

Topic № 3

APPAREL

TECHNOLOGY



A DESIGN AND TECHNOLOGY FOR PRODUCTION OF EMBROIDERY FOR CHILDREN'S CLOTHING

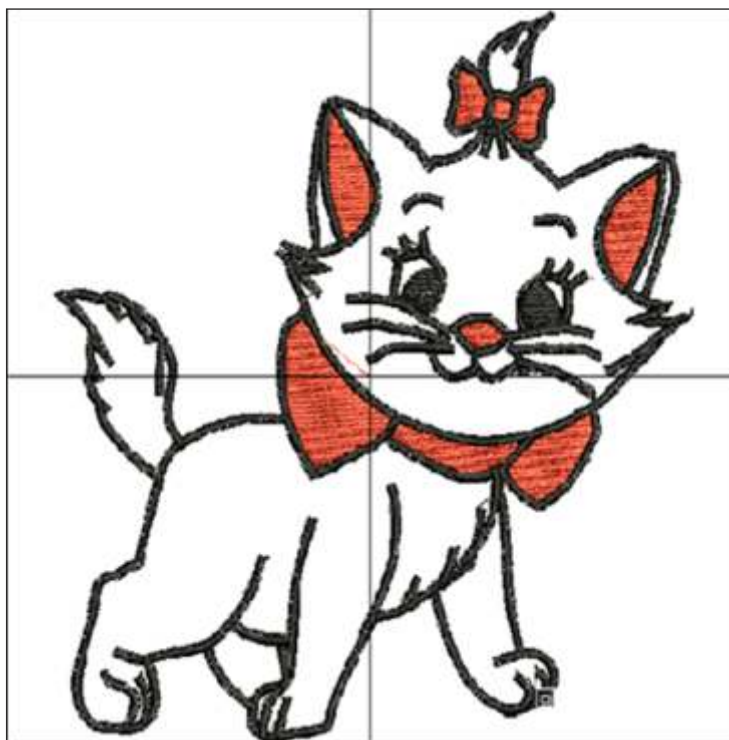
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Abstract

The machine embroidering is often used to decorate clothing. The sector is constantly developing with the improvement of embroidery machines, introducing new features and technologies for embroidery production. Besides standard embroidery three-dimensional embroidery can be produced by applying different types of supporting materials such as polyurethane foam, wadding, rigid plastic materials or by sewing strips, cords, sequins etc.

The purpose of present work is to develop a design and technology for production of machine embroidery, intended for children's clothing. Before proceeding to a new embroidery design it is necessary to develop a production technology that includes several basic steps: drawing, scanning (by hand-painted designs), processing, digitizing, embroidering, inspection for defects, corrections (when is necessary), re-embroidering and finishing. The designs in the thesis are original works inspired by cartoons and they are hand-painted with a marker pens. After image scanning a graphics program processing is done to smooth contour lines and reduce colors. This facilitates the digitization process of images, which can be done manually or automatically. 6 of 12 designs, digitized with specialized embroidery CAD software (Digitizer MB), are embroidered on one-



head embroidery machine Janome MB 4 with four needles, available in the Textile Department. Half of the designs are made for woven and the others for knitted fabrics. Contour embroidery is recommended when using knitted fabrics, avoiding filled objects. An appropriate technique is the applique, where the design is not aggravated by many stitches, but at the same time can be achieved interesting color solutions. Two types of embroidery are produced on the woven structure: standard and three-dimensional with the application of additional support material as polyurethane foam.

Finally, the factors involved in forming the cost of embroidery are defined. From the made calculations, it can be seen that the most costly factor is the personnel cost.

Keywords: design, technology, machine embroidery, children's wear.

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DEVELOPMENT OF TECHNOLOGY AND ORGANIZATION FOR PRODUCTION OF PROTECTIVE CLOTHING

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Introduction

Protective clothing covers a major share of PPE worldwide and plays a key role in ensuring worker safety in the industry. The protection of worker's life and health is of great importance, and led to the development of specific standards, which set requirements for its qualitative performance. They include general requirements for clothing and its construction, minimum levels of materials' characteristics, as well as test methods for determination of their properties.

