

# EXPERIMENTAL STUDIES ON THE LASER DEPOSITS WITH $\text{Al}_2\text{O}_3$ POWDER ON CYLINDRIC SURFACES

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**ABSTRACT:** The essence of the process of obtaining of the products by metallic powders aggregation is represented by the operations of the formation and sintering which determine the appearance of the, increase and stabilization of the contact surfaces, joined by the realization of the cohesion interatomic connexions among the particles.

For the laser deposition on cylindric surfaces it was used a pin with a diameter of  $\Phi 10\text{mm}$  and the length of  $60\text{mm}$  made of steel OLC45 and there were deposited powders directly on the mass of the laser installation (fig.1.a), respectively a pin having the un diameter of  $\Phi 80\text{mm}$  and the length of  $300\text{mm}$  made of the same steel OLC45, and on both pins were deposited powders using this time a device of pinning or catching and on it were deposited powders using this time a device with catching among centres or pins from an installation of metallization. (fig.1.b).



Fig. 1. The Drawing of the deposition on the cylindric surfaces:  
a)-pin  $\Phi 10 \times 60$  (OLC45); b)-pin  $\Phi 80 \times 300$  (OLC45);

The investigation of the formed samples with different powders, has allowed the observance of some important aspects regarding the structure and the hardness those materials. There were noticed the following aspects:

At the deposition limit, near the basic material, the hardness became constant, without being influenced the thickness of the coated layer or the concentration of  $\text{Al}_2\text{O}_3$ .

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