TC 38

International Standard ISO 3759

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Textiles — Preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change

Textiles — Préparation, marquage et mesurage des éprouvettes d'étoffe et des vêtements dans les essais de détermination de la variation des dimensions

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 3759 was prepared by Technical Committee ISO/TC 38, *Textiles*.

ISO 3759 was first published in 1976. This second edition cancels and replaces the first edition, figure 1 of the previous edition has been technically revised.

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Textiles — Preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies methods for the preparation, marking and measuring of fabric specimens (except textile floor coverings) and garments for use in tests for determining dimensional change (for example, dimensional change on washing, dry cleaning, soaking in water, or steaming).

2 REFERENCE

ISO 139, *Textiles — Standard atmospheres for conditioning and testing.*

3 PRINCIPLE

Specimens are selected so as to be as representative as possible of the sample. Pairs of reference marks are placed on the fabric specimen or garment, and the distance between the two marks of each pair of reference marks is measured before and after specified treatments. The latter may be the subject of other International Standards or may be by agreement between the interested parties.

4 APPARATUS

4.1 Rule, not less than 750 mm in length, preferably with an engraved, bevelled edge, marked in millimetres, for measuring fabric specimens.

4.2 Flexible steel rule or **fibre-glass tape,** marked in millimetres, for measuring garments.

4.3 Suitable means of marking reference points, for example :

4.3.1 Indelible ink.

4.3.2 Fine threads, of colour contrasting with the fabric.

4.3.3 Heated wire, with which small holes may be made (for thermoplastic fabrics only).

4.3.4 Staples, with measurements made from the point of entry of the staple into the cloth. Indicate on the cloth which end of the staple is used for measurement.

4.4 Flat table, of dimensions such that the complete article being tested can be laid flat for measurement.

4.5 Means of producing the required standard atmosphere for conditioning and testing textiles.

5 ATMOSPHERES FOR CONDITIONING AND TESTING

The atmospheres required for pre-conditioning and testing are those specified in ISO 139.

6 FABRIC SPECIMENS

6.1 Selection and number

Select specimens to be as representative as possible of the sample. Take sufficient specimens to cover the width of the fabric, but do not cut specimens from within 1 m (preferably not within 3 m) of either end of a piece or, where possible, within 75 mm of either selvedge.

6.2 Dimensions

Cut uncreased specimens, each measuring not less than 500 mm × 500 mm, with edges parallel to the length and width of the fabric. In the case of fabrics less than 650 mm in width, full-width specimens may be used and measurements made by agreement between the interested parties.

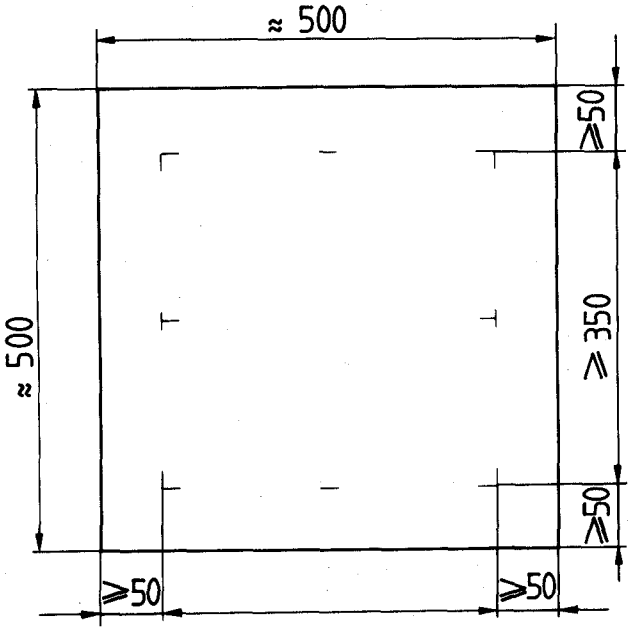
NOTE — If there is a possibility of the fabric unravelling during the test procedure, overlock the edges of the specimen with dimensionally stable thread. Specimens treated in this way shall be cut slightly larger than the specified dimensions. Specimens of weft-knitted fabrics shall be double-thickness and the edges shall be overstitched loosely using dimensionally stable thread.

6.3 Marking

Place the specimen on the measuring table and make not fewer than three pairs of marks on it in both the length and width directions, using a suitable means (see 4.3). The distance between the two marks in each pair shall be not less than 350 mm and no mark shall be less than 50 mm from the edges of the specimen. The pairs of marks shall be

displaced from each other in such a manner as to yield a representative measure of the whole specimen (see figure 1).

