

THEORETICAL ANALYSIS OF THE FACTORS AFFECTING THE TENSION OF TANDA THREADS

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Abstract: In this article, you will discuss the tension of body threads, why it is necessary, the mechanisms that affect them, the mechanisms that maintain the tension of body threads, and the types of these mechanisms.

Key words: tanda threads, tension, mechanism, tanda adjuster, positive, negative, tanda brakes.

The tension of the threads is one of the most important factors for creating a fabric. Because the lack of tension causes many errors in the weaving process. That is, the tension of the threads of the body becomes loose, the threads of the rope do not fall correctly, which in turn leads to a violation of tissue rapport. Many factors affect the tension of the threads. These include the weight of the threads on the bobbin, the good performance of the branches, and the theft of the raw fabric being prepared.

One of the main requirements for the picking process is to create a tension that is equal in value to all flats. When the tension increases, the properties of the threads deteriorate, and when the tension decreases, the density of the resulting package decreases. In the case of uneven tension, the surface of the package is damaged. that is, there are bulges and depressions on its surface. As a result, there are more breaks in the loom.

A sharp change in the tension of the thread is especially evident in the processing of chemical fibers. Because a "longitudinal unevenness" defect is formed in the tissue. This defect is the result of different dyeing of yarn. This, in turn, is created as a result of the thread being wound in different tensions during the process of spinning. Tension devices are used to maintain and change the tension of all threads coming out of the body frame.

The tensioning device is one of the main parts of the body frame and mainly determines its quality.

Currently, various tensioning devices are used. There are highly automated and mechanized body stretchers. But the price of these tensioning devices is very

high. Therefore, it is necessary to take into account the economic efficiency of replacing existing tensioning devices with modern ones. In some cases, it is appropriate to use simple tensioning devices. The following requirements are imposed on tensioning devices:

1. Simple structure, quick tension adjustment and even grip standing
2. That there is an opportunity to create different tension.
3. The possibility of self-cleaning.
4. Prevention of slippage of elementary thread, which is chemical and baked threads are important in picking.
5. The use of wear-resistant threading elements.
6. Centrally adjust all tensioners opportunity.
7. Reliability during use.

Technical and technological requirements for transmission and tensioning mechanisms:

- keeping the thread tension constant as the diameter of the winding on the weaving reel decreases,
- during the process, maintaining the stability of the saturating tension from the working cycle to the cycle;
- control of internal cycle tension;
- maintaining the tension of the body and the constant state of the tissue edge in order to reduce the defects (treadmill) formed during short-term stress-stopping;
- constant maintenance of the machine's tread line as the winding diameter decreases;
- delivery of a specific length of thread to the zone of tissue formation.

In the preparation department, the tanda threads are wound on special large weaving reels and brought to the weaving department. Weaving spools are basically cylindrical metal tubes with flanges on both sides. The number of warp threads wound on the weaving bobbins, the length of the loom and the density of the winding depend on the structure and composition of the fabric to be woven.

The weaving reel is the main part of the transmission and tensioning mechanism. the quality of the threads wrapped in it, the good condition of the parts of the reel are of great importance in increasing the productivity. Threads should be

wound on the reel in the form of a strict cylinder, there should be no crushed or protruding places in the windings.

From the weaving reel placed on the loom, the thread used to produce one element of the fabric is stretched at medium tension. The thread tension on the body is different depending on the type of fabric, and its value is determined by experience. If the tension of the thread is not enough, the density of thin threads in the fabric may not be enough. The tension level of the thread has a direct effect on the breakage of the thread: the reason for the increase in the number of breakages can be the increase or decrease of the tension.

If the tension is reduced, during the process of forming the hamuz, the tanda threads of different branches can be broken due to the fact that they are tied in the same plane due to the influence of the rope throwers; if the tension increases, the threads may break under the influence of tension.

With the consumption of threads on the weaving reel, the diameter of the package decreases, as a result, the tension can change and affect the quality of the fabric. If the tension increases, the density of the threads in the fabric increases, if the tension decreases, the structure and composition of the fabric may be uneven.

As technologies developed, mechanisms were invented to maintain the tension of the threads. The transmission and tensioning mechanisms (TUTM) perform the task of transferring the threads of the fabric, which are used up with the formation of the fabric, in a certain tension. Transmission and tension mechanisms are divided into positive and negative types.

