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Technical Solutions of Laminated Magnetic Cores of Transformers with Combination of Electrical Steel

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Краткое описание

One of the goals of energy conservation is to reduce the waste and material intensity of transformers. The improvement of transformers is traditionally determined by the creation of new materials. Modern transformers are based on magnetic conductors of anisotropic electrical steels. The lack of flexible magnetic circuits made of such steels is a great additional loss in the angular zones when the direction of magnetic flux does not correspond to the texture of steel. The aim of the work is to analyze and present transformer improvement possibilities by structural-geometric transformations of magnetic conductors. In addition to the use of new materials, the improvement of transformers is possible with innovative design and technological solutions. Combinations and changes of configurations and positions of steel layers of charged magnetic circuits are offered. To avoid significant additional losses, the rods and jugular sections are made of anisotropic steel, and isotropic steel plates are installed in angular zones. The combinations of plates of anisotropic and isotropic steels are usefully formed and connected in integral blanks by electric welding. It is also possible to reduce losses and material intensity of transformers by constructing circuits of three-phase and one-phase magnetic circuits based on octagonal and hexagonal configurations. © 2021 IEEE.

Ключевые слова автора

anisotropic; charged magnetic conduit; contour; energy saving; isotropic; steel; structure; transformer

Включенные в указатель ключевые слова

Engineering controlled terms
Energy conservation; Flexible electronics; Magnetic circuits; Magnetism; Plates (structural components); Silicon steel; Textures; Timing circuits

Engineering uncontrolled terms
Charged magnetic conduit; Contour; Energy savings; Energy-savings; Isotropic steels; Isotropics; Magnetic conductors; Materials intensity; Technical solutions; Transformer

Engineering main heading
Anisotropy

Темы SciVal

Название темы	Magnetic Field; Silicon Steel; Magnetostriction
Процентиль актуальности	74.790

Параметры

Пристатейные ссылки (19)

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