The aim of the work is to develop a technology and an organization for production of protective clothing (jacket, trousers and overalls).

Experimental part

The experimental part includes the implementation of the following tasks:

1. Selection of materials that meet the European requirements for this class of clothing.
2. Patterns making and technical description of the models.
3. Development of a technology for their production.
4. Selection of appropriate machinery and equipment.
5. Performing technological calculations to determine the number of machines and workers.
6. Organization of the production in terms of time and space.
7. Organization of the quality control.
8. Calculation of the production costs, products' price, loan amount and period for repayment.



Results

Technology and organization for production of protective clothing for work in high temperature environment have been developed. The proposed solutions are implemented in Galtex 2006 Ltd. For fabrication of the garments Nomex III A fabrics by DuPont will be used.

A production program of 165,600 protective clothing per year has been set up. The purchase of new heavy-duty sewing machines Juki is planned.

The enterprise structure includes: modeling section, cutting section, sewing section, finishing department, power engineering department and supply department. A floor plan has been developed in compliance with all technological and regulatory requirements in terms of distance between walls and machinery.

Conclusion

The investment is BGN 1,000,000 with a return on investment of 5 years. Calculations that prove the competitiveness of the enterprise have been made.

The high cost of materials and the requirements for protective clothing require excellent production and quality organization.

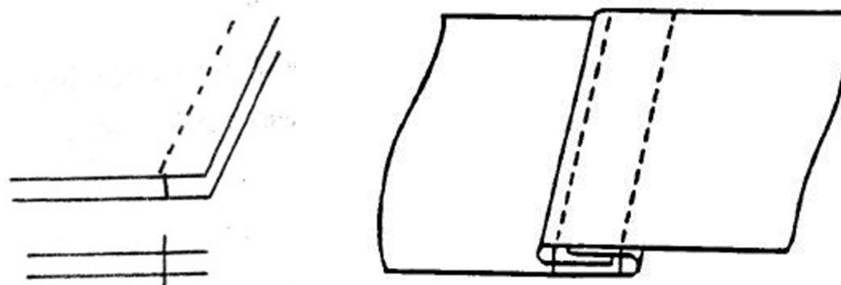
Keywords: PPE, protective clothing for work in high temperature environment, production technology and organization

THE INFLUENCE OF GARMENT DYEING ON SEAM PERFORMANCE

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ABSTRACT: Garment dyeing offers flexibility in differentiation the winning seasonal colors in apparel supply chain, lowers production costs and reduces inventory. During the dyeing process, the garment is exposed to mechanical and chemical action, which leads to a change of particular garment properties, possible occurrences of defects and decreasing of quality. A range of fabric samples for shirts and trousers were exposed to garment dyeing treatment using two different dyeing procedures: dyeing with reactive and dyeing with pigment dyes. Two types of seams were applied for seaming the cutting parts: superimposed and lapped seam. The influence of the garment dyeing treatment type on seam performance was investigated. The results show that the decreasing of seam strength of reactive dyed garments is greater than the pigment dyed one. The average seam strength decreasing for both investigates seams types is 14.6% for reactive dyed and 5.9% for pigment-dyed garments. Comparison of seam failure mechanism showed difference between referential and garment dyed samples.



Clothing has always been a permanent part of human living and culture. The garment industry features a variety of fashion products to satisfy specific market demand. Because the today apparel market is regarded highly competitive, the apparel companies in striving to remain competitive on the market relay manly on the issues generally connected to quality and innovation and not merely on squeezing prices. Within this aspect, the features of row materials, garment performances and quality become very important.

In general, the garment is manufactured from previously coloured materials. The quantities of dye for certain product are purchased before the dyeing process which negatively impact supply chain management and quick response to market demands.

Today, when the lead-time to the market is essential for positioning and success, manufacturers frequently employ the colouring of readymade garment. In order to differentiate winning season colours, it is possible to react much more efficiently towards market demands if the garment is coloured after manufacturing. This includes the manufacturing of garment from uncoloured materials and trims and colouring after manufacturing.

