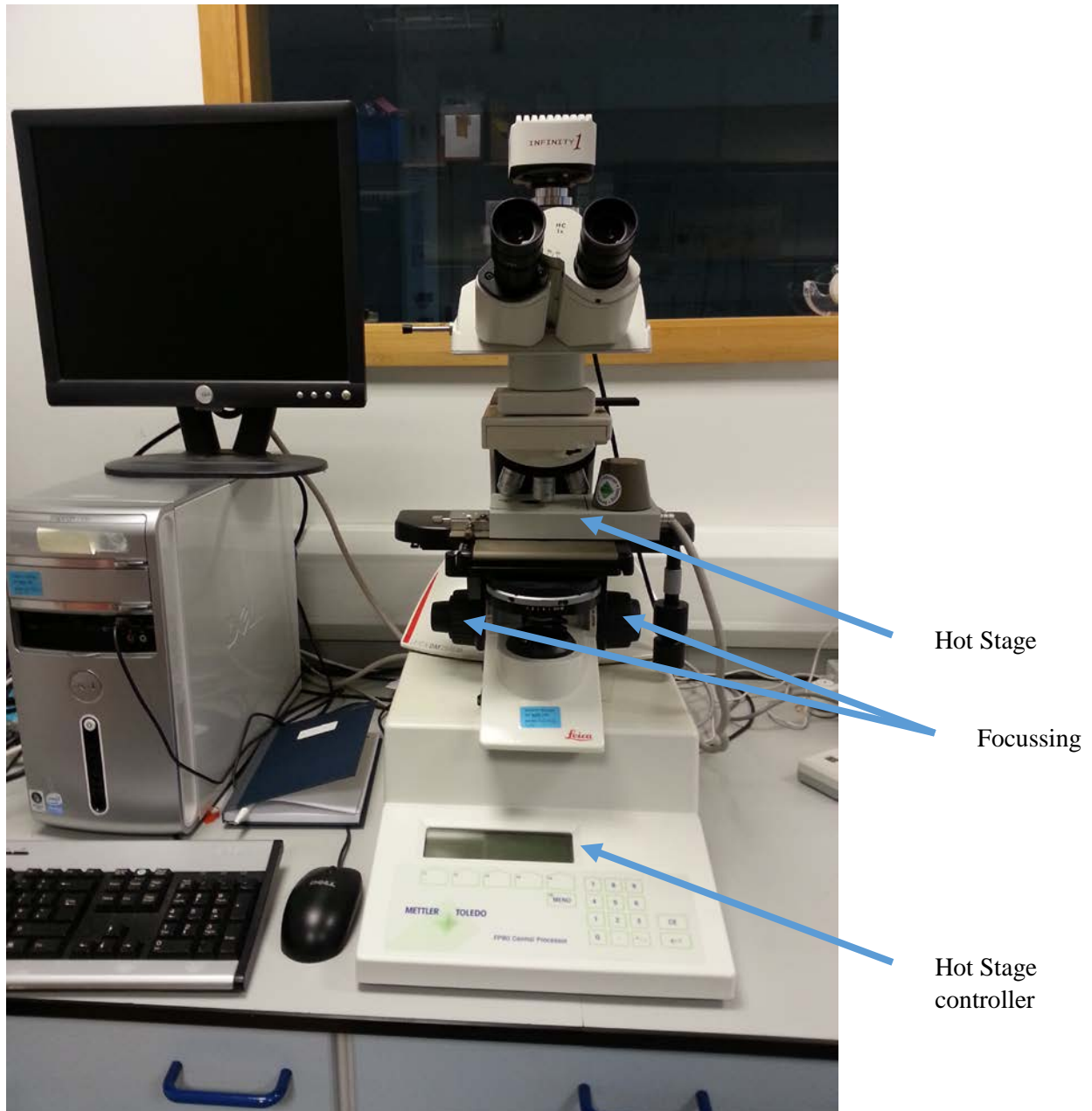


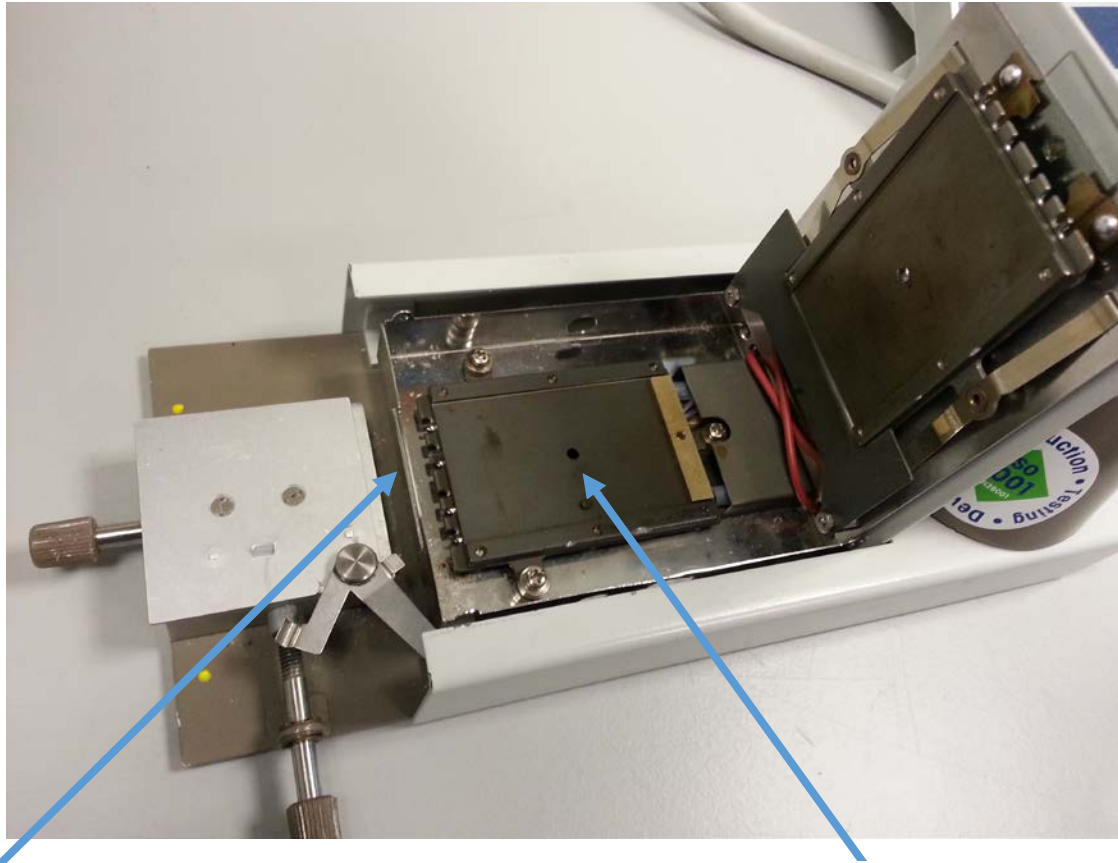
Hot Stage Microscope (HSM)

Mettler Toledo FP90



The basic steps for making a measurement are:

- Ensure computer, hot stage and microscope light are all turned on.
- Take the hot stage off the microscope (be careful of the fan, get a demonstrator to help if necessary)
