PARAMETRIC OPTIMIZATION IN MICRO-DRILLING BY APPLYING FUZZY LOGIC FOR ALUMINIUM PLATE

RANADHIR R. LANDGE1 & ATUL B. BORADE2

1Research Scholar and Workshop Superintendent (Assistant Professor), Government College of Engineering, Chandrapur, Maharashtra, India
2Professor and Head, Department of Mechanical Engineering, Jawaharlal Darda Institute of Engineering and Technology, Yavatmal, Maharashtra, India

ABSTRACT

Fuzzy logic systems are widely used for management, system identification, and pattern recognition issues. It achieves the deduction in improvement that describes the dynamic behavior of the system to be controlled. Thanks to the quantity, complexity, and unclear, imprecise nature of the variables of the dynamic systems which will influence the call the choice maker’s decision, symbolic logic is that the most fitted answer. Most of automotive parts are factory-made employing a standard machining method, like turning, drilling, milling, shaping, and designing, etc. Out of that standard method of Drilling originates hole on any metal. Micro Drilling is a high-accurate method for smaller holes below 1mm. It is used for the aim increasing quality of special components and things throughout the goal in machining operations. This analysis aims to analyze the result of the cutting speed, feed rate, and depth of the hole on Material Removal Rate (MRR) and Machining time in a small drilling were analyzed. Experiments were conducted supporting the Taguchi style of experiments (DOE) with orthogonal array, with improvement of the Fuzzy constant quantity deduction to Optimize MRR.

KEYWORDS: Micro-Drilling, Cutting Tool, Material Removal Rate, Fuzzy Logic & Taguchi

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