Conformal antireflection coatings

Functionalization of complex-shaped optical components by atomic layer deposition (ALD)
Atomic layer deposition

Atomic layer deposition (ALD) is a particular suitable technology to meet the high uniformity requirements of optical coatings on complex-shaped components. ALD is a chemical deposition process based on cyclic self-limiting surface reactions. The key advantage is the precise control of layer growth independent of the substrate geometry.

Advantages

- Conformal coatings on substrates with geometrically complex shapes (such as lenses, cylinders, hemispheres, etc.)
- Functionalization of temperature-sensitive substrates at low deposition temperatures using plasma enhanced ALD
- Very low optical losses
- High LIDT values

Expertise and applications

- Process development and optimization
- Oxides: SiO₂, Al₂O₃, Ta₂O₅, HfO₂, TiO₂
- Low-n nanoporous oxides: SiO₂, Al₂O₃
- Antireflection coatings from DUV to NIR
- Single- wavelength or multi-wavelength (e.g. 1064, 532, 355, and 266 nm)

Highlights

- Conformal antireflection coatings
- Functionalization of complex-shaped optical components by atomic layer deposition (ALD)
- AR coatings on inner and outer dome surfaces.
- Broadband, omnidirectional AR Coatings.
- Multi-wavelength AR performance for laser applications.

Contact

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