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British Standard Guide to

Garment quality and relevant British Standards

Guide sur la qualité des vêtements et les British Standards correspondantes

Leitfaden über die Qualität von Bekleidung und die einschlägigen British Standards

British Standards Institution

Contents

Foreword

This British Standard has been prepared under the direction of the Clothing Standards Committee.

In December 1979, Parts 1, 2 and 3 of BS 5750 'Quality systems' were published. These standards specify requirements for three basic levels of system for the assurance of material and services as follows:

Part 1. Specification for design, manufacture and installation

Part 2. Specification for manufacture and installation

Part 3. Specification for final inspection and test.

The level of system necessary to assure quality will depend on the nature of the material or service required.

The publication of BS 5750 reflected the growing interest in and demand for a standard dealing with the maintenance of quality in materials or services that would be able to provide means of assessing the capabilities of any quality control system. Within the clothing industry, however, it was suggested that although BS 5750 was of direct relevance to the larger manufacturers it could well be that many of the smaller manufacturers would not be able to use BS 5750 easily. It was therefore proposed that a standard should be produced for this part of the clothing industry.

This standard, by reference to existing standards, covers recommended procedures for selection of materials and quality checking through the garment-making process. These procedures highlight the factors in design, specification and production that particularly affect final garment quality and refer to British Standards dealing with aspects of quality assurance and control.

The aim is to list the factors that should be taken into account in the manufacture of a garment that will affect its quality and to link these factors to stages in garment production. Thus at each stage in production, and this standard covers all forms of garment assembly including knitwear, there is identified a group of standards relevant to quality and fitness for purpose for the materials or processes being used.

The lists are not exhaustive and are intended as guides. No performance level values are set since these will vary and should be selected according to the fabric and the type of garment to be produced. However, all the factors listed are important in the maintenance of good quality in all types of garment.

Detailed recommendations on machine maintenance have not been included as it was considered that it would be impossible to cover all types of machinery likely to be used in the clothing industry.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

British Standard Guide to

Garment quality and relevant British Standards

1. Scope

This British Standard provides guidance on relevant British Standards and factors concerned with quality to be considered at the various stages in the design and manufacture of all types of garment.

2. Definitions

For the purposes of this British Standard, the definitions given in BS 1903 'Glossary of terms used by the clothing industry' apply.

3. Garment design and production stages

3.1 General. Garments of inferior quality result from many factors or combinations of factors including poor design and insufficient development, selection of the wrong combination of materials, poor production planning and workplace design, low levels of machine maintenance, inadequate specification, ineffective inspection and poor staff training or motivation.

A list of the various stages generally encountered from initial design to final examination of a garment is given in table 1. Each stage has particular British Standards associated with it and these are listed in the clause dealing with that particular stage in production.

NOTE. The labelled stages are intended to be as comprehensive as possible without overcomplicating the table. Individual processes or systems are likely to vary from organization to organization, but it is hoped that the greater part of table 1 will be relevant.

Table 1. Garment design and production stages

Stage	Clause
Pre-production (including design, materials selection, pattern making and sample making)	3.2
Lay planning	3.3
Laying-up, cutting and fusing	3.4
Fully-fashioned knitwear production	3.5
Make-up and under-pressing	3.6
Final pressing	3.7
Final examination	3.8
Labelling	3.9
Packaging	3.10

3.2 Pre-production

3.2.1 *General.* The design of garments and the materials used should be related to fitness for purpose and the method of production. Materials and trimmings selected for production of garments should be compatible with each other. There are a number of British Standards for garmer that specify important performance and construction characteristics to be considered in a garment specification these standards are as follows.

BS 4170 Waterproof protective clothing

BS 4171 Specification for donkey jackets

BS 4679 Protective suits for construction workers and others in similar arduous activities

BS 5426 Specification for workwear

BS 5919 Specification for children's anoraks

BS 6308 Specification for men's uniforms

3.2.2 *Grading, pattern cutting and sample making.* Gradir should be done in a logical sequence ensuring that the original design concept is maintained and that patterns wil produce garments in conformity with a predetermined proven size schedule. Care should be taken to ensure that reference samples are produced under conditions that are as close as possible to factory production methods.

