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Textiles — Silk woven fabrics for womenswear, silk squares, scarves and ties — Requirements and test methods

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The UK committee voted against this standard, as they are of the opinion that many parts of the standard are commercial considerations, these include the following clauses; 5.2.3.2, 5.2.3.3, 5.2.4, 5.2.5, 5.3.4, 5.5, 6.1, 6.2.

The UK participation in its preparation was entrusted to Technical Committee TCI/66, Apparel and interior textiles.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Foreword

This document (EN 16315:2014) has been prepared by Technical Committee CEN/TC 248 “Textiles and textile products”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2014 and conflicting national standards shall be withdrawn at the latest by September 2014.

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1 Scope

This European Standard specifies requirements for 100 % silk woven fabrics for womenswear, and for silk squares, scarves and ties for men and women, with the test methods for their evaluation.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1049-2, *Textiles — Woven fabrics — Construction — Methods of analysis — Part 2: Determination of number of threads per unit length (ISO 7211-2:1984 modified)*

EN 1773, *Textiles — Fabrics — Determination of width and length*

EN 12127, *Textiles — Fabrics — Determination of mass per unit area using small samples*

EN ISO 105-B02, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test (ISO 105-B02:2013)*

EN ISO 105-C06, *Textiles — Tests for colour fastness — Part C06: Colour fastness to domestic and commercial laundering (ISO 105-C06:2010)*

EN ISO 105-D01, *Textiles — Tests for colour fastness — Part D01: Colour fastness to dry cleaning using perchloroethylene solvent (ISO 105-D01:2010)*

EN ISO 105-E04, *Textiles — Tests for colour fastness — Part E04: Colour fastness to perspiration (ISO 105-E04:2013)*

EN ISO 105-J03, *Textiles — Tests for colour fastness — Part J03: Calculation of colour differences (ISO 105-J03:2009)*

EN ISO 105-X11, *Textiles — Tests for colour fastness — Part X11: Colour fastness to hot pressing (ISO 105-X11:1994)*

EN ISO 105-X12, *Textiles — Tests for colour fastness — Part X12: Color fastness to rubbing (ISO 105-X12:2001)*

EN ISO 139, *Textiles — Standard atmospheres for conditioning and testing (ISO 139:2005)*

EN ISO 3175-1, *Textiles — Professional care, drycleaning and wetcleaning of fabrics and garments — Part 1: Assessment of performance after cleaning and finishing (ISO 3175-1:2010)*

EN ISO 3175-2, *Textiles — Professional care, drycleaning and wetcleaning of fabrics and garments — Part 2: Procedure for testing performance when cleaning and finishing using tetrachloroethene (ISO 3175-2:2010)*

EN ISO 3175-3, *Textiles — Professional care, drycleaning and wetcleaning of fabrics and garments — Part 3: Procedure for testing performance when cleaning and finishing using hydrocarbon solvent (ISO 3175-3:2003)*

EN ISO 3175-4, *Textiles — Professional care, drycleaning and wetcleaning of fabrics and garments — Part 4: Procedure for testing performance when cleaning and finishing using simulated wetcleaning (ISO 3175-4:2003)*

EN ISO 3759, *Textiles — Preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change (ISO 3759:2011)*

EN ISO 5077, *Textiles — Determination of dimensional change in washing and drying (ISO 5077:2007)*

EN ISO 6330, *Textiles — Domestic washing and drying procedures for textile testing (ISO 6330:2012)*

EN ISO 13015, *Woven fabrics — Distortion — Determination of skew and bow (ISO 13015:2013)*

EN ISO 13934-1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method (ISO 13934-1:2013)*

EN ISO 13936-1, *Textiles — Determination of the slippage resistance of yarns at a seam in woven fabrics — Part 1: Fixed seam opening method (ISO 13936-1:2004)*

EN ISO 13937-1, *Textiles — Tear properties of fabrics — Part 1: Determination of tear force using ballistic pendulum method (Elmendorf) (ISO 13937-1:2000)*

