

Abstract

Purpose – The purpose of this paper is to conduct a series of tests designed to highlight changes in the physical characteristics of the yarn resulting from mechanical efforts comparable to that to which they are subjected on the weaving machine. Among the physical properties of the warp yarn, the authors examined changes include: the residual deformation, strength, elongation and elasticity, on the extender repetition effort overtension growing steadily, leading, after some time, to break. Therefore, the yarn treated extender repetition is subject to a more severe test than the actual weaving on the loom.

Design/methodology/approach – The initial length of the specimen under constant static load of 20 g, was 50 cm in all tests. The yarns are stored on several coils, the authors collected a quantity of thread on each of them, according to the law of chance, to avoid errors due to long periods of irregularity and the authors estimated that the extensions can be supported by the wire without danger of rupture are interesting practical point of view. Three rate extensions were chosen for the two yarns: 0.5, 1.2 and 1.9 percent. The maximum number of tractions was calculated for each wire by multiplying the maximum thread count practice by the average distance between the warp beam and the weft yarn on the weaving machine.

Findings – The fall of the resistance and elongation resulting from repeated extensions which yarn are subjected on the extensometer, corresponds almost exactly to the residual deformation recorded. Increasing the rate of extensions causes relatively large decrease in strength and elongation. The authors also notice that the strength and elongation at break tends to decrease when the number of extensions decreases. The fall of the resistance and the elongation at break is more important for carded yarns than combed yarns increases or when the frequency decreases.

Originality/value – The maximum difference of the resistance is 32 g, 10.3 percent in the case of carded yarns, while in the case of the combed yarns; the same difference is 25 g, or 6.4 percent of the initial strength. Similarly, the maximum fall of the elongation at break for carded yarns is about 2 or 16.1 percent of the initial elongation, while the corresponding drop in the case of the combed yarns is 1.8 or 10.9 percent of the initial elongation. The corresponding values found during the testing wool combed yarns, were, respectively about 4.8 and 6.6 percent