

VISOKA ŠOLA ZA PROIZVODNO INŽENIRSTVO

DIPLOMSKO DELO

KONSTRUIRANJE STEKLENICE ELITE IN ORODJA ZA STEKLENICO ELITE

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POVZETEK

V diplomski nalogi obravnavamo razvoj steklenice Elite. Steklenico Elite je možno proizvajati s tehnologijo pihano-pihano, zato je v nalogi tudi orodje zanjo načrtovano temu primerno. Najprej predstavimo vse pomembne elemente, ki jih potrebujemo od kupca, da lahko uspešno razvijemo 3D-model in risbo za steklenico. Med vsemi elementi je potrebno raziskati tudi pravilnik za merilne steklenice, da lahko določimo pravilne oznake na dnu, ki jih zakonodaja tudi zahteva. Z analizo FMEA s sodelavci v timu odkrivamo možne napake oziroma se jim z analizo želimo izogniti med procesom konstruiranja. Ko je načrt za steklenico odobren s strani kupca, se lotimo načrtovanja orodja zanjo. Skozi različne faze najprej začnemo z načrtovanjem konstrukcije, pri čemer moramo v prvi fazi upoštevati skrčke, ki nastanejo po formiranju skozi ohlajanje. Z upoštevanjem skrčkov lahko razvijemo konturo končnega modela, nato pa po korakih razvijamo predobliko za steklenico. Med opisovanjem vseh delov orodja predstavljamo funkcije posameznih delov orodja in s tem še podrobneje spoznavamo tehnologijo izdelave. Poleg 3D-izrisanih delov orodja razvijamo tudi uporabno delavniško dokumentacijo.

Ključne besede: steklenica, predoblika, orodje

ABSTRACT

This diploma thesis is dealing with the production of the Elite bottle model, which can be produced using the blow-and-blow method. The tool needed to produce the said model is designed accordingly. The research is initiated by defining all the elements, provided by the customer, and needed to successfully create a 3D-model along with initial sketches. Additionally, compliance with legal requirements for measuring container bottles need to be assured, including all necessary labels on the bottle bottom. In collaboration with a team of colleagues, the FMEA (Failure Mode and Effects Analysis) is used to eliminate errors and secure flawless production. Once the prototype approved by the client, the production process proceeds to designing the tool to produce the bottle. Beginning by designing the hardware first, the retraction of glass while cooling down needs to be assured primarily. Keeping this in account, the final parison of the bottle can be created step by step. All parts of the tool for bottle production as well as all functionalities, which, combined, provide a detailed view of the production technology, is being outlined gradually. In addition to 3D-plans of the tool developed, useful workshop documentation is also created.

Key words: bottle, parison, tool