
**Cold-reduced steel sheet of high
tensile strength and low yield point
with improved formability**

*Tôles en acier laminées à froid à haute résistance à la traction et
faible limite d'élasticité, et aptitude au formage accrue*

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Reference number
ISO 14590:2016(E)

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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 on 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 the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 17, *Steel*, Subcommittee SC 12, *Continuous mill flat rolled products*.

This third edition cancels and replaces the second edition (ISO 14590:2005), which has been technically revised.

Cold-reduced steel sheet of high tensile strength and low yield point with improved formability

1 Scope

This International Standard applies to cold-reduced steel sheet of two types that are commercially available in the world. Type 1 represents steels that are produced to mechanical properties only and Type 2 represents steels that are produced to both chemical and mechanical properties. Bake hardening steels are included in both types.

This International Standard does not cover steels designated as commercial quality or drawing qualities (covered in ISO 3574), steels of structural quality (covered in ISO 4997) or steels of higher strength with improved formability (covered in ISO 13887).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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.

3.1

bake hardenable steel

highly formable steel that, subsequent to cold working, has been subjected to a low-temperature heat treatment, such as that used for paint baking (170 °C to 200 °C), in order to effect a significant increase in its yield strength, primarily due to carbon ageing

3.2

cold-reduced steel sheet

product obtained from hot-rolled descaled steel sheet by cold-reducing to the required sheet thickness followed by annealing to recrystallize the grain structure

3.3

dual-phase steel

steel whose thermal processing has resulted in a multi-phase structure that includes one or more low-temperature transformation products, thus providing for improved formability at higher strength levels

3.4

skin pass

light cold-rolling of the product

Note 1 to entry: The purpose of the skin passing is one or more of the following: to minimize the appearance of coil breaks, stretcher strains and fluting; to control the shape; and to obtain the required surface finish.

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