

STUDY FABRICS OF MEN'S SHIRTS

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Abstract. In this article is studied the types of fabrics, their weaving methods and patterns, which are widely used by sewing companies for the production of men's shirts.

Keywords: shirt, cotton, colour, casual, fabric, weave, texture, pattern.

INTRODUCTION. Men's oldest shirt was found in Egypt dates back to about 3000 BC. This shirt consisted of a few simple details, namely, a single front lower and back lower part, and a top part connected to the front and back parts joining them at the shoulder, and sleeves [1]. Until now, the types, styles and fabrics of men's shirts have been changed and developed.

From three basic shirt blocks, fundamental shirt pattern is developed which front, back and a sleeve. Complete set of shirt pattern consists of 7 parts: front, back, back yoke, sleeve, cuff, collar and collar stand [2].

Men's shirt can be made from different materials: cotton, linen, silk, wool, artificial and mixed fibers. Fabrics vary in fiber, weave, and pattern, and colour can be plain, floral, striped, or checked.



Figure 1. Men's fashion shirts: a) formal shirt, b) casual shirt [3]

Types of fabrics

Each raw materials make better yarns than others. Almost all of them have their own characteristics. Cotton is the most common type of yarn used in shirt fabrics. The advantage of cotton fiber is low thermal conductivity, good dyeing in various dyes, no breaking down under the influence of alkalis and other chemicals, resistance to abrasion. The hygroscopicity of cotton is much higher. Most dress shirt cotton is made of long-staple or extra long-staple (ELS) cotton. Products made of cotton yarn are very comfortable and soft. Cotton yarn is sometimes used in conjunction with other yarns [4]. Products made of 100 % cotton yarn have a high shrinkage, and in the design and manufacture of products made of cotton it should be pay special attention to the characteristics of fabric.

Linen is a fabric that is made from very fine fibers, derived from the flax plant. Turning raw flax into fabric takes more time and effort than processing cotton, which increases costs. A tailored linen shirt is an expensive and unusual investment, but it is worth considering for some

men because of the slightly different properties of linen. Linen yarn is generally lighter in diameter than cotton. Linen shirts have a very light, breezy feel to them and are less stiff than cotton. Linen evaporate much more quickly than cotton and make comfort for men in very humid countries, or just men who tend to sweat heavily.

Silk shirts are unusual, luxurious and expensive garment. The high value of silk is due to the fact that the fabrics made of it have a beautiful appearance, high strength, good dyeing, flexibility, easy absorption of moisture. Spun silk yarns, along with cotton yarns, are used to make fabrics and products. Cloth woven from cotton yarn with the addition of natural silk fibers, in particular, improve the consumer properties, including air permeability, hygroscopic and, most importantly, hygienic properties [5]. This indicates that these products can be used in hot climates.

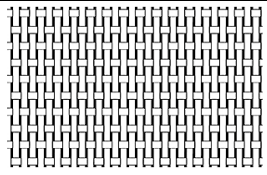

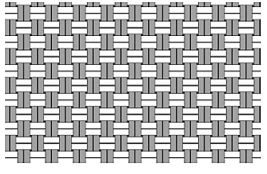
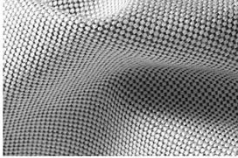
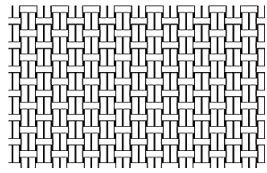

Wool shirts are unique and keep shape well therefore slow thermal conductivity. Wool fibers are longer than cotton fibers, have low strength but high elasticity. Wool absorbs moisture well and retains it for a long time. Under the influence of steam, temperature and pressure, wool fibers can change their shape. Based on this feature, sewing technology uses the method of wet-heat treatment of fabrics and garments.

