RECENT RESULTS IN THE FIELD OF MULTIPHASE AC INVERTER DRIVES RESEARCHES

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The increase (more than four) of an AC inverter drive phase number is an effective method of improvement of most important characteristics of the above mentioned electromechanical system. For example, the increase of a phase number leads to the next effects (without any increase in complication degree of the inverter cont¬rol algorithm) [1-7]:

1) The increase in the frequency and the decrease in the value of an AC motor torque pulsation. This effect allows to increase a range of speed change.

2) The increase in the frequency and the decrease in the value of current pulsation in the input circuit of an inverter. This effect allows to decrease a value of a capacitance in the input circuit of an inverter.

3) The decrease of power losses in the rotor circuits of AC motors. This effect leads to an increase of the value of motor efficiency.

4) Opportunity of the use of some non-traditional motor control methods which allows to increase the control resources of the drive system, to increase the maximum and starting torques of the motor and to decrease the mass-and-overall dimensions of the AC motor which is used in the given electromechanical system.

5) The increase in the reliability parameters of the drive system (by the use of some specific methods of inverter control).
The making of the multiphase AC motors and inverters is not more difficult than the making of the 3-phase analogous devices and needs no change of the available production equipments.

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