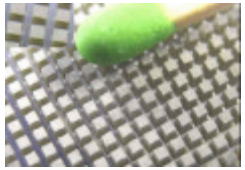
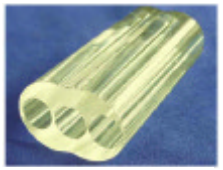
Ultrasonic processing, too as ultrasonic machining known ultrasonic swing-lapping, alternation or ultrasonic-erosion, a reciprocal action poor technique is materials for processing hard-brittle that is combined into the part to be processed with small vigour entry.

For more than 25 years, we have worked as a application lab of the KLN-Ultraschall GmbH, drive ultrasonic processing and cleaning engineering away, process tasks and develop particular machining processes. We moved our company in Ulm on Danube to Thuringia, Germany, to 1994. Since 1997 is our headquarters in Blankenhain, at B85, about 17 km's south of Weimar

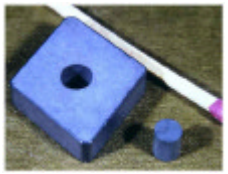

Float-glass


Piezo-composites


Samarium-Glass

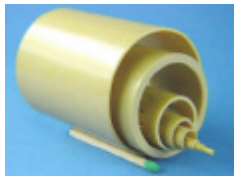

HIP-Silicon-nitride


Sensor-rings


Silicon-nitride


Sapphire Ruby


MgO-Crystal


thin-wall tubes

Our customers are mainly evolution fields of industry and central knicknack companies, universities, and R&D Departments of firms. We are occupied with the production of accuracy components of hard-briddle materials, weighing:

? Coils Ø >0,3mm / length >0,05 mm from Ø >0,8 times 0,15 mm

? tubes wall rings from Ø 0,8 times 0,15 wall times 0,05 mm thick

? spheres from Ø from 0,15 mm - 1,5 mm

The emphasis of our work lies in the production of experimental models, preproduction models and limited-lot productions. The components find your application in the most different fields, extremely high frequency engineering, remote sensing, aktorics, discreet and integrated optics, capstans and wearing protective engineering.

Ultrasonic processing engineering allowed that stress poor processing hard-brittle materials, through what walls between individual boring / structures can be reduced or can be reduced to up to 0,2 mm to the working piece edges.

At very hard materials, corundum, Si_3N_4, B_4C, PKD, Diamonds and similar things, less distances can be implemented.

Aspect circumstances > 1:100 are realizable.

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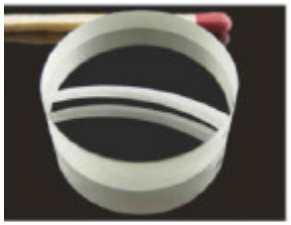
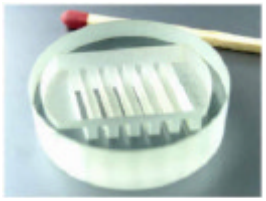
RS ULTRASCHALLTECHNIK

Ultrassonic - drilling, milling and cutting - Samples

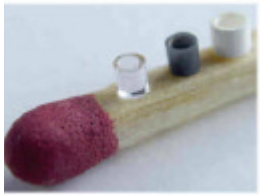
ULTRASONIC-MACHINING — APPLICATIONS



By the ultrasonic processing, boring arc-shaped in special cases of application can be set up as shown at the opposite. The sectional view can be provided with an almost any section.



Forms comparable to the electro-erosive can be incorporated into hard-brittle insulated materials. The operating time essentially is dependent on firmness of the processed material.

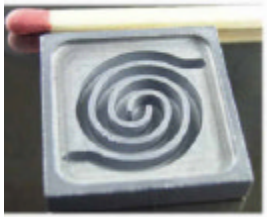


Cups and toecaps with spheric ground of AlN, Al_2O_3, SiC, Si_3N_4, Sapphire, Boronnitride and Silica. Sample: ø 1,5 mm, Lenght 1,4 mm, Wall-thickness > 0,2 mm.

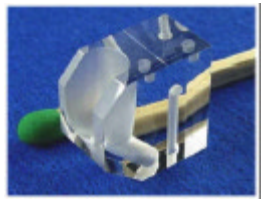
We have produced parts of glass and ceramics, as the example to the right, (ca. 40x40x3 mm) since 1985 as product mades to specifications and in limited-lot productions. The least wall-thickness ought 0,3 mm conducted.

Tube sections with wall-thicknesses from 0,15 mm at diameters from about 0,8 mm. The sections of the inside and outer diameters can be different.

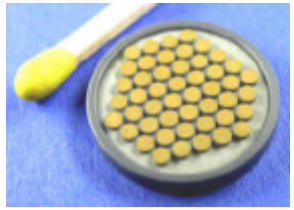
Parts of piece of dielectric material as for example the tube with slots shown at the opposite are workable with section tools.