ISO 1144, *Textiles — Universal system for designating linear density (Tex System)*

ISO 7211-1, *Textiles — Woven fabrics — Construction — Methods of analysis — Part 1: Methods for the presentation of a weave diagram and plans for drafting, denting and lifting*

ISO 7211-4, *Textiles — Woven fabrics — Construction — Methods of analysis — Part 4: Determination of twist in yarn removed from fabric*

ISO 7211-5, *Textiles — Woven fabrics — Construction — Methods of analysis — Part 5: Determination of linear density of yarn removed from fabric*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
silk square
sewn square shaped article of silk fabric

3.2
scarf
sewn rectangular or triangular shaped article of silk fabric

3.3
tie
sewn long narrow article of silk fabric

3.4
length of piece
distance between piece-ends along the piece of fabric

3.5
total fabric width
distance from the outermost yarn of a piece on one edge to the outermost yarn on the other edge, measured perpendicular to the warp direction

[SOURCE: EN 1773]

3.6
usable fabric width
distance from the outermost yarn of the piece on one edge to the outermost yarn on the other edge excluding the selvedges

Note 1 to entry: Selvedges may be a woven selvadges, may be made with gauze, may include marks left by any finishing apparatus e.g. stenter pin marks.

3.7
pattern size regularity
evenness of the distances, in warp and weft directions, between repeated patterns

3.8
repeated pattern
periodical design made by printing, dyeing or weaving, in warp and weft directions

3.9
allover
yarn dyed- or printed fabric with continuous pattern

3.10
diagonal
yarn-dyed or printed fabric with 45° pattern

3.11
geometric pattern
type of printing or weave pattern with geometric design

3.12
edging
seaming the edges of silk squares and scarves

3.13
hand-sewn
seam made by hand

3.14
colour reference fabric
fabric used as reference for colour reproducibility

4 Sampling

From each commercial or production lot, take out laboratory samples of a size suitable for the tests to be done from three pieces of fabric or lots of made up articles in a random manner.

If the lot consists of fewer than three pieces, samples will be taken from each piece of fabric.

Samples shall not present any alterations or visible defects, such as holes, tears, stains, differences in colour. Moreover, samples shall be representative of all colours/patterns in case of colour fastness tests.

5 Requirements and test methods for silk fabrics

5.1 General

The requirements specified in this European Standard concern properties that can be evaluated by laboratory tests or sensorial (visual) assessment of the fabric or are defined by tolerances allowed.

The properties and relevant test methods considered are as follows:

— structural characteristics (5.2);

— physico-mechanical characteristics (5.3);

— colour fastness (5.4);

— colour conformity (5.5);

5.2 Structural characteristics

5.2.1 Fabric construction

Fabric construction testing shall be carried out according to ISO 7211-1.

The fabric construction shall correspond to that specified in the contract.

5.2.2 Mass per unit area

Mass per unit area shall be carried out according to EN 12127.

In any case, the tolerance allowed on the declared value is ± 5 %

The articles falling within the scope of this standard can be classified into following categories as given in Table 1:

Table 1 — Mass per unit area

Category	Womenswear	Silk square and scarves	Ties
A	mass ≤ 40 g/m^2	mass ≤ 40 g/m^2	50<mass ≤ 100 g/m^2
B	40<mass ≤ 80 g/m^2	mass > 40 g/m^2	mass > 100 g/m^2
C	80<mass ≤ 160g/m^2	-	-
D	mass > 160 g/m^2	-	-

NOTE Usual commercial denomination of each category is given in Table A.1.

5.2.3 Width and length of piece

5.2.3.1 Length of piece

The length of piece shall be carried out according to EN 1773.

The tolerance allowed on the declared length of each piece is ± 2 %

5.2.3.2 Fabric width and usable fabric width

Fabric width shall be carried out according to EN 1773.

The tolerance allowed on the declared total or usable fabric width is -1 %; + 2 %.

If the declared width corresponds to the minimum guaranteed width, no negative tolerance is allowed on the agreed value.

