

**THE QUALITY APPROACH IN KENSEISHA (M) SDN. BHD
COMPANY FOR ELECTRONIC PROCESS INDUSTRY**

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**THE QUALITY APPROACH IN KENSEISHA (M) SDN.
BHD COMPANY FOR ELECTRONIC PROCESS
INDUSTRY**

Thesis submitted in accordance with the requirements of the University Technical
Malaysia Malacca (UTeM) for the Bachelor Degree of Manufacturing
Engineering (Honours) in Management

By

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DECLARATION

I hereby, declared this thesis entitled “The Quality Approach in Kenseisha (M) Sdn. Bhd Company for Electronic Process Industry” is the results of my own research except as cited in references.

Signature :

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APPROVAL

This PSM submitted to the senate of UTeM and has been as partial fulfillment of the requirements for the degree of Bachelor of Manufacturing Engineering (Management). The members of the supervisory committee are as follow:

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Mr Ammar Bin Abd. Rahman
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ABSTRACT

This report is provided to explain the result of study on seven QC tools implementation at a selected company. The company is Kenseisha (M) Sdn Bhd which is located in Bangi, Selangor. This study covers the application and benefits of using the seven QC tools and also the related problems and issue that occur while implementing it. The data was obtained from several methodologies included observation and interview. In interview session, were done with the selected responsive person which involve in quality implementation. The data was analyzed by using MINITAB14 which is used to calculate and produce the control chart, normal distribution and histogram. The result showed that the most critical area comes from the VCM and Motor Spindle Hole area. From the discussion, the related problem that affected the data was highlighted in order to improve the product quality.

ABSTRAK

Laporan ini disediakan untuk menerangkan tentang keputusan kajian dalam pelaksanaan tujuh kaedah kawalan kualiti (seven QC tools) ke atas sebuah syarikat yang telah dipilih. Syarikat berkenaan ialah Kenseisha (M) Sdn Bhd yang terletak di Bangi, Selangor. Kajian ini merangkumi aplikasi dan kepentingan menggunakan tujuh kaedah kawalan kualiti (seven QC tools) dan juga masalah dan isu yang berkaitan semasa melaksanakan kaedah tersebut. Data tersebut telah diperolehi daripada beberapa kaedah termasuklah melalui pemerhatian dan soal selidik. Sesi soal selidik dilakukan dengan seseorang yang bertanggungjawab dalam mempertingkatkan kualiti iaitu penyelia jaminan kualiti (QA). Data tersebut dianalisis dgn menggunakan MINITAB14 yang mana digunakan untuk mengira dan menghasilkan carta kawalan, taburan normal dan histogram. Keputusan menunjukkan dimana kawasan yang paling bermasalah ialah daripada kawasan VCM dan Motor Spindle Hole. Daripada perbincangan, masalah yang berkaitan yang telah memberi kesan kepada data telah diketengahkan untuk membaiki kualiti produk yang dihasilkan.

DEDICATION

This dedication belongs to my lovely family that gives their full support and prayers during my completion of this report. Also to my friends that helped me in whatever I did.

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LIST OF ABBREVIATION, SYMBOLS, SPECIALIZED AND NOMENCLATURE

SPC	-	Statistical Process Control
C&E	-	Cause and Effect Diagram
QC	-	Quality Control
JUSE	-	Japanese Scientist and Engineering
TQM	-	Total Quality Management
R&D	-	Research and Development
C _p	-	Process Capability
C _{pk}	-	Process Capability Index
6σ	-	Six Sigma
USL	-	Upper Specification Limit
LSL	-	Lower Specification Limit
UCL	-	Upper Control Limit
LCL	-	Lower Control Limit
X̄	-	Average of mean
R̄	-	Average of range
HDD	-	hard Disc Drive

CHAPTER 1

INTRODUCTION

1.1 Background

1.1.1 History of Quality

When the expression quality is used, the terms of an excellent product and service that fulfills or exceeds customer expectations will be think out. These expectations are based on the intended use and the selling price. A more definitive of quality is given in ISO 9000:2000. It is defined as the degree to which a set of inherent characteristics fulfills requirements. Degree means the quality that can be used with adjectives such as poor, good and excellent. Its also can be defines as existing in something, especially as a permanent characteristic [1].

