

Defects Arising In The Process Of Sewing Outerwear

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Abstract: This article examines defects that arise during the outerwear sewing process. Defects in the sewing seam at garment manufacturing facilities were also examined during the outerwear sewing process. The study identified instances of needle friction and thread burning of clothing materials. The study found that many thread breaks are caused by damage to the warp and weft threads of the clothing material.

Keywords: Forecast, monitor, modeling, process, optimal, temperature, outerwear, damage.

INTRODUCTION:

In recent years, the clothing industry has increasingly focused on quality, comfort, and seasonality in clothing production. The most important characteristics of outerwear are its durability, strength, aesthetics, and the color and texture of the fabric, which influence the design and aesthetic appearance of the garment. One of the most important parameters of clothing is comfort [1].

During the sewing process, the type of seam, the type

of thread, and the density of the seam all affect the comfort of the garment. Some manufacturers produce clothing without considering the type, density, and density of seams and threads, which leads to defects. One of the main reasons for choosing a men's jacket for the research was that, in consumer studies, the highest number of defects were observed in the armpits and pocket edges (Fig. 1).



Figure 1. Damage to a men's winter jacket

The types of seams used have a direct impact on the quality, comfort, and suitability of clothing. Inappropriate seam selection during sewing reduces the quality, comfort, and suitability of clothing.

The appearance and performance of seams depend on the sewing process and seam, seam density, sewing machine settings, and the quality of the sewing threads. The performance of clothing depends on the structural and mechanical properties of the fabric. These include strength, stretchability, safety,

durability, appearance, and seam efficiency. To address these concerns, choosing the right thread and needle is paramount.

There are many systems for determining yarn size, but the most commonly used system is tex. This is based on the grams per 1,000 meters of yarn, so fine yarns have a low tex number, while thick yarns have a high tex number. Yarn manufacturers using other systems provide equivalent tex values [2].

Table 1
Types of sewing threads for outerwear

	Article	Thread number	Compound (%)	Country of origin	Enterprises in operation
1	22010	100	Polester 100%	Horse farm in Turkey	Vacconi
2	1264	40S/2	Polester 100%	Germany	Orzu Ideal
3	22010	100	Polester 100%	Horse farm in Turkey	Nam Holding
4	1263	100	Polester 100%	Turkish Saba Farm	Adim
5	1342	100	Polester 100%	Turkish Saba Farm	Adim

Types of Sewing Threads Used in Clothing Manufacturing: Listed below are the different types of sewing threads commonly used in clothing manufacturing:

- Linen threads
- Silk threads
- Soft cotton threads
- Mercerized cotton yarns
- Shiny cotton yarns
- Viscose yarns
- Polyester yarns
- Nylon yarns
- Reinforced yarns

The study analyzed literary sources and examined the experience of producing men's jackets, and also described the types of yarn used for stitching the parts, their composition, and unique characteristics. In addition, the experiments used two-thread polyester yarn Ne 36/2, twist Z 600 from the Turkish company Koneks, which is resistant to various deformations.

Sewing threads can be made from natural or synthetic fibres and are formed by folding the required number of threads to form Z and S twists and then subjected to processes such as bleaching, dyeing and polishing (finishing processes).

They are produced by winding onto spools or bobbins. Every clothing manufacturer wants the materials and threads they use to possess the necessary properties for beauty and performance. The properties of the woven fabric formed from the sewing thread are: the sewing threads are formed at high speed, the sewing threads cannot break, cannot cause skipped stitches, can have high friction resistance which negatively affects the efficiency of the needle and the woven fabric, and can cause minimal damage to the seams [2-3]. When stitching with needles of different numbers (90, 100, 110), fabric damage was detected at average presser foot pressure in 50 x 200 mm samples. The amount of damage was determined by needle access to the material using a magnifying glass. The results are presented in Table 4.2.

Table 2
Choosing a needle and thread for a sewing machine

Type of material	Needle number	Состав нити			
		Cotton	Silk	Synthetic	Lavsan
Fine silk, cambric	60-70	80	65	22 I	20 LX
Chintz, satin, silk, linen	80-90	60-80	65	22L	20 LX
Thick cotton calico; flannel; Fine woolen fabric; thick silk	90-100	50-60	33	33 L	30 LX
Wool suit fabric	100	40	18	60 L	44 LX
Thick woolen fabric	110-120	30	18a	-	-

As a result of the study of outerwear, defects that occur during the sewing process at garment manufacturing enterprises were also studied. As a result of the study, cases of burning out of threads and clothing materials due to friction with a sewing needle were identified. As

a result, there were many thread breaks. Damage to warp threads and weft in clothing material were common. Defects in threads and materials in scientific studies were detected using a magnifying glass (Figure 2).

