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ROPES AND CORDAGE

VOCABULARY

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BRIEF HISTORY

The ISO Recommendation R 1968, *Ropes and cordage – Vocabulary*, 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. 1968, which was circulated to all the ISO Member Bodies for enquiry in April 1970. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Greece	Spain
Belgium	India	Sweden
Brazil	Iran	Switzerland
Czechoslovakia	Israel	Thailand
Denmark	Korea, Rep. of	Turkey
Finland	Netherlands	U.A.R.
France	Norway	United Kingdom
Germany	South Africa, Rep. of	U.S.S.R.

The following Member Body opposed the approval of the Draft :

New Zealand

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 1968 May 1971

ROPES AND CORDAGE

VOCABULARY

1. SCOPE

This ISO Recommendation defines terms relating to ropes and cordage. These terms are, in particular, for use in the drafting of other ISO Recommendations dealing with specification or testing of ropes.

General terminology for the textile industry and terms defining specific ropes for the fishing industry, for agriculture, for marine use, etc. are not covered by this document.

2. GENERAL TERMS

2.1 Flat filament

A relatively narrow continuous strip, obtained by cutting or spinning, of a material suitable for textile use, the thickness of which is slight in relation to the width.

In ropemaking, the filament can be used flat or twisted; generally it is used after fibrillation.

2.2 Twine

Product consisting of one or more yarns twisted or wound to form a structure of continuous length.

- A twine composed of a single yarn is known as "monofilament" or "simple yarn".
- A twisted twine is composed of two or more yarns twisted together.
- A cabled twine is composed of two or more yarns cabled together.

2.3 Cabled yarn

Two or more folded yarns (or alternatively folded and single yarns) twisted together in one or more folding operations.

NOTE. – In the ropemaking and fishing industries, a cabled yarn is generally made of single filaments twisted together, each receiving an additional twist during the twisting operation, which is known as "cabling".

2.4 Strand

Product obtained by joining and twisting together several yarns or groups of yarns twisted together.

2.5 Rope

Textile product not less than 4 mm diameter, generally consisting of three or four strands cabled or plaited together, with or without a core. Three-strand cabled ropes are usually without a core; four-strand cabled ropes usually have a central core.

2.6 Hawser

A rope generally of a diameter of more than 40 mm (equivalent to a circumference of 5 in) mainly used for the mooring of ships.

2.7 Cable laid rope

A product consisting of several ropes cabled together in the opposite direction to that of the constituent ropes.

2.8 Eight-strand plaited rope

A rope of which the strands are generally plaited in pairs, and mainly used for marine purposes.

2.9 Core

Textile product (yarn, strand, small diameter rope, etc.), placed generally along the axis of the rope and serving as a support for the strands.

2.10 Combined rope

A rope, with or without a central core, consisting of several strands each of which is itself formed from a combination of natural fibre or synthetic fibre yarns and steel wires, the wires being either galvanized or ungalvanized as required by the customer.

2.11 Mountaineering rope

A rope made from the highest grades of natural fibres or from man-made textile fibres of high breaking energy.

2.12 Knot rope

A rope or cable generally consisting of long-fibred hemp (with the exclusion of tow) and having along its whole length a succession of single knots, regularly spaced.

2.13 Bolt rope

A flexible three-strand rope of which the length of lay is longer than that of ordinary ropes.

2.14 Spun yarn

A twine consisting of two or three twisted yarns, twisted together, each having a linear density of about 5 ktex, usually tarred, and used for tying.

2.15 Marline

A flexible twine consisting of two twisted yarns, twisted together, each having a linear density of about 2.5 ktex, usually tarred, and used for tying.

2.16 Houseline

A flexible twine consisting of three twisted yarns, twisted together, each having a linear density of about 2.5 ktex, usually tarred, and used for tying.

2.17 Lashing rope

A rope intended for joining together two or more objects such as a scaffolding at the points of intersection. The rope is also used for securing loads to a firm base, for example the load on a lorry or deck of a vessel, etc.

2.18 Coated rope

A rope covered along its whole length with a product intended to improve its performance or to provide it with resistance to abrasion.

2.19 Dipped rope

A rope of which all the components (yarns, groups of yarns, strands) have been treated with a so-called impregnating product intended to confer special characteristics to the rope.

3. TERMS RELATING TO ROPE CHARACTERISTICS AND THEIR MEASUREMENT

3.1 Linear density

Mass per unit of length*.

For ropes, the linear density is generally expressed in kilotex (mass in kilogrammes per 1000 m, or mass in grammes per metre); it is measured under a tension defined for each type of rope.

3.2 Twist

The twist of a yarn is characterized by the direction of twist** of the finished yarn and by the number of turns per metre.

3.3 Angle of lay

The angle of inclination formed by the strands with the axis of the rope. It may be expressed by its tangent (ratio of the product of diameter and π to the lay).

3.4 Lay

The length of one complete turn or between two successive plaiting points of the same strand, measured parallel to the axis of the rope.

The lay is expressed in millimetres.

3.5 Diameter (of a rope under tension)

The diameter of the circle circumscribed about the cross-section of the rope, measured under a given tension and by an accepted method.

This definition does not apply to 8-strand plaited ropes.

3.6 Tension for measurement

The force applied to the rope at the moment of measurement of its main characteristics (linear density or net mass per metre, diameter). This tension is defined for each type and dimension of rope.

3.7 Breaking load

The maximum force which the rope (or cordage) is able to support during the tensile breaking test.

3.8 Breaking factor

The coefficient (Cr) characterizing the quality level of the rope insofar as the breaking load is concerned. It is given by the formula

$$Cr = \frac{R}{m}$$

where

R is the breaking load in decanewtons or kilogrammes-force;

m is the linear density in kilotex (or net mass in grammes per metre).

3.9 Realization factor

A factor for the calculation of the breaking load of a rope on the basis of the breaking load of its constituent parts.

3.10 Safety factor

The factor by which the breaking load of the rope must be divided in order to determine its safe working load.

3.11 Safe working load

The maximum load to which a rope may be subjected; it is a function of the fixed safety factor.

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* Definition in agreement with ISO Recommendation R 1144, *Textiles – Universal system for designating linear density (Tex System).*

** The indication of the direction of twist should be in accordance with the specifications of ISO Recommendation R 2, *Designation of the direction of twist in textile yarns and related products.*