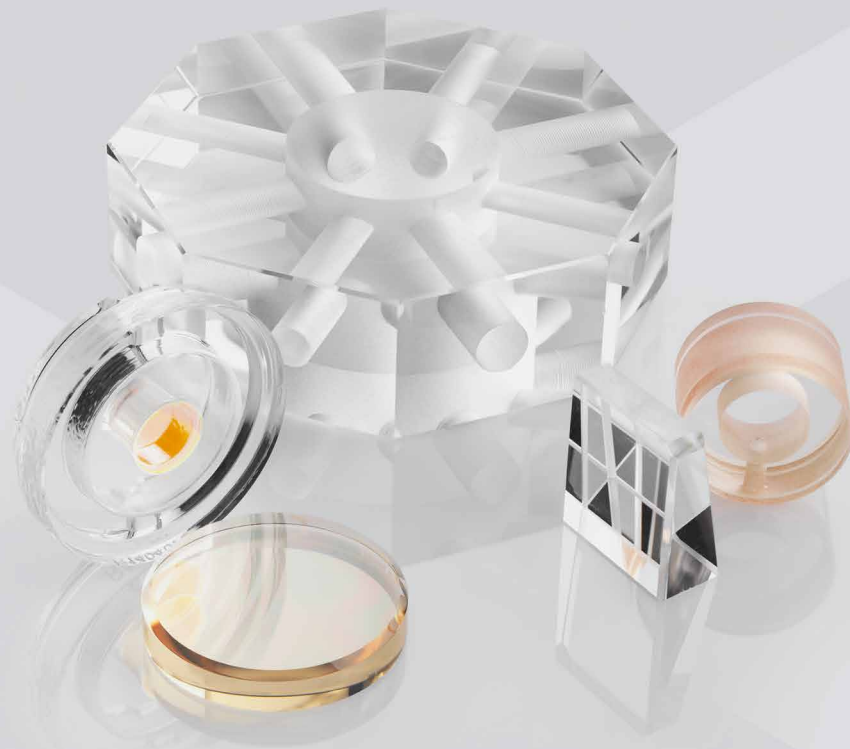




**MAXIMUM
FINISH.**
> SUPER POLISHING.



FINISH IN FOCUS

SUBSTRATES:

- > Super polished
- > Ø 5 – 200 mm
- > Materials: Fused Silica, BK7, Zerodur, ULE
- > Plano surfaces
- > Radius surfaces: ROC > 1000 mm
- > Diaphragm & custom shapes
- > Typical roughness: <math>< 0.6 \text{ \AA rms}</math>

RESONATOR BLOCKS:

- > Super polished or laser-grade finish
- > Dimensions up to 150 mm
- > Materials: Fused Silica, Zerodur, ULE
- > Custom-shaped internal structures
- > High-accurate angles
- > Etched inner surfaces
- > Typical angle tolerance <math>< 2 \text{ arc sec}</math>

APPLICATIONS:

- > Ring-laser gyroscopes
- > High-finesse external cavities ($F > 100'000$)
- > High-reflective laser mirrors
- > Brewster windows
- > Low-loss coated components
- > In development: laser crystals
- > Typical R: > 99.999 %



FINISH SUPER POLISHING

> **WZWOPTICAG** is an industry leader that manufactures flat and spherical surfaces in a super polishing process, with roughnesses in the sub-Ångström range. We are one of Europe's leading commercial producer of super polished surfaces.

Highly-sensitive sectors like aerospace, defense, and laser demand cutting-edge optical components and the lowest scatter losses. With our super polishing method, **WZWOPTICAG** offers its customers surfaces that reach the limits of what is possible. Super polishing is not just a method of maximum surface processing: it is a high-tech process, conceived by our highly-talented employees, that extends from materials selection and polishing, through to final inspection. **WZWOPTICAG** customers receive optical components with a roughness below 1 Ångström RMS with the lowest scatter losses. Plus, **WZWOPTICAG** offers flat and spherical surfaces with various radii.



