

---

---

**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*



This document is a preview generated by EMS



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

# Contents

	Page
Foreword .....	iv
<b>1 Scope .....</b>	<b>1</b>
<b>2 Normative references .....</b>	<b>1</b>
<b>3 Terms and definitions .....</b>	<b>1</b>
<b>4 Dimensions .....</b>	<b>2</b>
<b>5 Conditions of manufacture .....</b>	<b>2</b>
5.1 Steelmaking .....	2
5.2 Chemical composition .....	2
5.3 Chemical analysis .....	3
5.3.1 Heat analysis .....	3
5.3.2 Product analysis .....	3
5.4 Mechanical properties .....	3
5.5 Application .....	4
5.6 Weldability .....	4
5.7 Surface condition .....	5
5.8 Oiling .....	5
<b>6 Dimensional and shape tolerances .....</b>	<b>5</b>
<b>7 Sampling — Tensile test .....</b>	<b>6</b>
<b>8 Mechanical property tests .....</b>	<b>6</b>
8.1 Tensile test .....	6
8.2 Impact test .....	6
<b>9 Retests .....</b>	<b>6</b>
9.1 Machining and flaws .....	6
9.2 Elongation .....	7
9.3 Additional tests .....	7
<b>10 Resubmission .....</b>	<b>7</b>
<b>11 Workmanship .....</b>	<b>7</b>
<b>12 Inspection and acceptance .....</b>	<b>7</b>
<b>13 Coil size .....</b>	<b>7</b>
<b>14 Marking .....</b>	<b>8</b>
<b>15 Information to be supplied by the purchaser .....</b>	<b>8</b>
<b>Bibliography .....</b>	<b>9</b>

## 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](http://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](http://www.iso.org/patents)).

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

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](http://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.

# 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