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Steels for cold heading and cold extruding — Technical delivery conditions —

Part 1: Non-alloy and alloy steels

Aciers pour transformation à froid et extrusion à froid — Conditions techniques de livraison —

Partie 1: Aciers non alliés et faiblement alliés

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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 4, *Heat treatable and alloy steels*.

This first edition of ISO 4954-1, together with ISO 4954-2, cancels and replaces ISO 4954:2022, which has been technically revised.

The main changes are as follows:

— the following steel grades were added: 15B2, 20MnCr5, 42Mn6, 40MnB6

— Annex D.4 was extended to method K of SEP 1571-2.

A list of all parts in the ISO 4954 series can be found on the ISO website.

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 — Technical delivery conditions —

Part 1: Non-alloy and alloy steels

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 lists the 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, with diameters from 2 mm to 100 mm (see Annex C).

This document (except Annex A) also applies to the properties of cold-headed or cold-extruded parts which have been subjected to a subsequent heat treatment.

NOTE Stainless steels for cold heading and cold extruding are covered by ISO 4954-2.

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 683-7, *Heat-treatable steels, alloy steels and free-cutting steels — Part 7: Bright products of non-alloy and alloy steels*

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*

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

ISO 4885, *Ferrous materials — 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/TS 4949, *Steel names based on letter symbols*

ISO 4967:2013, *Steel — Determination of content of non-metallic inclusions — Micrographic method using standard diagrams*

ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method*

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

ISO 6929, *Steel products — Vocabulary*

ISO 9443, *Surface quality classes for hot-rolled bars and wire rod*

ISO 9934-1, *Non-destructive testing — Magnetic particle testing — Part 1: General principles*

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 15549, *Non-destructive testing — Eddy current testing — General principles*

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

ISO 22034-2, *Steel wire and wire products — Part 2: Tolerances on wire dimensions*

JIS G 0555:2015, *Microscopic testing method for the non-metallic inclusions in steel*

SEP 1571-1, *Evaluation of inclusions in special steels based on their surface areas – Part 1: Basics*

SEP 1571-2, *Evaluation of inclusions in special steels based on their surface areas – Part 2: Methods K and M*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 377, ISO 683-1, ISO 683-2, ISO 683-3, ISO 683-7, ISO 4885, ISO 4948-1, ISO 4948-2, ISO 6929, ISO 14284 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
bright steel product
drawn or peeled/turned bar with smoother surface quality and better dimensional accuracy in comparison with a hot-rolled bar