

Dynamic Model of Automatic Loom on SimulationX

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Abstract : One of the main tasks in the development of textile machinery is to increase the rapidity of automatic looms, and consequently, their productivity. With increasing automatic loom speeds, the dynamic loads on their separate mechanisms and moving joints sharply increase. Dynamic research allows us to determine the weakest mechanisms of the automatic loom. The modern automatic loom consists of a large number of structurally different mechanisms. These are cam, lever, gear, friction and combined cyclic mechanisms. The modern automatic loom contains various mechatronic devices: A device for the automatic removal of faulty weft, electromechanical drive warp yarns, electronic controllers, servos, etc. In the paper, we consider the multibody dynamic model of the automatic loom on the software complex SimulationX. SimulationX is multidisciplinary software for modeling complex physical and technical facilities and systems. The multibody dynamic model of the automatic loom allows consideration of: The transition processes, backlash at the joints and nodes, the force of resistance and electric motor performance.

Keywords : automatic loom, dynamics, model, multibody, SimulationX

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