



## STUDY ON THE REALIZATION OF JEANS IMITATION KNITT STRUCTURES

BOHM Gabriella<sup>1</sup>, DOBLE Liliana<sup>1</sup>, ŞUTEU Marius Darius<sup>1</sup>

<sup>1</sup>University of Oradea, Faculty of Energy Engineering and Industrial Management, Department Textiles, Leather and Industrial Management, 410058, Oradea, România, E-Mail: [bohmgaby@gmail.com](mailto:bohmgaby@gmail.com)

Corresponding author: Gabriella BOHM, E-mail: [bohmgaby@gmail.com](mailto:bohmgaby@gmail.com)

**Abstract:** *The functionality requirements involved in the choice of materials aim to ensure a state of thermophysiological, psychosensory and dynamic comfort of the wearer as well as the ergonomic requirements and functions that relate to ensuring the mobility of the body. Obtaining jeans products by knitting methods ensures the improvement of their softness and comfort capabilities. From here came the author's idea, to carry out a study on obtaining knitted structures imitation jeans that correspond to all the requirements mentioned. For this we chose 100% cotton yarns, which we knitted in several structures, in order to be able to choose the most suitable variant for making this type of jeans. In this paper there are presented three variants of knitted structure. The results obtained from the study show that the jeans knitted using type 3 method is the one that meets the most requirements related to the realization of a comfortable and aesthetically pleasing pair of jeans even under the conditions of a home office. The knitted structure can also provide a variety of models with general comfort values that are superior to those made of fabric structures. The knitted structure was made on the sir 123 fineness 14 rectilinear knitting machine, produced by Shima Seiki in Japan. These knitting machines use, for product projection, the SDS-One graphics station or the APEX graphics station- the variant of the last generations.*

**Key words:** *knitt, jeans, knitt proiecting, programming, yarn, knitt structure*

### 1. INTRODUCTION

Textiles can be considered one of the most requested materials in the world due to their requirements in different application areas. They have versatility, a combination of properties, structures, raw materials and production techniques. With advanced technology and research there is a desire to have a modified form of each product, which fulfills new lifestyles and fashion trends [1]. Jeans are one of the most popular casual fabrics in the world, used for a very wide range of clothing products and accessories. The idea of producing jeans started from the need of workers in the mining industry, who needed protective clothing, with resistance but at the same time made of a comfortable material, nowadays becoming very common.

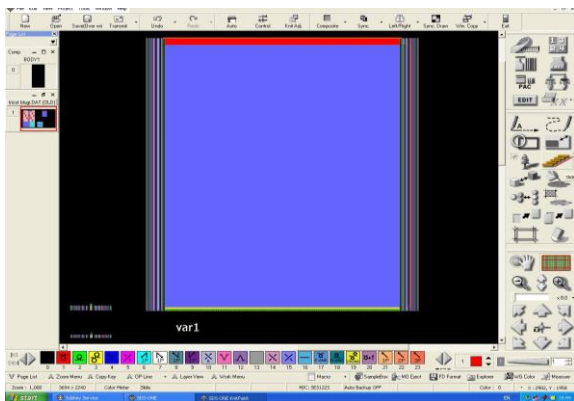
Satisfying the need to wear comfortable clothing has become paramount in the context of the pandemic, yet mankind also needs the feeling of being dressed beautifully. Knits, which have been greatly popular in recent years, have become among the favorite textiles for making everyday clothing.

## 2. CREATING THE KNITT STRUCTURES

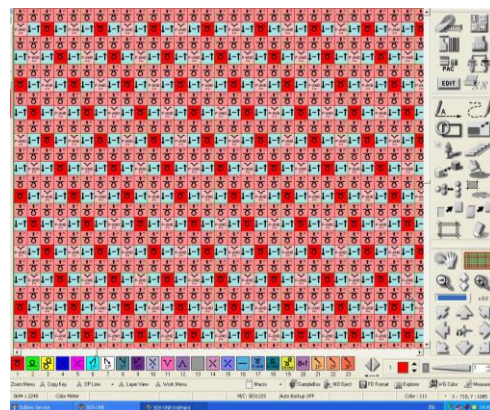
Traditional jeans are hard to wear because it is a high-density fabric with a large mass per surface unit [2]. Although there are variations that have high elastomer content, it is not suitable for clothing at home, for women and children [3]. Obtaining jeans-type structures by knitting methods ensures the improvement of the softness and comfort capacities of the products made from them.

