

WireTEX

RESCUING TRADITIONAL KNOWLEDGE OF SKILLED TEXTILE WORKERS

SUPPORTING DOCUMENTATION FOR 1st PODCAST

Complementary documentation for result 2 - Producing video training material.

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Foreword

Dear reader, welcome to the Knowledge Database document linked to the 1st Podcast. Each podcast we created has a supporting document to further explain and elaborate on the topics, stated in the podcast video.

As a reader, you are invited to listen to the podcast and search for important information, related to the podcast topic in this document. Within it, we will focus on some basic terminology and explain better some procedures and skills stated in the 1st Podcast. Within this document, you will also find some interesting links and websites to help you explore the topic further.

To further explain how to navigate this document.

The podcast video is available on the YouTube channel Wirtetex and the Udemy platform. This makes it easier to follow the Podcast and this document. At the end of each chapter, external links are provided to explore further and expand the interest in specific topics. Links provide interesting examples from the areas of operations, presented in the 1st Podcast.

Introduction

The 1st Podcast focuses on the presentation of weaving in the company Sächsische Textilwerke in Germany. This company is situated in Chemnitz. In 1886, Paul Cammann founded a weaving mill in Chemnitz, now a leading producer of exclusive upholstery and decorative fabrics in Germany. The company's history is marked by creativity, craftsmanship, commercial insight, and technical skill. Since 1886, they have maintained high-quality standards and a modern selection of yarns and colours, using traditional jacquard weaving looms. Their advanced finishing techniques ensure the fabrics are durable for everyday use. They transform materials and patterns into unique fabrics, reflecting their attention to detail.

Weaving is the process of interlacing at least two sets of threads, known as the warp and weft, at right angles to create a fabric. The warp threads run lengthwise, while the weft threads run crosswise. Fabrics are flexible structures and can be used for clothing, interiors or technical textiles. There are numerous different types of weaves, some are basic weaves, some derive from basic weaves, there are special effect weaves and different weave combinations. Let's see some of the basic weaves:

Plain weave: Plain weave is the simplest and most basic weave. Fabrics made with plain weave are durable. In plain weave, the warp and weft cross alternately. It is reversible, meaning the fabric looks the same on both the front and back.

Twill weave: It is woven so that one weft thread passes over at least two warp threads or vice versa, meaning that one warp thread passes over at least two weft threads. Twill weave is known for its diagonal lines which can go either in the left or right direction. The front and back sides of the fabric are different. Twill weave fabrics are compact and used in clothing, home interior fabrics and technical textiles. Twill weave has numerous different varieties such as herringbone and Scottish tartan. For sure, we all have jeans in our closet, on which we can find diagonal lines, representing the twill weave.

Satin weave: It is known for its subtle sheen on the front side and matte finish on the back. Fabrics made in satin weave are smooth. They can be used as fabrics for clothing or decorative textile for home furnishing.

Looms can have many different forms but regardless of the form they have, they keep warp threads under tension. For DIY weaving, we know different types of table looms or small weaving frames with no additional components.

loom serves as the essential device for weaving, securing the warp threads in place as the weft threads are interlaced through them. Handlooms, a hallmark of traditional textile production, are operated manually. Handlooms consist of different parts such as weaver's beam, shafts, breast beam etc. Today, different types of industrial looms are used in production lines to optimize the weaving process. For example, jacquard fabric is done on a jacquard machine. To learn more about it, read the text in a blue frame.

Insight



Jacquard weaving: Jacquard fabrics are named after Joseph Marie Jacquard, a French inventor of a device for creating large color and structural patterns. The Jacquard loom, invented in 1801, was also showcased at the Paris World's Fair the same year.

Despite its revolutionary nature, his loom was soon destroyed. It was destroyed by weavers who feared for the future of their jobs. In 1806, the city of Lyon purchased the patent and made it public property. This allowed knowledge and innovation to spread beyond the borders of France. By 1820, the loom was introduced in England, and just three years later in America. Jacquard looms are still in use today and form the foundation of modern weaving¹.

