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NOISE MEASUREMENT

IN AN INDUSTRY

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# NOISE MEASUREMENT IN AN INDUSTRY

BY

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Project Report

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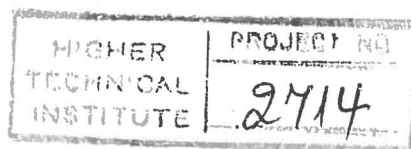
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*To my family*

# CONTENTS

	<b>Page</b>
ACKNOWLEDGMENTS	i
ABSTRACT	ii
INTRODUCTION	iii
<b>CHAPTER I: NOISE</b>	<b>1</b>
I.1. Introduction	2
I.2. Physical level scales for noise	3
I.2.1. Sound Pressure level	3
I.3. Definitions	6
I.3.1. Sound Pressure	6
I.3.2. Time averaged sound pressure level	6
I.3.3. Sound power (w)	6
I.3.4. Hearing impairment	7
I.3.5. Hearing handicap	7
I.3.6. Fence	7
I.3.7. Risk of hearing handicap	7
I.3.8. Risk of hearing handicap due to noise	8
I.4. Physical Properties of Noise	8
I.4.1. Characteristics of vibration	8
I.4.2. Sound wave propagation	11
<b>CHAPTER II: NOISE MEASUREMENT</b>	<b>15</b>
II.1. Introduction	16
II.2. Acoustic enviroment	17
II.2.1. Criteria for adequacy of the test environment	17
II.2.2. Measurements on hemispherical measurement surface. Microphone positions	17
II.2.3. Hemispherical measurement	19
II.2.4. Comments	19
II.3. Measurements on rectangular measurement surface	19
II.3.1. Microphone positions	19

II.3.2. Selection of two machines of the factory	21
II.4. Positions of the microphones	21
II.4.1. Machine 1	21
II.4.2. Calculation of surface sound pressure level (Machine 1)	24
II.4.3. Calculations of sound power level	25
II.4.4. Sound power level	26
II.5. Positions of the microphones	28
II.5.1. Machine 2	28
II.5.2. Calculation of surface sound pressure level (Machine 2)	30
II.5.3. Calculations of sound power level	30
II.5.4. Sound power level	31
II.5.5. Tall sound sources	32
II.5.6. Background Noise	32
II.6. Instrumentation	38
II.7. Conclusions - Comments	38
II.8. Noise measurements with dose meter	38
II.8.1. Conclusions - Comments	40
<b>CHAPTER III: EFFECT OF NOISE AND NOISE PROBLEMS</b>	42
III.1. Introduction	43
III.2. Definitions	44
III.2.1. Human ear	44
III.2.2. Hearing mechanism of the ear	44
III.2.3. Loudness and loudness level	46
III.2.4. Hearing damage	48
<b>CHAPTER IV: RECOMMENDED PRACTICE FOR THE DESIGN OF             LOW NOISE MACHINERY AND EQUIPMENT</b>	49
IV.1. Introduction	50
IV.2. Definitions	51
IV.2.1. Airborne, liquid-borne and structure-borne noise	51
IV.2.2. Active noise components	51
IV.2.3. Passive noise components	51



IV.2.4. Periodic noise	51
IV.2.5. Total noise	51
IV.2.6. Broad band noise	51
IV.2.7. Methodical design and acoustic aspects	52
IV.2.8. Acoustical modelling and ranking	52
IV.3. Example	53
IV.4. Control of noise sources	60
IV.4.1. Airborne noise sources	60
IV.4.2. Turbulence	60
IV.4.3. Design rules to control turbulence in gases	61
IV.4.4. Shock and pulsation	62
IV.5. Liquid-borne noise sources	63
IV.5.1. Cavitation	63
IV.6. Structure-borne noise sources	64
IV.6.1. Impact	64
IV.6.2. Tooth meshing	64
IV.6.3. Rolling	65
IV.6.4. Inertia	65
IV.6.5. Friction, self-excitation	66
IV.7. Noise transmission	66
IV.7.1. Airborne noise transmission	66
IV.7.2. Screens	67
IV.7.3. Silencers	67
IV.7.4. Liquid-borne noise transmission	67
IV.8. Noise radiation	68
IV.8.1. Radiation of airborne noise from openings	68
IV.8.2. Radiation of structure-borne noise	68
<b>CONCLUSIONS - COMMENTS</b>	69
<b>REFERENCES</b>	70
<b>APPENDICES</b>	

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## ABSTRACT

The goal of this project is to take noise measurements in an industry.

The project starts with a chapter which deals generally about noise. The second chapter is about noise measurement. Two machines were tested by an appropriate instrument and the results were compared against the American Standards for noise exposure. Finally the other two chapters are the effects of noise problems to people and control of noise in industry.

All the noise results were taken according to the ISO 3746:1979 (E).



## INTRODUCTION

Noise is often defined as unwanted sound. The degree of unwantedness is however a psychological question and may range from moderate annoyance to various degrees of permanent hearing loss and will, furthermore, be rated differently by different observers.

It is therefore extremely difficult to answer the question: "What is gained by reducing this particular noise?" However it is generally recognized that the overall efficiency of human beings is considerably higher when they are performing their duties under satisfying and comfortable conditions than when they are constantly being irritated or annoyed by their surroundings. Also a certain degree of environmental quietness is a desirable quality in it self. People in general do not like to live in the immediate vicinity of an airfield or roads with heavy traffic or to work with machines with heavy noise.

Most countries nowadays, have regulations for how to measure noise and what sound levels are allowable in each particular case and the user is referred to these regulations for more information. Noise reduction in machines is one of the main branches in the field of acoustics. The control of noise must be considered at all stages of the design and engineering of airports, aircraft, buildings and industrial machinery.

Persons regularly exposed to noise, can develop hearing loss of varying severity. Due to this hearing loss their understanding of speech, perception of everyday acoustic signals or appreciation of music may be impaired. With the exception of exposure to blast, high impulse and extremely high levels of steady noise permanent impairment of the

hearing organ takes time and is progressive over months or decades of exposure.

For an individual person, it is not possible to determine precisely which changes in hearing threshold level are caused by noise and which changes are caused by other factors. So the data of the various standards, ISO, BS, DIN, American and others, might provide additional means for estimating the most probable causes in audiological diagnosis. However for a large population exposed to a specific noise, changes in the statistical distributions of hearing threshold levels can be determined.

The standards are intended to meet the need for rating noises of industrial origin, and also other forms of noise not particularly in industrial areas, with respect to their effects on persons living in the vicinity. They give tentative proposals for a method of measuring a noise, together with a set of corrections covering a commonly occurring range of environmental conditions, in order to predict whether the noise in question is likely to give rise to complaints. In general, a noise is liable to provoke complaints whenever its level exceeds by a certain margin that of the pre-existing background noise or when it attains a certain absolute level.

Therefore to be able to effectively control noise it is necessary that the noise is measured objectively according to more or less internationally standardised procedures and that the measured results are evaluated against predetermined criteria for acceptance.