In order to find a knitted structure of imitation jeans several knitting samples were made. The authors chose, a 100% cotton composition yarn [4], feeding in parallel with a lycra filamentary yarn to ensure the knitting has a capacity to return to the original shape, as a result of the various demands during the exploitation of the products. Bluemarine and white yarns were used to achieve the prewashed blush effect. In this paper there are presented three variants of knitted structure. The knitted structures were made on the SIR 123 rectilinear knitting machine, fineness 14 [5], produced by Shima Seiki of Japan [6], [7]. These knitting machines use, for the design of products, the SDS-One graphics station or the APEX graphics station- the variant of the last generations.

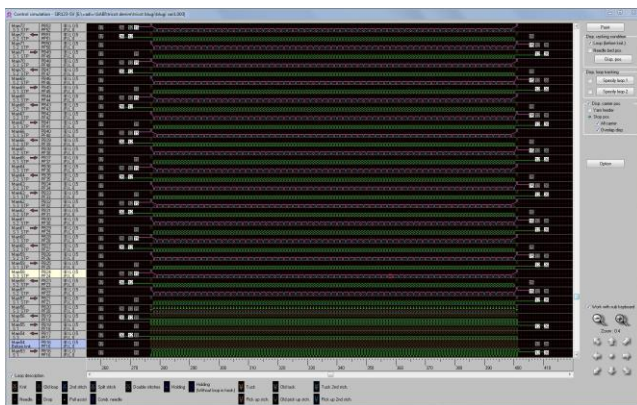
In the first variant, fig. 5, the front appearance of the knit, an fig.6 the back view, obtained from the realization of a jacard structure, which is presented in fig.1 and fig.2. The designed structure ensures the existence of jeans-specific connecting points, arranged diagonally from the textile material. Fig.3 and fig.4 represent the structure by row section and how is changed the yarn carrier.



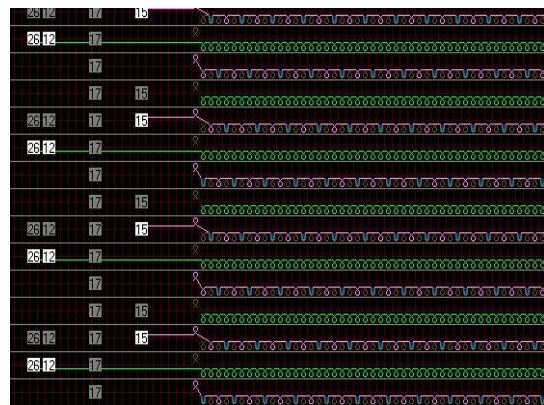
*Fig.1. Program of the knit structure 1*



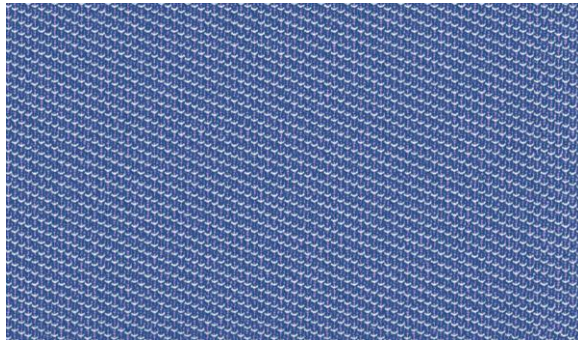
*Fig.2. Basic pattern data 1*



*Fig.3. Representation by row section*



*Fig.4. Representation by row section – yarn carriers*



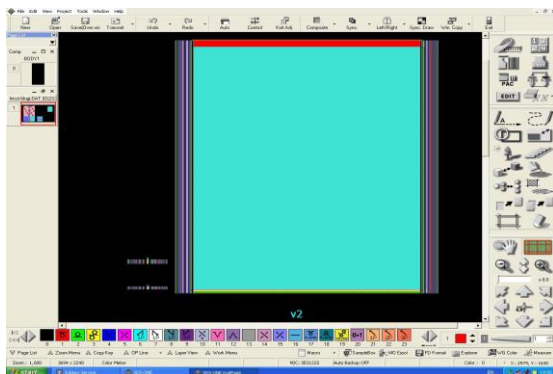
*Fig.5. Knitt structure 1- Front view*



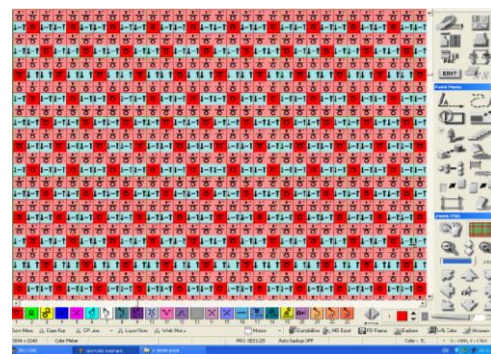
*Fig.6. Knitt structure 1- Back view*

This structure, although it imitates well the appearance of jeans fabrics, has the disadvantage of large loops on the back of the knit. These loops give the knit a thick appearance and can hang quite easily, thus leading to damage of the appearance.

