

COTTON – FASHION - QUALITY

AN EXCITING WORLD FULL OF SEEMINGLY CONTRADICTIONS - FIELD REPORT OF A COMPANY IN THE AREA OF GARMENT FINISHING AND QUALITY ASSURANCE

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Fashion is characterized in several areas by washing and finishing ready-made garments. In fact of the very specific stress of the garments while finishing it has to be discussed permanently within the complete textile supply chain, if and how much quality insurance is necessary. This report will give a general idea of “garment-finishing” and will show some concrete points of departure to discuss quality parameters in detail.

Trousers with colour deviations and stains, jackets with holes and damaged seams, the colour marks off rapidly while wearing and washing, solidities and material differences do not seem to be relevant anymore.

If you take a look at the fashion centres of the world or at the shopping centres of smaller cities or even at clothing markets it can be recognized that more and more articles are sold that could make a conventional quality assurance person of the textile and clothing industry throw his or her hands up in horror.

For cultivation and harvesting, spinning, weaving and finishing of the precious cotton (and other fibres) a lot of time, money and know-how is invested in the inspection and documentation of quite a number of different quality parameters. If you afterwards throw a glance at the ready-made garments on the market, the question comes up whether all this was and is necessary at all.

The „textile chain“ shows quite clear, that quite a number of further process steps must be passed through on the way from the cultivator of a (cotton) fibre via garment finishing up to the end user. Daily practice shows, that mutual ignorance and necessarily also lack of understanding grows according to the gap between the parties involved in the process.

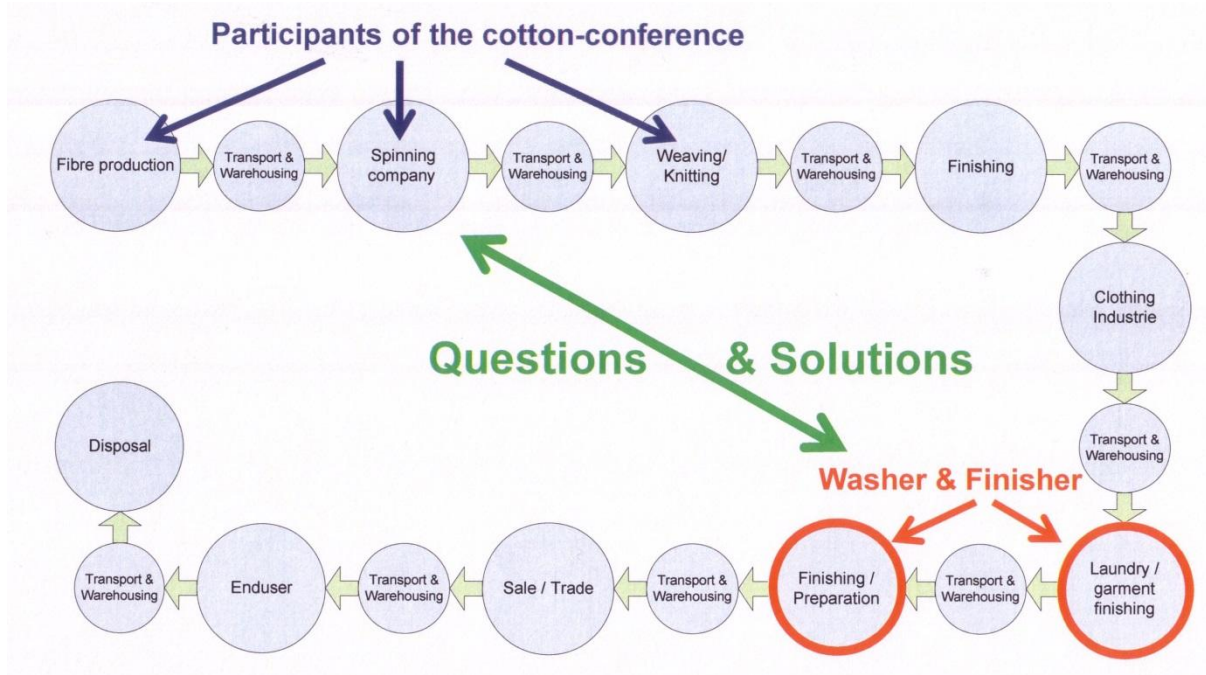


Figure 1. Textile Chain

Following some basic information is presented which is supposed to provide a better understanding of the requirements and requests in the special area of garment finishing.

GARMENT-FINISHING

Usually the manufacturer receives the fabrics “ready for stitching”. This means that the manufacturer “only” has to sew the fabrics together, add the trimmings and finish/iron the garment. Thus he is treating finished goods.

Fashionable developments have caused that nowadays more and more garments have to pass through one more or even several more finishing processes namely as a ready-made garment. Therefore it is called garment finishing. The manufacturer in the classical sense thus handles semi-finished goods or even gray goods.

Ready-made garments can be equipped with optical effects (for example light-dark-contrasts at the areas of the seams), which cannot be achieved in yard goods. In this regard in many cases the following principle applies: Fashion dictates the requirements and creativity beats continuity.

