



WZW OPTIC AG

EPIC TechWatch – 30.03.2023

Super Polishing: Sub-Angstrom surfaces for high precision optics with increased optical and energy efficiency



ABOUT US

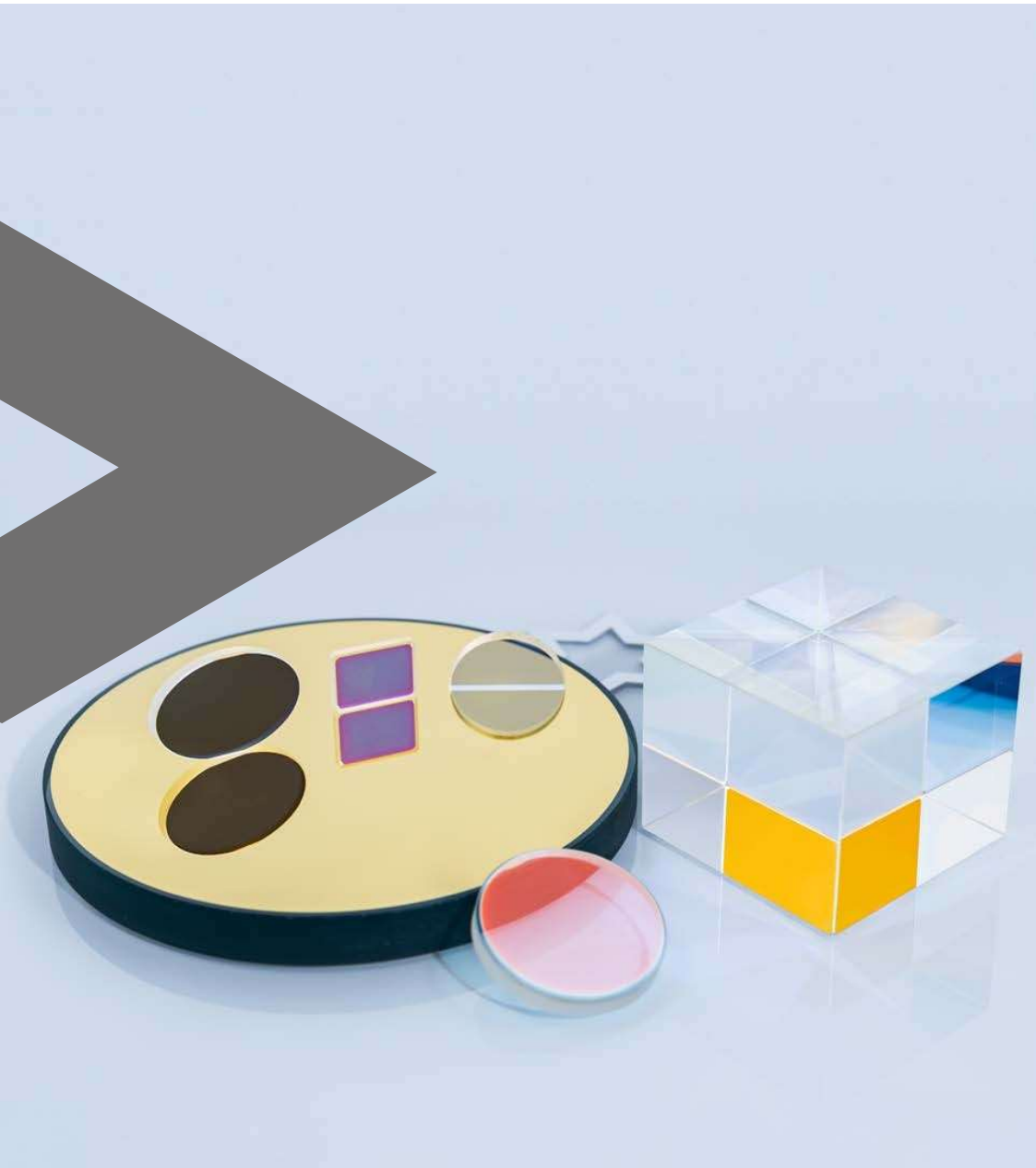
- > Founded: 1965
- > Location: Balgach,
Swiss Rhine Valley
- > Employees: 65
- > State-of-the-Art
Production area: 3000 m²
- > Export Part: >90%



