
PROBLEMS OF LASER CUTTING IN THE READY MADE GARMENT**Amal Gerages William HABIB^{*}, Zainab Abdel Hafeez FARGHALI, Magda Youssef MOHAMED**Department of Garment and Textile, Faculty of Home Economics, Helwan University, Egypt

Abstract

The current research aims to identify the problems of using laser cutting in the manufacture of ready-made garments in light of the variables used in the device, the nature of the material used, the used cutting system, the height of the stack "number of layers", the conditions of the surrounding environment, and to identify the most materials used in laser cutting in the manufacture of ready-made clothes. The research sample consisted of a distribution between factory managers and production supervisors and those in charge of shearing factories that produce ready-made clothes that use laser cutting on different fabrics, which consisted of a factory number, and the research tools consisted of an open questionnaire to identify the problems resulting from the use of laser cutting in the manufacture of ready-made garments by visiting The field for factories that use laser cutting with the aim of gathering information to find out the problems resulting from the use of laser cutting in garment factories, and a questionnaire to identify the problems of using laser cutting in the manufacture of ready-made clothes. The results of the research reached that there are no statistically significant differences between the problems of using laser cutting, and the results of the analysis The research tools "questionnaire" indicated that the most commonly used materials with laser cutting were jerseys.

Keywords

Problems, Laser Cutting, Ready Made, Garment, Fashion.

Introduction

The readymade garment industry is one of the industries that the state has paid great attention to, as the state has intensified its efforts to advance that industry to provide a high economic level. The garment industry, in light of global changes at the present time, needs to direct science and technology to advance this industry, which requires conducting various studies to keep pace with the technological development that countries follow. Competition Hence, it became necessary to take all modern methods in the field of manufacturing ready-made clothes and to use all available technology methods. Where technology is considered one of the most important criteria for judging the scientific and technical progress of the facility, which must include all industries, especially the ready-to-wear industry, which is considered one of the rapidly changing and diversified industries, as it enjoys continuous development as a result of the rapid development in social and economic life, which makes both the ready-made garment producers and those in charge

With its research, they compete to provide the necessary factors for the development of this industry, and one of the most important stages that the ready-made garment industry goes through is the cutting process, which requires skill and precision, as well as the use of appropriate machinery for this process, where the cutting process is divided in terms of the method into two types, namely manual cutting and clipping, given many studies. The previous

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study that clarified the importance of the cutting process in ready-made garment factories is a study that aimed to study cutting technology as the first and important step in the basic production stages of ready-made garment factories with the aim of obtaining a good shearing journey and the least number of times for the age of the cutting weapon and a study that was concerned with the cutting stage and why this stage is so important High in the manufacture and production of ready-made garments, as the error at this stage leads to corruption of all classes, and also a study that aimed to search for technical problems and obstacles facing the process of cutting while laying a set of foundations for the process of automatic cutting in the field of clothing industry in order to develop codified standards that can be Through it, it reaches a high quality level in the cutting process with less human element. And in recent times the use of laser cutting technology has spread in the manufacture of ready-made clothes as one of the modern methods

In cutting, the reason for this is due to the finite precision and efficiency that is characterized by laser cutting technology, and this was clarified by a study that aimed to clarify the importance of using laser rays in cutting in

Ready-made garments factories and their impact on the quality and accuracy of cutting. Before the use of laser cutting, the cutting stage in the production of ready-made clothes faced many problems, including that it takes a long time, high cost, and lack of commitment to production deadlines. But this technology made a radical change after the use of lasers in the cutting stage, as the negatives of cutting were eliminated by other traditional means, which contributed to raising the efficiency of cutting cloth and leather, through computer hardware and software.

