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Method Of Assessing The Bending Resistance Of Yarns In Suit Folding Fabrics

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ABSTRACT

The article develops an algorithm for assessing the bending resistance of yarns of suit embroidered fabrics, on the basis of which the theory of displacement of cross-sections of the free part of the yarn is determined experimentally by the bending stiffness of Arqaq yarns with different weaving and fiber content. The reasons for the appearance of various irregularities on the surface of the suit are shown. It was found that the properties of Tanda and Arqaq yarns depend on the natural properties of the fibers, their length, the technological properties given during the spinning process.

KEYWORDS

Folding fabric, geometric shape, torsion, a gender, plastic deformation, holonom, nogolonom, tanda, Arqaq.

INTRODUCTION

It is known that the main functions of the fabric of a suit are to ensure that the geometric shapes given to its special parts can withstand repetitive loads over a long period of time, and to protect the aura from

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excessive plastic deformation. For example, excessive plastic deformation of the fabric and materials of the avra relative to each other leads to a violation of the design of the suit - the fabric and the avra slide relative to each other. In order to ensure that these and many other defects in the suit do not occur for a long time, the fabric and avra materials are selected taking into account the laws of their deformation, and the fabric is glued or glued for additional processing to achieve the positive properties of the fabric. The result of oxidation depends primarily on the technological properties given in the process of weaving the fabric material and the properties of the tanda and Arqaq yarns in the fabric, as well as the quality of the oxidizing material.

MAIN PART

The properties of Tanda and Arqaq yarns, in turn, depend on the natural properties of the fibers, their length, the technological properties given in the spinning process [1-10].

Considering the above-mentioned yarns (Tanda and Arqaq yarns) and many other properties of the fabric (for example, resistance to sunlight and moisture, etc.), there are significant difficulties in the selection of avra and stiff fabric materials with mutually compatible properties [9, 10].

The resistance of torsions to bending (resistance) is relatively small compared to the resistance to elongation, and therefore they can take complex geometric shapes under the influence of external forces. This is the main reason why research on the dynamics of yarns, for example, lags far behind the theory of rods. Differential equations of thread motion must satisfy both initial and boundary conditions as well as holonomic and nogolonomic bonding conditions [1, 3, 4, 6, 7, 11, 12].

Holonomic and nogolonomic bonds lead to the nonlinearity of the differential equations of yarns whose linearity of deformation is linear [3-6, 11]. This, in turn, limits the possibilities of analytical solution of differential equations of yarn motion. Because of this, most studies consider yarns to be an environment that can only resist elongation.

One of the main characteristics of some natural fiber yarns is that they are spun from short fibers. The fact that the threads are spun from short fibers has a strong effect on the law of their deformation. One recent study on this topic [8] was conducted in the study. Here, the elongation diagram of a composite material consisting of thin, short, and flexible wire fibers is based on the location of the wires in it and its deformation properties. To do this, the properties of the composite material and the wires pulled from it are compared, and the effect of the length of the wires on the law of joint deformation of the composite is evaluated.

The methods described in [8-12] can be used to study the effects of the cross-sections of yarns on the regularity of deformation of the yarn material - the non-uniformity of the cross-sections of fibers with different properties.

[12] presented the methods of determining and evaluating the regularity of joint deformation of the material and the results of experiments to show that the cross-section of soft and thin cable formed by twisting flexible wires and coated with a chemical compound is not homogeneous.

A method for estimating the effect of twisting methods on the law of deformation of the material in the law of deformation of the material of fibrous yarns and the theory of dynamic wave propagation in such yarns has been developed. Based on the above analysis, we present a theoretical method for assessing the bending strength of a suit embroidered fabric to the material of the yarn (Tanda and Arqaq yarns).

RESULTS AND DISCUSSION

Typically, the material of the suit must withstand deformations during stretching and bending.

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Therefore, the material is further processed in order to increase the tensile and flexural strength of the suit fabric fabric and its ability to retain the geometric shape mounted on the suit for a long time. Processing is carried out using chemical solutions. The materials of the solution used for folding fabric and anchoring are selected based on the properties of the aura material. This is because the fabric of the suit must retain its original shape and condition for a long time, withstand repeated cyclic stresses during the wear of the suit, and have high resistance to plastic deformation. The inability of the suit to retain the original shape given to it, for example, a violation of the design of the front panel board, the formation of plastic deformations leads to the appearance of various irregularities (corrugations) on the surface of the suit. The main reason for the appearance of various irregularities on the surface of the suit is due to the plastic deformation of the suit avra and stiffener fabric materials according to different laws and to different amounts.

CONCLUSION

Based on the sources analyzed above and based on the theory of composite materials, the "reinforcement" of the glued suit embroidered fabric material can be considered as a composite material consisting of the Tanda and Arqaq yarns of the embroidered fabric. The mechanical properties of such a composite material are evaluated by the properties of the matrix and all the reinforcement in it and the laws (geometry) of their placement in the matrix.

The following is a summary of the research conducted to substantiate the theoretical method of determining the bending stiffness of the selected Tanda and Arqaq yarns before and after spinning from the selected folding fabric and to compare the obtained results with the experimental results.

Simple - the cross-section of an untied rope is not always a bonding medium. The gaps between the fibers in its cross section will be preserved. As a result, when the yarn is subjected to external forces, the fibers in it can slide relative to each other and change their location along the length of the yarn.

The gaps in the cross-sections of the chorded piece of yarn are filled with a mixture of a composite medium - a composite material. When such a thread is affected by external forces, the fibers in its cross-sections do not move relative to each other.

In the industry, the fabric and materials for the avra of the suit are selected by testing their flexural strength with a handheld device and comparing the results with the standard values. Thus, the results of research on improving the existing device in industry are presented in works [13, 14,15].

It has been experimentally determined that the adhesion and resistance performance of resistance cotton fiber yarns in the bending of suit embroidered fabrics gives good results. In addition, because the lining fabric of the suit is made of chemical fibers, the finished yarns blend well with the glue and strengthen the bonding of the fabrics to each other..

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