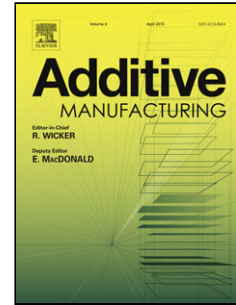


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Article Title Page

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Article Title

TAGUCHI BASED PROCESS OPTIMIZATION FOR DIMENSION AND TOLERANCE CONTROL FOR FUSED DEPOSITION MODELLING

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Abstract

This paper presents an experimental approach to investigate the effects of variation in the process parameter settings, found commonly in most fused deposition modelling printers, on the geometrical properties of the printed parts. A benchmark component was designed to include simple geometric features which allows for measurement for both dimensional accuracy and geometric characteristics. Taguchi's design of experiment statistical approach was used to establish the relationship between varying process parameter settings on the geometrical properties of the benchmark component. The critical process parameters affecting both the dimensional accuracy and geometric characteristics are identified and the theoretical optimum print settings were found.

Keywords: *fused deposition modelling, dimensional accuracy, geometrical characteristics, benchmark component*

## 1. INTRODUCTION

Additive manufacturing (AM) refers to a group of manufacturing processes that create physical parts or components required for an assembly directly from a computer aided design (CAD)

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