UDC 677.061 : 677.66 : 639.2.081.11 : 620.1

Ref. No. : ISO/R 1805-1970 (E)

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 1805

FISHING NETS

METHOD OF DETERMINING THE BREAKING LOAD AND KNOT BREAKING LOAD OF NETTING YARNS FOR FISHING NETS

1st EDITION

August 1970

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 1805, *Fishing nets – Method of determining the breaking load and knot breaking load of netting yarns for fishing nets,* was drawn up by Technical Committee ISO/TC 38, *Textiles,* the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question led to the adoption of Draft ISO Recommendation No. 1805, which was circulated to all the ISO Member Bodies for enquiry in March 1969. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Belgium	Iran	Spain
Brazil	Israel	Sweden
Czechoslovakia	Netherlands	Switzerland
Denmark	New Zealand	Turkey
France	Norway	U.A.R.
Germany	Peru	United Kingdom
Greece	Poland	U.S.S.R.
Hungary	Portugal	
India	South Africa, Rep. of	

No Member Body opposed the approval of the Draft.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

ISO Recommendation | R 1805 | August 1970

FISHING NETS

METHOD OF DETERMINING THE BREAKING LOAD AND KNOT BREAKING LOAD OF NETTING YARNS FOR FISHING NETS

1. SCOPE

This ISO Recommendation deals with the method of testing the breaking load and knot breaking load of netting yarns for fishing nets.

Tests may be carried out in both the dry and wet state, but tests in the wet state on the knotted yarn are considered to be particularly appropriate in indicating the behaviour of the yarn in use.

2. DEFINITIONS*

2.1 *Breaking load.* The breaking load, equal to the maximum load observed during a breaking test. Distinction is made between

- the dry yarn breaking load;
- the wet yarn breaking load;
- the dry knot breaking load;
- the wet knot breaking load.

2.2 *Load at rupture.* The final load at the moment that the specimen or the first component of the specimen breaks at, or after, the breaking load has been reached. The load at rupture is usually, but not always, identical with the breaking load.

2.3 *Tenacity.* The breaking load per unit resultant linear density of the unstrained specimen in the conditioned state.

2.4 *Breaking length.* The calculated length of a specimen whose conditioned weight exercises a force equal to its breaking load. It is expressed in kilometres and, when calculated in kgf units, is numerically equal to the tenacity calculated in gf units. If the calculations employ decanewtons and centinewtons respectively, the values obtained for both parameters, although equivalent, will be approximately 2 % lower, so that the value for breaking length will be slightly less than the traditional theoretical value.

2.5 *Time-to-break.* The time, in seconds, taken to reach the breaking load, measured from the moment of application of the load.

3. PRINCIPLE

A length of yarn is extended in the dry or wet state until it reaches the load at rupture. The test is performed using a suitable apparatus that records or indicates the applied load.

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* Symbolic abbreviations of the parameters defined have been omitted pending discussion of the general subject by Technical Committee ISO/TC 38.

4. APPARATUS

4.1 *Tensile testing machine.* Any of the following types may be used :

(*a*) constant rate of elongation machine;

(*b*) constant rate of load machine;

(*c*) constant rate of traverse machine.

Preference should be given to a constant rate of elongation machine.

4.1.1 All tensile testing machines should include a pair of suitable devices to hold the specimen, a means of loading or elongating the specimen at suitable rates, and a load indicating mechanism which will indicate or continuously record the load applied to the specimen.

For determining the breaking load of knotless netting yarns, the specimens should be mounted in special holding devices, for example of the types shown in Figure 1, to avoid slipping of the specimens or breaking due to damage caused by the holding devices.

