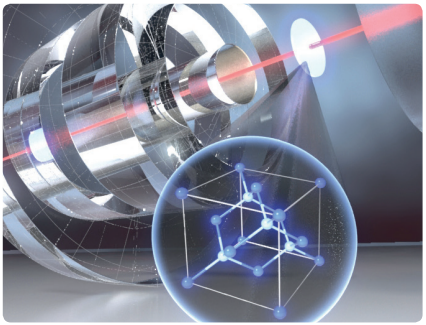
CMS

CRYSTALLINE MIRROR SOLUTIONS

Redefining precision laser optics

SINGLE-CRYSTAL SUPERMIRRORS

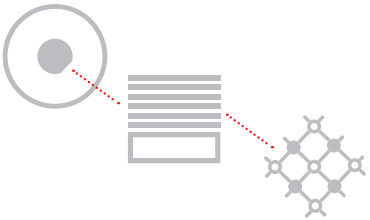


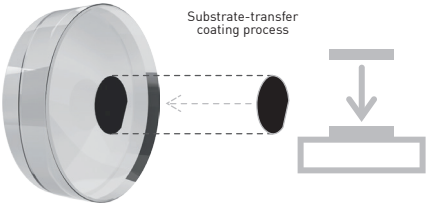
Crystalline coatings represent an entirely new paradigm in optical coating technology that is redefining the standards of precision laser optics:

- Low mechanical and optical losses
- High thermal conductivity
- Active electro-optic properties

Using our substrate-transfer process, GaAs/AlGaAs coatings can be employed for:

- High reflectivity mirrors with ultralow Brownian noise
- Mid-infrared reflectors and ringdown cavities
- Low-loss and high thermal conductivity mirrors for the ultrafast laser systems



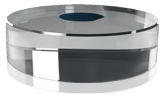


Via direct bonding, we can coat a variety of substrate materials:

- Fused silica, sapphire, Si, SiC, diamond, YAG and others
- Radius of curvature down to 0.1 m
- Surface roughnesses < 1 nm

PRODUCT LINES

xtal stable

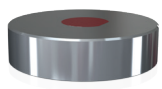


- Ultra-low Brownian noise
- High finesse

SPECIFICATIONS FOR xtal stable (LOW BROWNIAN NOISE NEAR-IR PASSIVE REFLECTORS)

Center wavelength:	900 – 2000 nm
Optical absorption:	< 1 ppm (center wavelength dependent)
Optical scatter:	< 10 ppm (center wavelength dependent)
Diameter:	0.5 – 1 inch (12.7 – 25 mm), custom sizes up to 150-mm diameter
Material:	GaAs/AlGaAs on desired substrate (typically fused silica)
Surface flatness:	< 0.10 wave P-V measured @ 633 nm
Clear aperture:	substrate dependent – 5 mm and up
Radius of curvature:	> 0.1 m
Surface quality (coated optic):	~1 Å RMS roughness
S2 surface:	AR coatings as required
Wedge:	0.5 – 1 degree typical (others available)
Durability:	similar to fused silica

xtal mir



- Ultra-low optical losses at mid-infrared wavelengths

SPECIFICATIONS FOR xtal mir (LOW OPTICAL LOSS MID-IR PASSIVE REFLECTORS)

Center wavelength:	2 – 5 µm
Optical losses:	< 100 ppm (total losses, scatter + absorption)
Transmission:	> 200 ppm
Bandwidth:	200 – 400 nm FWHM (center wavelength dependent)
Diameter:	0.5 – 1 inch (12.7 – 25 mm), custom sizes up to 150-mm diameter
Material:	monocrystalline GaAs/AlGaAs on Si (other substrates available)
Surface flatness:	< 0.10 wave P-V measured @ 633 nm
Clear aperture:	substrate dependent – 5 mm and up
Radius of curvature:	> 0.1 m
Surface quality (coated optic):	~1 Å RMS roughness
S2 surface:	AR coatings as required
Wedge:	0.5 – 1 degree typical (others available)
Durability:	similar to fused silica

xtal therm

- High thermal conductivity

SPECIFICATIONS FOR xtal therm (ACTIVE AND PASSIVE REFLECTORS FOR ULTRAFAST AND HIGH-POWER LASERS)

Center wavelength:	< 1300 nm active, 1 – 4 µm passive
Optical losses:	< 100 ppm (total losses, scatter + absorption)
Transmission:	per customer request
Coating thermal conductivity:	~70 W/(m K)
Material:	monocrystalline GaAs/AlGaAs on diamond or SiC
Coating area:	5 x 5 mm^2 (diamond substrate) to 150-mm diameter (other substrates)
Surface flatness:	< 0.10 wave P-V measured @ 633 nm
Clear aperture:	substrate dependent – 5 mm and up
Radius of curvature:	> 0.1 m
Surface quality (coated optic):	~1 Å RMS roughness, surface overcoat optional
S2 surface:	AR coatings as required
Wedge:	0.5 – 1 degree typical (others available)
Durability:	similar to fused silica

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