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Analysis Of Loop Unevenness Terry Fabrics.

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Abstract: In terry fabrics, there are cut or loop piles of different heights, which are located in a certain order.
The first reason for the unevenness of the length of the pile in terms of height is the unevenness of the linear density of the yarns of the warp and the weft. Secondly, the tension of the yarns also causes uneven pile.

Key words: Fabric, pile, warp, weaving, property, weft, yarn, unevenness, tension, shed, loop.

Introduction.

Each of the weaving processes has its own importance for obtaining high-quality fabric, and maintaining their alternation is the most urgent task.
In weaving, it is necessary to choose the best one, taking into account the properties and characteristics of the raw materials provided by the looms.
Terry fabrics have cut or piles of different heights on the surface of the fabric, which can be arranged in a certain order. Depending on the formation of piles, terry fabrics can be warp and weft pile. Terry fabrics are produced from two or three systems, i.e. ground warp, loop and one system weft yarn.
There are factors that affect the properties of terry fabrics mainly depending on the type of cutting. These include:
- the type of yarn used for terry fabric, the property and characteristics of the yarn.
- passage of the yarn type through various processes in the weaving preparation.
- types and mechanisms of looms.
- the processes of processing the finished fabric.

Factors affecting the hairiness properties of complex hairy tissues have been studied.

In weaving enterprises, the type of yarn is different, and the quality of yarn (thickness, number of twists, unevenness, breaking strength, pileless, etc.) was studied. Because the location of the yarns in the fabric is different, the properties and characteristics of the fabric are affected by the structure of the yarns.
Mechanisms that control the tension of yarns on the weaving loom must be compatible with each other.

The following technical and technological requirements are imposed on the transmission and tensioning mechanisms of the warp yarn:
- keeping the tension of the yarn's constant as the diameter of the winding on the weaving reel decreases;
- maintaining the stability of the tension during the process;
- maintaining warp tension and fabric edge stability to reduce short-term running-stopping (treadmill) defects;
- as the diameter of the winding decreases, constant maintenance of the loom line;
- delivery of a specific length of yarn to the area of fabric formation.

Improvement of the properties and properties of the yarns used in weaving the fabric are the factors affecting the quality of the fabric.

It can be seen that the number of twists of the pile warp yarns is given unevenly in the cross-section of the pile warp yarns that form the loops of the fabric, that is, the loops lie flat. (Figure 1)

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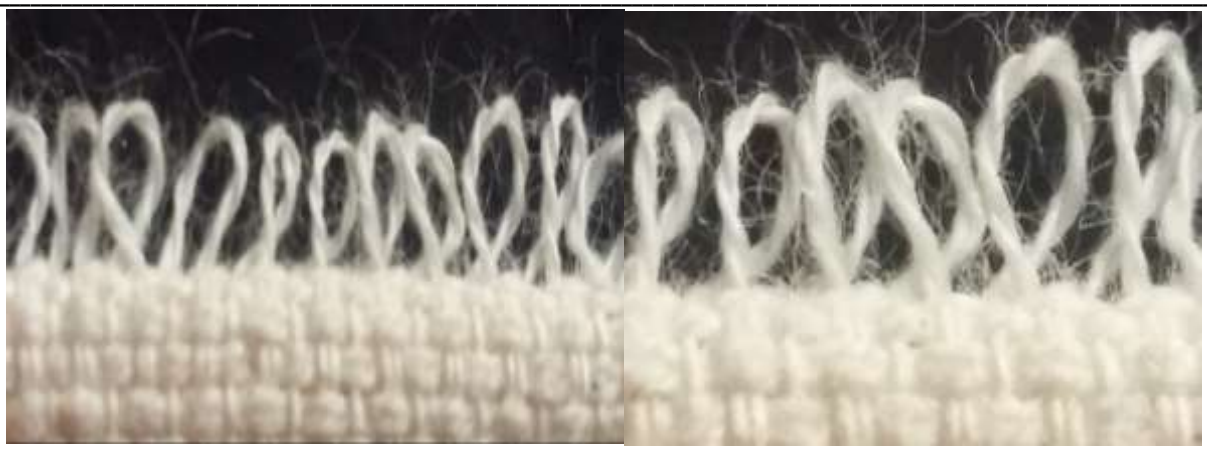

Figure 1. Cross-section view of loops.

It is necessary to study the working process and mechanisms of the loom in textile production. Then it is known where the changes in the fabric come from.

No matter what type of loom the fabric is produced on, the following five operations are performed on it:

- transfer the warp yarn and create the tension of the board;
- by dividing the yarns into two parts, raising the first part up and lowering the second part to form a shed;
- throw a string of weft on the created shed;
- closed reed the weft yarn from the shed to the edge of the fabric and creating a fabric element;
-pulling the fabric and ensuring the necessary density in it.

To perform the above five operations, the following mechanisms are installed on the looms; machines for creating shed, shuttle and closed weft yarn, as well as warp and fabric adjusters.

It is necessary to set the speed of the loom in accordance with the tension of the yarns, the operation of the tensioning devices should be constantly monitored. In addition, it is necessary that the power of the machine, which can be used for gluing the yarn of the fabric, should be uniform.

Heddle and arcade cords, which take part in the creation of shed, are also of great importance for setting a certain standard of tension in weaving the fabric.

Jacquard machines use three different elements to pull down the yarns on the warp:

-loads;
- elastic cords;
-springs (for different forces).

The force of pulling down the warp yarn depends on such factors as the density of the fabric, the tension strength, and the speed of the machine and is selected according to them. Table 1 shows the amount of the force of pulling down the warp yarns of the types of fabric.

Table-1

The force that pulls the yarns down on the warp

Elements of yarn pulls down the warp	The force that pulls the down, sN
Load	26 sN for technical textiles, 34 sN for furniture fabrics, 40 sN for blankets
Elastic cords	30 sN for silk fabrics, 50 sN for narrow fabrics, 50 sN for furniture fabrics.
Springs	20-30 sN for silk fabrics, 50-57 sN for covering fabrics, 80 sN for terry towels, 180 sN for blankets

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Also, based on the company's experience, we recommend changing or replacing the types of yarns in the fabric. Because the composition of the sample we tested: ground warp - Nm-34/2, pile warp - Nm40/2, weft yarn - Nm - 27/1 were used.

Theoretically, we found that there was a gap between the yarns of the weft fastening the loops, and the loops were not well fastened to the base. This affects the subsequent processes and causes some difficulties and unevenness in pile formation.

The properties of the warp yarns and the number of throws of the warp yarn are also important in fastening. The number of weaves in the sample fabric is two. The number of loops can be used up to 2, 3, 4, and 6, or the diameters of the loops can be changed. In this case, the linear density of the yarn is changed without changing the density of the fabric. If the diameter of the weft yarn changes, the gaps can be reduced and the loop will be stronger.

In addition, it is also important how and with how much strength the cotton yarn sticks to the fabric. In order to prevent irregularities in the formation of loops, it is necessary to correctly choose the force of gluing the weft, that is, the movement and speed of the closed reed mechanism.

Conclusion: There are certain factors that affect the properties of complex terry fabrics mainly depending on the types of shearing, and these factors were considered practically and theoretically. In our fabric samples, the loops are double-sided, front and back. The height and length of each pile in the fabric samples was taken from the fabric and measured from the back sides.

The first reason for the unevenness of the length of the fur in terms of height is the unevenness of the linear density of the warp and the weft yarns, and the second reason is the tension of the yarns.

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