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# International Standard



# 7771

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## Textiles — Determination of dimensional changes of fabrics induced by cold-water immersion

*Textiles — Détermination des variations dimensionnelles des étoffes lors de leur immersion dans l'eau froide*

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**Descriptors:** textiles, fabrics, tests, immersion tests, dimensional stability tests.

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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. Each 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 7771 was prepared by Technical Committee ISO/TC 38, *Textiles*.

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# Textiles — Determination of dimensional changes of fabrics induced by cold-water immersion

## 1 Scope and field of application

This International Standard specifies a method for determination of the dimensional changes that occur when a fabric is subjected to immersion in cold water without agitation, and dried. It is applicable to fabrics which, in use, are subjected to cold water without agitation.

## 2 References

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

ISO 3759, *Textiles — Preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change*.

## 3 Definition

For the purposes of this International Standard, the following definition applies.

**dimensional change:** The change in dimensions taking place in either the lengthways or widthways direction when a specimen is soaked and dried without agitation under the prescribed conditions.

## 4 Principle

The specimen is cut from the sample and, after conditioning, is measured, soaked, dried under the prescribed conditions, reconditioned and remeasured. The dimensional changes are calculated in the lengthways and/or widthways directions.

## 5 Apparatus and reagents

**5.1 Watertight tray or container,** approximately 100 mm deep and of sufficient area to contain the specimen horizontally without folding.

**5.2 Steel rule,** graduated in millimetres.

**5.3 Means of marking reference points on the specimen,** as described in ISO 3759.

**5.4 Plate glass,** two pieces each measuring at least 600 mm × 600 mm and approximately 6 mm thick.

**5.5 Means of producing and maintaining the standard atmosphere for testing textiles** specified in clause 6.

**5.6 Sodium hexametaphosphate or sodium triphosphate.**

**5.7 Efficient wetting agent.**<sup>1)</sup>

## 6 Conditioning and testing atmospheres

Conditioning and testing shall be carried out according to ISO 139.

## 7 Test specimens

### 7.1 Number of specimens

Test at least one specimen taken from wide fabrics as specified in 7.2 and at least three specimens of narrow fabrics as specified in 7.3.

### 7.2 Specimens from wide fabrics

Cut each specimen at least 500 mm × 500 mm, free from creases, with the edges parallel to the lengthways and widthways directions respectively. Do not take any specimen within 1 m of either end of the piece and do not include selvages. For knitted fabrics, make up the specimens in double thickness, the free edges being sewn together with dimensionally stable thread. When fabrics with fancy weave structures are being tested, ensure as far as possible that exact numbers of repeats are taken in each test specimen.

Mark on the specimen three pairs of reference points in each direction (lengthways and widthways) with 350 mm between points that comprise a pair (see figure 1). No reference point shall be nearer than 35 mm to the edge of the specimen.

1) For example: sodium di-octyl sulpho-succinate or dodecyl benzene sodium sulphonate.

### 7.3 Specimens from narrow fabrics

Cut each specimen full width and at least 450 mm in length. Do not take any specimen within 1 m of either end of the piece.

Mark each specimen with one or more pairs of reference points according to fabric width as set out in figure 2. Ensure that each point is approximately 50 mm from the end of the specimen.

### 7.4 Means of marking specimens

Specimens shall be marked according to the procedure in ISO 3759.

### 7.5 Conditioning

Expose the specimen to the standard atmosphere for testing textiles for not less than 12 h.

### 7.6 Measuring

Lay the conditioned specimen free from tension on one of the pieces of plate glass (5.4) and place the other piece of plate glass over the specimen. Measure and record the distances between corresponding reference points to the nearest millimetre, taking care to avoid parallax errors.

## 8 Test procedure

**8.1** Soak the measured specimen, lying flat, for 2 h in the tray or container (5.1) containing water to which has been added 0,5 g/l of the efficient wetting agent (5.7) (calculated on active matter content). The water shall be at a temperature between 15 and 20 °C. The water should be of zero hardness or, alternatively, of not more than 5 parts/100 000 of calcium carbonate hardness to which sodium hexametaphosphate (5.6) has been added at the rate of 0,08 g/l per 1 part/100 000 of calcium carbonate. Ensure that the depth of liquid above the specimen is at least 25 mm. If necessary, keep the specimen submerged, for example by use of small weight pieces, ensuring that these are as small as possible.

**8.2** After 2 h, pour off the liquid and remove the specimen without distortion from the tray and place it flat on a towel. In this process, care is necessary in handling the specimen. The most convenient method is to fold the corners to the centre so that the whole specimen is supported when lifted onto the towel. Remove excess moisture by lightly pressing another towel on top of the specimen.

**8.3** Lay the specimen on a smooth flat surface and allow it to dry at a temperature of  $20 \pm 5$  °C.

NOTE — For thick, absorbent fabrics an excessive drying time may be required. Dry using any other convenient means, e.g. an open rack, and record the drying means used in the test report.

**8.4** Condition the specimen in the standard atmosphere for testing textiles until it reaches equilibrium and measure the distances between corresponding reference points as specified in 7.6.

## 9 Expression of results

Calculate the percentage change of each individual dimension and the mean percentage dimensional change in each direction. Record the mean dimensional changes to the nearest 0,1 %.