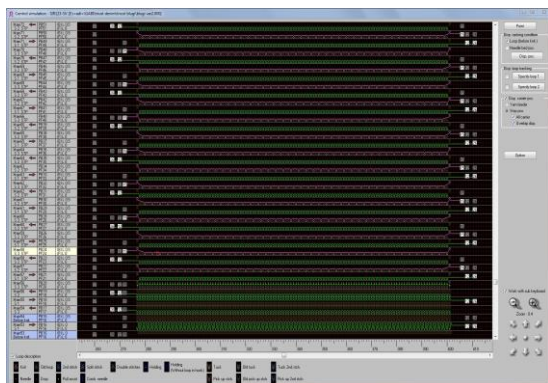
In the case of variant 2, an attempt was made to solve this problem, given by the existence of loops on the back of the knit obtained in variant 1. In fig.11 there is presented the front view of the knit, made according to the structural basic pattern presented in fig.8, using the program from fig.7. This variant presents a look that imitates well the appearance of a jeans fabric and also solves the problem of large loops on the back of the knit, fig.12. Fig.9 and fig.10 represent the structure by row section and how is changed the yarn carrier for realizing it.



*Fig.7. Program of the knit structure 2*



*Fig.8. Basic pattern data 2*



*Fig.9. Representation by row section*



*Fig.10. Representation by row section – yarn carriers*

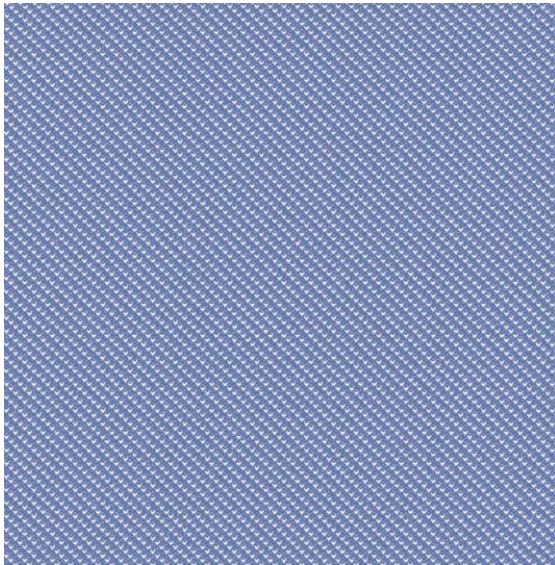


Fig.11. Knitt structure 2- Front view

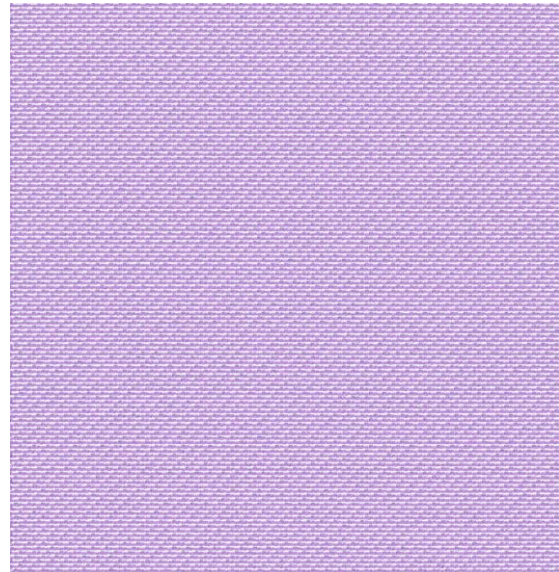


Fig.12. Knitt structure 2- Back view

Today's fashion is a crucial factor in how we make our dressing choices. Due to the requirements given by fashion, the design of washed(used) jeans was chosen. In variant 3, a knitted structure was made to meet these requirements, the basic pattern of this is being presented in fig.14 using program presented in fig.13. The final appearance of the used knit pair of jeans is presented in fig.17, the front view of structure, and the back view fig.18. Fig.15 and fig.16 represent the structure by row section and how is changed the yarn carrier for realizing it.