Dimensions given are minimal, expressed in millimetres



Marking of specimen for fabric of width 650 mm or greater

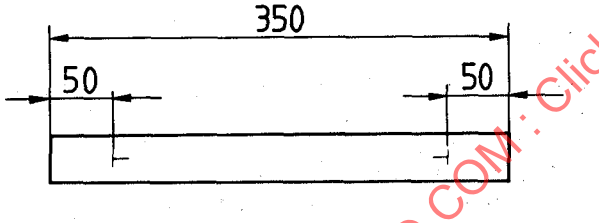


FIGURE 1 — **Marking of fabric specimens**

6.4 Pre-conditioning

Expose the specimen to the pre-conditioning atmosphere specified in clause 5 until it is brought to approximately constant mass.

6.5 Conditioning

Expose the specimen to one of the standard atmospheres for testing textiles, as specified in clause 5, until it reaches equilibrium.

6.6 Method of measuring before treatment

Conduct all measurements in the standard atmosphere specified in 6.5, proceeding as follows for the measurement of each specimen.

Lay the specimen flat on the measuring table and remove wrinkles gently by hand without stretching the specimen. Lower the measuring rule vertically onto the specimen to ensure that it is flat. Measure the distance, to the nearest 1 mm, between the two marks of each pair of reference marks.

6.7 Treatment of specimen

Subject the specimen to the required test method (according to the conditions specified in the appropriate International Standard or by agreement between the interested parties).

6.8 Method of measuring after treatment

Proceed as indicated in 6.4, 6.5 and 6.6.

7 GARMENTS

7.1 General

The measurements listed are comprehensive. Not all may be necessary as their selection will depend on the type and style of garment. In all cases the exact sites measured when testing garments shall be specified in the test report.

Unless otherwise arranged by agreement, make measurements as specified in the relevant clause. If, for example, it is required to relate changes in dimensions to changes in the marked size of a garment, it may be necessary to make more measurements than those specified in this International Standard. Such additional measurements would be made, by agreement, at the specific parts of the garment which customarily denote the size of the garment. Examples of this application are

a) the sizing of shirts by the collar size, i.e. the length between the outer edge of the buttonhole and the centre of the button;

b) the sizing of brassieres by the circumference of the body at the level of the diaphragm plus various tolerances dependent on cup size, which are of the order of 125 mm.

Any modification of this type shall be noted when reporting the results.

When it is required to determine the dimensional change of the cloth of a garment as distinct from the dimensional change at seams and hems which may change more or less than the cloth, additional measurements shall be taken in the direction of the warp (wales) and of weft (courses) between marks located as far as is practicable from seams and hems (see figure 2).

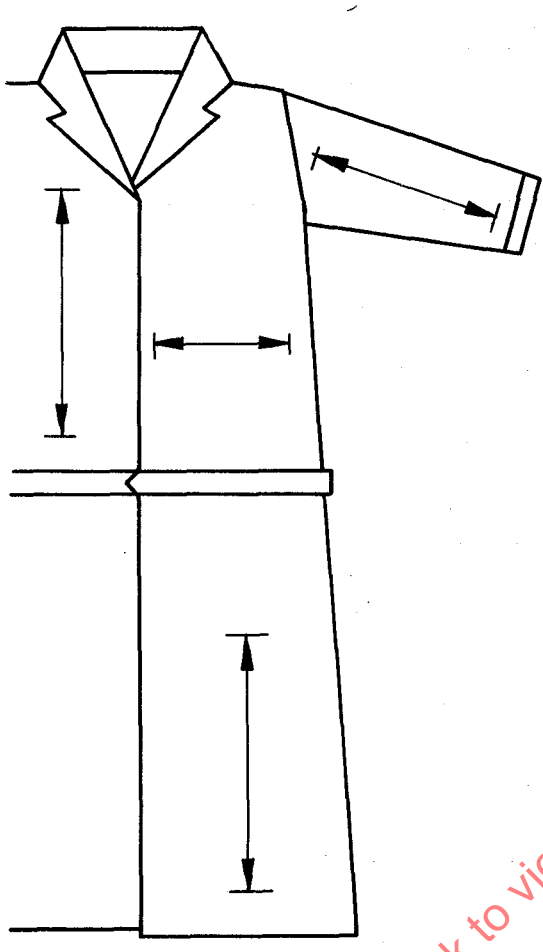


FIGURE 2 — **Marking of garment when measuring dimensional change of the cloth**

7.2 Instructions relating to all garments

7.2.1 Make length and width measurements between specific points, preferably at seams or between points where seams meet. The positions on the garment at which the measurements are to be made shall be marked by one of the methods described in 4.3. If the garment design is complicated, it may be helpful to provide a diagram showing the measuring points.

7.2.2 Where linings are present which are considered to be of importance to the function of the garment, measure these in positions corresponding to those at which the garment was measured.

7.2.3 Pre-condition the garment in the atmosphere specified in clause 5, until it is brought to approximately constant mass.

7.2.4 Expose the garment to one of the standard atmospheres for testing textiles, specified in clause 5, until it is brought to approximately constant mass.

