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Tråd och trådprodukter av stål – Cordtråd

Steel wire and wire products – Bead wire

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EUROPEAN STANDARD

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EN 10323

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ICS

English version

Steel wire and wire products - Bead wire

Fils et produits tréfilés en acier - Fil pour tringle

Stahldraht und Drahterzeugnisse - Reifeneinlegedraht

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 10323:2004) has been prepared by Technical Committee ECISS/TC 30 “Steel wire”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2005, and conflicting national standards shall be withdrawn at the latest by March 2005.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This document specifies composition, dimensions and mechanical properties of round and flat wire used for strengthening the bead of all kinds of tyres.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10002-1, *Metallic materials — Tensile testing — Part 1: Method of test at ambient temperature*

EN 10016-1, *Non-alloy steel rod for drawing and/or cold rolling – Part 1: General requirements*

EN 10016-2, *Non-alloy steel rod for drawing and/or cold rolling – Part 2: Specific requirements for general purposes rod*

EN 10016-4, *Non-alloy steel rod for drawing and/or cold rolling – Part 4: Specific requirements for rod for special applications*

EN 10021, *General technical delivery requirements for steel and iron products*

EN 10204, *Metallic products — Types of inspection documents*

EN 10218-1, *Steel wire and wire products — General – Part 1: Test methods*

EN 10218-2, *Steel wire and wire products — General – Part 2: Wire dimensions and tolerances*

EN 10244-1, *Steel wire and wire products – Non-ferrous metallic coatings on steel wire – Part 1: General principles*

CR 10261, *ECISS Information circular 11 – Iron and steel – Review of available methods of chemical analysis*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
nominal diameter: *d*
value of the diameter, expressed in millimetres, by which the wire is designated and specified by the purchaser

NOTE This is the basis on which the values of all relevant characteristics are determined for the acceptance of the wire

3.2
actual diameter
arithmetic mean of two measurements of the diameter at right angles determined at any cross-section

3.3
out of roundness
arithmetic difference between the maximum and minimum diameters measured in a transverse cross-section perpendicular to the wire axis

4 Classification

Bead wire is classified according to tensile strength. It is supplied in two classes of tensile strength:

— NT: Normal tensile strength;

— HT: High tensile strength.

5 Designation and ordering

5.1 Designation

For products supplied in accordance with this document, the designation shall state in the following order:

— the term: bead wire;

— for flat wire after the term bead wire: flat;

— the coating: see **6.1.3**;

— the number of this document;

— for flat wire the dimensions expressed as width x thickness: 3 x 1,5;

— the tensile strength class (see **4**);

— for round wire the nominal diameter.

EXAMPLE Bronze coated bead wire 1,295 mm high tensile strength conforming to EN 10323 shall be designated:

Bead wire bronze coated EN 10323 HT 1,295.

5.2 Information to be supplied by the purchaser

The purchaser shall clearly state in his enquiry or order the product and following information:

— for round wire the nominal diameter;

— the desired quantity;

— the unit and type of delivery;

— if cumar residue coating is required (see **6.1.3**);

— if an adhesion test is required and if so what kind of adhesion test (see **6.4.3**);

— the type of inspection document (see **7.1**).

EXAMPLE 20t bead wire bronze coated EN 10323 HT 1,295 on spools of ca. 450 kg doc. EN 10204 – 3.1 B.

6 Requirements

6.1 Material

6.1.1 Steel

The wire shall be manufactured from steel rod conforming to EN 10016-1 and EN 10016-2 for tensile strength NT and conforming to EN 10016-4 for tensile strength HT.

6.1.2 Chemical composition

The chemical composition according to the heat analysis shall conform to the limit values given in Table 1. The permissible deviation of the product analysis from the heat analysis shall be in accordance with EN 10016-2 and EN 10016-4.

Table 1 — Chemical composition (% by mass)

Tensile strength	C	Si	Mn	P max.	S max.
NT	0,60 to 0,75	0,15 to 0,30	0,40 to 0,70	0,035	0,035
HT	0,65 to 0,85	0,15 to 0,30	0,40 to 0,60	0,020	0,025

Unless otherwise agreed at the time of enquiry and order, the choice of a suitable physical or chemical method of analysis for the determination of the product analysis shall be at the discretion of the supplier.

In cases of dispute the analysis shall be carried out by a laboratory approved by the two parties. The method of analysis to be applied shall be agreed upon, if possible, in accordance with CR 10261.

6.1.3 Metallic coating

Round wire shall be supplied with one of the following coatings: brass, bronze 1 or bronze 2. In addition, the purchaser may specify the application of a cumar residue coating (see **5.2**). Flat bead wire shall be supplied only as brass coated. The chemical composition of the coating shall be in accordance with Table 2.

Table 2 — Chemical composition of the coating (% by mass)

Coating material	Cu	Sn	Zn
Brass	67 to 77	-	23 to 33
Bronze	≥ 97	≤ 3	-
NOTE Bronze 1: Low coating thickness. Bronze 2: Higher coating thickness.			

6.2 Mechanical properties

6.2.1 Tensile strength

6.2.1.1 Tensile test results

Indicative tensile strength values are given in Table 3.