INTERNATIONAL STANDARD

ISO 16120-1

Second edition
2011-07-01

Non-alloy steel wire rod for conversion to wire —

Part 1: General requirements

Fil-machine en acier non allié destiné à la fabrication de fils —

Partie 1: Exigences générales

Reference number
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Contents

Page

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 16120-1 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 17, *Steel wire rod and wire products*.

This second edition cancels and replaces the first edition (ISO 16120-1:2001), which has been technically revised.

ISO 16120 consists of the following parts, under the general title *Non-alloy steel wire rod for conversion to wire*:

— *Part 1: General requirements*

— *Part 2: Specific requirements for general-purpose wire rod*

— *Part 3: Specific requirements for rimmed and rimmed substitute, low-carbon steel wire rod*

— *Part 4: Specific requirements for wire rod for special applications*

Non-alloy steel wire rod for conversion to wire —

Part 1:
General requirements

1 Scope

1.1 ISO 16120 is applicable to wire rod of non-alloy steel intended for wire drawing and/or cold rolling. The cross-section can be circular, oval, square, rectangular, hexagonal, octagonal, half-round or another shape, generally with at least 5 mm nominal dimension, and with a smooth surface.

1.2 This part of ISO 16120 covers general requirements and is not applicable to products for which standards exist or are in development, for example:

— steel wire rod intended for heat treatment;

— free-cutting steel wire rod;

— steel wire rod for cold heading and cold extrusion;

— steel wire rod intended for the production of electrodes and products for welding;

— steel wire rod for welded fabric for reinforcement for concrete;

— steel wire rod for ball and roller bearings (see ISO 683-17);

— steel wire rod for wire for high fatigue strength mechanical springs, such as valve springs.

1.3 In addition to the requirements of this part of ISO 16120, the general technical delivery requirements specified in ISO 404 apply.

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.

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

ISO 404:1992, *Steel and steel products — General technical delivery requirements*

ISO 3887, *Steels — Determination of depth of decarburization*

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

ISO 4948-1, *Steels — Classification — Part 1: Classification of steels into unalloyed and alloy steels based on chemical composition*

ISO 4948-2, *Steels — Classification — Part 2: Classification of unalloyed and alloy steels according to main quality classes and main property or application characteristics*

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

ISO 6929, *Steel products — Definitions and classification*

ISO/TR 9769, *Steel and iron — Review of available methods of analysis*

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 16120-2:2011, *Non-alloy steel wire rod for conversion to wire — Part 2: Specific requirements for general-purpose wire rod*

ISO 16120-3:2011, *Non-alloy steel wire rod for conversion to wire — Part 3: Specific requirements for rimmed and rimmed substitute, low-carbon steel wire rod*

ISO 16120-4:2011, *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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 377, ISO 404, ISO 4885, ISO 4948-1, ISO 4948-2 and ISO 6929 and the following apply.

3.1
rod
hot-rolled finished product hot-wound into irregular coils

NOTE Rod used for wire-drawing purposes in coil form is generally termed wire rod.

3.2
heat analysis
chemical analysis representative of the heat, by a method determined at the steelmaker's discretion

NOTE Adapted from ISO 404:1992.

3.3
product analysis
chemical analysis carried out on a sample of the product taken after the final hot rolling operation

NOTE Adapted from ISO 404:1992.

3.4
resolvable pearlite
two-phased structure in which ferrite and iron carbide lamellae can be clearly observed under optical microscopy in certain conditions

4 Classification

The classification of the steel grades covered by this part of ISO 16120 is indicated in ISO 16120-2, ISO 16120-3 and ISO 16120-4 for the corresponding steel grades.