



**International
Standard**

ISO 14811

**Ultra-low carbon high boron steel
wire rod for copper clad wire**

*Fil machine en acier à haute teneur en bore et à très faible teneur
en carbone pour les fils gainés de cuivre*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 17, *Steel wire rod and wire products*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Ultra-low carbon high boron steel wire rod for copper cladded wire

1 Scope

This document specifies requirements for ultra-low carbon high boron steel wire rod for copper cladded wire, mainly used in telecommunication cable (hereinafter referred to as wire rods). This document applies to wire rods with circular cross-sections and diameters of 5 mm to 20 mm.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 377, *Steel and steel products — Location and preparation of samples and test pieces for mechanical testing*

ISO 404:2013, *Steel and steel products — General technical delivery requirements*

ISO 4885, *Ferrous materials — Heat treatments — Vocabulary*

ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature*

ISO 6929, *Steel products — Vocabulary*

ISO 10474, *Steel and steel products — Inspection documents*

ISO 14284, *Steel and iron — Sampling and preparation of samples for the determination of chemical composition*

ISO 16120-1, *Non-alloy steel wire rod for conversion to wire — Part 1: General requirements*

ISO 16120-4:2017, *Non-alloy steel wire rod for conversion to wire — Part 4: Specific requirements for wire rod for special applications*

ISO 16124, *Steel wire rod — Dimensions and tolerances*

IEC 60468, *Method of measurement of resistivity of metallic materials*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 377, ISO 404, ISO 4885, ISO 6929 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

copper cladded wire

wire which consists of a steel core with a continuous cladding of copper thoroughly bonded to the core throughout

3.2

out-of-roundness

difference between the maximum and minimum diameter measured at the same cross-section of a wire rod

4 Designation

CH#B is the special designation for hot rolled wire rod of ultra-low carbon high boron steel.

In the designation CH#B, C stands for carbon; H stands for high; # is specified maximum C content × 10 000; B stands for boron.

EXAMPLE Designation of ultra-low carbon high boron steel wire rod with specified maximum C content 0,01 %:CH1B.

5 Ordering information

The following information shall be supplied by the purchaser at the time of enquiry and order:

- a) quantity to be delivered;
- b) nominal dimensions and tolerance class;
- c) the number of this standard;
- d) steel grade, including any permitted additions/variatio
- e) delivery condition;
- f) special requirements, if any.

6 Production process

Steel shall be made by basic oxygen furnace or electric-arc furnace and refining.

Unless otherwise agreed at the time of order, the steelmaking process is left to the discretion of the supplier.

7 Requirements

7.1 Dimensions and tolerances

The tolerances on diameters and out-of-roundness of the wire rod shall comply with the requirements in [Table 1](#). Four levels of tolerance are standardized: T1, T2, T3 and T4 in accordance with ISO 16124.

Table 1 — Tolerances on diameter and out-of-roundness

Diameter, <i>d</i> mm	Tolerances on diameter ^b mm				out-of-roundness, ≤ mm			
	T1 ^a	T2	T3	T4	T1	T2	T3	T4
5,00 ≤ <i>d</i> ≤ 10,00	±0,30	±0,25	±0,20	±0,15	0,48	0,40	0,32	0,24
10,00 < <i>d</i> ≤ 15,00	±0,40	±0,30	±0,25	±0,20	0,64	0,48	0,40	0,32
15,00 < <i>d</i> ≤ 20,00	±0,50	±0,35	±0,30	±0,25	0,80	0,56	0,48	0,40

^a For the size range 5,00 mm < *d* ≤ 10,00 mm, larger values for the tolerance can be agreed upon between the parties.

^b For other strict class tolerances, tolerance can be agreed upon between the parties.