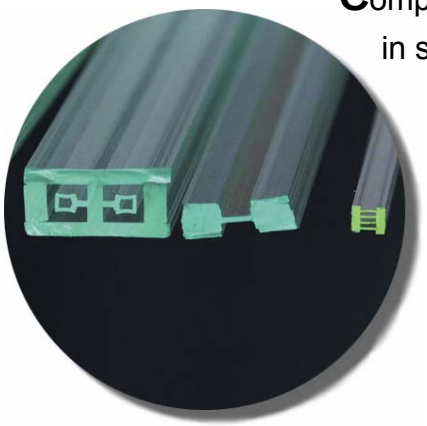
POLYCALPILLARY PLATES AND MICROSTRUCTURED FIBERS



Complex glass products are applied in medicine, biology, electronics, in such a devices as precise dosimeters, molecular filters, gas analyzers, electron fluorescent devices, image intensifiers and gas discharge sensors.

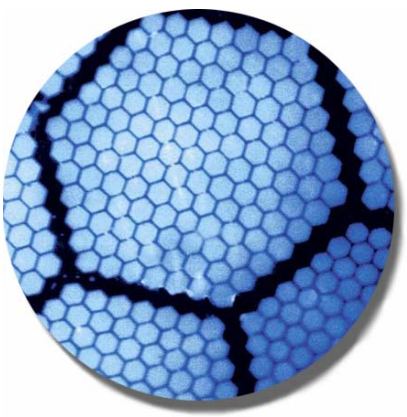
There are 4 main groups of glass products are manufacturing:

- high precision tubes
- high precision rods
- high precision poly-capillaries
- complicated micro- and nanostructures manufacturing

High precision tubes of any cross section geometry (oval, circular, hexagonal, triangular, and others) are produced.

Parameters:

- outer diameter - from 0.1 mm to 50 mm;
- internal diameter - from 0.2 μm to 49 mm;
- length:
  - o up to 2000 mm (for tubes with outer diameter 3.0-50 mm);
  - o unlimited (for tubes with outer diameter 0.1-3.0 mm).
- arbitrary geometry of a cross-section of the tube;
- possibility of tubes manufacturing with variable diameters along the tube length according to the given function;
- accuracy: 0.5-1.0%.



High precision rods of any cross section geometry (oval, circular, hexagonal, triangular, and others) are produced.

Parameters:

- diameter: from 0.1 mm to 50 mm;
- length: up to 2000 mm;
- arbitrary geometry of a cross-section of the rod;
- rod tapering according to the given function;
- accuracy: 0.5-1.0%.

Our technologies are used to create microstructure configurations that otherwise cannot be produced through traditional machining methods.

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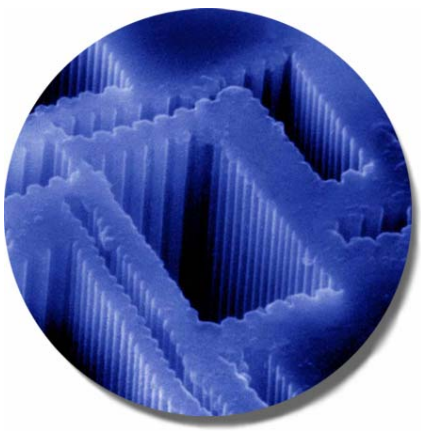
High precision poly-capillaries of any geometry are produced. The poly-capillary can be produced from tubes or rods by a number of the redrawing of the tube or rod bundles.
The holes of the poly-capillary structures can be of any shape (circular, oval, hexagonal, rectangular etc.). The poly-capillary structure can be tapered by any tapering envelope. The holes can be coated by several metals or can be filled by any other low-melting metals, glasses or compound glasses.

Parameters:

- external diameter: from 0.1 mm up to 50 mm;
- diameter of the holes: from 0.2 μm;
- length: from 0.5 mm up to 1500 mm;
- number of the capillaries: up to about 6000000 at the circle with diameter 34 mm;
- open area ratio: up to 80%;
- accuracy: from 0.5 to 1.0%.

Complicated micro- and nanostructures manufacturing is possible during multiple redrawing and sintering of glass stacks. Thus, structures combining separate elements of different shapes and dimensions can be manufactured. This flexibility of manufacturing processes allows producing unique glass products according to customer requirements providing high quality and competitive prices.



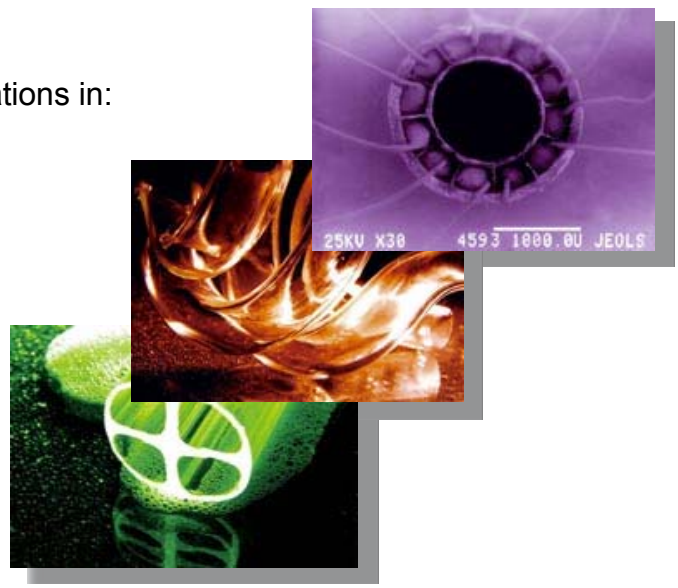
Parameters:

- external diameter of the structure: from 0.1 mm up to 50 mm;
- size of the structure components: from 0.2 μm;
- length: from 0.5 mm up to 1500 mm;
- open area ratio: up to 80%;
- accuracy: from 0.5 to 1.0%.

The microstructure is fabricated from arbitrary shaped components made from different compound glasses and metals. The microstructure can be tapered - the tapering envelope can be set arbitrary.

The microstructures manufactured find their applications in:

- optical signal processing,
- micromechanics,
- optical communication,
- photonics,
- medicine (radiological diagnostics and treatment),
- biology,
- X-ray optics (used to control x-ray and neutron beams),
- electronics and optoelectronics,
- X-ray lithography.



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