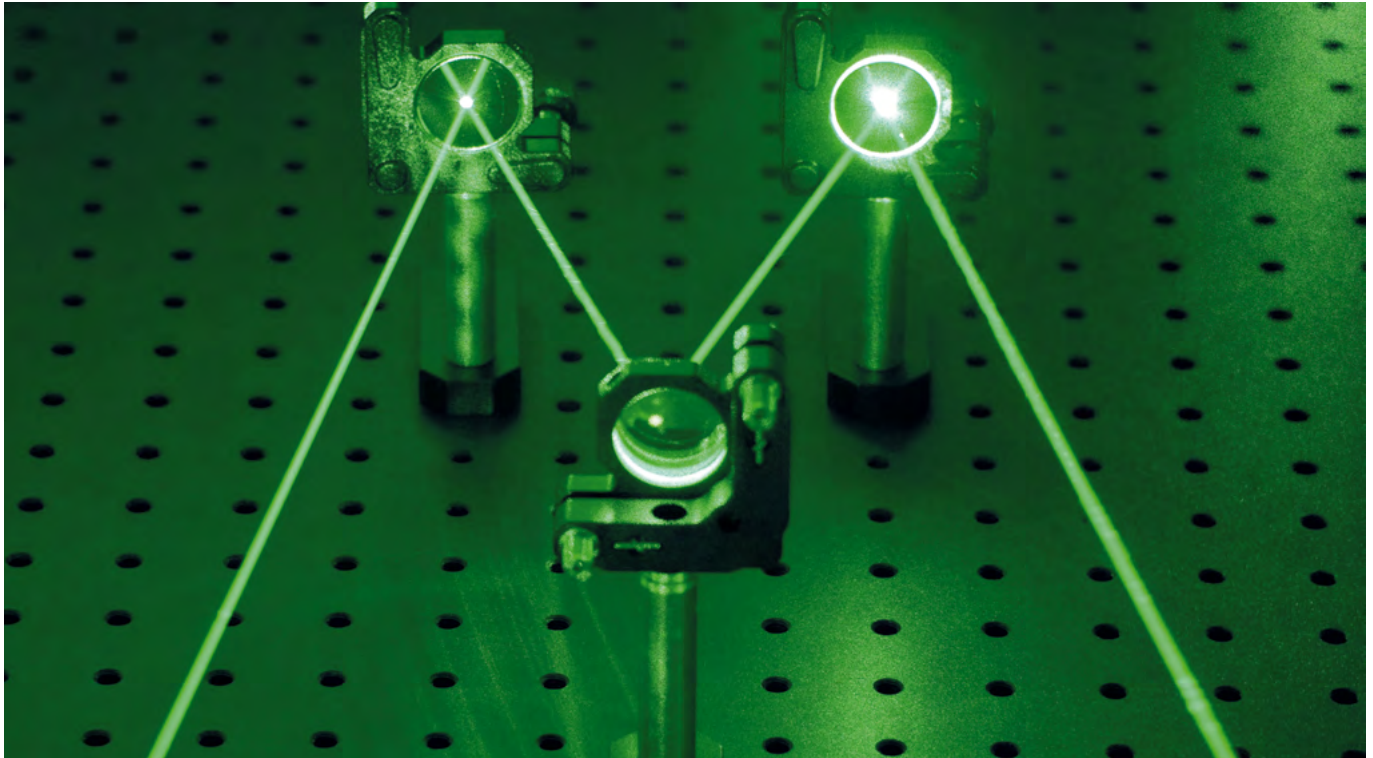


# Optics for low loss coatings

## Super-polished and Premium



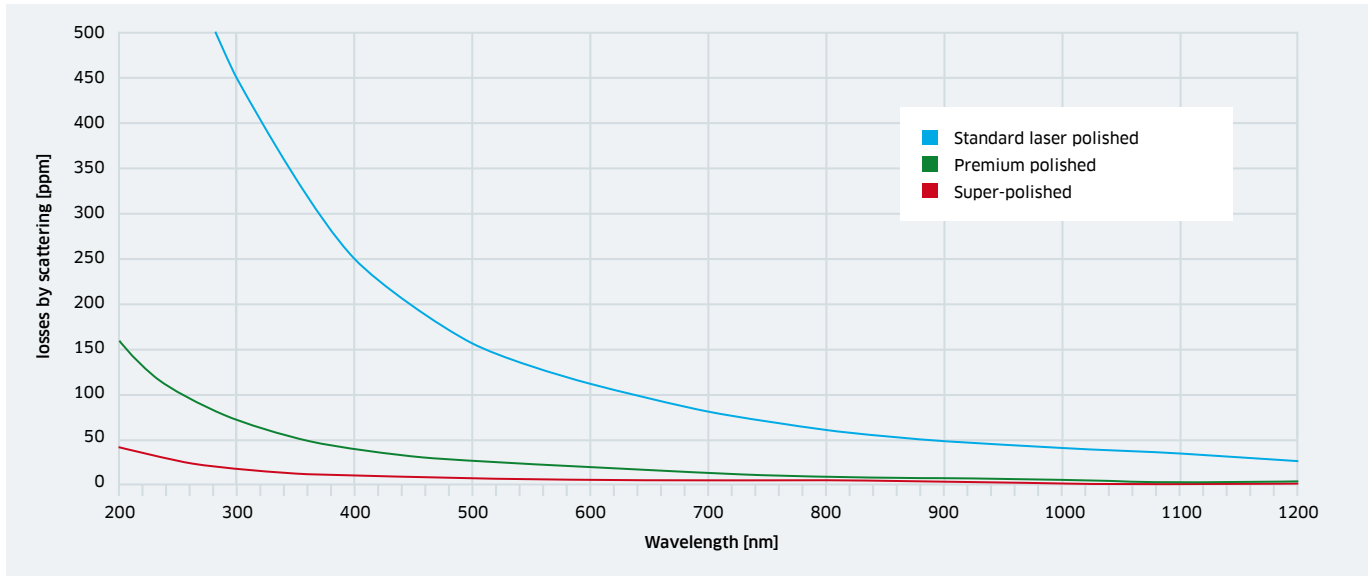
*Straylight comparison of a super-polished mirror (left) and a standard mirror (right) at 532 nm and 100 mW*

**LASEROPTIK** offers substrates with the best roughness to ensure lowest scatter for our IBS coatings. A wide range of stock optics is available with a roughness of RMS < 0.2 nm and a flatness of  $< \lambda/20$ . For the most advanced applications, super-polished substrates with RMS < 0.1 nm are available on request.

### Available categories

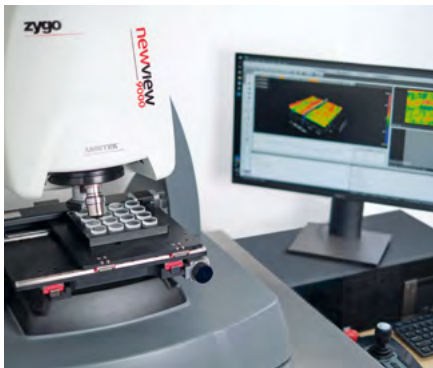
	Guaranteed Roughness	Flatness	Availability
<b>Premium (FS)</b>	RMS < 0.2 nm* (< 2 Å)	$< \lambda/20$	Ø 12.7-25 mm always 2,000 pcs. on stock (various radii and plane)
<b>Super-polished (FS)</b>	RMS < 0.1 nm* (< 1 Å)	$< \lambda/20$	on request

\* Tested with Zygo NewView 9000 within sample length 3-1000 µm



