

**INJECTION MOULD FILLING ANALYSIS: OPTIMIZATION OF
INJECTION MOULDING PROCESS PARAMETER FOR AIR
CLEANER COVER USING SIMULATION SOFTWARE (CADMOULD)**

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ABSTRACT

INJECTION MOULD FILLING ANALYSIS: OPTIMIZATION OF INJECTION MOULDING PROCESS PARAMETER FOR AIR CLEANER COVER USING SIMULATION SOFTWARE (CADMOULD)

This study was conducted to optimize the injection moulding process parameter. An in-hood automation part of Perodua new model, air cover cleaner cover was simulated using Cadmould, an injection moulding simulation software. The filling phase of the part was studied to optimize the gate location, runner system, and processing parameter. The objectives of this study are to identify the best feeding system; the gate system and the runner system for the air cleaner cover mould. Beside that the objectives to forecast the defects/problems of injection moulding process during filling phase of the air cleaner cover. Based on this study, it was found that the filling phase of the part is balanced and the weld lines and air traps are outside cosmetic surfaces and mechanically loaded area. After simulation it was shown that the use of innovative Computer Aided Engineering (CAE) technologies has made it possible to drastically optimize processing parameter for process and product development.

CHAPTER 1

INTRODUCTION

Injection moulds are always expensive to make, unfortunately without a mould it cannot be possible to have a moulded product. Every mould maker has his/her own approach to design a mould and there are many different ways of designing and building a mould. Surely one of the most critical parameters to be considered in the design stage of the mould is the number of cavities, methods of injection, and types of runners, methods of gating, methods of ejection, capacity and features of the injection moulding machines. Mould cost, mould quality and cost of moulded product are always together. The use of plastic materials and injection moulding processes to produce engineering components has been growing at a fantastic rate over the past two decades. More industries and more markets around the world are joining the move.

Accompanying the growth, the advantages of the applications are greatly increased; the strength factors as well as the functional properties of the components are enhanced, and the flexibilities of component geometry and aesthetics are increased; the time and investment demand on the production cycle are reduced; the