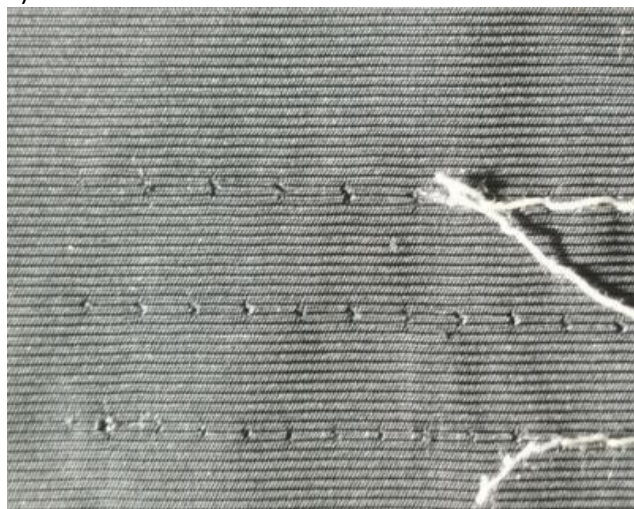


Figure 2. Needle-punched damage to cotton fabrics.

To solve the identified problems, experiments were conducted on sewing sewing materials with threads with the proposed lubrication mechanism. During the experiment, the strength of the threads in the initial state before stitching was determined, and the strength of the threads after stitching was also studied.

In the next step, the parts were stitched using the new proposed lubrication mechanism. The results show that the strength of threads sewn using the new proposed lubrication mechanism increased by 230 cH compared to threads sewn using existing sewing technology (Figure 3).

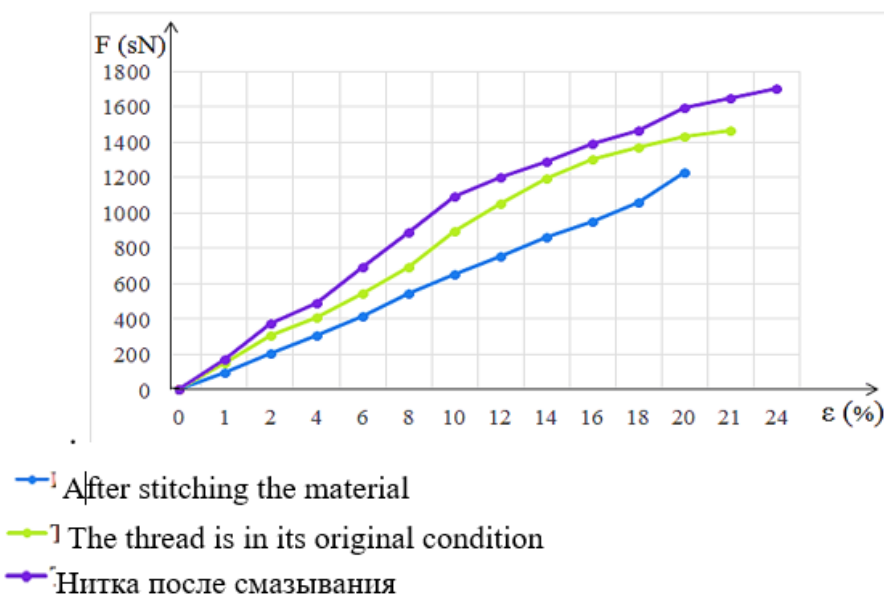


Figure 3. Diagram of the stitched thread in the new proposed lubrication mechanism

In the course of the study, due to the existing high consumer demand for raincoat jackets when sewing men's jackets, the technology of sewing raincoat fabric

was studied in the course of scientific work. The CLO program has identified the parts of outerwear that are most susceptible to wear (Figure 4).



Figure 4. The parts of the men's jacket that are most susceptible to mechanical stress in the CLO D3 program

CONCLUSION

As a result of the study of outerwear, defects in sewing processes at garment manufacturing enterprises were also studied. As a result of the study, cases of burning out of sewing threads and clothing materials due to the friction of the sewing needle were identified. As a result, there is a frequent breakage of sewing threads. Damage to warp threads and weft in the clothing material is common.

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