

Power Engineering

Diedkov V. N., Agibalov E. S. and Gorodetskiy Yu. V. Installation for researches of assemblies of microhydroelectric power station 7

The description of installation for researches of assemblies of the microhydroelectric power station created on the basis of hydrodynamic stands of laboratory of the hydraulic machines of Institute for mechanical engineering problems of NAS of Ukraine is presented. Power parameters of hydrodynamic stand EKS-15 and the characteristic of the modernized measuring and computing complex which provide possibility to conduct exploratory power cavitation tests of models of assemblies of microhydroelectric power station with split-hair accuracy are resulted. It allows to use the gained experimental data for verification of the program complexes modeling a three-dimensional fluid flow for the purpose of their use for working out of the new turbine settings of hydraulic machines.

Matsevyt Yu. M., Antiptsev Yu. P. and Goloschapov V. N. Choosing the thermogas dynamic and design values of peak load turbine for high-temperature topping part of power unit K-300-24014

The conception of using the peak load turbine as high-temperature topping part for 300MW power unit is introduced. Its initial and final parameters are obtained. The thermogas dynamic and design values of action and reaction turbines is calculated for rotor speed turndown $n = 50 \div 200 \text{ s}^{-1}$. The optimum alternative of the peak load turbine with $n = 100 \text{ s}^{-1}$ is chosen. The estimation of strength properties of rotor blades is carried out.

Heat Transfer in Engineering Constructions

Kostikov A. O. Increasing the accuracy of solution of geometrical inverse heat conduction problems at the expense of a priori information about unknown geometric characteristics 23

The problems of increasing the accuracy of solution of geometrical inverse heat conduction problems are examined. It is shown that the presence of a priori information about unknown geometric characteristics results in additional limitations on unknown geometrical parameters. That allows appreciably reduce the set of their allowed value and increase the accuracy of solution. The numerical results of the model shape identification problem show the efficiency of proposed approach.

Alyokhina S. V. Identification of heat transfer coefficients on surfaces of exhaust hood of steam turbine 31

An investigations of thermal and gas dynamics processes have been carried out for thermal stress estimation in steam turbine exhaust hood. The direct coupled problem of heat exchange has been solved. Based on these results the heat transfer coefficients on surfaces by the decision of inverse problem of heat transfer are defined. Data will be used for durability estimation of steam turbines.

Kuznetsov M. A. Thermo-economic analysis of the heat-pumping drying installation..... 36

A thermo-economic model of the heat-pumping drying installation with closed cycle and the bypassing of part the drying agent around heat-pump evaporator were developed. The model allows to take into account both thermodynamic, and economic parameters simultaneously by optimization of facility design and choice of economic modes of the operations. The solution of the equations system describing of exergy flows through borders of model and economic costs was obtained. The solution can be used for any steam-compression heat-pumping drying installation, which works according to the suggested scheme.

Dynamics and Strength of Machines

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The right-angled stroke destroys iron mongery more quickly than sinusoidal loading. This factor is shown in this article. In this article is used singularisnal expansion of spasmodic function.

Yanchevskiy I. V. Non-stationary vibrations of thin walled cylindrical piezoelectric transformers with mixed electric boundary conditions46
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Applied Mathematics

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In Bessel functions the first integral of the equation of vertical motion of a spherical particle is expressed, the area of which surface decreases proportionally the time of flight, so as, provided that the force of aerodynamic resistance is proportional second, and jet force to the first degree of velocity of motion of a particle, as sphere with variable in time of radius and mass.

High Technology in Mechanical Engineering

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Shows the physical and mathematical model of a microwave discharge at atmospheric pressure in the flow of carbon aerosol. The results of numerical studies of the temperature field in the discharge volume with respect to the experimental plasma-coal burner.

Materials Science in Mechanical Engineering

Matsevity V. M., Vakulenko K. V. and Kazak I. B. About healing of defects in metals during plastic deformation (analytical review).....66
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