

STN	Izolačné materiály Dosky z priemyselných vrstvených materiálov na báze živíc tvrditeľných teplom pre elektrotechniku Časť 2: Skúšobné metódy	STN EN IEC 60893-2 34 6570
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Insulating materials - Industrial rigid laminated sheets based on thermosetting resins for electrical purposes - Part 2: Methods of test

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. 03/24

Obsahuje: EN IEC 60893-2:2023, IEC 60893-2:2023

Oznámením tejto normy sa od 18.12.2026 ruší
STN EN 60893-2 (34 6570) z januára 2005

138286

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2024
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii
v znení neskorších predpisov.

EUROPEAN STANDARD

EN IEC 60893-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2023

ICS 29.035.01

Supersedes EN 60893-2:2004

English Version

**Insulating materials - Industrial rigid laminated sheets based on
thermosetting resins for electrical purposes - Part 2: Methods of
test
(IEC 60893-2:2023)**

Matériaux isolants - Stratifiés industriels rigides en planches
à base de résines thermodurcissables à usages électriques
- Partie 2: Méthodes d'essai
(IEC 60893-2:2023)

Isoliermaterialien - Industrielle starre Schichtstoffplatten auf
Basis duroplastischer Harze für elektrotechnische Zwecke -
Teil 2: Prüfverfahren
(IEC 60893-2:2023)

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Europäisches Komitee für Elektrotechnische Normung

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EN IEC 60893-2:2023 (E)**European foreword**

The text of document 15/1017/FDIS, future edition 3 of IEC 60893-2, prepared by IEC/TC 15 "Solid electrical insulating materials" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60893-2:2023.

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) 2024-09-18
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-12-18

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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.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60112	-	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN IEC 60112	-
IEC 60212	2010	Standard conditions for use prior to and during the testing of solid electrical insulating materials	EN 60212	2011
IEC 60216-1	2013	Electrical insulating materials - Thermal endurance properties - Part 1: Ageing procedures and evaluation of test results	EN 60216-1	2013
IEC 60243-1	2013	Electric strength of insulating materials - Test methods - Part 1: Tests at power frequencies	EN 60243-1	2013
IEC 60296	2012	Fluids for electrotechnical applications - Unused mineral insulating oils for transformers and switchgear	EN 60296	2012
IEC 60587	2007	Electrical insulating materials used under severe ambient conditions - Test methods for evaluating resistance to tracking and erosion	EN 60587	2007
IEC 60695-11-10	2013	Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	2013
IEC 60893-1	-	Insulating materials - Industrial rigid laminated sheets based on thermosetting resins for electrical purposes - Part 1: Definitions, designations and general requirements	EN 60893-1	-
IEC 60893-3	series	Insulating materials - Industrial rigid laminated sheets based on thermosetting resins for electrical purposes - Part 3: Specifications for individual materials	EN 60893-3	series

EN IEC 60893-2:2023 (E)

IEC 62631-3-3	2015	Dielectric and resistive properties of solid insulating materials - Part 3-3: Determination of resistive properties (DC methods) - Insulation resistance	EN 62631-3-3	2016
IEC/TR 60893-4	-	Insulating materials - Industrial rigid laminated sheets based on thermosetting resins for electrical purposes - Part 4: Typical values	-	-
ISO 62	2008	Plastics - Determination of water absorption	EN ISO 62	2008
ISO 178	2010	Plastics - Determination of flexural properties	EN ISO 178	2010
ISO 179-1	2000	Plastics - Determination of Charpy impact properties - Part 1: Non-instrumented impact test	EN ISO 179-1	2000
ISO 179-2	1997	Plastics - Determination of Charpy impact properties - Part 2: Instrumented impact test	EN ISO 179-2	1999
ISO 180	2000	Plastics - Determination of Izod impact strength	EN ISO 180	2000
ISO 527-1	2012	Plastics - Determination of tensile properties - Part 1: General principles	EN ISO 527-1	2012
ISO 527-4	1997	Plastics - Determination of tensile properties - Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites	EN ISO 527-4	1997
ISO 604	2002	Plastics - Determination of compressive properties	EN ISO 604	2003
ISO 1183-1	2012	Plastics - Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method	EN ISO 1183-1	2012
ISO 3611	2010	Geometrical product specifications (GPS) - Dimensional measuring equipment: Micrometers for external measurements - Design and metrological characteristics	EN ISO 3611	2010



IEC 60893-2

Edition 3.0 2023-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Insulating materials – Industrial rigid laminated sheets based on thermosetting resins for electrical purposes –
Part 2: Methods of test**

**Matériaux isolants – Stratifiés industriels rigides en planches à base de résines thermodurcissables à usages électriques –
Partie 2: Méthodes d'essai**



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IEC 60893-2

Edition 3.0 2023-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Insulating materials – Industrial rigid laminated sheets based on thermosetting resins for electrical purposes –
Part 2: Methods of test**

**Matériaux isolants – Stratifiés industriels rigides en planches à base de résines thermodurcissables à usages électriques –
Partie 2: Méthodes d'essai**

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ICS 29.035.01

ISBN 978-2-8322-7825-3

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INSULATING MATERIALS –
INDUSTRIAL RIGID LAMINATED SHEETS
BASED ON THERMOSETTING RESINS
FOR ELECTRICAL PURPOSES –****Part 2: Methods of test****FOREWORD**

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IEC 60893-2 has been prepared by IEC technical committee 15: Solid electrical insulating materials. It is an International Standard.