5.2.3.3 Pattern size regularity

Pattern size regularity shall be carried out according to EN 1773.

The tolerances allowed on the pattern dimensions, as declared, are as follows:

a) *Yarn-dyed fabrics*

— Allover ± 4 %

— Diagonal (45°) and repeated patterns ± 2 %

b) *Printed fabrics*

— Allover ± 3 %

— Diagonal (45°) and repeated patterns ± 2 %

5.2.4 Threads per unit length

Thread density shall be carried out according to EN 1049-2.

The tolerance allowed on the declared value, expressed as threads/cm in warp and weft directions, is ± 2 % with a minimum of one thread/cm.

5.2.5 Linear density and twist of yarn removed from fabric

Linear density and twist of yarn removed from the fabric shall be carried out according to ISO 7211-4 and ISO 7211-5.

The results of the measurement of linear density and twist shall be related to the corresponding values for the same fabric in the raw state.

The tolerance allowed on the declared nominal yarn linear density (related to the raw fabric) on an average basis is ± 7 % for a yarn linear density between 22,2 and 24,4 dtex (corresponding to 20-22 deniers as defined in ISO 1144).

The tolerances allowed on declared nominal twist values are shown in Table 2:

Table 2 — Twist tolerances

Twist range	Tolerance allowed (*)
Twist ≤ 150	± 10 turns/m or 15 %
150<twist ≤ 300;	± 23 turns/m or 10 %
300<twist ≤ 700;	± 30 turns/m or 7 %
Twist > 700	± 50 turns/m or 5 %
(*) The higher tolerance between absolute and relative values shall be applied.	

NOTE Usual commercial yarn denominations of each category are given in Table A.2.

5.3 Physical characteristics

5.3.1 Tensile properties – maximum force (strip method)

Tensile properties shall be carried out according to EN ISO 13934-1.

Depending on the mass per unit area of the fabric, as given in Table 1, the minimum acceptable values are given in Table 3:

Table 3 — Tensile properties

Category	Womenswear	Silk square and scarves	Ties
A	> 150 N	> 100 N	> 250 N
B	> 250 N	> 200 N	> 300 N
C	> 300 N	-	-
D	> 450 N	-	-

5.3.2 Tear properties for womenswear fabrics – Tear force (ballistic pendulum method)

Tear properties shall be carried out according to EN ISO 13937-1 only on womenswear fabric.

Depending on the mass per unit area of the fabric, as given in Table 1, the minimum acceptable values are given in Table 4:

Table 4 — Tear properties

Category	Womenswear
A	> 5 N
B	> 7 N
C	> 8 N
D	> 10 N

5.3.3 Seam slippage resistance

Slippage resistance of yarns at a seam shall be carried out according to EN ISO 13936-1 only on womenswear and tie fabrics.

The result is expressed as the force (N) required producing a 6 mm yarn slippage at a standardised seam. Depending on the mass per unit area of the fabric, as given in Table 1, the minimum acceptable values are given in Table 5.

Table 5 — Seam slippage resistance

Category	Womenswear	Ties
A	> 60 N	> 80 N
B	> 80 N	> 100 N
C	> 110 N	
D	> 130 N	

5.3.4 Skew distortion (angular displacement of weft yarns)

Skew distortion (local) shall be carried out according to EN ISO 13015.

Depending on the mass per unit area, as given in Table 1, and the pattern, the values of the skew distortion are given in Table 6:

Table 6 — Skew distortion

Category	Womenswear	Foulards and scarves	Ties
A	< 4 %	< 1,5%	-
B	< 4 %	< 1,5%	-
C	< 4 %	-	-
D	< 2,5 %	-	-
Dyed fabrics	See above	-	< 2 %
Printed fabrics	< 1,5 %	-	< 2,5 %
Geometric pattern	< 1,5 %	-	< 1,5 %

5.3.5 Dimensional change following steaming on pressing machines for womenswear fabrics

Dimensional change following steaming on pressing machines shall be carried out according to the reference test method given in Annex B.

