

Automated CNC Part Programming and Process Planning for Turned Components

Authors : Radhey Sham Rajoria

Abstract : Pressure to increase the competitiveness in the manufacturing sector and for the survival in the market has led to the development of machining centres, which enhance productivity, improve quality, shorten the lead time, and reduce the manufacturing cost. With the innovation of machining centres in the manufacturing sector the production lines have been replaced by these machining centers, having the ability to machine various processes and multiple tooling with automatic tool changer (ATC) for the same part. Also the process plans can be easily generated for complex components. Some means are required to utilize the machining center at its best. The present work is concentrated on the automated part program generation, and in turn automated process plan generation for the turned components on Denford "MIRAC" 8 stations ATC lathe machining centre. A package in C++ on DOS platform is developed which generates the complete CNC part program, process plan and process sequence for the turned components. The input to this system is in the form of a blueprint in graphical format with machining parameters and variables, and the output is the CNC part program which is stored in a .mir file, ready for execution on the machining centre.

Keywords : CNC, MIRAC, ATC, process planning

Conference Title : ICMEM 2014 : International Conference on Mechanical Engineering and Manufacturing

Conference Location : Toronto, Canada

Conference Dates : June 16-17, 2014