
Ju. I. NEFEDOV HYDROPERCUSSION HEATING SYSTEM WITHOUT ENERGY CONSUMPTION FROM ETERNAL SOURCES.....2

The article describes closed heating system, in which warming and transportation of heated water to a consumer is realized with energy, released under cavitation and hydraulic blow. The main element in the system is known modified hydraulic ram, in which hydraulic blow is put in effect not only in the end of the working tunnel, but also in its beginning.

However, modified hydraulic ram consumes a substantial body of water not used for heating. In cause of this it may be used mainly near big open reservoir. The paper shows the possibility of using a modified hydraulic ram in a closed heating system, which completely eliminates water loss.

A. D. PIROGOV SCOPE OF INTERNAL ENERGY AUDIT OF INTEGRATED TECHNOLOGIES IN A LARGE MACHINE-BUILDING COMPANY.....6

The paper discusses the issues of the need to analyze energy consumption of technological processes used in the manufacture of a wide range of sophisticated bulky products. It gives examples of successful energy efficiency measures.

Power engineering

A. L.SHUBENKO, N. Yu. BABAK, A. V. SINECKIY, S. V. ROGOVOY. TRANSFER OF A SMALL COMBINED HEAT AND POWER PLANT TO COMBUSTION OF LOCAL FUEL TO THE EXTENT SUFFICIENT TO ENSURE ITS OPERATION DURING SUMMER TIME.....17

The paper gives characteristics of local fuel. It presents the results of the technical and economic assessment of the project of transfer of one boiler unit of the small CHPP from natural gas to local solid fuel, which is proposed to be burned in the furnace with "fluidized bed". It shows that the simple payback time of such a reconstruction of the boiler with a capacity of 50 t/h of steam with the parameters of 3.4 MPa, 440 °C for the main groups of local fuel will pay off in less than two years. In order to increase economic indicators of the CHPP with steam turbines working with poor vacuum during summer time it is proposed to install an additional circuit based a small turbine with a low-boiling working fluid.

Key words: combined heat and power plant, combustion of local fuel, "fluidized bed", payback period, small turbine

A. Ju. MEZERJY, Y. O. ZANYKHAYLO. ANALYSIS OF FACTORS INFLUENCING PHYSICAL AND MECHANICAL PROPERTIES OF ICING ON WIRES AND CABLES OF OVERHEAD POWER TRANSMISSION LINES.....27

The paper considers factors influencing physical and mechanical properties of icing on wires and cables of overhead power transmission lines. The paper presents a schematic diagram, finds the degree of influence of various factors on physical and mechanical properties of icing.

Key words: physical and mechanical properties, icing, wire, overhead power transmission lines.

POBIGAYLO V. A., KALINCHIK V. P. THE COMPLEX "REACTOR – CONTROLLED SHUNT" AS MEANS FOR INCREASING EFFECTIVENESS OF LIMITATION OF SHORT CIRCUIT CURRENTS IN INDUSTRIAL SYSTEMS OF ELECTRIC POWER SUPPLY.....33

The paper consider scientific and practical relevance of the problem of increasing the efficiency of the means for limitation of short-circuit (SC) currents , formulates the goal and objectives of the study. It suggests a complex and a method to manage limitation control of SC currents in industrial electric power supply systems using the "reactor - controlled shunt" design as a solution. It builds an operating procedure for the system "reactor - controlled shunt". A cause and effect diagram for emergence of SC currents - the Fishbone Diagram as per ISO 9004 was built for the first time.

Key words: short circuit current, reactor, Fishbone Diagram, ISO 9004, effectiveness, limitations, protecting device, controlled shunt, losses reduction

GULEY A. B., KLYUCHKA E. P. ASSESSMENT OF DEPENDENCE OF TEMPERATURE OF EXIT COMBUSTION GASES OF THE TP-81 STEAM BOILER FURNACE ON NON-NOMINAL AIR INFLOW THROUGH LEAKY FURNACE CAGE.....39

The paper investigates the possibility of heat shields slagging at the outlet of the furnace of the boiler plant (BP) caused by off-design inflows of external air into the furnace that are significantly greater in volume than those provided by the design.

The study was performed by means of mathematical computer modeling of combustion process in the BP furnace, for which purpose the layered nonlinear three-dimensional model that sets the amount of inflow and their localization on the surface of the furnace was used.

When analyzing the dependence of the gas temperature at the outlet of the BP furnace on the character of air inflows, the authors found that the localization non-nominal air inflows below the level of burners and as they grow bigger, the gas temperature at the outlet of the furnace can grow significantly and reach the level of the beginning of slagging. When air inflows occur on the level above burners, with the increase of these air inflows the temperature declines steadily. When air inflows are located in the bottom plane along the walls of the furnace, the gas temperature at the furnace outlet increases slightly (less than 1% of the gas temperature) as compared with the situation of air inflows in the bottom plane at the center of the furnace.

The authors showed that the proposed solution has proven to be effective for assessment of the possibility of heat shields slagging at the outlet of the BP furnace caused by non-nominal external air inflows.

Key words: boiler plant, furnace, temperature, exit gases, air inflow, furnace cage, heat shield, slagging, combustion in the furnace, model, layer, approximation.

Economy, organization and management

MEHOVICH S. A., FADEYEV A. V. EXPERIENCE OF USING INDUSTRIAL CLUSTERS AS INSTRUMENT OF INNOVATIVE DEVELOPMENT.....52

It is shown in the article that within the territory for which the set of limited resources is characteristic, objectively there are groups of the cluster educations including both uniform and specific enterprises. It demands specification of separate provisions of the cluster theory of Porter. On the basis of synthesis of foreign experience authors made conclusions about possibility of its adaptation to conditions of Ukraine.

Keywords: innovative cluster, industrial cluster, cluster concept, cluster policy, network cooperation, synergetic effect, state-private partnership.

BILOSTOTSKA I. Y., VREMENKO L. V. DEVELOPMENT OF INSURANCE PROTECTION IN THE AGRICULTURAL SECTOR.....63

The article is devoted to consideration of the insurance model in agriculture, the results of the Agricultural Pool during the 2005-2013 were given and the ways of improving agricultural insurance were suggested.

Keywords: Agricultural Insurance, Agricultural Insurance pool, governmental support.

Scientific and technical progress and efficiency of production

ORFANOVA M. M. AREAS FOR IMPROVEMENT OF ECOLOGICAL SITUATION IN ENTERPRISES OF GAS-AND-OIL PRODUCING INDUSTRY OF UKRAINE.....69

The wastes produced by oil-and-gas companies are characterized by versatile chemical composition, which complicates the possibility of their further recycling. The paper analyzes technological processes from the view point of waste production. It emphasizes three negative characteristics of oil-and-gas production. It proposes creation of regional centers for elimination of oil and acid sludge.
