

## **CONSIDERATIONS LOOKING THE OF AN IMPLEMENTATION INDUSTRIAL TECHNOLOGY OF MANUFACTURE SERIAL THE DISKS DIAMONDED THROUGH AGGLUTINATION WITH HEATING INDUCTIVE IN COMPRESS FORM OFF THESE**

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### **Abstract**

*In work is presented a new method for approached in the realization of the diamonded disks from technological viewpoints and industrial. We are presented both considerations technological and the equipment, which helps us in, achieved the diamonded disks. Afterwards we are presented the succession of the operations of achieve the disks and principals parameters of working regime.*

**Keywords: diamonded disks, equipment, technology, working regimes**

### **1. Introduction**

Compliance with presented in [], to the agglutination of the disks diamonded in furnace, due to the spotty heating, are obtained inevitably rejects, and the metallic support of the disk diamonded is deformed in the shape of plate, what enforces compulsorily the must their redress.

Starting from these disadvantages, we cross to the improvement of the technology of agglutination and abaft attempts made output the possibility to patented the method of agglutination through inducible heating of active layer diamonded (patent nr. 105917 1989).

The results most good were obtained to the agglutination through inducible capable heating in compressed stand of the disks diamonded, in follow of the augment of toughness of active layer and uniformity of the thickness of active layer on all the circumference.

The ulterior researches permitted as the productivity agglutination of the disks diamonded to breed very much, through the utilization of the devices, which permit to press in the sight of agglutination, much elder number of disks diamonded.

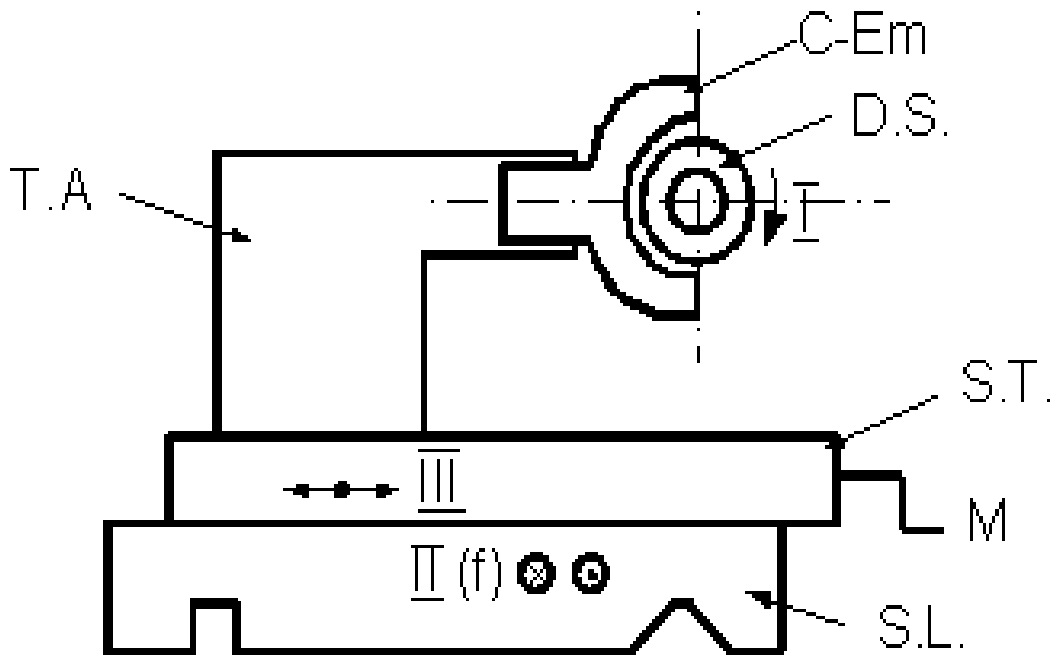
The capable agglutination pressed, simultaneously, else more diamonded disks were, possible through conception and realization of the devices of adjusted agglutination on a normal lathe SNA 400 x 1000, on which the transversal cart is installed the transformer of accommodation and partial circular inductor with electromagnetic concentrates. In this mode, were possible the synchronization motion of rotation of the disks diamonded and the inductor advance, so that the thermal transfer of energy from inductor to the active layer diamonded to is made in optimum conditions. Pursuant to the fact that, on all the duration agglutination is kept constantly the thermals parameters and kinematics, don't we obtained rejects, and metallic supports have the disks diamonded remain the plans and therefore don't else are due to is amendable.

Because the value of the pressure onto the frontal surfaces ale of active layers diamonded is identical, we obtained identical mechanics characteristic, to all the agglutination disks.

**2. Technological equipment, device and agglutination.**

The technological equipment is made from the installation of inducible heating, the normal lathe and the installation of cool

inductor with water. The general scheme of the installation of agglutination is presented in the figure 1.



**Fig. 1. The installation of agglutination**

The transforming of adapt TA of the installation of heating with induction is fixed on the transversal sled ST the lathe and is related to semicircular inductor Id, how is made with concentrator electromagnets CEm. The device of agglutination DS is trained on the move of rotation I with the rev most little ( $n=16 \text{ rot/min}$ ) and the longitudinal sled SL accomplishes the motion of advance II, with the value  $f=0,5 \text{ mm/rot}$ . From the handle M of the transversal sled is achieved the corrected position Id in report with DS (the radial distance do be constant), through the motion III.

Characteristics of the inductive heating installation is: install power  $P= 110 \text{ kW}$ , the tension  $U= 750 \text{ V}$ , frequent charm  $f = (2000... 8000) \text{ Hz}$ , the battery of concentrates  $C = (0,16..0,32) \mu\text{F}$ . The device in which is puts the diamantes disks, in the sight capable agglutination in press stay, is presented in the figure 2 and he is composed from: the flanges 1 and 1', the bolt 2, the feather 3 and the coach 4. The device is grasped between the peaks  $V_2$  (placed in the morse cone of the boring spindle of the lathe) and  $V_1$  (placed in device of mobile doll).