For successful accomplishment of readymade garment colouring process, the particular attention should be devoted to issues such as readymade garment preparation for colouring, materials shrinkage during the wet processing, the selection of sewing threads, linings, interlinings and other trims.

The objective of the paper is further investigation of properties of seam after readymade garment dyeing with reactive and pigment dyes.

Keywords: readymade garment dyeing, seam, seam class, reactive dyes, pigment dyes

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DESIGN AND CONSTRUCTION OF A COLLECTION OF CHILDREN'S CLOTHING FOR GIRLS

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Introduction

In the beginning of the 21st century, children's clothing was devoted to the independent industry. It does not copy adult clothing but is influenced by adult fashion. It has greater possibilities for free-to-fit the individual parts. According to current fashion influences, the silhouette, volume, colors and fabrics change. Priority is given to materials: ecological and lightweight, heat-resistant. In shape and proportions, children's clothing differs too much from adult clothing.

Experimental part

An authored collection is available for girls from the third age group, 10-11 years, for the spring-summer season. The collection consists of 10 varied and attractive models for different occasions and occasions from everyday life. The silhouettes are smooth, free and do not restrict movement. The colors are up-to-date for the season and the fabrics are cotton, knitwear, satin cotton and other natural fabrics.

The modeling of 5 of the models was made on the basis of predefined basic constructions of: a children's dress in a dental and semi-obtuse silhouette, a pants, a half-skirt. The main constructions are built according to the Muller & Soon standard sizes 146-73 according to BDS EN 13402-3: 2004.

Results

All construction drawings are executed with AutoCAD 2015 software. Technical drawings in the face and back, technical descriptions, constructive drawings of model development for all elements, drawings of the main details and work templates were developed to the models.

Conclusion

Children's clothing such as for adults is subject to fashion trends and changes every season. Kid's fashion is oriented towards the child's image and life, and to the spheres of his activity. The models presented in the designer collection can serve small ladies both in their daily routine and on official occasions.

Keywords: Collection, clothing, girls, fashion design, construction.



INVESTIGATION OF THE STRETCHING FORCE OF THE NEEDLE'S THREAD IN THE WORK WITH MULTILAYER WEAVE

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Abstract

1. Introduction

The paper deals with stretching force of the needle's thread in sewing industries. The stretching force of the needle's thread is one of the main factors determining the quality and performance of the sewing process. This factor depends on a number of technological parameters. The influence of some of these technological parameters on the tensile strength of the needle thread has already been investigated. For example, the subject of research and analysis was the influence of surface mass of processed textile materials [1], the number of layers processed [1]; the technical devices used [2] and others. There have been studies of the stretching force of the needle's thread of different composition textile materials - wave [1] and a wool-type textile material of cotton and cotton-type textile materials [2] and others. Each of the above studies was conducted for single layer weave. The wide variety of textile materials and the emergence of more and more new ones requires continuous experimentation to determine the nature of the stretching force of the needle's thread for textile materials of different structure. For example, a tissue - a multilayer weave type "double cloth" have become more and more used in the sewing industry in recent years and this motivates the present study.

The aim of this paper is to investigate the nature of the stretching force of the needle's thread when working with a tissue - a multilayer weave type "double cloth".

2. Experimental part

The experiments were performed with tissue - a multilayer weave type "double cloth". The front fabric is 100% cotton and the lower fabric is 100% wool. The intermediate layer is made of chemical silks - polyamide and viscous.

Research has been conducted with a computer-integrated measuring system to determine the thread's tension force [3].

3. Results and a Discussion

The nature of the stretching force of the needle's thread has been determined under dynamic conditions of fabrication of a tissue - a multilayer weave type "double cloth".

4. Conclusion

The results are scientifically - applied character and can be used in making fast and accurate decisions in response to specific technological problems. For example, the results obtained can be used for high-precision tuning of sewing machines when working with specific types of textile materials.

Keywords: stretching force of the needle's thread; multilayer weave; sewing companies

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