

Meller Optics Manufacturing Capabilities

Materials

Wide Range of Optical Materials

Sapphire, Optical Ceramics, Laser Crystals, Zinc Selenide, Zinc Sulfide, Silicon, and Germanium

The Very Soft and Extremely Hard Materials are our Forte

Zinc Selenide: Able to finish to a 10 Angstroms RMS surface roughness

Sapphire: Able to finish to 2 Angstrom RMS surface roughness

Processes

Shaping

Loose Abrasive Grinding

Loose Abrasive Polishing (Lapping)

Chemical - Mechanical Polishing (CMP)

X-Ray Diffractometric Crystal Analysis

Laser Marking

Precision Ultra-Sonic Cleaning

On-Site Machine Shop for Tooling and Fixtures

Equipment

Shaping

Programmable Surface Grinders

Blanchard Grinders

Programmable OD Grinders

Programmable Beveling Machine

Edge Honing Machines

5-Axis Machining Platforms

Finishing (Grinding / Lapping / Polishing)

Multiple Spindles for Single-Sided Processes

Multiple Planetary Machines for Double-Sided Processes

CO² 60-Watt Laser Engraver

Ultrasonic Precision Cleaning Systems

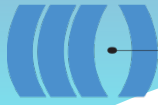
Laminar Flow Booths

Coatings

Meller Optics has a long history with two outstanding coating houses

Vendor 1: Ultraviolet to Midwave Infrared Coating

Vendor 2: Midwave Infrared to Longwave Infrared Coatings



Meller Optics Manufacturing Capabilities

Sapphire Masters

Sapphire Windows

Crystallographic Orientations
All Crystal Orientations (c, a, m, and r Planes)
c-Plane is Preferred

Size Limitations
Diameters: 3.00mm to 450.00mm
Thicknesses: 0.25mm to 100.00mm
100:1 Maximum Aspect Ratio

Parallelism: 2 Arc Seconds Maximum
Transmitted Wavefront Error:
1/20 Wave Peak-to-Valley Maximum @ 633nm
Over any 2.00" Sub-Aperture, With a 250.00mm
Diameter Size Limitation

Surface Quality: 10-5 per MIL-PRF-13830
Surface Roughness: 2 Angstroms RMS Maximum

Other Sapphire Components

Sapphire Spherical Lenses
Sapphire Prisms
Sapphire Waveplates
Non-Optical Applications:
Sapphire Perforated Wafer Carriers
Sapphire Spacers and Wear Pad Applications

Sapphire Domes

Crystallographic Orientation: c-Plane

Size Limitations
Diameters: 10.00mm to 150.00mm
Wall Thicknesses: 1.00mm Minimum
50:1 Maximum Aspect Ratio

Wedge Error: 3 arc Minutes Maximum

Surface Accuracy:
Power: 4 Fringes Maximum @ 633nm
Over any 2.00" Sub-Aperture
Irregularity: 2 Fringes Maximum @ 633nm
Over any 2.00" Sub-Aperture

Surface Quality: 20-10 per MIL-PRF-13830
Surface Roughness: 10 Angstroms RMS Maximum

Metrology

6" Zygo Verifire Horizontal Interferometer
4" Zygo Verifire Vertical Interferometer
Zygo ZeGage Interferometric Surface Analyzer Microscope
EFG-Berlin X-Ray Diffractometer
Keyence XM-C1000 CMM
Interoptics Opto Flat
Zeiss Stemi 2000-C 50x Microscope
Edmunds Twin Head Gage Block Comparator
4" x 4" Micro-VU Measuring System
Autocollimators