

Low GDD Ultrafast Mirrors



Standard specifications

Material	UVFS
Diameter tolerance	+0/-0.1 mm
Thickness tolerance	±0.1 mm
Clear aperture	>90%
Surface quality	20-10 S-D
Surface flatness	$\lambda/8$ @ 632.8 nm
Protective chamfers	<math><0.25\text{ mm} \times 45^\circ</math>
Coating adhesion and durability	Per MIL-C-675A
Laser damage threshold reports	www.altechna.com/lid

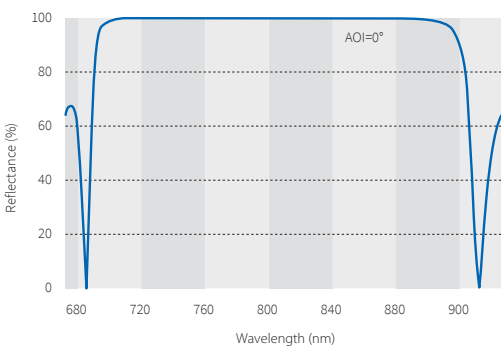
Description

Low GDD Ultrafast mirrors are designed for femtosecond applications to provide an optimized performance at certain wavelength and angle of incidence (AOI). This is achieved by careful selection of coating stacks to combine high reflectivity and low GDD value (from -10 fs^2 to 10 fs^2 at design bandwidth) at the same time. Such coatings are used for external beam manipulation applications where pulse broadening effect is undesirable. Low GDD Ultrafast mirrors are intended for Ti:Sapphire, Nd:Glass, Er:Glass or Ytterbium doped host based lasers working in femtosecond regime. Variety of catalogue components allows to choose the right mirror for fundamental wavelength as well as for its harmonics.

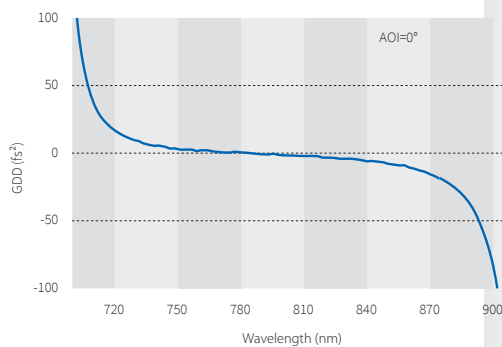
Features

- Other dimensions and wavelengths are available in small and mass production quantities
- GDD reflectance values range from -10 fs^2 to 10 fs^2 for s polarized light and -20 fs^2 to 20 fs^2 for p polarized light

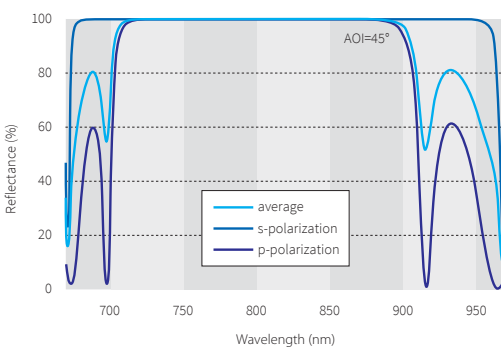
Calculated reflectance curve of [1K00-GDD] coating



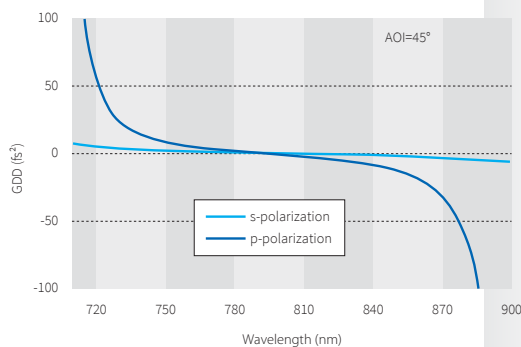
Calculated GDD-reflectance values of [1K00-GDD] coating



Calculated reflectance curve of [1K45-GDD] coating



Calculated GDD-reflectance values of [1K45-GDD] coating



**PHOTO
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Low Loss HR Mirrors



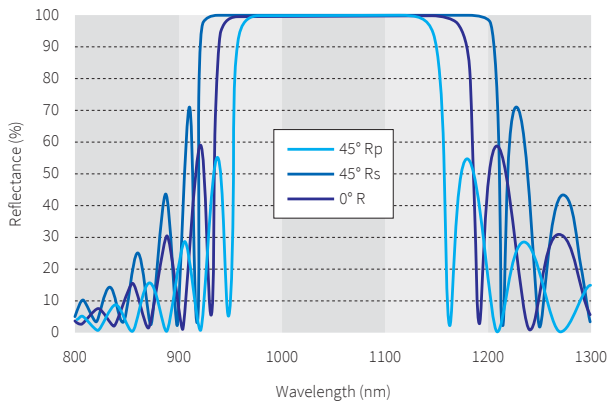
Description

Low loss mirrors are also referred to as IBS mirror due to ion-beam coating technology. The mirrors provide maximum reflectance at certain wavelength range and certain angle of incidence (AOI).

IBS technology stands out by multiple advantages against other coating techniques. Due to fully automated control of deposition process coatings distinguish by high repeatability, sharper features, tighter tolerances. IBS thin films feature higher density, durability, high-damage-threshold, impenetrable to water vapor, which make them resistant to environmental conditions such as heat, humidity and pressure.

IBS coatings distinguish by nearly all specification being supreme to the ones provided by other coating technologies. It allows to minimize scatter in the dielectric layers which is limiting factor, then reflectance higher than 99.9% is targeted.

Our selection of ion-beam sputtered coatings covers wavelength range of 343 - 1550 nm.



Features

- Provide maximum reflectance at certain wavelength range and certain angle of incidence (AOI)
- Coatings are provided by ion beam sputtering (IBS) technique
- Resistant to environmental conditions
- Various dimensions are available on request
- Mass production capabilities: 1'000 pieces per month
- High repeatability
- Reflectance higher than 99.9%

Standard specifications

Diameter tolerance	+0/-0.1 mm
Thickness tolerance	±0.1 mm
Clear aperture	>90%
Surface quality	20-10 S-D
Surface flatness	<λ/8 @ 632.8 nm
Protective chamfers	<0.25 mm x 45°
Coating adhesion and durability	Per MIL-C-675A
Laser damage threshold	up to 17 J/cm ² @ 1064 nm; 10ns; 10Hz

