MEDICAL TECHNOLOGY
OUR SERVICES IN THE MEDICAL TECHNOLOGY SECTOR

We produce components from ultra-hard materials for use in human and veterinary medicine, such as cover glasses for endoscopy or light conductors for technological dental instruments used in diagnosis and treatment. Thanks to our experience, our modern machinery and our quality control we can guarantee precise, quick production.

With us, you get everything from a single source. We will support you during the whole production process, from the development of the prototype to assembly.
OUR WORKFLOW

DEVELOPMENT AND SUPPORT
Our team provides comprehensive support in the development of new products. This includes the selection of suitable materials, definition of the working techniques, prototype development and establishing of serial production. We ensure the prototype’s suitability for series production, we document all the steps necessary for series production, and we define and implement suitable qualification methods.

PRODUCTION
First we cut the crystals into blanks. Therefore we use ID saws, wire saws, circular saws and multiblade saws.

Then we grind the blanks into the desired form. We can realize the most varied geometrical shapes using CNC-processing technologies, complex combinations are also possible. We possess a large number of tools or develop client-specific tools when necessary. Thanks to double-sided processing technology we are in a position to realize large quantities.

After grinding, we polish the parts. We offer a multitude of different polishing processes that make it possible to fulfil client-specific surface-finishing requirements according to DIN/ISO and also MIL standards.

ENGRAVINGS, COATINGS AND ASSEMBLIES
We offer laser engravings, part identification and reference marking. We also offer specific optical coatings such as AR coatings, ITO coatings and also mirror coatings. When joining sapphire parts to a casing or mounting, choosing the right technology is decisive. Besides mechanical mounting, the other usual joining technologies are gluing, soldering, welding and shrinkage.

QUALITY CONTROL
Our core focus is on the quality of the finished pieces which includes the material and the technological precision. From choosing the raw materials through production to assembly, each step of our work is subject to the highest requirements and is documented and traceable according to international standards.
TECHNICAL SPECIFICATIONS FOR MEDICAL TECHNOLOGY

OBJECTIVE AND OCULAR LENSES
- Round, oval and client-specific geometries are realizable
- Dimensions from $\Phi$ 1mm to $\Phi$ 12mm, thickness from 0.2mm to 3mm
- Diameter tolerances within 20 microns
- Thickness tolerances within 50 microns
- Capacity optimized for high-volume production
- Edge design according to the client’s wishes
- Standard windows with or without metal coating available from stock

RECTANGULAR PROTECTIVE WINDOWS
- Scratch-proof windows for 3D camera systems

SAPPHIRE TIPS FOR DENTAL SURGERY
- Robust sapphire tips in various dimensions and geometries
- Capacity optimized for high-volume production

RAW MATERIAL
- Selected single crystals that meet the highest purity requirements
- Raw material with perfect crystal lattice and precise orientation of C-axis

SURFACE QUALITY
- Surface finish with roughness values below 10 angstroms for best image quality
- Surface form optimized for clear aperture up to 97% of external diameter

SURFACE TREATMENTS
- Standard metal coatings for tin solder joints
- Metal coatings for gold alloy soldering, on request
- Metal coatings for brazing processes, on request
- Optical coatings to optimize transmission properties on request

TYPICAL COMPONENTS
- Round sapphire windows
- Elliptical sapphire windows
- Special shapes
- Rectangular sapphire windows
- Tips

All products are made in-house by the Kyburz Sapphire Team, using materials of Mohs 9 hardness.