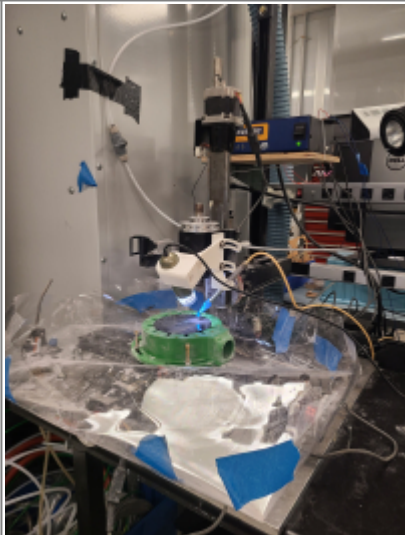



Crystalmark Etching Tool

Crystalmark	
 A photograph showing the Crystalmark etching tool setup. The tool is mounted on a table, and a green circular component is visible on the work surface.	 A photograph of the Crystalmark control panel. It features a green power button, a 'POWDER FLOW' knob, an 'AIR PRESSURE' knob, and a pressure gauge. The brand name 'CRYSTALMARK' is visible at the bottom.
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 which converts dxf patterns to g code, and holes can also be added manually. (See SOP for detailed instructions)

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
- 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

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