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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 ZrO_2 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 ZrO_2. 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 ZrO_2 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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Machining parameters
Machining Process
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