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METHOD FOR IMPROVING ENERGY ASYNCHRONOUS MACHINE

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Modern ways to improve the energy efficiency of electric cars aimed mainly using computer technology to search for optimal solutions in the design, manufacture and operation of, the use of a new high-performance material machines on the edge of their properties and capabilities. These methods do not affect the essence of physical processes in the car, that is passive.

The main drawback of asynchronous motor is the simultaneous use of two types of network electricity - active when converting it into mechanical motion to drive the actuators on the shaft of the rotor and thus the inevitable heat losses and reactive to generate electromagnetic rotating magnetic field

The purpose of research - to improve energy efficiency asynchronous machine.

Reactive power compensation in distribution electrical grids usually done installing additional sources of reactive energy, which is often mistaken as a battery of static capacitors. Which are turned on simultaneously trolley or a group of them (for example, a separate parallel asynchronous motors or AD group).

On the basis of this rotating magnetic field created and widely used in engineering functional universal asynchronous machines, of which the most common in practice were three-phase asynchronous motors (AM) of the squirrel cage.

At a constant nature of the physical process of creating a rotating magnetic field and the principle of the induction motor to improve its energy efficiency, in addition to these are passive, apply some active response to the quantity and quality of the magnetic field as one of the leading actors of the electromechanical conversion power asynchronous machine.

So the technique is already used with high efficiency variable frequency drives, although difficult and expensive until converters and regulators frequency alternating current limit its use.

Promising to increase efficiency asynchronous motor can also be a way to increase the number of its phases, while simultaneously changing the number of phases of the motor and the mains also made very difficult.

But the known and already are some options for the use of simple partial increase in the number of phases of the stator winding AD, for example, doubling the number of schemes under constant squirrel cage and the number of phases of the power supply.

In our proposed method of internal capacitive reactive power compensation two stator windings made equal in number of turns and wire section, and combining it with the method of doubling the number of phases increases even more energy opportunities asynchronous machine, called compensated (KAM).

Analogue compensated three-phase induction motor (KAD) scheme for doubling the number of initial phases each phase stator base three-phase asynchronous machine with squirrel cage motor is single phase condenser (also called offset) induction motor.

In the same three-phase KAD original magnetic field of basic three-phase asynchronous machine is already rotating.

Offset asynchronous generators are designed for self-contained electrical systems. Dual internal mixed (compound) Capacitor excitement stabilizes output voltage and frequency with increasing load to nominal and forcing excitation, such as starting the engine commensurate with generator power. A total capacitance at the output of the generator is used to reactive power compensation trolley.

In combination means doubling the number of phases of stator windings and internal capacitive reactive power compensation offset asynchronous machine is energy efficient, with energy efficiency class (according to European classification)

not less IE3 for constant frequency AC power, but because of the need of power capacities limited to 11 kW.