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ADVANTAGES IN DYNAMIC BEHAVIOR OF BLDC ELECTRICAL DRIVES

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ABSTRACT

This paper tends to show some of the dynamic avantages of BLDC motors in the electrical drives. In many sectors of the industry, or other fields it is requested to adjust the speed of a driver for a higher efficiency, to control the speed, velocity and accelerations, also to eliminate the mechanical stress when do some motors have to operate with the same speed. Sometimes when the starting and stalling processes are frequent, this drive operate in the same manner as the variable speed drives. These problems are very difficult to solve with the standart motors, otherwise they are assosiated with higher cost. In this case the use of the BLDC motors is a good choise. BLDC motors are used in many applications and continue to apply widly because of very good dinamic behaviour of this motor during transient processes. This is dedicated the usage of the permanent magnets made from materials whith outstanding properties in the creating of the magnetic field, power electronics, electronic control and motor design. The application of BLDC motor in variable speed drive is able especially for control of the speed, position, torque and wider range of control characteristic. It is important to point out the impact of this motor in the environment protection. Through the experiments it is proved that the inertia moment, dynamic respond in starting, stopping proces and the efficiency of the BLDC motor in compare with shaded- pole one phase induction motor ensure the better performance of BLDC motor used in a fan application.

Key words: Brushless Direct Current Motor; dynamic behavior; fan driving; Induction Motor.