

Absract

In the diploma project, according to the task, the modernization of the electric drive of the feed chopper is considered.

This paper provides general information about shredders and defines the requirements for electric drives and control systems. The "frequency converter - asynchronous motor" system was chosen as the electric drive system for the shredder.

The load of the shredder was calculated and an asynchronous electric motor with a power of 11 kW was selected. The parameters of its replacement scheme are determined and natural and artificial mechanical and electro-mechanical characteristics are constructed.

The power scheme of the electric drive is considered, the frequency Converter is selected and the parameters of its elements are determined. A mathematical model of the electric motor is given, the parameters of the control object are calculated, and the circuit diagram of the automated electric drive is shown. To analyze the dynamic characteristics of an electric drive, a simulation model is constructed and transient processes under various modes are studied.

The work provides for safety measures against air pollution, as well as noise and vibration of the unit and calculates the economic efficiency of the proposed electric drive.