time advantages for high volume production. Today, RPO is producing custom molded aspheres for market-leading, high-volume applications in sizes from 1 mm to 60 mm.

Aspheric Glass Molding and Overview

The highly repeatable PGM process produces an optic that has a freeform edge and is centered to the customer specified finished diameter.

RPO's vertical integration allows for in-house manufacturing and thin film coating, as well as the incorporation of mechanical mounting features akin to plastic injection molding, when required. RPO molded lenses can be customized with spherical, aspheric, bi-aspheric and plano surfaces, providing a world of possibilities for customer optical needs.

Precision Glass Molding Tolerances

Feature	Standard Quality	Precision Quality
Center Thickness	+/- 0.025 mm	+/- 0.012 mm
Diameter	+0/- 0.030 mm	+0/- 0.010 mm
Surface Deviation Power-Irregularity (Fringes)	5 - 2	3 - 1 (size/geometry dependent)
ETD (Wedge)	0.05 mm	0.01 mm
Axis Alignment	5 minutes	2.5 minutes
Scratch-Dig	60-40	40-20 20-10 up to 7 mm diameter
AR Coating	Single layer R < 1.5% per side*	Multi layer R < 0.5% per side*
Index of Refraction (Nd)	+/- 0.001	+/- 0.0005
Abbe Number (Vd)	+/- 0.8%	+/- 0.5%
Sag	+/- 0.015	+/- 0.010

*Minimum value for design wavelength

Lens and tool optical surface specifications (spherical or aspherical) are typically given in terms of fringes of surface departure from an ideal surface, which also includes irregularity of the surface in fringes.

Check **rpoptics.com** for current tolerances and products.

RPO Standard Glass Types

Molding can be accomplished with a large range of glasses, and unlike many molders, RPO is not restricted to low transformation temperature (Tg) glasses. This large selection of glass offers the optical designer more freedom when designing multi-lens systems.

Table 1-2 lists current optical grade glass types that have been demonstrated in the RPO molding process. The dispersion (Vd) and index (Nd) data show the after-molding values for these specific glasses. RPO is verifying new glasses regularly to expand its glass molding capabilities, and the latest list can also be found online at www.rpoptics.com and in optical design packages Code V and ZEMAX.

Table 1

Glass Type	Manufacturer	Vd	Nd
D-ZF93_mold	CDGM	20.63	1.995432
N-LaSF46B_mold	Schott	31.35	1.897263
D-ZLAF85L_mold	CDGM	40.70	1.851605
L-LAH85V_mold	Ohara	40.29	1.849665
S-LAH60MQ_mold	Ohara	37.25	1.830828
H-ZLAF55C_mold	CDGM	42.80	1.829216
H-ZLAF53_mold	CDGM	36.95	1.829200
S-LAH60_mold*	Ohara	36.79	1.827266
M-FDS910_mold	Hoya	24.23	1.818279
K-VC89_mold	Sumita	40.71	1.804597
D-ZLaF52LA_mold	CDGM	40.94	1.803469
H-ZLAF52_mold*	CDGM	40.70	1.801298
S-LAH53_mold	Ohara	41.40	1.80045
H-ZLAF56_mold	CDGM	33.02	1.799999
TAF3_mold	Hoya	46.25	1.799800
S-LAH65V_mold	Ohara	46.41	1.799210
S-LAH65VS_mold	Ohara	46.44	1.799100
H-ZLAF50E_mold*	CDGM	46.27	1.798500
S-LAH64_mold	Ohara	47.24	1.783491
D-LaF50_mold	CDGM	49.00	1.771001
TAF1_mold*	Hoya	49.27	1.767000

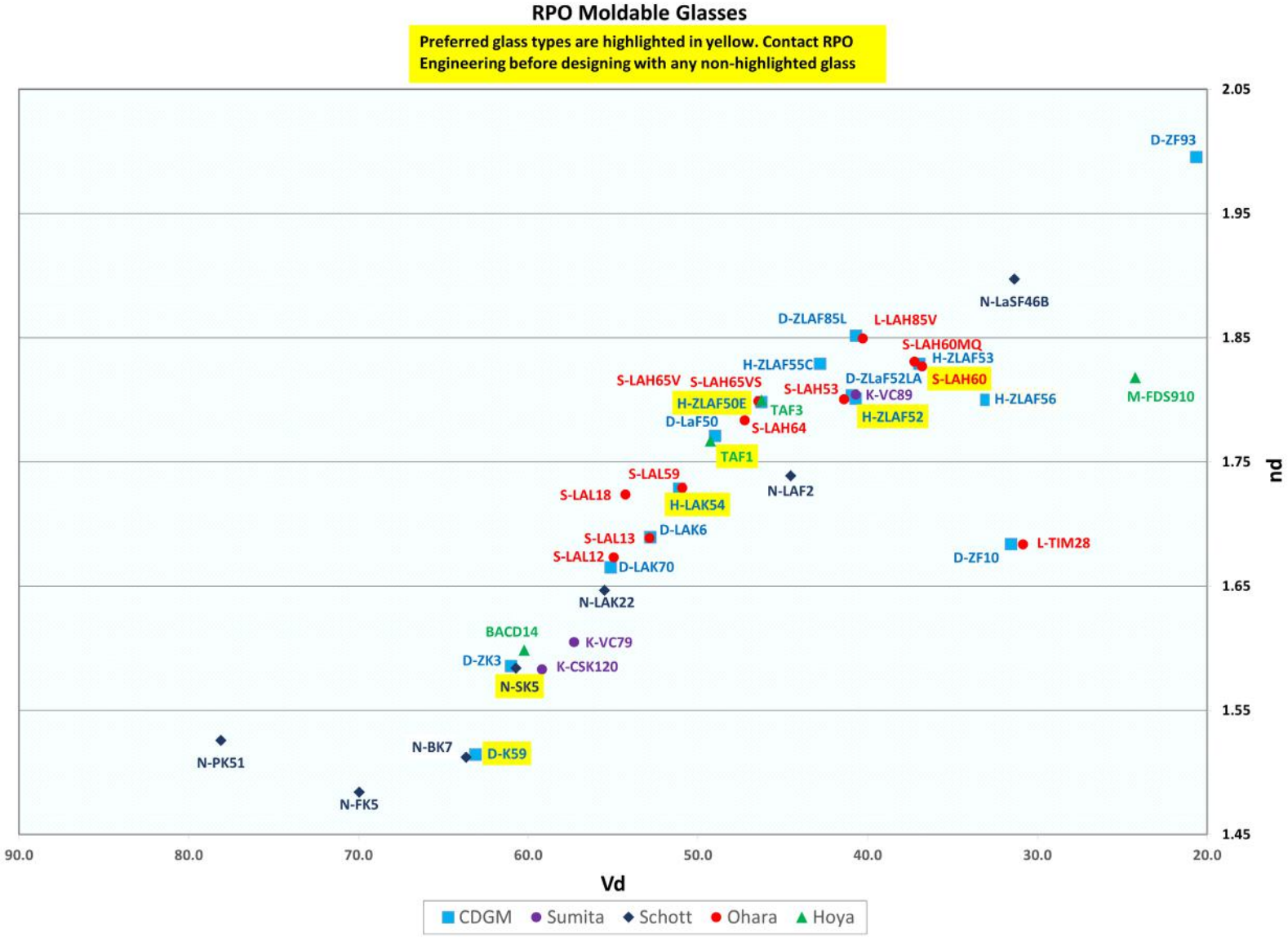
Table 2

Glass Type	Manufacturer	Vd	Nd
N-LAF2_mold	Schott	44.54	1.738772
S-LAL59_mold	Ohara	50.92	1.729028
H-LAK54_mold*	CDGM	51.10	1.728497
S-LAL18_mold	Ohara	54.27	1.723761
D-LAK6_mold	CDGM	52.80	1.689442
S-LAL13_mold	Ohara	52.86	1.688895
L-TIM28_mold	Ohara	30.86	1.684030
D-ZF10_mold	CDGM	31.56	1.683680
S-LAL12_mold	Ohara	54.97	1.673298
D-LAK70_mold	CDGM	55.14	1.665254
N-LAK22_mold	Schott	55.51	1.646725
K-VC79_mold	Sumita	57.30	1.605145
BACD14_mold	Hoya	60.23	1.598511
D-ZK3_mold	CDGM	61.01	1.585683
N-SK5_mold*	Schott	60.73	1.583930
K-CSK120_mold	Sumita	59.19	1.583300
N-PK51_mold	Schott	78.11	1.525970
D-K59_mold*	CDGM	63.10	1.514796
N-BK7_mold	Schott	63.65	1.512595
N-FK5_mold	Schott	69.96	1.484390

* Indicates preferred material choices for molding. Contact RPO for any materials selected other than preferred.

Require an additional glass type?
Contact RPO: **rpoptics.com/contact**

Moldable Glass Types



Infrared Optics

RPO's Design & Engineering team are subject-matter experts in IR material science and optical imaging product design. RPO's expertise includes molded infrared optical elements, focusable op-to-mechanical assemblies & diamond turned IR components.

IR Optics Material Considerations

Athermal Designs for Multiband IR Lenses

RPO is uniquely positioned to supply athermalized achromatic lenses for multiband infrared systems. Choosing the optimal materials for such systems is difficult because of the few glass types available. RPO's design engineers have recently developed broadband IR design techniques that forego the traditional Abbe glass chart and account for both dispersion and thermal effects (γ). This approach simplifies finding the best choice of materials for multiband doublets and triplets.