The test applies only to womenswear fabrics.

The maximum dimensional change allowed for fabrics subjected to steaming on pressing machines is given in Table 7:

Table 7 — Dimensional change for fabric following steaming

Yarn twist Turns/m	**Womenswear**
≤ 700	±3 %
> 700	±4 %

5.3.6 Dimensional change because of cleaning treatments

The test conditions shall be chosen and applied according to the method of cleaning prescribed for the fabric.

The test methods used are as follows:

— EN ISO 5077;

— EN ISO 3175, Parts 1 to 4 (procedure for sensitive materials as described in Part 2, Part 3 and Part 4);

— EN ISO 3759;

— EN ISO 6330, (2012) Washing cycle: simulated hand washing and drying procedure C: flat drying or procedure E: flat press.

The maximum tolerances allowed for the dimensional change because of cleaning treatments are given in Table 8:

Table 8 — Dimensional change because of cleaning treatments

Domestic washing	Professional cleaning
± 3 %	± 2 %

NOTE Upon agreement between interested parties the dimensional change is also evaluated also after ironing in the condition prescribed for the fabric.

5.4 Colour fastness

The colour fastness properties required for fabrics falling within the scope of this standard are as follows:

— colour fastness to artificial light;

— colour fastness to rubbing (dry and wet);

— colour fastness to perspiration (acid and alkali);

— colour fastness to dry cleaning;

— colour fastness to domestic and commercial laundering;

— colour fastness to hot pressing.

The minimum requirements (tolerance: -1/2 point) for colour fastness are given in Table 9.

Table 9 — Colour fastness minimum requirements

		Minimum requirements	
Colour fastness	**Test method**	**Change in colour**	**Staining**
Artificial light	EN ISO 105-B02	3	-
Dry rubbing	EN ISO 105-X12	-	4
Wet rubbing	EN ISO 105-X12	-	3/4
Acid perspiration	EN ISO 105-E04	3/4	3/4
Alkali perspiration	EN ISO 105-E04	3/4	3/4
Dry cleaning*	EN ISO 105-D01	4	4
Domestic and commercial laundering*	EN ISO 105-C06	4	4
Hot pressing	EN ISO 105-X11	4	-
*These shall be applied according to care instructions.			

NOTE Different colour fastness requirements for certain fabrics need to be specified in the contract between interested parties according to the colouring technologies (e.g discharge printing, raw silk dyed or printed, dark or special shades).

5.5 Colour conformity

5.5.1 Colour reproducibility

It is possible to achieve a good colour reproducibility in an industrial process. This is true particularly in the case of the correspondence between the colours of the colour reference fabric and those of the production lots. Colour conformity shall be tested under standard conditions. The difference between production lots and colour reference fabric, as well as among different production lots, shall never be lower than level 4 (tolerance: –1/2 point) of the grey scale (EN ISO 20105-A02). In case of instrumental test according to standard EN ISO 105-J03 with the following specifications CMC (2:1)-D65, the difference, $\Delta E_{CMC\ (2:1)}$, shall not exceed 1,0.

The dyeing lot identification code shall be indicated on the label of each piece of fabric.

The colour difference can be based on a lightness component (Δ L CMC), a chrome component (Δ C CMC) and a hue component (Δ H CMC)

5.5.2 Colour uniformity

Colour uniformity shall be tested under standard conditions. The tolerated difference between the middle area and the selvedges of the fabric or between the first and the last portion of the piece shall never be lower than level 4/5 (tolerance:–1/2 point) of the grey scale (EN ISO 20105-A02) in visual assessment. In case of instrumental test according to standard EN ISO 105-J03 with the following specifications CMC (2:1)-D65, the difference, $\Delta E_{CMC\ (2:1)}$, shall not exceed 0,6.

6 Specifications for made up articles: silk square, scarves and ties

6.1 Size measurements

Measurements of made up articles shall be carried out according to EN ISO 5077.

