

Quality Foundation Factors In The Production Of Warp Hairy Abr Fabric Corresponding To The Suit

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Abstract

The article describes the parameters that affect the quality of the national Abr fabric of the new structure, its specifics, production processes, information on the functions of the process, applied basic weavings, as well as the processes of hairy warp formation, consumption characteristics of the finished fabric. Satin weave is only designed for seasonal clothing, but a little warm clothing in the fall and spring is a guarantee of health. Its production encourages the production of Uzbek national Abr fabrics to be a bit more original and suitable, to increase the type of Abr fabric for autumn and spring.

Keywords: hairy Abr fabric, back strip, body strip tension, back strip tension, Abrband, libit reels, roll layers, libit thread base, libit based roll, breaking of roll-reels, a ball-by-ball manner.

INTRODUCTION

In the current market economy, one of the important tasks of the textile industry is to increase the economic potential of the country through the deep use of environmentally friendly, natural raw materials grown in our country, deep processing and production of finished competitive products.

The decision of the President of the Republic of Uzbekistan dated March 29, 2017 on measures to organize the activities of the Association "Uzbek Silk Industry Association" not only implemented the program for the development of the industry, but also opened wide opportunities for the production of our national fabrics.

In our country, artisans are creating new types of "Uzbek Silk Industry Association", patterns with attractive designs. The demand for Uzbek Silk Industry Association in the domestic market of the Republic, as well as in neighboring countries and tourists visiting our country is growing day by day. It should be noted that due to the prudent policy pursued in our country, great attention is paid to domestic and foreign tourism.

This requires further improvement of the appearance and design of national fabrics quality indicators. The uniqueness of the unique pattern ornaments is the attractiveness of the texture, which differs from other fabrics in the design of the appearance of "heavy fabrics", which creates a pattern. The main goal of the article is to analyze and cover the process of creating a new range of national fur fabrics.

Satin weave is made of pure silk from the group of satin weaves: "four-kicks" - satin, "eight-kicks" and "twelve-kicks" - khonsatin, adras, silk, weaksillen, "varicolored cloth" fabrics enters. The more kicks, the more elegant the auric fabric. It is only designed for seasonal clothing, but a little warm clothing in the fall and spring is a guarantee of health. Its production encourages the production of Uzbek national Abr fabrics to be a bit more original and suitable, to increase the type of Abr fabric for autumn and spring. Of course, it is important that the fabric does not adversely affect the human body and is composed of natural fibers. We are witnessing a great deal of attention paid to health today.

Scientists such as K.V.Melyushkin (Russia), I.W.Frontzzak (Poland), M. Snyckerski

(Poland), R.T. Cary (USA), Aloba B. Koksai (Turkey), S. V. Lomov (Russia), K. Bozgayik (Turkey), E. N. Kartashova (Russia), K. Sungshing, (China), I. Fredrych (Poland), L. M. Hyung (China), M. Matusaik (Japan) have worked abroad in the design and research of fabrics based on complex weaving. Also, research on the process of hair fabric production conducted by Shustov Y. S. (Russia), Pan N. (China), Ozdamar K. (Turkey), Primachenko B.M. (Russia), Shankaranarayana K. S. (India), Hong S. J. (Korea), Hiroshi H. (Japan), Govindarajulu, K. (India) and others. Research on the production of new types of fabrics in Uzbekistan, the main factors determining the properties of fabrics, the design of fabrics on the basis of complex weaving is carried out by E. Sh. Alimbaev, P. S. Siddikov, R. K. Karimov and others. However, the design and work on complex national Abr fabrics have not been sufficiently studied.

The process of hair formation in Abr fabrics is due to the nature of the fabric, which is placed on the looms on the weaving warp and weft, and then introduced into production. Color plays an important role in Uzbek national artistic fabrics. It is characterized by a gradual coloring of the body threads [1].

MATERIALS AND METHODS

It is worth to say about ancient traditions of hand-made silk fabrics, which are called the Ikat on the West. This name came from Indonesia and originated from the verb “mengikat”, which means “to bundle”. It is a very ancient way of creating designs in fabric by resist-dyeing the threads before the fabric is woven. In Uzbekistan such technique is called the abrband, which in Persian means “tying a cloud”, and the fabrics produced by such a method are called “abra” fabrics.