IR Optics Utilizing Custom Materials

Infrared (IR) molded glass aspheric optics combine the benefits of moldable infrared glasses and the sophistication of Rochester Precision Optics molding technology. RPO's infrared glasses help address the current geo-political sourcing challenges related to germanium while helping customers deescalate prices and overcome constrained foreign supply. RPO's innovative IR glass molding technology emerges as a game-changer, reducing costs significantly for high-volume production. With IR Molded Glass, customers gain access to exceptional part-to-part consistency and superior uniformity, with the benefit of reduced manufacturing and material expenses. With RPO, customers may elevate their IR optics without compromise.

Classic Series™ IR Glass

When the best IR materials are not commonly available, RPO invests to develop alternative materials. RPO manufactures market leading infrared materials at its Rochester, NY facility, in standard material types Classic-1 through Classic-6. Additionally, on-staff material scientists support custom IR glass material formulations for unique needs. See Products Section to learn more regarding RPO's Classic Series Infrared Glass.

IR Material Selection

Preferred IR Materials for manufacturing. RPO material catalog available in Zemax.

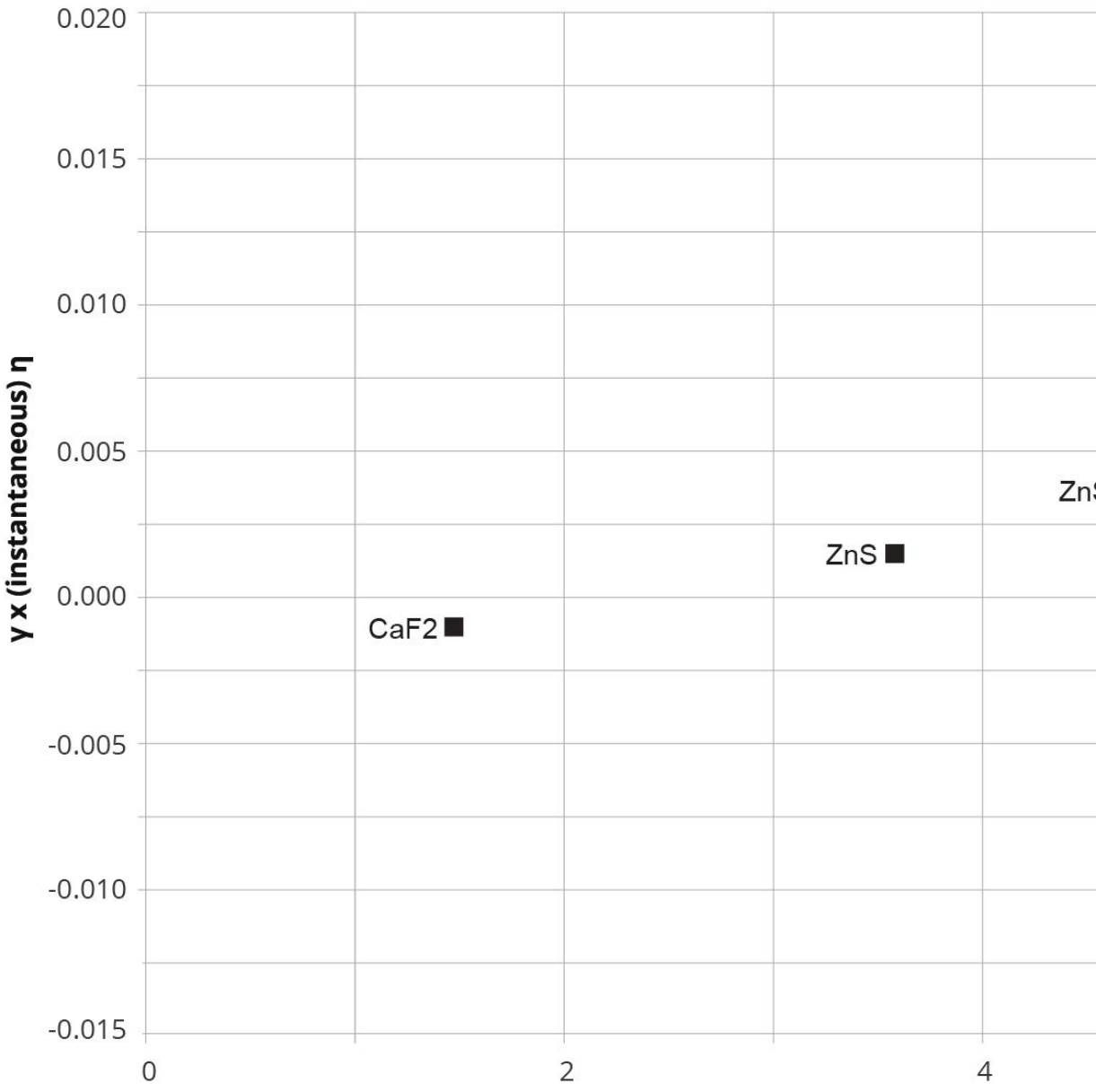
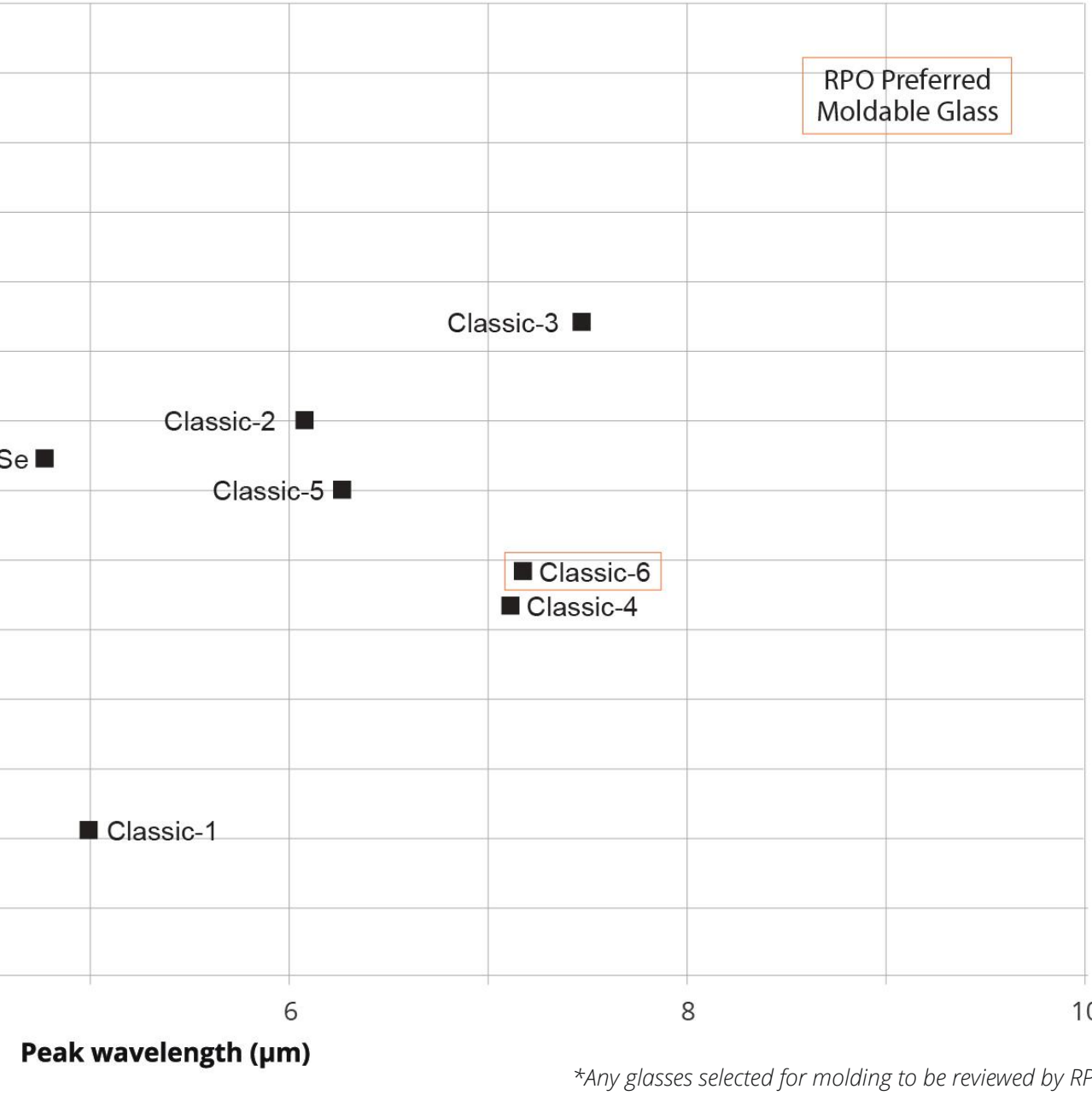


Table of Materials

RPO Glass	Schott	Vitron	Amorphous Materials	Umicore
CLASSIC-1	IRG27		AMTIR-6	
CLASSIC-2	IRG22	IG2	AMTIR-1	
CLASSIC-3		IG3		
CLASSIC-4	IRG24	IG4		
CLASSIC-5	IRG25	IG5	AMTIR-3	~GASIR-2
CLASSIC-6	IRG26	IG6	AMTIR-2	GASIR-5



