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Hot-rolled steel sheet in coils of higher yield strength with improved formability and heavy thickness for cold forming

Tôles fortes en acier laminées à chaud à limite d'élasticité et aptitude au formage accrues, en bobines, pour formage à froid

Reference number
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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).

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

This document was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 12, *Continuous mill flat rolled products*.

This third edition cancels and replaces the second edition (ISO 20805:2011), which has been technically revised.

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Hot-rolled steel sheet in coils of higher yield strength with improved formability and heavy thickness for cold forming

1 Scope

This document is applicable to continuous hot-rolled steel sheet in coils of higher yield strength with improved formability and heavy thickness for cold forming. The steel can be treated to achieve inclusion control. It is generally used in the as-delivered condition.

As a result of the combination of higher strength and improved formability, it is possible to obtain savings in mass along with better weldability.

The product is intended for applications where parts are to be fabricated requiring better formability than is provided by normal high-yield-strength steel sheet.

The steel sheet is produced in a number of grade designations designed to be compatible with differing application requirements.

This document does not apply to

— steels intended for boilers or pressure vessels,

— steels designated as commercial quality, drawing quality or structural quality,

— steels rolled to cold-reduced products,

— steels designated as weathering steels, having increased atmospheric corrosion resistance, or

— those products rolled on a plate mill.

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 148-1, *Metallic materials — Charpy pendulum impact test — Part 1: Test method*

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

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:

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

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

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

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3.2
hot-rolled steel sheet in coils
steel sheet in coil form manufactured through hot-rolling process, where the material was heated before rolling to achieve the required sheet thickness and tolerances

Note 1 to entry: The product has a surface covered with oxide or scale resulting from the hot-rolling operation.

3.3
hot-rolled descaled steel sheet in coils
hot-rolled steel sheet in coils (3.2), from the surface of which oxide or scale has been removed, commonly by pickling in an acid solution

Note 1 to entry: This product is normally supplied oiled.

Note 2 to entry: Descaling may also be performed by mechanical methods such as grit blasting.

3.4
mill edge
normal edge without any definite contour produced in hot-rolling

Note 1 to entry: Mill edges may contain some irregularities such as cracked or torn edges or thin (feathered) edges.

3.5
sheared edge
normal edge obtained by shearing, slitting or trimming a mill-edge product

Note 1 to entry: Normal processing does not necessarily provide a definite positioning of the slitting burr.

3.6
lot
up to a specified quantity of steel sheet of the same grade rolled to the same thickness and condition

3.7
edge camber
greatest deviation of a side from a straight line, the measurement being taken on the concave side with a straight edge

4 Dimensions

The product is commonly produced in the range of thicknesses greater than 6 mm to 25 mm, and widths of 600 mm and over, in coils. Hot-rolled 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 upon by the interested parties, the processes used in making the steel and in manufacturing hot-rolled 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

5.2.1 The chemical composition (heat analysis) shall conform to the requirements in Tables 1 and 2.

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