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A computer-based design assistant for induction motors

J. Moses; J.L. Kirtley Jr.; J.H. Lang; R.D. Tabors; F. Cuadra García

Abstract-

This paper describes a computer-based design assistant for the synthesis, analysis, and optimization of three-phase squirrel-cage induction motors. The distinguishing features of the design assistant are its ability to synthesize and cost new designs, its use of multiattribute dominance to implement optimization, and its maintenance of a database of optimal designs. Design synthesis is accomplished via a Monte Carlo procedure that allows the design assistant to trascend the limitations of preprogrammed heuristic expert knowledge. Costing is achieved through the use of a manufacturing simulator described elsewhere. Through its optimization, the design assistant retains only superior designs in its database, and presents to the user a feasibility frontier outlined by those designs.

Index Terms- Computer-aided design, induction motor, multiattribute optimization

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