**Any glasses selected for molding to be reviewed by RPO.*

Glass Chart

SWIR			
GLASS	1.395µm	1.53µm	2.325µm
CLASSIC-2	2.552	2.545	2.524
CLASSIC-3	2.875	2.86	2.822
CLASSIC-4	2.669	2.66	2.635
CLASSIC-5	2.67	2.661	2.636
CLASSIC-6	2.856	2.844	2.811
GERMANIUM			
ZnSe	2.461	2.456	2.442
ZnS	2.275	2.272	2.262

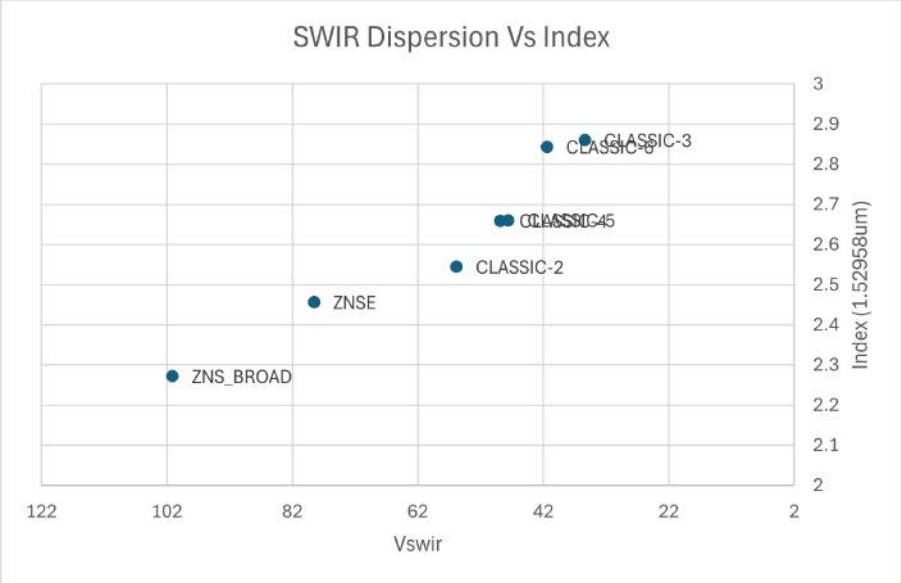
MWIR			
GLASS	3.391µm	4.302µm	4.894µm
CLASSIC-2	2.516	2.512	2.511
CLASSIC-3	2.807	2.802	2.8
CLASSIC-4	2.625	2.621	2.619
CLASSIC-5	2.625	2.621	2.619
CLASSIC-6	2.798	2.793	2.791
GERMANIUM	4.035	4.022	4.017
ZnSe	2.436	2.432	2.43
ZnS	2.256	2.251	2.247

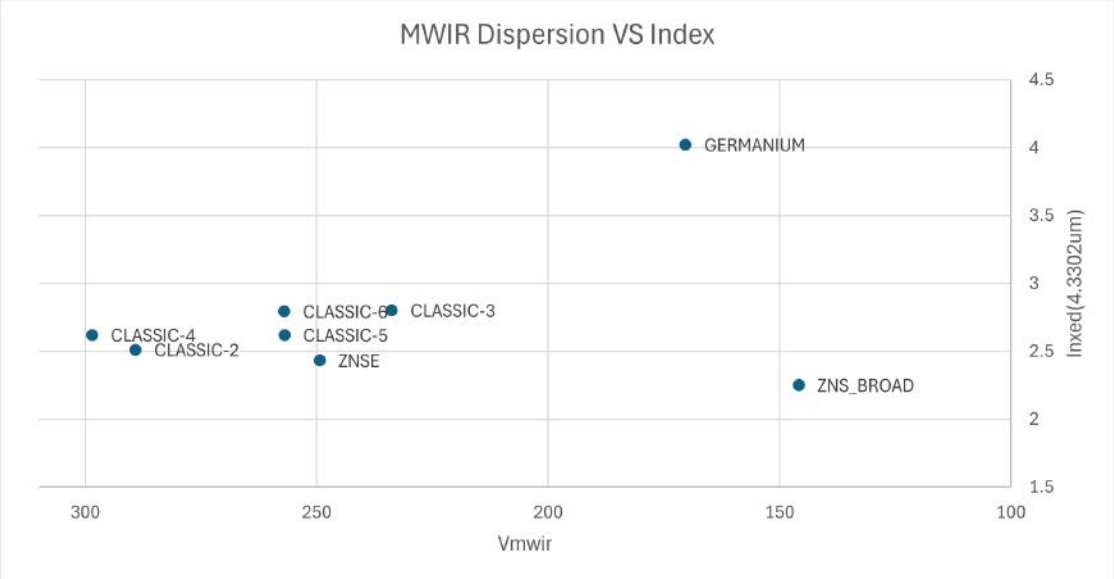
LWIR			
GLASS	8.31µm	10.591µm	13.193µm
CLASSIC-2	2.502	2.495	2.484
CLASSIC-3	2.791	2.785	2.777
CLASSIC-4	2.613	2.608	2.6
CLASSIC-5	2.609	2.601	2.589
CLASSIC-6	2.782	2.776	2.768
GERMANIUM	4.006	4.004	4.002
ZnSe	2.416	2.403	2.383
ZnS	2.22	2.192	2.148

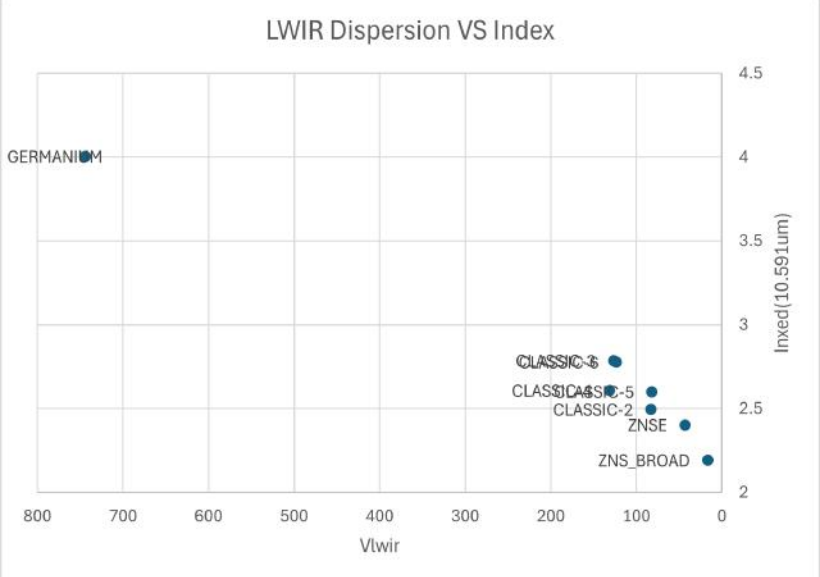
Abbe Formula

$$V = \frac{n_o - 1}{n_a - n_b}$$

**These values were derived from the definition of the wavebands and abbe formula laid out in the ANSI/OEOSC OP1.007-2020 standard.*


SWIR Dispersion Vs Index
CLASSIC-3
CLASSIC-2
ZNSE
ZNS_BROAD
Index (1.52958um)
Vswir
122
102
82
62
42
22
2
3
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2


MWIR Dispersion VS Index
GERMANIUM
CLASSIC-3
CLASSIC-4
CLASSIC-2
CLASSIC-5
ZNSE
ZNS_BROAD
Inxed(4.3302um)
Vmwir
300
250
200
150
100
4.5
4
3.5
3
2.5
2
1.5


LWIR Dispersion VS Index
GERMANIUM
CLASSIC-5
CLASSIC-2
ZNSE
ZNS_BROAD
Inxed(10.591um)
Vlwir
800
700
600
500
400
300
200
100
0
4.5
4
3.5
3
2.5
2

Injection Molded Plastic

Rochester Precision Optics designs and produces a variety of high quality precision plastic optical components, including optical lenses and prisms.

Advanced Plastic Optics

Injection Molded Precision Optics

Freeform and aspheric plastic optics offer significant cost, weight and assembly advantages. RPO's fully integrated plastic optics division has the expertise and equipment to meet high-volume, tight-tolerance demands.

- 1 mm to 150 mm in diameter
- Precision and Ultra Precision Tolerances for spherical and aspheric lenses 10 mm to 25 mm in diameter
- Wide variety of materials including:
  - Polycarbonate
  - Cyclic Olefin Polymer – Includes Zeonex and Zeonor
  - Cyclic Olefin Co-polymer – Trade name Topas
  - Polystyrene
  - Acrylic
  - Optical Polyesters like OKP4

- Rapid prototypes, precision diamond turned and molded
- Advanced automation and inspection
- 3D measuring of aspheric optical surfaces
- Freeform, diffractive, Fresnel lens and lens array optics available
- 24/7 attended operation with other machines running lights out for low cost
- Laser etched barcoding below 2 mm x 2 mm to improve traceability

Polymer Materials & Polymer Selection

Abbreviation	Common Name	nd	vd	Comment
COP *	ZEONEX	1.53	56	Preferred Crowns, grades E48R and K26R
PS *	Styrene	1.59	31	Almost Preferred Flint, low cost, PS1600
PF *	Op. Polyester	1.61-1.64	26-21	Preferred Flints grades OKP1 and OKP4, high cost
PMMA	Acrylic	1.49	57	Index change with weather, poor coatings
PC	Polycarbonate	1.58	30	High birefringence, use for impact resistance
COP	TOPAS, APEL	1.52-1.54	56	Alternative to ZEONEX, APEL currently being evaluated
PMMI	Polycrymid	1.53	46	High abrasion resistance
PMP	TPX	1.47	52	Transmission from UV to terahertz
PSU	Polysulfone	1.63	23	High heat and chemical resistance
PEI	ULTEM	1.64		Lowest thermal expansion, hard to mold
CAP	Tenite	1.42		A Cellulosic, poor thermal properties, easy processing
SAN	SAN	1.57	35	High in haze
NAS	Not all Styrene	1.55	40	Low cost alternatives to PMMA, easy processing
HDPE	HDPE			Thermal IR use only, used for milk bottles

* Indicates preferred material choices for molding. Contact RPO for any materials selected other than preferred.