3.2.3 *Storage of materials.* Materials on receipt should be examined for damage and discrepancies, appropriately labelled, examined against the specification and stored in accordance with the manufacturer's instructions.

3.2.4 *British Standards relevant to material selection and garment production*

3.2.4.1 *Fabric construction*

BS 2861–2866 Methods for the analysis of woven fabric construction

BS 4326 Descriptions of woven textiles (excluding wool) for use in the finishing trade

BS 4407 Methods of test. Quantitative analysis of fibre mixtures

3.2.4.2 *Fabric performance*

BS 1006 Methods of test for colour fastness of textiles and leather

BS 2471 Methods of test for textiles – Woven fabrics – Determination of mass per unit length and mass per unit area

BS 2576 Methods of test for textiles – Woven fabrics – Determination of breaking strength and elongation (strip method)

BS 2823 Methods of test for the resistance of fabrics to penetration by water (Hydrostatic head test)

BS 3086 Method for determination of recovery from creasing of textile fabrics by measuring the angle of recovery

BS 3424 Testing coated fabrics

BS 3546 Coated fabrics for water resistant clothing
BS 3702 Method of test for determination of resistance of textile fabrics to surface wetting (spray test)
BS 4923 Schedule of domestic washing and drying procedures for textile testing
BS 4931 Methods for determination of dimensional stability of textiles to dry cleaning in tetrachloroethylene
BS 5066 Method of test for the resistance of fabrics to an artificial shower
BS 5438 Methods of test for flammability of vertically oriented textile fabrics and fabric assemblies subjected to a small igniting flame
BS 5441 Methods of test for knitted fabrics
BS 5690 Method of test for determination of the abrasion resistance of fabrics
BS 5722 Specification for flammability performance of fabrics and fabric assemblies used in sleepwear tested by BS 5438
S 5807 Method of test for determination of dimensional change of textiles in domestic washing and drying
BS 5811 Method of test for determination of the resistance to pilling of woven fabrics (pill testing box method)
BS 6249 Materials and material assemblies used in clothing for protection against heat and flame
Part 1. Specification for testing and performance

3.2.4.3 *Garment ancillaries*

BS 1625-6 and 4830 Woven cotton tapes, light, medium and heavy qualities
BS 1850 Elastic flat braids containing natural rubber with cotton rayon or nylon
BS 3084 Specification for slide fasteners
BS 3102 Brass eyelets and washers for general purposes
BS 3866 Specification for holes and shanks in buttons
BS 4162 Methods of test for buttons
BS 4270 Woven elastic webbing with natural rubber for men's trunk tops
S 4546 Knitted elastic fabric with natural rubber for trunk tops
BS 4560 Specification for fabrics for linings in uniform clothing
BS 4973 Interlinings
BS 5742 Specification for textile labels requiring to be washed and/or dry cleaned

3.2.4.4 *Size coding schemes and informative labelling*

BS 1903 Glossary of terms used by the clothing industry
BS 2747 Textile care labelling code
BS 3666 Specification for size designation of women's wear
BS 3728 Specification for size designation of children's and infants' wear
BS 5511 Size designation of clothes – Definitions and body measurement procedure
BS 6185 Specification for size designation of men's wear

3.2.4.5 *Stitches and seams*

BS 3320 Method for the determination of seam slippage of woven fabrics
BS 3870 Stitches and seams
Part 1. Classification and terminology of stitch types
Part 2. Classification and terminology of seam types
BS 4134 Specification for the ticket numbering of industrial sewing threads
BS 6157 Specification for industrial sewing threads made wholly or partly from synthetic fibres

