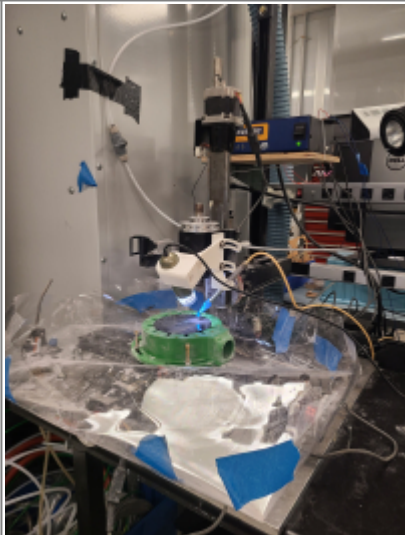



# Crystalmark Etching Tool

Crystalmark	
 A photograph showing the CrystalMark etching tool setup. The tool is mounted on a table, and a green cylindrical component is visible in the center. The setup is surrounded by various cables and components.	 A close-up 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.
<b>Tool Type:</b> CNC Airjet Abrasion Cutter	
<b>Location:</b> Microfluidics Lab	
<b>Description:</b> 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.	
<b>Manufacturer:</b> 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

From:

<https://microfluidics.cnsi.ucsb.edu/wiki/> - Innovation Workshop Wiki

Permanent link:

<https://microfluidics.cnsi.ucsb.edu/wiki/doku.php?id=crystalmark&rev=1694128149>

Last update: **2023/09/07 23:09**

