

Methods of test for

Cordage and webbing slings and for fibre cores for wire ropes

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- Chief and Assistant Chief Fire Officers' Association
- Cordage Manufacturers' Institute
- Department of Industry (National Engineering Laboratory)
- Federation of Wire Rope Manufacturers of Great Britain
- Greater Manchester Council Fire Service
- Ministry of Defence

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Foreword

This revision of BS 5053 has been prepared under the direction of the Textiles and Clothing Standards Committee. BS 5053 is a collection of test methods for use in British Standard specifications for various types of textile load bearing and cordage articles and was first published in 1974. This revision further extends the methods of test described, particularly the tests for webbing slings and supersedes BS 5053:1974 which is withdrawn.

The Technical Committee has reviewed the provisions of ISO 2307, published by the International Organization for Standardization (ISO) during preparation of this revision and while there is no substantial technical conflict between the two documents BS 5053 is much wider in scope.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 18, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Section 1. General

1 Scope

This British Standard describes methods of testing and the rate of sampling for cordage (see clause 2) made from either natural or man-made fibres, webbing slings made from man-made fibres and natural or man-made fibre cores for wire ropes.

NOTE 1 The testing of twines and cords for and in fishing nets is not covered in this standard. The testing of these materials is described in BS 4650 and BS 4674.

NOTE 2 The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this British Standard the definitions given in BS 3724 apply together with the following.

2.1

cordage

a load bearing article made by assembling fibres or filaments with twisting or plaiting, including twines, cords, lines and ropes

NOTE Fibre cores for wire ropes while not load bearing articles are included within this definition.

2.2

batch

the definite quantity of a commodity manufactured or produced under conditions that are presumed uniform, consisting of articles of the same type and dimensions

2.3

package

the unit of packaging in which the goods are supplied

2.4

webbing sling

a sling consisting of a narrow woven fabric generally of coarse weave and multiple plies, sometimes terminated in end fittings, the prime function of which is load bearing

2.5

representative sling

one of a production batch of slings having the same webbing type, material, strength and width, the same stitch pattern and the same end fittings (if any), but not necessarily the same length

3 Sampling

3.1 General

Determine the number of samples required in accordance with 3.2 to 3.6 and take the samples from the batch at random.

3.2 Ropes, natural and man-made fibre, 4 mm diameter and above

Determine the number of sample lengths of rope S by the equation:

$$S = 0.4 \sqrt{N}$$

where

N is the size of the batch expressed as the number of 220 m coils.

Where S as calculated is not a whole number, round the value obtained to give a whole number as described in BS 1957. In cases where $S < 1$, take one sample length.

For coils other than 220 m in length, N is the total length of the coils in metres, divided by 220.

Use a sample of sufficient length for all tests to be carried out.

3.3 Fibre cores for wire ropes

Except for retests, take no more than one sample per coil from the batch of coils. If the number of coils taken for test is smaller than the number comprising the batch, ensure that the samples are representative of the batch.

Take the test sample from the coil in such a manner that the lay is not disturbed. Discard the first 5 m from the outer end of the coil, then remove the appropriate sample length. In cases of dispute, place the coil upon a turntable for the purpose of obtaining the sample.

Use a sample at least 4 m long.

NOTE Separate sampling procedures required for the determination of water, core lubricant and salt contents are given in clauses 16 and 18.

3.4 Twines, cords and lines, other than agricultural baler twines, below 4 mm diameter

Take not more than one sample from each package. Determine the number of sample lengths S by the equation:

$$S = 0.25 \sqrt{N}$$

where

N is the size of the batch in number of packages.

Where S as calculated is not a whole number, round the value obtained to give a whole number as described in BS 1957. In cases where $S < 1$, take one sample length.

For natural fibre products of runnages¹⁾ of 1 000 m/kg and less (1 000 tex²⁾ and above), and for man-made fibre products of runnages of 450 m/kg and less (2 220 tex and above), use a minimum sample length of 10 m. For runnages in excess of either 1 000 m/kg or 450 m/kg use a minimum sample length of 20 m.

3.5 Agricultural baler twine

Take not more than one sample per spool. Determine the number of spools sampled S by the equation:

$$S = 0.25 \sqrt{N}$$

where

N is the number of spools in the batch.

Where S as calculated is not a whole number, round the value obtained to give a whole number as described in BS 1957. In cases where $S < 1$, take a minimum of one sample.

Discard the first 10 m from the centre of the spool, then remove the appropriate sample length from the centre of the spool, taking care to preserve the twist in the twine. For sisal twines, take a length of not less than 30 m, and for polypropylene fibrillated film twines a length of not less than 10 m.

3.6 Webbing slings made from man-made fibres

Test at least one representative sling for every 250 slings of similar type produced.

4 Conditioning

Conduct all tests under ordinary room conditions of temperature and humidity. In all cases of dispute, however, conduct the tests on samples which have been conditioned for 48 h in the standard atmosphere for testing as defined in BS 1051, i.e. relative humidity of $65 \pm 2\%$ and temperature of $20 \pm 2^\circ\text{C}$. Conduct tests either in this atmosphere or within 15 min of removing the specimens from the standard atmosphere for testing.

NOTE It is preferable to conduct tests in the standard atmosphere for testing unless this is impracticable.

¹⁾ Systems used to express runnage may be found in the individual product specification.

²⁾ The tex system for designating linear density is described fully in BS 947.