SCHOTT® optical coatings

Customized high-end PVD coatings for superior optical components

Complete
value chain

Glass melting to finished components

Coating
customization

Complex thin film designs with up to hundreds of layers

Broad
spectrum

UV–LWIR

Wavelength range from 190 nm to 12 µm

SCHOTT's proven track record for manufacturing optical components and thin film coatings encompasses more than 80 years. We employ this broad experience to produce challenging coatings and complex filters according to our customers' needs. Our application experts are pleased to assist you with unique technical designs of optical coatings for your application from prototyping to serial production.

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Product information

SCHOTT applies sophisticated optical coatings to all types of optical materials and components, covering a wide range of industry applications. We employ modern Physical Vapor Deposition (PVD) coating technologies to cover a broad range of specific customer requirements within a spectral range from 190 nm to 12 µm. With our in-depth understanding of material properties, we optimize any parameter providing supreme spectral and mechanical performance.

Substrates

Almost all inorganic glasses and glass-ceramics are suitable as substrate material for interference filters. The choice of substrate depend on the specific requirements of the finished interference filter. Coatable materials are:

- Optical glasses (e.g. SCHOTT N-BK7®, N-FK51A)
- Optical filter glasses (i.e. shortpass, longpass or (multi-)bandpass filter glass)
- Technical glasses (e.g. BOROFLOAT®33, D 263® T)
- Glass-ceramics (e.g. ZERODUR®)
- Fused silica & Sapphire
- Coated substrates are available as assemblies

Product specifications

- Dimensions between 1 mm and 400 mm (diameter)
- Coating of different components (e.g. prisms, lenses)
- Spectral range between 190 nm to 12 µm
- According to ISO 10110

Specifications listed in our catalog apply to standard interference filters, while most filters are customized.

Our coating product range

- Anti-reflective coatings:
  – Single-wavelength-AR & BBAR from DUV to LWIR
  – Scratch-resistant hard AR coatings (VIS to SWIR)
- Metallic & dielectric mirror coatings
- High LIDT & low absorption on laser coatings
- Dielectric thin film polarizer & beam splitter
- Edge & bandpass filters from UV to SWIR
  – Steep edge & hard coated, narrow bandpass
- Notch filters
- Microlithography filters
- Index-matched ITO coatings
- Functional coatings (e.g. anti-fog, easy-to-clean)
- Black chrome coatings
- VERIL linear variable filters

Anti-reflection coating on aspheric lens.

Dichroic interference filter witch CNC machined sides.

Assembled i-line bandpass filter for semiconductor lithography, transmitting light only at the 365 nm wavelength.