Don’t see your polymer type here?
Give a call: **585-292-5450**

Diamond Turning

Manufacturing high-performance plastic & mid-to-long wave infrared aspherical optical lenses and elements.

Single Point Diamond Turning (SPDT)

Unlock precision and versatility with RPO's Single Point Diamond Turning for Infrared & Polymer Optics. RPO's diamond turning process achieves exceptional accuracy, and can be used to generate complex geometries, while achieving angstrom tolerance level finishes. SPDT is ideal for rapid prototyping and unique end-use applications, ensuring efficiency, cost-effectiveness and long-lasting quality. In many cases, RPO's SPDT process can support rapid prototyping efforts while working in conjunction with customers to develop complex infrared and polymer optical component mold solutions for higher volume programs.

- 10 multi axis diamond machine centers
  - Infrared optics
  - Carbides
  - Polymers
  - Non-ferrous materials
- Machine feedback resolution: 8 nanometers
- Machining ability: diamond turning, diamond grinding, diamond flycutting
- Shapes: rotational and non-rotationally symmetric surfaces, aspheres, cylinders, acylinders, array patterns
- Form accuracy capability: ¼ λ to ½ λ
- Surface finishes: 10 – 40 Å RMS
- Profilometric and interferometric measurement capabilities

Thin Film Coating

RPO offers high-volume production coating solutions for applications ranging from the Near-UV to the Long-Wave Infrared.

Vertically-Integrated Coating Capabilities

Elevate optical performance with RPO's advanced coating technology. RPO's state-of-the-art production coaters produce everything from standard MIL-Spec coatings to custom tailored designs for both reflective and transmissive needs. RPO's coating catalog covers a wide operating range from 150nm to 14µm. RPO's quality thin-film coatings are backed by state-of-the-art metrology, environmental testing, and multi-wavelength spectrophotometer testing capabilities. With comprehensive expertise in design, optimization, process development, and materials research, RPO's vertically integrated coating solutions enable unparalleled performance and durability for even the most demanding optical applications.

Infrared Broadband High Efficiency Antireflection (HEAR) Coatings
RPO offers optics including infrared High Efficiency Anti-reflection (HEAR) coatings used in thermal imaging and sensing applications. These coatings use no radioactive materials, are designed to moderate abrasion requirements, and exhibit high transmission in the long wave infrared region. The coating design can be modified to meet transmission or reflection requirements in the 7 to 14 micron wavelength range. Use of ion beam assist during thin film deposition achieves a relatively low stress, adherent, high-efficiency anti-reflective coating (HEAR).

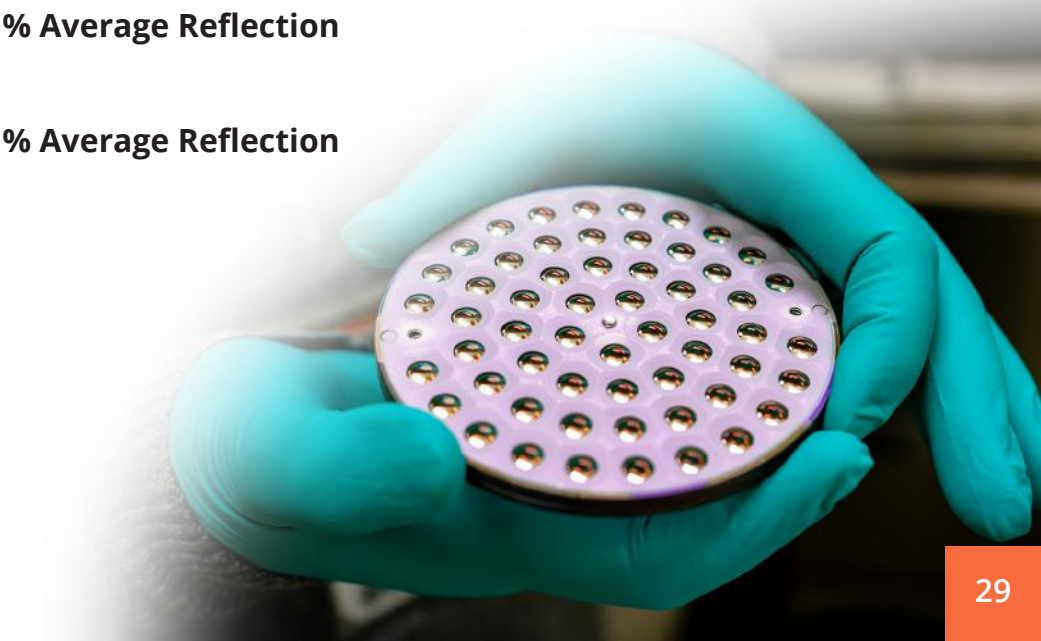
Germanium HEAR, 8-12µm
>98% Average Transmission, <0.5% Average Reflection

Infrared Glass HEAR, 8-12µm
>98% Average Transmission, <0.5% Average Reflection

Infrared Broadband Diamond-Like Coatings (DLC)
For harsh environmental applications, a Diamond-Like Coating (DLC) on the exterior surface of the germanium, coupled with a high efficiency AR coating on the opposite side provides both protection and the highest transmission available. The DLC coating meets not only severe abrasion test requirements, but also various wiper, sand, sun and rain tests. These infrared optical coating have been qualified for security platforms on the ground, in the air, and at sea.

Germanium DLC, 8-12µm
>91% Average Transmission, <1% Average Reflection

Infrared Glass DLC, 8-12µm
>89% Average Transmission, <1% Average Reflection



Optical Assembly

Rapid prototyping, custom-built and high-volume cleanroom manufacturing of lens sub-assemblies, image modules, doublets, and triplets.

Department Overview

Design, Prototyping, Testing & Production

RPO's assembly capabilities include rapid prototyping, custom-built and high-volume assembly of aspheres, doublets, triplets, lens sub-assemblies and image modules. Test capabilities include characterization of radiometric properties, MTF, longitudinal and lateral aberrations and lens centration. RPO supports both passive and active alignments, Mechanical assemblies are supported by RPO's in-house machine shop for fabrication of precision lens spacers and barrels.

Class 10,000

RPO has over 40,000 sq. ft. of climate controlled Class Standard 10,000 clean room space dedicated to advanced optical assembly and designed to deliver the highest quality products requiring the most stringent particulate specifications.

Testing

RPO's comprehensive metrology labs include state of the art interferometers, surface profilometers, refractometers, and spectrophotometers to ensure that products are optimized in the manufacturing process, as well as to ensure that every part meets customer specifications.

Vertical Integration

RPO's vertical integration allows for optical assemblies using advanced precision molded aspheres. Aspheres increase performance and dramatically reduce weight and size. RPO's glass and plastic molding technologies, along with specialized optical assembly expertise, provide the world's most trusted night vision (I2) eyepieces and objectives.

Display Type	EFL	Eye Relief	Lens Mass	Distortion	MTF at Nyquist	Relative Illumination
VGA	21 mm	22 mm	<10.0 grams	0.60%	>80%	84%
SVGA	27 mm	25 mm	<11.0 grams	0.40%	>80%	83%
SXGA	34 mm	25 mm	<21.5 grams	0.35%	>72%	82%
WUXGA	39.5 mm	25 mm	<23.0 grams	0.16%	>65%	83%

Each of our current ready designs utilize a field of view (FOV) of 32o (diagonal) and eye box diameter of 14 mm.

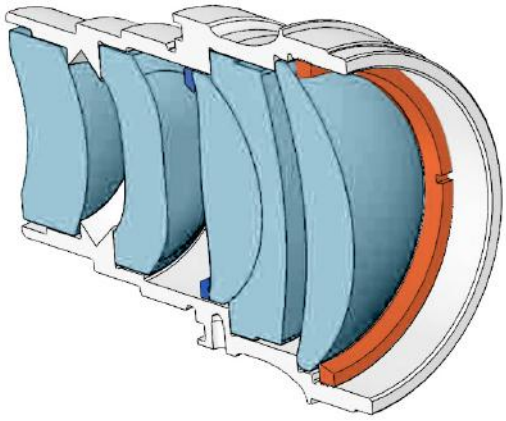
To address common customer challenges in mounting, RPO also offers injection mounted assemblies in standard and custom applications.

Custom Assemblies

RPO possesses in-house mastery in crafting custom optical elements and assemblies. RPO's support extends seamlessly across every stage of a customer's project – from conceptual design assistance to complete assembly. RPO's early involvement in the design phase ensures customer projects are optimized for Size, Weight, Performance & Cost (SWaP-C) considerations.

Class 10,000 clean room assembly facilities and dedicated program cells make RPO the trusted choice for high-volume assemblies, eyepieces, and objectives.

