

Fischione 1050 TEM Mill

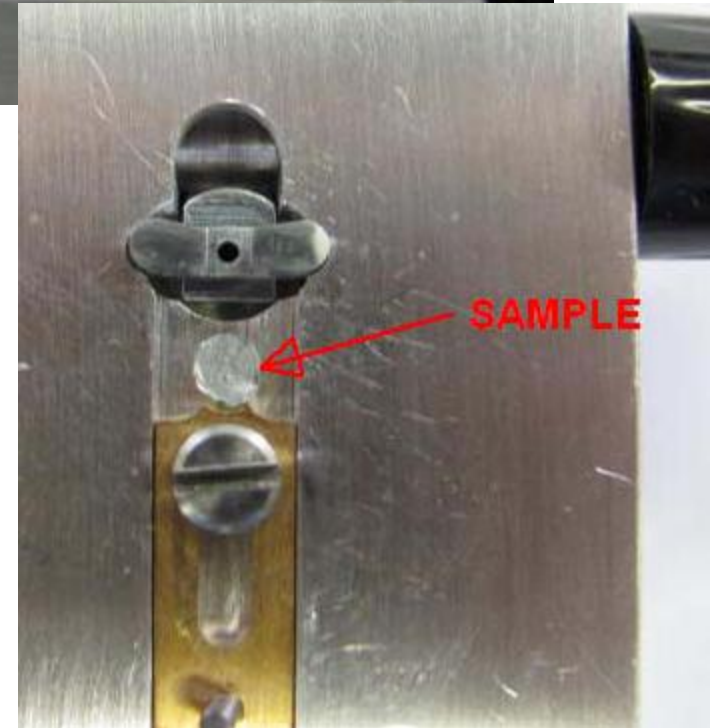
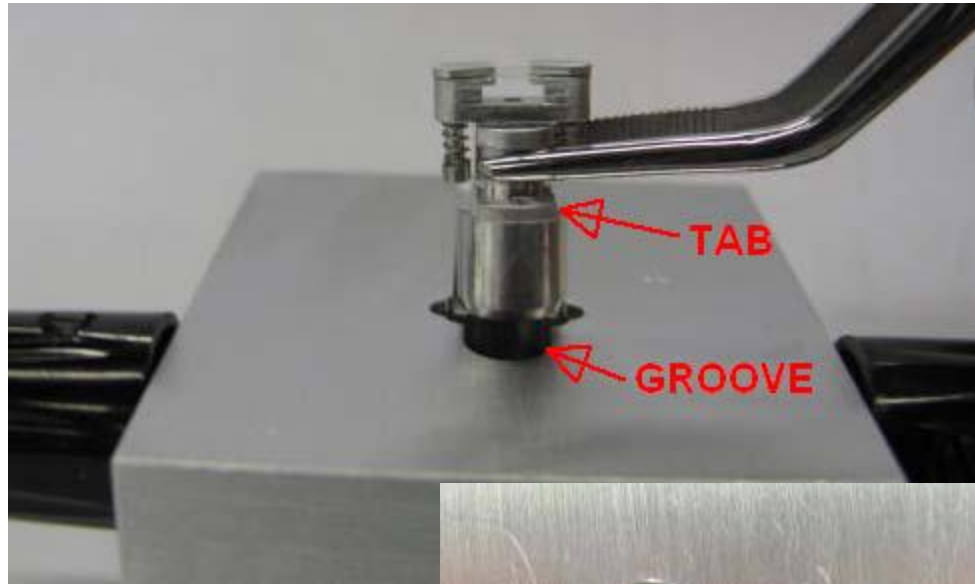
NTUF Operating Procedure v.0808

Basic System Operation

1. Mount Sample on Holder
2. Load Holder into Airlock
3. Move Stage to Milling Position
4. Adjust Milling Angle
5. Set Milling Parameters
6. Run and Monitor Progress
7. Finish