- Open the lid of the hot stage and slide the glass slide into the stage



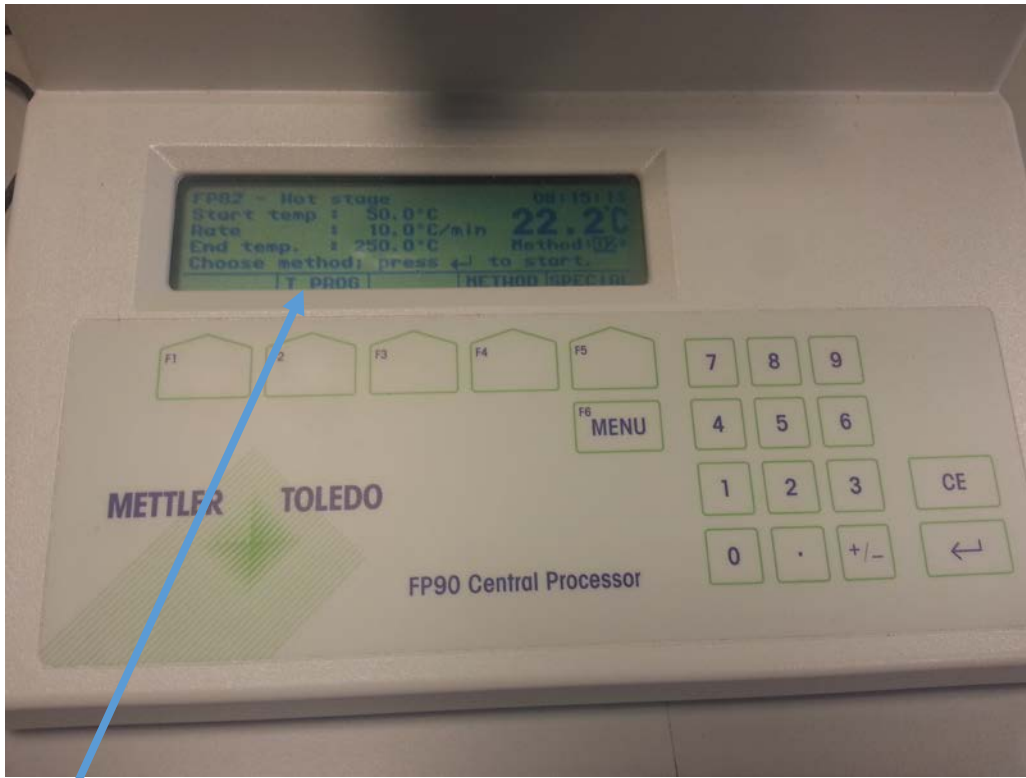
Slide fits through small slot here

Viewing area. Draw a circle on your slide larger than the hole to ensure your sample is in the correct place to be visible under the microscope