- Precision assembly
- Vertical integration
- Design support
- Build-to-print
- Rapid prototyping — as little as 4 weeks
- High-volume production
- Glass/plastic hybrid lenses
- Private-label production
- In-house machine shop



RPO's expertise in precision assemblies, glass and plastic hybrid designs, and high-volume production can cut cost, reduce weight, and improve performance.

Innovative Private-Label Products

In an exclusive partnership with a market-leading night vision provider, RPO manufactures hybrid glass and plastic eyepieces for handheld or headmounted goggles that:

- Reduce weight by 50%
- Replace existing components
- Improve performance

RPO collaborates with manufacturers and distributors to design and fabricate lenses, assemblies and eyepieces.

Electro-Optical Assembly

RPO's vertically integrated electro-optical assembly capabilities enable EO integration for sub-system or full EO system fabrication.

Electro-Optical Assemblies

Precision Assembly and Electro-Optics Integration

With experience in Commercial and Sporting EO requirements, RPO is unique in the optics industry with a broad scope of expertise in Electro-Optical Assembly. From GPS and Bluetooth-enabled optical imaging products, to laser aiming devices and thermal systems.

- Vertically-integrated Electronics & Optical Assembly allows for agile manufacturing: ability to quickly address challenges upstream
- Full suite of EO testing:
  - Resolution & MTF
  - Boresight & alignment
  - Software
  - Automated torque
  - GPS & Bluetooth
- Dedicated EO Manufacturing Engineers
- Certified electronic technicians
- Cellular Manufacturing

RPO Standard Products

As a customer centric optical solutions supplier, RPO is committed to being #1 in On Time Delivery & Product Quality. Explore RPO's Standard Products available for immediate order and prompt shipment,

RPO Standard Products

Quality Products. Exceptional Solutions.

Standard Lenses

RPO's Standard Products catalog offers a variety of laser collimating lenses and IR lenses available for immediate order.

Night Vision Optical Assemblies

RPO offers the world's lightest Night Vision lens assemblies for leading security manufacturers.

Infrared Glass

Available as standard products or base materials to enable vertically-integrated manufacturing of IR optical products.

Scratch-Dig Comparator

Essential for accurately and efficiently inspecting optical components to MIL-PRF-13830B standards.

Molded Glass Collimating Optics

Rochester Precision Optics produces aspheric lenses in a wide range of focal lengths and numerical apertures, which provide diffraction limited performance. Standard catalog lenses are offered with three broadband anti-reflection coatings covering wavelengths from 400nm to 1600nm. Custom coatings can also be provided for specific applications.

Lens Code	NA	EFL (mm)	CA (mm)	OD (mm)
A-280	0.15	18.40	5.50	6.50
A-260	0.16	15.29	5.8	6.50
A-220	0.26	11.00	5.50	7.20
A-635	0.31	4.50	2.80	3.00
A-170	0.30	6.16	3.70	4.70
A-375	0.30	7.50	4.50	6.51
A-397	0.30	11.00	6.59	7.20
A-110	0.40	6.24	5.00	7.20
N-150	0.50	2.00	2.00	3.00
A-240	0.50	8.00	8.00	9.94
A-390	0.53	4.60	4.89	6.00
N-435	0.55	5.30	5.83	7.33
A-230	0.55	4.51	4.95	6.330
A-658	0.60	2.59	3.12	4.40
N-330	0.62	3.10	5.40	6.325

Injection Mounted Assemblies

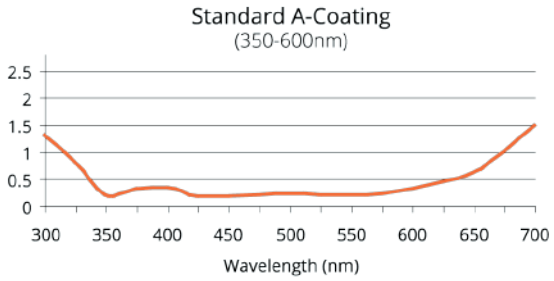
Lens Code	NA	EFL (mm)	CA (mm)	Mounting
N-414	0.51	3.30	3.52	6.35
A-365	0.53	4.59	4.87	6.35

Short Wavelength Visible Lenses

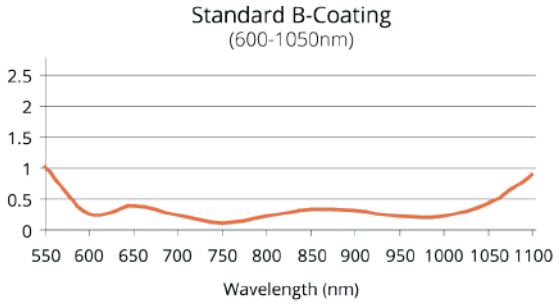
Lens Code	NA	EFL (mm)	CA (mm)	OD (mm)
A-610	0.60	4.00	4.80	6.325
A-671	0.60	4.02	4.85	6.325

Standard Product Multilayer Broadband Coatings (MLBB)

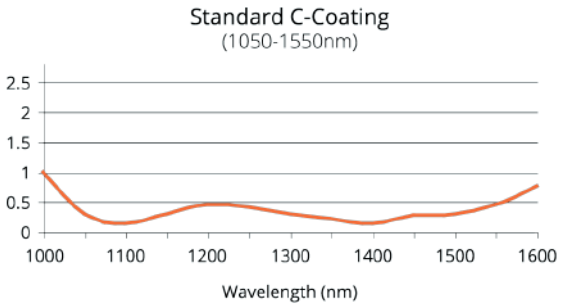
(Please contact sales for custom coatings)



MLBB – A coating RMAX
<1%, from 400nm - 600nm

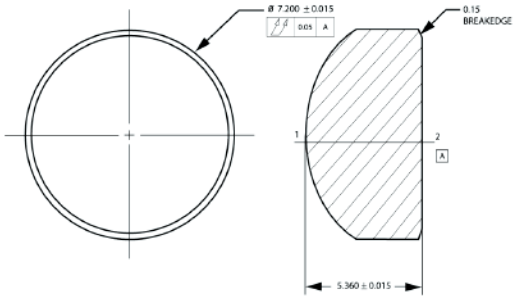


MLBB – B coating RMAX
<1%, from 600nm - 1050nm



MLBB – C coating RMAX
<1%, from 1050nm - 1600nm

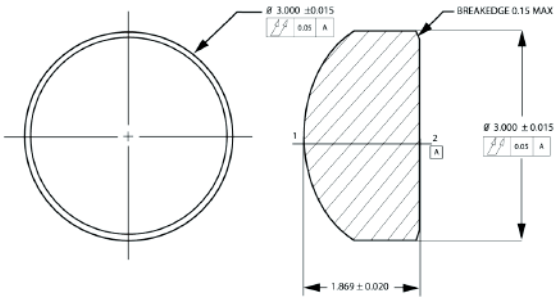
A-110 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	6.24 mm
Numerical Aperture (NA)	0.40
Back Focal Length	3.394 mm
Clear Aperture	S1 5.00 mm, S2 2.92 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.275 mm (BK-7)
Center Thickness (CT)	5.36 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

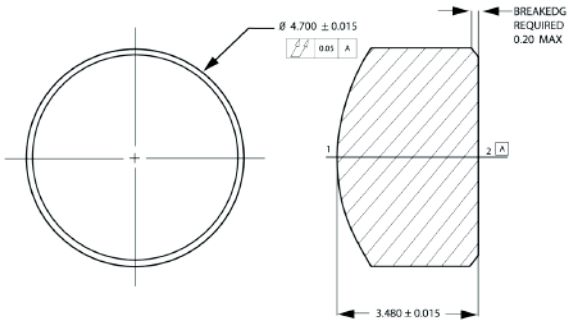
N-150 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	2.00 mm
Numerical Aperture (NA)	0.50
Back Focal Length	1.10 mm
Clear Aperture	S1 2.00 mm, S2 1.15 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.25 mm (BK-7)
Center Thickness (CT)	1.869 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

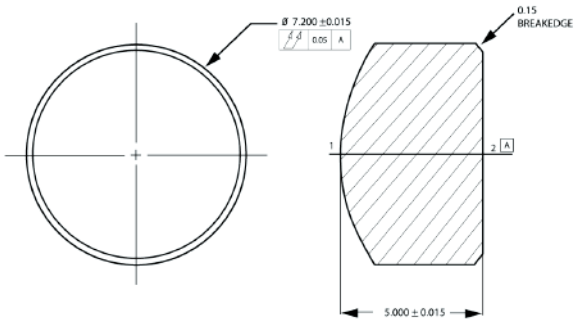
A-170 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	6.16 mm
Numerical Aperture (NA)	0.30
Back Focal Length	4.25 mm
Clear Aperture	S1 3.70 mm, S2 2.57 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.275 mm (BK-7)
Center Thickness (CT)	3.480 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

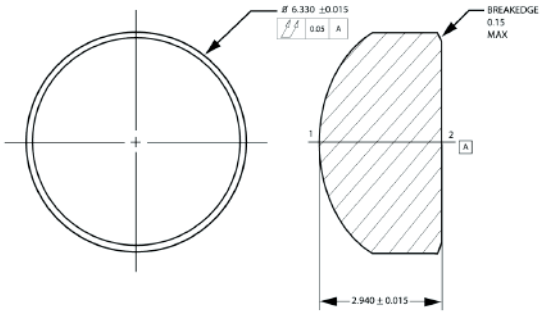
A-220 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	11.00 mm
Numerical Aperture (NA)	0.26
Back Focal Length	7.95 mm
Clear Aperture	S1 5.50 mm, S2 4.14 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.250 mm (BK-7)
Center Thickness (CT)	5.00 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

