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THE IMPORTANCE OF THE REVIEWING MACHINE IN FABRIC PROCESSING

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SUMMARY

Competitiveness in organizations is increasingly challenging, to keep up with this evolution it is necessary technological transformation, austere competition, integration and perspective with regard to cost-benefit, quality and customer satisfaction, to achieve this objective it is necessary for organizations to have creativity, innovation. Companies need to develop products that meet customer needs. For this reason, companies must reduce production failures as much as possible and thus save time standing out from market competition. Mitigating failures in production processes is a major challenge. This work aims to analyze performance and improvements with the use of a fabric proofreading machine in a textile industry. This machine has the function of reviewing and checking the quality of the fabric before the process of cutting and making the pieces begins. The work was carried out through 30 years of experience in textile industries on the production line and factory floor, where the lack of review of fabric batches before the process of cutting the pieces was investigated. Once the problem was observed, the importance and need for a proofreading machine with the aim of optimizing the cutting process and reducing existing losses related to defective fabrics.

Key words: Textile industry. Proofreading machine. Production planning.

ABSTRACT

Competitiveness in organizations is increasingly challenging, to follow such evolution it is necessary technological transformation, austere competition, integration, and perspective about cost benefit, quality, and customer satisfaction, to achieve this organizations need to have creativity, innovation. Companies need to develop products that meet the needs of customers. For this reason, companies must reduce production failures as much as possible and thus save time standing out in the face of market competition. Smoothing the failures of production processes is a great challenge, this work aims to analyze performance and improvements with the use of a fabric revision machine in a textile industry. This machine has the function of reviewing and checking the quality of the fabric before the process of cutting and making the parts begins. The work was carried out through an experience of 30 years of experience within textile industries in production line and shop floor, where it was investigated the lack of revision of lots of fabric before the process of cutting the parts. Once the problem was

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observed, the importance and need of a revision machine was proven to optimize the cutting process and reduce existing losses related to defective tissues.

Keywords: Textile industry. Revision machine. Production planning.

1. INTRODUCTION

This work focuses on textile processing, where there are flaws ranging from stains, irregularities, holes, texture and other defects in the fabric that may occur in the production line process.

In recent years, the textile industries have undergone changes in their production and have thus adjusted to the conditions of the Brazilian economy and the globalization of world markets. The textile industries' main characteristic is the combination of production processes, which involves several types of raw materials and many products, which are basically classified by the materials from which the products are manufactured.

Competitiveness is related to the major transformations that have been occurring mainly with the automation of production sectors, new technologies and globalization, with this the attention has turned to cost-benefit, increasing product quality seeking greater customer satisfaction, this requires of organizations a lot of work, new ideas and innovation. It is necessary to develop products thinking about customer needs.

To meet these market needs, the industry races against delivery times to try to produce and send the product to the customer as quickly as possible and with the quality that the customer wants to receive. For this reason, the company seeks to reduce possible failures in production, thereby saving time in the production process and standing out compared to market competitors. The proofreading machine analyzed in this work plays an important role, as it helps the fabric analysis process. before entering the production process, ensuring that the fabric to be used will be a defect-free product.

This work was developed based on the concepts addressed by the authors: Arnold (1999), Fernandes; Azeka; Barreto; Filho (2007), Furtado (2003), Koskela (1992), Laufer; Tucker (1987), Wolf; Silva (2014), Lubben (1989), Martins; Campos (2006), Pozo (2004), Prado (1970), Russomano (2000), Silva; Salviano; Cezarino; Ratto (2009), Slack; Chambers (2009), Volnei (2020) and presents a relationship of experience with the production management of several textile industries, highlighting the importance of the proofing machine for the company.

To better explain this subject, the following topics will be covered: The textile industry, presenting a brief context of the emergence of this sector in the world. Just in Time Production System and its Philosophy, which deals with the concept that when managing a production line, everything must be purchased, requested or produced at the right time, avoiding unnecessary costs. Production planning, a crucial part in the search for improvements within an industry, as this makes it possible to set goals and objectives of what is expected from this industry. The use of the Revising Machine in a textile industry will be discussed. This machine works to control the quality of the fabric, avoiding defects and failures in the product.

2 THE TEXTILE INDUSTRY

The textile industry model was born with crafts and in the mid-18th century the process of industrialization and large-scale production began throughout the world.

The continent that stood out the most was Europe with the use of the steam engine from the First Industrial Revolution, when the mechanization of the countryside also took place and resulted in the rural exodus, the population began to gather in large urban centers in search of employment in the industrial sector.

