



1 SEM image of a redrawn multilayer system consisting of two different glasses (layer thickness ca. $5\mu\text{m}$, altogether $100\mu\text{m}$).

2 SEM image of a glass part with squared diameter and four holes.

DRAWING OF REHEATED SPECIAL GLASS

Motivation

Micro-components, layered systems, tubes and rods of precisely defined geometries and compositions made of glass are used in many applications. Their production requires glass-technical know-how and elaborate equipment. For research, prototyping, and small series production of such components, there are no commercial suppliers.

We offer

We produce glassy preforms with complex cross-sections, holes or geometry. Also, composite structures made of different glasses can be produced. We develop individual preforms which maintain the external and internal geometry during redrawing especially for small scale production. During the thermal redrawing process, the preform is annealed to the softening temperature and drawn.

Due to relatively low temperatures, the cross-sectional shape geometry is not affected while geometric dimensions can be reduced by up to three orders of magnitude. For this purpose, the Fraunhofer ISC established a pilot plant which can be used for the production of small batches of individual glasses for customers. The obtained parts can even preserve optical quality.

We supply custom-made rods or fibers with a thickness of 3 mm to 50 microns or already cut parts in quantities of up to 10 kg / month. For special applications, we can also develop new glass systems to meet your individual requirements.

Typical Applications

- Glass parts for micro technique (e.g. components, gears, ...)
- Capillars and capillary systems
- Micro optical components

Fraunhofer Institute for Silicate Research ISC

Neunerplatz 2
97082 Würzburg, Germany

Competence Unit Glass and
Mineral Materials

Dr. Martin Kilo
Phone +49 931 4100-234
martin.kilo@isc.fraunhofer.de

www.isc.fraunhofer.de