Fabric Thickness

For measuring the thickness of a wire or a plate, calipers or micrometers are used. But the use of these things for the measurement of thickness of fabric is not possible, since fabrics are liable to compress during measuring. Therefore, the measurement of fabric thickness demands an accuracy.

The following points need to be considered in fabric thickness measurement

1. Shape and size of the pressure foot:

Normally a circular foot of diameter 3/8 inch is used. The ratio between the foot diameter to the cloth thickness should not be less than 5:1.

2. Shape and size of the anvil:

If the anvil is of circular type its diameter should be at least two inch greater than the pressure foot. When the sample is larger than the anvil a smooth plane board may conveniently surrounded the anvil for suitable support for the cloth.

3. Applied pressure:

Suitable weight may be added to the pressure foot and preferred pressure may be applied.

4. Velocity of pressure foot:

The pressure foot should be lowered on to the sample very slowly (at a rate of 2/1000 inch per sec) and carefully.

5. Time:

The thickness is read from the dial of the instrument only when the pointer ceased variations and not earlier.

6. Indication of thickness:

Usually, a clock type dial gauge is built into the thickness tester. It should be rigidly mounted in a suitable frame. After setting the dial to zero, the instrument must be capable of measuring to an accuracy of 1% for fabrics over 0.1 millimetre in thickness and to 0.001 mm of fabrics which are not excluding 0.1 millimetre in thickness.

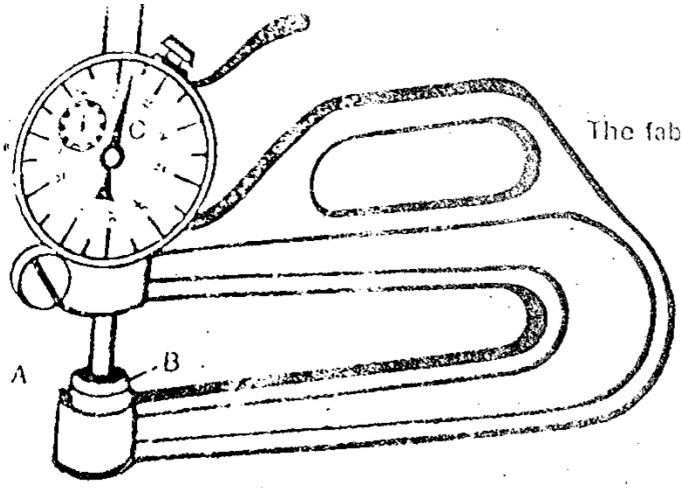

Fig 4.1

The fabric thickness tester

B- Presser Foot

Fig: The Fabric Thickness Tester (A Anvil, B Presser Foot, C Pointer)

Method of Measuring Fabric Thickness

1. The presser foot and anvil are cleaned by a clean paper.
2. If required, weights are added to presser foot and the gauge is set to read zero.
3. No specimen preparation is required. But selvedges and creased areas should be avoided.
4. If possible, the cloth may be conditioned for about 24 hours in standard atmosphere.
5. At least, thickness is measured at 5 places and the mean value is reported.
6. In test report, details of the pressure, size of presser foot and the time should be given.

Fabric Thickness is mainly used

- for checking the conformity to the specifications

- in the study of fabric properties such as thermal insulation, resilience, dimensional stability, fabric stiffness, abrasion etc

- in the study of fabric geometry.