

**DESIGN AND ANALYSIS MOULD
FOR PLASTIC INJECTION MOULDING**

By

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Report submitted in partial fulfillment
of the requirements for the degree
of Bachelor of Manufacturing Engineering



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Thank you.



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APPROVAL AND DECLARATION SHEET

This project report titled design and analysis mould for plastic injection moulding was prepared and submitted by Fadzli Bin Idris (Matrix Number: 071050160) and has been found satisfactory in terms of scope, quality and presentation as partial fulfillment of the requirement for the Bachelor of Engineering (Manufacturing Engineering) in Universiti Malaysia Perlis (UniMAP).

Checked and approved by,

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Project Supervisor

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MEREKACIPTA DAN MENGANALISIS ACUAN UNTUK MESIN PENGACUANAN SUNTIKAN

ABSTRAK

Di Malaysia, produk berasaskan plastik sangat popular di dalam kehidupan. Produk berasaskan plastik ini kebanyakkan dihasilkan oleh proses pengacuan suntikan yang telah mengambil kira kos yang rendah. Proses pengacuan suntikan ini dikategorikan sebagai teknologi moden dengan menggunakan bahan mentah plastik yang dicairkan sehingga penghasilan produk. Produk dan acuan yang dihasilkan adalah berbentuk cenderamata untuk digunakan oleh Pusat kejuruteraan Pembuatan. Cenderamata tersebut adalah jam. Bahan yang digunakan untuk menghasilkan produk adalah bahan plastik jenis 'polypropylene'. Sebelum penghasilan acuan, produk akan dianalisis menggunakan perisian 'MPI' bagi menentukan jenis 'gate' dan 'runner' yang bersesuaian. Bagi produk ini 'gate' yang digunakan adalah jenis 'sprue'. Ini kerana semasa dianalisis ianya memberikan keputusan yang terbaik berbanding jenis lain. Bilangan rongga pada acuan adalah satu, ini kerana mesin pengacuan suntikan yang berada di makmal berkapasiti 80 tan dan berdasarkan pengiraan tekanan untuk produk adalah 62.8 tan. Saiz asas acuan yang digunakan adalah 196 mm x 196 mm dan ini bersesuaian dengan saiz produk yang akan berada di dalam acuan.

DESIGN AND ANALYSIS MOULD FOR PLASTIC INJECTION MOULDING

ABSTRACT

In Malaysian, the plastic part is very popular product used in our life everyday. Most of plastic parts/products produced by injection process with the lost cost involved. The plastic injection moulding process category in modern technology with using the plastic material form solid (pallet) to melting condition and goes to finish part/product.. Mold that has been designed is to produce souvenirs product to be used by School of Manufacturing. The product that will be produce by the mold is a clock. Material used for this product is polypropylene. Before creating a mold, product will be analyses using MPI software to determine the suitable type of gate and runner. For this product, sprue gate is used because it gave the best result among others. The capacity of the injection molding machine in the school's lab is 80 tons and based on the clamping force calculation, it will be 62.8 tons, so it is a one cavity in the mold. Basic mold size is 196 mm X 196 mm and it suits the product size inside the mold well.



TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT	i
APPROVAL AND DECLARATION SHEET	ii
ABSTRAK	iii
ABSTRACT	iv
TABLE OF CONTENTS	v
LIST OF TABLES	viii
LIST OF FIGURES	ix
CHAPTER 1 INTRODUCTION	
1.1 Introduction	1
1.2 Problem Statement	4
1.3 Objectives	4
1.4 Scopes	5
1.5 Gantt Chart	6
CHAPTER 2 LITERATURE REVIEW	
2.1 The Injection Moulding Process	7
2.2 Types Of Moulds	8
2.2.1 Two Plate Mould	8

