



THE EFFECT OF THE COARSE COMBING PROCESS ON THE FIBER SET

Mahmudova Gulshanoy

Assistant of Fergana Polytechnic Institute

88-21 group students

Hakimova Mohira, Zokirjonova Gulsora

Abstract: In the article, the shortcomings of the fiber combing process were studied. Mainly, fiber defects affect the combing process. Even if some defects are transferred to the thread or fabric, it will not take color and will affect their quality. The quality indicators of fiber tufts were analyzed and studied by successive carding of fiber materials in hat carding machines.

Key words: Fiber, carding process, defects, hat carding machine, receiving drum, head drum.

In hat carding machines, the fiber material is first passed through coarse and then basic carding processes. The following tasks are performed during roughing:

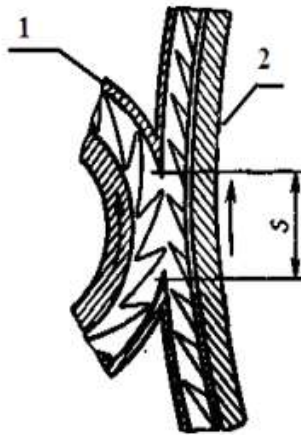
- cleaning of a certain amount of impurities by impacting the fibers, changing the structure of the spreading fiber bundle, separating the fiber complex;
- aligning the fibers to the same position;
- the fibers are caught, separated and transferred to the drum.

When the fibers are combed in the receiving drum, the fibers are separated, straightened and directed according to the movement of the drum, and the impurities and defects of the cotton are separated.

The fiber bundle is compacted on the table by the drum teeth and slowly moves away from its surface and becomes thinner by moving away from the pinch line.

Analysis of the transfer of fibers from the surface of the receiving drum to the head drum

High-quality transition of technological processes in fiber combing is important, there are special requirements for the complete transition of all fibers from the receiving drum to the main drum. Otherwise, the probability of increasing the number of knots in the fiber web will increase. When passing the fibers from the receiving drum to the main drum, the section is 60 mm long, that is, when their surface approaches a small distance. In practice, the gap between the working bodies is 0.15-0.18 mm in this place. The teeth of the pickup drum and the head drum set move in the same direction.



1-reception drum; 2nd main drum;
The transition section of S-fibers from the receiving drum to the main drum, S=5-60 mm.

Figure 1. Passage of fibers from the receiving drum to the head drum

Fibers passing from the receiver drum set to the head drum set are provided by: firstly, the high speed of the drum and, secondly, the high probability of catching fibers due to the small size of the teeth of the drum set. The teeth of the receiver and the head drum set are located in an intersecting position. The teeth of the main drum begin to act on the fiber from the non-working surface, that is, from the back, and advance their movement, separating the fibers and separate complexes from them. The linear speed ratio of the intake and drum teeth is as follows:

$$\frac{v_{bosh.bar}}{v_{qab.bar}} = 1,2 \dots 1,4$$

Thus, the speed of the take-up drum is limited by the speed of the head drum and depends on the length of the fiber. Here, the type and condition of the head and intake drum gasket, air movement speed, centrifugal force, fiber material properties and other factors are not taken into account.

However, it has been proven that the transfer of fibers from the receiver drum set to the head drum set can be carried out in the case where the linear speeds of the sets are equal. This is helped by the aerodynamic forces generated at the minimum distance of the drums.



Foydalanilgan adabiyotlar

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