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**STUDY OF THE INFLUENCE OF THE NUMBER TUCK STITCH
ON PHYSICAL AND MECHANICAL PROPERTIES OF KNITTED FABRICS**

**ИССЛЕДОВАНИЯ ВЛИЯНИЯ КОЛИЧЕСТВА ПРЕССОВЫХ ПЕТЕЛЬ
НА ФИЗИКО-МЕХАНИЧЕСКИЕ СВОЙСТВА ТРИКОТАЖНЫХ ПОЛОТЕН**

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In this paper considered histograms showing the sum of the areas of the polygons double pressed knitted fabrics produced on the basis of the lasting. The resulting histograms show that the best indicators of the quality of developed pressed knitted fabrics' options are IIa, IVa, VIIa and XIb. These options were recommended for implementation.

В статье рассматриваются гистограммы, показывающие сумму площадей многоугольников двойного прессового трикотажа, полученного на базе ластика. Полученные гистограммы показывают, что наилучшими показателями качества выработанных трикотажных полотен прессового переплетения являются варианты IIa, IVa, VIIa и XIб. Эти варианты были рекомендованы к внедрению.

Keywords: jersey, jacquard, eraser, cloth, pressing the loop properties.

Ключевые слова: трикотаж, жаккард, ластик, полотно, прессовые петли, свойства.

Knitted tissue, some stitches of which are extended over stitches of the previous stitch row open stitches (outlines), is called a knitted tissue of pressed interweaving [1...4]. A knitted tissue of pressed tangles contains two elements of stitch structure: stitches and outlines. Stitches, having one or few outlines, are called pressed stitches. The knitted tissue of pressed tangles may be obtained on the basis of only main and productive tangles. It may be culir and main-knitted, single and double. The knitted tissue of pressed tangles is obtained by means of non-switching on of separate operations for some knitted-needles (operations of stitch formation like closing, culir-

ing, pressing) or by special switching off some knitted-needles. Over a machine with tongue needles three ways of pressed stitch formation are used: with our culiring, without closing and with special switching off some knitted-needle. To study the influence of quality of pressed stitches in the rapport of tangle on parameters and physical-mechanical features of double knitted tissue 15 variants (Table 1) of double pressed knitted tissue were worked out over a flatfang machine of KH-323 D type, which were different from each other by the quantity of pressed stitches in the rapport of tangle [5].

Table 1

Variants	I	IIa	IIб	IIIa	IIIб	IVa	IVб	Va	Vб	VIa	VIб	VIIa	VIIIб	IXб	Xб	XIб
composition of pressed stitches in the rapport, %	0	5	5	6,25	6,25	8,33	12,5	12,5	12,5	25	25	4,16	5,5	7,14	10	16,6

Note. a – in the pressed knitted tissue pressed stitches are found on one side; b - in the pressed knitted tissue pressed stitches are found on both sides of knitted tissue.

A cotton yarn with linear density 20 teksx 4 was used as a raw material.

As a basic tangle a lastique 1+1 (variant-1) was worked out. Physical-mechanical features and technological parameters were defined.

To compare quality of knitted tissues a complex evaluation was done, the latter being a graphic chart of analysis results of knitted tissues quality. This graph of a complex diagram is built in such a way, that its biggest outline shows the best indicators of quality of the worked-out tissues, i.e. the closer the outline to the exterior outline is, the higher quali-

ty indicators of knitted tissues are and the better they meet the requirements.

A complex diagram is built in such a way, that on every of its axes results of determination of different qualitative indicators of knitted tissues. Moreover, to ensure specific features of every of analyzed indicators the best of its indicators are traced on the exterior outline: the bigger ones are for positive indicators and the lesser ones are for its negative indicators.

The indicators which have a more influence on physical-mechanical and hygienic features, on form-stability and economy of expensive raw materials conduce to the set

task solution. These indicators are a torn load, torn lengthening, air-permeability, setting, thickness, surface and volume closeness. In the course of testing technological parameters and physical-mechanical features a complex quality evaluation of knitted tissues of double pressed knit-wear was worked out to define the optimal variants of interweaving.

