

Optics | COATING TECHNOLOGIES AND OPTICAL CONTACTING

Optical Coatings	E-beam	IAD	APS	IBS
Laser Induced Damage Threshold*	>20J/cm ²	>27J/cm ²	>27J/cm ²	>27J/cm ²
Absorption (%)	<0.1	<0.02	<0.02	<0.02
Scatter (%)	<0.1	<0.15	<0.15	<0.1
Surface Roughness (Å rms)	5	7	7	<5
Wet/Dry Shift (range) (%)	<0.8	<0.3	0	0

Optical Contacting

Advantages In Optical Performance

- No glue or adhesive material is needed so there is no variance in the physical properties of the bound object and adhesive
- Heat sensitive polymers are not used and the part is limited by the material properties of the bulk solid only
- Higher laser damage threshold
- Negligible scattering
- Higher transmission
- Minimal beam displacement

Advantages For Optical Fabrication

- Maintaining parallelism in the Arc-second regime

Products

- Waveplates
 - True optical measurement of retardation tolerance
 - Minimizes the absorption contribution from an equivalent product that uses cement. Important in high power laser applications
- Cubes
 - Minimizes absorption in highpower laser applications
 - Minimizes beam deviation contribution from a cemented interface
- Etalon spacers
 - Minimizes the wedge contribution in the finesse calculation

*Laser - Induced Damage Threshold (LIDT) depends on test wavelength, pulse width, repetition rate, and inspection method. Data from 1064 nm, 10 ns, 10 Hz. These values may be slightly higher or lower depending on deposition conditions and other process related parameters. Overall plasma processes have lower absorptions than conventional e-beam technologies.