

# LAPPING SAMPLES ON LP50

## LAPPING SAMPLES ON THE LOGITECH LP50: USER GUIDE

Author	E. Fisher
Editor(s):	S. Boehm, S. Frank
Management Approval (Name, Title, Date):	B. Mills (Lab Officer)
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This user guide will help thin section technicians bring their sample to 40 microns thick. This will prepare the sample for the final stage of polishing on the Logitech WG2. For more information refer to the [Logitech Thin Rock Section Production](#) manual, available in the Thin Section Lab both on a Logitech thumb drive in the bookcase and computer under the "Manual" folder on the desktop. Or, refer to [Operation and Maintenance of the LP50 Lapping and Polishing Machine](#) manual, located in the black binder in the Thin Section Lab cabinet labeled "LP50, PM5 and Associated Equipment".

### SETTING THE JIG

1. Use the jig labeled "Lap".
2. Clean jig and Logitech scale by wiping them with a kimwipe and isopropyl alcohol.
  - a. Refer to the Logitech LP50 Set Up user guide for more information on scale use.
3. Gently set the scale on the jig (Fig. 1) and wiggle the scale.
4. The jig should be set to 1201.
  - a. Use the middle gauge on the scale.
    - i. The small dial (Fig. 1) on the bottom left side should read 12.
    - ii. The large face (Fig. 1) should read 01.
      1. If it is not set to 1201, change it by inserting the Tommy bar into the holes on the main post in the middle of the jig (Fig. 1).
        - a. Rotating the Tommy bar clockwise will lower the chuck face causing the numbers on the scale to increase.
        - b. Rotating the Tommy bar counterclockwise will raise the chuck face, causing the numbers on the scale to decrease.