Complex parts from monocrystalline materials, for example, we process silicon with one, the form of ultrasonic processing engineering similar to CNC processing.

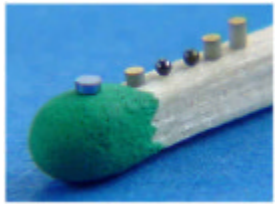


Lifts of silica as the cell shown at the opposite can be set up with almost any shaping.



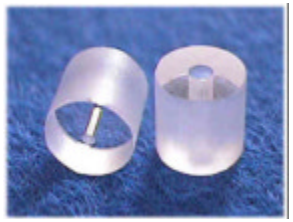
Piezo arrays. The size of the individual fields in the honeycomb shaped order is freely definable from about 0,5 mm. Processing can occur optionally of one or from two sides.

Processing of diamonds, (nature and synthesis) is, is dependent on the direction of something laborious one. Example raw diamond 5 times 5 times 5 mm, diagonal boring with diameter 1 mm

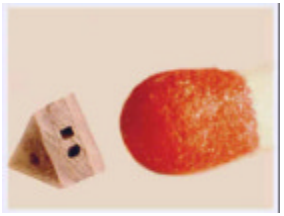


Resonators and non-reciprocal components sets for extremely high frequency engineering from any ferrite or dielectrics at measurements from >0,3 mm with tolerances to about 1 µm. diameters

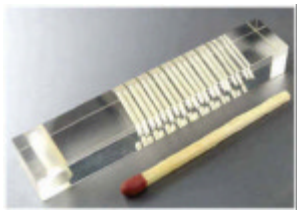
Compositae, diffusion compounds, infiltrated metallically ceramic materials and piece of whisker filled aluminum alloys are workable with very small delamination.



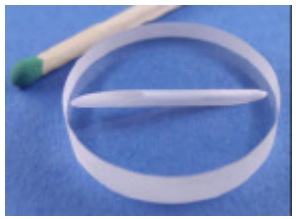
We produce nozzles of ruby, sapphire and other materials according to specification in small series. The nozzle boring can be profiled as desired or pass conically.



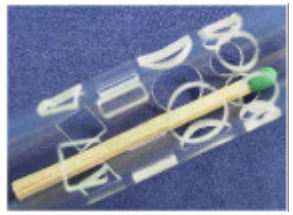
Body of ferrite and magnetic materials after the ideas of our customers. The parts are joined from different materials.



Sample of Zerodur with 20 Holes, Diameter 0,7 mm in a Angle von 10°.

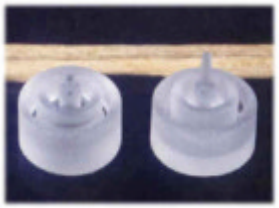


Diagonal boring can up to one angle of approx. become continuous 5° or incorporated as a blind hole at faces.

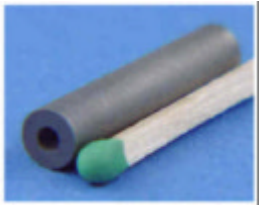


Glass tube diameter 16 mm, with rupture profiled differently, partially tangentially t the inner surface.

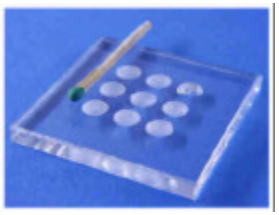
Processing ready, optical building sets, (required optionally with Coating), or for release from beam paths some expenditure while finishing.



Coaxial ferrite cores for transformers an sensors with very small measurement: The example shown at the opposite cor sists of glass because of the better repre sentation possibility.



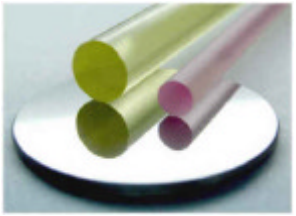
Tubes and lifts of permanent magnet materials, (example NdFeB), one can also process magnetically in special cases.



Test carrier and grid boards of glass, piec of pottery and crystalline materials wit any depressions, in the form of cups coil ashlars or keystones.

Preforms, a or increase channel from sticks or barriers. Internal diameter with an aspect circumstance of approx 1:100. Sample: Inner-diameter 1,5 mm Lenght ca. 150 mm

Cameos of agate crystals and othe Minerals have been set up since the 6(years of the last century by means (ultrasonic processing.



Components for solid state laser technology are processed having in a predominant manner since the first solid state lasers by means of ultrasonic processing.

Machinable are: Glass, Ceramics, mono–, polycrystalline und sintered dielectric materials, Ferrite, Minerals, Permanentmagnets, Gemstones, Compounds, Silicate, Oxide, Carbide, Nitride, - short, all hard-brittle materials, Hardness between SiO_2 and Diamond, dependent on their break-mechanism.