3.2.4.6 *Quality assurance*

BS 4778 Glossary of terms used in quality assurance (including reliability and maintainability terms)
BS 4891 A guide to quality assurance
BS 5497 Precision of test methods
BS 5701 Guide to number defective charts for quality control
BS 5703 Guide to data analysis and quality control using cusum techniques
BS 5750 Quality systems
BS 5781 Measurement and calibration systems
Part 1. Specification of system requirements
Part 2. Guide to the use of BS 5781 : Part 1 'Specification of system requirements'
BS 6000 Guide to the use of BS 6001. Sampling procedures and tables for inspection by attributes
BS 6001 Sampling procedures and tables for inspection by attributes
BS 6002 Specification for sampling procedures and charts for inspection by variables for percent defective

3.3 Lay planning. Instructions for this area of operations should include mention of the following factors:

(a) pattern pieces to be correctly positioned on fabric grain;

(b) all required pattern pieces to be included;

(c) provision to be made for matching checks/stripes;

(d) pattern pieces to be correctly positioned for pile or one-way fabrics;

(e) no overlapping of pattern pieces to be present and sufficient space to be available between parts for accurate cutting;

(f) all pieces to be correctly identified by size, style, etc.;

(g) line definition to be satisfactory (not too thick, no parts of lines missing);

(h) marking to be accurate;

(i) all notches and drill marks to be included and correctly positioned;

(j) parts to be fully marked within the defined lay width.

3.4 Laying-up, cutting and fusing

3.4.1 *General.* In these stages of production the aspects detailed in 3.4.2, 3.4.3 and 3.4.4 should be covered in the garment making specifications.

Machinery manufacturers normally provide detailed information on their products and it is essential to follow their recommendations to obtain the best possible performance compatible with safe working practice.

NOTE. In this as in all other stages of the production process it is essential to ensure safe working conditions at all times.

3.4.2 *Laying-up.* Fabrics should be tension-free, straight and pattern-matched. Procedures should be specified if necessary for dealing with the following:

(a) one-way materials;

(b) material batch separation;

(c) fault marking and cutting out;

(d) correct positioning of notches and drill holes.

3.4.3 *Cutting.* Knife profile and speed of cutting can affect the quality of garments. The machine type to be used should be specified and linked with instructions on setting of knives. Clear statements on the need for cleanliness and attention to safety aspects should be provided.

Information on ticket and bundling systems to be used should be unambiguous.

3.4.4 *Fusing.* The specification should call for checks to be carried out by competent personnel at least twice daily (morning and afternoon) of the time, temperature and pressure settings of the fusing press. The cleanliness of press covers should be included in these checks. Press settings can be monitored by bond strength measurements on test samples fused at the same time as garment parts.

Fused parts should be inspected when cooled and before any subsequent operations, to check for colour and appearance changes and shrinkage.

3.5 Fully-fashioned knitwear production. Instructions should be available showing all necessary details for the garment being produced, e.g. machine type, yarn type and linear density, stitch length and courses per unit length. Knitting machines should be checked against the specification once a shift and this checking recorded. The machine technician should check the settings daily.

The operator should check for faults while knitting and 'taking off' from the machine. The mass of garment pieces should be checked against the specification and recorded.

A British Standard applicable to fully-fashioned knitwear is as follows.

BS 5441 Methods of test for knitted fabrics

3.6 Make-up and under-pressing. In order to cover the making-up and under-pressing of garments from both woven and knitted fabrics and the sewing or linking of fully-fashioned knitwear, the following equipment, operations or materials should be specified:

(a) sewing/linking machines, cleanliness and settings;

(b) size, type and condition of needles;

(c) stitch densities and thread tensions or linking machine gauge;

(d) sewing threads (type, ticket number and shade); for linking machines self yarn or linking thread to be available;

(e) seam allowance;

(f) under-pressing conditions.

The following British Standards are applicable to make-up and under-pressing.

BS 3870 Stitches and seams
Part 1. Classification and terminology of stitch types
Part 2. Classification and terminology of seam types

BS 4134 Specification for the ticket numbering of industrial sewing threads

BS 6157 Specification for industrial sewing threads made wholly or partly from synthetic fibres

3.7 Final pressing. The functioning of the press and cleanliness of press covers should be checked daily by the operator.

