

STRUCTURAL AND PARAMETRIC SYNTHESIS OF KNEADING MACHINES

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It are offered methods of analysis and research of hydrodynamic processes in kneading machines. In modern conditions, a qualitative full-fledged study of complex hydrodynamic processes that occur during the movement of the working bodies of the mixing equipment is impossible without the use of computer technology. Methods and programs of three-dimensional simulation computer modeling make it possible to obtain quantitative and qualitative characteristics of kinematic and dynamic processes. With the accumulation of a sufficient amount of information, it is possible to synthesize the design of the kneading machine, which will include technical solutions that allow you to create the optimal industrial design for today.

The analysis of constructions of kneading machines and a technique of research of their work gives the chance to define directions both improvement of work of existing, and to create new variants of a structure.

The software package for FlowVision personal computers from Tesis was used to study the test kneading process. This package is intended for modeling of hydrodynamic processes in technical and natural conditions, and also visualization of these processes by methods of computer graphics.

By analyzing the area of equipotential surfaces, the pattern of velocity distribution in the kneading tank, it is possible to estimate where are the largest values of velocity observed in the kneading bodies.

Now we measure the area of vectors of a certain intensity. In this way, the intensity of the product batch can be estimated. After carrying out mathematical processing we receive a picture of influence of speed of a working body on intensity of process of kneading of the dough.

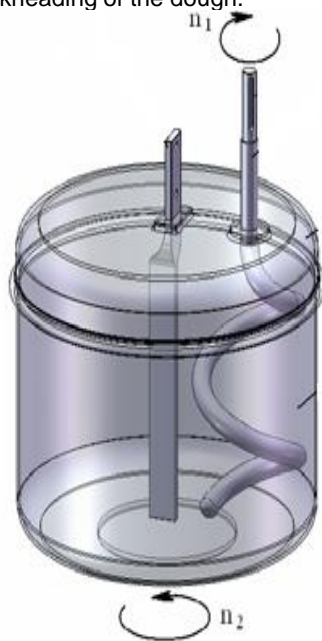


Fig. 1. The scheme of the kneading machine

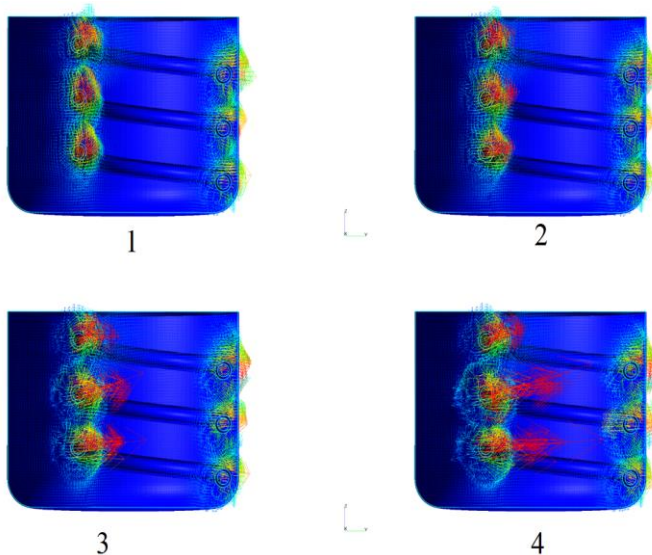


Fig. 2. Areas of influence of the working body on the product

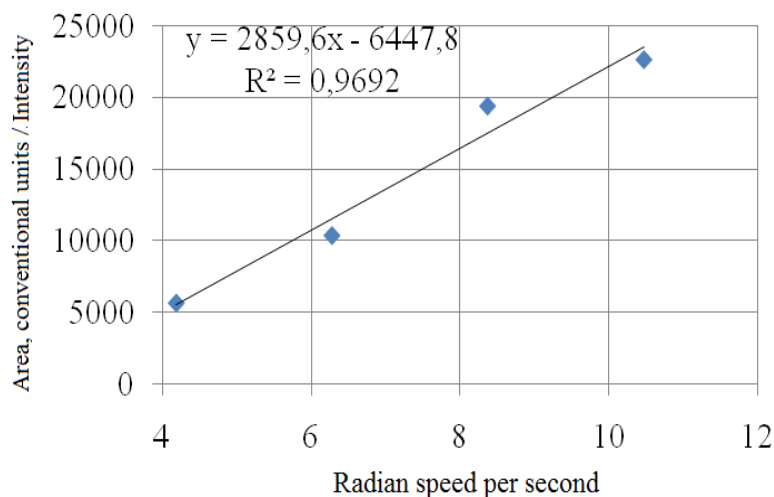


Fig. 3. Dependence of processing intensity on the speed of the working body

Reference

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