There are some legends about origin of such technique. One legend states that once an artist sat by a fast running stream. The stream reflected the clouds, and changed their form. Suddenly sunrays were fractured and became a rainbow which was reflected in the stream. The artist saw a picture of clouds playing with colors. He painted that picture and showed it to weavers who then transferred his picture to fabrics. Later the word abr (which means cloud) was used as the name of the process of dyeing base threads in traditional fabrics, so fabrics were named abr-fabrics and weavers were called abrband.

Pure silk is used as the body yarn of the new woolen fabric, and as a back yarn, a mixture of silk and cotton yarn is added [2, 3]. At present, test variants of the fabric are being produced. In the basic laying parameters of the national fur fabric: the linear density of the threads in the ground is $3.23 \times 3 \text{ tex}$. The linear density of the wool yarns is $3.23 \times 3 \text{ tex}$. The linear density of the back yarns is $3.23 \times 3 + 18.5 = 28 \text{ tex}$. The number of threads per cm of ground yarn, ie the density of 16 threads per sm.

The number of hair rings (when the ratio of hair ring to the density of the back thread is 2: 1) is 10 ring sm. The density of the back threads, the number of threads per cm is 20 thread cm. The number of saw blades per cm or 16 cm. Or the blade is 60160. The feather height is 1.2 mm. (1.6 mm in rods).

2/2 warp reps and 2/1 half warp reps were used as the basic braids for the ground warp yarns when placing the fur fabric on the loom. Warp threads from the branches were passed in a ball-by-ball manner (Fig. 1). In the picture, the first and second branches are covered with hair, and the third and fourth branches are covered with ground. The tufts of hair are always rising and falling together. Two threads are passed through the teeth of the blade, one of which is the ground warp thread and the other is the hair warp thread. Ground warp yarns are marked with an Arabic number in the picture, and fluff warp yarns with Roman numerals. The ring feathers are listed as T1, T2. Fig. 1 (Option I) below shows a complete layout of the loop hairy fabric, as can be seen from the cut section in it, when both backing threads are thrown, a thread is thrown into the hem of the hairy thread to form a hair in the fabric.

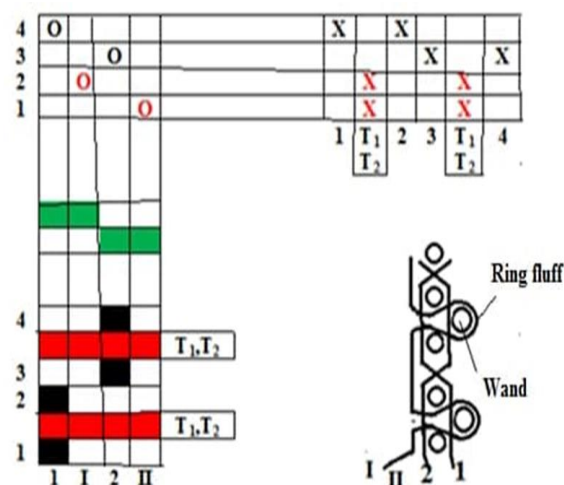


Fig. 1: A complete board picture of a ring hairy fabric. a) fabric drawing, b) section of fabric in the direction of the body.

On the surface of the fabric, due to the ring hairs, patterns are formed on the warp threads in the abrband method. On the other side of the fabric, heavy patterns are formed due to the long coverings of the hairy threads. The method of fabrication allows both sides of the fabric to be used in consumption, and this is one of the main features of the texture.

The technique of dyeing the warp yarn in the Abrband method is very complicated when drawing the outline of the pattern and dyeing. 200-400 meter long warp yarn is distributed to the libits on a special machine. Depending on the density and width of the fabric, the number of threads (yarns) in each libit can be up to 36-60. On the surface formed by the libits, the artist uses a thin stick (bookmark) to mark half of the pattern with transverse lines using a black moth (hatkosa) dissolved in water. After the outline of the pattern is drawn on the hand Abrband machine, the tan threads are tied on the Abrband machine and the color is dyed.