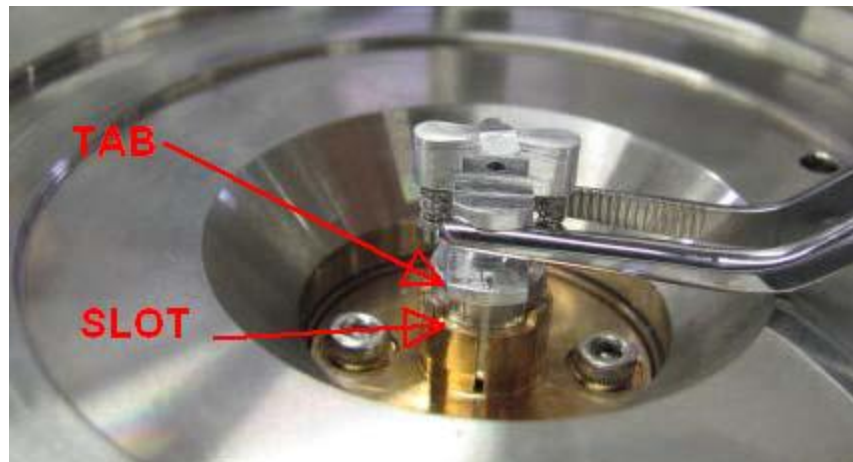
Mount Sample on Holder

- Use tweezers or gloved hands only to handle holder and sample.
- Move DuoPost holder into the loading station.
- Open the jaws of the holder by turning knobs.
- Move sample into the jaws with slider.
- Close the jaws and withdraw the slider.
- Carry the loading station with mounted sample over to the ion mill



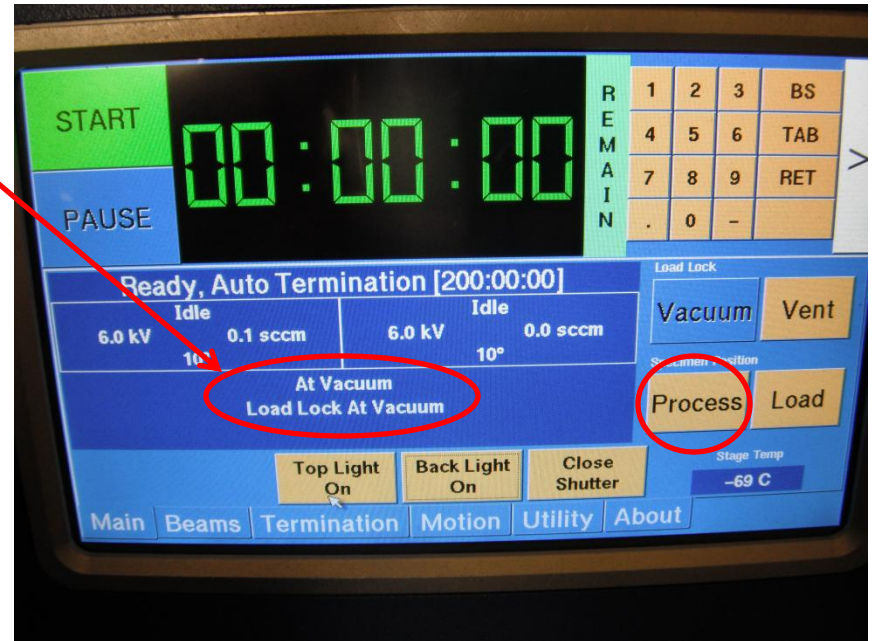
Load Holder into Airlock

- On “Main” tab click “Vent.”
Never vent from “Utility” tab.
- Lift airlock cup and rotate aside.
- Insert holder to stage with tab facing forward into the slot.
- Rotate airlock cup and lower back into position.
- On “Main” tab click “Vacuum.”



Stage to Milling Position

- Check that load lock is at vacuum.
- On “Main” tab pick “Process” position.