The size specifications shall refer to the measurements specified in the contract between interested parties. So, measurements shall be made on the fabric or on the finished article after conditioning according to EN ISO 139. In the case of un-edged products, the difference between the values determined before and after edging shall not exceed 0,7 cm for each side of the article.

The tolerances allowed on the measurements are given in Table 10:

Table 10 — Tolerances in the size measurements of made up article

Silk square		**Scarves**		**Ties**	
Fabrics made with plain or twisted yarns (< 800 turns/m)	Fabrics made with twisted yarns (≥800 turns/m)	Short side	Long side	Short side	length of the article
± 2 %	± 4 %	± 2 %	± 1 %	± 0,5 cm or ± 5 %	± 1 cm or ± 3 %

6.2 Edging

Edging of silk square and scarves shall comply with the following requirements:

edging stitch density: ≥ 4 per cm.

These rules do not apply to edging by hand.

The colour fastness properties of sewing threads shall at least equal those of the made up article.

7 Information provided by the silk fabric producer

If the information related to the product performances, refers to the categories A, B, C or D or other requirements as specified in Clauses 5 and 6, this information shall include the reference to this European Standard.

Annex A
(informative)

Denominations

A.1 Fabrics

Depending on the mass per unit area of the fabric, as given in Table 1, usual commercial denomination for each category is given in Table A.1.

Table A.1 — Fabric denominations

Category A	very light/transparent fabrics
Category B	light fabrics
Category C	middle-weight fabrics
Category D	heavy fabrics

A.2 Yarns

Depending on the twist of yarn, as in Table 2, usual commercial yarn denominations are given in Table A.2.

Table A.2 — Yarn denominations

Twist (turns/m)	Type of yarn
< 300	Trame
750/800	Organzine, first twist
650/700	Organzine, second twist
1500/1600	Grenadine, first twist
1400/1500	Grenadine, second twist
2200/2400	Crêpe, 4 or more ends
2500/2700	Crêpe, 3 ends
2800/3000	Crêpe, 2 ends
2700/3100	Highly twisted single end

Annex B
(normative)

Determination of dimensional change of textile fabrics due to relaxation when steamed on steam pressing machines

B.1 General

This method is intended to indicate the change in dimensions, shrinkage or extension, which textile fabrics undergo as a result of relaxation when steamed in a completely unrestrained state on steam pressing machines.

NOTE The values for the dimensional change recorded when a fabric is steamed on a steam pressing machine are normally not comparable with the results of other shrinkage test methods such as according to ISO 3005.

B.2 Principle

Measured and conditioned specimens or whole pieces of fabrics are pressed five times on a steam pressing machine. After that, the specimens are conditioned and their dimensions are measured.

B.3 Apparatus

A flat-bed steam pressing machine which meets the following requirements is used for testing:

Size of test: at least 600 mm x 600 mm.

Top plate and bottom bed: corresponding to specimen area.

Area with holes: at least 525 mm x 525 mm.

Hole diameter: 3,5 mm ± 0,1 mm

Hole spacing: 25 mm ± 1 mm

Top and bottom pressing plates: steam heated.

Outlet nozzle for steam: only at the top plate.

Distance between top and bottom uncovered plates: 10 mm ± 0,5 mm.

Steam connections: top pressing plate 1 or more valves with an internal cross section of 45 mm^2 to 50 mm^2 per m^2 pressing plate area for the steam outlet.

Steam: saturated steam at an overpressure of 500 kPa (permissible variation ± 30 kPa from the mean value) in the steam line to the machine as far as to the inlet valve. If greater variations occur on connection to a process steam line, the press shall be connected to a separate stream raiser. This is recommended in most cases. It shall be ensured that the upper and lower steam chests do contain saturated steam. As a control the temperature can be measured near the press- immediately upstream of the seam line inlet. It should be 158 °C ± 2 °C.

Vacuum connection: bottom pressing plate, valves with an internal cross-section of 2 000 mm^2 to 2 500 mm^2 per m^2 pressing area.

