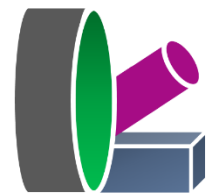


Fabrication



Thin Film Coating



Laser Optics

Blue Ridge Optics a supplier and manufacturer of advanced optics and thin film coatings. Operating out of a 40,000 square foot facility in central Virginia, our in house operations include laser optics fabrication: crystal polishing, lens fabrication (CNC), blanking, thin film coating (IBS, E-Beam, Advanced Plasma) and advanced optical testing. From optical design and material procurement to thin film coating and final testing, we pride ourselves on being a one-stop shop for all of your optical needs.

## Thin Film Coating

### Technology & Capabilities

E-Beam Advanced Plasma

IBS Ion Beam Sputtering

Ion Assist

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Telemetric Optical Monitors & Automation

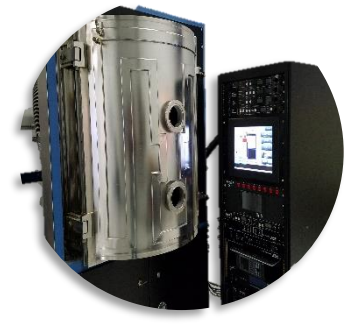
Telemark Power Supplies

Cryo-Pumped (8 Chambers)

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190-50 $\mu$ m

Micro Optics to Large OD (~21")

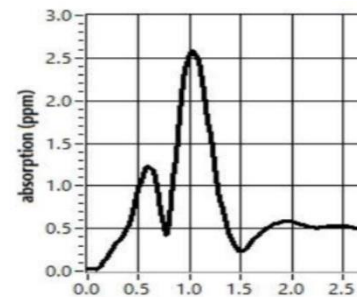


### Coating Types

Antireflection, High reflectors, Hybrid Coatings, Hi Energy, Conductive / Resistive Coatings (ITO), Dielectrics / Dichroics, Output Couplers, Crystals, Mirrors, Waveplates.....many more

### Low Absorption Coatings

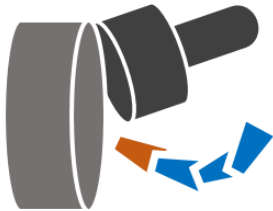
Our industry leading high power (NS, UltraFast), high intensity (CW) thin film coatings (E-Beam, Advanced Plasma and IBS technology), designed for low absorption applications from <2-5ppm per surface. When combined with our in house super polished (<2 $\text{\AA}$ ) substrates, we've produced optics with total surface and bulk absorption of <10ppm.



### High Power Thin Films

Blue Ridge Optics' coatings have been used in the world's most advanced and powerful laser systems. With an extensive library of LDT data and variable tracking, our coatings are designed with laser output in mind. Using only the most highly purified deposition materials, hybrid coating chambers using a combination of the industries most advanced deposition technology and over 35 years of coating design experience, our coatings continually and consistently perform in the most demanding applications.

## Optical Fabrication



### Materials

Alexandrite, BBO, LBO, SBBO, Phosphate Glass,  
KNbO<sub>3</sub>, KTA, KTP (OPO/SHG), YAG, RBBF,  
Vanadate, YLF, Ti: Sapphire, Ruby, BK7, CaF<sub>2</sub>,  
ZnS, Infrasil, Fused Silica, Suprasil, Germanium,  
MgF<sub>2</sub>, Sapphire, Silicon, ZnSe...many more

### Fabrication Capabilities

Dimensions: 0.2-101.6mm (→)  
TWD / Flatness:  $\lambda/20$   
Surface Quality: 0-0, 10-5, 20-10  
Roughness:  $<1\text{\AA} - 10\text{\AA}$

### Finished Optics

Beamsplitters, Filters, Laser Rods,  
Laser Gain, Lenses, Mirrors,  
Q-Switches, Waveplates, Windows,  
Hybrid Optics, Micro Optics...

### Fabrication Technology

Double Side Lapping  
Continuous Lappers  
Spindle Polishing  
CNC Polishing (Satisloh)

## Metrology Overview

Using the industries most advanced metrology and measurement devices, Blue Ridge Optics evaluates, measures and tests all manufactured optical components.

Zygo NewView 8200 Profilometer (2017 Model)

Zygo Verifire Radii HD Interferometer (2017 Model)

Savvy Inspector Scratch-Dig System

Apri 6" HD Interferometer + Homogeneity Testing

Starrett Computer Automated Comparator

Mitutoyo Drop Gauges

Nikon Profile Projector

Flash Lamp Laser Tester

PE Spectrophotometers



## Additional Capabilities 2017



### CNC Capabilities

With the addition of four new Satisloh CNC machines, BRO is capable of manufacturing a variety of lenses, in various sizes and shapes from 9-127mm, including UV-IR materials, with average lead times of 2-4 weeks. All optics are measured in our update, advanced metrology laboratory.

### Large Lappers

With the addition of multiple large continuous polishers (up to 72"), and high compression double side polishers, BRO has begun manufacturing optics from 0.25 - 14+". Optics are available with  $\lambda/10$  flatness, 10-5 scratch-dig, 2-5Å super-polished surfaces, and turnaround times of 2-3 weeks. Combined with our industry leading high power coatings, we aim to be your single source optics supplier.



### Optical Blanking & Shaping

Blue Ridge Optics offers full blanking services. From standard to complex shapes, from 5-150mm, a 5-Axis multi-head CNC platform allows us to precisely manufacture blanks and complex shaped optics.

## Cybersecurity

Implemented in mid-2017, Blue Ridge has begun conducting operations using a strictly controlled cybersecurity system. Including a multi-tier fire wall platform and dedicated offline, hard wired secure servers, we continuously monitor and work towards the complete and total protection of our data.



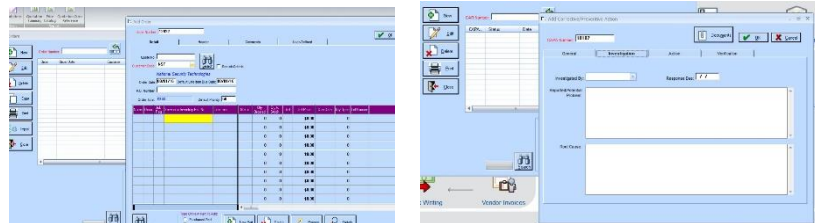
## Inventory



We carry a large inventory of finished optics and raw optical material. Stored in an onsite 1,500 SF controlled and secure storage area, we can offer next day turn around on most standard optics and sizes, with standard coatings. If a stock optic is close to your requirements but the wrong shape or size, we can quickly rework dimensions and shapes to meet your current needs. Only need a few parts now, and maybe more in the future? Take advantage of lot manufacturing price breaks, and will inventory your parts for future use.

## Quality & Resources

Blue Ridge Optics has a dedicated quality assurance department which operates to the standards of [ISO 9001](#). All QMS data, product data and metrics are tracked using our modulated ERP/SAP system.



## New Location

In August of 2016, Blue Ridge Optics moved to our new 40,000 square foot, state-of-the-art facility in central VA. Our building layout which includes class 100 clean rooms, was designed with maximum process efficiency in mind. Schedule a visit today.