APPROVED FOR MAXIMUM CERTIFICATIONS

- > **SWISS MADE.**
- > **SWISS QUALITY.**
- > **SWISS PRECISION.**





OUR PRODUCT RANGE





Superpolishing optics for ultra-low surface roughness

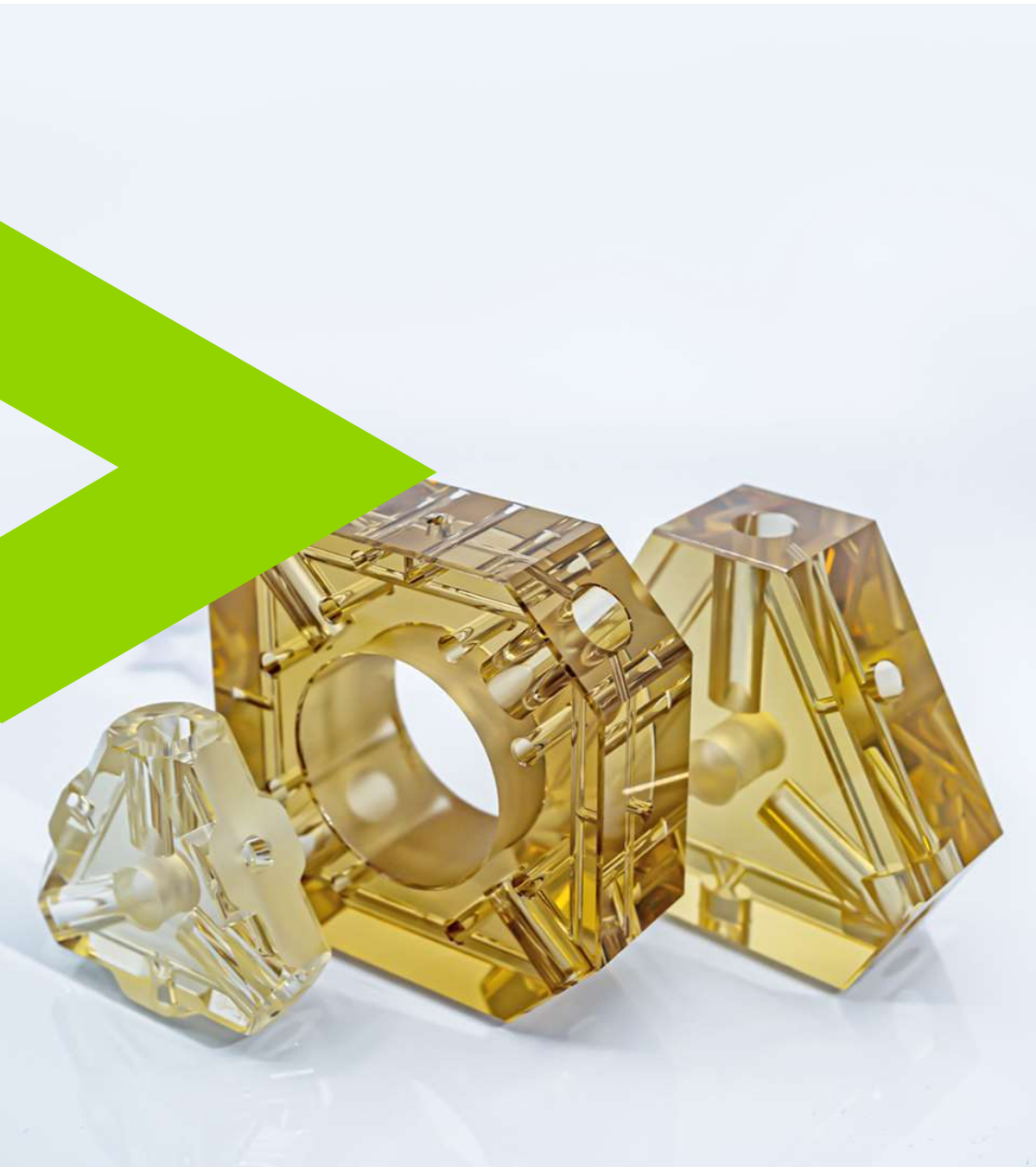
- > Minimize scatter
- > Ideal for laser optics applications where throughput is critical
- > Low-loss coatings, utilized by ion beam sputtering (IBS)
- > Increased optical and energy efficiency

- > Sub-Angstrom surfaces
- > Finishing processes without disturbing the substrate
- > Nearly perfect surfaces with little to no subsurface damage.

