

THE EXPERIMENTAL ANALYSIS OF BRACKING CHARACTERS FOR THE MACHINES OF THE ROTATION TYPE

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The drum machines of the centrifugal type are used in many fields. The application of the centrifugal forces are effective in machine-building (rotation systems), in space technology (stabilization of rotation apparatus, liquid gyroscope), in chemical industry (separation of inhomogeneous substances, for example raw oil), in food technology (production of sugar) and so on. Mode of life (washing) machines are based on same principles too. The design parameters of the centrifugal machines are determined, as a rule, by means of experiments because of the mathematical modelling does not describe the main regularities of the complicated hydrodynamic processes as well as the theory does not give universal methods of the calculation. In particular, we consider the washing machine when the drum has a great angular velocity from the motor during the squeezing regime. Then the damping aerodynamic moment is more than the braking moment of the drum support. The aerodynamic forces arise in view of curls nearby the walls of the drum. In order to determine the experimental function of aerodynamic damping moment with respect to angular velocity we analyze the braking rotor. The dependence of the angular velocity on the time is fixed by means of measurement instrument with the computer. The experimental data are processed by the method of the regression analysis. It is shown that the main contribution of the bracking action is carried out by the aerodynamic damping moment which is proportional to the angular velocity. The simple mathematical model is offered. The adequate accuracy is studied in detail.