भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDRADS

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भारतीय मानक मसौदा

मत्स्य जाल — छिद्र का साइज ज्ञात करने की परीक्षण पद्यति — जाल की लम्बाई

(आईएस 15789 का *पहला पुनरीक्षण*)

Draft *Indian Standard*

Fishing Nets — Method of Test for The Determination of Mesh Size — Length of Mesh

(*First Revision* of IS 15789)

ICS: 65.150

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)

The accurate determination of mesh size is important to ensure the effectiveness of mesh to capture target species, thereby promoting sustainable fishing practices. Moreover, determination of the length of mesh is essential for maintaining the integrity of fishing equipment, helping manufacturers produce nets that meet industry standards for both strength and functionality.

This standard is based on ISO 16663-2: 2003 'Fishing nets — Method of test for the determination of mesh size — Part 2: Length of mesh'.

This standard was first published in 2008 and has been revised to align with the technical corrigendum of ISO 16663-2:2003/Cor.1:2005.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2:2022 'Rules for rounding off numerical values (*second revision*).' The number of significant places retained in the rounded-off value should be the same as that of the specified value in this standard.

1 SCOPE

This standard specifies a method for the determination of mesh length of fishing nets using a ruler. It is applicable to passive as well as active fishing gears.

2 REFERENCES

The following standards 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:

IS No.	*Title*
IS 4402: 2020/ISO 1107: 2017	Fishing Nets — Netting — Basic Terms and Definitions (*Third Revision*)
IS 6359: 2023	Method for Conditioning of Textiles (*First Revision*)

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

3.1 Passive Fishing Gear — Fishing gear requiring action of the fish to catch it.

NOTE — Mostly stationary equipment often, but not always. anchored at the seabed. Gill nets and entangling nets are examples of passive gears.

3.2 Active Fishing Gear — A fishing gear requiring movement to catch the fish.

NOTE — In general a mobile fishing equipment (that is mobile relative to the ground or water column) led into the path of the fish to pursue and catch it. All trawls, dredges, seine nets, purse seines and other surrounding nets are examples of active gears.

3.3 Gill Net — Panel of netting usually of rectangular shape, made of thin netting material in which fish is caught in the meshes. The net is suspended vertically in the water by floats and sinkers.

NOTE — The net is held vertically in the water by floats and weights. for example, drift net, set gill net.

3.4 Entangling Net — Loosely hung vertical net that catches fish by entangling rather than enmeshing.

3.5 Trammel Net — Set/drift net which is made with three walls of netting with two outer walls of larger mesh size and a loosely hung inner netting panel.

NOTE — The fish gets entangled in the inner small meshed wall after passing through the outer wall and push themselves into the second outer wall. thus forming a pouch.

3.6 Mesh Length— For knotted netting, it is the distance between the centers of two opposite knots in the same mesh when fully extended in the N- direction. For knotless netting, it is the distance between the centres of two opposite joints in the same mesh when fully extended along its longest possible axis.

3.7 Mesh Side length: Distance between two sequential knots or joints, measured from center to center when the yarn between those points is fully extended. This is also referred to a "half mesh".

4 PRINCIPLE

The netting, in both dry and wet states, is manually straightened in the N-direction. The mesh length is measured with a ruler.

5 REQUIREMENTS FOR TESTING

5.1 Atmosphere for Testing

All specimens to be tested in the dry state shall be exposed to the standard atmosphere for testing specified in IS 6359, until they have reached equilibrium.

NOTE — For netting of man-made fibres, a period of 24 h exposure is generally sufficient. Where it is not possible to carry out the tests in the standard atmosphere the tests shall be carried out immediately after removal of the sample from the standard atmosphere.

5.2 Testing in the Wet State

Specimens to be tested in the wet state shall either be:

a) immersed in tap water of 20 ± 2°C for not less than 12 h; or
b) immersed in a solution of wetting agent at a temperature of 20 ± 2°C for not less than 1 h.

6 PROCEDURE

6.1 Straighten the netting manually in the N-direction. Using a ruler, measure the distance from the first knot or joint exclusive to the eleventh sequential knot or joint inclusive with an accuracy of 1 mm (as shown in Figure 1, the symbol 'X' represents a knot). The mesh length is obtained by dividing the measured length by 5.

6.2 At least 10 single measurements from different parts of netting shall be carried out. unless otherwise agreed between the interested parties.

XI-X-X-X-X-X-X-X-X-X-XI

FIG. 1 MEASURING THE MESH LENGTH

7 CALCULATION AND EXPRESSION OF RESULTS

7.1 Record the mesh length, in millimetres, for each measurement.

7.2 Calculate the average size of mesh length determined in accordance with 6 and rounded up to the next millimetre.

7.3 Calculate the coefficient of variation and the confidence interval.

8 TEST REPORT

The test report shall include the following:

a) Statement that the tests were performed in accordance with this Indian Standard;
b) Date of the test;
c) Description of the netting including the material and the type of yarn (twisted, or braided), the type of netting (knotted or knotless), the mesh size, the nominal linear density of the netting material as per IS 4402;
d) Average size of length of the mesh in millimetre;
e) Number of measurements;
f) State of the netting (dry or wet);
g) Coefficient of variation and the confidence interval; and
h) Any deviation from the specified test procedure.

ANNEX A
(*Foreword*)
METHOD SUITABLE FOR ALL ENVIRONMENTAL CONDITIONS

A-1 The method of test for the determination of the mesh opening is drawn upon International legislation for the purpose of fisheries inspection [for example Commission Regulation (EEC) No. 129/2003 of 24 January 2003 laying down detailed rules for determining the mesh size of fishing nets]. Recently the methodology using the flat wedge gauge has been questioned. The method is considered as not sufficiently precise and objective, especially when using hand force to operate the mesh gauge.

The present standard has taken account of the criticism towards the wedge gauge by giving a more precise description of the mesh gauges and by using a weight only to exert the measuring force. The method described in the standard is appropriate for the determination of the mesh

opening under controlled laboratory conditions but it is considered as being less suitable for use at sea.

It is the intention to modify the present standard as soon as a method suitable for all environmental conditions becomes available.