In the field of textile finishing there is a number of known procedures, which can be applied in terms of treatment of cotton or cotton-mixture fabrics. Typical procedures are for example mercerising, desizing, bleaching, dyeing, softening or sanforizing. Specialist literature contains a lot of information concerning the procedures and the scope of textile education in companies and in universities this will be regarded as basical knowledge.

Even though in many collections the proportion of finished qualities in the ready-made garment is meanwhile between 50 and 100 %, there is almost no information available concerning the procedures that were applied.

What is done in the field of garment finishing?

Generally we have to differentiate between the actual treatment process in the washing machines (wet-processing) and the foregoing and the subsequent processes, in order to achieve certain special effects (dry-processing).

WET-PROCESSING

In the area of garment finishing the actual wet processing takes place in washing machines. Quite different types of washing machines are used.



Figure 2. Industrial washing machine for garment finishing

In principle the treatment is carried out according to the mechanism of the “Sinnerscher Kreis”

Mechanism of action „Sinnischer Kreis“

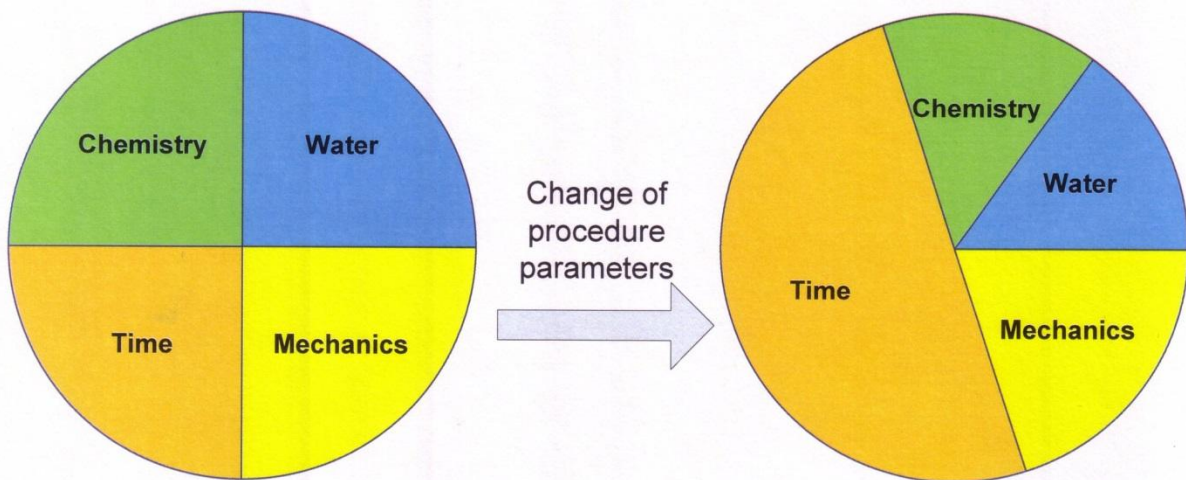


Figure 3. „Sinnischer Kreis“

By changing the procedure parameters the desired effects can be achieved and affected. According to the procedure, the duration of treatment differs from 30 minutes to several hours. The mechanical exposure is partially consciously enforced by use of stones or washing balls and both, simple tensides and relatively aggressive bleachers, are applied. This necessarily causes quite different conditions to which the treated article is subjected.

Usually these washing procedures and process steps are named as follows:

- Desizing (e. g. denim qualities)
- Bleaching (with chlorine, potassium permanganate, glucose, ..)
- Moon-wash (irregular bleaching effects)
- Dying (Garment-Dye)
- Stone-wash (with pumice stones)
- Enzyme-wash (with different enzymes)
- Rinse-wash (mild wash, with tensides and softeners)

DRY-PROCESSING

In order to achieve certain special effects in defined areas of clothing articles there are further processing steps to be done before or after wet-processing. Thereby the garments are more or less individually treated manually with some kind of a special treatment. By means of additives and devices these articles are consciously damaged.

Examples for this are e.g.:

- Scraping (emery grinding, e.g. with sandpaper)
- Shining (apply shine)
- Grinding (cause damages)
- Punching (cause holes)
- Catface (position creases)



Figure 4. Trousers with different effects

QUALITY ASSURANCE

In the area of textile manufacturing there is a multitude of tests, in order to determine, monitor and compare quality characteristics. Known are for example:

- Fibre fineness
- Yarn fineness and constancy
- Pilling grade (Martindale, Pillbox)
- Firmness tests (tensile strength, tear strength, seam slippage)
- Colour fastnesses (CF to rubbing, CF to washing, CF to light)

If you take a look at the articles in the market, you get the impression, that many of the above mentioned test parameters are no longer relevant.

In reality, however, quality tests are still executed and the adherence to quality requirements is permanently monitored.

A high fashion grade and quality requirements are not mutually exclusive, they are only newly defined in subareas.

QUALITY PROBLEMS

Foreign fibres: The contamination of yarns and fabrics with foreign fibres is known as an age-old quality problem. Also in high-fashioned washing articles stronger foreign fibres in many cases are detected and not tolerated. And in case the fashion trend requires lighter colours (white, pastel), claims are pre-programmed.

