ICS 17.220.20, 29.030 SLOVENSKÁ TECHNICKÁ NORMA November 2018

STN	**Magnetické materiály Časť 8-11: Špecifikácia jednotlivých materiálov Amorfné pásy na báze železa dodávané v čiastočne spracovanom stave**	**STN EN IEC 60404-8-11** 34 5884

Magnetic materials - Part 8-11: Specifications for individual materials - Fe-based amorphous strip delivered in the semi-processed state

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 10/18

Obsahuje: EN IEC 60404-8-11:2018, IEC 60404-8-11:2018

127381

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60404-8-11

July 2018

ICS 17.220.20; 29.030

English Version

Magnetic materials - Part 8-11: Specifications for individual materials - Fe-based amorphous strip delivered in the semi-processed state (IEC 60404-8-11:2018)

Matériaux magnétiques - Partie 8-11: Spécifications pour matériaux particuliers - Bandes en alliage amorphe à base de fer livrées à l'état semi-fini (IEC 60404-8-11:2018)

Magnetische Werkstoffe - Teil 8-11: Anforderungen an einzelne Werkstoffe - eisenbasiertes, amorphes Band in nicht schlussgeglühtem Zustand (IEC 60404-8-11:2018)

This European Standard was approved by CENELEC on 2018-04-12. CENELEC 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-CENELEC Management Centre or to any CENELEC 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 CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 60404-8-11:2018

European foreword

The text of document 68/571/CDV, future edition 1 of IEC 60404-8-11, prepared by IEC/TC 68 "Magnetic alloys and steels" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60404-8-11:2018.

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)	2019-01-12
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2021-04-12

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 60404-8-11:2018 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where 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.

Publication	Year	Title	EN/HD	Year
IEC 60050-121	-	International Electrotechnical Vocabulary (IEV) - Part 121: Electromagnetism	-	-
IEC 60050-221	-	International Electrotechnical Vocabulary (IEV) - Chapter 221: Magnetic materials and components	-	-
IEC 60404-1	-	Magnetic materials - Part 1: Classification	EN 60404-1	-
IEC 60404-9	-	Magnetic materials - Part 9: Methods of determination of the geometrical characteristics of electrical steel sheet and strip	EN 60404-9	-
IEC 60404-16	-	Magnetic materials - Part 16: Methods of measurement of the magnetic properties of Fe-based amorphous strip by means of a single sheet tester	EN IEC 60404-16	-
ISO 404	-	Steel and steel products - General technical delivery requirements	-	-
ISO 10474	-	Steel and steel products - Inspection documents	-	-

IEC 60404-8-11

Edition 1.0 2018-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Magnetic materials –
Part 8-11: Specifications for individual materials – Fe-based amorphous strip delivered in the semi-processed state

Matériaux magnétiques –
Partie 8-11: Spécifications pour matériaux particuliers – Bandes en alliage amorphe à base de fer livrées à l'état semi-fini

IEC 60404-8-11:2018-03(en-fr)

IEC 60404-8-11

Edition 1.0 2018-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Magnetic materials –
Part 8-11: Specifications for individual materials – Fe-based amorphous strip delivered in the semi-processed state

Matériaux magnétiques –
Partie 8-11: Spécifications pour matériaux particuliers – Bandes en alliage amorphe à base de fer livrées à l'état semi-fini

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 17.220.20; 29.030 ISBN 978-2-8322-5437-0

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

MAGNETIC MATERIALS –

Part 8-11: Specifications for individual materials – Fe-based amorphous strip delivered in the semi-processed state

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60404-8-11 has been prepared by IEC technical committee 68: Magnetic alloys and steels.

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

CDV	Report on voting
68/571/CDV	68/585A/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 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.

INTRODUCTION

Fe-based amorphous strip is regarded as a promising material to reduce energy loss in transformer cores and, consequently, to help mitigate global warming.

The Fe-based amorphous strip is produced by a rapidly-solidifying, direct-casting process. The strip is intended primarily for the construction of wound cores of transformers for commercial power frequency (50 Hz and 60 Hz) applications.

After appropriate heat treatment, the strip exhibits a significantly lower value of specific total loss in comparison with grain-oriented electrical steel strip for the same applications. It is associated with low hysteresis loss due to low magnetic anisotropy and with low eddy current loss due to high resistivity and reduced thickness.

MAGNETIC MATERIALS –

Part 8-11: Specifications for individual materials – Fe-based amorphous strip delivered in the semi-processed state

1 Scope

This part of IEC 60404 defines the grades of Fe-based amorphous strip delivered in the semi-processed state, i.e. without final heat treatment, of nominal thickness 0,025 mm. Other nominal thicknesses in the range from 0,020 mm to 0,030 mm can be specified by agreement between the manufacturer and the purchaser at the time of enquiry and order. In particular, it gives general requirements, magnetic properties, geometric characteristics, tolerances and technological characteristics, as well as inspection procedures.

This document applies to the rapidly-solidified Fe-based amorphous strip supplied in coils with as-cast edges and intended for the construction of magnetic circuits.

The grades are grouped into two classes:

– conventional grades;

– high permeability grades.

They correspond to Class I1 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*

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

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

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

IEC 60404-16, *Magnetic materials – Part 16: Methods of measurement of the magnetic properties of Fe-based amorphous strip by means of a single sheet tester*

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