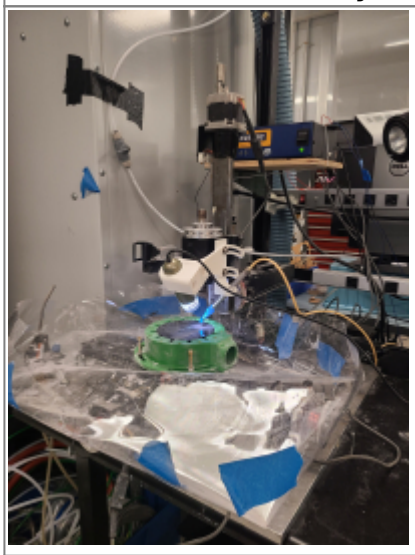
Crystalmark Etching Tool

Crystalmark
 
Tool Type: CNC Airjet Abrasion Cutter
Location: Microfluidics Lab
Description: This is a dental tool meant for cavity prep, which has been repurposed for CNC cutting of glass and silicon. The airjet end of the CrystalMark has been attached to the head of a Sherline CNC mill.
Manufacturer: CrystalMark

About

The CrystalMark Etcher is located in the Microfluidics Lab on the middle table by the Haas CNC in 3430. It is attached to the Sherline CNC Diamond Drill.

It uses air pressure and aluminum oxide abrasive to cut or etch patterns in materials such as glass or silicon. The kerf is about 700 microns wide.

Patterns and pre-programmed holes can be uploaded via .dxf files to a program called **insert program here**, and holes can also be added manually.

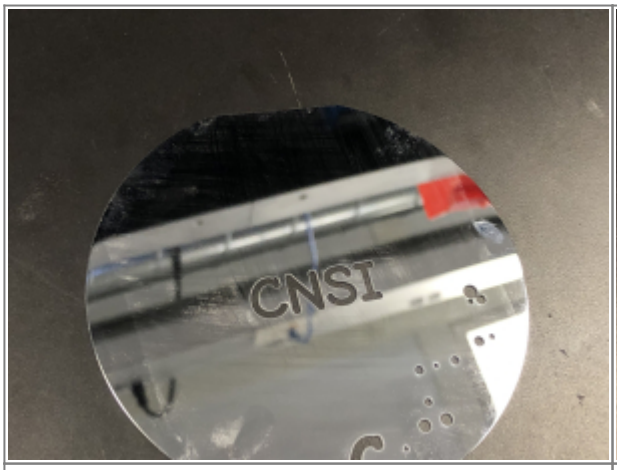
Safety Concerns

Inhaling large amounts of aluminum oxide can be hazardous. It is recommended to wear a mask and eye protection when using the CrystalMark.

Training Documentation

CrystalMark SOP

Example Cuts

	
Contour cut in 0.5mm SI wafer	**Whole pieces cut from wafer**

Detailed Specifications

- Stepper motor mounts and couplers on X-, Y- and Z-axes
- 70-2800 RPM continuously variable by electronic speed control
- Maximum CNC travel positioning speed: 22 in/min
- Max clearance (table to spindle): 8.00″ (203 mm)
- Travel axes x,y,z: 8.65″ (220 mm), 5.00″ (127 mm), 6.25″ (159 mm)
- CNC Stepper motor holding torque: 136 oz-in

Reference Documentation

Work in progress