FINAL YEAR PROJECT REPORT

DIPLOMA IN MECHANICAL ENGINEERING (MANUFACTURING)
Mara University of Technology
Shah Alam
Selangor Darul Ehsan

PLASTICS INJECTION MOLDING

PREPARED BY:

HASDIANA BT HASSAN
99502669 EM 111

PROJECT ADVISOR
IR ISKANDAR ABDULLAH

APRIL 2003

Table of contents

ACKNOWLEDGEMENTS

I wish to acknowledge and express my sincerest thank to my supervisor Ir Iskandar Abdullah for his supervision, encouragement, suggestions and help throughout this project, especially ideas to reality. His prompt comments and valuable recommendations have helped in the preparation of this project, also made suggestions for improving the original report.

I also wish to express our thanks to honorable lecturer, En Shahrul Azam, En Mohd Rizal bin Alkahari, En Saharuddin and Miss Rosnita bt Zabidi from Integris Malaysia Sdn.Bhd, For sharing their vast experience and knowledge that has made my project successful. Also to all our colleagues of December 1999 batch, who deserve our thanks for their help and co-operation. I would also express my gratitude to people who have indirectly contributed in the preparation of this project.

Finally, I wish to express my love to my families for their encouragement moral and financial support. May Allah bless all of you.

ABSTRACT

Nowadays, manufacturing process has become the important process towards globalization of technology especially in industrial application. One of the important parts in manufacturing process is Plastic injection molding, which required producing very good product. This project describes the manufacturing process, which usually occur in any product using injection molding. Design, Injection molding process, troubleshooting and solve, types of product using this method and material will be considered in the analysis to produce the good product. Factor of safety the product also considered in this analysis. The projects will discuss fully plastic injection-molding method of process.

The economical production of quality molded plastics products is a reflection of careful choice of both the plastic material and the process to produce this material in the desired shape and size. There are two types of plastic materials; thermosetting plastic, and thermoplastic plastic. Many thermosetting materials are usually molded by the action of heat and pressure in compression molds or transfer molds. On the other hand, the thermoplastic materials are generally molded by injection molding process wherein the material is heated to desired plasticity and injected into the relatively cool mold to solidify.

In this literature review, I will focus on injection molding. The focus will cover details about injection molding, and many other things regarding this subject. Examples will also be provided to give better understanding, and as visual aids. This project is hope to help gathering enough information about injection molding, and provide extra details such as on how to counter problems that arise in injection molding process.

1.0 Introduction

Injection molding is by far the most common plastic manufacturing process used nowadays. Products produced with this process virtually permeate every aspect of our lives. From the coffee maker and toothbrush we use in the morning, to the car we drive to work, to the computer and telephone we use during the day, so many products we use are injection molded. It has been used in every market and represents the mainstay of the designer's toolbox of processes. The vast of injection molding applications are due to its adaptability in forming almost limitless shapes. Indeed there are wide ranges of materials we can choose to mold that can address most of our needs. It is particularly well suited to high volume production using economies of scale and short cycle times to drive costs down.

1.1 Objective

The main objectives of this final project are;

I. To understand what injection molding in details is.
II. How the injection molding was done.
III. Criteria to be consider in injection molding

1.2 Scope of study

There are many molding processes available but I will focus more on injection molding but some preview will be provided regarding other types of molding so that some differentiation of these molding types can be known.