2.2.2	Stripper Mould	9
2.2.3	Slide Mould	10
2.2.4	Three Plate Mould	10
2.3	The Feed System	12
2.3.1	Introduction	12
2.3.2	Runner System	12
2.3.3	Runner Shape	13
2.3.4	Runner Layout	14
	2.3.4.1 Standard Runner	15
	2.3.4.2 Cold Runner	16
	2.3.4.3 Hot Runner	17
2.4	Gate Design	19
2.4.1	Sprue Gate	19
2.4.2	Restricted Gate	20
2.4.3	Side Or Edge Gate	21
2.4.4	Flash Gate	22
2.4.5	Fan Gate	22
2.4.6	Tab Gate	23
2.4.7	Diaphragm Gate	24
2.4.8	Spider Gate	24
2.4.9	Ring Gate	25
2.4.10	Hot Tip Gating	25
2.5	Venting	27
2.6	Mould Temperature Control	27
2.7	Ejection Systems	31
2.8	Design Calculation (Formula)	33

CHAPTER 3 METHODOLOGY

3.1	Introduction	35
3.2	Mould Design Process	36
3.3	SolidWorks	39
3.4	Moldflow Plastics Insight (MPI)	40
3.5	Design Calculation (Example)	41

CHAPTER 4 RESULTS AND DISCUSSION

4.1	Introduction	44
4.2	Result	
4.2.1	Product	45
4.2.2	Design Calculation	46
4.2.3	Analysis Design Using Moldflow Plastics Insight (MPI)	48
4.2.3.1	Gating Sustainability	48
4.2.3.2	Gate and runner design	49
4.2.3.3	Air traps	59
4.2.3.4	Fill time	54
4.2.3.5	Pressure at end of fill	58
4.2.3.6	Bulk temperature	63
4.2.3.7	Weld lines	67
4.2.4	Overall discussion (MPI Analysis)	71
4.2.5	Mould Design	72
4.2.6	Material Selection	73

CHAPTER 5 CONCLUSION	75
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REFERENCES	77
-------------------	-----------

APPENDICES	
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LIST OF TABLES

Tables No.		Page
1.1	Gantt Chart for activity project.	6
2.1	Runner Size [1].	16
2.2	Recommended values for the demoulding temperatures of different plastics [2].	29
2.3	Recommended wall thickness by resin type [2].	30
2.4	Types of ejection systems [2].	32
4.1	Physical properties	74
4.2	Resistance to chemicals	74

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LIST OF FIGURES

Figures No.		Page
1.1	Exploded view of a standard mould base showing component parts [6].	3
2.1	Two-plate injection mould [6].	8
2.2	Mould with stripper plate [6].	9
2.3	Slide Mould [6].	10
2.4	Three-plate mould [6].	11
2.5	Cross-section shapes of different runner [2].	13
2.6	Balanced runner layout : Melt has the same length Of travel for all impression [2].	14
2.7	Runner layout which require balanced gating [2].	15
2.8	Hot runner layout permitting mould to be Placed centrally on platen [2].	18
2.9	Sprue gate [6].	19
2.10	Restricted gate [6].	20
2.11	Side or edge gate [6].	21
2.12	Flash gate [6].	22
2.13	Fan gate [6].	23
2.14	Tab gate [6].	23
2.15	Diaphragm gate [6].	24
2.16	Spider gate [6].	24
2.17	Example of ring gate [6].	25
2.18	HOT TIP gate cross section [6].	26
2.19	Layout of the cooling channel [2].	28
3.1	Flow chart of a systematic mould design process	38
4.1	Product	45

Figures No.		Page
4.2	Gating Suitability	48
4.3	Gate and Runner Design	49
4.4	Air traps (submarine gate with one injection location)	50
4.5	Air traps (submarine gate with two injection location)	51
4.6	Air traps (sprue gate)	52
4.7	Fill time (submarine gate with one injection location)	54
4.8	Fill time (submarine gate with two injection location)	55
4.9	Fill time (sprue gate)	56
4.10	Pressure at end of fill (submarine gate with one injection location)	58
4.11	Pressure at end of fill (submarine gate with two injection location)	59
4.12	Pressure at end of fill (sprue gate)	60
4.13	Bulk temperature at end of fill (submarine gate with one injection location)	63
4.14	Bulk temperature at end of fill (submarine gate with two injection location)	64
4.15	Bulk temperature at end of fill (sprue gate)	65
4.16	Weld lines (submarine gate with one injection location)	67
4.17	Weld lines (submarine gate with two injection location)	68
4.18	Weld lines (sprue gate)	69
4.19	Complete Mould	72
4.20	Material Selection	73