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

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Part 2: Stainless steels

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

Partie 2: Aciers inoxydables

ISO/FDIS 4954-2

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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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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

The main changes are as follows:

~~standard ISO 4954:2022 was split into two parts: part 1 for non-alloy and alloy steels and part 2 for stainless steels;~~

~~new Annex B~~ new Annex B was added for the comparison with steel grades mentioned in ISO 3506.

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.

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Steels for cold heading and cold extruding — Technical delivery conditions

Part 2 Stainless steels

1 Scope

This document specifies requirements for stainless steels that are intended for cold heading or cold extruding and are delivered as wire rods, wire or bars. It lists specific requirements for 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.

This document is applicable to the properties of cold-headed or cold-extruded parts which have been subjected to a subsequent heat treatment.

NOTE Non-alloy and alloy steels for cold heading and cold extruding are covered by ISO 4954-1.

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 for mechanical testing

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

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

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 3651-2, Determination of resistance to intergranular corrosion of stainless steels — Part 2: Ferritic, austenitic and ferritic-austenitic (duplex) stainless steels — Corrosion test in media containing sulfuric acid

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

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ISO/TS 4949, Steel names based on letter symbols

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

ISO 6929, Steel products — Vocabulary

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 16143-2, Stainless steels for general purposes — Part 2: Corrosion-resistant semi-finished products, bars, rods and sections

ISO 16143-4, Stainless steels for general purposes — Part 4: Bright products

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

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

~~IIS G 0415, Steel and steel products — Inspection documents~~

~~GB/T 18253, Steel and steel products — Types of inspection documents~~

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 377, ISO 4885, ISO 4948-1, ISO 4948-2, ISO 6929, ISO 14284, ISO 16143-2, ISO 16143-4 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

3.2

drawn product

product of various cross-sectional shapes obtained, after descaling, by cold drawing of hot-rolled bars or wire rod, on a drawing bench (cold deformation without removing material)

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Note 1-to-entry: This operation gives the product special features with respect to shape, dimensional accuracy and surface finish. Products in lengths are delivered straightened, products of small cross-section may also be supplied in coils.

3.3 peeled/turned ~~product~~bar

steel bar of circular cross-section having the same features of *drawn products* ~~(3.2)~~(3.2) concerning shape, dimensional accuracy and bright surface finish but without work hardening

Note 1-to-entry: They are produced by peeling on a peeling machine usually followed by straightening and by polishing. The removal of metal by peeling is carried out in such a way that the bright product is generally free from surface defects and decarburization coming from the hot-rolling process.

3.4 stainless steels

steel with at least 10,5-% (mass fraction) Cr and maximum 1,2-% (mass fraction) C

[SourceSOURCE: ISO 15510:2014, 3.1]

4 Classification and designation

4.1 Classification

The classification of the relevant steel grades shall be in accordance with ISO 4948-1 and ISO 4948-2.

All steel grades mentioned in this document are special steels in accordance with ISO 4948-2.

The stainless steel grades are classified according to their microstructures.

4.2 Designation

For the steel grades covered by this document, the steel names as given in the relevant tables shall be allocated in accordance with ISO/TS 4949.

~~Annex C~~Annex C provides a list of steels given in this document and the comparable grades covered in various designation systems.

5 Information to be supplied by the purchaser

5.1 Mandatory information

The manufacturer shall obtain the following information from the purchaser at the time of enquiry and order:

- a) ~~a)~~ the quantity to be delivered (mass, length);
- b) ~~b)~~ the product form (round bar, wire rod, wire);
- c) ~~c)~~ the nominal diameter and the tolerances on dimensions and shape of the product with reference to the relevant International Standard;
- d) ~~d)~~ for bars, the length; and for wire rod and wire, the dimensions, i.e. inner diameter and mass of the coils;

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