

NEW ASPECTS OF MANUFACTURING ON MACHINE TOOLS

Dorian ȘTEF¹

Rezumat. În acest articol se prezintă modalități de prelucrare prin frezare pentru minimizarea timpului de prelucrare și creșterea preciziei de prelucrare la operația de frezare plană și analizarea diferitelor strategii de prelucrare la operațiile de frezare a buzunarelor. Aceste analize se vor face prin modificarea unui singure variabile din cadrul operațiilor de prelucrare: în cazul operației de frezare variabilă plană, prin montarea unei plăcuțe speciale WIPER cu formă diferită de celelalte plăcuțe montate, iar în cazul operației de frezare variabilă a buzunarelor, prin schimbarea la fiecare buzunar prelucrat a strategiei de prelucrare.

Abstract. In the paper are presented the modality to minimize the production time and increase the machining accuracy in the milling operations and to analyze different milling strategies. In this analyze the only on modification for face milling operation was to change the tool geometry by mounted a special shape insert WIPER, that have a different geometry, and for pocketing operations the changes was by using different milling strategies for manufacturing pockets. The application for this analyze is a simulation between the process technologies in virtual fabrication made using Esprit CAM (Computer Aided Manufacturing) software.

Keywords: Virtual manufacturing, computer aided manufacturing

1. Introduction

The goal of present manufacturing technology is to produce even at the first part correctly in a shortest time and most cost effective way increasing the economic efficiency of the company as much possible. Since the product complexities increase and the competitive product life cycle times are reduced, the realization and testing of physical prototypes become major disadvantaged for the successful and economically advantageous for production on the modern CNC machine tools. Presently the aerospace industry, automotive industry can no longer allow expensive manufacturing and testing of prototypes or process strategies to detect physical weaknesses and to improve design our NC programming. Instead, to achieve the various components manufacturing processes is using virtual manufacturing to reduce costs and time for product testing. Virtual manufacturing is a tool that made the simulation of the production process (manufacturing) that can be analyzed and tested like in the real process. Iterative changing of a step in virtual manufacturing process design (programming) and variants changes made by the programmer in the NC programming to reach the requirements, will significantly reduce programming time and cost of the part production [1,3,4].

¹Ph.D. Student, University "Politehnica" of Timișoara (stefdorian@yahoo.com).