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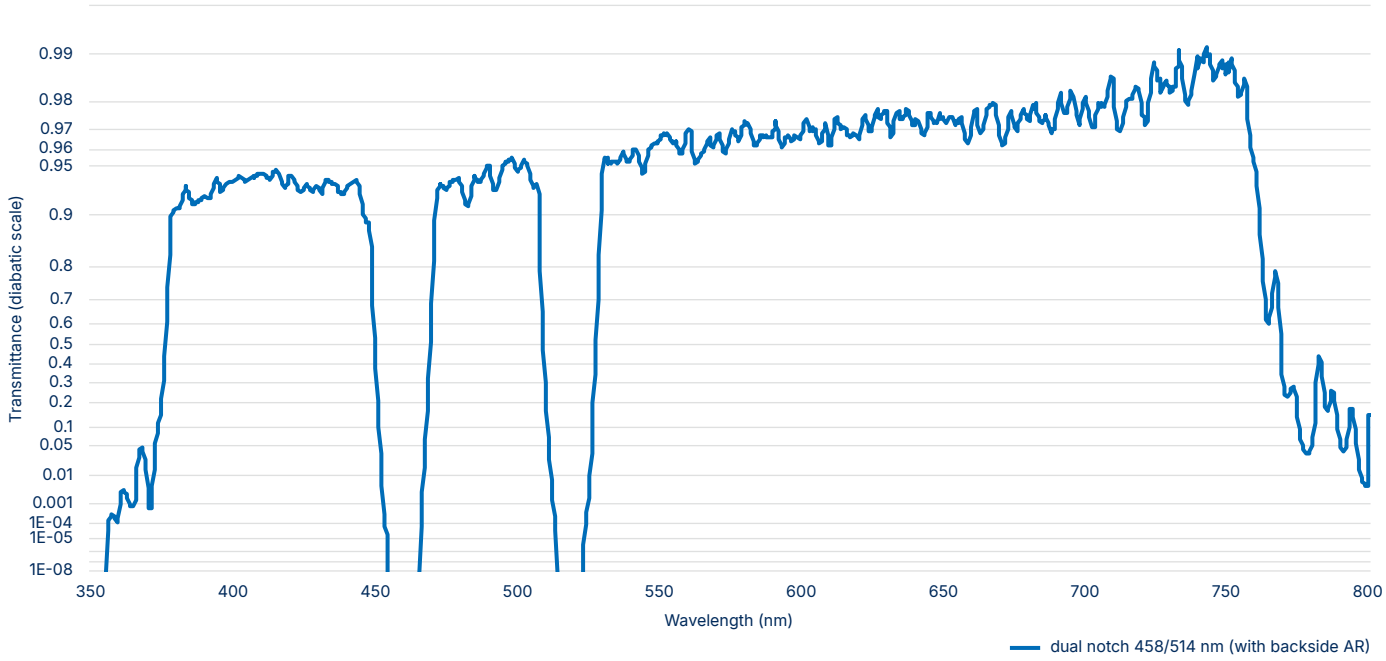
High-end interference coatings

Our coating designers realize complex filter designs up to several hundreds of layers. We use high precision coating process control to manufacture individually tailored filter designs, which provide features such as high transmission in the passband, strong blocking in the stopband as well steep edges.

Applications

Optical interference coatings are applied to optical components for such uses as medical devices, laser systems, semiconductor lithography, science & research, as well as in aerospace and defense applications.



Combination of filter glass and interference coatings

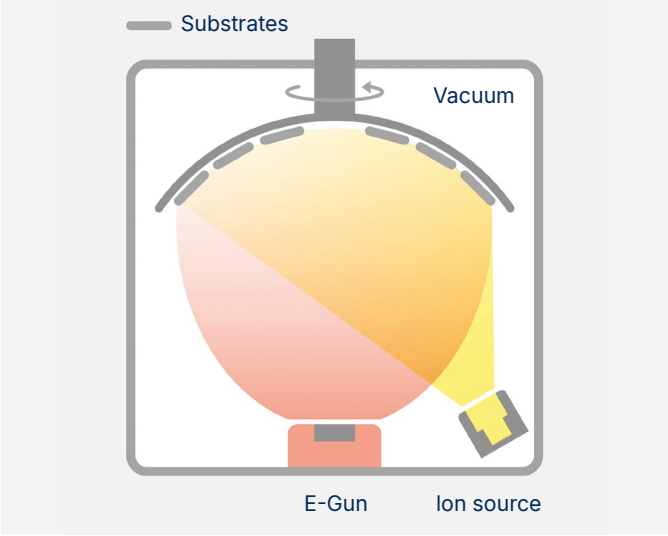
The combination of an interference filter coating on top of a SCHOTT absorptive filter glass enables unique filter functionality. For instance, the number of required coating layers for the interference filter can be significantly reduced by utilizing the blocking range of a filter glass.

We offer interference coatings on SCHOTT optical filter glasses such as BG55 along with cementing of various glass types for even greater versatility and functionality.