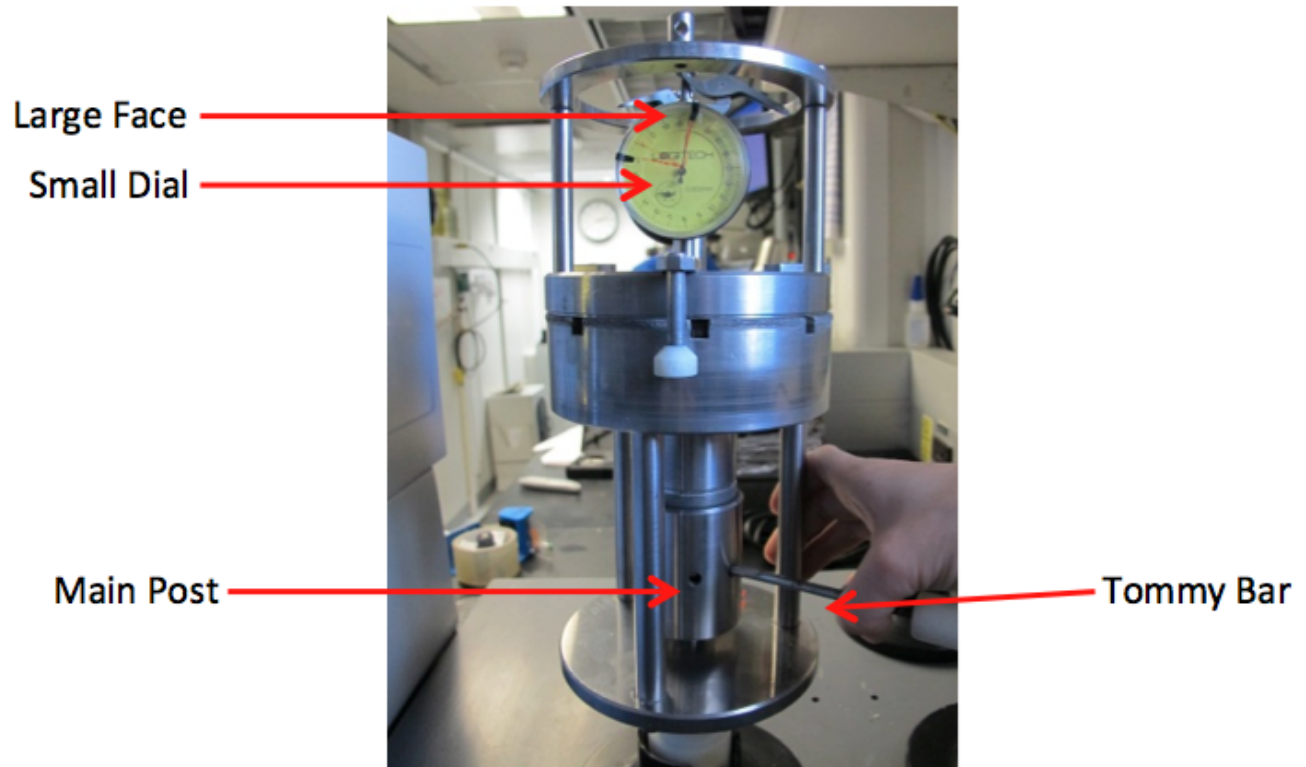


Figure 1

5. Remove the scale after the jig has been set.

## LAPPING SAMPLES

1. Clean samples and the chuck face with kimwipe and isopropyl alcohol.
2. Set six clean samples (unfrosted side down) on the chuck face over the vacuum grooves. There should be no spaces between any of the slides.
  - a. If there are 1 or 2 samples, place them in the middle of the chuck face and frosted slides on the outer sides.
    - i. The same frosted slides can be used as "filler slides" throughout the expedition.
  - b. If there are 3 or 4 samples, place them on the outer sides of the chuck face and the filler slides in the middle (Fig. 2).

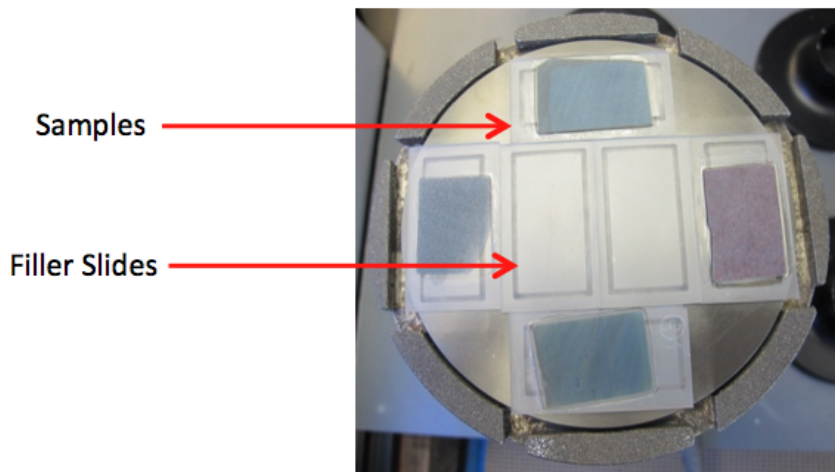
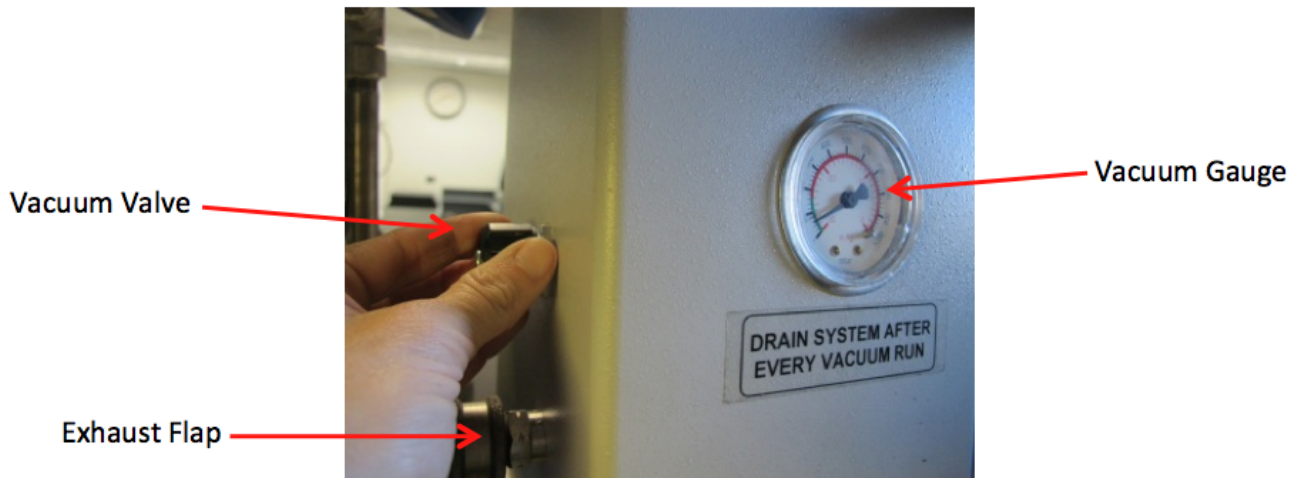


