

Electrolytically zinc coated cold rolled steel flat products for cold forming — Technical delivery conditions

ICS 77.140.50

National foreword

This British Standard is the UK implementation of EN 10152:2009, incorporating corrigendum December 2011. It supersedes BS EN 10152:2003 which is withdrawn. Together with BS EN 10346:2009, it supersedes BS EN 10336:2007 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ISE/109, Coated and Uncoated Flat Products to be Used for Cold Forming.

A list of organizations represented on this committee can be obtained on request to its secretary.

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EN 10152

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English Version

**Electrolytically zinc coated cold rolled steel flat products for cold
forming - Technical delivery conditions**

Produits plats en acier, laminés à froid, revêtus de zinc par
voie électrolytique pour formage à froid - Conditions
techniques de livraison

Elektrolytisch verzinkte kaltgewalzte Flacherzeugnisse aus
Stahl zum Kaltumformen - Technische Lieferbedingungen

This European Standard was approved by CEN on 31 January 2009.

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Foreword

This document (EN 10152:2009) has been prepared by Technical Committee ECISS/TC 27 “Surface coated flat products - Qualities, dimensions, tolerances and specific tests”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2009, and conflicting national standards shall be withdrawn at the latest by September 2009.

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This document supersedes EN 10152:2003 and – together with EN 10346:2009 – EN 10336:2007.

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1 Scope

This European Standard specifies requirements for continuously electrolytic zinc coated cold rolled flat products of low carbon steels suitable for cold forming according to Table 1 in rolled widths ≥ 600 mm and thicknesses from 0,35 mm up to and including 3 mm, delivered as strip (in coil form), sheet, slit strip or cut lengths obtained from slit strip or sheet.

NOTE 1 This European Standard can also be applied to continuously electrolytic zinc coated flat products of:

- a) steels according to EN 10139 (cold rolled strip in rolled widths < 600 mm),
- b) steels normally characterized by minimum yield strength or minimum tensile strength values in addition to formability parameters, e. g.
 - 1) steels with high yield strength and improved formability according to EN 10268 (cold rolled flat products),
 - 2) multiphase steels (cold rolled or hot rolled) according to prEN 10338,
 - 3) steels for construction according to national or regional standards (see e. g. DIN 1623).

NOTE 2 By agreement at the time of enquiry and order this European Standard can be applied to continuously electrolytic zinc coated hot-rolled steel flat products (e.g. according to EN 10025-1 and -2, EN 10111, EN 10149-1 to EN 10149-3, etc.).

NOTE 3 As the mass of the zinc coating applied is relatively small, the material is not intended to withstand outside exposure without further chemical treatment and painting.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 10002-1:2001, *Metallic materials – Tensile testing – Part 1: Method of test at ambient temperature*

EN 10020:2000, *Definition and classification of grades of steel*

EN 10021:2006, *General technical delivery conditions for steel products*

EN 10027-1, *Designation systems for steels – Part 1: Steel names*

EN 10027-2, *Designation systems for steels – Part 2: Numerical system*

EN 10051, *Continuously hot rolled uncoated plate, sheet and strip of non-alloy and alloy steels – Tolerances on dimensions and shape*

EN 10079:2007, *Definition of steel products*

EN 10131, *Cold rolled uncoated and zinc or zinc-nickel electrolytically coated low carbon and high yield strength steel flat products for cold forming – Tolerances on dimensions and shape*

EN 10204:2004, *Metallic materials – Types of inspection documents*

EN ISO 7438, *Metallic materials – Bend test (ISO 7438:2005)*

ISO 10113, *Metallic materials – Sheet and strip – Determination of plastic strain ratio*

ISO 10275, *Metallic materials – Sheet and strip – Determination of tensile strain hardening exponent*

3 Terms and definitions

For the purposes of this document the terms and definitions given in EN 10020:2000, EN 10021:2006, EN 10079:2007, EN 10204:2004 and the following apply.

3.1

electrolytic zinc coating (ZE)

application of a zinc coating by electrolysis on a suitably prepared steel surface from an aqueous zinc salt solution by the use of an electric current

NOTE Flat products can have a zinc coating on one or both surfaces. If both surfaces are zinc coated, a different coating thickness can be applied on each side (this process being referred to as differential zinc coating).

4 Classification and designation

4.1 Classification

The steel grades specified in this European Standard are classified in accordance with EN 10020:2000 as non-alloy quality steels (DC01, DC03, DC04, DC05) and alloy quality steels (DC06, DC07) and by their increasing suitability for cold forming as follows:

- DC01: drawing quality;
- DC03: deep drawing quality;
- DC04, DC05: special deep drawing quality;
- DC06: extra deep drawing quality;
- DC07: super deep drawing quality.

4.2 Designation

4.2.1 The steel names are allocated in accordance with EN 10027-1. The steel numbers are allocated in accordance with EN 10027-2.

4.2.2 The products covered by this document shall be designated as follows in the given order:

- 1) Type of product (e. g. strip, sheet, cut length);
- 2) Number of this European Standard (EN 10152);
- 3) Steel name or steel number and symbol for the type of electrolytical coating (see Table 1);
- 4) Numbers denoting the nominal coating thickness on each surface (e. g. 50/50 = nominal coating thickness of 5,0 µm on each side, see Table 2 and 6.9.2);
- 5) Letters A or B indicating the surface quality (see 6.11.2);
- 6) Letters denoting the surface treatment (see 6.12 and Table 3).

EXAMPLE 1 Designation of strip made of steel DC03+ZE (1.0347+ZE), electrolytically zinc coated with a nominal thickness of 5,0 µm on each surface (50/50), surface quality A, surface treatment phosphated (P):