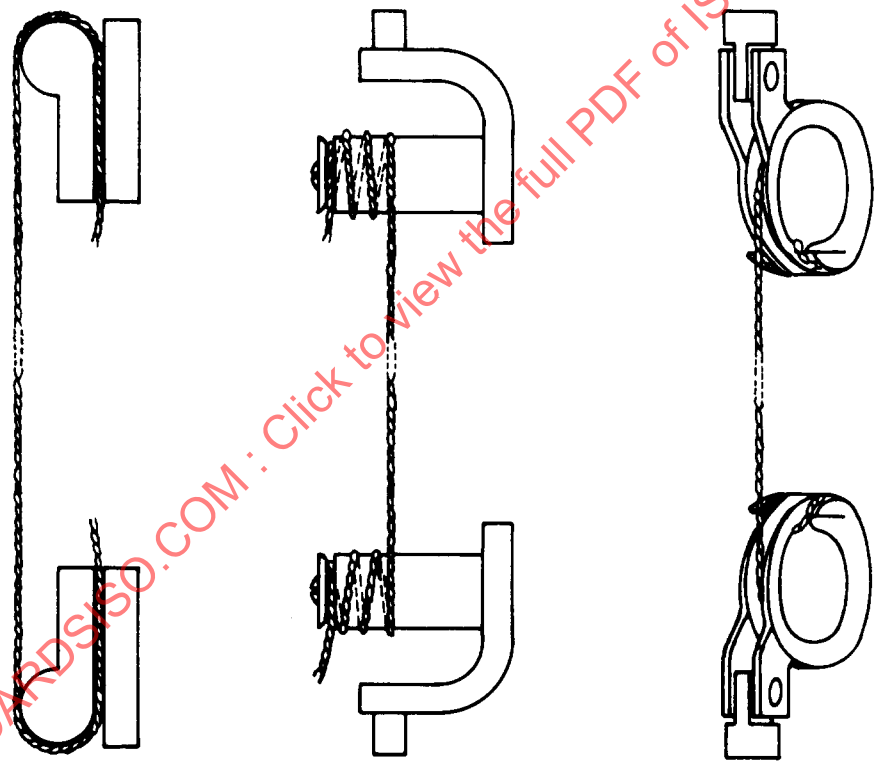

FIG. 1 – **Holding devices for the testing of netting yarns without knots**

4.1.2 The maximum error of the indicated load at any point in the range in which the machine is used should not exceed ± 1 %. Check the accuracy of the graduated scale of the apparatus dynamically, for example by means of calibrated springs of appropriate characteristics.

4.1.3 The testing machine should be capable of testing specimens having a nominal gauge length of at least 250 mm.

4.1.4 All testing machines should include facilities for producing different rates of loading in order to break specimens in the specified average time-to-break.

4.2 *Equipment for producing and maintaining the standard atmosphere for testing* (see clause 7.1).

4.3 *Equipment in which specimens can be immersed in water* preparatory to wet testing.

4.4 *Stop-watch* or *interval timer.*

5. SAMPLING

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

6. PREPARATION OF SPECIMENS

The specimens should be removed from the package before exposure in the standard atmosphere, or before immersing in water, in such a manner that there is no alteration in the twist.

7. REQUIREMENTS FOR TESTING

7.1 Atmosphere for testing

All specimens to be tested in the dry state should be exposed to the standard atmosphere for testing described in ISO Recommendation R 139*, *Standard atmospheres for conditioning and testing textiles*, until they have reached equilibrium. For netting yarns of man-made fibres, a period of 24 hours exposure is generally sufficient. Where it is not possible to carry out the tests in the standard atmosphere, the tests should be carried out immediately after removal of the samples from the standard atmosphere.

7.2 Testing in the wet state

7.2.1 All specimens to be tested in the wet state should be immersed in tap water, without wetting agents, at a temperature of 20 ± 2 °C for a period of not less than 12 hours. Surplus water should be shaken off.

7.2.2 By agreement between the parties, a shorter wetting time with the addition of a wetting agent may be used. The specimens are immersed for 1 hour in a solution of wetting agent in water at a temperature of 20 ± 2 °C. A shorter time of immersion is allowed, if it can be shown that the specimen is completely wetted in less than 1 hour.

7.3 Distance between the holding devices

The free length of the sample between the holding devices must be at least 250 mm.

7.4 Time-to-break

The mean duration of test should be 20 ± 3 seconds. It should be determined by preliminary tests. Where this time cannot be obtained due to limitations of the apparatus and/or the holding devices, the duration of the test may be 30 ± 3 seconds or 60 ± 6 seconds. This should be recorded in the test report.

8. NUMBER OF TESTS

At least 20 single valid tests on each sample package should be carried out. If a distinct confidence interval for the main value is prescribed, as many additional tests should be carried out as necessary to secure this confidence interval.

* 2nd edition – 1967.

9. TEST PROCEDURE

9.1 General

9.1.1 Check that the distance between the holding devices is at least 250 mm (see clause 7.3).

9.1.2 Mount the specimen in the testing machine so that the axis of the specimen is parallel and coincidental to the direction of the applied force.

9.1.3 Wet samples should be tested immediately after removal from the water (see clause 7.2.1).

9.1.4 Apply the force to reach the prescribed mean time-to-break.

9.1.5 Discard all observations obtained on specimens which slip between the holding devices or break due to damage caused by the holding devices. The number of observations discarded as directed above should be noted.

9.1.6 If any component breaks before the breaking load is reached, this fact should be recorded in the test report.

9.2 Knotted netting yarns in the dry and wet state

9.2.1 All knots should be made immediately before testing and gently tightened by hand. Precautions should be taken to ensure that the twist is not altered.

9.2.2 Specimens should be tested with the weaver's knot. All four ends of the weaver's knot should be fastened in the holding devices. Each holding device holds the two ends of the same yarn of approximately the same length (see Fig. 2).

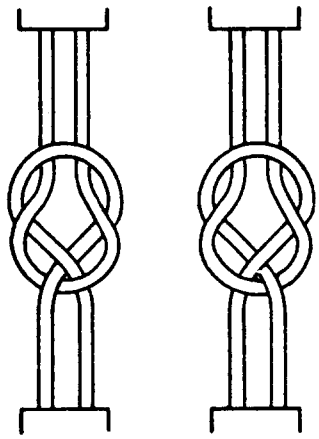

FIG. 2 – **Weaver's knot**

9.2.3 If a sample does not break at the knot, this test should be discarded.