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Development of Positioning of Mechanisms with Piezoelectric Engines

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Positioning mechanisms with carts moving in a horizontal plane and with piezoelectric vibroengines analyzed in the article form a group of mechanisms, having elastic and dissipative links and carts moving between deflectors, which interact with the engine without intermediate transference links. Positioning mechanism piezoelectric vibroengine of original construction has been developed, which eliminates looseness, energy losses and acoustic noises. Algorithm of positioning mechanism cart discrete shift without transition processes has been suggested and control task formulated. Control devices of precision positioning mechanisms with piezoelectric vibroengines, which form the optimal control law of the cart shift have been developed. An original precision positioning device with displacement transducer, piezoelectric vibroengine and controllable feeding voltage formation scheme, which considerably increases speed evenness and precision of cart position registration while shifting the cart under a freely chosen program, has been demonstrated.

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