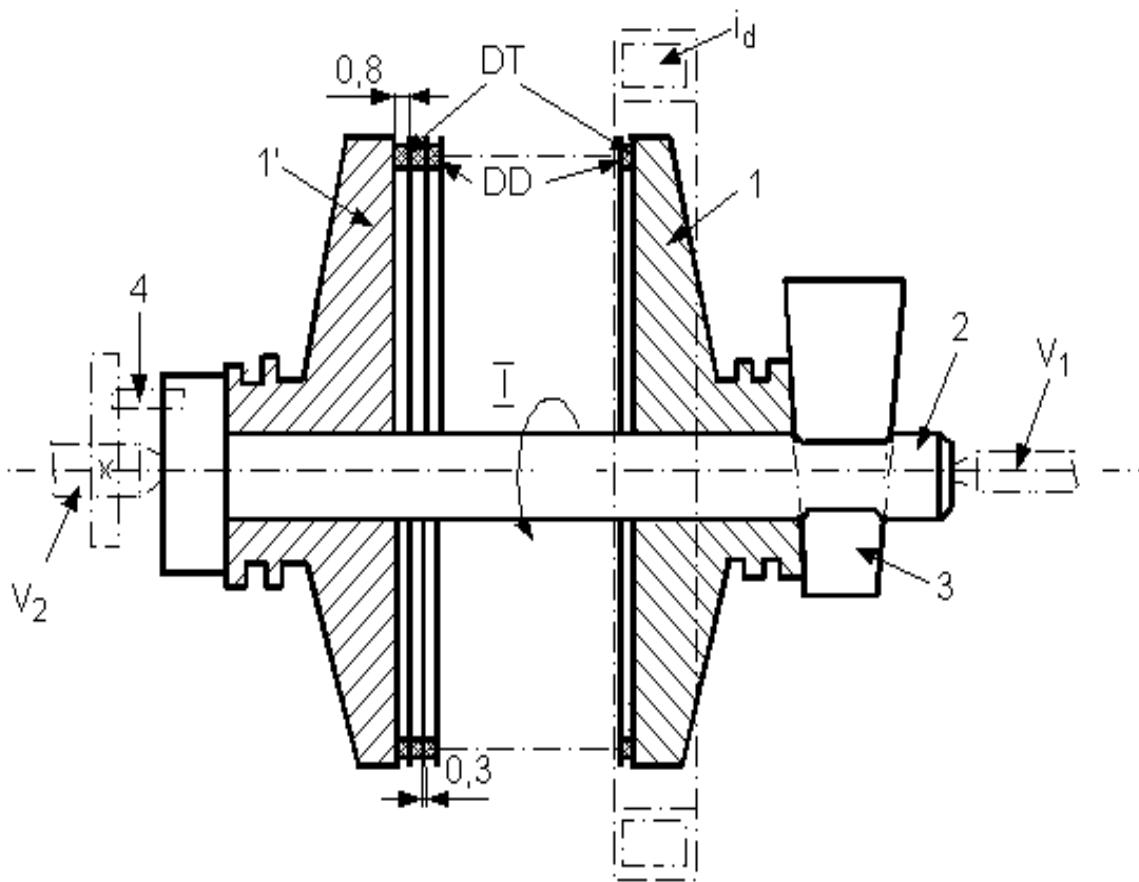


Fig. 2. Device for diamantes disks

The diamantes disks DD are put on the pierced 2 and are separate in frontal plan of to the separators disks from stainless sheet-iron DT, is put for don't gluted between the agglutination.

Oblige axial necessary press of active layer diamante DD is achieved through the medium of plume, provided with banking angle under, assured the self-locking.

Previous to the installation device of agglutination onto lathe, plume is beaten up to lockout.

In the sight agglutination, DD is press in crudeness maintained in a desiccator with silica gel, avoided the oxidation of the dust cupriferos in the presence oxygen from air. To extract each disc from desiccator, before of the introduction on the pierce 2, it is introduce with the active part in a special solution, in order to protect them against oxidation, temporally agglutination.

The agglutination is progress in the follow stages:

- is positioned Id in right plate (as in the figure 2);
- is coupled the motion I and is connected Id to the electric necessary parameters;
- is measured the temperature uptown DD with the pyrometer with laser, over is touched the value of proxy. 650°C;
- is coupled the motion of advance II;
- is followed the movement Id until arrives in the like sprocket with the one opening, but in report with the flange 1';
- is shutdowns Id from electrical viewpoint;
- is taken off Id (the motion III, the figure 1);
- is continued the motion I, up to the temperature of proxy 60°C;
- is interrupted the motion I;

- is taken out the device between peaks and is installed on the work banc, for depress of the plum and take out the disks.

### **3. Conclusion**

For  $n=16$  rot/min and  $f=0,5$  mm/rot, Id is moved with 8 mm/min.

If it is gluted 100 of diamante disk, with the thickness of active layer for 0,8 mm, result that the Id makes 80 mm length in 10 min.

To the agglutination in furnace for 100 diamantes disks, the duration is proxy. 200 min.

Comparing the duration agglutination in two one technological variants, results that to the agglutination with the inducible heating the productivity breeds of 20 either.

Because the metallic support of the diamantes disks don't is deformed (the heating is made just on the depth of the diamantes layer) and therefore don't else must straightened, the fabrications costs for the diamantes disks scales down by the value of the manual labor for redress.

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