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SUMMARIES

DYNAMICS OF THE SPHERICAL SLIDER-CRANK MECHANISM OF A CONE CRUSHER DRIVE. N. Davitashvili, A. Sharvashidze, A. Talakvadze. "Problems of Mechanics", Tbilisi, 2022, № 4(89), pp. 7-25 (Engl.).

In this paper, the dynamic investigation of the spherical slider-crank mechanism used as a cone crusher drive is given. The case is considered with taking into account the elasticity of links. It is determined: the elastic deformation of a link with distributed masses without setting differential equations in partial derivatives and the reduced coefficient of rigidity, which is a nonlinear function of generalized coordinate and a variable value. The second order differential equations of motion of an electric engine and spherical four-link mechanism are received. The results, obtained by dynamic investigation of spherical slider-crank mechanism, can be used in its synthesis and construction of cone crusher drive. 10 ill. Bibl. 16. Engl.; sum. in Russian.

INFLUENCE OF THERMAL TEMPERATURE ON IMPACT-ABRASIVE WEAR RESISTANCE OF POWDER STEEL PK08KH4N5. S.N. Namazov, T.E. Taghiyev, Sh.M. Mashayev. "Problems of Mechanics", Tbilisi, 2022, № 4(89), pp. 27-34 (Engl.).

Impact-abrasive wear resistance of corrosion-resistant steels and alloys depends on many factors, as well as their microstructure. One of the simple operations to ensure the struc-tural formation of annealed and compact steels is thermal treatment. Thus, it is possible to provide the necessary properties by making certain changes in the structure with the process of tempering after tabulation, which is a thermal processing method. In order to study the influence of the coo-king temperature on the structure and properties of alloyed abrasive steels, samples made of ПВХ18Н15-56 brand steel were studied, and to clarify the effect of annealing operation on the im-pact-abrasive corrosion resistance of abrasive steels, samples made of ПК08Х4Н5 steel were used. It is often difficult to ensure the longevity of details and products made of construction materials. So, the process of eating them has not been widely studied. Since certain parts of machines and equ-ipment are subject to severe wear and tear, their service life is significantly reduced, and they often break down. For this reason, various technological processes should be developed and technolo-gically and economically favorable technology should be developed to ensure the corrosion resis-tance of details and parts. ПК80Х4Н5 brand abrasive steels have high impact-abrasive corrosion re-sistance compared to 40ХН2МА brand steels. These steels are used in the production of machine parts that are resistant to various mechanical wear. Parts and products obtained by the powder me-tallurgy method have very few mechanical processing shares. In addition, it is possible to obtain highly corrosion-resistant materials of chromium alloys only by coating the working surface with nickel powder. As a result of the research, it was found that it is possible to improve the properties of the steel in ПК08Х4Н5 branded steel, taking into account the chemical composition, structure and technological factors. 3 ill. Bibl. 8. Engl.; sim. in Russian.

ENSURING THE STABILITY OF THE TUBE ROLLING PROCESS. S. Mebonia, M. Glonti, G. Kharatidze. "Problems of Mechanics", Tbilisi, 2022, № 4(89), pp. 35-42, (Engl.).

The process of seamless tube rolling on the automatic mill of the tube rolling unit using the backward mandrel in the deformation zone is discussed. The stability conditions of the rolling are defined for this process. A minimally sufficient rolling speed is established, which ensures smooth exit of the tube from the roll's caliber of the automatic mill. A calculation formula for this rolling speed is obtained. 7 ill. Bibl. 6. Engl., sum. in Russian.

MAGNETOHYDRODYNAMIC CHANNEL FLOW UNDER TIME-DEPENDENT PRESSURE GRADIENT ON. V. Tsutskiridze, L. Jikidze, E. Elerdashvili, M. Tsutskiridze. "Problems of Mechanics". Tbilisi, 2022, № 4(89), pp. 43-49, (Engl.).

Hartmann's work on magnetohydrodynamic channel flow is extended to include the case with a time-dependent pressure gradient. Cases treated are: 1) suddenly applied pressure gradients which are periodic in time, and 2) pressure gradients which, with respect to time, are step and delta functions. The channel walls are assumed to be perfectly conductive. As a limiting case, the solution for hydrodynamic channel flow with a time-dependent pressure gradient is also given. The nature of viscous and magnetic drag on the wall is discussed. By use of the convolution integral and superposition principle, solutions can be obtained for any arbitrary time-dependent pressure gradient Figyres show the physical consequence of the solutions.. Bibl. 4. Engl.; sum. In Russian.