

---

---

**Cold-reduced carbon steel sheet  
according to hardness requirements**

*Tôles en acier au carbone laminées à froid à caractéristiques spéciales  
de dureté*

iTeh Standards  
(<https://standards.iteh.ai>)  
Document Preview

[ISO 5954:2014](#)

<https://standards.iteh.ai/catalog/standards/iso/31c6728e-8869-4346-afc3-f62666eb4f48/iso-5954-2014>



**iTeh Standards**  
**(<https://standards.iteh.ai>)**  
**Document Preview**

[ISO 5954:2014](https://standards.iteh.ai/catalog/standards/iso/31c6728e-8869-4346-afc3-f62666eb4f48/iso-5954-2014)

<https://standards.iteh.ai/catalog/standards/iso/31c6728e-8869-4346-afc3-f62666eb4f48/iso-5954-2014>



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2014

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  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<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 Surface characteristics</b> .....	<b>2</b>
5.1 General.....	2
5.2 Surface quality.....	2
5.3 Surface finish.....	3
5.4 Suitability for surface coating.....	3
5.5 Oiling.....	3
<b>6 Conditions of manufacture</b> .....	<b>3</b>
6.1 Steelmaking.....	3
6.2 Chemical composition.....	3
6.3 Chemical analysis.....	4
6.4 Weldability.....	5
6.5 Application.....	5
6.6 Hardness ranges.....	5
<b>7 Dimensional tolerances</b> .....	<b>5</b>
<b>8 Sampling</b> .....	<b>5</b>
<b>9 Tests</b> .....	<b>5</b>
<b>10 Cold bending properties</b> .....	<b>5</b>
<b>11 Retests</b> .....	<b>6</b>
11.1 Machining and flaws.....	6
11.2 Additional tests.....	6
<b>12 Resubmission</b> .....	<b>6</b>
<b>13 Workmanship</b> .....	<b>6</b>
<b>14 Inspection and acceptance</b> .....	<b>6</b>
<b>15 Coil size</b> .....	<b>6</b>
<b>16 Marking</b> .....	<b>6</b>
<b>17 Information to be provided by the purchaser</b> .....	<b>7</b>
<b>Bibliography</b> .....	<b>8</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 meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

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

This fourth edition cancels and replaces the third edition (ISO 5954:2007), which has been technically revised.

[ISO 5954:2014](https://standards.iteh.ai/iso-5954-2014)

<https://standards.iteh.ai/catalog/standards/iso/31c6728e-8869-4346-afc3-f62666eb4f48/iso-5954-2014>

# Cold-reduced carbon steel sheet according to hardness requirements

## 1 Scope

This International Standard applies to cold-reduced carbon steel sheet and corresponding hardness requirements. It is suitable for applications where the surface is of prime importance.

The following are common hardness ranges (see 6.6):

- CRH-50: Rockwell B 50 to 70;
- CRH-60: Rockwell B 60 to 80;
- CRH-70: Rockwell B 70 to 90;
- CRH-NN: Any Rockwell B range of 20 points up to and including HRB 90 maximum (designated minimum of specified range will be shown).

NOTE By agreement between the supplier and purchaser, Rockwell ranges less than 20 points can be specified.

This International Standard does not cover commercial quality or drawing qualities (covered in ISO 3574) and cold-reduced carbon steel strip.

## 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 6508 (all parts), *Metallic materials — Rockwell hardness test*

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

#### **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

Note 1 to entry: The product is normally supplied in the skin-passed condition.

### 3.2

#### **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:

- 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. Cold-reduced sheet supplied in the skin-passed condition tends to strain-age and this might lead to an increase in the hardness value. Because of this, the hardness values at the time of shipment will be the determining factor as to whether the hardness requirement has been met.

### 3.3 lot

50 t or less of sheet of the same designation rolled to the same thickness and condition

## 4 Dimensions

**4.1** The fabrication limits of cold-reduced carbon steel sheet according to hardness requirements are dependent on the specific range of hardness specified or agreed to. It is produced in thicknesses of 0,36 mm and above (commonly produced up to 3 mm) and in widths of 600 mm and over in coils and cut lengths. The hardness is commonly reported as Rockwell B (HRB).

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

## 5 Surface characteristics

### 5.1 General

The surface characteristics consist of the surface quality and the surface finish.

The surface quality and surface finish shall be as specified by the purchaser at the time of the order, in accordance with [5.2](#) and [5.3](#).

For non-skin-passed products, surface quality B (exposed) is not applicable and no requirement for a particular surface finish can be made.

### 5.2 Surface quality

The products are supplied with either of the surface qualities A or B.

#### 5.2.1 Surface quality A (unexposed)

Imperfections, such as pores, slight imperfections, small marks, minor scratches, and slight colouring which do not affect the formability or the application of surface coatings, are permitted.

#### 5.2.2 Surface quality B (exposed)

The better of the two surfaces shall be free of imperfections which might affect the uniform appearance of quality paint or an electrolytic coating (see [5.4](#)). The other surface shall at least conform to surface quality A.

In the case of delivery of coil and slit coil, the percentage of defects might be greater than in the case of delivery in sheet or cut lengths. This should be taken into account by the purchaser, and the percentage of admissible surface defects can be agreed at the time of the enquiry and order. Unless otherwise agreed, a single surface of the product shall comply with the specified requirements. The other surface shall be such that, during subsequent treatment, it does not have a deleterious effect on the better surface.