SUPER POLISHING Process for Low Loss Optics

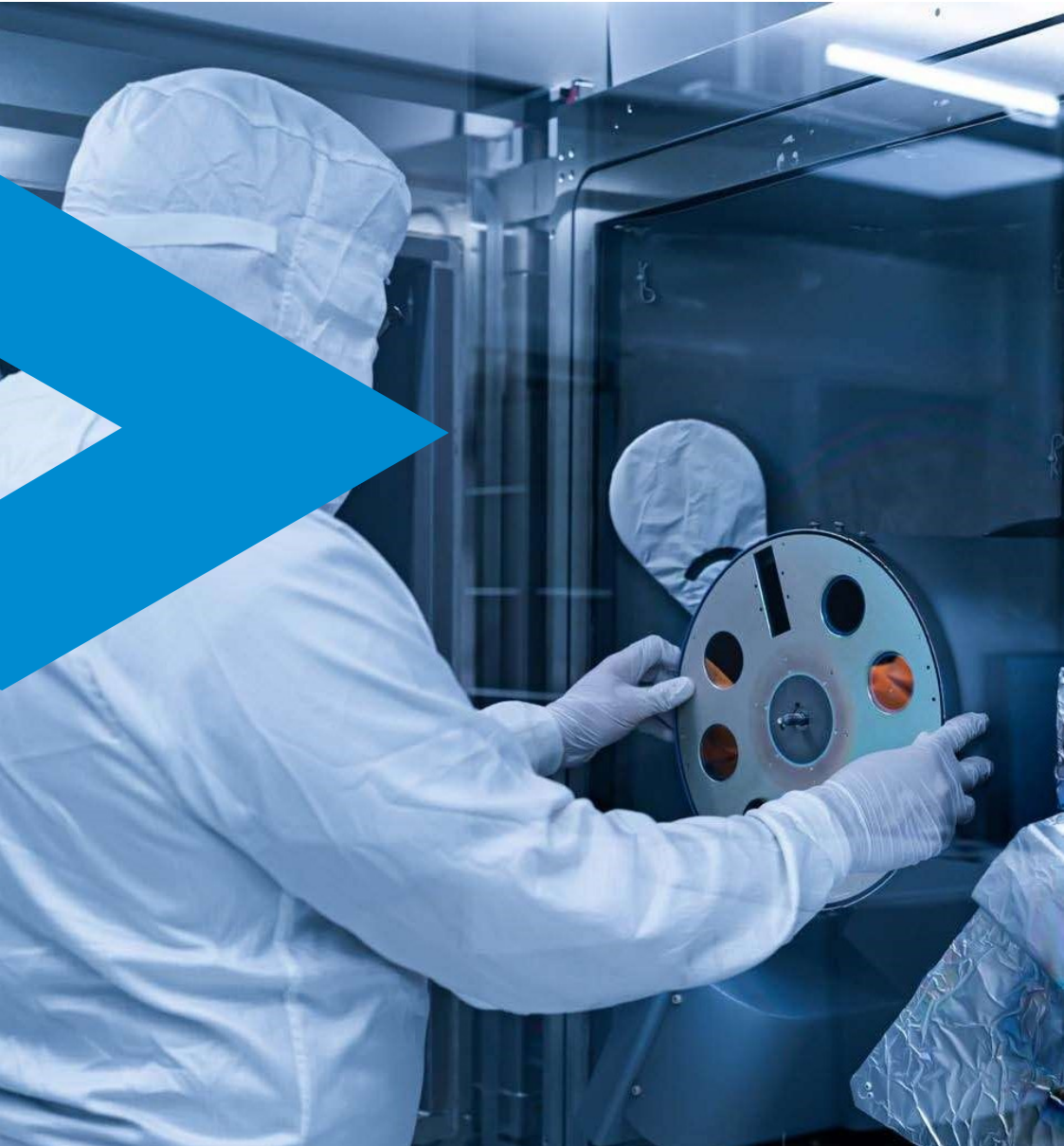
- > Roughness: < 1 Angström RMS
- > Parallelism: < 1arc sec
- > Surface figure: < $\lambda/20$

- > Laser applications
- > Low scatter optics
- > Ring laser gyroscope mirrors



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Biggest Investment Program in the history of WZW

