



Studies on the influence of colosniks on friction.

M.I.Ibragimov¹ A.Sh.Mirzaumidov²,

Abstract. The results of research are presented on the impact of the accuracy of the Linter sawcolossic system on the friction of colossians.

Keywords: cotton, corporate,damage,cottonsed,fibre,saw,raw materials

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Cotton fiber is the main product of cotton ginning enterprises, and its quality mainly depends on the condition of production machines and production technology. Failure to meet the requirements set for production machines leads to damage and breakage of fiber, reduction of fiber, mechanical damage, as well as decrease in strength, increase of fiber defects, increase of fluff in fiber.

The main machine of cotton ginning enterprises is the sawing machine, and the surfaces of its working organs have a very negative effect on the quality of the fiber in production conditions.

In the process of separating the fiber from the seed, the seeded cotton comes into contact with the saw cylinder, colosnik grid and seed comb. The interaction of seed cotton with sharp edges of sawdust and colosniks in the work area causes damage to the fibers. At the same time, the surfaces of the working bodies are rapidly eroded, and as a result, the service life of colosniks is 4-6 months. In the working part of the jinni, the amount of high specific pressure (over 4.9 kN/m²) and relative velocities is 12 m/s.

Colosniks are made of SCh15 gray cast iron, and due to the harsh working conditions, it causes not only their rapid corrosion, but also damage to the processed fiber.

Friction colosniks causes them to increase the crack in the working part, and as a result, the technological process of ginning is disrupted. After three months of operation, 70-80% of the gaps between the columns in the column grid exceed the permissible amount. Therefore, the service life of colosniks is limited and they are replaced.

On the other hand, the technological process of preparing existing colosniks does not allow to ensure the required level of accuracy.

Based on the analysis of the preparations obtained by casting in the foundry shop, the production colosniks, up to 44% of the castings become unusable due to the change of dimensions in the bevel part, as well as various defects.

After mechanical processing, the number of usable parts is 42%. These are mainly due to the insufficient amount of cast left for mechanical processing due to the skewing of the column, as well as the incorrect determination of the technological bases, even the gaps



between the columns in the column grid assembled from the valid columns vary greatly from the workpiece. As a result, about 30% of the saw blades touch the colostrums, which in turn causes damage to the fiber and the destruction of colostrums.

It is known that in the process of ginning of seeded cotton, during the separation of the fiber from the seed, the working part of the colosnik fence is in difficult and complicated conditions.

In the process of separating the fiber from the seed, the seed is pressed on the surface of the colosniks, its movement slows down, as a result, a dense mass of seeded cotton is formed in the upper part of the colosnik. This causes the working roller to slow down and, as a result, reduce the productivity of the work.

In order to increase the productivity of the gin, devices are created to increase the rotation of the working roller. But these devices are not implemented in practice, because in the process of forced twisting, fibers twist and additional knots appear.

Research has shown that increasing the rotation speed of the raw material, on the one hand, leads to an increase in the productivity of the saw blade, but on the other hand, it also causes damage to the fiber.

References

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