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# Techniques for Determining the Temperature in the Cutting Area

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**Abstract:** This article will talk about the methods for determining the amount of heat generated on the metal surface and the sharpener surface during the cutting process. The importance of these techniques is mentioned about their advantages and disadvantages.

**Keywords:** accumulator section, welding, detail, analytical, measuring techniques, indirect, reduce overheating, direct.

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To measure the temperature on the surfaces of the chisel, an artificial thermopar is first used by Usachev in 1912-th year. In the hole with a diameter of 1-3 mm, which is completed at a distance of 0,2 – 0,4 mm from the working surface of the cutter, an insulated copper Constantine thermopar with glass tubes is placed.

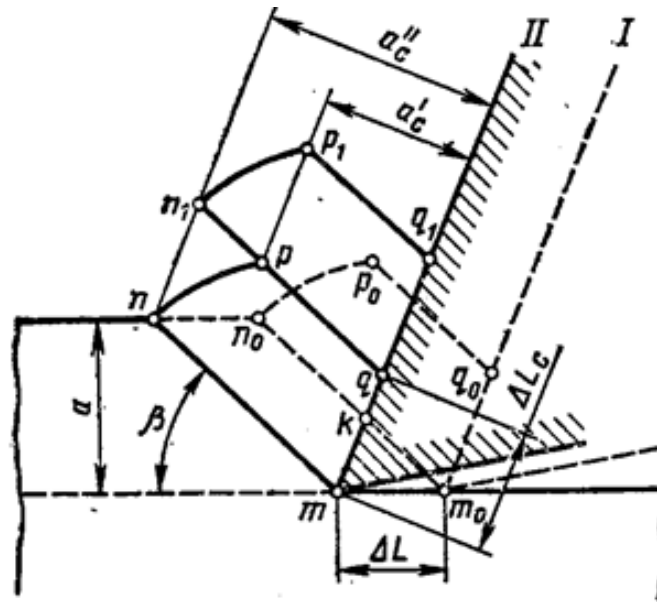
In the process of cutting metals, the determination of the heat value of the separator allows you to look for ways to reduce the heating of the cutter, thereby ensuring its efficient operation by increasing its stability.

In the process of cutting, the cut sheet of the metal is turned into a scrap, as a result of which in the detail the newly processed surface is smeared with a dressing.

Cutting it is a complex, process of elastic and plastic deformation is associated with the destruction of bulib metal. Cutting is a technique from a complex complex set of interrelationships of physical bodies. These processes determine the working capacity of the cutting tool, the productivity of the cocktail and the quality of the product. In the process of cutting is planned to change the properties of the cut layer under the influence of normal and strain voltages, friction forces, uneven and high degree of tension, heat dressing, be tumor dressing, penetration of the edge, deformation.

The process of dividing the filing dressing is expressed as follows:

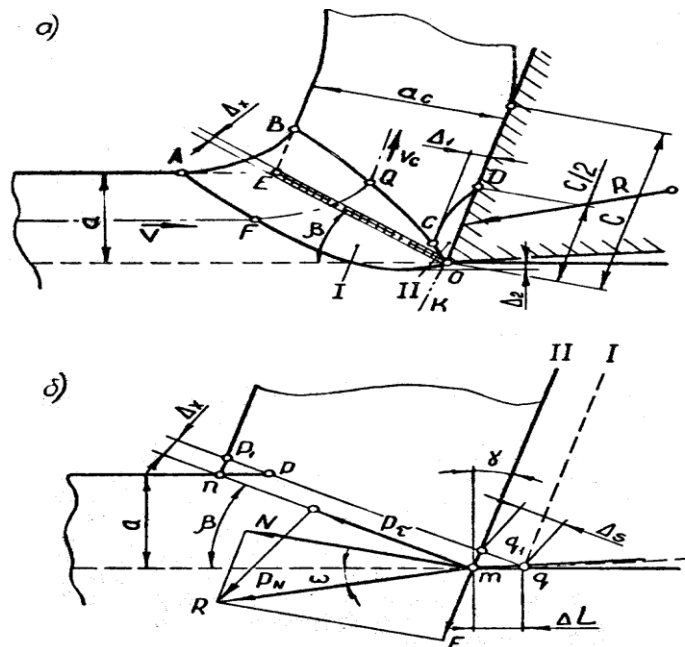
Under the influence of the cutting edge bleeds elastic-plastic compression of the cut layer occurs. Bunda was called the breaking plain. Through the AM plane, the material is gradually broken down in the form of elements in alokhi-alokhi. Dressing shavings as a result of regular breakout of the elements are smeared.



