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Effect of micro-EDM parameters on material removal rate of nonconductive ZrO₂ ceramic (Conference Paper)

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Abstract

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Micro-electro discharge machining (micro-EDM) technique, an advanced noncontact machining process, is used for structuring of nonconductive ZrO₂ ceramic. In this study copper foil as a conductive layer is adhered on the workpiece surface to initiate the sparks and kerosene is used as dielectric for creation of continuous conductive pyrolytic carbon layer on the machined surface. Voltage (V) and capacitance (C) are considered as the parameters to investigate the process capability of machining parameters in continuous micro-EDM of ZrO₂. Different voltage pulses are studied to examine the causes of lower material removal rate (MRR) in micro-EDM of nonconductive ceramics. The results showed that in micro-EDM of ZrO₂ MRR increases with the increase of voltage and capacitance initially, but decreases at higher values and no significant materials are removed at capacitances higher than 1nF. © (2014) Trans Tech Publications, Switzerland.

Author keywords

[Assisting electrode](#) [Micro-electro discharge machining](#) [Nonconductive ceramic](#) [Pyrolytic carbon](#)

Indexed keywords

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[Different voltages](#)
[Machining parameters](#)
[Machining Process](#)
[Material removal rate](#)
[Nonconductive ceramic](#)
[Process capabilities](#)
[Pyrolytic carbon](#)

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