

भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDARDS

Draft for comments only

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भारतीय मानक मसौदा

जाल बनाने के धागे — पानी में डुबाने के बाद लम्बाई में परिवर्तन ज्ञात करना

(आईएस 5815-6 का दूसरा पुनरीक्षण)

Draft Indian Standard

**Netting Yarns — Determination of Change in Length After Immersion in
Water**

(Second Revision of IS 5815-6)

ICS: 65.150 59.080.50

Textile Materials for Marine/Fishing Purposes
Sectional Committee, TXD 18

last date for receipt of comments is
February 2025

FOREWORD

(Formal clauses will be added later)

This Indian Standard is based on ISO 3090: 1974 'Netting yarns - Determination of change in length after immersion in water' issued by the International Organization for Standardization (ISO).

The length of the netting yarn changes after water absorption, which causes the change in mesh size and hence results in the deformation of netting yarn and fishing gear. Therefore, the determination of change in length after immersion in water is an important parameter for the netting yarns.

This standard was first published in XXXX and subsequently revised in 1974. The Second Revision of this standard is undertaken to adopt it as an indigenous standard as the corresponding ISO 3090: 1974 is withdrawn and also the determination of change in length after immersion in water is an important parameter for the performance of fishing gear.

In reporting the result of a test or analysis made in accordance with this standard, if the final value; observed or calculated, is to be rounded off, it shall be done in accordance with IS 2: 2022 'Rules for rounding off numerical values (*second revision*).

1 SCOPE

This Indian Standard describes a method of determining the change in length of netting yarns after immersion in water.

2 REFERENCES

The standards given below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS No.</i>	<i>Title</i>
IS 4640: 1993	Fishing nets — Designation of netting yarns in Tex system
IS 6359: 2023	Method for Conditioning of Textiles (<i>first revision</i>)

3 PRINCIPLE

Immersion in water, at a given temperature, of a length of netting yarn on which two marks have been made at a prescribed distance apart. Measurement of the change in length between the two marks.

4 APPARATUS

The apparatus shown in the figure below shall be used. It shall allow the measurement of a length of yarn of $1\ 000 \pm 1$ mm with an accuracy of 1 mm and the application of a tension by means of a weight suspended from one end of the yarn.

The most important components of the apparatus are:

- a) A hook or a clamp at one end to fasten the netting yarn to be tested;
- b) A free-turning pulley on the other end, on which the specimen is placed and tensioned;
- c) A measuring-scale graduated in centimetres and millimetres;
- d) Two double-indicator devices movable on a metal rod. The horizontal pointers give the measured value on the scale when the vertical pointers above them are in contact with the marks on the specimen.

Dimension in millimetres

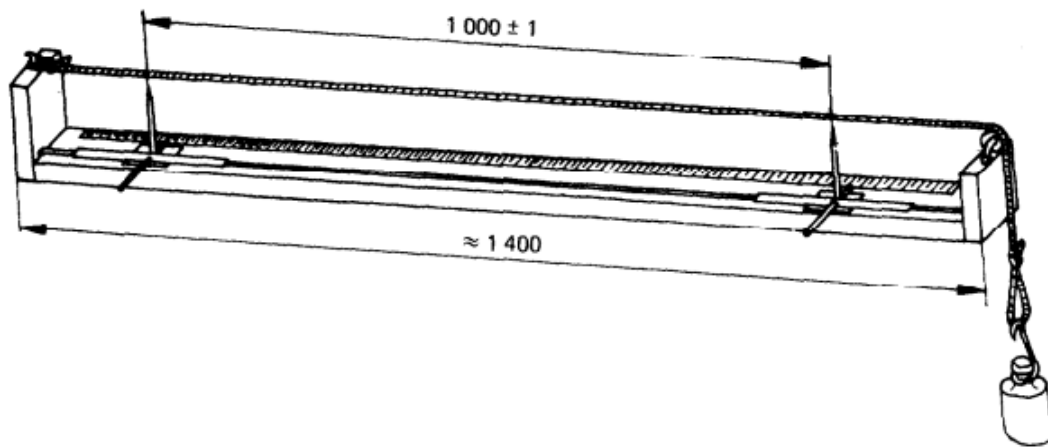


FIG. 1 – APPARATUS FOR DETERMINATION OF THE CHANGE IN LENGTH

5 SAMPLING

Sampling shall be carried out in accordance with recognized national standards or in a manner agreed between the interested parties.

6 PREPARATION OF SPECIMENS

6.1 The specimens shall be removed from the package or the netting, before exposure in the standard atmosphere, in such a manner that there is no alteration in the construction.

6.2 The netting yarn shall be cut in pieces of appropriate length for the measuring apparatus (*see* clause 4). The ends of each length shall be melted or knotted.

6.3 The single pieces of netting yarn to be measured shall be taken at random from the package or the netting.

7 TESTING REQUIREMENTS

7.1 Atmosphere for Testing

Before immersion in water, the specimens shall be exposed for a period of 24 h to one of the standard atmospheres for testing specified in IS 6359.

7.2 Testing in the Wet State

7.2.1 All specimens to be tested in the wet state shall be immersed in tap water, without wetting agents, at a temperature of $27 \pm 2^\circ\text{C}$ for a period of not less than 12 h.

7.2.2 By agreement between the interested parties, a shorter wetting time with the addition of a wetting agent may be used.

7.3 Distance Between Marks

The distance between the marks on the specimen shall be 1000 ± 1 mm.

7.4 Tension

The tension used for all measurements shall correspond to the weight of 250 ± 25 m of the netting yarn to be tested. The tension shall be constant for all specimens taken from any one sample and shall be applied in such a manner that sudden tautening of the yarn is avoided.

8 NUMBER OF TESTS

Not less than five specimens of each sample shall be tested. If a distinct confidence interval for the mean value is prescribed, as many additional tests are to be carried out as are necessary to secure this confidence interval.

9 PROCEDURE

9.1 Take precautions to ensure that the construction of the specimen is not altered during all handling and measuring of the specimens.

9.2 Fasten one end of the conditioned specimen of the netting yarn of sufficient length to the hook or grip of the apparatus and hang the weight at the other end (*see* the figure).

9.3 Indicate the length to be measured on the specimens by two marks, $1\ 000 \pm 1$ mm apart. Measure the distance between the marks on each specimen to an accuracy of ± 1 mm and record the result (*A*).

9.4 Immerse each specimen in water (*see* 7.2) and remeasure the distance between the marks immediately after removal from the water to an accuracy of ± 1 mm and record the result (*B*).

9.5 Dry the specimens for 24 h freely suspended in the standard atmosphere for testing. Measure again the distance between the marks on each specimen to an accuracy of ± 1 mm and record the result (*C*).

10 CALCULATION AND EXPRESSION OF RESULTS

Calculate the arithmetic mean of the recorded measurements at each stage (*A*, *B* and *C*) and designate the means as A_1 , B_1 , and C_1 . Using these arithmetic means, calculate the changes in

length caused by wetting ($A_1 - B_1$) and by drying again ($C_1 - A_1$). In each case, express the changes in length as percentages of the initial mean conditioned length (A_1).

11 TEST REPORT

The test report shall include the following particulars:

- a) A statement that the tests were performed in accordance with this International Standard;
- b) Date of the test;
- c) Type and designation of the netting yarn, according to IS 4640;
- d) The number of specimens tested;
- e) The average changes in length caused by wetting ($A_1 - B_1$) and drying again ($C_1 - A_1$), measured both in the wet state and in the dried state, expressed as percentages of the initial distance between the marks (A_1);
- f) If required, the coefficient of variation of the dimensional changes and the confidence interval.