## 10 Test report

The test report shall include the following information:

- a) a statement that the procedure was conducted in accordance with this International Standard;
- b) whether the specimens were from wide or narrow fabrics and the number tested;
- c) the mean percentage change in dimensions in the lengthways and widthways directions for wide fabrics, and in the lengthways direction for narrow fabrics. Use a positive sign to indicate extension and a negative sign to indicate shrinkage;
- d) details of any deviation from the specified procedure.

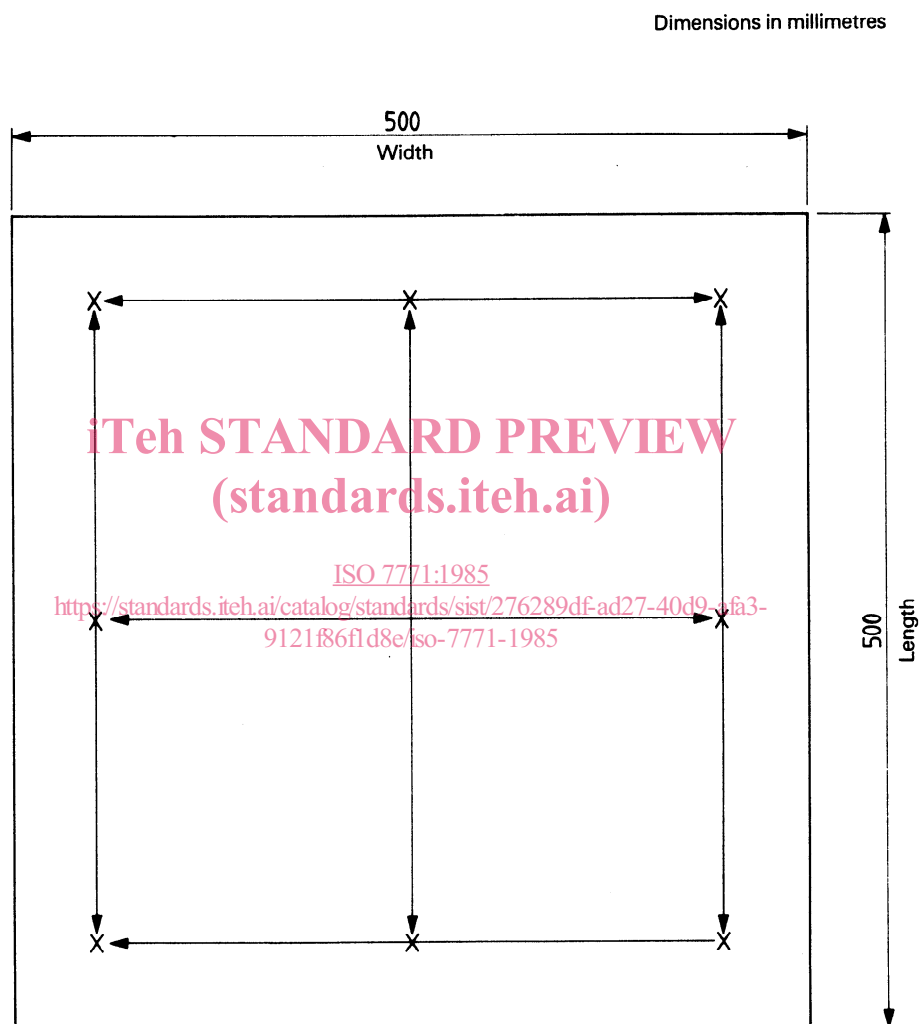
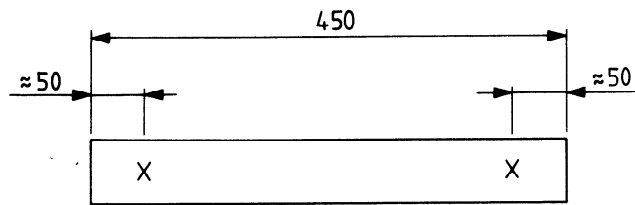


Figure 1 — Measurement points for marking the specimen from wide fabrics

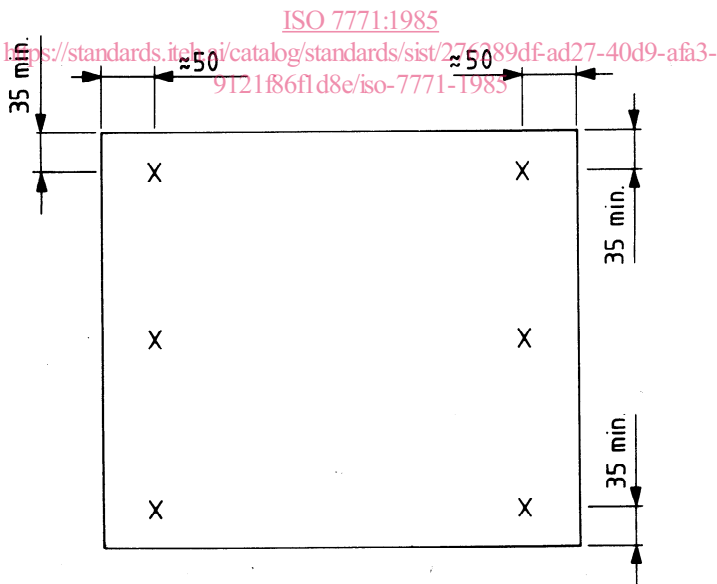
Dimensions in millimetres



a) Marking of specimen from fabrics of width less than 70 mm



b) Marking of specimen from fabrics of width from 70 to 250 mm



c) Marking of specimen from fabrics of width above 250 mm and below 450 mm

Figure 2 — Marking of specimens

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