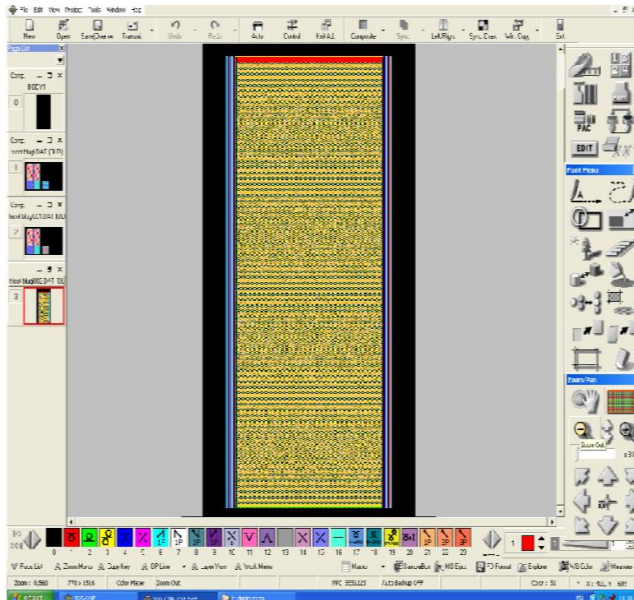


Fig.13. Program of the knit structure 3

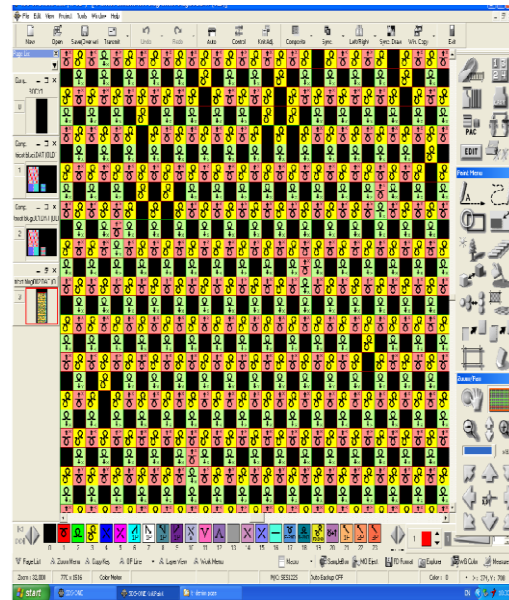


Fig.14. Basic pattern data 3

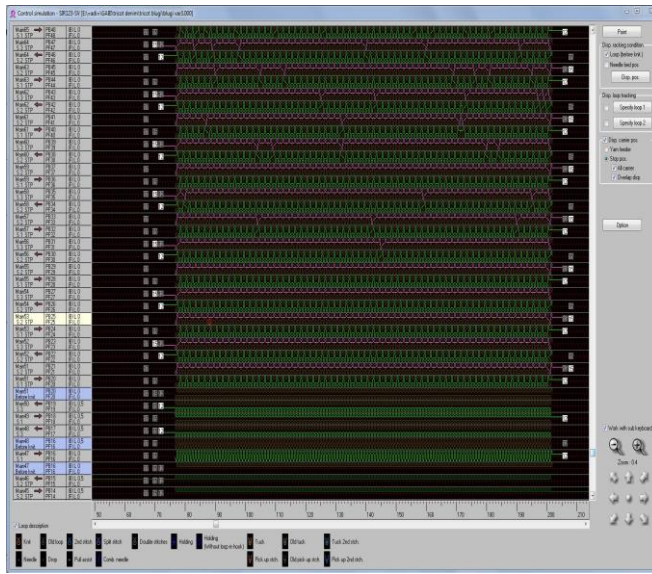


Fig.15. Representation by row section

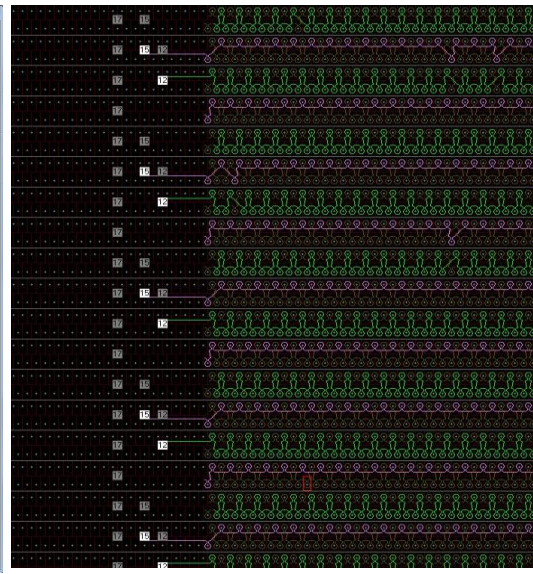


Fig.16. Representation by row section -yarn carriers

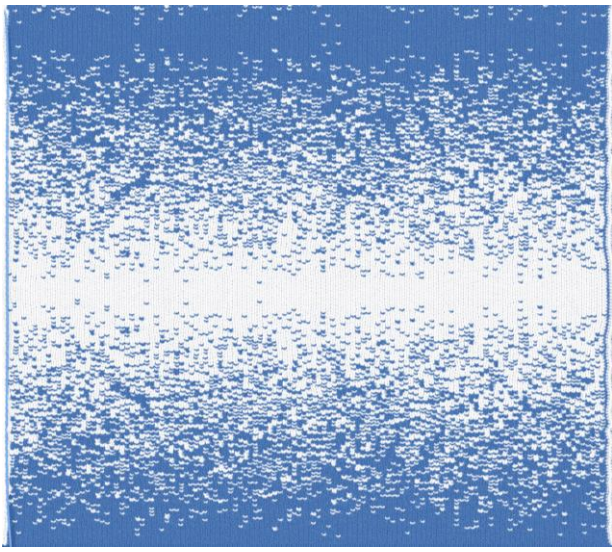


Fig.17. Knitt structure 3- Front view

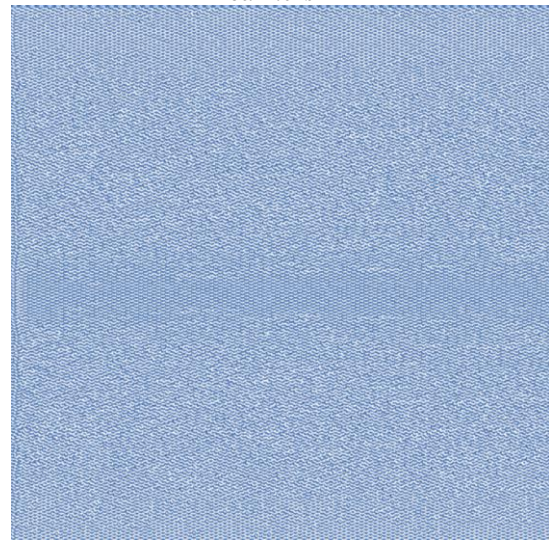


Fig.18. Knitt structure 3- Back view

## 5. CONCLUSIONS

Based on the results it can be concluded that the jeans knit variant 3 is the one that meets the most requirements related to the making of a comfortable pair of jeans, even while having the office at home. The knitted structure can also provide a variety of models with general comfort values superior to those made of fabric structures.



## REFERENCES

- [1] S.A., Didar, S.U., Patwary, S., Kader, M.K., Akter, T., Ahmed, *Development of Different Denim Effect on Knitted Fabric and Comparative Analysis with Conventional Woven Denim on the Basis of Physical and Dimensional Properties*, In: Res. J. Engg. Sci., 2015, 4, 4, 9–15.