¹ Sparking innovation: The Jacquard Loom -- The Henry Ford Blog - Blog - The Henry Ford. (n.d.). <https://www.thehenryford.org/explore/blog/sparking-innovation-the-jacquard-loom/#:~:text=The%20cards%20are%20mounted%20on%20a%20rotating%20cylinder,The%20Jacquard%20Loom%20automated%20the%20work%20of%20weavers.>

Skills needed

In industrial-scale weaving, a broad range of knowledge is required. This includes understanding the theory, techniques, and principles of weaving, knowledge of weaving machinery, sampling processes, and the technological characteristics of fabrics and yarns. Familiarity with different types of weaving machines is important, as it is crucial to understand that each operates differently and has its own specificities.

The yarn selection process is also important, as different types of yarns are used to achieve certain appearances and properties of the fabric. Knowledge and experience are crucial for selecting the appropriate yarns to be used in the weaving process, as they affect not only the appearance and properties of the final product but also the parameters of the weaving machine.

Controlling the weaving process is equally important. This knowledge is best gained through practical work in a weaving workshop, as it is directly related to the machine's operation during weaving. It is important to check whether the tension of the yarn is appropriate, if the speed and density of the yarn are correct, etc.

Attention to detail and patience are desirable traits, as weaving requires a high degree of precision and consistency, including in the process of checking the quality of the resulting fabric.

Insight

The appearance of the fabric depends on the type of weave, yarn type, yarn colour, and other parameters. To summarize information about the weave, specific symbols are used. A complete weave draft is part of the technical documentation for creating a particular fabric. The weaving draft shows how the warp and weft threads interlace in a specific weave.



Terminology and external links

In this chapter, you will find some useful terminology from the field of weaving. It will help you better navigate further explorations of the topics related to weaving.

Warp: Warp threads are attached to the warp beam, go through shafts and heddles towards the reed and are put on the textile beam. Warp threads are always under tension.

Weft: It is the yarn that crosses the warp threads. By raising different warp threads, the weft yarn alternates between going over and under the warp threads.

Shaft: is a frame which has multiple heddles. Headless has a hole in the middle through which one warp thread is inserted. When a certain shaft is lifted, all warp threads, inserted in its headless are lifted too.

Weave Draft: It is part of the technical documentation for the manufacture of fabric. We draw it with symbols.

Yarn composition: Describes types and proportions of fibres used to create yarn. This defines the yarn's texture, appearance and other mechanical properties.

Pilling: It is the occurrence of small bobbles composed of short fibers on the surface of the fabric as a result of rubbing and wear.

If this topic is in your interest, you are invited to explore it through some useful links below in the green frame.

Useful links

Berlin Loom Manufactory: Are you in search of live or online weaving courses or do you wish to find weaving equipment to start weaving at home? This is the right place for you. Visit the link: [Weaving courses in Berlin - Berlin looms – Berliner Webstuhl Manufaktur](#)

Weave Up: The project, funded by the Creative Europe programme, aims to preserve, promote, and develop Europe's diverse cultural heritage through the collaborative efforts of an international consortium. Visit the link: <http://www.weaveup.eu/>

Balfour & Co: Is a weaving school located in the UK. Explore their courses and weaving supplies: [Balfour & Co Weaving School \(balfourandcoweavingschool.com\)](http://balfourandcoweavingschool.com)

Useful literature

1. Chandler, D. (1995). Learning to weave.
2. Strickler, C. (1991). The Weaver's Book of 8-Shaft Patterns. Penguin.
3. Dixon, A. (2007). The Handweaver's Pattern Directory. National Geographic Books.
4. Mitchell, S. (2015). Inventive weaving on a little loom: Discover the Full Potential of the Rigid-Heddle Loom, for Beginners and Beyond. Storey Publishing.
5. Bizjak, M., & Kostajnshek, K. (2017). Enostavne vezave tkanin.

Other useful information

1. Saxony Museum of Industry: <https://www.industriemuseum-chemnitz.de/>
2. Textile Museum and Decorative Arts Museum: <https://www.museedestissus.fr/>
3. Almgren Silk-Weaving Mill: <https://www.kasiden.se/en/>