HIGHER TECHNICAL INSTITUTE

MECHANICAL ENGINEERING COURSE

DIPLOMA PROJECT

DESING FOR NANUFACTURING OF A METALLIC ELECTRONIC DEVICE CONTAINER M/1047

THEODOROS PAPAPANAGIOTOU

JUNE 2008

HIGHER TECHNICAL INSTITUTE

MECHANICAL ENGINEERING COURSE

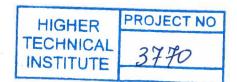
DIPLOMA PROJECT

DESING FOR MANUFACTURING OF A METALLIC ELECTRONIC DEVICE CONTAINER

M/1047

By
Theodoros Papapanagiotou

June 2008



DESING FOR MANUFACTURING OF A METALLIC ELECTRONIC DEVICE CONTAINER

by
Theodoros Papapanagiotou

Project report submitted to the

Department of Mechanical Engineering

of the Higher Technical Institute

Nicosia Cyprus

in partial fulfillment of the requirements for the diploma of

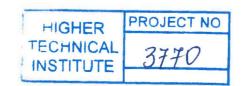
TECHNICIAL ENGINEER

in

MECHANICAL ENGINEERING

June 2008

Projector Supervisor: Mr. George Katodrytis



Summary

The project that I am going to deal with has for a title «Design for manufacturing of a metallic electronic device container». Concretely, I will be reported in the planning of an electronic box, which can be used in factories or in laboratories for the interruption of the electrical supply in various instruments for safety reasons.

Apart from that, it can be used as a control unit of an instrument for the settlement of it's movements or finally in any other place, where human factor may interfere or even terminate their operation, with a simple press on a simple button.

The particular box will be manufactured from metal and the course than i am going to follow for it's manufacture it is shown in the project that follows, as also it's precise dimensions.

Finally, I would like to state that the manufacture that I will design will be relatively economic and mostly secure for the person and the environment.

ACKNOWLEDGMENTS

I would like to express my gratitude to my project Supervisor Mr. George Katodrytis for his help and counseling on my project.

I would also like to express my appreciation to Mr. Andreas Chimaris, for his valuable help on my project.

Lastly i would like to give my deepest thanks to my friend Ioanna Michael for her continuous help on my project.

CONTENTS

PAGE	
SUMMARY	i
ACKNOWLEDGMENTS	ii
CONTENTS	iii
CHAPTER 1	/
INTRODUCTION - A study on the design of stamp	ping dies
1.1 Die forming	1
• _Die components	3
 Die operations and types 	3
Die casting	10
 Products created by forming dies 	11
1.2 Thread cutting	11
 Products created by threading dies 	13
1.3 Wire pulling	13

CHAPTER 2 - Materials and equipment

2.1 Selection of material	15
Chemical Composition	16
Mechanical Properties	16
2.2 Press Selection	30
• 2-stage press	30
Assembly drawing	31
 Press capacity 	32
Grease nipple design	33
Press maximum opening	34
CHAPTER 3 – Die & Punch 1	
3.1 Clearance calculations	35
3.2 Calculations for the diamester	
sizes for the punch and the die.	36
Die specifications	36
 Initial release preview of the box after puntcing 	37
• Die 1 design	40
Punch 1 design	41

 Intermediate plate design 	42
3.3 Force Analysis for the guides springs	43
• k-value	44
3.4 Force analysis for cutting	45
• Total force	46
CHAPTER 4 – Die & Punch 2	
4.1 Length sizes for punch and die for bending	47
• Punch 2 design	49
• Die 2 design	50
4.2 Force Analysis for Bending	51
Total force for bending	
JUSTIFICATIONS	53
CONCLUTIONS	54
REFERENCES	55
• BOOKS	55
 WEBPAGES 	56