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DECREASE OF TRANSIENTS DURATION AND IMPROVEMENT OF DYNAMIC CHARACTERISTICS OF ELECTRICAL DISCHARGE INSTALLATIONS BY CHANGING THE STRUCTURE OF THEIR DISCHARGE CIRCUIT

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Abstract

The features of changing the duration and nature of transients in electric-discharge installations (EDIs) when shunting the discharge circuit of their capacitor with an additional RL-circuit instead of by regulating the voltage feedbacks are determined. The dependences of pulsed currents and powers in the load of such installations when changing their structure are studied. Based on the mathematical simulation, the appropriate values of the time delay of connecting an additional shunt RL-circuit after the start of the capacitor discharge through the load and the energy-efficient parameters of the additional circuit are determined. The use of obtained results allows to reduce in practice the duration of the pulse currents and increase the pulse power in the load, that is, to increase the output dynamic characteristics of the EDI. In spark technology, this approach contributes to the production of electro-eroded powders with smaller sizes and

better performance. References 12, figures 5, tables 2.

Key words: transient, capacitor, discharge, pulse current, duration, power.

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