

VISOKA ŠOLA ZA PROIZVODNO INŽENIRSTVO

DIPLOMSKO DELO

**UPORABA 3 DIMENZIONALNE MERILNE ROKE IN
OPTIČNEGA SKENERJA ZA IZVAJANJE MERITEV
MONTAŽNIH MODULOV**

**USE OF 3 DIMENSIONAL MEASURING ARM AND
OPTICAL MEASURING DEVICE FOR MEASURING OF
ASSEMBLY MODULE**

Študent: ALMIR MEDIĆ

Mentor: pred. Luka Botolin, univ. dipl. inž. str.

Somentor: doc. dr. Blaž Nardin

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POVZETEK

Diplomsko delo obravnava izvedbo in potek tridimenzionalnih meritev za ugotavljanje geometrijske skladnosti montažne palete zadnjega modula za sestavo motorja glede na zahteve naročnika iz avtomobilske industrije. V diplomskem delu sta predstavljena dva povsem različno delujoča merilna sistema: tridimenzionalna merilna roka Romer in optični skener Atos compact scan. Z njima smo izvedli meritve ključne geometrije montažne palete, rezultate pa primerjali med seboj in jih analizirali, tako da smo dobili ugotovitve o točnosti, fleksibilnosti in učinkovitosti posameznega merilnega sistema kot tudi vzroke za odstopanje merilnih rezultatov obeh rešitev. Na koncu je predstavljena tudi ekonomska analiza, ki prikazuje smiselnost investicije v optični skener Atos compact scan.

Ključne besede: merilni sistem, merjenje 3D, merilna roka 3D, optični skener, merilno tipalo Touch probe

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SUMMARY

The diploma thesis deals with the implementation of three-dimensional measurements to determine the geometric conformity of a mounting pallet of the rear module for engine assembly according to the requirements of a customer from the automotive industry. This work presents two completely different concepts of measuring systems: Romer three-dimensional measuring arm and Atos compact scan optical scanner. With them, we carried out measurements of key geometry of the mounting pallet, and the results were compared and analyzed. In the end we acquired the results of accuracy, flexibility and efficiency for both measurement systems, as well as the reasons for the deviation of measurement results of the two solutions. An economic analysis is also presented at the end, which shows the feasibility of the investment in to the optical scanner Atos compact scan.

Keywords: measuring system, 3D measuring, 3D measuring arm, optical scanner, Touch probe

