

Using the Instron Test System

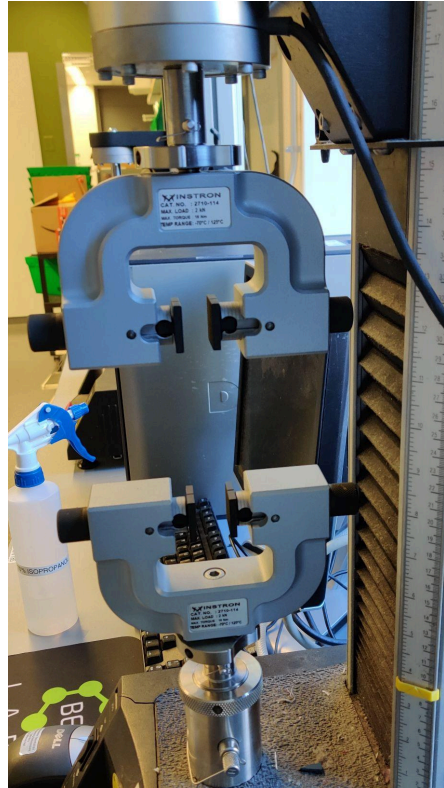
SAFETY ISSUES

- **Always wear safety glasses.** When a specimen fails, it is possible for skin and germs to fly.
- **Handle the scalpel with care.** A dull scalpel can be more dangerous than a sharp one. Replacement scalpel blades are available.
- **Take special care when operating the specimen clamps in the Instron.** They exert enough pressure to cause injury to your fingers when clamping.
- **Keep your hands clear of the Instron when the crosshead is in motion.** This machine can exert a force of at least 49,000 N or 11,000 lb, and can break human bones. Use caution.

PROCEDURE

1. Log on to the Instron computers using 'beuser' for the username and password.
2. Turn on the Instron by flipping the switch at the back of the machine.
3. Open the Bluehill software by double clicking on the desktop icon. If you are using the Instron 4444, you will be asked to toggle on the 'IEEE 488' button on the Instron's control panel. The light above the button will be on.
4. The Login dialogue box will open. Enter 'beuser' as the username and password.
5. Click on the Test tab. Check the model of the Instron being used (it is either 5544 or 4444). In the Most Recently Used box, select '3pt bending Instron xx44', 'Tension Instron xx44' ('xx' refers to '55' or '44', depending on the model), or the protocol mentioned in your lab manual, as applicable, and press Next.
6. Enter a Sample Filename. Select Browse to choose the output folder for the data (**this should be an external flash drive since data cannot be stored on the Instron computer**). Select Next when finished.
7. Always use safety glasses when running a test with the Instron.
8. Follow the test prompts in the Bluehill software.
9. Note that the Bluehill software testing method is set so that the test automatically stops once the specimen has failed. However, the Instron may need to be manually stopped since the specimens may not completely fail. The test can be stopped using the Stop button in the Bluehill software.
10. If you are using the Instron grips, it is best to pre-tighten them. First tighten the screw grips that are furthest from you until they reach their maximum extension point. Then, use one hand to hold up your specimen with forceps and with the other hand tighten the screw grip

closest to you. Repeat this procedure for the unsecured side of your sample. You may find this easier to accomplish with a lab mate's assistance. Alternatively, you may tape the end of the sample to the furthest screw grip pad and tighten the other grip accordingly. Regardless of the methodology, keep fingers clear of the grips while tightening. Consult the lab staff the first time you use the grips.



11. After running the test, select Return to bring the crosshead back to its original position. Then select Next to either continue testing with a new specimen or to finish testing. Be sure to gather enough data for complete analysis of the specimens. Follow test prompts to export raw data. The Instron computer does not have Excel nor an alternative spreadsheet program. On the Instron computer, you can view your data using notepad.
12. In Excel, load data files as follows:
 - a. Select Data tab >> Import external data >> Import Data...
 - b. Choose Delimited, then select Next
 - c. Check the box next to Comma. The only boxes that should be checked are Tab and Comma.
 - d. Select Finish

NOTE: When using the Instron be sure there is no slop/wiggle in the attachments. In order to prevent this, you will need to tighten towards the Instron and away from the attachments