

HIGHER TECHNICAL INSTITUTE

MECHANICAL ENGINEERING DEPARTMENT

DIPLOMA PROJECT

DESIGN OF A LOW CAPACITY LIFTING MACHINE
FOR DOMESTIC USE

By

Valiantis Petros (M/995)

JUNE 2004

HIGHER TECHNICAL INSTITUTE	PROJECT NO
	3538

DESIGN OF A LOW CAPACITY LIFTING MACHINE
FOR DOMESTIC USE

By

Valiantis Petros

Projected 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

TECHNICIAN ENGINEER

In

MECHANICAL ENGINEERING

June 2004

HIGHER TECHNICAL INSTITUTE	PROJECT NO 3538
----------------------------------	--------------------

CONTENTS

INTRODUCTION: SOME THEORY ON ELEVATORS

History of elevators	...1
How elevator works	...1-2
Hydraulic elevators	...3-4
Problems on hydraulics	...5
The cable system	...6-7
Safety systems	...8-9
Making the rounds	...10

CHAPTER 1: MACHINES PRESENTATIONS

Chain hoist	...11-12
Level hoist	...13-15
Wire rope pulling hoist	...16-17
Electric chain hoist	...18-20
Cranes	...21-23

CHAPTER 2: DECISION MAKING

Decision making	...24
Sketches	...25-37

CHAPTER 3: DIMENSIONS-CALCULATIONS

Drawings- calculations	...38-58
------------------------	----------

CHAPTER 4: SAFETY REGULATIONS

Construction hoist	...59
Incline hoist	...59
Cranes and lifting equipment	...60-61

CHAPTER 5: COST ESTIMATION

Cost estimation	...62-63
-----------------	----------

CHAPTER 6: CONCLUSIONS

Conclusions ...64

TABLES

Tables ...65...

REFERENCES

SUMMARY

DESIGN OF A LOW CAPACITY LIFTING MACHINE FOR DOMESTIC USE

BY

VALIANTIS PETROS

The terms and conditions of this project is to design a lifting machine which must be suitable for a three-storey building with maximum capacity 200kgf.

Also safety regulations and procedure must be considered.

The objectives of the project is to design the lifting machine, to select the material and equipment for the design, to prepare detail drawings with technical specifications, and to prepare a cost analysis for the design.