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COMPARISON OF ACTIVE PARTS OF SINGLE-PHASE TRANSFORMERS WITH TWISTED AND LAYERED MAGNETIC WIRE (ПОРІВНЯННЯ АКТИВНИХ ЧАСТИН ОДНОФАЗНИХ ТРАНСФОРМАТОРІВ З КРУЧЕНИМИ ТА ШИХТОВАНИМИ МАГНІТОПРОВОДАМИ)

Непомящий Д. – здобувач вищої освіти групи ЕнМ 1/1

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Виконано числовий порівняльний аналіз показників технічного рівня планарних стрижневий, броньовий і просторової броньовий електромагнітних систем з крученими і шихтованими магнітопроводами.

Ключові слова: *однофазний трансформатор, кручений, шихтований, планарний, просторовий, магнітопровід, оптимізація, порівняльний аналіз.*

A numerical comparative analysis of technical level indicators of planar rod, armor and spatial armor electromagnetic systems with twisted and layered magnetic conductors was performed.

Keywords: *single-phase transformer, twisted, stacked, planar, spatial, magnet wire, optimization, comparative analysis.*

Statement of the problem, analysis of the latest research and publications.

In the conditions of market competition and modern requirements for all elements of electrical engineering systems and complexes, requirements of economy, reliability and compactness are put forward [1]. Single-phase transformers and reactors are one of the important elements of industrial, special and household electrical equipment. The improvement of such electromagnetic static devices (ESDs) will lead to a significant increase in the technical level of electrical systems and single-phase power supply complexes and will contribute to solving the problem of comprehensive energy resource conservation [2].

The main requirement for electromechanisms and single-phase power supply systems, in particular for domestic use, is a minimum mass. Single-phase ESPs are produced with both twisted and layered magnetic conductors [3]. However, until now, the issue of their analytical comparison has not been resolved. Therefore, solving the problem of mass comparison, that is, the material

capacity of single-phase static electromagnetic systems (EMSs) is important and relevant both theoretically and practically [4, 5].

The purpose of the work is a numerical comparative analysis of the mass indicators of single-phase SESs of small and medium power with twisted and layered rod and armored magnetic conductors.

Research result.

It was established that the mass indicators in the working range of EMS voltages with a twisted magnetic core are improved (reduced) compared to the analogue with a charged magnetic core. Taking into account the stacking and protrusion coefficients: copper winding material by 2.66 - 2.95%, aluminum winding material by 2.47 - 2.77%; without stacking and protrusion coefficients: with copper windings by 1.8 - 2.1%, with aluminum winding material by 1.8 - 1.9%.

The mass index of a planar EMS with a twisted magnetic core compared to a planar armored analogue with a charged magnetic core improves (decreases) by 2.17 - 2.45% with copper windings and 1.43 - 1.66% with aluminum windings, taking into account the stacking and protrusion coefficients, similarly without coefficients it decreases by 1.09 - 2.27% with with copper windings and by 1.3 - 1.51% with aluminum windings.

The mass index of a spatial four-circuit EMS with a twisted magnetic core relative to a planar armored analog with a stacked magnetic core is in the range of a decrease of 1.32-1.82% with copper winding material and 0.05-0.44% for aluminum winding material, taking into account the stacking and protrusion coefficients and without the coefficients with copper windings on 1.01-1.49%, and -0.018 - 0.19% with aluminum windings.

Conclusions.

In the work, a comparative analysis of EMS variants with twisted and layered magnetic conductors is performed, taking into account the leakage during seepage and the features of laying copper windings for low-power ESD and aluminum windings for medium-power ESD of single-phase transformers and reactors.

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THE "ACCESSIBLE LOANS 5 7 9%" PROGRAM, ITS BENEFITS AND FEATURES.
(ПРОГРАМА “ДОСТУПНІ КРЕДИТИ 5-7-9%” ЇЇ ПЕРЕВАГИ ТА ОСОБЛИВОСТІ)

Нестерчук Т.В. – здобувач вищої освіти групи Ф 3/1

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Розглянуто зміст державної програми підтримки мікро та малого бізнесу в Україні “Доступні кредити 5-7-9%”. Виявлено основні переваги та особливості програми. Досліджено розміри процентних ставок та умови їх встановлення. Доведено важливість програми “Доступні кредити 5-7-9%” у підтриманні мікро та малого бізнес в Україні під час пандемії та війни.

***Ключові слова**: кредит, державна підтримка, ставки,термін кредиту, мікро та малі підприємства.*

The content of the state program for supporting micro and small businesses in Ukraine "Accessible loans 5 7 9%" was considered. The main advantages and features of the program have been revealed. Interest rates and the conditions for their establishment were studied. The importance of the "Affordable loans 5 7 9%" program in supporting micro and small businesses in Ukraine during the pandemic and war has been proven.

***Keywords**: credit, state support, rates, loan term, micro and small enterprises.*

Micro and small businesses in Ukraine often face the problem of insufficient access to financial resources, which complicates their active development. In order to facilitate access to bank