The are various techniques and concepts that developed to improve product or service quality, including SPC, Zero defects, Six Sigma, Malcolm Baldrige National Quality Award, quality circles, TQM, Theory of Constraints (TOC),Quality Management Systems (ISO 9000 and others) and continuous improvement [2].

The meaning for the term quality has developed over time. Various definitions of quality are given below [2]:

Table 1.1: Various definition of quality.

1	ISO 9000	- "Degree to which a set of inherent characteristic fulfills requirements"
2	Philip B. Crosby in the 1980s	- "Conformance to requirements". The difficulty with this is that the requirements may not fully represent what the customer wants; Crosby treats this as a separate problem.
3	Joseph M. Juran	- "Fitness for use". Fitness is defined by the customer.
4	Noriaki Kano and others	- A two-dimensional model of quality. The quality has two dimensions: "must-be quality" and "attractive quality". The former is near to the "fitness for use" and the latter is what the customer would love, but has not yet thought about. Supporters characterize this model more succinctly as: "Products and services that meet or exceed customers' expectations".
5	Gerald M. Weinberg	- "Value to some person".
6	W. Edwards Deming	- "Quality and the Required Style of Management" 1988. "Costs go down and productivity goes up, as improvement of quality is accomplished by better management of design, engineering, testing and by improvement of processes. Better quality at lower price has a chance to capture a market. Cutting costs without improvement of quality is futile."
7	Genichi Taguchi	- "The loss a product imposes on society after it is shipped". Taguchi's definition of quality is based on a more comprehensive view of the production system.
8	Energy quality	- associated with both the energy engineering of industrial systems and the qualitative differences in the trophic levels of an ecosystem.

9	two common applications of the term Quality as form of activity or function within a business	<p>1. Quality Assurance</p> <p>- The "prevention of defects", such as the deployment of a Quality Management System and preventative activities like FMEA.</p> <p>2. Quality Control</p> <p>- the "detection of defects", most commonly associated with testing which takes place within a Quality Management System typically referred to as Verification and Validation.</p>
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Quality has nine different dimensions, which are:-

Table 1.2: The dimension of quality [1]

NO	DIMENSION	MEANING AND EXAMPLE
1	Performance	Primary product characteristic, such as the brightness of the picture
2	Features	Secondary characteristic, added features, such as remote control
3	Conformance	Meeting specifications or industry standards, workmanship
4	Reliability	Consistency of performance over time, average time for the unit to fail
5	Durability	Useful life, includes repair
6	Service	Resolution of problems and complaints. Ease of repair
7	Response	Human – to – human interface, such as the courtesy of the dealer
8	Aesthetics	Sensory characteristic, such as exterior finish
9	Reputation	Past performance and other intangibles, such as being ranked first

1.1.2 Quality Control Development

Quality control is the used of techniques and activities to achieve, sustains, and improve the quality of a product or service. It involves integrating the following related techniques and activities [1];

1. Specifications of what is needed
2. Design of the product or service to meet the specifications
3. Production or installation to meet the full intent of the specifications
4. Preview of usage to provide information for the revision of specifications if needed

Tools and techniques are practical methods, skills, means or mechanisms that can be applied to particular tasks. These are among other things they used to facilitate positive change and improvements. A single tool may be described as a device which has a clear role. It is often narrow in focus and is usually used on its own for example, cause and effect diagrams, Pareto analysis, relationship diagrams, control charts, histograms and flowcharts [15].

Tools and techniques play key role in a company-wide approach to continuous improvement. They allow:

1. processes to be monitored and evaluated;
2. everyone to become involved in the improvement process;
3. people to solve their own problems;
4. a mindset of continuous improvement to be developed;
5. a transfer of experience from quality improvement activities to everyday business operations;
6. Reinforcement of teamwork through problem- solving.

Tools and techniques require attention to be paid to a number of “critical success factors” to make their use and application effective and efficient.

There are many applications of tools and techniques especially in industrial field. Initially a number of the quality management tools and techniques were introduced as a means of increasing awareness of the total quality management concepts and the importance of continuous and company-wide improvement. For example, the introduction of SPC to senior management in 1987 was envisaged as being a means of them finding ways to involve their people in process improvement [3].

