C15 COMPUTERISED TENSILE TESTER FOR TEXTILE MATERIALS

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A microcomputer can be used not only for the analysis of data, but also for their acquisition, especially in the case of testing instruments. With suitable interfacing, the microcomputer can perform both data acquisition and machine control. Further the machine behaviour can be decided entirely by software, to allow for different testing requirements.

The paper discusses the conversion of a conventional textile tensile tester for microcomputer control. Load sensing is done using a strain gauge type load cell and extension is measured using a rotary potentiometer. A DC speed controlled motor is used to provide the drive to the movable grip, under microcomputer control. As the testing speed is slow, the controlling software is written in Basic. The test results are displayed graphically on the system's VDU for quick visual assessment of each run, and individual readings and their analysis are available as a printout.

When compared with the mechanical type machine it replaces, the computerised tester demands reduced machining precision during its manufacture, yet gives much better precision than the former. The decreasing cost of microcomputer systems makes their incorporation into testing machinery such as the above, an economic proposition too.