Figure 2

3. Connect vacuum hose, if not already connected.
4. Check oil level in the vacuum pump under the counter.

5. Turn on vacuum pump with the button labeled **Vacuum** under the joystick on the LP50.
6. Close valve on the LP50 to the left of the vacuum gauge (Fig. 3).
7. The vacuum gauge should read less than 150 mbar (Fig. 3). It should be in the green portion of the gauge.



*Figure 3*

- a. If there is not a proper vacuum seal right away, try pressing lightly on the slides to help them seal and make sure the exhaust flap (Fig. 3) is clean.
  - b. If that does not work, take off the slides and clean them and chuck face again.
8. Gently set the jig upright on the lapping plate in the forward arm.
  9. The plate monitor can stay in place on the back arm.
  10. Turn on the abrasive drum by overriding and make sure it is dripping properly.
  11. Reset timer and set it to 10 to 20 minutes depending how hard the samples are.
    - a. Samples that cut quickly on the PetroThin, lap for about 10 to 12 minutes for the first time.
    - b. Samples that cut slowly on the PetroThin, lap for about 15 to 20 minutes for the first time.
  12. Set the plate speed to 5 rpms.
  13. When the plate is wet, press **Start**.
  14. Increase the plate speed in small increments to 58 rpms.
  15. The jig should start to spin after a couple minutes when all the samples begin to even out to the same thickness.
    - a. Bungee cords can be added to the vacuum hose to assist the jig spin.
    - b. Do not walk out of the lab when the LP 50 is running.
    - c. If the samples are left on too long, the abrasive will "pluck" minerals out of the sample, leaving a hole.
  16. When time is up, press **Stop**.
    - a. It is best to bring the speed back down to 5 rpms after the lapping plate is stopped to help prevent starting it back up at a high speed.
  17. Take the jig off the plate carefully.
  18. Open vacuum valve and turn it off.
  19. Place jig chuck face up in the sink.
  20. Scrub the jig and slides gently with a soft brush to break the vacuum seal.
  21. Clean the jig by scrubbing it down with warm water and a soft brush. Then, blow air through the jig and on the chuck face with the air gun.
  22. Rinse the samples with warm water, and then wipe them with a kimwipe and isopropyl alcohol. Blow them dry with the air gun.

## MEASURING SAMPLES

1. Hold the micrometer with your pinkie and ring finger through the "C" part of the micrometer. Your index finger and thumb will move the dial.
2. Clean the micrometer before use by placing a piece of paper in between the two bars and closing it gently (do not apply force). Pull the paper out and repeat.
  - a. Gently close the micrometer all the way. It should read zero.
3. To measure the sample, place it in between the two bars and close them gently onto the slide where the sample sits.
  - a. Take a measurement at the middle and sides to make sure that the sample is even all the way across.
4. On the micrometer, each tick mark is 10  $\mu\text{m}$ . The difference between the thickness you measure and the thickness of the slide is the thickness of the sample. For an example, if you measure 19 on the micrometer and the slide is 15, that mean the sample is 40  $\mu\text{m}$ .
  - a. Soft samples should be about 45 to 50  $\mu\text{m}$ .
    - i. If the sample is too thin, they will either not get a good polish before they reach their target thickness of 30  $\mu\text{m}$ , or, they will become too thin.
  - b. Medium or hard samples should be about 40  $\mu\text{m}$ . This is the majority of samples.
  - c. Very hard samples should be about 35  $\mu\text{m}$ .
    - i. If the sample is too thick, it will take a very long time to polish down to the target thickness.
5. Write the thickness next to each sample on the sample tray.
6. If the samples are too thick, put them back on the lapping wheel for a couple more minutes.

## Credit

Original version created by Emily Fisher

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## Archive

- [LAPPING SAMPLES ON THE LOGITECH LP50 374.docx](#)