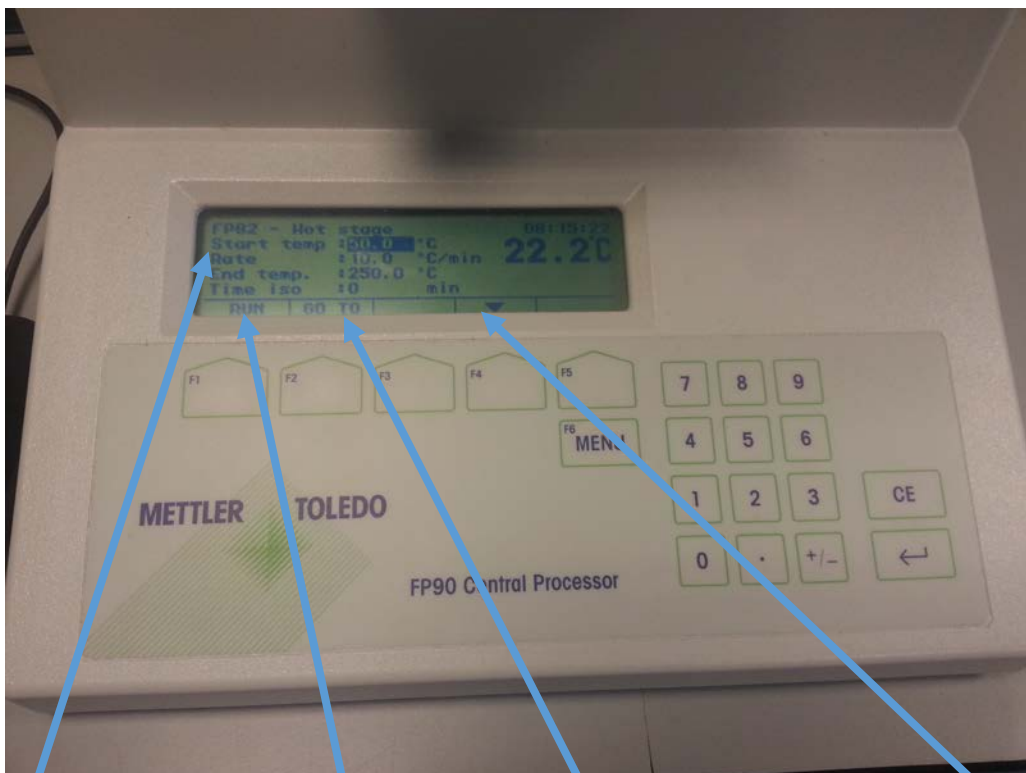
- Mark using a permanent pen where the viewing area is (draw a circle around the perimeter, allowing the full viewing area to be within the circle and the marker pen not obstructing it)
- Remove the slide, turn it over (so no pen contaminates sample) and place the sample (ensure it is DRY) onto the slide within the marked out area (so that it is within the small viewing area). Note – you do not want too much sample. One or two SMALL, nicely formed crystals is ample; less is more.
- Cover with a cover slip and slide back into stage. Close the lid
- Replace hot stage onto microscope. Take care of the wire going into the hot stage (get a demonstrator to help place the stage onto the microscope)

To set the experiment:

- Log the sample into the HSM log book (should be done every time you use this equipment) giving the date, time, sample name and operator
- Open the Studio Capture program and the sample should appear on the display
- Use the focussing on the microscope, combined with moving the stage around a little to get a good image of the sample
- Set the avi file (file tab → save avi) to save with an appropriate file name (this will appear on the video created), eg INITIALS_SAMPLENAME_METHOD in the Advanced Practical folder
- Use the controller under the microscope to set the temperature program (T Prog). An ideal heat rate is 10°C/min with a start temperature slightly above ambient temperature (50°C). The heating does not need to go above 250°C.



T Prog (F2 button below relates to selecting this)



Start temperature, stop temperature and heating rate. Enter values using keypad to the right

Run

Go To. To start the heating up to the start temperature immediately if not already at or near the start temperature

Scroll down options

- Scroll through the program and ensure YES is selected for 'stop after event' and IDLE for 'afterwards'
- RUN will run the sample (press three times in total to start the heating process)
- Ensure the temperature displayed in the top right of the video starts to increase with heating and correlates to that displayed on the hot stage controller

NOTE – the hot stage will get hot during the experiment – do not touch!

- The play button will automatically start recording and saving the video. This can be paused (Pause button) at any time to omit any circumstances where nothing is happening and the play button selected again when something of interest/temperature of interest is reached - this will save recording a lot of unnecessary video and having a very large file at the end. You **MUST** do this or your final video will be too large to upload to LabTrove.
- At any point the temperature can be held if you wish to look more closely at a specific temperature
- Using the 'go to', any temperature can be selected and achieved almost immediately if you wish to get to a certain temperature

When the program has finished it will stop recording and the hot stage will start to cool down. Do not touch or remove the hot stage from the microscope until it has cooled to **AT LEAST 40°C**

- Remove and clean the slides and dispose of in glass bin
- Turn off microscope light if no-one is immediately using it after you.
- Files will be saved in Crystallography Advanced Practical folder (video file and excel book, the latter is not important) for which there is a shortcut on desktop.