INTRO TO TEXTILE PRODUCTION

What & How

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INTRODUCTION

The clothing we buy in Amsterdam is most often produced in Asian countries (like China, Bangladesh, Vietnam, and The Philippines), in Eastern Europe, or in Northern African countries. Technical textiles (like workwear) are often produced in Turkey, Macedonia, and Tunisia. Most of these products are produced on a massive scale in the places we colloquially call "sweatshops".

In a circular textile economy, these conditions must change so that the needs of people, the planet, and profit are met. Only then can the production of circular textiles be considered sustainable.

THE PRODUCTION OF TEXTILE PRODUCTS

The production of textile products is skilled work and requires a lot of expertise. There are many steps involved in transforming a design into an end product. Some of these steps include:

- **Pattern making:** it is essential to transfer the design into a pattern. In a pattern, each panel of the end-product is separated. A textile product may have dozens of panels.
- **Digitising of the pattern and grading**: most textile products must be made in several sizes. The original patterns must be graded to obtain several sizes. This grading is most often done digitally, but the grading itself is based on complex algorithms.
- **Plotting the pattern:** this is done in order to make the layout of the pattern on the selected fabric. The layout of the pattern is optimised to use the fabric in the most efficient manner. But the freedom of the layout might be limited if the fabric has a certain structure (which is most often the case) or if the fabric has a printed design.
- **Cutting the panels:** this can be done manually by using scissors (for single ply fabric), cutting saws (for multiply fabrics, up to 200 layers of fabric can be cut simultaneously), or lasers (for up to 10 layers of fabric).
- **Ordering:** picking the panels needed for one piece and laying them in the right order. The order is determined by the logistics of the sewing process. Also sewing thread, zippers, buttons, labels, and other accessories must be selected.
- **Sewing:** the sewing process, in which the final product is produced. For a complex product, this is done in multiple stages on specialised sewing machines.
- **Inspection:** after the sewing process is complete, the end-product is inspected. The last pieces of sewing thread are removed and, when the product has passed the quality inspection, it is ready for packaging.
- **Packaging and transport:** most products are packed in plastic bags, placed in cardboard boxes, and packed on pallets. The products are then shipped to their destination in large containers.

THE SEWING PROCESS

The goal of the sewing process is to join several panels of textile materials to form a 3D product out of 2D material. Sewing is mostly done using sewing machines, which stitch the panels together using thread. Alternatively, one can join the pieces together using hot glue.

Textile products are usually sewn manually by skilled workers. Automation of the sewing process is very difficult due to the nature of the textile materials. In the process of textile product assembly, a number of workstations are often arranged. At each workstation, a specific step in the assembly process is executed before the garment is passed onto the next workstation. Different workstations may be equipped with several specialised sewing machines, which are better able to perform certain tasks. In this system, workers are only responsible for a single, specific task, which they must constantly repeat over the course of their workweek.

Automation has begun to take off in textile production, including the sewing process. This may threaten the future of garment industry workers as this video shows. Robots can do repetitive tasks quite well, and fast, for 24hrs a day. Automation may have a huge impact on the way textile products are made. Once these products are being made by robots, it will only be a matter of time before this industry will be relocated to the region where the products are used. While automation would threaten the jobs of workers in the current garment industry, the relocation of this process would fit well within the context of a circular textile economy.

MASS CUSTOMISATION

Another interesting development in the manufacturing industry is the phenomenon of mass customisation. Mass customisation offers a way to produce textile products, especially tailored clothing and workwear, to the sizes and specifications of individual end-users. Automation and digitisation are the key drivers of this development. New technologies mean that each textile product can be unique in terms of size, colour, and accessories. This method benefits the retailer because the product can be sold before it is produced, which means there is no stock, no unsold inventory, and no sales.

Mass customised products are usually available through the internet, but blended models are also available. Examples of internet sellers offering mass customisation include: Bivolino, iTailor, and Shirtinator.

For blended models, you can check out companies like Suit Supply and Dutch Spirit. These companies come to your home to take your personal measurements and ask your preferences before producing the garment. Dutch Spirit combines mass customisation with sustainability, circularity, and new business models.

Mass customisation will most likely remain a service for those who can afford it, but this model certainly fits within a circular textile economy.

PEOPLE AND PLANET

The production of textile products is mostly manual work and is usually performed in low wage countries. While this model may benefit consumers in the Western World, it is causing havoc in the countries of origin. A number of initiatives have been started to change these practices and to provide workers in the textile and clothing industry with a decent salary, health services, and education. Additionally, NGOs, like Fair Wear and Solidaridad, are inspecting workplaces and working conditions in the producing countries.

In the Netherlands, the textile and clothing sector has made an agreement, known as the Dutch Agreement on Sustainable Garments and Textile, to improve conditions in textile producing countries. In this agreement, companies commit themselves to:

- Fighting discrimination, child labour, and forced labour.
- Supporting a living wage, health and safety standards for workers, and the right of independent trade unions to negotiate.
- Doing everything in their power to reduce the negative impact of their activities on the environment; preventing animal abuse; reducing the amount of water, energy and chemicals that they use; and producing less chemical waste and waste water.

Transparency is a critical factor when it comes to identifying risks and improving the situation in countries where merchandise is produced.

Of course, the best way to improve the situation in these countries is to buy your textile products at responsible shops who pay their workers a fair living wage and sell their products at a fair price. Buy nicer items from these shops (at a slightly higher price), and save money by buying other items secondhand.

The Reflow project supports the use and reuse of sustainable textile products and provides information to assist you in making informed choices.

Above: *The production of textile products is skilled work and requires a lot of expertise. Pictured above is a demonstration of traditional silk weaving at the museum, Haus der Seidenkultur (HdS). Photo by Waag and was retrieved from Flickr in June 2021.*

MORE INFORMATION

More information about the steps in the production of textile end products can be found here:

- Sew Port: How Clothes Are Made
- How To Make A T-Shirt by John Santos
- Tour in Our Garment Factory in Bangladesh by Soorty Enterprises (this last example is quite a long video, but shows the complexity and scale of the production)

WOMEN REPRESENT OVER 80 PER CENT OF THE TEXTILE PRODUCTION WORKFORCE

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