Unfortunately this never came to fruition due to the inadequate training carried out by the management consultants engaged for this task and subsequent application in the operational aspects of the business. Around the same time other tools and techniques were introduced to facilitate the data collection process including cause and effect diagrams and quality costing [3].

1.1.3 Company Background

For this project, Kenseisha (M) Sdn. Bhd Company is choose as an observation to the quality because it was one of the company that applied the seven QC tools in order to achieve the high quality product. This company was incorporated in 1989, founded by Mr. Hiroshi Mizutani, who is the former President of Kenseisha Co. Ltd. It has been in operation for more than 15 years and one of the prime suppliers for all kind of products to multi national company in Japan and other parts of the world.

Today, Kenseisha (M) Sdn Bhd is the leading company in manufacturing of die-casting and precision machining of parts for electronics equipments, computer peripherals, VTR and VTR camera related equipments.

The company achieved the ISO 9002 in 1997 and has kept on strengthening the quality standard through various Quality Assurance Systems. In 2001, the company once again achieved a certificate of ISO 9001:2000. Now, the company is looking forward to achieve the EN/AS 9100 (European Standard-Aerospace). These achievements

demonstrated the company's commitment, not only ensuring high quality of the products produce but also endeavor to satisfy customers needs and requirements.

As the company is looking for future demand and have future plans, Kenseisha (M) Sdn Bhd now already set up a new team to prepare the company to be competitive with other manufacturing companies from all over the world. In fact, Kenseisha (M) Sdn Bhd had started its new business product to many customers, which comes from france, New Zealand, Japan, Thailand, Singapore and many other ASEAN countries. The company is headquartered in Tokyo, Japan conducting the marketing while research and development operation is based in Kashiwazaki, Japan.

1.2 Problem Statement

Quality is the most important thing that should be concern in producing the product. The high quality product will produce the high demand. In order to achieve high quality of the product, every company should have their own strategies and planning. Usually the industrial company uses the QC tools method as a guide to improve their product quality.

For the Kenseisha Company, mostly every week they have the reject part that need to be reworked or scraped. There are also complains from their customer about the defect of the product that they receive or did not achieve their specification. When these problems happen, the customers will have low impression and try to avoid cooperating with this company again. They will reduce their demand to this company for supply of hard disc part and find other companies that have greater product quality. Therefore, Kenseisha faces big problems as a supplier when there are many hard disc parts in stock that they cannot sell.

Even the QC tools was already applied in this company, there are still having data that cannot achieve the specified specification. This is because, the basic QC tools just used

to improve the product quality but not in management quality system. So that, the critical area will be define to investigate the related problems that make this area cannot follow the specification and always out of control. The problems will be investigate to improve the quality of the product either in the company management or production line not just in terms of product quality but also on the delivery, management and process lead time.

As a solution of these problems, we will try to calculate back the sample of the data and applied the QC tools method. Every seven basic QC tools will be applied back in order to identify the problems in this company in order to achieve the quality of the product and fulfill the customer's satisfaction.

1.3 Objective of Study

The objectives of this study are:

1. To study the effectiveness of basic seven QC tool implementation in Kenseisha (M) Sdn. Bhd.
2. To identify problems existing in the identified company in order to achieve the product quality.
3. To built a seven QC tool solutions in order to improve the quality of the product in Kenseisha (M) Sdn.Bhd Company.

1.4 Scope of Study

This study is to describe about the basic QC tools that usually applied in a real industrial field. However, it is also performed to identify the benefits and used of seven QC tools in order to achieve the high quality of the product and to fulfill the customers satisfaction. This study is also to identify the problems that always happen in this Kenseisha (M) Sdn.Bhd Company and the most appropriate way to solve each of the problems. For data gathering, observation, interview and data analysis was did by collecting the check sheet and analyzed the data from company SPC programmed. The M80 HDD model was picked as a sample data to calculate and identify the problem existed. The basic seven QC tools also will be used as techniques to improve their product quality and the MINITAB14 as a software in order to calculate and produce the chart. The result may not be applicable for other company.