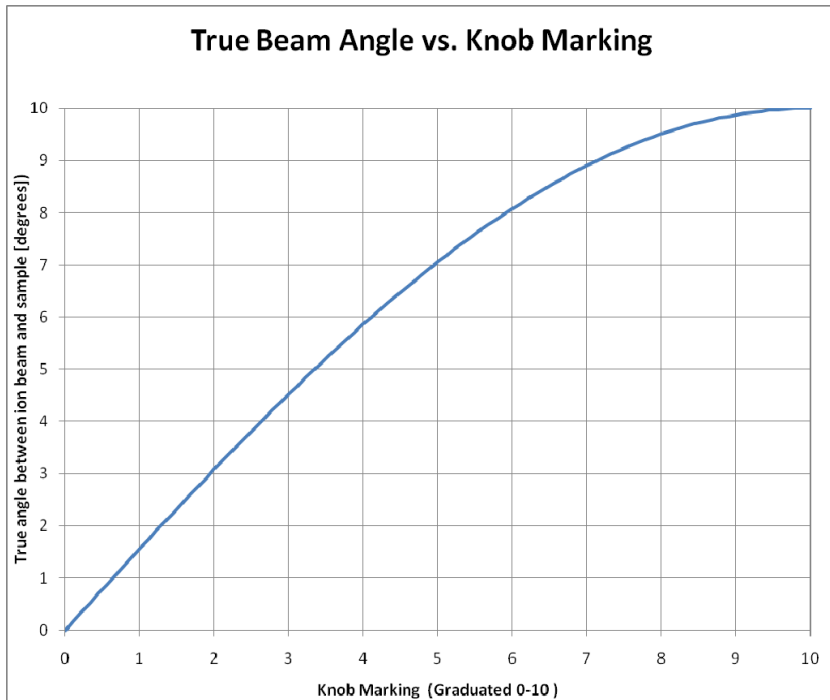


Adjust Milling Angle

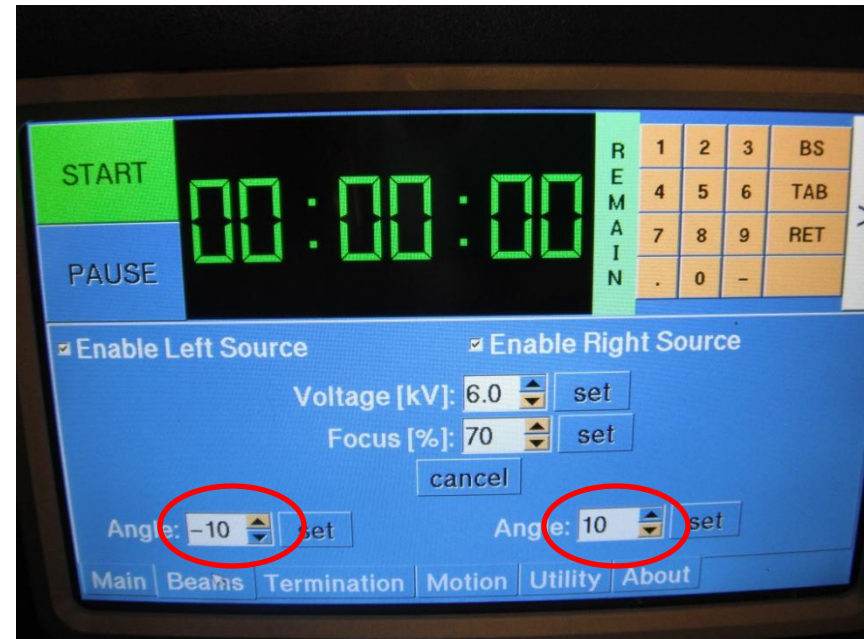
- Rotate left and right sources to the desired milling angles.
- Top up to +10 or Bottom to -10.
- Knob markings do not indicate degrees (true beam angle on next page.)

Set Milling Parameters

- Enable Sources (Left and/or Right.)
- Enter beam Voltage 100eV to 6kV, push “RET” then “set.”
- Enter Focus %, “RET,” & “set.”



“Beams” Tab



- Enter ion source angles for enabled sources. This field will not move the ion source; the knobs must be set manually.

Set Milling Parameters

“Termination” Tab

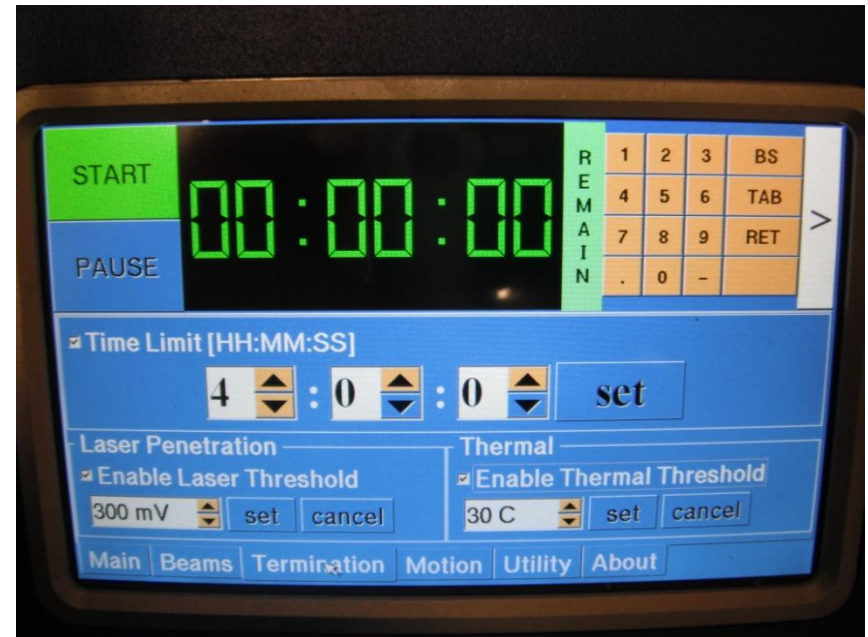
There are 3 methods of termination:

1. Time Limit (HH:MM:SS)
2. Laser Penetration

The laser must be in place over the viewing window. The system will check for sample perforation every 5 minutes automatically.