Vacuum: 10 kPa to 12 kPa, measured with the valve closed at the suction muff of the ventilator.

Covers:

Top, in order of their fitting:

— 1 layer tin-plated copper wire cloth, twill weave, wire thickness 0,20 mm ± 0,05 mm, mesh width 0,32 mm ± 0,05 mm

— 1 layer flat heat-resistant textile fabric, mass per unit area (140 ± 20) g/m^2, air permeability about (600 ± 60) l/dm^2.min (according to EN ISO 9237 under 100 Pa) and linear density of warp and weft (165 dtex ± 10 dtex) x 2.

Bottom , in order of their fitting:

— 1 layer copper wire cloth as above

— 1 layer pure wool felt, 2,00 mm ± 0,05 mm thick (according to EN ISO 5084 under the pressure of 1 kPa), apparent density 0,14 g/cm^3 ± 0,01 g/cm^3

— 1 layer heat-resistant textile fabric as above.

The covers shall be replaced at the latest when the first signs of wear appear.

Supporting surfaces: on three sides of the steam pressing machine, adjoining the bottom bed and at the same height, table surfaces are to be provided which shall serve to support those parts of the test fabric which are not to be steamed, in case whole pieces of fabrics are tested.

NOTE Standardization of testing with bottom steam is excluded because of the danger of formation of condensation water which may influence the measurement. This influence became apparent during interlaboratory round robin tests.

Reproducible shrinkage values can be obtained only if the steam pressing machine meets the above specifications in every respect. Furthermore, when new equipment is installed and subsequently at intervals of about 250 working hours, the following controls shall be carried out:

— that the temperature prevailing during steaming of a specimen is the same all over the test area to within ± 2 °C. A thermocouple having a sensor diameter of max 0,5 mm and being situated between the cover of the bottom plate the specimen is used for checking at 9 measuring points in the corners, in the centres of the sides and the centre of a square with sides of 500 mm length; for each measuring point a new portion shall be cut from the fabric used for checking;

— that the temperatures recorded at the 9 measuring point after 10 s steaming and after a further 10 s extraction are the same to within ± 8 °C. This control shall be made at the same time as the control on temperature uniformity at various points over the test area is carried out;

— the vacuum during extraction shall be checked at a measuring point situated in the main line with the valves closed;

— the distance between the top and the bottom plate covers required for free movement of the test specimens during steaming and set by a guide 10 mm high is checked visually to ensure that it is at least approximately the same at all points on the test area. Normally the top cover can be expected to arch as the steam flows through, attaching itself to the specimen and thus preventing free movement of the latter. In order to eliminate this source of trouble the textiles fabric and the wire cloth shall be tensioned sufficiently or fixed to the top pressing plate by other means, e.g. by screws.

B.4 Conditioning atmosphere

The standard atmosphere for testing textiles as specified in EN ISO 139 shall be used for conditioning.

B.5 Test specimens

B.5.1 Cut-out specimens

If cut-out specimens are taken for testing, they shall be at least 600 mm x 600 mm in size and shall be cut out at least 15 cm from the selvedges and at least 3 m from either end of the fabric. The specimens shall not have any creases. Three measured areas or specimens are normally to be tested.

B.5.2 Pieces and fabrics

If whole pieces of fabrics or larger sections are to be tested and the measured areas are not to be cut out, the measured areas shall be 500 mm x 500 mm in size and shall be distributed over the length – and in the case of sufficiently wide fabrics over the width as well – and shall comply in their position in the fabric with above mentioned requirements.

B.5.3 Preparation

The specimens, when whole fabrics are tested, at least the measured areas selected for testing, are conditioned in accordance with EN ISO 139 in a plaited–down tension–free state for 16 h before testing and after that laid on a flat surface. The same flat surface is used in marking and subsequently in measuring according to EN ISO 3759. Three measuring sections each 500 mm long and 250 mm apart are marked in longitudinal and traverse direction. In the case of cut–out specimens the outer measuring sections should be at least 50 mm from the edge of the specimen. Since knitwear tends to stretch, testing of whole pieces is not recommended.

