COMPENSATION OF FORCE RIPPLE IN A MODERNIZED LINEAR MOTOR

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This article deals with the modernization of cylindrical two-phase linear motors with monocoil phases of pilots simulator load. We describe a way to modernize the linear motor in the specified dimensions to improve its initial efforts due to increasing the amount of copper by expanding coils. The size of fluctuations efforts that occur when changing the relative position of the coils axes phases was determined. We have found a way to compensate for fluctuations effort by using specially formulated law of changing the phase currents depending on the slider position. This law consists in corresponding switch of the phases commutation angle, contrary to the direction of coils extension. The optimum parameters of modernization in terms of maximum effort have been elaborated. Dependences of engine parameters on the value of additional width coil have been provided.

We calculated on how efforts can be increased in the case of two-phase motor when electromagnetic loads are constant, and what winding data changes should be imposed in linear motor ЛД/С3Т45-2 for optimal coils phases expansion with pulsation compensated effort.

The results of the experiments have been provided- the efforts of the upgraded engine have increased by 9 percent at constant value of its pulsations. We demonstratedaaa graphical charts of flux windings, phase currents and total efforts of the modified engine.