3. Thermal Threshold

To keep the stage from heating up the system is equipped with a cryo N2 dewar. Fill the dewar to use the thermal threshold.



Laser Termination



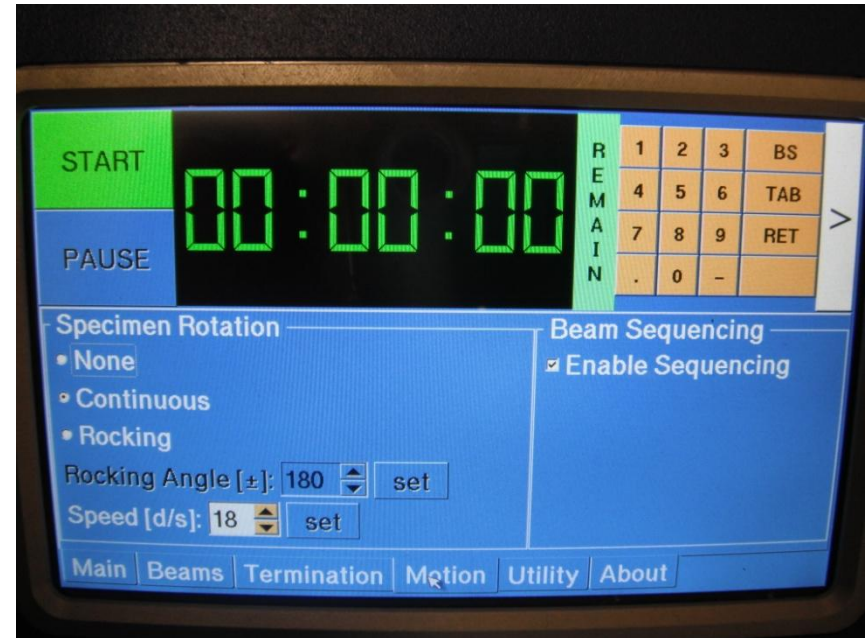
Cryo N2 Dewar

Set Milling Parameters

Rotation Options are:

- None – enable only one ion source and set the stage angle manually in the “Utility” tab to avoid sputtering the holder (Right 290° or Left 70°.)
- Continuous – “Angle” field in the “Beams” tab must agree with true beam angle. Beam will automatically sequence to avoid sputtering the holder.
- Rocking – stage rotates back-and-forth through a set angle. Use +/- 55° or less with a single source or +/- 10° with both sources enabled.

“Motion” Tab



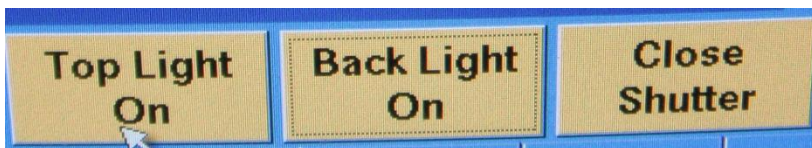
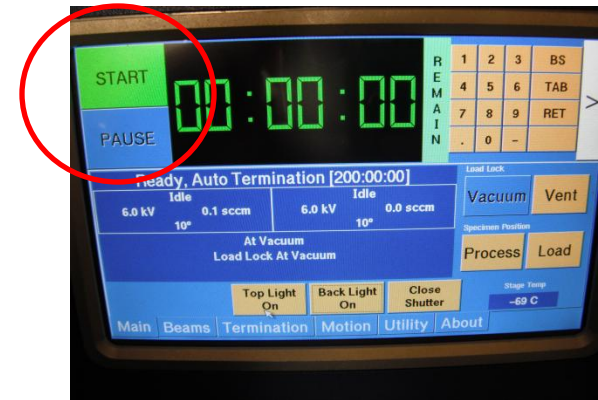
“Rocking” Stage

Run & Monitor Progress

- Push “Start” button.
- Monitor milling progress with the stereo microscope.
- On the “Main” tab push “Open Shutter” and “Top Light” to see the sample.

Minimize time with the shutter open to prevent sputtering material onto the view port.

- On the “Main” tab push “Back Light On” to look for a perforation.
- Click “STOP” as soon as you see a hole or use the Laser Termination to automatically detect a hole at center.



Finish

To remove the sample:

- On “Main” tab push “Load” to move the stage to load/unload position.
- Vent load lock with “Vent” button.
- Move cup aside and remove holder with tweezers as pictured at right.
- Transfer holder to loading station.
- Replace cup and push “Vacuum.”

Always leave the power on with load lock under vacuum.

