

MATHEMATICAL MODEL FOR WARP TENSION WITH VARIOUS BACK REST SETTINGS AND RELATIONSHIP WITH TECHNOLOGICAL PARAMETERS

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ABSTRACT

In the textile industry, in order to better control loom warp tension and obtain better quality fabrics, it was very pivotal to analyze the influence of mechanical and technological parameters on warp sheet during weaving

When warp ends are continuously subjected to tension variation numerous number of warp breakages may occur and as a result the quality of fabric produced as well as the loom production efficiency is impaired. In the fabric manufacturing process, warp breakages cost in weaving are far higher than in all other stages of production.

Uniform fabric density and cover factor in warp & weft way is vital for high quality fabrics such as technical textiles and smart textiles. So author attempt to model the tension in variation along the warp sheet from the weaver's beam up to the fabric formation zone under set of assumptions in this paper and derived a linear model which can be used to study the behavior of fabric fell.

In this study, the effect of the backrest roller type and position on the physical and mechanical properties of fabrics was investigated. Author has measured warp tension with computerized electronic tension device and shown with mathematical module and experimental data, the influence of backrest parameters on weavability.

KEYWORDS: Warp Tension, Weaver's Beam, Mathematical Model, Backrest