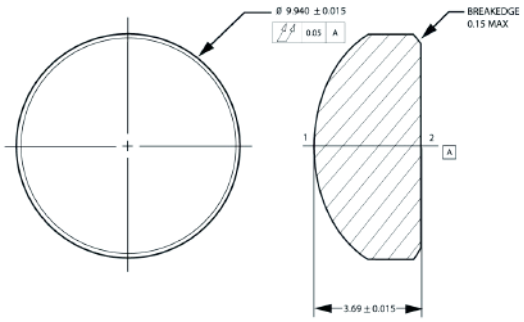
A-230 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	4.51 mm
Numerical Aperture (NA)	0.55
Back Focal Length	2.91 mm
Clear Aperture	4.89 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.250 mm (BK-7)
Center Thickness (CT)	2.940 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

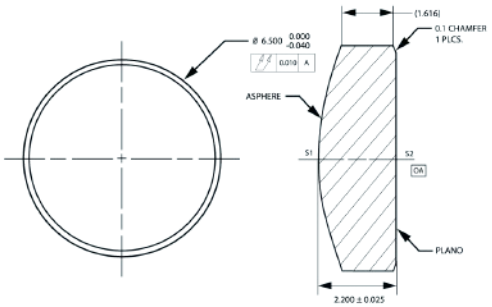
A-240 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	8.00 mm
Numerical Aperture (NA)	0.50
Back Focal Length	5.918 mm
Clear Aperture	S1 8.00 mm, S2 6.70 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.250 mm (BK-7)
Center Thickness (CT)	3.690 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

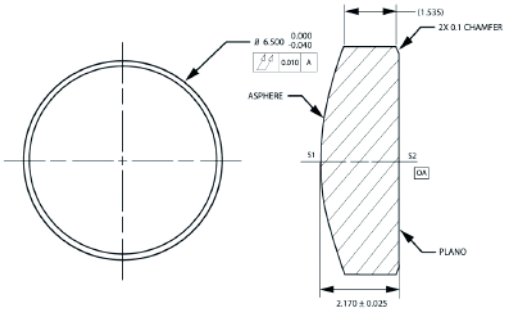
A-260 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	15.29 mm
Numerical Aperture (NA)	0.16
Back Focal Length	14.09 mm
Clear Aperture	S1 5.8 mm, S2 4.20 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.25 mm (BK-7)
Center Thickness (CT)	2.200 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

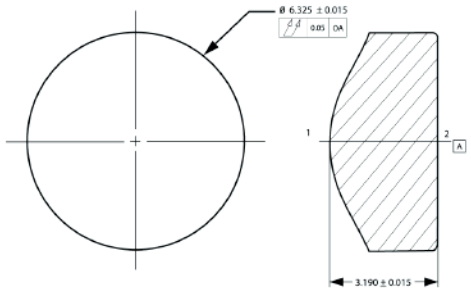
A-280 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	18.40 mm
Numerical Aperture (NA)	0.15
Back Focal Length	17.13 mm
Clear Aperture	S1 5.50 mm, S2 5.30 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.25 mm (BK-7)
Center Thickness (CT)	2.170 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

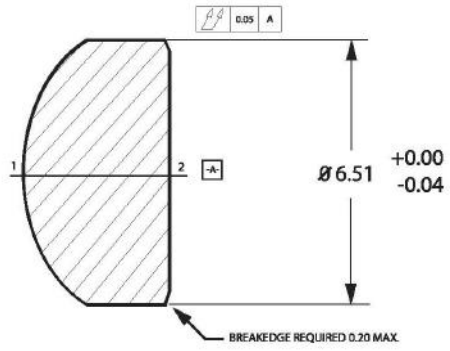
N-330 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	3.10 mm
Numerical Aperture (NA)	0.62
Back Focal Length	1.760 mm
Clear Aperture	S1 5.40 mm, S2 4.20 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	NA
Center Thickness (CT)	3.190 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

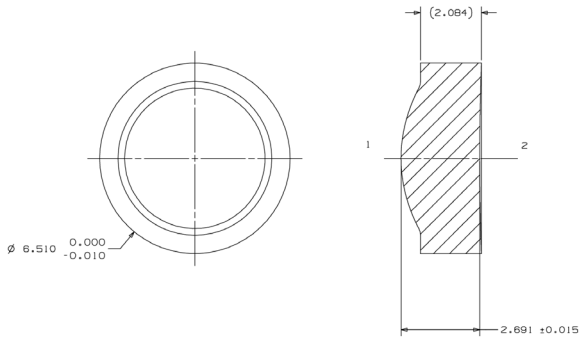
A-375 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	7.50 mm
Numerical Aperture (NA)	0.30
Back Focal Length	5.90 mm
Clear Aperture	S1 4.50 mm, S2 3.70 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.275 mm (BK-7)
Center Thickness (CT)	2.75 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

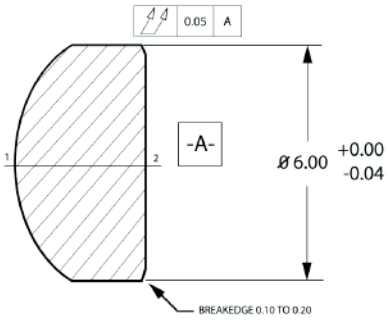
A-375 MTD Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	7.50 mm
Numerical Aperture (NA)	0.30
Back Focal Length	5.90 mm
Clear Aperture	S1 4.50 mm, S2 3.70 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.275 mm (BK-7)
Center Thickness (CT)	2.69 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

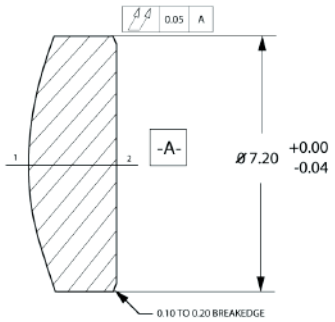
A-390 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	4.60 mm
Numerical Aperture (NA)	0.53
Back Focal Length	2.70 mm
Clear Aperture	S1 4.89 mm, S2 3.52 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.275 mm (BK-7)
Center Thickness (CT)	3.102 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

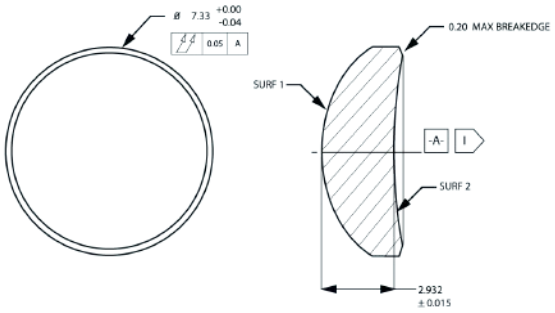
A-397 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	11.00 mm
Numerical Aperture (NA)	0.30
Back Focal Length	9.70 mm
Clear Aperture	S1 6.59 mm, S2 6.05 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.275 mm (BK-7)
Center Thickness (CT)	2.200 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

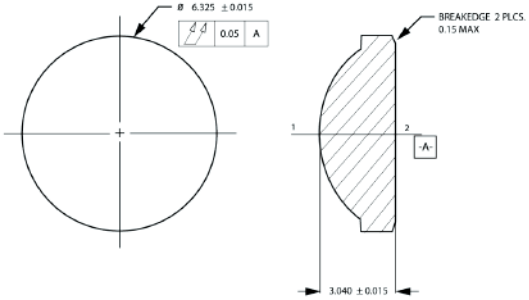
N-435 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	5.30 mm
Numerical Aperture (NA)	0.55
Back Focal Length	3.59 mm
Clear Aperture	S1 5.83 mm, S2 4.46 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.275 mm (BK7)
Center Thickness (CT)	2.932 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

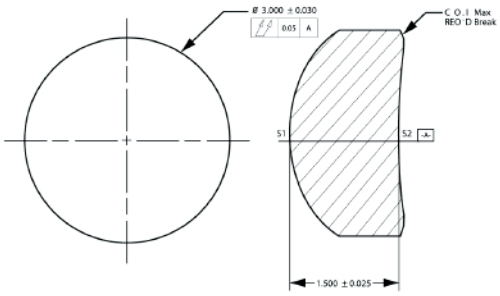
A-610 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	4.00 mm
Numerical Aperture (NA)	0.60
Back Focal Length	2.73 mm
Clear Aperture	S1 4.80 mm, S2 3.43 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	1.20 mm (K-3)
Center Thickness (CT)	3.040 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

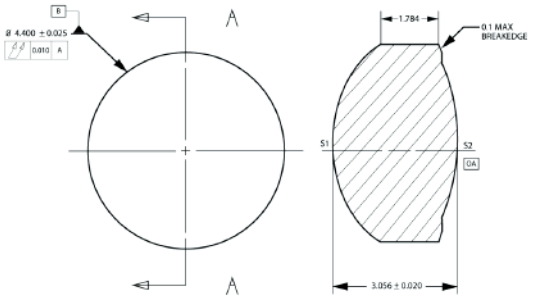
A-635 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	4.50 mm
Numerical Aperture (NA)	0.31
Back Focal Length	3.536 mm
Clear Aperture	S1 2.80 mm, S2 2.50 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.275 mm (BK-7)
Center Thickness (CT)	1.500 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

