IMPORTANCE AND CRITERIA OF GRINDING OF ROAD MILLING CUTTERS

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Abstract: In this article, the significance and criteria of wear of road milling equipment used in road construction are studied, and information is given about the areas of use and the process of operation.

Key words: road milling cutter tooth (cutter), cutter body, clamp, wear-resistant washer, clamping sleeve.

INTRODUCTION

Road construction machines have a great role in the expansion of the highway network of the Republic of Uzbekistan, maintenance, repair and reconstruction of existing roads. As an example of them, we can cite bulldozers, scrapers, motor graders, rollers, asphalt pavers and road milling machines.

Currently, the role of the road milling machine in the process of repairing and building roads in the conditions of Uzbekistan is incomparable.

In the world, great importance is attached to the sustainable development of the economy and road networks, the effective use of energy sources in the field of technological machines, the introduction of resource-saving technologies and their efficiency. Currently, issues aimed at improving the construction of road milling cutters, creating resource-efficient materials and increasing their productivity, efficiency and competitiveness, which are produced in all developed countries of the world, occupy a leading place [1]. In this regard, special attention is being paid to increasing the resource duration and efficiency of construction equipment by coating the surfaces of the working equipment of road milling machines with hard alloys in various ways.

DISCUSSION

The cutters used in road milling machines can be different in construction. The most commonly used chisels consist of a hard alloy cutting part and a body [2].

We will consider the cutter of the Wirtgen road milling machine. Figure 1 shows a small asphalt concrete milling cutter with a milling width of up to 500 mm. A hard alloy tip is installed on the cutter. This reduces the resistance of the three cutters to the asphalt concrete, allowing the machine to work smoothly. The cutter has a special

groove designed to remove it with the help of a symnik.

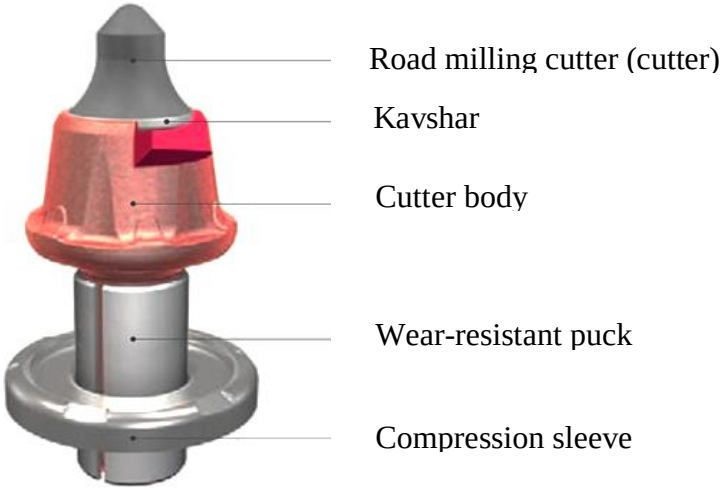


Figure 1. Universal cutter of Wirtgen small milling cutters

The tip of the road milling cutter is made of a corrosion-resistant alloy consisting of 92% tungsten carbide and 8% cobalt. Tungsten carbide provides hardness and corrosion resistance. Cobalt increases the impact strength of the material. In addition, due to the presence of tungsten carbide, the cutting edge can withstand the high temperature heat generated in the milling process, and as a result, the amount of wear is significantly reduced.

The milling cutters are fixed to the cutter holder on the drum, and the holders are welded to the steel housing. The longevity of the cutter depends on the strength of this attachment.

In order to increase the wear resistance of the cutter holder, a wear-reducing washer of the correct shape and size and completely covering the upper part is provided. The puck absorbs most of the load that falls on the holder.

The more the cutter is fed, the deeper its penetration into asphalt concrete decreases. As a result, more cutters are needed to increase the milling depth in order to cut the pavement at a high quality level. As the cutting edge wear decreases, the number of cutting edges needed to increase the productivity of the road milling machine per 1 m^2 also decreases.

THE RESULT

The modern road milling machine has advantages and disadvantages, including the road milling machines discussed above. A common problem with all road milling machines is chipping. That's why this problem should be analyzed in detail. When studying the process of road milling equipment becoming unusable, there are many cases of corrosion, cracks and breakage.

An examination of 1,470 cuttings fed from Wirtgen W500 (72 pcs. x 10 sets.) and SANY SCM2000C-8S (150 pcs. x 5 sets.) milling drums shows that 63% of them are

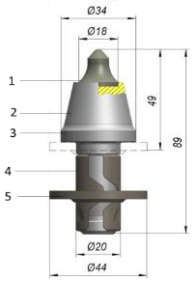
fed uniformly, and the tip becomes sharper as the tip is fed. it was found that the body keeps going out of work [3,4].

At the same time, the number of cutters installed on one milling cutter does not affect the wear characteristics. Almost 19% of the cuttings are eaten through the body, which leads to thinning of the cuttings and consequently tip loss.

It should also be noted that the thinning of the chisel in some cases leads to its deformation, and as a result, the deviation of the chisel from the longitudinal axis can be 10°. Abrasive particles trapped between the cutter holder and the cutter will cause the cutter to stop and not rotate, leading to uneven body wear and tip breakage. Disturbances of this type can occur in 13% of cases.

Corrosion conditions of road milling cutter teeth [5].

Table 1

No	Road milling equipment	Road milling machine condition	No	Road milling equipment	Road milling machine condition
		The road milling machine consists of the following parts 1) road milling machine tooth (incisor). 2) cutter body 3) cutter. 4) wear-resistant puck. 5) compression sleeve			
1		In this case, the milling cutter tooth (cutter) is 100% deteriorated, and the cutter body is partially deteriorated.	**2**		In this case, we can see that the milling tooth (cutter) has fallen due to the breakage of the cutter body.
3		In this case, after 100% wear of the milling tooth (cutter), 40% wear of the cutter body and wear of the wear-resistant washer are observed.	**4**		In this case, after 100% wear of the milling tooth (cutter), we see that the body of the cutter is worn on one side

					and the wear-resistant washer is worn.
5		In this case, as a result of 100% wear of the milling tooth (cutter), 60% of the body of the cutter is worn, and as a result, we can witness that the wear-resistant washer is also worn.	**6**		In this case, as a result of 100% wear of the milling tooth (cutter), 80% of the body of the cutter is worn, and as a result, we can witness that the wear-resistant washer is also worn.

CONCLUSION

The examination of the above worn cutters shows that they are eaten at the same time, and as the milling tooth (cutter) is eaten, the body of the cutter keeps coming out of work. When the milling width is 2000mm and the milling depth is 100mm, SANY SCM2000C-8S road milling cutter's cutting edge wear resistance production resource has been shown to be 2500 – 3000m^2, which is suitable for the situation of frequent cutter replacement. will come Therefore, reducing the consumption of cuttlefish remains an urgent problem. Inspection of road milling cutters showed that 63% of them are fed at the same time, and the cutter body keeps coming out of work as the tip is fed. Almost 19% of the cuttings are eaten through the body, which leads to thinning of the cuttings and consequently tip loss.

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