Splicing: The connection of porters by the technique of splicing is also still quite usual nowadays. If this is not optimally done, it results in slubs, which are not accepted by critical customers. This applies especially for fine yarns, where these splicing spots are irritating the overall picture. Even after the garments have been washed, this optical fault remains.

Slubs: The appearance of slubs is caused by different factors. After a garment wash, the slubs may partially become more obvious and lead to complaints after sale. A good feel and a wild optic do not necessarily tolerate slubs. And vice versa there are slubs, which in the classical intended use are judged as faults but in the course of garment finishing are disappearing more or less automatically.

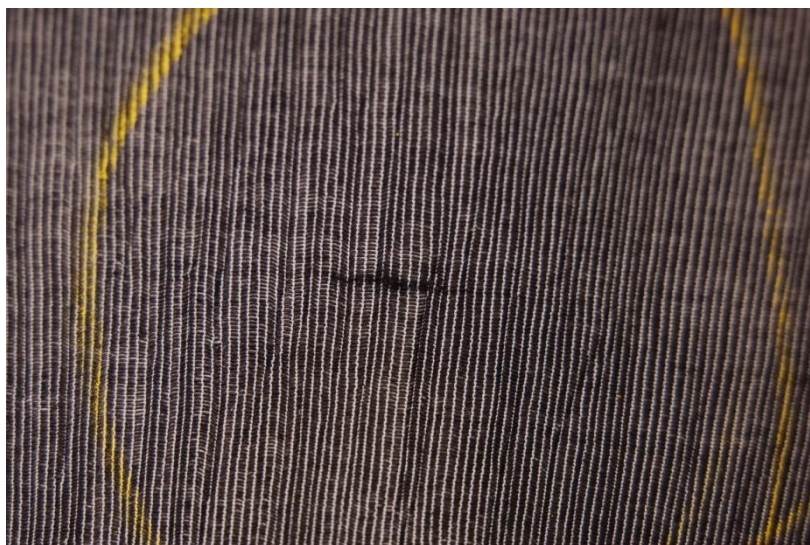


Figure 5. Example for yarn fault

Spandex damages: Especially in the field of trousers nowadays there are yarns used which contain a spandex component. In the area of garment finishing this results in the occurrence of quite different faults. In many fields there is a lot of uncertainty, as there are again and again complaints, where the cause is not clearly found compared to previous quality problems. Due to the complexity of the difficulties and the number of potential influencing parameters, it is difficult to determine the cause of the damage. The assumptions (and results) go from problems in the spinning mill, in the weaving mill, finishing, tailoring, laundry and preparation. In this context, many persons, involved in the process, are searching for ways to improve.



Figure 1. Spandex damages, yarns from tailored and washed trousers

Colour fastnesses: in order to achieve especially the described colour-effects, dyings which necessarily show poor colour-fastnesses are used. Without those „poor“ colour-fastnesses certain optical effects cannot be achieved. However, this does not mean that therefore there are no requirements on the colour fastnesses. For all involved it is an ongoing tightrope walk to balance the technical feasible and the fashionable desired.



Figure 7. Examples for different washing results arising from one basic fabric.

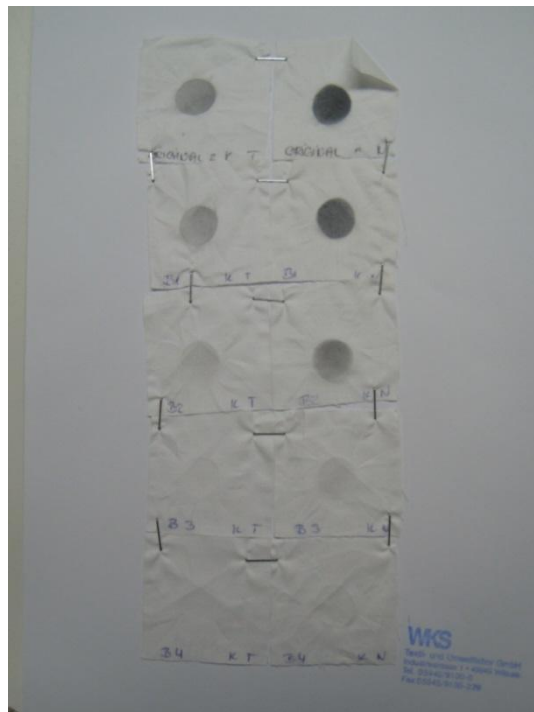


Figure 8. Examples for different rubbing fastnesses subject to the washing procedure.

The area of garment finishing offers a lot of creative possibilities to both, the manufacturer and the pre-stages, in order to develop and merchandise fashionable effects. However, there is the risk that the different procedures and deviating technologies necessarily cause misunderstandings and lead to complaints. This requires even more, that the individual links of the textile chain communicate and adjust the possibilities as well as the requirements and especially the existing technical quality parameters.

(All Figures: WKS Textilveredlungs-GmbH, Wilsum)