**1-figure. Scheme of turning the cutting sheet into a scraper**

Deformation in the cut layer is carried out at a certain angle. In different cases of cutting, the angle varies within dense limits from  $450^{\circ}$  to  $1550^{\circ}$ . In the edge, the crystals are held at some angle pulled towards the plane of the smooth. The plastic silk of the scraper element is smeared not on the plane, but on the curved linear surface, which is called the siljish surface. Therefore, the angle at which this plane is located is called the conditional angle of inclination.

In the process of dividing the AOM (Figure-2, a,b) in the process of dividing the scraping dressing with oats from the curved surfaces, the surface of the plastic silks in the longitudinal series turns into the scraps of the cut layer of the AoM (Figure-2, A, b).



**2-figure. Scheme of being adjacent crumb dressing**

In the process of cutting metals, the methods of measuring the temperature generated in the cutting area can be divided into the following main three groups:

1. Analytical. 2. Indirectly. 3. Directly

**Analytical method.** The method of determining the temperature using equations based on the calculation of the properties of metals by thermal conductivity, radiation, deformation enters the analytical method. Due to the complexity of the cutting process, it is difficult to fully determine the actual situation in the structured equations, and taking into account these situations, the accounting work is not widely used, due to the fact that the actual temperature cannot be determined.

**Indirect method.** This group includes methods for determining the temperature on the basis of changes in the structure of metals by means of thermocouples, calorimeter, depending on the type of purification. These methods were not widely used due to their complexity, ambiguity and narrow scope of application.

**Direct measurement.** This group includes the methods of artificial, semi-artificial and natural thermopore. Temperature measurement in the process of cutting metals is common in industry due to the fact that the artificial and especially natural thermopore method can measure its simplicity, the amount of temperature much more accurately. The principle of operation of these methods is briefly explained as follows.

In the process of cutting, as a result of overheating of the contact area, a thermoelectric driving force is generated, the value of this current is monitored by a galvanometer.

It should also be noted that the natural thermopore method has the following disadvantages: :

1. When working with different materials in different cutters, it is necessary to constantly level the thermopore.
2. Cutting the cutter and zagotovka in degrees is much more difficult to create real conditions in performance.

In addition, in order to connect the temperature to the artificial thermopore method, which is used in the method of indirect temperature detection, the base of the cutter is drilled with a diameter of 1,5 millimeters near the cutting zone and a hole to a depth not exceeding 0,3-0,5 mm on the front surface of the cutter, insulated thermopores

The heat that comes out in the process of the cutter heats the end of the thermopore mounted on the cutter. As a result of this, a thermoelectric input force is formed in the electric chain, which is conducted through a thermopore and a galvanometer. The amount of this current is determined by using a galvanometer, which is connected to it by a chainirga, depending on the temperature at the point at which the thermopore is installed.

## References

1. V.D. Avagimov. "Mashinasozlikmateri allarinikesibishlash". Darslik/ -Toshkent:, 1971y. 52b
2. Sh.B. Qodirov, F.SH. Abdullayeva "Avtomatlashtirilg antokarlikdastgohlarining ishlashprinsipi". 2021y
3. K.B. Usmanov. "Metallkesishasoslari". Darslik/-Toshkent:, 2004y. 84b
4. A. S. Iskandarov. "Materiallarnikes ibishlash, kesuvchia sboblarvastanoklar". O`quvqo`llanma/- Toshkent", 2004y