- [2] Md. Salim Azad Didar, Md. Mahamudul Islam, *Development of denim effect on knitted fabric*, <http://www.textiletoday.com.bd>.
- [3] Z., Deřirmenci, N., Çelik, *An investigation on the influence of laundering on the dimensional stability of the denim-like knitted fabrics*, In: Tekst. ve Konfeksiyon, 2014, 24, 4, 363–370
- [4] G., Bohm, L., Doble, M.D., Suteu, A., Serfezi *Study on making some protective masks by knitting procedures*, Annals of the University of Oradea, “Fascicle of Textiles, Leatherwork”, volume XXI, 2020, ISSN 1843 – 813X, Editura Universităđii din Oradea, 2020
- [5] <http://www.shimaseiki.co>
- [6] G., Bohm, L., Doble *Streamline of producing knitted products for children*, Annals of the University of Oradea, “Fascicle of Textiles, Leatherwork”, volume XX, 2018, ISSN 1843 – 813X, Editura Universităđii din Oradea, 2019.
- [7] G., Bohm, M.D., Suteu, L., Doble, A., Albu, *Improving the aesthetic aspect of a knitted product for women*, Annals of the University of Oradea, “Fascicle of Textiles, Leatherwork”, volume XIX, 2018, ISSN 1843 – 813X, Editura Universităđii din Oradea, 2018.