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IMPROVING THE EFFICIENCY OF USING AN AUTOTRANSFORMER BY VARYING THE CURRENT DENSITY IN INDIVIDUAL SECTIONS OF ITS WINDING

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Abstract

The efficiency of using the installed power of a transforming element with a sectioned winding in the composition of transformer-and-switches structures (TSES) of AC voltage converters is an important indicator that determines the parameters and weight and size characteristics of the device in generally. device as a whole. Such transforming elements in the process of performing the TSES of their functional purpose are characterized by an uneven change in the magnitudes of the currents in individual sections and, as a consequence, a change in the total current load of the turns. In order to increase the efficiency of using the autotransformer, it has been proposed to apply selective variation of the current density in separate sections of the coils with control of its thermal state. A specific example is given of performing this procedure, which confirmed the possibility of such an increase. References 9, figures 4, table 1.

Key words: transformer-and-switches executive, discrete smart transformer, discrete smart transformer, AC voltage converter, partitioned winding, variation of current density, thermal processes.

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