

Design and Simulation of a Double-Stator Linear Induction Machine with Short Squirrel-Cage Mover

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Abstract : A flat double-stator linear induction machine (DSLIM) with a short squirrel-cage mover is designed for high thrust force at moderate speed $< 5\text{m/s}$. The performance and motor parameters are determined on the basis of a 2D time-transient simulation with the finite element (FE) software Maxwell 2015. Design guidelines and transformation rules for space vector theory of the LIM are presented. Resulting thrust calculated by flux and current vectors is compared with the FE results showing good coherence and reduced noise. The parameters of the equivalent circuit model are obtained.

Keywords : equivalent circuit model, finite element model, linear induction motor, space vector theory

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