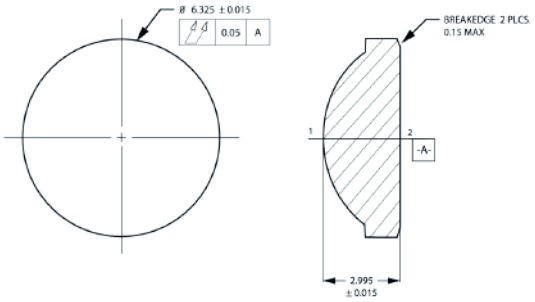
A-658 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	2.59 mm
Numerical Aperture (NA)	0.60
Back Focal Length	1.19 mm
Clear Aperture	S1 3.12 mm, S2 1.90 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	NA
Center Thickness (CT)	3.056 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

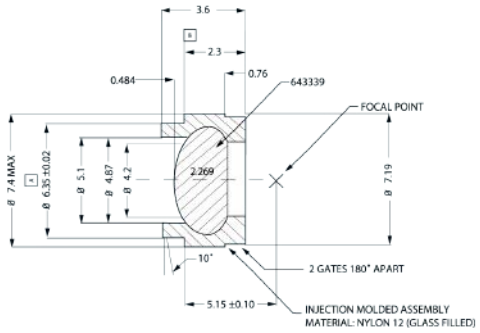
A-671 Collimator Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	4.02 mm
Numerical Aperture (NA)	0.60
Back Focal Length	2.40 mm
Clear Aperture	S1 4.85 mm, S2 3.43 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.250 mm (Borosilicate)
Center Thickness (CT)	2.995 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

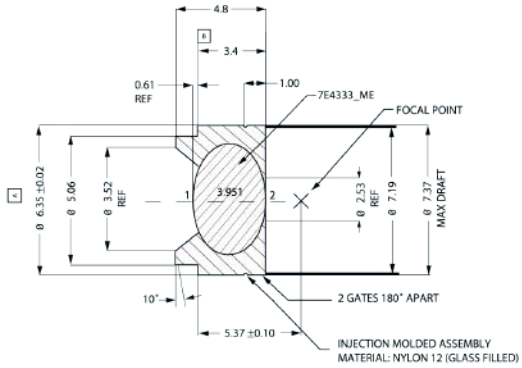
A-365 CD Objective Lens - Glass



Optical Design Specifications

PARAMETER	
Focal Length	4.59 mm
Numerical Aperture (NA)	0.53
Back Focal Length	3.718 mm
Clear Aperture	S1 4.87 mm, S2 3.95 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	NA
Center Thickness (CT)	2.269 mm
RoHS Compliant	NO
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

N-414Collimator Lens - Glass



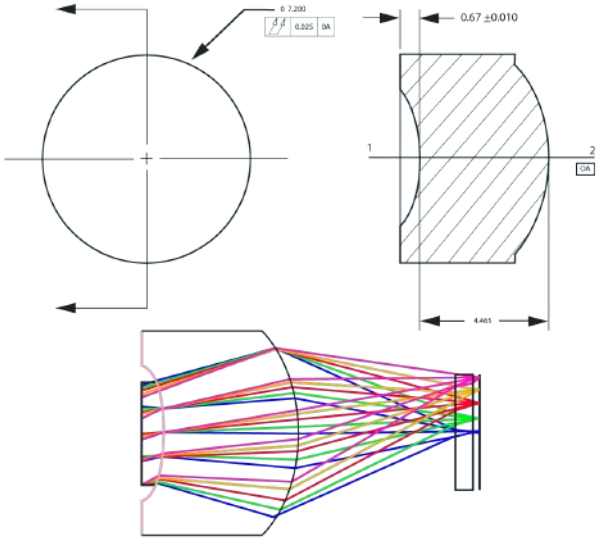
Optical Design Specifications

PARAMETER	
Focal Length	3.30 mm
Numerical Aperture (NA)	0.51
Back Focal Length	2.00 mm
Clear Aperture	S1 3.52 mm, S2 2.54 mm
Axial Wavefront Distortion	≤ .10 Waves (RMS) at 632.8nm
Window Thickness	0.250 mm (BK-7)
Center Thickness (CT)	3.868 mm
RoHS Compliant	YES
AR Coating Options	A Coating 400-600nm B Coating 600-1050nm C Coating 1050-1550nm

Infrared (IR) Optics

From rapid prototype to high-volume production, RPO leads in IR optics. Available standard and custom designs are just the start — check online at www.rpoptics.com for the latest, or contact RPO to discuss specific requirements.

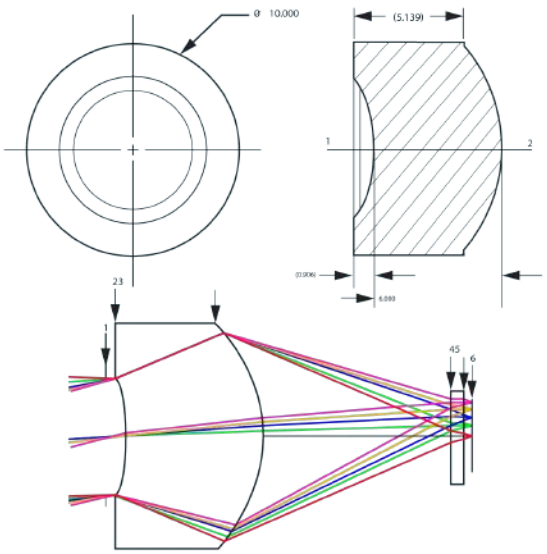
Wide Field of View IR Singlet



Optical Design Specifications

PARAMETER	
EFL	4.00 mm
Numerical Aperture (NA)	0.42
OD	7.2 mm
CA	3.33 mm
Working Distance	4.72 mm
Design Wavelength (µm)	8-12
AR Range (µm)	8-12
Glass	IRG26
MTF Performance (40 c/mm)	0.35 on-axis 0.18 @ 28°

Narrow Field of View IR Singlet



Optical Design Specifications

PARAMETER	
EFL	6.50 mm
Numerical Aperture (NA)	0.4
OD	10 mm
CA	5.25 mm
Working Distance	8.34 mm
Design Wavelength (µm)	8-12
AR Range (µm)	8-12
Glass	IRG26
MTF Performance (40 c/mm)	0.35 on-axis 0.18 @ 11°

Image Intensified Night Vision Optical Assemblies

RPO offers the world's lightest night vision lens assemblies for leading security manufacturers. With unmatched precision and resolution, RPO's Ultralight™ Night Vision Assemblies provide the ultimate competitive advantage for an industry-leading image intensified night vision system.

The World's Lightest Night Vision Optics

Proven Performance

Glass & Polymer Hybrid

THE MOST TRUSTED NAME IN NIGHT VISION OPTICS™

PRODUCT

RPO Ultralight™ Night Vision Optics

RPO 18mm Ultralight™ Night Vision Optical Lens Assemblies

RPO 18mm Ultralight Night Vision Optical Lens Assemblies provide the world's lightest night vision eyepiece & objective lens assemblies expertly designed for use in commercial night vision systems utilizing a 18mm Image Intensifier Tube. The RPO 18mm Ultralight Night Vision Assemblies are the ultimate Commercially-available Off The Shelf (COTS) night vision optical product solutions for 18mm Night Vision Systems designed and intended for law enforcement, security professionals, sporting and hunting applications where performance and reduced weight are critical.

18mm Ultralight Night Vision Eyepiece

Part Number: 5A0574

Product Specs	
RPO Part Number:	5A0574
Eye Relief:	25mm +0/-0.2mm
Weight:	<= 24 grams
EFL:	27.03 +/- 0.5mm
Flange Focal Distance:	10mm + 0.28mm/-0.42mm
Exit Pupil Diameter:	>=14mm on axis
Field of View:	40.0º +/- 1o for a 18mm image format
Diopter focus:	+2 to -6 diopters at 25mm eye relief*
Transmission:	>= 85% weighted avg. from 400-680nm
Distortion:	-8% , +/- 0.5% at semi-field angle of 20º
Immersion:	20 meters for not less than 2 hours

**Diopter travel limited to +2 to -3 with eye cup adapter installed*

Compliant with Optical Performance Criteria, MIL-PRF-49427B Lens Assembly, Eyepiece for Monocular Night Vision Device, AN/PVS-14

18mm Ultralight Night Vision Objective

Part Number: 5A0566

Product Specs	
RPO Part Number:	5A0566
Weight:	<= 38 grams
EFL:	27.03 +/- 0.5mm
Flange Focal Distance:	no less than 1.0 mm
F-number:	<= 1.23
Field of View:	40.0º +/- 2o for a 17.5mm image format
Relative Illumination:	>= 40% of the on-axis illumination
Distortion:	-8% , +/- 0.5% at semi-field angle of 20º
Immersion:	20 meters for not less than 2 hours

Compliant with Optical Performance Criteria, MIL-PRF-A3256342A Lens Assembly, Objective for Monocular Night Vision Device, AN/PVS-14

PRODUCT

9.1mm EFL Long Wave Infrared Lens Assembly

9.1mm EFL Long Wave Infrared Lens Assembly

RPO Standard Product
Part Number: 5A0163

Optical Performance for 320 x 240 / 12µm Detector

PARAMETER	NOTES	DESIGN VALUE
MTF - min Sag/Tan at 41.6cyc/mm	Diffraction Limited (Ref. only) On-axis VFOV HFOV Corner	46.2% 44.3% 43.5% 36.8% 27.5%
EFL	Magnification Based	9.1mm
F/ #	Aperature-based	1
Field of View	Vertical Horizontal Diagonal (corner)	18.3 Deg. 24.5 Deg. 30.8 Deg.
Relative Illumination	At HFOV At Corner Field	95% 92%
Distortion	at HFOV At Corner Field	-2.1% -3.4%
Fixed-Focus Object Range	Range for 10% MTF drop w/o refocus	5.0 to Infinity
Athermal Temp Range	Range for 10% MTF drop w/o refocus	-40 to +65 degC
Operating Waveband	LWIR Thermal Waveband	8-12µm
Transmission	HEAR coated witness samples (8-12µm)	>95%