At this stage the evolution was visible and progressive. With the Second Industrial Revolution, machines already had their functionality through electrical energy, which led industries to gain strength and begin mass production. “With the Third Industrial Revolution, the technological era begins and begins to gain space and stand out, where there is a need for more qualified labor” (PRADO Jr., 1970, p.123).

In the midst of this scenario, industry was born in the world, and since the 17th century it has been changing and updating until today. With industrialization, the segment that stood out most was textiles, creating yarn and weaving factories. And currently it is still one of the most prominent industries in the world.

In Brazil, even before its discovery, the production of textile articles already existed through the Indians who carried out their own artisanal production. “With the ease of access to raw materials, the textile segment was consolidated” (FURTADO, 2003, p.123). Industries are involved in global markets where there are many challenges, in which efficient production planning and control systems are necessary (RUSSOMANO, 2000, p. 54).

This statement makes it clear that, every day, companies need their production planning to be updated in accordance with market demands and especially with regard to efficiency and reduction of failures and waste, in order to save time and material. prima, to serve many more customers and gain greater market share.

According to Arnold (1999), “Producing is complex”, as there will be great difficulties in relation to optimizing production and reducing failures. To work with optimization, an effective planning system must meet some basic requirements, such as what you intend to manufacture, what is needed to manufacture what you want, what the company has and what the company needs.

> These questions are related to the priority and capacity that the company makes available to meet market needs or not. Because they depend on the amount of resources the company has and whether it is necessary to acquire other resources to meet demand (ARNOLD, 1999, p. 34).

In this way, one can consider the importance of knowledge of the textile industry applied in production, from raw materials to fabric processing, ensuring quality in the execution of processes, reducing failures, defects and waste resulting in lower cost-benefit and satisfaction. of the end customer, who will purchase a product with a lower price and high quality.

2.1 JUST IN TIME PRODUCTION SYSTEM AND ITS PHILOSOPHY

The system studied aims to increase the return on investment through increased revenue, reduced costs and the participation of employees in the production process. This philosophy comes from Japanese culture, which observed that scrap, rework and waste are not accepted, so failures are sought to be reduced in order to achieve higher quality and reduce costs (RUSSOMANO, 2000). The function of Just in time is work with “pull” production, throughout the process, the material is only ordered if there is a need for use on the production line. According to Lubben (1989), pull planning simplifies the production process, using a fixed volume of products, reducing the amount of stock in the production system and ensuring that resources are used in the best way, to avoid waste.

Pozo (2002) says that to eliminate losses, the beginning is with an organized production flow, with partnerships, suppliers and total quality procedures and continuous process improvement. In this way, it can be seen that not only the reduction of inventories, but also the improvement in processes, partnerships with suppliers and layout, help with Just in time within production.

2.2 PRODUCTION PLANNING

Production Planning stands out in the textile industry, with it it is possible to improve results and reduce risks. In this way, production management has occupied a prominent position in terms of competitive advantage.

It is the main part of a company, it is present from the beginning using a strategic plan that defines objectives and the paths that the company must follow to reach its objectives, planning daily activities (LOBO; SILVA, 2014).

Therefore, planning is the basis of effective production, where errors and process failures are reduced. This planning begins by analyzing the PCP (Production Control Planning) sector, which controls the center of the company's planning activities. The PCP's function is to connect all sectors of the company responsible for production. According to (LOBO; SILVA, 2014, p.81) “to plan efficiently, all levels and hierarchies of the company must be aligned, they must know, understand and share the objectives”.

An efficient way to analyze the conditions, acceptance and production availability of an order is to develop a master production plan. The PCP simulates production with factory allocation to fulfill the order, calculates production time, arranges maintenance, schedules the machines, considers production bottlenecks due to scheduled maintenance and corrections to some production items (LOBO; SILVA , 2014).

Once the master plan is completed, the PCP informs the commercial sector whether it will be able to receive the order and meet the customer's needs. If it is approved by the commercial sector and the customer, launches and orders will begin with the system and production time will be counted and production control activities in order to ensure that production performs activities in the best way to serve the customer within the right order delivery time. This production monitoring stage is highlighted by the importance of a well-designed production plan and execution in the best possible way.

