Experimental Investigation on Over-Cut in Ultrasonic Machining of WC-Co Composite

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Abstract : Ultrasonic machining is one of the most widely used non-traditional machining processes for machining of materials that are relatively brittle, hard, and fragile such as advanced ceramics, refractories, crystals, quartz etc. Present article has been targeted at investigating the impact of different experimental conditions (power rating, cobalt content, tool material, thickness of work piece, tool geometry, and abrasive grit size) on over cut in ultrasonic drilling of WC-Co composite material. Taguchi’s L-36 orthogonal array has been employed for conducting the experiments. Significant factors have been identified using analysis of variance (ANOVA) test. The experimental results revealed that abrasive grit size and tool material are most significant factors for over cut.

Keywords : ANOVA, abrasive grit size, Taguchi, WC-Co, ultrasonic machining
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