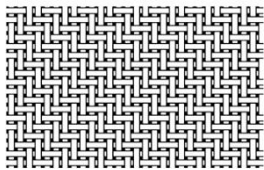

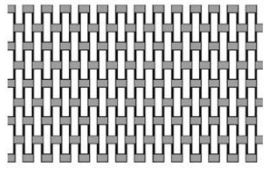
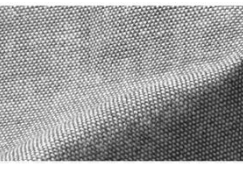
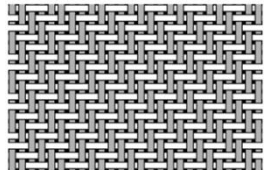
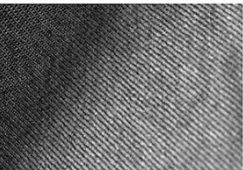
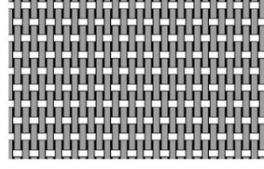
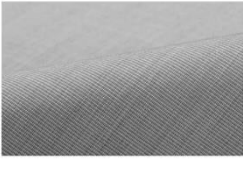
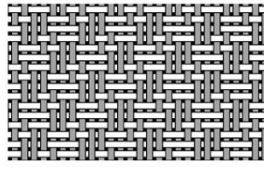
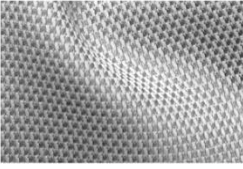
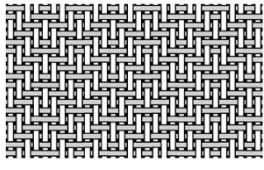

Man-made fibers sometimes appear in a blend of mainly cotton fabrics. A few threads of rayon, nylon, polyester, or other synthetic fibers can be added to increase strength and mildew resistance of cotton shirt.

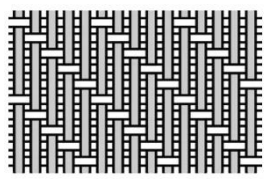


Shirt fabrics with more artificial fibers is not considered has high quality and should not be recommended for a custom shirt. Artificial fibers have only a few advantages: durability, mildew resistance and cheaper cost [6].

Types and description of mostly used shirt fabrics

Table 1

Fabric	Structure	Fabric view	Description
Poplin			Poplin is woven with a simple over and under weave. Soft, breathable, strong, very smooth and durable but the most prone to wrinkling
Oxford			Oxford is a basket weave that multiple weft threads are crossed over an equal number of warp threads. Often, one color of weft is crossed with a white warp thread resulting in a two-tone colour appearance. Slightly rougher but more durable, thicker and warmer
Pinpoint Oxford			Pinpoint has the same weave as oxford cloth, the difference is the two-and-one weave structure. The single weft crosses two warp threads forming a pin point look. Not transparent, enough durable but slightly heavier and thicker

Twill			Twill has diagonal texture that made by weaving each warp and weft threads over and under two vertical threads to create a distinctive diagonal pattern. Softer and thicker than poplin, and is also resistant to creases and easy to iron. It drapes very well
Chambray			Chambray is a workwear poplin or broadcloth. It is a plain weave fabric made with heavier thread for a more relaxed or workwear appeal. Chambray fabric is woven with a colored yarn in the warp and a white yarn in the weft. It's a great alternative to shirt weight denim that has the same color variation
Denim			The construction of denim is a twill weave. To create the two-tone look colored thread is crossed with a white thread. The colour sits on the face of the fabric and the white pulls to the back side
End-on-End			End-on-end broadcloths are a very popular type of dress shirt fabric. End-on-end is a poplin weave in which the weft thread is one color and the warp thread is another colour
Royal Oxford			Royal Oxford is very similar classic oxford. A slight change in the weave makes the difference. Although there is a basic structure similarity between the two weaves, royal oxford is constructed by a two-three-two structure
Herringbone			Herringbone is a twill that is mirrored when woven to create a chevron, “V-shaped” look. Herringbone fabrics has a smooth feel, a textured warmth, also drape well and are easy to iron