The functioning of the press and porosity/condition of press paddings should be checked weekly by the technician

Automatic press programme settings should be checked against the programme specified in the pilot run.

Where dry heat final pressing is used, the twice-daily check recommended in 3.4.4 should be carried out.

In knitwear, the finished garment/frame size should be checked by the operator.

Garments should be checked before and after all stages of pressing for the following faults and should be dry before subsequent operations (e.g. buttoning, bagging):

(a) unwanted creases/impressions/staining;

(b) pressing glaze.

3.8 Final examination. In the final examination, garment should be inspected for the following:

(a) correct size (measured to size charts provided);

(b) seam pucker, seam allowance and sewing faults;

(c) garment symmetry;

(d) pressing or fusing defects;

(e) garment cleanliness;

(f) loose threads;

(g) correct matching of fabrics and trimmings;

(h) shade variation;

(i) correct fitting and alignment of closures;

(j) correct placing of appropriate labels.

A reference sample and a full garment specification should be made available at the inspection point. The lighting conditions under which the examination is made should also be specified. It is also essential that examiners be selected and trained in a consistent comprehensive manner

It is recommended that all garments be inspected, but if 100 % inspection level is not considered to be necessary reference should be made to the appropriate British Standards dealing with sampling procedures, these being as follows.

BS 6000 Guide to the use of BS 6001. Sampling procedu and tables for inspection by attributes

BS 6001 Sampling procedures and tables for inspection b attributes

BS 6002 Specification for sampling procedures and chart for inspection by variables for percent defective

3.9 Labelling. It is essential that correct labels and tickets are attached to the garments produced. The exact type of label to be used will depend on many factors, but for garments for sale to the general public there are some statutory labelling requirements. Such requirements are concerned with:

(a) fibre content;

(b) country of origin;

(c) hazard warnings.

NOTE. Statutory Regulations relating to garment labelling include the Regulations given in the following list, which should not be taken as being exhaustive.

Statutory Instrument 1973 No. 2124. The Textile Products (Indications of Fibre Content) Regulations 1973;

Trade Descriptions (Origin Marking) (Miscellaneous Goods) Order 1981;

Statutory Instrument 1967 No. 839. The Nightdress (Safety Regulations).

Other information should be given on labels covering sizing details and after-care instructions. Such labelling is not a requirement, but it is recommended that the procedures given in relevant British Standards should be followed. Thus, in size labelling, the label should indicate the size of the person the garment is designed to fit, body measurements being made as described in BS 5511. Examples of recommended labels are given in British Standards for specific garment types. A textile care labelling code is described in BS 2747, and it is recommended that this be followed in all garment labelling. The permanence requirements for certain types of label are specified in BS 5742.

The details that should appear on the garment label can be summarized as follows:

(1) fibre content;

(2) country of origin;

(3) safety regulations/requirements;

(4) after-care instructions;

(5) size designation;

(6) manufacturer's/retailer's identification;

(7) manufacturer's reference code (if appropriate).

British Standards applicable to garment labelling, or which specify labelling requirements, are as follows.

BS 2747 Textile care labelling code

BS 3666 Specification for size designation of women's wear

BS 3728 Specification for size designation of children's and infants' wear

BS 4171 Specification for donkey jackets

BS 4407 Methods of test. Quantitative analysis of fibre mixtures

BS 5426 Specification for workwear

BS 5511 Size designation of clothes — Definitions and body measurement procedure

BS 5742 Specification for textile labels requiring to be washed and/or dry cleaned

BS 5919 Specification for children's anoraks

BS 6185 Specification for size designation of men's wear

3.10 Packaging. Packaging should be designed to protect the garment and to ensure that the garment reaches the purchaser in a satisfactory condition. It should also allow labelling in accordance with the purchaser's requirements. Details that are likely to be specified by the purchaser include the following:

(a) method of folding;

(b) number of garments in each package;

(c) visibility of label;

(d) type of outer packaging;

(e) position and form of the address label.