

VISOKA ŠOLA ZA PROIZVODNO INŽENIRSTVO

DIPLOMSKO DELO

**ZMANJŠEVANJE NAPAK PRI POTOPNI EROZIJI S POMOČJO METODE ŠEST
SIGMA**

LUKA PREK

Sodobno proizvodno inženirstvo

Mentor: doc. dr. Gašper Gantar

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POVZETEK

Diplomsko delo je osredotočeno na napake, ki nastajajo pri načrtovanju in izdelavi elektrod za potopno erozijo (EDM). Namen diplomskega dela je uvedba doslednega beleženja napak, vzrokov napak ter zmanjševanja stroškov, ki so posledica teh napak. Z metodologijo šest sigma je bil analiziran in izboljšan obstoječi proces obdelave EDM.

Spremenjen je bil obstoječi sistem zapisovanja napak, kar je omogočilo povečanje števila zabeleženih napak za 60 %. Uvedeni so bili ustrezni ukrepi za zmanjševanje števila napak, kot so: elektronsko beleženje napak, konstruiranje elektrod preko programa SMART ELECTRODE in izboljšanje programov za izdelavo elektrod. Po uvedbi teh ukrepov so se stroški za odpravljanje napak na obdelavi EDM znižali za 62,5 %.

Ključne besede: šest sigma, potopna erozija (EDM), napaka, elektrode.

DEFECT REDUCTION IN ELECTRICAL DISCHARGE MACHINING USING SIX SIGMA METHOD

SUMMARY

The thesis focuses on defects that occur in the design of EDM electrode. The purpose of the diploma thesis is to introduce a consistent methodology of recording errors and their causes, as well as to reduce the cost, which results from these errors. Using six sigma methodology, the existing process of EDM electrode design was analyzed and improved. The existing error tracking system was modified, leading to an increase of recorded errors by 60 %. During the improvement project it was demonstrated, that appropriate measures were taken to reduce the number of errors. These actions, to name a few, are: electronic fault tracking, electrode design through SMART ELECTRODE and improvement of electrode fabrication programs. After the corrective actions were implemented the costs of debugging EDM processing was reduced by 62,5 %.

Keywords: six sigma, Electrical Discharge Machining (EDM), errors, electrodes.