Contrasting measuring marks shall be used in delimit the measuring sections; any method, including the use of screens, is permitted provided that it gives sufficiently sharp markings that are resistant to steaming so that the measuring sections can be measured accurately to 1 mm. Immediately prior to testing, the distances between the measuring marks on the conditioned test areas are measured to 1 mm and their lengths noted.

The specimens shall stay in the conditioning atmosphere till immediately before steaming, because the change in dimensions may vary considerably according to moisture of fabrics. This concerns especially knitwear, but may also be valid for woven in which the specimens are conditioned, the moisture of the specimens will be retained, if they are put into suitable containers, e.g. plastic bags, for the transport to the steam pressing machine.

B.6 Test procedure

After heating up the test machine for normally 60 min, a blank test with a specimen of any fabric shall be carried out. In addition, such a blank test always shall be carried out, if a period of more than 10 min has elapsed between two tests. For the actual test the machine is opened and an area of 500 mm x 500 mm is prepared for the test or a specimen of 600 mm x 600 mm is centred and placed tension–free (usually with the right side upwards) on the bottom bed. When testing whole pieces or large areas, care shall be taken that a loose fold is formed between the area to be tested and the remaining parts of the test sample so that the test area is able to change in dimensions tension–free during steaming.

The following treatment is then carried out five times, the fifth time only as far as d):

a) lower the top plate to distance of 10 mm;

b) steam for 10 seconds (only down-run steam);

c) extract for 10 seconds (through the bottom bed);

d) raise the top plate;

e) shake the specimen surface gently;

f) put back the specimen centrally and tension-free on the bottom bed.

After the fifth extraction the specimen is placed tension-free on a smooth surface and conditioned in this state for at least 16 h in accordance with EN ISO 139. Pre-drying before conditioning is not necessary, because the specimen dries out to a certain extent during steam treatment.

After conditioning the distances between the measuring marks are measured to 1 mm. If creases have been formed on the specimen due to steaming, they shall not be removed by being smoothed out, but a ruler may be placed on the specimen to smooth it between the measuring marks.

B.7 Calculation and expression of results

The changes in length are calculated from the distances between the measuring marks before and after steaming and are given as a percentage of the original length, with a plus sign in the event of an increase in length and with a minus sign in the event of a decrease in length. For each measured area or measured specimen the arithmetic mean values of the three individual values are calculated separately in both test directions. In addition, the mean of the mean values is calculated for each test direction.

Control of measurement. The treatment cycle specified in Clause B.6 causes a drying-out of the specimen. The decrease in moisture content of the specimen should be between 5 % and 8 % for a pure wool fabric with a mass per unit area of about 300 g/m^2. It can be readily determined by weighing the specimen before and immediately after steaming. Such a control shall be carried out at regular intervals (approximately weekly).

Even if all the above stipulations are observed, systematic deviations (interlaboratory variations) may occur in the results of different testing institutes. In order to ascertain and eliminate these variations or to take them into consideration, control measurements shall to be taken in addition to the determination of the degree of drying–out described in the previous paragraph. Suitable methods are either to test a standard fabric with known values for change in dimension or to participate in an inter-laboratory round robin test.

B.8 Test report

The test report shall include the following particulars:

a) a statement that the procedure was conducted in accordance with this European Standard;

b) the nature and the origin of the sample;

c) whether the test was carried out on cut–out specimens or on a whole fabric;

d) the number of specimens;

e) the following information for both the warp (or wale) and weft (or course) directions;

   1) the individual values for the dimensional change of the three measuring distances of each specimen as a percentage of the original lengths;

   2) the arithmetical mean of the three measured values of each specimen, rounded to 0,1 %;

   3) the mean dimensional change of the mean values of the specimens.

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Documents related to silk articles

[1] UNI 10882:2000, *Tessili — Tessuti ortogonali in seta per abbigliamento esterno femminile — Requisiti e metodi di prova*

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