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Optimization of Plastic Injection Molding Parameters by Altering Gate and Runner of Feeding System

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Abstract : Balancing feeding system of plastic injection molding has overriding importance as it minimizes the process's product defects such as weld line, shrinkage, sink marks and warpage. This article presents the difference between optimization of feeding system in identical multi-cavity molding and family molding using Moldflow Plastic Insight software. In this work, the effect of dimension, shape, position and type of gates and runners on the products quality was studied. The optimization was carried out by analyzing plastic injection molding process parameters, including melt temperature, mold temperature, cooling time, cooling temperature packing time and packing pressure. It was found that symmetrical feeding system is the most efficient shape for diminishing defects in identical multi-cavity molding. However, the same results were not concluded for family molding due to the differences between volume, mass, thickness and shape of cavities.

Keywords : balancing feeding system, family molding, multi-cavity, Moldflow, plastic injection
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