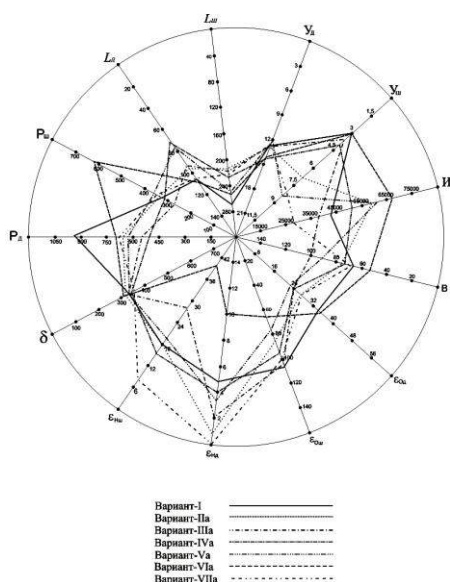


Fig. 1

On fig. 1 a complex diagram of quality of knit-wear of double pressed interweaving, where pressed loops are found on one side, and on fig. 2 a complex diagram of quality of knit-wear of double pressed interweaving, where pressed loops are found on both sides is shown.

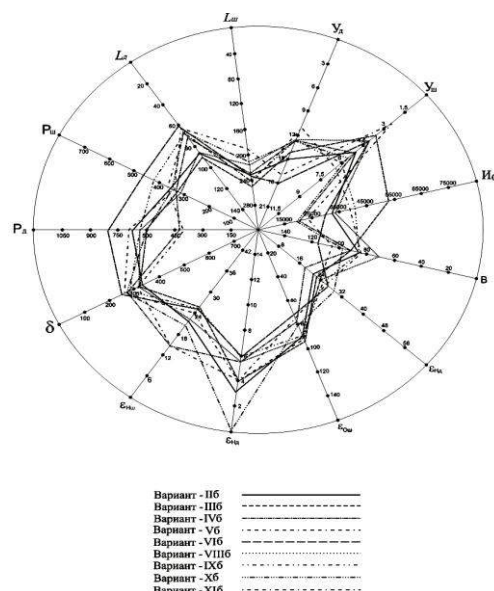


Fig. 2

A complex diagram of quality of knitted tissue double pressed tangle with pressed stitches being on one side: $P_{д}$ – a torn load over length; $P_{ш}$ – a torn load over width; $L_{д}$ – lengthening over length; $Y_{д}$ – setting over length; $Y_{ш}$ – setting over width; $И$ – wearing out; B – air-permeability; $e_{од}$ – reversed deformation over length; $e_{ош}$ – reversed deformation over width; $e_{нд}$ – non reversed deformation over length; $e_{нш}$ – reversed deformation over width; $д$ – volume knitted tissue density.

Analysis of the results obtained shows that pressed stitches in the structure of knit-wear have a positive influence on such indicators as air-permeability, resistance to wearing out, torn lengthening, volume closeness of knit-wear. If the quantity of pressed loops in the rapport of interweaving is increased, air-permeability, resistance to wearing out are increased as well, but volume closeness is decreased. Pressed loops in the structure of knit-wear increases irreversible deformation over length, and over width it is decreased. Torn

load over length is not increased unequivocally, setting is increased.

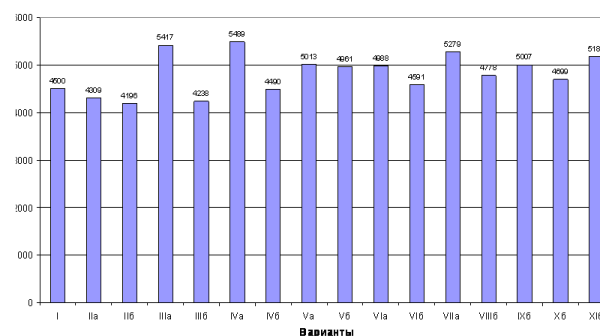


Fig. 3

In the Fig. 3 histograms showing a sum of squares of polygons of double pressed knitted tissue, obtained on the basis of lastique. The mentioned histogram show that the best quality indicators of the worked out knitted tissues of double pressed tangle are variants IIa, IVa, VIIa, XIIb. These variants were recommended for putting into practice.

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