Two IBS Coating machines

- > Bühler Leybold HP1400

- > Veeco Spector 1.5

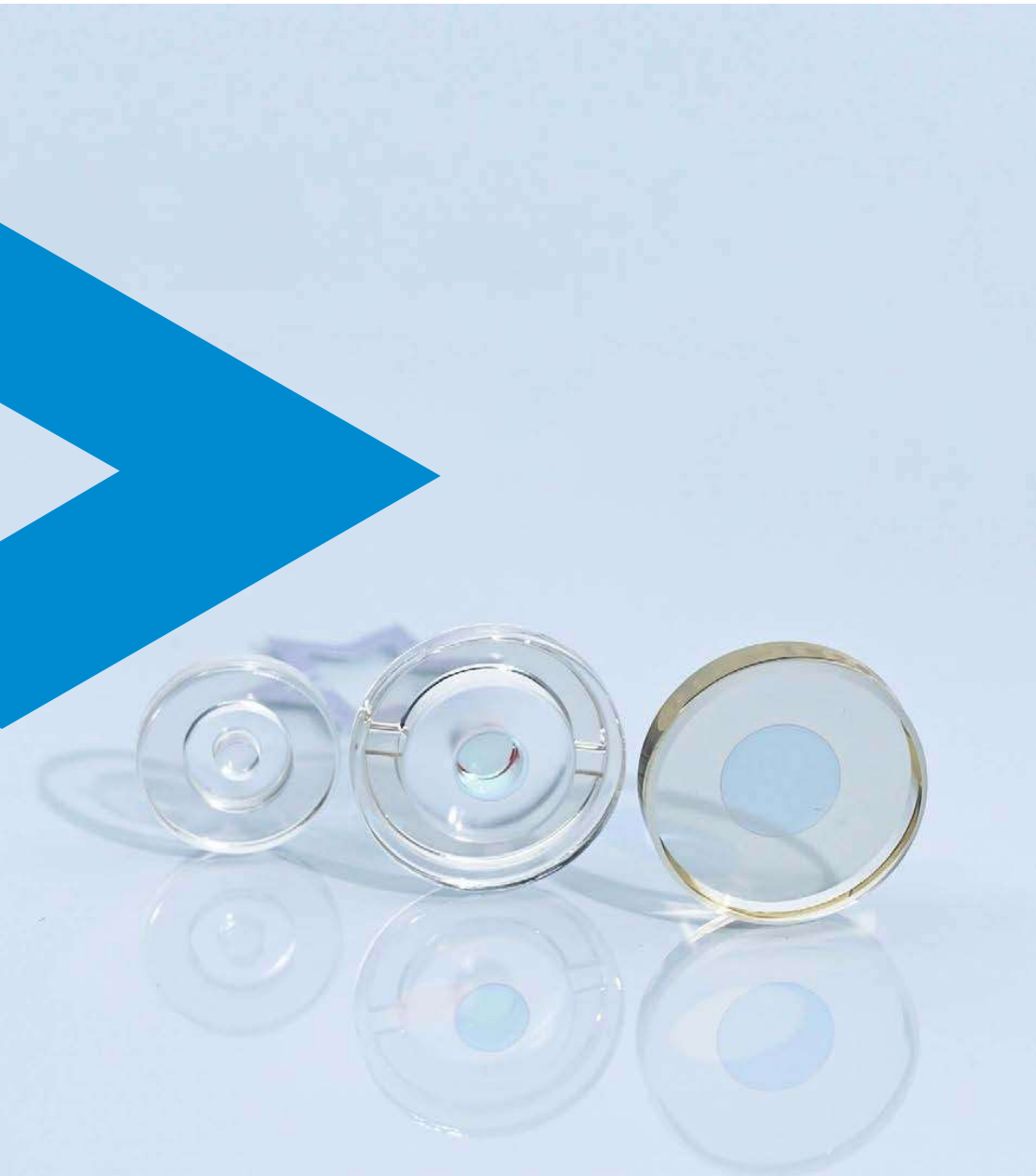
- > Automated Ultrasonic Cleaning line

- > New Clean room 120m² ISO 4-7
including Assembly area

- > HF Etching device

IBS-COATING for Low Loss and Low Defect Optics

- > Very low absorption
- > Very low scattered light in combination with **WZWOPTICAG**'s super polished substrates
- > Reflectivity: $R > 99.999\%$
@633 nm AOI 45°s-pol
- > Total integrated Scatter < 5ppm
@633 nm AOI 45°s-pol
- > Absorption < 3ppm
@785nm HR AOI 0°