FINISH AS A PASSION

Super polished surfaces demand the utmost concentration and craftsmanship from our employees. No errors are tolerated by our Quality Control department, and we combine the most modern measurement technology, our years of experience, and an unwavering dedication to excellence in order to consistently deliver products of the highest precision. Along with the aerospace, defense, and laser industries (where optical components with extremely low scatter losses are required), super polishing is becoming increasingly important in the laser-welding and cutting industries, as well as in production metrology. For all of these high-demand initiatives, **WZWOPTICAG** offers world-class project-specific solutions.



WHAT WE PRODUCE, WE CAN ALSO MEASURE

> We continuously adjust and upgrade our measuring instruments in order to meet even the most stringent requirements.

ROUGHNESS:

Zygo NewView 6300

- > White light interferometer
- > FOV 0.7 mm x 0.5 mm
- > Roughness < 0.6 Å rms

SCATTER:

«Streuli» WZW

- > Low scattering device
- > FOV 1 mm x 1 mm
- > Integrated scatter < 5 ppm @ 633 nm
- > Resolution < 1 ppm

TOTAL LOSS:

Leibniz IPHT Cavity Ring Down

- > Mirror losses for 3 angles of incidence (AOI=0°/30°/45°)
- > Mirror reflectivities with values of $\geq 99.999\%$
- > Accuracy of the loss measurement < 1ppm (@R=99.999 %)
- > Substrate geometries from 12.7 mm to 50.8 mm

THIN FILM PROPERTIES:

Semilab SE-2000

- > Spectroscopic Ellipsometer
- > Range 245 nm – 1700 nm
- > Bandwidth 3 nm
- > Automated mapping range 200 mm x 200 mm

CLEANLINESS AND TEXTURE:

Olympus Lex OLS4100

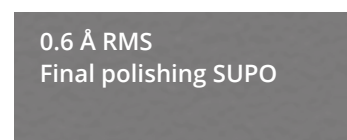
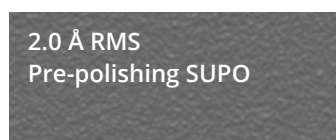
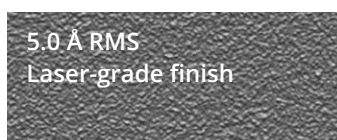
- > Laser-scanning digital microscope
- > Non-contacting 3D observations & measurements
- > 10 nm resolution (vertically)
- > Total magnification 108x – 17280x

FREEFORM SHAPE:

Hexagon Optiv 443

- > Contact-less and tactile measurement procedures
- > Robust 3D multisensory metrology
- > 400 mm x 400 mm x 300 mm XYZ measuring range
- > Accuracy XYZ $\leq 1.9 + 5L/1000 \mu\text{m}$

SUPER POLISHING ROUGHNESS LEVELS



PRECISION IS OUR PROFESSION

Swiss company **WZWOPTICAG** is a global leader in the high-tech manufacture of optical components, precision prisms, and prism groups at the most advanced level. Each piece is unique, handmade, and meticulously inspected. **WZWOPTICAG** is dedicated to the principle of maximum quality and maximum commitment, from the idea and development, through to production. With state-of-the-art technologies, a perfected process control, and a philosophy of continuous process optimization, we have elevated ourselves to the market's top position. And with our new IBS plants, our process chain is complete and we can now perform all tasks in-house. Furthermore, the construction of our new ultrasonic plant, the extension of our metrology department, the acquisition of a new, highly flexible spectrometer, and the purchase of a cavity ring down for measuring the smallest losses in highly-reflecting mirrors are additional steps we have taken to consolidate our standing as market leader.

FACT BOX

Location:	Swiss Rhine Valley, Balgach
Chairman of the board:	Willi Weder
CEO:	Claudio Meli
Employees/Production area:	65/3000 m ²
Markets:	Semiconductor industry, laser industry, defense and space, measurement technology, imaging
Export:	env. 90 %

WZWPRODUCTRANGE

ASSEMBLIES & SYSTEM

COATINGS

SUPER POLISHING



PROJECTS

ENGINEERING

OPTICS FROM UV TO IR



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Swiss Made, Swiss Quality, Swiss Precision

