

**Universidade de Lisboa
Instituto Superior Técnico**

Thesis Title that describes the subject studied.

Optional Subtitle

Full Name

Supervisor : **Doctor** Full Name
Co-Supervisor : **Doctor** Full Name

**Thesis specifically prepared to obtain the PhD Degree in
Mechanical Engineering**

Draft

November 2017

Abstract

The Objective of this Work ... (English)

Keywords

Keywords (English)

Resumo

O objectivo deste trabalho ... (Português)

Palavras Chave

Palavras-Chave (Português)

Acknowledgments

I would like to thank the Academy, bla bla bla..

Anyone who has never made a mistake has never tried anything new.

Albert Einstein

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Acronyms

COP Coefficient of Performance. 4

COP_{HP} Heat Pump Coefficient of Performance. 4

Notation

Latin Letters .

- A Cross-sectional area [m^2]. 4
 a Total surface area per unit length [m]. 4
 C_d Drag coefficient []. 4

Greek Letters .

- γ Adiabatic index $\frac{c_p}{c_v}$ [$\text{J kg}^{-1} \text{K}^{-1}/(\text{J kg}^{-1} \text{K}^{-1})$]. 4

Subscripts .

- $_p$ Related to the pump.. 4
 $_v$ Vapour. 4

Rates .

- \dot{m} Mass flow rate [kg s^{-1}]. 4

Ratios .

- Eu Euler number $\Delta P/(\rho_v u_v^2)$, where ΔP is the pressure difference between the absorber and the evaporator [Pa/Pa]. 4
 $u_{v/s}$ Slip ratio $\frac{u_v}{u_s}$ [m/s/m/s]. 4

1

Introduction

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1.1 Motivation

Motivation Section.

1.2 State of The Art

State of The Art Section.

1.2.1 Dummy Subsection A

State of Art Subsection A

1.2.2 Dummy Subsection B

State of Art Subsection B

1.3 Original Contributions

Contributions Section.

1.4 Thesis Outline

Outline Section.

2

A Chapter

Contents

2.1	Section A	4
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Present the chapter content.

2.1 Section A

2.1.1 Subsection A

This would be a citation [?].

The Coefficient of Performance (COP) defines the performance of the machine.

Heat Pump's performance is given by the Heat Pump Coefficient of Performance (COP_{HP}), a COP for heat pumps.

Now, an example on notation: Eu and $u_{v/s}$. Also C_d .

As seen in [?]. *Enfatizar*

2.1.2 Subsection B



Figure 2.1: Dummy Figure Caption.

Remember you can change the reference style. Another dummy citation [?].

2.2 Section B

2.2.1 Subsection A

The model described can also be represented as

$$\dot{\mathbf{x}}(t) = \mathbf{T}\mathbf{z}(y), \mathbf{y}(0) = \mathbf{y}_0, z \geq 0 \quad (2.1)$$

where

$$\mathbf{A} = \begin{bmatrix} -(a_{12} + a_{10}) & a_{21} \\ a_{12} & -(a_{21} + a_{20}) \end{bmatrix}, \mathbf{x} = \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} \quad (2.2)$$

Also, using glossaries in the math environment, you can write

$$A = \frac{\dot{m}_v}{\rho u} \quad (2.3)$$

Note that A is not a .

2.2.2 Subsection B

Another example for the notation section: think about γ . And γ_p with a subscript.

Table 2.1: Dummy Table.

Vendor Name	Short Name	Commercial Name	Manufacturer
Text in Multiple Row	ABC	ABC [®]	ABC SA
	DEF	DEF [®]	DEF SA
	GHF	GHF [®]	GHF SA
Text in Single Row	IJK	IJK [®]	IJK SA
Frescos SA	LMN	LMN [®]	LMN SA
Carros Lda.	Text in Multiple Column		

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Conclusions and Future Work

Conclusions Chapter



Title of AppendixA

