
Steels for cold heading and cold extruding

Aciers pour transformation à froid et extrusion à froid

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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 documents 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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 4, *Heat treatable and alloy steels*.

This fourth edition cancels and replaces the third edition (ISO 4954:2018), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

- the wording in [7.8](#), first paragraph was corrected to "free from complete decarburization";
- in [Clause E.3](#), end of last paragraph, a reference was added as an example: "e. g. ISO 23825";
- editorial corrections.

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.

Steels for cold heading and cold extruding

1 Scope

This document specifies requirements for non-alloy and alloy steels that are intended for cold heading or cold extruding and are delivered as wire rods, wire or bars. It also contains specific requirements for:

- steels not intended for heat treatment, with diameters from 2 mm to 100 mm (see [Annex A](#));
- case-hardening steels with diameters from 2 mm to 100 mm (see [Annex B](#));
- steels for quenching and tempering, including boron alloyed steels (see [Table C.3](#)), with diameters from 2 mm to 100 mm (see [Annex C](#));
- stainless steels with diameters of 0,8 mm up to 50 mm for austenitic steels, up to 25 mm for ferritic steels and up to 100 mm for martensitic steels (see [Annex D](#)).

This document (except [Annex A](#)) is applicable to the properties of cold-headed or cold-extruded parts which have been subjected to a subsequent heat treatment. As the properties of the parts in the cold-headed or cold-extruded, and subsequently not-heat-treated condition, are largely dependent on the applied cold-heading or cold-extruding conditions, these are, if necessary, subject to agreement between the purchaser and the manufacturer of the parts.

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, *Steel and steel products — General technical delivery requirements*

ISO 642, *Steel — Hardenability test by end quenching (Jominy test)*

ISO 643, *Steels — Micrographic determination of the apparent grain size*

ISO 683-1, *Heat-treatable steels, alloy steels and free-cutting steels — Part 1: Non-alloy steels for quenching and tempering*

ISO 683-2, *Heat-treatable steels, alloy steels and free-cutting steels — Part 2: Alloy steels for quenching and tempering*

ISO 683-3, *Heat-treatable steels, alloy steels and free-cutting steels — Part 3: Case-hardening steels*

ISO 683-18:2014, *Heat-treatable steels, alloy steels and free-cutting steels — Part 18: Bright steel products*

ISO 1035-1, *Hot-rolled steel bars — Part 1: Dimensions of round bars*

ISO 1035-2, *Hot-rolled steel bars — Part 2: Dimensions of square bars*

ISO 1035-3, *Hot-rolled steel bars — Part 3: Dimensions of flat bars*

ISO 1035-4, *Hot-rolled steel bars — Part 4: Tolerances*