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OPTIMIZATION OF INJECTION MOLDING COMPONENT (PIVOT) BASED ON CAD-CAE INTEGRATION

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Abstract

Conventional optimization, which identifies the best combination of geometrical parameters to improve the product's functioningand to save the material, is often carried out manually. This paper presents anoutlinethat performs the integration between commercial CAD-CAE software by using common scripting, mathematical modelling and Analysis. The loop of design analysis- redesign in optimization process was done automatically and seamlessly without interaction with designer. Along with CAD-CAE computer-aided tools, basis functions were applied to optimization according to the number of design variables. This approach reduces the time for solving computation-intensive design optimization problems and the designers are free from monotonous repetitive tasks. ^[11]Case studies carried out in order to verify the feasibility and general-purpose characteristics of the proposed method for the optimization process of mechanical components. A mold was designed to produce a diffraction rating connected with the fixed bushing. The combined part was verified to have a good diffraction performance. Integrated grating eliminates the assembly cost and error. The results show that the proposed method facilitates the optimization process and reduces the computing cost compared to other approaches.

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