EFFECT OF FREQUENCY CURRENT ON TECHNOLOGICAL AND ENERGY CHARACTERISTICS OF PUMPS

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Rejection frequencies of normalized values in agriculture is a violation of the normal course of technological processes, production of defective products, increasing morbidity and death of plants and animals, reducing the useful life of electrical equipment, increase power losses in the power system, emergency situations that are dangerous to human life.

Currently gained distribution variable frequency drives. If you change frequencies changing angular speed of the motor, which in turn causes the change process and power characteristics of working machines.

The purpose of research - to establish the impact of rejection frequencies for technological and energy characteristics of pumps.

Materials and methods research. The analysis of the angular speed electric pumps and energy loss when changing frequencies was performed using the theory of the electric relating to the electromechanical properties of induction motors, power transmission characteristics of working machinery, electric power and steady application of mathematical modeling.

In experimental studies, current frequency changed by frequency converter firm "Mitsubishi" and determine the angular speed, performance, and power pressure pump and calculated relative power consumption.

Results. Established that the angular speed and performance of the pump is directly proportional to the frequency change current time pressure - the square of the current frequency, power - cube frequencies.

Rejection frequencies in asynchronous electric causes changes in fixed and variable power losses.

Approximately one can assume that the fixed and variable power losses are directly proportional to the cube of frequencies and specific power consumption - square frequencies.

Established that lowering frequencies causes a decrease in specific consumption of electricity in the pump and its improvement - growth.

At lower frequencies by 2% performance pumps and fans is changed to 2%, pressure - 4% capacity - 6%, and the specific power consumption is reduced by 4%.