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C O N T E N T S

S U M M A R I E S

ON THE POSSIBILITY OF REDUCING ADDITIONAL LOSSES AND HEATING IN OPERATING HYDROGENERATORS.

Y.Bijamov, G.Tsikolia.

"Energy". №4(108). 2023. Tbilisi. p. 5-11. rus. sum geo. engl. rus.

The importance of additional losses in hydrogenerators and their influence on additional heating of active materials, the temperature limits of which limit the energy capabilities of the operating machines, are shown. Methods are given for determining these losses and performing temperature measurements in parts of the generator that are not covered by standard thermal control. A practical example of determining additional losses and heating in the pole piece of a real hydrogenerator and realizing the possibility of reducing them is considered.
Ill. 2, tabl. 1, bibl. 9.

MECHANICAL NODES OF ELECTRIC MACHINES, THE MOST COMMON TYPES OF NODE DAMAGE ARE DESCRIBED.

G. Kharshiladze, Z. Gobiahidze, G. Giorgadze.

"Energy". №4(108). 2023. Tbilisi. p. 12-16. geo. sum geo. engl. rus.

Traditional non-economic methods of damage restoration are given. Technologically more cost-effective methods of repairing damaged nodes are proposed. Recommendations are given, taking into account and using them, the time and price of repairing the damaged electric motor is significantly reduced. The sequence of the technological process for carrying out restoration works is established.
Ill.4, bibl. 3.

MATHEMATICAL MODEL OF LASER-PLASMA ACCELERATOR.

T. Kokhreidze.

"Energy". №4(108). 2023. Tbilisi. p. 17-24. geo. sum geo. engl. rus.

There is discussed laser-plasma accelerator for hadronic therapy. The energy source presents bunch of powerful laser electrons or protons, but the role of accelerator presents plasma. Particles acceleration realizes in plasma with wake waves, which move in plasma with speed-of-light. There is allowed mathematical model for laser-kinetic high-frequency plasma and made numeral connection among plasma parameters, flow densities and magnetic and electronic fields tensions.
Bibl.3.

EQUIVALENT CIRCUIT OF A SINGLE-BRIDGE SEMICHAIN OF DC TRANSMISSION AND CONSTRUCTION OF EXTERNAL CHARACTERISTICS IN DIFFERENT MODES OF OPTIMAL CONTROL OF ELECTRIC ENERGY ACCOUNTING AND TIME-INDEPENDENT PROCESS.

G. Kokhreidze, Z. Gachechiladze, N. Beradze, Gocha Kokhreidze,G.Kadagishvili.

"Energy". №4(108). 2023. Tbilisi. p. 25-36. geo. sum geo. engl.rus.

The scientific-engineering paper represents an electrical circuit of a bipolar DC transmission line consisting of two-bridge converters with IGBT transistor modules [1]. In the event that its second lower semichain is taken out for major repairs, only the upper single-bridge semichain remains in operation, which is an equivalent circuit of the main single-bridge semichain. As a result of the work, during the operation of the resulting circuit, external characteristics were built in different modes of optimal control of electric energy accounting and time-independent process. The work considers the following modes: operation of the circuit without all regulators; work with the existence of the inverter extinction angle regulator; work with the rectifier current regulator and with the inverter extinction angle regulator. Corresponding external characteristics are built, which show the need to use a minimum current controller and improve the efficiency of accounting.
Ill.5, bibl. 3.

THREE-CHAMBER HOUSEHOLD REFRIGERATOR OF AN INNOVATIVE DESIGN.

L.Papava, T.Isakadze, M.Razmadze, M.Qobalia, G. Gugulashvili.

"Energy". №4(108). 2023. Tbilisi. p. 37-41. geo. sum geo. engl. rus.

As is known, the production releases different models of household refrigerators: single-compartment refrigerators with a low-temperature (freezer) section located in the upper part of the cabinet and two-compartment refrigerators. In one case, the refrigerator has one common evaporator for two sections (refrigerator and low-temperature), and in the other case, the refrigerator has two evaporators - one for the refrigerator, and the other for the low-temperature section. Compared to single-cell refrigerators, the dimensions of the low-temperature section of two-cell refrigerators are muchlarger.

Schemes of refrigeration units change relatively little. The main difference of the new refrigerator units is the use of evaporators with two valves connected in series, one of which cools the low-temperature section, and the other - the refrigerating section. In some two-chamber refrigerators, without changing the refrigeration unit, the natural air circulation in the evaporator is replaced by an artificialone.

The article presents the construction of a three-chamber refrigerator, which allows the storage of any food product. This refrigerator has: cooling, freezing and frozen product storage chambers, which gives the refrigerator a universal look.

Ill. 2, bibl. 10.

GENERAL OVERVIEW OF CONSTRUCTION PHYSICS ISSUES.

V.Kvintradze, M. Jgenti.

"Energy". №4(108). 2023. Tbilisi. p. 42-45. geo. sum geo. engl. rus.

With the development of science (in particular physics and chemistry), an opportunity (obligation) arises for new achievements of science to be applied in engineering, in particular in construction. The use of new materials and technologies requires appropriate knowledge. On the agenda was the creation of new direction in the science of construction physics, which will help civil engineers increase the level of knowledge to appropriately solve problems existing in the construction business. The article discusses some issues of construction physics. From this review it is clear how the connection between physics and construction is increasing.

Bibl. 3.

SLOW REVERSIBLE DEFORMATION OF SOLIDS IN A SURFACE-ACTIVE ENVIRONMENT.

M.Lordkipanidze, Z.Karumidze, N.Ptskialadze.

"Energy". №4(108). 2023. Tbilisi. p. 46-50. geo. sum geo. engl. rus.

After loading of solids, along with elastic deformation, retarded creep gradually develops, which subsides over time. This phenomenon is especially emphasized on concrete, which deforms under normal temperature and humidity conditions. Creep is caused by the action of a surface-active environment and is reversible. Which is expressed in the complete disappearance of the additional deformation when the surface-active environment is removed. Studies of materials of different composition and structure have shown that such reversible flow is of the most general nature and can be considered a new form of manifestation of the Rebinder effect.

Tabl. 1, bibl. 2.