International Standard

ISO 4997

Sixth edition

Cold-reduced carbon steel sheet of structural quality

Tôles en acier au carbone laminées à froid, de qualité destinée à la construction

PROOF/ÉPREUVE

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Contents

Page

Foreword

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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 12, *Continuous mill flat rolled products*.

This sixth edition cancels and replaces the fifth edition (ISO 4997:2015), which has been technically revised.

The main changes are as follows:

— Clause 1, 3.2, 5.2, 5.6: grade CR280 and pertaining requirements have been added;

— 3.4: definition of lot has been updated;

— 5.3.2: requirement of product analysis has been updated;

— 5.8.3: roughness reference values recommended have been added;

— Clause 14: requirement of marking has been updated;

— Clause 15: requirement of information to be provided by the purchaser has been updated.

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.

Cold-reduced carbon steel sheet of structural quality

1 Scope

This document applies to cold-reduced carbon steel sheet of structural quality in grades CR220, CR250, CR280, CR320, and CH550, usually without the use of microalloying elements. The product is intended for structures that include bolting, riveting, and welding. It is generally used in the delivered condition for fabricating purposes, such as bending, forming, and welding.

This document does not cover steels designated as commercial quality or drawing qualities (covered in ISO 3574), cold-reduced carbon steel sheet according to hardness requirements (covered in ISO 5954), cold-reduced steel sheet of higher strength with improved formability (covered in ISO 13887), or cold-reduced steel sheet of high tensile strength and low yield point with improved formability (covered in ISO14590).

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

ISO 16162, *Cold-rolled steel sheet products — Dimensional and shape tolerances*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
microalloying element
niobium, vanadium, titanium, etc. added singly or in combination to obtain higher strength levels combined with better formability, weldability, and toughness compared to non-alloyed steels produced to equivalent strength levels

3.2
cold-reduced steel sheet
<grades CR220,CR250, CR280,and CR320> product obtained from hot-rolled descaled steel sheet by cold reducing to the required sheet thickness followed by annealing to recrystallize the grain structure

Note 1 to entry: The annealed product is normally supplied skin-passed (see 3.3) but may be supplied annealed-last (i.e. without a skin pass), if specified by the purchaser on his order.

Note 2 to entry: CH550 is a product which has not been annealed after reduction to the specified thickness.

3.3
skin pass
<except grade CH550> light cold rolling of the product

Note 1 to entry: The purpose of the skin passing is one or more of the following:

a) to minimize the appearance of coil breaks, stretcher strains, and fluting;

b) to control the shape;

c) to obtain the required surface finish.

Note 2 to entry: Some increase in hardness and some loss in ductility will result from skin passing.

3.4
lot
up to a specified quantity of steel sheet of the same grade rolled to the same thickness and condition

4 Dimensions

4.1 The product is commonly produced in thicknesses from 0,36 mm up to 3 mm and in widths of 600 mm and over, in coils and cut lengths.

4.2 Cold-reduced sheet less than 600 mm wide can be slit from wide sheet and will be considered as sheet.

5 Conditions of manufacture

5.1 Steelmaking

Unless otherwise agreed by the interested parties, the processes used in making the steel and in manufacturing cold-reduced sheet are left to the discretion of the manufacturer. On request, the purchaser shall be informed of the steelmaking process being used.

5.2 Chemical composition

The chemical composition (heat analysis) shall not exceed the values given in Table 1 and Table 2.

Table 1 — Chemical composition (heat analysis)

Mass fractions in percent

Grade	C max.	Mn max.	P max.	S max.
CR220	0,15	1,20	0,035	0,035
CR250	0,25	1,40	0,035	0,035
CR280	0,25	1,50	0,035	0,035
CR320	0,25	1,50	0,035	0,035
CH550	0,25	1,50	0,035	0,035