



## **DETERMINATION OF MECHANICAL BEHAVIOUR OF SHOT PEENED VALVES**

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## ABSTRACT

The determination of mechanical behavior of shot peened automobile valves is to make the comparison between the strength and analyzed the behavior of the valve and concludes the performance of the valve. The surface treatment are done to make the observation of the types of failure occurred in the test made such as tensile which is to observed the ductile properties in the valves. Theoretical, experimental and results analysis was carried out through this study. Experimental result was obtained by using device known as INSTRON machine (tensile/compression), Rockwell hardness tester and Scanning Electron Microscopic machine. The results of the test from the experiment are then compared to make an analysis. Then, the comparison results were analyzed to determine the behavior of its properties which is the best valves that can be made from the treatment processes. However, the result shows that shot peened valves having the greater values from others which mean it indicates the performance of its applications. The valves having both processes heat treated and shot peened treatments are better than others as well it can improve the automobile industries in Malaysia.

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## **CHAPTER I**

### **INTRODUCTION**

#### **1.1 Introduction**

This project is carried out to study the effect of shot peening process to the material properties and its behavior when the process is applied to automotive components such as valve or crank shaft or any other parts in automobile which is considering the effectiveness of its capability to its applications. This project is aimed to provide the necessary information for the application that has been done.

#### **1.2 Objective**

- I. To compare the mechanical behavior between shot peened valves, heat treated (nitriding) valves and heat treated (nitriding) with shot peened finished valves.

#### **1.3 Scope**

- I. Determination of mechanical behavior from the experimental work
- II. Comparing the type of failure between different type of surface treatment valves