1 Screw-driven test frames

Four Sintech screw driven test frames of 10,000 pound capacity are available in 1313 EH. A brief outline of procedure is as follows.

1 **Wear eye protection goggles.** Turn on power to load frame with green button on load frame.

2 Turn on power to computer and if necessary, the monitor.

3 Test works software should load; if it does not, click on the icon to open.

4 Log in as Student; no password is needed.

5 Reset the motor using the button on the lower right. Open appropriate method. The simplest is to use MTS Flex, MTS Compression in the main menu. The advanced button brings up more methods, not necessarily advanced ones.

6 Place specimen in grips or fixture.

7 Position the crosshead to start position, initial contact for bending or compression. This can be done with the up, down arrows on the computer screen or with the handset on the right. Make sure body parts are kept clear during positioning and testing.

For the handset to work, the motor reset button must be pressed as in item 5. Also, press the handset button with the lock icon on upper right. A green light will go on. The frame is capable of 10,000 pounds. The up and down arrows on the handset allow the user to position the grips in coarse large scale movement. The thumb wheel on the handset allows fine adjustment of the crosshead. If the crosshead still does not move, check the safety sleeve around the vertical steel bar on the right. If that sleeve is too close to the crosshead, motion is prevented.

Digital readouts provide values of force and displacement. These readouts can be zeroed if desired. The number of digits can be set. Right click on the display to see options. A readout of strain is not meaningful unless a strain gage channel is provided.

Set the appropriate method, such as bend or compression. Enter data such as bend span and rate as appropriate. If the software does not allow the correct dimensions to be entered, keep in mind that the output data contain raw force and displacement that can be analyzed off site. Scaled dimensions can be en-

tered to get started; that will only influence the scale for the plot on the screen, not the exported data.

8 Click on the green run arrow on the computer screen to start the test. Keep body parts away from the grips.

9 Input the sample name. Give it a descriptive name so that you can identify the file easily. Do not call it test 1; that is not sufficiently descriptive. Enter specimen dimensions data. Due to software limitations, the computer may object to the true dimensions. Enter scaled dimensions and if needed compensate by calculation when you reduce the data.

10 The test should run until you stop it with the red button or until the test frame detects specimen fracture.

11 A stress-strain plot appears on the computer screen during the test; it changes dynamically as time goes on.

13 To save the data, go to the File menu. Hit export preview: specimen. See the data file as a note pad file. Check to see the data make sense. Data columns for load, time and extension are considered raw data. Columns for stress and strain are computed based on your input dimensions; the calculation is only as good as the input dimensions. Save the data file. The default on the hard drive is, for the compression test, C: program files / MTS systems / Test Works / samples / 307 compression. Save the file upon a USB memory stick (thumb drive). Use a descriptive name, not just data 1. While you are in the lab, open the data file as a note pad text file. Verify that you have the data you want. For security, only one thumb drive should be used per group. Share the data among your group members. Click safely remove hardware on the lower right of the screen before removing the drive.

14 Reduce the data as indicated on the instruction sheet for your lab. Use graphics software to plot your graphs. Verify the quality of your graphs in the context of guides given in class. KaleidaGraph has been removed by CAE. MATLAB can produce good graphs if you attend to the settings.

15 Conduct more tests as desired. Save your data. When you are done, exit Test works and log out of the computer. Then turn off the load frame.