This third edition cancels and replaces the second edition published in 2003. This edition constitutes a technical revision.

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

- a) removal of reference to withdrawn specification IEC 60167:1964;

- b) inclusion of reference to IEC 62631-3-3:2015, which supersedes IEC 60167:1964. Details in 6.3 have been updated accordingly. The actual performance of the test has not changed;
- c) normative references have been updated.

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

Draft	Report on voting
15/1017/FDIS	15/1023/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 60893 series, published under the general title *Insulating materials – Industrial rigid laminated sheets based on thermosetting resins for electrical purposes*, 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

This document is one of a series which deals with industrial rigid laminated sheets based on thermosetting resins for electrical purposes.

This series consists of four parts:

- Part 1: Definitions, designations and general requirements (IEC 60893-1);
- Part 2: Methods of test (IEC 60893-2);
- Part 3: Specifications for individual materials (IEC 60893-3);
- Part 4: Typical values (IEC TR 60893-4).

INSULATING MATERIALS – INDUSTRIAL RIGID LAMINATED SHEETS BASED ON THERMOSETTING RESINS FOR ELECTRICAL PURPOSES –

Part 2: Methods of test

1 Scope

This part of IEC 60893 describes methods of test for the materials defined in IEC 60893-1 (referred to also as Part 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 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60212:2010, *Standard conditions for use prior to and during the testing of solid electrical insulating materials*

IEC 60216-1:2013, *Electrical insulating materials – Thermal endurance properties – Part 1: Ageing procedures and evaluation of test results*

IEC 60243-1:2013, *Electric strength of insulating materials – Test methods – Part 1: Tests at power frequencies*

IEC 60296:2012¹, *Fluids for electrotechnical applications – Unused mineral insulating oils for transformers and switchgear*

IEC 60587:2007², *Electrical insulating materials used under severe ambient conditions – Test methods for evaluating resistance to tracking and erosion*

IEC 60695-11-10:2013, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

IEC 60893-1, *Insulating materials – Industrial rigid laminated sheets based on thermosetting resins for electrical purposes – Part 1: Definitions, designations and general requirements*

IEC 60893-3 (all parts), *Insulating materials – Industrial rigid laminated sheets based on thermosetting resins for electrical purposes – Part 3: Specifications for individual materials*

¹ A fifth edition of this standard has been published in 2020.

² A fourth edition of this standard has been published in 2022.

IEC TR 60893-4, *Insulating materials – Industrial rigid laminated sheets based on thermosetting resins for electrical purposes – Part 4: Typical values*

IEC 62631-3-3:2015, *Dielectric and resistive properties of solid insulating materials – Part 3-3: Determination of resistive properties (DC methods) – Insulation resistance*

ISO 62:2008, *Plastics – Determination of water absorption*

ISO 178:2010³, *Plastics – Determination of flexural properties*

ISO 179-1:2000⁴, *Plastics – Determination of Charpy impact properties – Part 1: Non-instrumented impact test*

ISO 179-2:1997⁵, *Plastics – Determination of Charpy impact properties – Part 2: Instrumented impact test*

ISO 180:2000⁶, *Plastics – Determination of Izod impact strength*

ISO 527-1:2012⁷, *Plastics – Determination of tensile properties – Part 1: General principles*

ISO 527-4:1997⁸, *Plastics – Determination of tensile properties – Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites*

ISO 604:2002, *Plastics – Determination of compressive properties*

ISO 1183-1:2012⁹, *Plastics – Methods for determining the density of non-cellular plastics – Part 1: Immersion method, liquid pycnometer method and titration method*

ISO 3611:2010¹⁰, *Geometrical product specifications (GPS) – Dimensional measuring equipment: Micrometers for external measurements – Design and metrological characteristics*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN

³ A sixth edition of this standard has been published in 2019.

⁴ A third edition of this standard has been published in 2023.

⁵ A second edition of this standard has been published in 2020.

⁶ A fifth edition of this standard has been published in 2023.

⁷ A third edition of this standard has been published in 2019.

⁸ A third edition of this standard has been published in 2023.

⁹ A third edition of this standard has been published in 2019.

¹⁰ A third edition of this standard has been published in 2023.