Chapter 10

Electrical Discharge Micromachining with Sustainable Dielectrics

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The chapter presents the advances in microelectrical discharge machining process with various dielectrics used during micromachining so as to improve the machining performance. Microelectrical discharge machining is an established method and has a huge demand in the manufacturing sector in addition to its appeal among the researchers for exploring its potential so as to produce microfeatures with higher precision, accuracy and surface integrity. The dielectric fluid employed in the micro-EDM process plays a major function for achieving the desired features. Therefore, it is important to understand its role in micro-EDM machining. The chapter attempts to review the gradual evolution of micro-EDM machining with different dielectrics and their effects on the variety of performance measures such as machining rate, rate of tool wear and geometric accuracy and the sequential development that has taken place over the years on the use of dielectrics during micromachining of various conducting materials.

1. Introduction

In recent times, with rapid growth in micro-machining technology and miniaturization, the demand of micro-products has increased tremendously in numerous fields like aerospace, automotive,