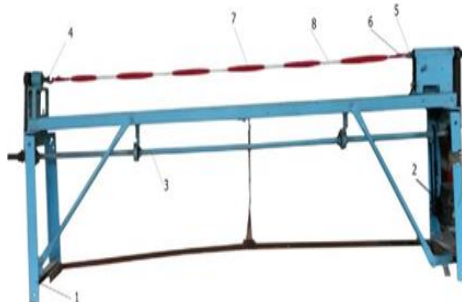


Fig. 2. Abrband bench. 1-workbench support; 2-motor; 3-middle shaft; 4,5- hanger (adapted to hold libit); 6-length ribbon (now sometimes used adhesive tape); 7-colored libit colored part; 8-the part of the libit to be colored.

Abr fabrics are used in a variety of colors: yellow, orange, Venetian red, red, scarlet, green, light blue, blue, pink, purple, gray, and black. The penetration of one color into another and the background effect create a color harmony, which creates a unique shine that is not found in other fabrics and is not repeated in other fabrics. Due to the high level of coloristic perfection in Abr fabrics, the pattern is unique and manifested, accordingly. As the fabric focuses on the background or pattern, one form flows into the other, the pattern shifts from light colors to warm colors [6]. In the process of dyeing, attention is paid to the warmth and coolness of the colors, as well as in the process of dye preparation, special attention is paid to hot dye, cold dyes.

RESULTS

The table shows the results of measuring the density of the winding of the yarns in the abrband with the existing tension device in the libit area for libit binding [4].

Table1.

№	Libit areas									
	I	II	III	IV	V	VI	VII	VIII	IX	X
1.	0,7	0,6	0,6	0,5	0,31	0,59	0,4	0,48	0,6	0,7
2.	0,71	0,61	0,6	0,48	0,31	0,6	0,42	0,5	0,59	0,69
3.	0,73	0,6	0,61	0,51	0,28	0,61	0,4	0,51	0,6	0,7
4.	0,68	0,59	0,6	0,5	0,29	0,6	0,41	0,5	0,61	0,71
5.	0,67	0,6	0,6	0,5	0,32	0,6	0,4	0,51	0,6	0,7
6.	0,7	0,61	0,59	0,51	0,3	0,59	0,41	0,5	0,61	0,68
7.	0,72	0,62	0,6	0,5	0,3	0,6	0,42	0,51	0,6	0,72
8.	0,7	0,59	0,58	0,5	0,31	0,62	0,4	0,5	0,58	0,69
9.	0,7	0,6	0,62	0,51	0,31	0,59	0,38	0,49	0,6	0,7
10.	0,71	0,59	0,6	0,5	0,3	0,6	0,41	0,5	0,62	0,71
H	0,702	0,601	0,6	0,501	0,303	0,6	0,404	0,5	0,62	0,69

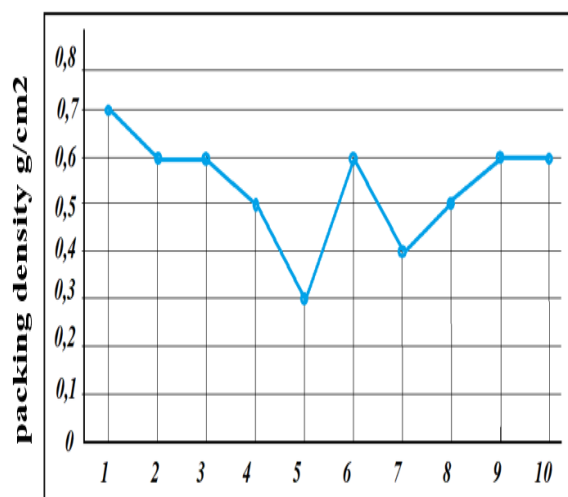


Fig.3. Graph of change in libit winding density when connecting libit to an existing voltage device.

Table 2.

