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FUZZY APPROACH TO BUSINESS IMPROVEMENT OF HOLDING EQUIPMENT IN THE CONDITIONS OF DECREASED PRODUCTION RANGE

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Abstract: In recent years, manufacturing industry has been characterised by a decreased production range and a demand for a rapid change of production programs. In such conditions holding equipment costs are considerably larger. In this paper, we review and analyze possible ways of business improvement concerning holding equipment in specific production conditions characterized by the decreased production range and lack of financial sources for applying systems of assembled and disassembled equipment. Classification of elements and group of elements of those systems is performed by applying a new fuzzy ABC method presented in this paper. Selected optimization criteria describe the performance measures of elements and group of elements of assembled and disassembled equipment whereas their relative weights are not the same. It is assumed that the values of imprecise optimization criteria and their relative weights are described by discrete fuzzy numbers. The developed procedure is illustrated by an example with real input data.

Keywords: Assembled and disassembled equipment, fuzzy ABC method, fuzzy data.

1. INTRODUCTION

One of the most important problems in manufacturing is concerned with the use of special holding equipment [10]. The importance of this problem is explained in the following: geometrical accuracy of machining and quality of machined surface depend on holding equipment. Secondly, costs and launching time for new products and production program also depend upon costs, design time and manufacturing time for holding equipment. They are applied in high repetition and mass production. However,