Collaborative Research

Department of Silpa-Sadana, Visva-Bharati & ICAR-NINFET, Kolkata

Topic: Handloom Weaving with the 'Tech Forward' Approach

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This study compares plain-weave, twill-weave, and colour-and-weave-effect fabrics developed from cotton yarn on a handloom. The fabrics were evaluated for physical and comfort properties, including EPI, PPI, thickness, areal density, TIV, air permeability, compression, compressional resilience, and withdrawal resistance. The results showed that weave structure significantly influences fabric thickness, thermal insulation, and air permeability. Fabric withdrawal testing equipment was also developed to evaluate fabric withdrawal resistance. The findings help in selecting suitable weave structures for apparel, industrial, and consumer applications based on functional and aesthetic requirements.

Fig. 1: Hank of yarn

Fig. 2: Dyeing of the yarn

Fig. 3: Bobbin winding

Fig. 4: Weaving process

Fig. 5: Fabric sample

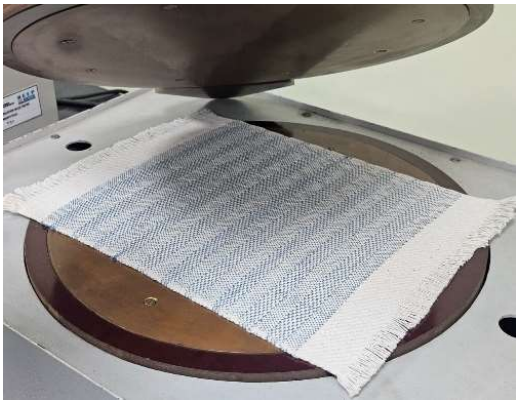

Fig. 6: Thermal insulation value tester

Fig. 7: Tensile strength tester

Fig. 8: Testing of percentage compression under 10 kPa

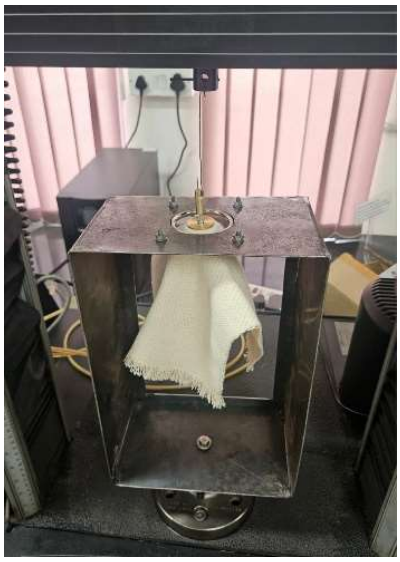

Fig. 9: Ring withdrawal apparatus