SCHOTT® optical coatings

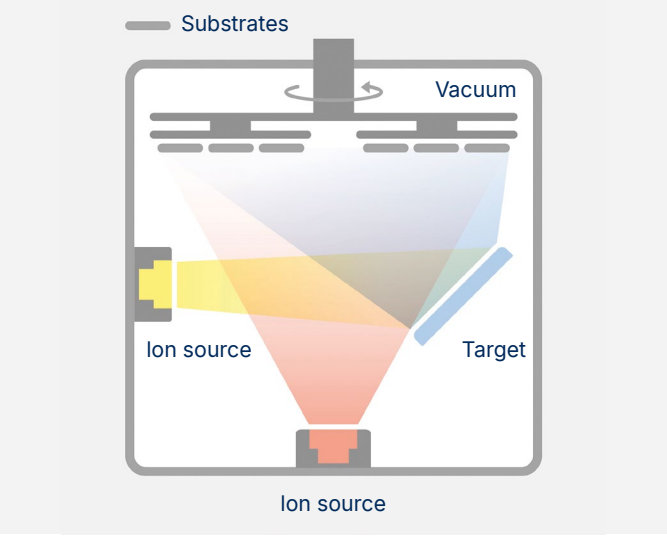
Coating technologies

We offer various modern PVD coating technologies – our technical team will employ the right one for your application.



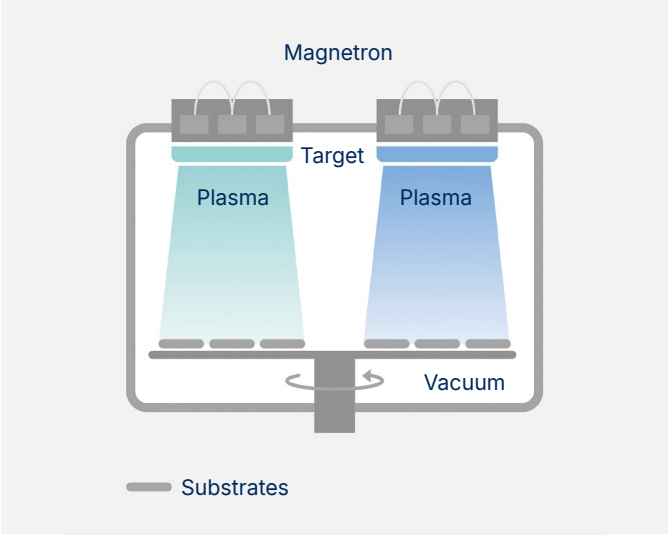
Ion beam assisted e-beam evaporation

- Coatings with improved density and climatic stability
- Cost-effective hard coatings



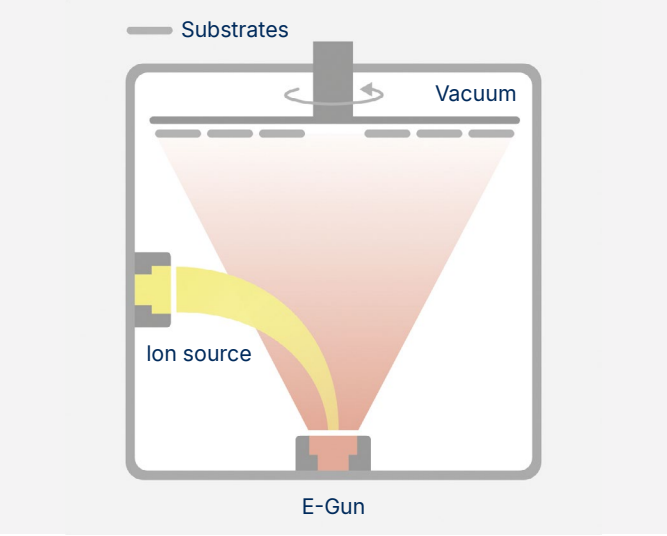
Ion beam sputtering (dual ion beam system)

- Ion beam quality at PVD rates
- Planetary substrate fixtures for high uniformity
- Ultra low surface roughness



Magnetron sputtering

- Highly sophisticated interference coatings with steep edges
- State-of-the-art uniformity
- High reproducibility
- Scratch-resistant coatings



Low voltage reactive ion plating

- High density and mechanically durable
- Minimal thermal wavelength shift
- Excellent climatic stability

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