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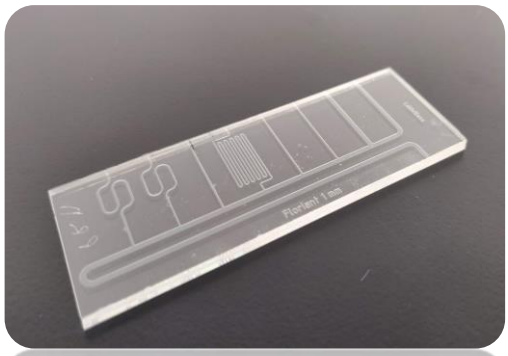
LabInGlass

Microfluidics brochure

Depending on your needs, dimensions, channel depths, design, applications…, we offer experience in designing and developing customized microfluidic chip tailored to your requirements.

Glass is a material of choice for microfluidics. Its advantages include:

- high chemical/ mechanical resistance,
- good optical transparency, low autofluorescence
- High surface grafting properties
- Restorable and reusable



Microscope slide glass chips

1- Substrate material

Depending on the needs (optical transparency, operating temperature, cost …), we can manufacture microfluidic chips in various types. These include: **fused silica, pyrex, D263, borofloat 33.**

2- chips dimensions

Our chips are processed on 4 inches wafer. The number of chips per substrate will depend on the chip size you desire (Ex: 2 units for 25mmX75mm; 8 units for 25mmX17mm).

Specifications	Min (mm)	Max (mm)
Width/ Lenght	5	75
Substrate thickness	0.3	2

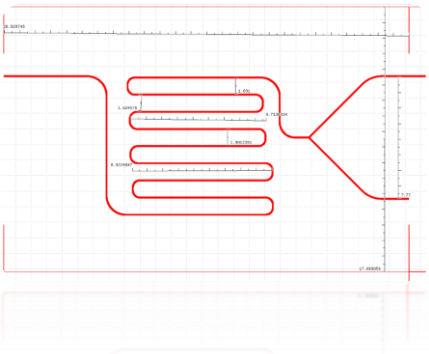
3- Etching specifications

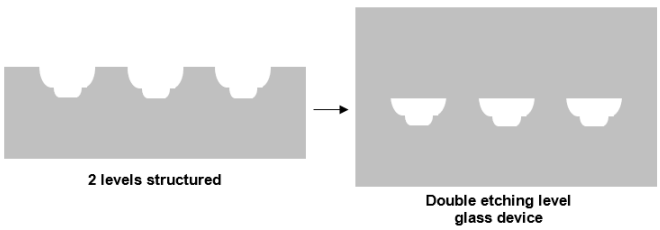
Devices are mainly wet etched (hydrofluoric acid HF). This process leads to a typical isotropic etching. Homogeneity on depth can be <10%,

Specifications	Min (mm)	Max (mm)
Etching thickness	<1µm	150µm

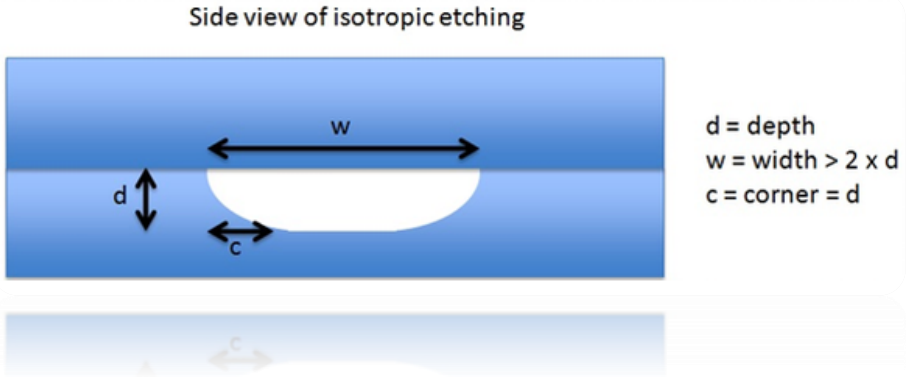
4- Design/ features

A fabrication mask will need to be processed for each customized layer. We encourage customer to send us a .dxf or .cif file. Maximum resolution within the design is fixed at 10µm (smallest feature size). Formulti level, a lithographic mask will be designed separately,





Numerical file must be adapted according to technology request to take into account the principle of wet etching, Final widths in your chips will be numerical design width + 2 times the depth).



3- Available entries

Holes can be performed on cover layer by drilling or sandblasting technologies.

Specifications	Min (mm)	Max (mm)
Drilling (straight)	1	3
Sanblasting (conical)	<0.5	>3

1mm drilled holes

3- Quality control

Several controlling points are performed after etching (mechanical profilometer) and also after glass sealing (optical microscopy). 10% precision is warrantly on etching. Smallest precision can be available on request.

Failure/ crack (opt. Microscope)

Thickness homogeneity (Profilometer)

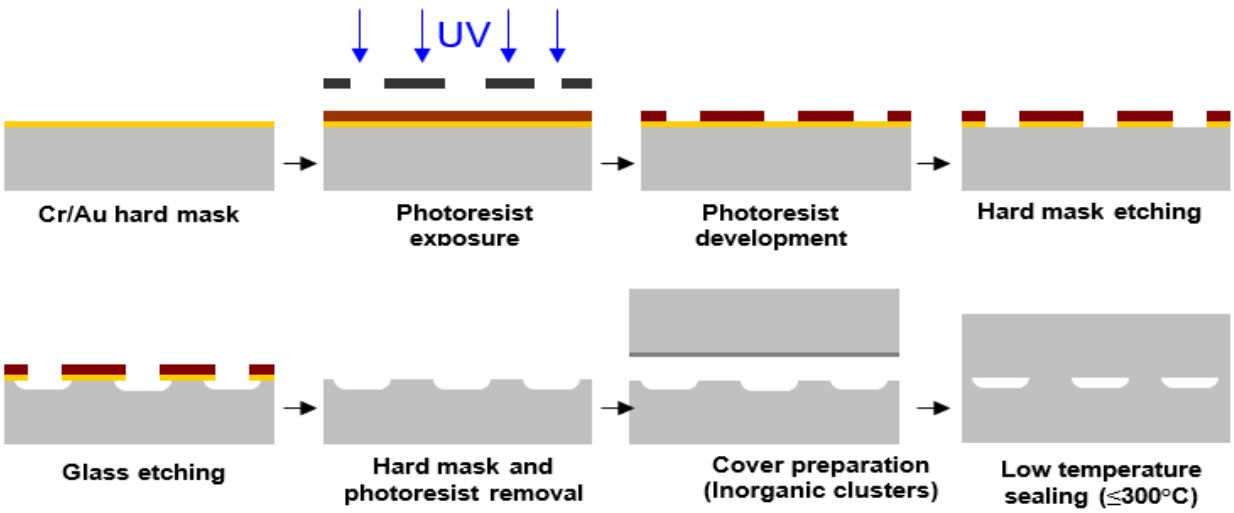
5- Fabrication process flow

Our manufacturing process flow and characterization use conventional top-down technologies equipements and is realized in an ISO6 cleanroom. It is composed of 3 mains steps:

•**Photolithography**: Features transferring from a photomask to the glass substrate containing Cr/Au and an UV photoresist layer.

•**Chemical wet etching**: The opened structures are plunged in a hydrofluoric acid bath. This etching is isotropic, leading to flattened channel sections.

•**Bonding**: Low thermal bonding < 300°C by Klearia's patented process.



Need more informations?

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