
Hot-rolled and cold-reduced electrolytic zinc-coated carbon steel sheet of commercial and drawing qualities

*Tôles en acier au carbone laminées à chaud et à froid, revêtues par
zingage électrolytique (tôles électro-zinguées) de qualité commerciale
et pour emboutissage*





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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. www.iso.org/directives

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

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: http://www.iso.org/iso/home/standards_development/resources-for-technical-work/foreword.htm

This fourth edition cancels and replaces the third edition (ISO 5002:2008), of which it constitutes a minor revision.

Hot-rolled and cold-reduced electrolytic zinc-coated carbon steel sheet of commercial and drawing qualities

1 Scope

This International Standard specifies the characteristics of carbon steel sheet of commercial and drawing qualities in cut length or coil form, zinc coated by electrolytic deposition. Electrolytic zinc-coated sheet is intended for the manufacture of formed or of miscellaneous parts, and can be supplied chemically treated to render it more suitable for painting. The zinc coating is expressed in micrometres of thickness per side, for equally coated, differentially coated, or one-side-coated sheets. These sheets are generally produced with coatings, which are not intended to withstand outdoor exposure without chemical treatment and painting. Electrolytic zinc-coated sheet can be produced in thicknesses of 0,36 mm and thicker (normally up to 4,0 mm) and in widths of 600 mm and over in coils or cut lengths. It is recognized that materials thinner than 0,36 mm or thicker than 4,0 mm can be suitable for electrolytic zinc coating, and, if required, be the subject of agreement between the interested parties.

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 7438, *Metallic materials — Bend test*

ISO 16160, *Hot-rolled steel sheet products — Dimensional and shape tolerances*

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

electrolytic zinc-coated steel sheet

product obtained by electrolytic deposition of a zinc coating on steel sheet on a zinc coating line to produce either electrolytic zinc-coated coils or electrolytic zinc-coated cut lengths

3.2

skin pass

light cold rolling of hot-rolled descaled sheet or of the cold-reduced and annealed steel sheet prior to zinc coating

Note 1 to entry: The purpose of the skin pass is to produce a higher degree of surface smoothness and thereby improve the surface appearance. The skin pass also temporarily minimizes the occurrence of a surface condition known as stretcher strain (Luders lines) or fluting during the fabrication of finished parts. The skin pass also controls and improves flatness. Some increase in hardness and loss of ductility will result from skin passing.

3.3

stabilized interstitial free steel

extra low carbon steel in which all interstitial elements are combined with titanium and/or equivalent elements

3.4 grade substitution

interstitial free steel (IF steel) may be applied on orders specifying CR4

Note 1 to entry: Deep drawing special killed, provided that the customer is informed of the substitution and related shipping documents reflecting the actual material shipped.

3.5 lot

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

4 Dimensions

4.1 The thickness of zinc-coated sheet can be specified as a combination of the base metal and metallic coating, or as the base metal alone. The purchaser indicates on the order which method of specifying thickness is required. In the event that the purchaser does not indicate any preference, the thickness as a combination of the base metal and coating will be provided. [Annex A](#) describes the requirement for specifying the thickness as base metal alone.

4.2 Electrolytic zinc-coated 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

The processes used in making the steel and in manufacturing electrolytic zinc-coated cold-reduced sheet and hot-rolled sheet are left to the discretion of the manufacturer. When requested, 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 [Tables 1, 2, and 3](#).

Table 1 — Chemical composition (heat analysis) for hot-rolled electrolytic zinc-coated carbon steel sheet

Mass fractions in percent

Quality		C max.	Mn max.	P max.	S max.
Designation	Name				
HR1	commercial	0,12	0,60	0,045	0,035
HR2	drawing	0,10	0,45	0,035	0,035
HR3	deep drawing	0,08	0,40	0,030	0,030
HR4	deep drawing aluminium killed	0,08	0,35	0,025	0,030