



**NSAI**  
Standards

Irish Standard  
I.S. EN 60404-8-6:2017

# Magnetic materials - Part 8-6: Specifications for individual materials - Soft magnetic metallic materials

**I.S. EN 60404-8-6:2017**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## National Foreword

I.S. EN 60404-8-6:2017 is the adopted Irish version of the European Document EN 60404-8-6:2017, Magnetic materials - Part 8-6: Specifications for individual materials - Soft magnetic metallic materials

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EUROPEAN STANDARD

**EN 60404-8-6**

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2017

ICS 29.030

Supersedes EN 60404-8-6:2009

English Version

**Magnetic materials - Part 8-6: Specifications for individual  
materials - Soft magnetic metallic materials  
(IEC 60404-8-6:2016)**

Matériaux magnétiques - Partie 8-6: Spécifications pour  
matériaux particuliers - Matériaux métalliques  
magnétiquement doux  
(IEC 60404-8-6:2016)

Magnetische Werkstoffe - Teil 8-6: Anforderungen an  
einzelne Werkstoffe - Weichmagnetische metallische  
Werkstoffe  
(IEC 60404-8-6:2016)

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

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**EN 60404-8-6:2017**

**European foreword**

The text of document 68/528/CDV, future edition 3 of IEC 60404-8-6, prepared by IEC/TC 68 "Magnetic alloys and steels" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60404-8-6:2017.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-10-21
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-04-21

This document supersedes EN 60404-8-6:2009.

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In the official version, for Bibliography, the following note has to be added for the standard indicated:

ISO 286-1:2010

NOTE Harmonized as EN ISO 286-1:2010.

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-121	-	International Electrotechnical Vocabulary (IEV) - Part 121: Electromagnetism	-	-
IEC 60050-131	-	International Electrotechnical Vocabulary (IEV) - Part 131: Circuit theory	-	-
IEC 60050-221	-	International Electrotechnical Vocabulary (IEV) - Chapter 221: Magnetic materials and components	-	-
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	EN 60404-2	-
IEC 60404-4	-	Magnetic materials - Part 4: Methods of measurement of d.c. magnetic properties of magnetically soft materials	EN 60404-4	-
IEC 60404-6	-	Magnetic materials - Part 6: Methods of measurement of the magnetic properties of magnetically soft metallic and powder materials at frequencies in the range 20 Hz to 200 kHz by the use of ring specimens	EN 60404-6	-
IEC 60404-7	-	Magnetic materials - Part 7: Method of measurement of the coercivity of magnetic materials in an open magnetic circuit	-	-
IEC 60404-8-3	-	Magnetic materials - Part 8-3: Specifications of individual materials - Cold-rolled electrical non-alloyed and alloyed steel sheet and strip delivered in the semi-processed state	-	-
IEC 60404-8-4	-	Magnetic materials - Part 8-4: Specifications for individual materials - Cold-rolled non-oriented electrical steel strip and sheet delivered in the fully-processed state	-	-
IEC 60404-8-7	-	Magnetic materials - Part 8-7: Specifications for individual materials - Cold-rolled grain-oriented electrical steel strip and sheet delivered in the fully-processed state	-	-
IEC 60404-8-8	-	Magnetic materials - Part 8: Specifications for individual materials - Section 8: Specification for thin magnetic steel strip for use at medium frequencies	-	-
IEC 60404-8-10	-	Magnetic materials - Part 8-10: Specifications for individual materials - Magnetic materials (iron and steel) for use in relays	-	-

**EN 60404-8-6:2017**

IEC 60404-9	-	Magnetic materials - Part 9: Methods of determination of the geometrical characteristics of magnetic steel sheet and strip	-	-
IEC 60635	-	Toroidal strip-wound cores made of magnetically soft material	-	-
ISO 404	-	Steel and steel products - General technical delivery requirements	-	-
ISO 10474	-	Steel and steel products - Inspection documents	-	-





**IEC 60404-8-6**

Edition 3.0 2016-12

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**

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**Magnetic materials –  
Part 8-6: Specifications for individual materials – Soft magnetic metallic  
materials**

**Matériaux magnétiques –  
Partie 8-6: Spécifications pour matériaux particuliers – Matériaux métalliques  
magnétiquement doux**





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**IEC 60404-8-6**

Edition 3.0 2016-12

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**

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**Magnetic materials –  
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**Matériaux magnétiques –  
Partie 8-6: Spécifications pour matériaux particuliers – Matériaux métalliques  
magnétiquement doux**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### MAGNETIC MATERIALS –

#### Part 8-6: Specifications for individual materials – Soft magnetic metallic materials

#### FOREWORD

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International Standard IEC 60404-8-6 has been prepared by IEC technical committee 68: Magnetic alloys and steels.

This third edition cancels and replaces the second edition published in 1999 and Amendment 1:2007. This edition constitutes a technical revision.

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

Removal of Table 2b).

The text of this standard is based on the following documents:

CDV	Report on voting
68/528/CDV	68/552/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 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 publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

## MAGNETIC MATERIALS –

### Part 8-6: Specifications for individual materials – Soft magnetic metallic materials

#### 1 Scope

This part of IEC 60404 specifies the general requirements, magnetic properties, geometric characteristics and tolerances as well as inspection procedures for pure iron, silicon-iron, nickel-iron and cobalt-iron. The materials are in the form of bar, billet, sheet, strip or wire. The alloys covered correspond to those defined by classes A, C1, C2, E1 to E4 and F1 to F3 in IEC 60404-1.

Magnetic materials used primarily for relays, iron and steel products, classified only by coercivity, are covered in IEC 60404-8-10. IEC 60404-8-10 is less restrictive in terms of magnetic properties than the irons (class A) and the silicon steels (classes C21 and C22) specified in this standard, but it gives more comprehensive dimensional tolerances.

Non-oriented and oriented silicon steels (C21 and C22) for industrial power frequency applications, classified by specific total loss, are covered in IEC 60404-8-3, IEC 60404-8-4 and IEC 60404-8-7.

Non-oriented and oriented thin magnetic materials for use at medium frequencies, classified by specific total loss, are covered in IEC 60404-8-8.

#### 2 Normative references

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IEC 60050-221, *International Electrotechnical Vocabulary – Chapter 221: Magnetic materials and components*

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 60404-4, *Magnetic materials – Part 4: Methods of measurement of d.c. magnetic properties of iron and steel*

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