№	Libit areas				
	I	II	III	IV	V
1.	0,7	0,67	0,74	0,8	0,77
2.	0,71	0,7	0,75	0,78	0,75
3.	0,69	0,69	0,76	0,78	0,75
4.	0,7	0,68	0,75	0,76	0,73
5.	0,68	0,66	0,78	0,76	0,75
6.	0,71	0,68	0,76	0,8	0,74
7.	0,72	0,69	0,75	0,8	0,76
8.	0,70	0,68	0,76	0,76	0,75
9.	0,68	0,67	0,77	0,78	0,74
10.	0,7	0,68	0,75	0,77	0,76
Ȳ	0,7	0,68	0,76	0,78	0,75

№	Libit areas				
	VI	VII	VIII	IX	X
1.	0,75	0,76	0,74	0,74	0,78
2.	0,77	0,74	0,76	0,75	0,77
3.	0,73	0,76	0,77	0,76	0,77
4.	0,76	0,78	0,75	0,77	0,78
5.	0,75	0,76	0,78	0,74	0,79
6.	0,77	0,78	0,77	0,76	0,75
7.	0,72	0,76	0,75	0,73	0,75
8.	0,75	0,75	0,76	0,75	0,78
9.	0,73	0,76	0,76	0,76	0,75
10.	0,75	0,76	0,77	0,77	0,76
Ȳ	0,75	0,76	0,76	0,75	0,77

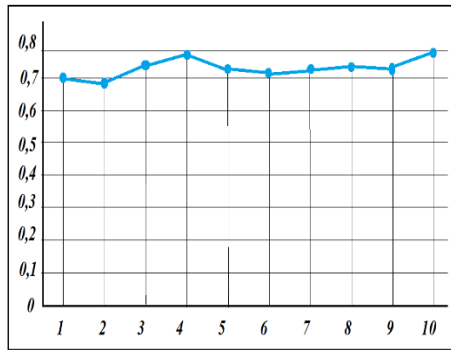


Fig. 4. Wrapped with modernized voltage density change graph.

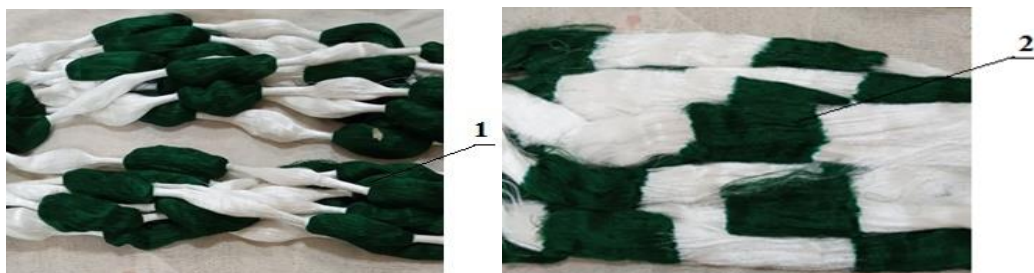


Fig. 5. Unsoftened (1) and softened (2) libit.

Scientists E.Sh.Alimbaev, P.S.Siddikov, R.K.Karimov and others, who conducted research on the design of fabrics on the basis of complex weaving, did not dwell on "softening". Softening is one of the main factors that ensure quality in the production of abr fabrics. The low number of breaks in the loom depends on this process.

Figure 6 b below shows the cross-section of the ring hairy fabric and the state of the ring being in equilibrium under the influence of forces.

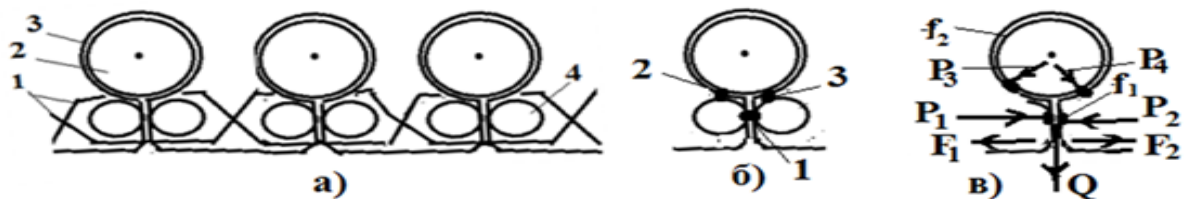


Fig. 6. The points of influence of the main forces on the strand. a) Section of the hairy hair fabric in the direction of the body), b) the position of the ground body threads with the threads of the hair body, c) the state of balance of the hairy body thread due to the forces acting on it when the thread is thrown.

