Method of immediately cutting process stoppage

Karol Vasilko, Zuzana Murčinková
Faculty of Manufacturing Technologies with seat in Prešov, Technical University in Košice, Bayerova 1, Prešov, Slovak Republic, karol.vasilko@tuke.sk, zuzana.murcinkova@tuke.sk

The paper dealt with method of immediately cutting process stoppage, process of chip formation and the non-linear finite element analysis. To be able to follow the process of chip formation and machined surface during machining, it is necessary to stop this process immediately, if it is possible. The paper provides results of non-linear numerical experiment for presented method. The state of plastic deformation in machined material and in front of the tool cutting edge enables to follow the intensity of deformation, friction process between the tool, chip and workpiece, sources of heat in the machining zone. Knowing these processes enables to select optimal tool geometry, cutting conditions, mainly cutting speed, cutting environment, tool material so that cutting process could run with minimal energy consumption and required quality of machined surface could be reached. To understand the process of chip formation is important for the theory and practice of machining of materials.

Keywords: machining, cutting conditions, chip formation, plastic deformation

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