Effect of The Smoothing Coils on The Chopping Frequency in Choppers[1]

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Abstract

In this study, a modeling and simulation of DC motor driven by series chopper is demonstrated. The rated power of motor is 3.5 kW and nominal speed is 127 rad/sec with independent excitation.
DC motor is driven by step down chopper. Two methods were used to supply this chopper; the first one from DC source and the second from alternating source (50 Hz) using smoothing coils in both cases.
The effect of smoothing coils on the control system and the motor performance was analyzed in both cases.
The conducted study covers different phases of motor operation: starting; steady state, and transient state at different chopping frequency.
Finally, simulation results are demonstrated and discussed for each case.

Keywords: DC. Motors ; DC. Motors drives; Choppers, Feedback control Loop, Control Systems , Power System Blockset.

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