In the figure 6, the points of influence of the main forces on the strand are shown in the case of the strand of the stalk and the direction of the forces acting on the stalk of the stalk when it is in a state of equilibrium.

$$\sum_{i=1}^n F_{ix} = 0 \quad P_1 - P_2 + F_1 - F_2 - f_2 N_2 + P_4 (\cos(63^\circ) - P_3 (\cos(63^\circ) = 0 \quad (1)$$

As can be seen from the table above, when using a modernized device, the tension of the auricle strings and the relative density of the winding along the cross-sections of the libit are tied to tie the libit. As a result, defects in the fabric are eliminated and the quality of abr fabrics is improved [4].

DISCUSSION

The threads that are completely removed from the dye are "softened" before being prepared for opening. When softening, the warp yarns in the dye are in a solid state under the influence of the abraded libits. Each area of it is softened by hand. Below are 1 unsoftened, 2 softened libit.

$$\sum_{i=1}^n F_{iy} = 0 \quad P_4 (\cos(27^\circ) + P_3 (\cos(27^\circ) + f_1 N_1 = 0 \quad (2)$$

In the following articles, the effect and direction of these forces will help to develop the equations of the ring in equilibrium. In the picture above a) ground tangent thread 1, rod 2, loop hair 3.

$$\sum_{i=1}^n F_{ix} = 0 \quad P_1 - P_2 + F_1 - F_2 = 0 \quad (3)$$

$$\sum_{i=1}^n F_{iy} = 0 \quad P_1 - P_2 + f_1 N_1 = 0 \quad (4)$$

Also b) in the picture the point of forces acting on the fluff threads passing between the back threads¹, at the top of the hair ring thread, the points of impact of the back thread with the thread on the hair ring thread 2, 3 are given. The next figure c) shows the direction of the forces acting on the yarn, in which the tensile force F_1 , F_2 is directed to pull the ring in the horizontal direction. The mass Q of the thread in the fleece is directed downwards. The compressive forces on the hair strands passing between the back strands are P_1 and P_2 . The forces acting on the thread in the loop of the hair thread are denoted by P_3 and P_4 . The friction forces between the back thread and the hair thread f_1 , the friction forces between the thread and the hair thread 2.

Once the thread is pulled out of the ring, the tension force of the thread in the loop is lost, as well as the force that pulls it is lost, in which case the loop thread can be pulled out between the back threads due to the forces F_1 , F_2 at the bottom of the loop.

In order to prevent such a defect from occurring in the fabric, the forces of interaction between the back and hair strands must be in balance and the following condition must be met. That is: $F_1, F_2, Q \leq P_1, P_2, f_1$ must be greater than the tensile strength of the yarn and its mass, the compressive strength and coefficient of friction of the back yarn to the yarn. When this condition is met, the height of the feathers on the surface of the fabric and the coefficient of filling of the fabric with feathers is the same, and its quality is further improved.

Of course, the size of the rods, that is, the diameter of their shape, the perimeter has a great influence on the formation of hairy fabric using rods, as we know. In the production of heavy woolen fabrics, the type of raw material, the linear density of the threads, the diameter is 1.2, depending on the purpose for which the fabric is used; 1.4; 1.6; 1.8; It is advisable to use in the manufacture of cylindrical rods of 2.0 mm. When throwing rods into the hammock, the surface of

the rods should be smooth, there should be no bulging areas; otherwise the breakage of the threads will increase.

In the first variant, after weaving both loops of yarn in the woven fabric on the loom [5], the yarn is again spun into the fleece, which increases the density of the fleece and increases the consumption of natural silk.

Now let's look at the second option, which is to produce a slightly reduced yarn in the fleece (Fig. 7). In the weave in this structure, 2/1 half-body reps was taken as the base weave for the ground weft strip. The two strands of feathers are made into one (Fig. 3b) and form a weave in the same direction as the first ground thread, but are separated only when the feathers are formed. Figure 7 below (Option II) shows a reduced version of the hair density of the annular fabric of the ring hair.