The mechanism directs the high-energy laser beams in the direction of the fabric to be cut, thus melting, burning, or evaporating the fabric material in the form of gas, leaving the edges of the cloth cut to a high degree of accuracy. And laser cutting technology has developed to suit different textile materials to obtain high efficiency and infinite accuracy, which contributed to the distribution and sale of textile products in the market and making them in the highest degree of competition compared to textile products that use other cutting methods. Despite the advantages of laser cutting, many problems appeared for cutting. Laser is the result of technological development in raw materials and the emergence of new fabrics with different mixing rates, which necessitated an attempt to identify these problems that correspond to the use of laser cutting in the manufacture of ready-made garments so that they can be identified and tried to reduce them. Accordingly, the research problem is determined in the following questions: What are the problems of using laser cutting in the manufacture of ready-made clothes according to the following variables (: the use of the device, the nature of the material

used, the used shear system, the height of the stack, conditions of the surrounding environment)

Research Problem:

It is an obstacle to performing a command. Ideally, the problem refers to:

An ambiguous situation, or a confusing, difficult or incomplete matter, whereby it creates a need to reach the truth, satisfy the deficiency and procedurally remove it in this research: it is that obstacle that stops or disrupts the progress of the manufacturing process during the use of the laser cutting device in ready-to-wear factories when using different fabrics.

Cut: is the process by which garments of fabrics and costs are converted into parts necessary for the production of ready-made clothes.

Laser: The laser in English is Light Amplification by Stimulated Emission of Radiation and therefore it is an abbreviation for the first letters of the previous English words to become LASER, which means in Arabic the amplification of light by the emission of stimulated radiation and it is an electromagnetic radiation whose photons are equal in frequency and are identical to the wavelength where they overlap between their waves to transform into a light pulse of high energy, highly coherent in time and space, and with a very small angle of diffraction, which could not be achieved by using techniques other than radiation stimulation.

Laser cutting: Laser cutting is a technology used in cutting cloth by laser outputting a beam of light that can be focused in a very small point, resulting in a high density energy, and this results in a rapid increase in the temperature of the fabric that has been focused on and it does not need a tooth as it penetrates the layers of the stack at a specified depth Depending on the density of the fabric.

Industry: It is a work of science or art practiced by a person in order to master it and become his craft, and the factory is the place in which industry is practiced

Ready-made clothes: its singular is clothing, which wears a general term that refers to everything related to clothing and the arts of its use, and it is defined as a group of businesses that produce similar products or provide similar services by converting organic or inorganic materials by mechanical processes to other products that are produced in a factory or workshop, whether sold to a wholesaler Or retail it.

The manufacture of ready-made clothes: are the processes that the raw materials prepared for production go through to become a finished piece of clothing intended for consumption through their passage through the production processes.

Hence, to verify the validity of this hypothesis, the results of a questionnaire were analyzed "to identify the problems resulting from the use of laser cutting in the manufacture of ready-made clothes", through which the different types of materials used with laser cutting were revealed.

The following table shows the frequencies and percentages of the materials most used with laser cutting: "Frequencies and percentages of different materials used with laser cutting in the manufacture of ready-made garments" The percentage type of material mixing ratios k% % The table shows the frequencies and percentages of different materials used with laser cutting from the reality of the field study.

Results:

The necessity of conducting similar research concerned with the legalization of the use of the laser cutting device in the manufacture of ready-made clothes.

- 1- Creative industries also contribute to sustainable development.
- 2- Creative industries have become one of the basic industries that contribute to the development of the countries' economy in general.
- 3- The creative economy today has a prominent and important role in the development of the global economy and is one of the most important engines that contribute to the development of the economy of developing countries.
- 4- -Sustainable design sets environmental features as design goals in accordance with the principles of social, economic and environmental sustainability. Creating a culture of innovation from knowing the use and utilization of elements and generating ideas and knowledge and marketing them locally and internationally.
- 5- The application of the concept of sustainability in design contributes to the ability to enhance the advertising message and its teachings as one of the forms of creative industries. Sustainable design and the role of advertising is not limited to the communicative aspect, but aims to expand the recipient's horizon towards the importance of the environment.

Recommendations:

- 1- The research recommends the necessity of conducting studies and research on the creative industries that have become basic industries that contribute to the development of the economy in general.
- 2- Setting rules and legislations to protect the rights of creative production and supporting creative industries are among the priorities of cultural policies.
- 3- That the designer has a great understanding of sustainability principles.
- 4- Development of cultural, environmental and economic awareness among the segments of society.

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