Optical Performance for 320 x 240 / 12µm Detector

PARAMETER	NOTES	DESIGN VALUE
Height	Front to back lens assembly	9.627mm
Thread Interface	Lens assembly outer thread	M14 x 0.5
Working Distance to Image Plane (FPA)	Assumed 0.56mm Si window, nominal focus at infinity	6.641mm
Max Exposure Temp	Storage/post-processing	140 degC

OPTICAL

- 9.1mm EFL, F/1.0 Lens
- 24.5 deg HFOV on a 320 x 240/12µm detector
- Two-element design
- Utilizes aspheric and diffractive technologies
- High Efficiency AR coating for LWIR 8-12µm
- Optically Athermalized using Classic-6 material

MECHANICAL

- Small size and weight
- Precision molded infrared lenses
- 20% glass-filled Black Polycarbonate Housing
- Threaded interface enables adjustable focus

RESOLUTION

PIXEL SIZE	160x120	320x240	384x288	640x480	1024x768
34µm	35.1	82.6	N/A	N/A	N/A
25µm	25.6	53.5	67.6	N/A	N/A
17µm	17.3	35.1	42.6	82.6	N/A
12µm	12.2	24.5	29.6	51.0	N/A
10µm	10.2	20.4	24.5	41.7	74.3

PRODUCT

RPO Scratch-Dig Comparator

RPO Scratch-Dig Comparator

Cost Effective Inspection Tool • Proven Lightweight Polymer Design • User Friendly Handling

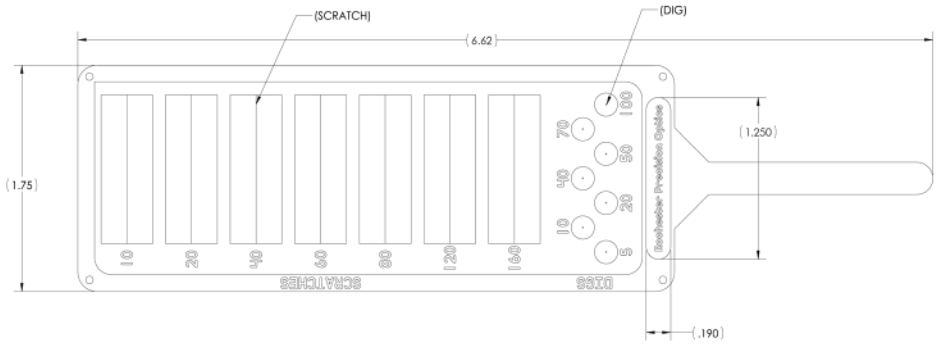
RPO Standard Product
Part Number: 2M1524

RPO's scratch-dig comparator is essential for accurately and efficiently inspecting optical components to MIL-PRF-13830B standards. It ensures high-quality, reliable, and durable optical systems, which is critical for applications that demand the utmost precision and perfiormance. By adhering to these standards, RPO continues to uphold its reputation forexcellence in the optics industry.

Product Specs

RPO Part Number:	2M1524
Material:	Molded High Quality Plastic / Acrylic
Dimensions:	0.25"W x 4.62"L x 1.75"H with 2"L Handle
Scratch Number:	10, 20, 40, 60, 80, 120, 160
Dig Number:	5, 10, 20, 40, 50, 70, 100

Product Dimensions



CLASSIC SERIES
Infrared Glass

Infrared Glasses

Classic Glasses

RPO manufacturers Classic Infrared glasses available as standard products or base materials to enable vertically-integrated manufacturing of IR optical products. A Proud U.S. Manufacturer, production of RPO Infrared glasses takes place at the manufacturing facility in the Rochester-NY region. Classic glasses serve as drop-in replacements for the equivalent IR glasses commonly found in the optics industry. Classic glasses have a range of refractive indexes, but all transmit excellently in the SWIR, mid- and long-wave IR bands. Classic 1, RPO's sulfide glass, has extended transmission into the visible region, providing an attractive solution for applications which require visible alignment. Classic glasses are all moldable, allowing customers to achieve high-volume production

Custom Glasses

Unlock precision and innovation with RPO's cutting-edge custom IR glass fabrication. Beyond the CLASSIC line, RPO excels in melting customer-requested compositions, offering advanced formulations for optics using infrared wavelengths, and tailoring glasses to specific system requirements and manufacturing techniques. RPO's advanced research & development of novel materials, material characterization, and manufacturing methods enable meticulously crafted glass types for precision optical system requirements designed for streamlined integration into traditional and non-traditional optical systems.

Table of Materials

RPO Glass	Composition	Schott	Vitron	Amorphous Materials	Umicore
CLASSIC-1	$As_{40}S_{60}$	IRG27		AMTIR-6	
CLASSIC-2	$Ge_{33}As_{12}Se_{55}$	IRG22	IG2	AMTIR-1	
CLASSIC-3	$Ge_{30}As_{13}Se_{32}Te_{25}$		IG3		
CLASSIC-4	$Ge_{10}As_{40}Se_{50}$	IRG24	IG4		
CLASSIC-5	$Ge_{28}Sb_{12}Se_{60}$	IRG25	IG5	AMTIR-3	~GASIR-2
CLASSIC-6	$As_{40}Se_{60}$	IRG26	IG6	AMTIR-2	GASIR-5

CLASSIC

Industry standard infrared glass compositions equivalent to various other commercially available compositions

CUSTOM

Specially designed for each customer to meet individual thermal, optical and other material property requirements

CONTRACT R&D

Product development to expand the infrared market for new product forms, such as fiber and specialty optics

CLASSIC-1 Overview

Product Description

CLASSIC-1 glass, with the composition $As_{40}S_{60}$, has extended transmission in the visible spectrum compared to other IR glasses, making it a useful selection for applications that benefit from additional visible alignment. CLASSIC-1 glass compares to multiple industry equivalents, including AMTIR-6.

Typical Forms of Supply

Form is dependent on customer needs, including billets, rods, spheres, cut or polished blanks & near-net preforms. Current maximum size is 50 mm diameter x 90 mm length.

CLASSIC-2 Overview

Product Description

CLASSIC-2 glass, with the composition $Ge_{33}As_{12}Se_{55}$, highlights the ability to tailor infrared glass compositions with specific optical, thermal, and mechanical design requirements — especially when a specific refractive index or thermal expansion is needed. CLASSIC-2 glass compares to multiple industry equivalents.

Typical Forms of Supply

Form is dependent on customer needs, including billets, rods, spheres, cut or polished blanks & near-net preforms. Current maximum size is 30 mm diameter x 90 mm length.

CLASSIC-3 Overview

Product Description

CLASSIC-3 glass, with the composition $Ge_{30}As_{13}Se_{32}Te_{25}$, has extended infrared transmission, compared to other infrared glasses. CLASSIC-3 glass compares to multiple industry equivalents.

Typical Forms of Supply

Form is dependent on customer needs, including billets, rods, spheres, cut or polished blanks & near-net preforms. Current maximum size is 30 mm diameter x 90 mm length.

CLASSIC-4 Overview

Product Description

CLASSIC-4 glass, with the composition $Ge_{10}As_{40}Se_{50}$, highlights the ability to tailor infrared glass compositions with specific optical, thermal, and mechanical design requirements — especially when a specific refractive index or thermal expansion is needed. CLASSIC-4 glass compares to multiple industry equivalents, including IRG24 and IG4.

Typical Forms of Supply

Form is dependent on customer needs, including billets, rods, spheres, cut or polished blanks & near-net preforms. Current maximum size is 30 mm diameter x 90 mm length.

CLASSIC-5 Overview

Product Description

CLASSIC-5 glass, with the composition $Ge_{28}Sb_{12}Se_{60}$, is widely employed in the glass molding industry because of its excellent thermal stability compared to other infrared glasses.
CLASSIC-5 glass compares to multiple industry equivalents, including IRG25, IG5, BD-2 and AMTIR-3. The glass is arsenic-free.

Typical Forms of Supply

Form is dependent on customer needs, including billets, rods, spheres, cut or polished blanks & near-net preforms. Current maximum size is 30 mm diameter x 90 mm length.

CLASSIC-6 Overview

Product Description

CLASSIC-6 glass, with the composition $As_{40}Se_{60}$, is the most widely deployed of infrared glasses in thermal applications due to its low cost and large transmission window. CLASSIC-6 glass compares to multiple industry equivalents, including IRG26 and IG6.

Typical Forms of Supply

Form is dependent on customer needs, including billets, rods, spheres, cut or polished blanks & near-net preforms. Current maximum size is 100 mm diameter x 100 mm length.

Notes:

Looking for a custom lens or assembly?
Early involvement with RPO's engineering team can ensure you achieve cost and performance goals.

Learn more at www.rpoptics.com

Rochester Precision Optics

850 John Street
West Henrietta, NY 14586
Phone: 585-292-5450
Fax: 585-292-5459
Email: BD@rpoptics.com

www.rpoptics.com