

Cold rolled non-oriented electrical steel sheet and strip delivered in the fully processed state

The European Standard EN 10106:2007 has the status of a
British Standard

ICS 77.140.50

National foreword

This British Standard is the UK implementation of EN 10106:2007. It supersedes BS EN 10106:1996 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ISE/NFE/5, Magnetic alloys and steels.

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

This standard is related to the BS EN 60404, BS IEC 60404 and BS 6404 series of standards for magnetic materials.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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English Version

Cold rolled non-oriented electrical steel sheet and strip delivered in the fully processed state

Bandes et tôles magnétiques en acier à grains non orientés
laminées à froid et livrées à l'état fini

Kaltgewalztes nicht kornorientiertes Elektroblech und -band
im schlussgeglühten Zustand

This European Standard was approved by CEN on 9 August 2007.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 10106:2007) has been prepared by Technical Committee ECISS/TC 24 “Electrical steel sheet and strip qualities - 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of an identical text or by endorsement, at the latest by March 2008, and conflicting national standards shall be withdrawn at the latest by March 2008.

This document supersedes EN 10106:1995.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard specifies cold-rolled non-oriented electrical steel sheet and strip in nominal thicknesses of 0,35 mm, 0,50 mm, 0,65 mm and 1,00 mm. In particular, it specifies general requirements, the magnetic properties, geometric characteristics and tolerances, technological characteristics as well as the inspection procedure.

This European Standard applies to materials supplied in the fully annealed condition intended for the construction of magnetic circuits. It does not apply to semi-processed material.

These magnetic materials correspond to C.2.3.2.1 of IEC 60404-1:2000.

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 10021, *General technical delivery conditions for steel products*

EN 10204, *Metallic products – Types of inspection documents*

EN 10251, *Magnetic materials – Methods of determination of the geometrical characteristics of electrical steel sheet and strip*

EN 10342, *Magnetic materials – Classification of surface insulations of electrical steel sheet, strip and laminations*

EN 60404-2, *Magnetic materials – Part 2: Methods of measurement of the magnetic properties of electrical steel sheet and strip by means of an Epstein frame (IEC 60404-2:1996)*

EN ISO 7799, *Metallic materials – Sheet and strip 3 mm thick or less – Reverse bend test (ISO 7799:1985)*

IEC 60050-121:1998, *International Electrotechnical Vocabulary – Part 121: Electromagnetism*

IEC 60050-221:1990, *International electrotechnical vocabulary; chapter 221: magnetic materials and components*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions of the principal terms relative to magnetic properties given in IEC 60050-121:1998 and IEC 60050-221:1990 and the following apply.

3.1

edge camber

greatest distance between a longitudinal edge of the sheet and the line joining the two extremities of the measured length of this edge

3.2

flatness

property of a sheet or a length of strip which is characterized by the wave factor, i.e. by the relation of the height of the wave to its length

3.3**number of bends**

number of alternate bends possible before the appearance in the base metal of the first crack visible to the naked eye; it constitutes an indication of the ductility of the material

3.4**internal stresses**

stresses that are characterized by a deviation in relation to the line of cutting

4 Classification and designation**4.1 Classification**

The grades covered by this European Standard are classified according to the value of the maximum specific total loss in watts per kilogram and according to the nominal thickness of the material (0,35 mm, 0,50 mm, 0,65 mm and 1,00 mm).

4.2 Designation

4.2.1 For the steel grades covered by this European Standard, 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 steel name is comprised of the following in the order given:

- a) capital letter M for electrical steel;
- b) number of one hundred times the specified value of maximum specific total loss at 50 Hz, in watts per kilogram and corresponding to the nominal product thickness, at 1,5 T;
- c) one hundred times the nominal thickness of the material, in millimetres;
- d) characteristic letter A for non-oriented electrical sheet or strip supplied in the fully processed state.

EXAMPLE Non-oriented electrical steel sheet or strip with a maximum specific total loss at 1,5 T of 2,50 W/kg at 50 Hz, a nominal thickness of 0,35 mm, supplied in the fully processed state:

M250-35A

5 Information supplied by the purchaser**5.1 Mandatory information**

For material to adequately comply with the requirements of this standard, the purchaser shall include the following information in their enquiry or order:

- a) quantity;
- b) type of product (strip or sheet);
- c) number of this European Standard (EN 10106);
- d) steel name or number (see 4.2.1);
- e) dimensions of sheets or strips required (including any limitation on the external diameter of a coil) (see 6.2 and 7.2.2);
- f) axis of coil (horizontal or vertical) (see 6.2);