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Study of Tool Shape during Electrical Discharge Machining of AISI 52100 Steel

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Abstract : In Electrical Discharge Machining (EDM) operations, the workpiece confers to the shape of the tool. Further, the cost of the tool contributes the maximum effect on total operation cost. Therefore, the shape and profile of the tool become highly significant. Thus, in this work, an attempt has been made to study the effect of process parameters on the shape of the tool. Copper has been used as the tool material for the machining of AISI 52100 die steel. The shape of the tool has been evaluated by determining the difference in out of roundness of tool before and after machining. Statistical model has been developed and significant process parameters have been identified which affect the shape of the tool. Optimum process parameters have been identified which minimizes the shape distortion.

Keywords : discharge current, flushing pressure, pulse-on time, pulse-off time, out of roundness, electrical discharge machining
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