Investment Program in Metrology

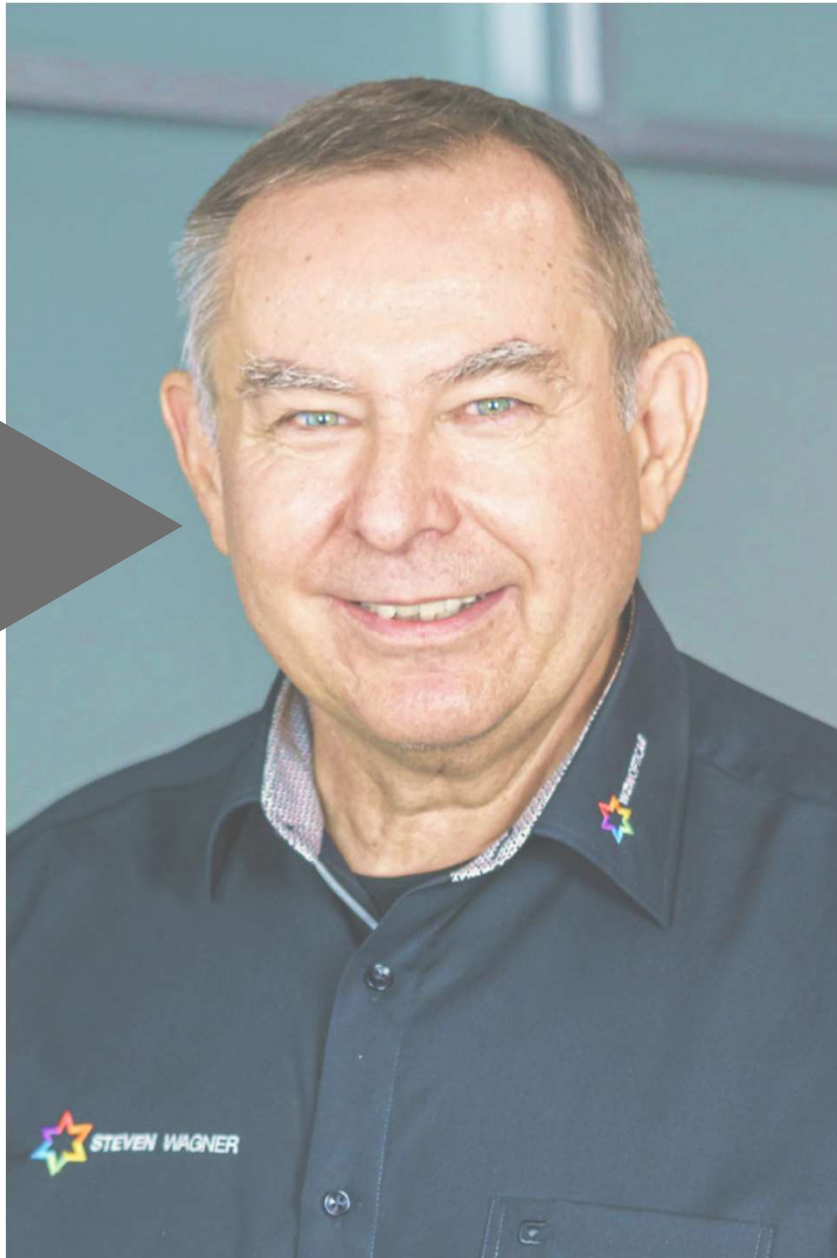
- > Photospectrometer (175-3350nm)
- > Integrated Scattering Device
- > Cavity Ring Down setup @633nm
- > Ellipsometer with mapping unit & NIR extension (240-1700nm)
- > Particle counter (down to 0.1 μm)

Status and Results of Superpolished & IBS Coating

- > $R > 99.999\%$ @633nm AOI45°s-pol
- > $R > 99.998\%$ @633nm AOI 0°
- > TIS < 5ppm @633nm AOI45°s-pol
- > Absorption < 3ppm @785nm for
HR mirror @785 & 405nm (AOI 0°)
- > Finesse > 150'000 of laser resonator @740nm
- > mirrors, spacers produced & assembled,

100% measured at and by WZW !





Thank you for your interest:

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