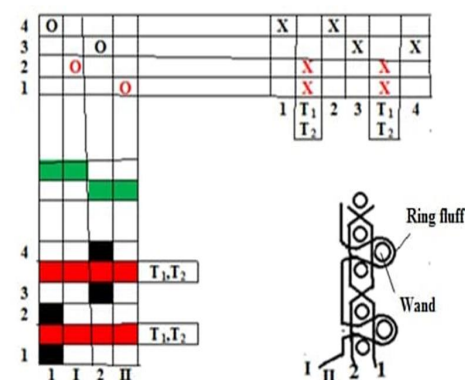


Fig. 7. A reduced version of the hair density of a ring-shaped avocado fabric. a) cross-sectional drawing, b) cross-section in the direction of the body.

When a braid is formed in this structure, a single hair is formed after three back strands are thrown. The average back density in the fabric was 21 and the number of loops was 7.



Fig. 8. Appearance of a new national hairy fabric.

A replica of the second version of the national fur fabric is shown in Figure 8. The quality of suits, shirts and other items is used in the consumption of national fur fabric in this form. In existing abrband, the gap between the feed rolls is constant and the feed rolls performance is controlled by changing the number of their revolutions. In the gap between the rollers, the abrband should have a density that does not damage the seeds. Abrband rollers pick up raw cotton from the storage shaft and feed it to the section of the cleaner. During the passage of raw silk between the rollers, the fluffs and fibers should not be damaged. To quickly change the performance of the cleaner, the feed rollers must have a mechanism for regulating their rotation speed and work without fraction [3].

Let us carry out a theoretical analysis of the movement of with a uniform supply of the material. We consider raw cotton to be a compressible medium; the process is stationary; therefore, we assume that the cells (space) between the blades are filled with material. Select an element from the mass of raw cotton and compose the equation of motion of this element. The main goal is the effective use of environmentally national materials in the construction of housing in rural areas and their implementation with the help of innovative technologies.

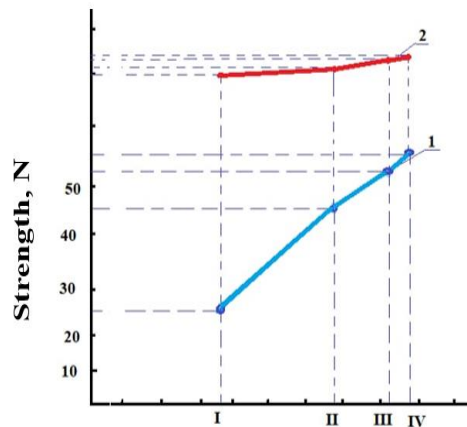


Fig. 9. Density dependence on strength.

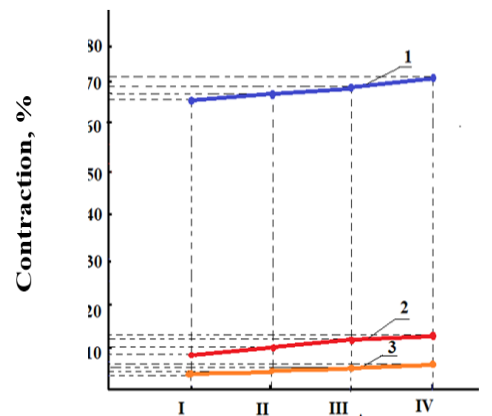


Figure 9. Dependence on the contraction of the density of the back strip.

CONCLUSION

As mentioned above, the practical and theoretical studies of the process selected for the fabric being produced, studied as an experimental option in scientific research work, are reflected in recent articles. Modern abrband also were made in shape of traditional Uzbek abrband including drop-earrings and triangular-shaped pendants (tumor). When a young Uzbek woman got married, she was expected to wear abrband, which represented the wealth of her family. It was said that if a woman could not walk due to the heaviness of her new abrband she came from a wealthy family. However, abrband was expensive, and a wedding ceremony without jewelry was considered shameful, so to solve this problem, people began to buy abrband with patterns representing jewelry [8,9, 10].

In the production of national abr fabric, it is advisable to use a device that regulates the tension of the abr yarns of the libits. Ensuring the same tension of the twigs when laying flowers guarantees the quality and durability of the fabric.

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