ABSTRACT
DC injection braking systems provide a simple, rapid and reliable solution as they are incorporated within the control function and utilize the existing motor drive. The main purpose of this paper is to design a DC injection braking system for a single-phase induction motor drive. First, the single phase induction was designed through finite element method. Simulation results, including flux lines, flux density and magnetic field distribution. The designed DC injection braking modules utilize Programmable logic controller, transformer, rectifier and magnetic contacts to switch the injected DC current into the motor windings. DC injection braking can provide the motor braking force during stop when AC power is removed from the motor. DC magnetic field introduced into the stator will create a powerful braking force on the spinning rotor. This DC injection current may be increased to provide more braking torque from the single induction motor. Experimental results show that the DC injection is an effective braking method for the single-phase induction motor can also be applicable in the case of the three-phase induction motor.

Keywords : dynamic braking


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