Typical losses due to scattering indicated by the substrate surface for a low loss IBS mirror coating

### Inhouse test equipment



3D Optical Profiler (Zygo NewView 9000)



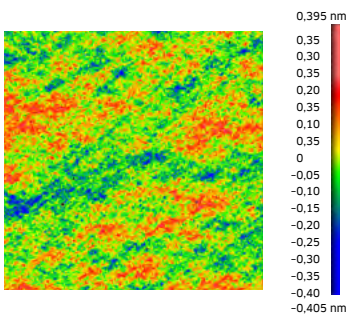
Automated roughness testing



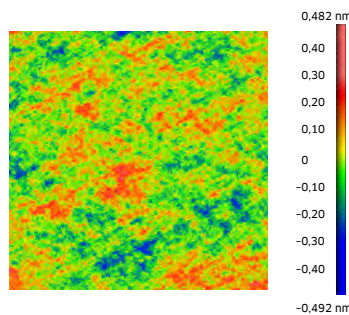
Laser testing lab

### Consistently low roughness values over all spatial frequencies

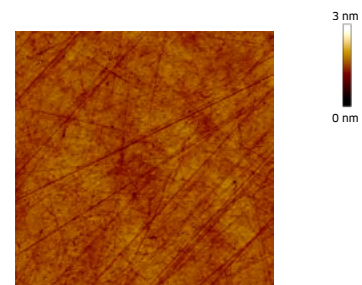
The exemplary roughness measurements of a Premium substrate with different magnifications proves the high quality no matter what the sampling length is.



**RMS 0.113 nm**  
WLI Measurement  
Field of view: 1000 x 1000  $\mu\text{m}$   
Magnification: 5.5 x



**RMS 0.129 nm**  
WLI Measurement  
Field of view: 170 x 170  $\mu\text{m}$   
Magnification: 50 x



**RMS 0.130 nm**  
AFM Measurement\*  
Field of view: 10 x 10  $\mu\text{m}$   
\*conducted at Fraunhofer IOF

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