Satin			Satin is woven by four or more weft threads going over one warp thread, or the opposite: four or more warp threads going over a weft thread. In weaving, the warp thread or threads are held stationary on the loom, and the weft thread or threads are woven over and under the warps. A satin weave is glossy but not durable
Jacquard	Various according to pattern		Jacquard weave is created using a specific loom designed to produce patterned fabrics. Using a mix of different weaves, the possibilities of patterns are endless. Jacquards can be made one color or a mix of colors to create even more complex patterns. Often the back side of a jacquard is the mirror image of the pattern

This table above help to understand the different weaves of traditional men's shirts. Here is presented a clear view of shirt weaving. It includes a clear image of the actual fabric and a braid construction diagram. Weaving is a method of making cloth by tying cotton threads called warp (vertical) and weft (horizontal) together. Different weaving techniques create different fabric properties.

Types of fabric patterns

Patterns on fabrics are created by two different sources: the contrast of various colours in the dye or printing of the fabric, and the texture created by its physical weave [8]. Patterns created with colors are more noticeable and attention-grabbing, and therefore a little less versatile.

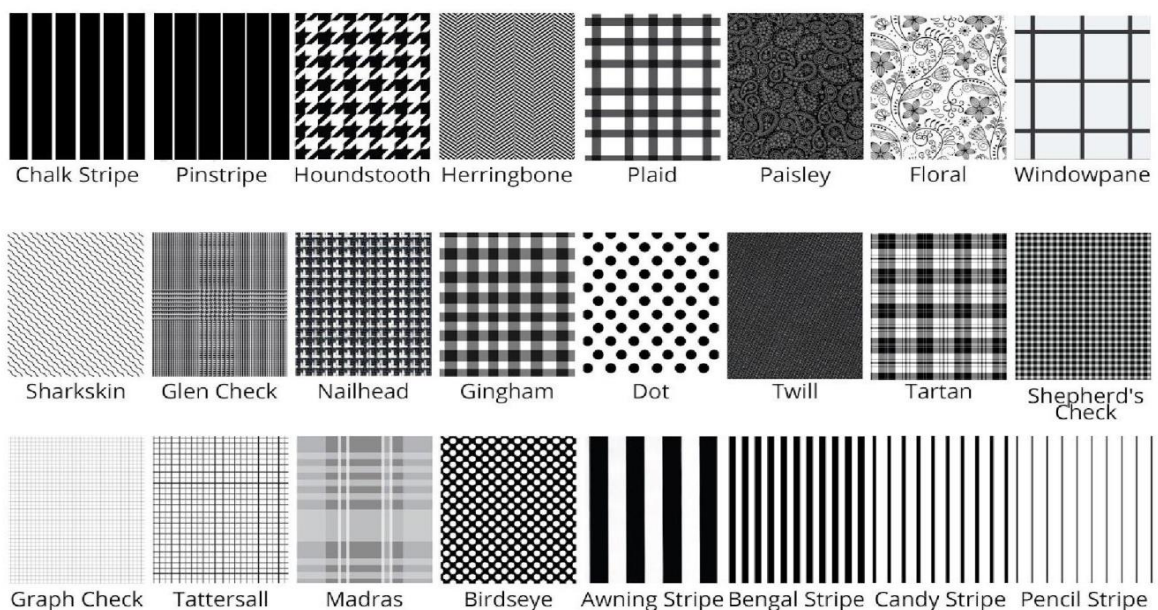


Figure 2. Common fabric patterns of shirts

Mostly pattern of fabric may be solid, striped and checked or printed. Solid is simplest pattern created by weaving texture like twill, stripes and checks are made of two or more coloured yarns.

CONCLUSIONS

Fabrics for dress shirt divided to different types and differ from each other in terms of fiber composition, weaving and patterns. These properties identify characteristics of fabric.

The yarn is used to produce fabric has great importance in determining the quality of a product. The quality of the product is 70% determined by the quality of the spun yarn. The composition of the yarn can be natural, artificial or synthetic. Natural yarns are environmentally friendly and contain only natural fibers - plant and animal wool. Natural spun yarns are of high quality, high hygienic properties and relatively high cost.

Weaving structures affects to the physical and mechanical properties of fabric like air permeability, weight, durability, wrinkling, shrinkage and others.

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