Optimization of Temperature Rise in Turning Using Single Objective Genetic Algorithm

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ABSTRACT

Temperature rise is an essential element that must be consider during machining process which will contribute to the satisfactory end products. All the factors such as cutting environments, methods and work material must be emphasize since it will influence the outcome. The optimization of the machining process was carried out in this research to optimize the machining process by minimizing temperature rise for turning machining. The parameters involve during this optimization are cutting speed, feed rate, depth of cut and nose radius by using genetic algorithm optimization. This study was separated into three sections, each of which was optimized to see what effect each parameter had on temperature rise. The minimum temperature attained was 23.07 °C, while the cutting variables for cutting speed, feed rate, and depth of cut were 81.22 m/min, 0.08 mm/rev, and 0.12 mm, respectively.

KEYWORDS

Genetic Algorithm; Machining; Optimization; Temperature rise

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