

CAMBERS OPTIMIZATION BY RAPIDE GRINDING OF THE ROLLERS USED IN THE PAPER INDUSTRY

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Abstract: *The present paper presents aspects concerning the technologies to manufacturing the cambered rollers with different and big dimensions for the equipments for cellulosic pastes in order to obtain paper or for grain mill or bakery. They are identified the limits of the technologies used in present and they are identified ways to their improve, proposing research directions (including doctorate papers), having as practical purposes the improvement of the technical and economic efficiency of these technologies. We are insisting on the rapid grinding procedure at the manufacturing of the granite, basalt and rubber used at the superficial coverage of the rollers.*

Keywords: *roller with rubber coat, roller's camber, peripheral camber, conventional grinding, rapid grinding*

1. Introduction. The Importance of the rollers camber execution

From a mechanical point of view, the rollers of the machines to manufacturing paper can be assimilated with grinders deformed under the action of the proper height and of the additional pressing charges [2, 5]. The quality of the final product, the paper, the processes of the desiccation of the scrap paper paste and the functionality of the equipments for the paper's fabrication can be negative affected by the deflection (camber) formed by the rollers and that determines a no uniform pressure of the pressure on the equipment length.

In the specialized literature [5] it is recommended that the ratio between the roller camber and its length is smaller as 1/6000...1/7000 for the inferior roller and 1/12000...1/14000 for the superior roller.

In order to eliminate the inconvenient determinate by the roller deformation, these are realized with a variable diameter on the length for the compensation of the camber. These rollers are named cambered, and the

size of the camber "k" of the roller [5] is given by the relationship:

$$k = D - D_0$$

where D is the diameter of the roller at the roller's middle and D_0 is the diameter of the roller at the roller's middle at the extremity (Fig.1) and (Fig.2).

At the covered with rubber rollers, because the difficulties to measure the diameters, it is defined the periphery camber:

$$k_{periferic} = \pi D - \pi D_0 = \pi(D - D_0)$$

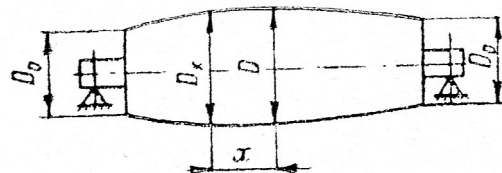


Figure 1: Definition of the sizes for the calculus of the roller's camber.

In a machine for the paper fabrication [5] exists a big number of presses and rollers,