

Abstract

Transient and Steady State Analysis of high efficiency single-phase induction motor

Operating a three-phase induction motor from a single-phase supply via three capacitors is studied. The capacitor values may be adjusted so as to get a motor balanced mode of operation. The model of the machine is derived using instantaneous symmetrical components. Equations describing the machine dynamics have been derived then used to simulate and analyze the machine performance for different modes of operation. The machine transient and steady state performance is predicted using Matlab-Simulink software. Experimental results have been obtained and compared with the simulated waveforms, showing the effectiveness of the proposed machine model.