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STAGES OF DEVELOPMENT OF THE ASYNCHRONOUS MOTOR

The purpose of report is to show the importance of the use of asynchronous motors, due to the simplicity of the device, high reliability and operation, lower cost compared to other engines. Therefore have gained wide application. Asynchronous current motors have found wide application in industry and agriculture. With their help, metal-cutting and woodworking machines, cranes, winches, elevators, escalators, pumps, fans and other mechanisms are set in motion

Single-phase asynchronous motor is often used in household appliances such as vacuum cleaners, fans, food processors, blenders. Even as part of a personal computer, you can find more than one asynchronous motor. Two-phase asynchronous motors are widely used as executive asynchronous motors in automation systems, in particular, in radar stations and automated control systems. These motors are designed to convert electrical signals into a given rotation or rotation of the shaft. The most widespread engines of low power - from fractions of a watt to 100 watts. The executive engine comes into rotation when the signal is supplied from the driver (selsyn transformer via an amplifier), and when removed it should immediately stop without the use of braking devices. This engine almost does not work in nominal mode, it is characterized by a constant change in speed, frequent starts, reverses and stops.

The following basic requirements are imposed on executive engines: stability of operation, linearity of adjusting and mechanical characteristics, low control power, large starting torque, lack of self-driving, change in wide limits of rotational speed, speed, reliability, small weight and dimensions. All these requirements are largely met by two-phase asynchronous motors. In addition, their main advantage is the simplicity of design and reliability.

However, the first was born precisely a three-phase electric motor, whose principle of operation was based on the interaction of electromagnetic fields.

The principle of operation of asynchronous motors is based on the fact that the stator induces a magnetic field in the windings or “squirrel wheel”. Under its action, a current appears in the conductors of the rotor, and with it the own magnetic field. The variable magnetic field of the stator carries the rotor behind it, and the rotor begins to rotate. But the magnetic field of the rotor is always delayed relative to the stator field, and the rotation of both fields cannot occur synchronously.

All these types of engine have only one drawback, they can really overheat. The rest of the advantages over other types of engines:

A simple device makes it economical in production, low energy consumption leads to efficiency of devices equipped with this engine, versatility of application in devices where exact maintenance of rotational speed is not required or there is a control circuit with feedback that provides rotation with a given frequency ,high reliability in work, asynchronous motor can work with single-phase connection.