To achieve excellence in production, the industry needs to seek innovation for production processes and in this way production becomes more efficient in less time and this brings satisfaction to the end customer. Production in a textile industry is computed and analyzed from the moment the order is confirmed until the product is delivered. After confirming the order with the customer, the commercial sector begins the production process by registering the request, and then, this time must be respected and executed, attention is needed on the part of production, to reduce the flaws found during the process so that Don't waste time or money.

Many companies these days suffer from failures and defects in production due to the lack of a proofreading machine, which helps in proofreading fabrics so that they do not arrive defective at production. Due to the lack of the machine, the company could suffer a lot of financial losses due to producing defective pieces of fabric that are not suitable for sale. Our economic scenario is increasingly demanding in many aspects, such as innovation, quality, costs, deadlines, among others. Companies must meet market demands by seeking product excellence, meeting deadlines, reducing failures, increasing production, reorganizing the production process.

According to Martins, Campos and Alt, 2006 p.13), “The product is the result of productive effort, the materialization of the customer's desire, and the reason for the company's existence”. Therefore, the challenges for companies and industries are to provide the customer with a new vision of the product. Therefore, the process in the textile industry must be planned and programmed so that there are no bottlenecks that hinder production.

Carvalho, Silva Filho and Fernandes (1998) state that in medium-term planning, the planning horizon is from six months to one year and decisions are based on information with few uncertainties. Short-term planning, which can be called operational planning, is effectively production scheduling, its purpose is to execute well the activities established by tactical planning.

Planning consists of decision making with the aim of projecting future actions in a way that makes them real. Control is the process that allows actions to be carried out according to planning, ensuring that goals are achieved, measuring and evaluating performance, making corrections if the defined plan does not achieve its objectives. Planning and control are interconnected processes (LAUFER; TUCKER, 1987).

Production is defined as an activity that begins with the raw material, through processing and transformations until reaching the ready product, goes through stages of movement,

Waiting and inspection can add value, whether they remain or not add value, these are waste and must be avoided, since all activities directly involve costs and time (KOSKELA, 1992).

Production planning is very complex and requires the commitment of those responsible for the decision-making process. There must be synergy between the company's departments, so that planning is successful in relation to strategic objectives (SILVA FILHO; CEZARINO; RATTO, 2009).

Production Planning and Control aims to ensure that production operates in an effective and efficient manner, so that products and services meet consumer requests. Production resources must be available in quantity and quality required (SLACK et al., 2009).

2.3 REVIEWING MACHINE

The proofreading machine is of great relevance to the textile industry, as it acts directly in the quality control of the fabric, because, if the batch of fabric has any type of defect that could compromise its processing along the production line, the operator already highlights , refuses and takes the necessary measures to exchange the material.

Figure 1 - REVIEWING MACHINE

Source: (Volnei, 2020).

The assistance of this machinery in the textile industry is of great importance to contribute to the inspection of fabric quality and checking correctly. Failure to use this equipment can lead to production using batches of defective fabrics, compromising the quality of the product and can lead to waste. and losses related to time and cost.

A company that does not work with any type of check or inspection of the quality of the raw material is unlikely to find defects easily during the production process, the result of which will be a high loss of fabric pieces at the end of the process relative to the quantity of pieces produced. , thus compromising all production work, causing losses.

The proofreader is a machine that carries out the entire inspection of the fabric, collecting information such as width, useful area, yield, weight among other information, enabling quality analysis by identifying the best roll, making better use of the processing order.

FINAL CONSIDERATIONS

The purpose of this work is to show the importance of reducing failures and defects in the production process of the fabric processing sector of the textile industries, through a proofreading machine for the company.

It can also be added that with the fabric proofreading machine and its inclusion in the production process, quality is gained, which results in batches of fabrics benefiting with greater use, minimizing losses due to fabric defects in the process.

The textile segment, as it is something so present in society, moves the economy considerably, since it encompasses not only the fashion and clothing segment, but also the automotive, decoration sectors, among others. Therefore, for industries to remain competitive in such a broad market, they need to look for tools that bring a difference to the product.

Quality management applied in production is of great importance, as with it it is possible to build a concept for products, bringing improvements related to cost and reducing failures.

The proofreading machine used in the production process works as a collaborative agent for the industry's quality planning, since the machine allows an analysis of the fabric's processing to be carried out even before it enters the production phase, bringing advantages such as quality of the fabric, reduction of flaws and defects in production, saving time and lower costs in the product offered in a highly competitive market.

In this way, meeting the expectations of the market and the consumer, who will have in their hands a product with the expected quality to be used for the most diverse purposes.

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