VISOKA ŠOLA ZA PROIZVODNO INŽENIRSTVO

DIPLOMSKO DELO

IZBOLJŠANJE PRODUKTIVNOSTI OBDELAVE ODKOVKOV OHIŠJA ZA KRMILNI MEHANIZEM

IMPROVING PRODUCTIVITY OF FORGED HOUSING FOR THE TIE ROD ENDS PROCESSING

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POVZETEK

V diplomskem delu smo obravnavali izziv, kako povečati zmogljivost, produktivnost in učinkovitost strojne obdelave, da bo proizvodnja ohišja za krmilni mehanizem pri povečani količini naročila dobičkonosna. S kazalniki skupne učinkovitosti opreme smo analizirali obstoječo proizvodnjo ter preučili možnosti za izboljšave z logistično reorganizacijo proizvodnje, boljšim planiranjem proizvodnje in investicijo v nov izdelovalni stroj. Večja produktivnost in boljša gospodarnost možnih sistemov izdelave ohišja za krmilni mehanizem sta bili glavni merili za izbiro najboljše rešitve, ki mora poleg kakovosti izdelkov za kupca izpolnjevati tudi dobavne roke pri mesečni količini 50000 kosov. Obema meriloma najbolj ustreza obdelava na namenskem stroju, saj ima od možnih rešitev najboljšo produktivnost (122,5 kosov na strojno uro) in gospodarnost (1,56) ter dovolj veliko zmogljivost, da izdela zahtevano količino izdelkov v razpoložljivem času (v 53 od 66 razpoložljivih izmenah).

Ključne besede: Strojna obdelava, proizvodnja, produktivnost, zmogljivost, gospodarnost.

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SUMMARY

In the thesis we deal with the challenge of how to increase capacity, productivity and efficiency of the mechanical processing of a forged housing for tie rod ends in the way that the production at increased amount of order will be profitable. We analysed existent production with indicators of overall equipment efficiency and studied some possibilities for improvements with the logistical reorganization of production, better planning of production, and the investment into a new machine. Larger productivity and better economy of possible manufacturing systems for forged housing for tie rod ends are main criteria for choosing the best solution that needs also to meet required quality of products and delivery times at monthly amount of 50000 pieces. Mechanical processing on the dedicated machine is most appropriate in the light of both criteria, as it has the best productivity (122.5 pieces on a machine hour) and economy (1.56) as well as enough capacity for processing necessary amount of products within the available time (in the 53 from 66 available shifts).

Key words: Machining, production, productivity, capacity, economic efficiency.