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ISSUES IN THE USE OF KNITTED FABRICS FOR GARMENT PRODUCTION

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Abstract
This article discusses the challenges and issues related to the development of the knitting industry in Uzbekistan. It highlights the existing obstacles, including resource limitations, technological constraints, and market dynamics, while also exploring potential strategies for addressing these challenges. The study emphasizes the importance of innovation, modernization of equipment, and the integration of sustainable practices to enhance the competitiveness of the knitting sector in both domestic and international markets. By analyzing current trends and providing practical recommendations, this research aims to contribute to the growth and advancement of the textile and garment industries in Uzbekistan.

Keywords: Knitting industry, textile manufacturing, garment production, industry development, challenges in knitting, sustainable practices, innovation in textiles, modernization of equipment, market competitiveness.

Introduction

Historically, we know that the production of knitted products was known several centuries ago, and it is recorded in historical literature. When the Egyptian pyramids were excavated, various knitted products were found there. From the 5th century, knitting by hand was introduced in Arab countries, and from the 11th century, the production of knitted products came to Europe. In England, France, Germany and the Czech Republic, shops producing knitted products were established. During these times, socks, scarves and hats were mostly knitted using spitz [1].

The first knitting machine was created by William Lee in 1589, the machine that was created was an innovation of universal importance in the history of knitting.

The Republic of Uzbekistan is boldly moving towards a bright future on the path of independent life. During the past period, several practical works were carried out to strengthen our political and economic independence. Currently, the most important task is to process our raw materials in-house and produce ready-made products for the world, to establish new knitting enterprises to fully satisfy the population's need for knitted products, to use modern technology and machine equipment to renew existing enterprises finishing, raising the quality of the manufactured product to the requirements of the world standard [2]. Fulfilment of these tasks depends primarily on the training of highly qualified personnel. At the same time, it requires a completely new approach to the production of quality finished products. One of the ways to create competitiveness in finished products is to produce high-quality and affordable knitwear. It focuses on the development of design and technology based on the analysis of the raw material-knitting-clothing concept with a scientific approach to expanding the types of finished products [3].

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At the same time, the creation of ready-made products that can be quickly applied to production using local raw materials and can meet market requirements gives high efficiency.

Materials and Methods

Knitting industry enterprises produce knitted fabrics, including technical fabrics, socks, goods, knitted underwear and outerwear, gloves, hats, scarves, and products used in industry and medicine. Yarns made of cotton, wool and chemical fibres are widely used in the production of knitted goods [4].

The weight of knitted clothes is constantly increasing. This is due to the high serviceability and economic efficiency of knitted goods. The continuous growth of the production of chemical fibres, especially synthetic yarns, and the rapid development of knitting production techniques greatly contributed to the development of the knitting industry.

The main directions of the development of knitting production techniques and technology are the creation of automated continuous lines for the production of linen and socks, the acceleration of production processes by replacing equipment with more efficient ones, continuous processing of linen using organic solvents; consisting of specializing enterprises in the production of various products.

In the process of construction and modelling of knitwear, stretchability, permeability, flexibility, and important features in technological processing are taken into account.

The constructive and technological solution of knitted goods is related to the degree of elasticity of the canvas. Knitted fabrics are classified according to the degree of elasticity and tendency to deformation taking into account the characteristics of the original raw materials. According to the classification, knitted fabrics are divided into 3 groups: the first group includes knitted fabrics with little stretch, the second group includes fabrics with medium elasticity, and the third group includes easily stretchable fabrics. These data are the main tools in the construction of knitwear [5]. The value of the heaviness additive, which takes into account the elasticity of the knitted fabric, is given in the documents and standards of the general technical conditions applied in the enterprise. The structural solution of details in the construction of low-stretch, shape-retaining knitted fabric is similar to the structural solution of products made of textile fabrics. When designing a knitted canvas garment with high stretch, due to the stretchiness of the canvas, the garment clings to the body due to some stretch.

When creating a model, the appearance, structure, properties and function of the item are taken into account. Straight, fitted and trapezoidal extended silhouettes are common in knitwear. Deformation properties of knitwear are taken into account when determining the allowance for the bust line [6]. Its value is smaller than that of carbonated products. Currently, for a range of knitted products, the total weft value is determined based on practical experience. Pg=1-4 cm for sweaters according to the fashion trend; 2-5 for jackets; 4-6 cm for jackets. Undergarments made of easy-stretch fabric have a creepage allowance of 0, or it can be a negative number since the necessary expansion of the details of the garment during operation is ensured by the stretch of the fabric. The greater part (50-55%) of the total allowance, which is distributed between construction sections, is allocated to the width of the body, and 25-30% to the width of the back and front sections, according to the fashion direction.

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Pm for the thickness of the canvas when creating the construction of knitted products. n and for the necessary volumetric formation, the introduction fee Ppos supplements are provided. Pm for knitted fabrics with a thickness of up to 0.3 cm of the first and second elasticity groups. n=0, Pm with a thickness of more than 0.3 cm. n=1.5 cm. The thickness of the canvas is distributed as follows: 0.3 Pm. n-back piece; 0.3 Pm. in our name; 0.4 Pm. n-front slice. According to the method of construction of knitted goods, the additional value of the thickness of the canvas is taken into account when determining the vertical lines of the base mesh in the main construction drawing [7].

Knitted fabrics with high elasticity are provided by introducing a volumetric shape instead of twists along the shoulder, side seams and h_{em} lines. Its value is determined depending on the quality of the knitted fabric and the construction of the item. The location of the vertical lines of the base grid is calculated by the following additions: Pl, which takes into account the line of spades, sh (in practical calculations, 1 cm is taken as equal); Pobsh, a common addition to the chest line; in addition to the thickness of the canvas - Pm. n; to the width of the rear section - Ps; additional Pp to the width of the front piece, the chest piece is reduced by 1 cm.

The process of processing knitted goods consists of the stages of attaching details in a specified sequence, finishing them and the last wet-heat treatment. The choice of processing methods depends on the design of the product, the characteristics of the knitted fabric, equipment and devices, technological mode and parameters.

The knitted fabric is subjected to moisture heat treatment under the influence of moisture, heat and pressure for a certain period. Under the influence of moisture and heat, knitwear quickly undergoes various deformations. Therefore, after moisture heat treatment, a cooling and drying process is carried out [8].

Taking into account the elasticity of knitted fabrics, clothes and coupons, moisture heat treatment is performed at the specified temperature: 130-135 ℃ for wool fibre knitwear, up to 120 ℃ for cotton and linen fibre knitwear, 120 ℃ for viscose fibre knitwear. Up to 130 ℃, 95 to acetate fibre knitwear. . . Up to 1000S, 60 for polyester fibre knitwear. . up to 70 ℃.

Exceeding the above-mentioned standard during wet heat treatment can cause the knitwear to lose its colour and strength. Knitwear should be treated with a small pressure (from 0.49*104 to 4.9*104). Otherwise, as the pressure increases, relief and width will be lost, and shiny spots will appear on the surface of the canvas.

Conclusions

It can be concluded that several challenges need to be addressed in the production of knitted garments, and possible solutions have been outlined. These challenges include the need for technological modernization, overcoming resource constraints, and improving production efficiency. By adopting innovative approaches, investing in modern equipment, and implementing sustainable practices, the knitting industry in Uzbekistan can enhance its competitiveness and meet both local and international demands. The proposed solutions aim to support the sustainable growth of the industry, fostering a more resilient and advanced production ecosystem.

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