MINIMIZATION OF DYNAMIC STRESSES IN LIFTING MECHANISM OF HOISTING MACHINERY

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Abstract. *The influence of different conditions for lifting good ("the weight", "picked out") and of various rope's stiffness (absolutely hard and elastic) on the magnitude of dynamic loads in elastic elements is discussed.One may reduce these loads and dynamic coefficient, as well, with the help of choice of modes of motion required for drive mechanisms during the transieut processes.The dymamic optimization (minimization) of the mentioned above loads of the cargo ropes of hoisting machines for the mechanism of lifting cranes is proposed. One may use the two – mass model for these aims.*

Conducted a comprehensive analysis of the effect of conditions of lifting of loads with the weight and stiffness of the rope (absolutely rigid / elastic) coefficient of dynamic loads in the elastic elements (ropes) hoisting mechanisms of cranes.

Proposed and substantiated the essential modes of motion of the lifting mechanism of the cargo crane (within Domanovo model) that minimize the ratio of dynamic loads in the cargo ropes for lifting equipment when lifting "weights".

The obtained results can further be used in the improvement and refinement of engineering methods of calculation of load-lifting mechanisms of cranes as at the stages of design/construction and the modes of their actual operation.

Key words: ***dynamic optimization, minimization, load, elastic elements, lifting machines, conditions for lifting, stiffness of rope***