

INTERNATIONAL STANDARD

**Magnetic materials –
Part 8-7: Specifications for individual materials – Cold-rolled grain-oriented
electrical steel strip and sheet delivered in the fully-processed state**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

FOREWORD

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International Standard IEC 60404-8-7 has been prepared by IEC technical committee 68: Magnetic alloys and steels.

This fourth edition cancels and replaces the third edition published in 2008. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- extension of the range of electrical steels to include the improved grades.

The text of this International Standard is based on the following documents:

CDV	Report on voting
68/545/CDV	68/561/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all the parts in the IEC 60404 series, published under the general title *Magnetic materials*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

MAGNETIC MATERIALS –

Part 8-7: Specifications for individual materials – Cold-rolled grain-oriented electrical steel strip and sheet delivered in the fully-processed state

1 Scope

This part of IEC 60404 defines the grades of cold-rolled grain-oriented electrical steel strip and sheet in nominal thicknesses of 0,23 mm, 0,27 mm, 0,30 mm and 0,35 mm. In particular, it gives general requirements, magnetic properties, geometric characteristics, tolerances and technological characteristics, as well as inspection procedures.

This document applies to Goss textured grain-oriented electrical steel strip and sheet supplied in the final annealed condition in coils or sheets, and intended for the construction of magnetic circuits.

The grades are grouped into two classes:

- conventional grades;
- high permeability grades, including grades which may be delivered in the domain refined condition.

They correspond to Class C22 of IEC 60404-1.

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.

IEC 60050-121, *International Electrotechnical Vocabulary – Part 121: Electromagnetism* (available at <http://www.electropedia.org/>)

IEC 60050-221, *International Electrotechnical Vocabulary – Chapter 221: Magnetic materials and components* (available at <http://www.electropedia.org/>)

IEC 60404-1, *Magnetic materials – Part 1: Classification*

IEC 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 60404-3:1992, *Magnetic materials – Part 3: Methods of measurement of the magnetic properties of magnetic sheet and strip by means of a single sheet tester*
IEC 60404-3:1992/AMD1:2002

IEC 60404-9, *Magnetic materials – Part 9: Methods of determination of the geometrical characteristics of magnetic steel sheet and strip*

IEC 60404-13, *Magnetic materials – Part 13: Methods of measurement of density, resistivity and stacking factor of electrical steel sheet and strip*

ISO 404, *Steel and steel products – General technical delivery requirements*

ISO 7799, *Metallic materials – Sheet and strip 3 mm thick or less – Reverse bend test*

ISO 10474, *Steel and steel products – Inspection documents*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-121 and IEC 60050-221 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

edge camber

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

Note 1 to entry: See IEC 60404-9.

3.2

edge wave

wave factor

variations of flatness of a length of strip or a sheet taking a form of waves at the slit edge of the product

Note 1 to entry: The edge wave is characterized by the wave factor which is the relation of the height of the wave to its length, expressed as a percentage.

3.3

number of bends

number of alternate bends possible before the appearance of the first crack in the base metal visible to the naked eye

Note 1 to entry: The number of bends constitutes an indication of the ductility of the product.

3.4

internal stresses

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

4 Classification

The grades covered by this document are classified according to the value of maximum specific total loss in watts per kilogram and according to the nominal thickness of the product¹ (0,23 mm, 0,27 mm, 0,30 mm and 0,35 mm).

5 Designation

The steel name comprises the following in the order given:

¹ In the rest of the document, the word "product" is used to mean "strip and sheet".