7.2.5 Place the garment flat on the table for measuring (see 4.4).

7.2.6 Measure the distance between the two marks of each pair of marked positions without stretching or tensioning the garment in any way, using the flexible steel rule or fibre-glass tape (4.2) and measuring to an accuracy of at least 5 mm, and, where practicable, to an accuracy of 1 mm.

7.2.7 Measure the width or circumference with the garment closed and ensure that the buttons of buttoned garments are fully home in the buttonholes.

7.2.8 Measure elasticated garments or portions of garments in the relaxed state.

7.3 Specific positions at which measurements should be made

The following measuring positions are recommended but not all positions are necessarily relevant to all garments of a particular type. Corresponding measurements shall be made on both halves of the garment under examination, for example both sleeves.

7.3.1 *Jacket-like garments* (for example, dresses, coats, pullovers, pyjamas, shirts, vests)

The measuring positions are the following :

7.3.1.1 Length of neck-band.

7.3.1.2 Vertical length from lowest point of armhole to bottom of garment.

7.3.1.3 Vertical length of front from junction of shoulder seam and neck seam to bottom of garment.

7.3.1.4 Vertical length of centre back from neck to bottom of garment.

7.3.1.5 Length of underarm seam(s) from armhole to bottom of sleeve.

There may be two such seams if the sleeve is made from upper and lower sleeve sections : both shall be measured.

7.3.1.6 Length of shoulder seam from sleeve seam to neck.

7.3.1.7 Where applicable, the garment shall be folded as shown in figure 3 with the widest part of the bust section

along the fold. Measure along the fold between side seams, or between sleeve seams, or between panels, depending on the construction of the garment.

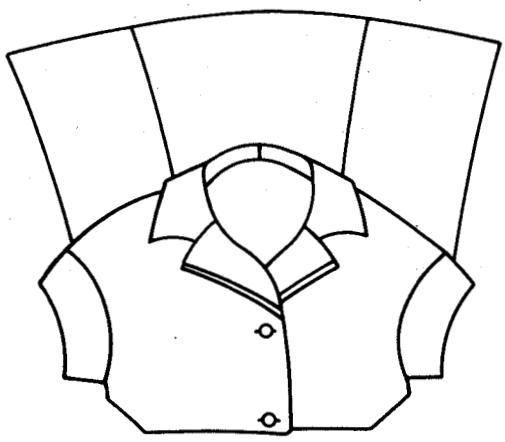


FIGURE 3 — **Method of folding garment**

7.3.1.8 Width across back between sleeve seams measured at a distance halfway between centre-back neck and lowest point of armhole, or width of yoke from sleeve seam to sleeve seam.

7.3.1.9 Width or circumference of garment at not more than three places at stated distances from the centre-back neck.

7.3.1.10 Width or circumference of sleeve from junction of side and sleeve seams at right angles to sleeve length.

7.3.1.11 Width from front sleeve seam junction with the body to the back sleeve seam junction with the body, as shown in figure 4.

FIGURE 4 — **Measurement described in 7.3.1.11**

7.3.1.12 Width or circumference of sleeve halfway between lowest point of armhole and bottom of sleeve.

7.3.1.13 Width or circumference at cuff or bottom of sleeve.

7.3.2 *Trousers* (for example, briefs, pants, swim trunks)

The measuring positions are the following :

7.3.2.1 Length from top to junction of leg seams at front.

7.3.2.2 Length from top to junction of leg seams at back.

If seams are curved, measure round the curves. If there is more than one seam, measure all seams.

7.3.2.3 Inside leg from crotch to bottom of leg.

If leg length is short, measure from the bottom of one leg to the bottom of the other leg via the crotch.

7.3.2.4 Width at, or circumference of, waist.

7.3.2.5 Maximum width or circumference between top and crotch.

7.3.2.6 Width or circumference of bottom of leg.

7.3.2.7 Width or circumference of leg halfway between crotch and bottom (omit if leg length is short).

7.3.2.8 Width or circumference of top of leg.

7.3.3 *Boiler suits (jump suits), coveralls, bib-and-brace overalls, combinations, one-piece swim suits*

These can be accommodated by combining the categories Jacket-like garments (7.3.1) and Trousers (7.3.2) but where applicable replacing sub-clause 7.3.1.3 with the following :

by length from centre-front neck to crotch seam or end of opening

and sub-clause 7.3.1.4 with the following :

by length from centre-back neck to crotch seam.

7.3.4 *Girdles*

The measuring positions are the following :

7.3.4.1 Length at a minimum of three places.

7.3.4.2 Width or circumference at top.

7.3.4.3 Width or circumference at bottom.

7.3.4.4 Width or circumference halfway down garment.

7.3.5 *Pantie-girdle categories*

These can be accommodated by combining the categories Trousers (7.3.2) and Girdles (7.3.4).