Improvement of System Production Based on Analysis of Quality Control

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Abstract. The purpose of this research is to produce good quality products according to the wishes of consumers. The method used in this research is Ishikawa diagram. This method used to find out what factors affect the quality and lack of cones weight of the weight of a predetermined standard. Based on the results of the inspection carried out, several yarn cones do not have a weight according to the standard 3.175KG. Then, the type of product defects obtained is the weight does not match the thread cones on the spinning production floor 1. There are three factors causing the weight defects of yarn products in the Ishikawa diagram made, namely human factors, method factors, and machine factors. To be able to minimize the number of defects that occur in the yarn reel, in this study it is proposed several remedial actions based on the factors causing the defects including multiplying the sign in the form of lights in each yarn reel that has been damaged. With the improvement effort made, it is expected that the number of defects in the yarn reel can be minimized so that the yarn quality can be further improved.

1. Introduction

Every company must always produce good and quality products. Things that can be done to achieve this desire is that the company must do the quality control process when the finished product will be carried out packing process to find out whether the product has a defect or not and is suitable to be marketed or no. Here the role of a quality control is very important. Good and bad quality of company production depends on the human resources of employees in the field of quality control. The word quality in Indonesian means level and quality of good or bad things. Quality is a way to determine whether the product is up to standard or not [1].

Quality has become one of the most important factors in today's global competition. Therefore, every company in today's global competition must focus on quality. Quality produces a positive impact on business performance in two ways: the impact on production costs and the impact on revenue [2]. Quality control is a supervisory activity carried out by every component in the company to improve and maintain its production so that the resulting product complies with quality standards [3].

The dimensions of product quality form the basis of comparison with competitors. Quality represents the relationship between desires and expectations on the one hand and financial possibilities on the other [4]. Reliability is a quality term over time and can be defined as the period in which a product meets the quality standards for the expected period of use [5]. In this study the researchers conducted a quality control analysis of yarn weight defects at PT. X. Quality is suitability for use, this means that a product or service must be in accordance with what is needed or expected by the user [6].

Quality is the key word in all industrial competitions, so every company must be able to produce a product with good quality and meet the needs of consumers [7]. The concept of providing quality products not only includes meeting customer needs, but also the ability to maintain and sell these products at low cost. Quality in the organization is defined as the actions and procedures carried out by
the company or organization to ensure delivery of high quality services or products [8]. The Seven tools method usually used to overcome existing problems. This method has been widely applied to overcome similar problems in various companies, both manufacturing and services [9]. This method used to find out what factors affect the quality and lack of cones weight of the weight of a predetermined standard

2. Method
The method used in this research is the Ishikawa diagram method to determine the factors that influence the lack of cones weight of the yarn from a predetermined standard weight [10]. From the observation process in the field, it is found that the cause of the weight of the cones yarn is less than the predetermined weight. There are three factors, first the human factor, the method facto, and the machine factor. The data needed to make the Ishikawa diagram is the number of cones weight defects obtained on each production floor.

3. Results and Discussion
Quality is the key word in all industrial competitions. Therefore, every company must be able to produce a product with good quality and meet the needs of consumers. The concept of providing quality products are not only include meeting customer needs, but also the ability to maintain and sell these products at low cost. Quality in the organization is defined as the actions and procedures carried out by the company or organization to ensure delivery of high quality services or products. The following discussion of quality control of yarn defects and the results of the analysis of the causes of yarn defects:

3.1. Identification of the type defect
The first step in this study is to identify the type of damage that can affect the quality of a product [11]. Identification of the type defect obtained is that the weight is not suitable for cones yarn on the spinning production floor 1. The type of defects obtained based on research is the weight defects of yarn products (Figure 1).

Figure 1. Example of Cones Yarn

3.2. Ishikawa diagram
The Ishikawa diagram method is used to find out what factors influence the lack of cones weight of the yarn from a predetermined standard, which is 3.175 kg. Several factors are used which may cause defects in a product, such as human, material, machine, method, measurement and environment [12]. From the results of the analysis of product defects, using Ishikawa diagram obtained three factors that cause the weight of the cones yarn is less than the weight that has been determined, namely human factors, method factors, and machine factors. From the results of the analysis that has been carried out, it appears that human factors are the main culprit that causes a reduction in weight on the spool of yarn on the production floor. All factors are causing defects in the product can be seen in Figure 2 below.
The next step after all the factors causing the defect has been identified. It is necessary to propose several remedial actions related to these factors, such as multiplying the sign in the form of lights in each yarn reel that has been damaged and increase the responsiveness of workers on the production floor if there are signs of defects in the yarn reel. It can be a consideration for the company to be able to minimize the number of defects that occur. Therefore, that the yarn manufacturing system can run more optimally.

From the results of this study, the fatigue experienced can cause a decrease in the responsiveness of workers on the production floor in terms of overcoming the existence of a damaged yarn. This is because humans have limited endurance at work. If the workload given is large, it will affect the responsiveness and concentration [13]

Another cause obtained in this study was an error in the method of installing the lamp signal on the yarn machine. In addition to a small amount, its placement is too difficult to be seen by workers. A good work system is an ergonomic work system that can facilitate human work [14]

4. Conclusion
Based on Ishikawa diagram analysis, it is known that the factors that influence the lack of yarn cones weight from a predetermined standard weight, there are three factors causing the weight defects of yarn products. The first human factor is because the operator is not careful in checking broken threads on the ring frame and winding machines. The operator's performance is less fast due to too many machine sides that have to be checked so that the operator feels fatigue and causes the broken threads not to be reattached quickly. The second factor is the method that not all ring frame and winding machines have sensor lights that will light up when a thread breaks during the spinning process. The third factor is the machine, the thread spindle is often broken and the end break ring frame that causes the spinning process on the ring frame yarn machine often breaks, as well as the frequent occurrence of cut winding on the winding machine which is the last process to cones the yarn.

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