In negative TUTMs, the body thread is released from the weaving reel in accordance with the frictional forces in the system (body brakes).

In positive TUTMs, a fixed amount of thread length is transferred by turning the weaving reel at a fixed tension (tanda adjusters). If the tension on the body increases - more, if it decreases - less, the thread on the body is released.

According to the principle of operation, these mechanisms are divided into body adjusters and body brakes.

In the loom adjusters, movement is transmitted to the weaving reel from one of the moving parts of the loom. The tension of the loom is created using a special device.

Tanda brakes - on some looms, the task of transferring and tensioning the tanda threads is performed by the tanda brake. Under the influence of the tension of the

thread of the thread created as a result of pulling the fabric on weaving machines with a thread brake, the weaving reel is rotated, and threads of the desired length are transferred to the weaving zone.

Body brakes can be friction, load, spring and mixed according to the method of resistance. In friction body brakes, the traction of the weaving reel is resisted by the friction force, while in load and spring brakes, the load and spring forces resist.

In the case of positive threading and tensioning mechanisms (TUTM), the weaving bobbin releases threads of a predetermined length ($l = \text{const}$) with the help of a separate mechanism, and the tension of the thread is separately controlled.

Ensuring a constant warp thread tension and the required thread length in the process of forming a fabric element is carried out in each working cycle of the machine. For this, the angular speed of the weaving reel is required to increase as the diameter of the reel decreases. In the mechanisms of positive body transmission and tension, the scale receives body tension and acts as a sensor.

The tension of the threads directly depends on the quality of the woven fabric. An increase or decrease in tension will drastically affect the quality of the fabric being prepared. That is, as a result of a decrease in the tension of the warp thread, it shows that the warp thread falls to the wrong width in the finished fabric, which is clearly visible on the surface of the finished fabric. As a result of the increased tension of the tanda threads, it is observed that the tanda threads are broken. If 1 thread breaks, a straight line will be visible on the surface of the finished fabric. If several threads break, it will cause a lot of damage.

Mechanism of transmission and tensioning of the thread of the negative body

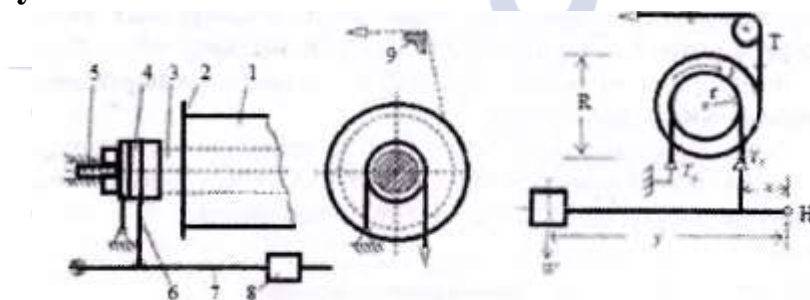


Figure 1.

**1- weaving reel; 2nd molar; 3rd core; 4th drum; 5th axis; 6th chain;
7th lever; 8th burden; 9th scale.**

Figure 1 shows the principle scheme of the transmission and tensioning mechanism in the negative body. The tape is wrapped around the drum, which is installed on the core of the weaving reel. One end of the strap is tied to the frame of the loom, and the other end to the handle. One end of the lever is fixed to the machine, and the other end is free, and a load is hung on the end. The transfer of thread from the weaving reel to the body is carried out due to the change in the frictional force between the drum and the belt. When the thread tension is greater than the friction force, the thread is released from the weaving reel, and on the contrary, it is braked. In this mechanism, the tension of the string on the body is calculated by changing the force of friction.

Tanda brakes - in some looms, the task of transferring and tensioning the tanda threads is performed by the tanda brake. In looms equipped with a loom brake, under the influence of the tension of the loom thread, which is created as a result of pulling the fabric, the weaving reel rotates, and the loom threads of the required length are transferred to the weaving zone.

Consulion. Many factors affect the tension of the threads. Additional devices are being devised to maintain tension. Because the tension of the warp threads is the most important factor for the fabric to come out correctly. Therefore, it is always necessary to maintain tension. Also, the transmission of tanda threads using tanda brakes is also used. This makes it possible to maintain regular tension in the body.

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