



# SLOVENSKI STANDARD SIST EN ISO 14126:2023

01-december-2023

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## Z vlakni ojačeni polimerni kompoziti - Ugotavljanje tlačnih lastnosti v ravnini laminiranja (ISO 14126:2023)

Fibre-reinforced plastic composites - Determination of compressive properties in the in-plane direction (ISO 14126:2023)

Faserverstärkte Kunststoffe - Bestimmung der Druckeigenschaften in der Laminatenebene (ISO 14126:2023)

Composites plastiques renforcés de fibres - Détermination des caractéristiques en compression dans le plan (ISO 14126:2023)

**Ta slovenski standard je istoveten z: EN ISO 14126:2023**

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### ICS:

83.120

Ojačani polimeri

Reinforced plastics

**SIST EN ISO 14126:2023**

**en,fr,de**



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 14126**

October 2023

ICS 83.120

Supersedes EN ISO 14126:1999, EN ISO  
14126:1999/AC:2002

English Version

**Fibre-reinforced plastic composites - Determination of  
compressive properties in the in-plane direction (ISO  
14126:2023)**

Composites plastiques renforcés de fibres -  
Détermination des caractéristiques en compression  
dans le plan (ISO 14126:2023)

Faserverstärkte Kunststoffe - Bestimmung der  
Druckeigenschaften in der Laminebene (ISO  
14126:2023)

This European Standard was approved by CEN on 5 October 2023.

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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-CENELEC Management Centre has the same status as the official versions.

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## European foreword

This document (EN ISO 14126:2023) has been prepared by Technical Committee ISO/TC 61 "Plastics" in collaboration with Technical Committee CEN/TC 249 "Plastics" the secretariat of which is held by SIS.

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of an identical text or by endorsement, at the latest by April 2024, and conflicting national standards shall be withdrawn at the latest by April 2024.

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

This document supersedes EN ISO 14126:1999, EN ISO 14126:1999/AC:2002.

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INTERNATIONAL  
STANDARD

ISO  
14126

Second edition  
2023-10

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**Fibre-reinforced plastic composites —  
Determination of compressive  
properties in the in-plane direction**

*Composites plastiques renforcés de fibres — Détermination des  
caractéristiques en compression dans le plan*

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Reference number  
ISO 14126:2023(E)

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Published in Switzerland



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 13, *Composites and reinforcement fibres*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 249, *Plastics*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 14126:1999), which has been technically revised.

The main changes are as follows:

- a new normative [Annex A](#), alignment of specimen and loading train, has been added and subsequent annexes have been renumbered;
- [Annex B](#), specimen preparation, is now normative to emphasise the importance of producing good quality specimens;
- two new informative [Annexes F](#) and [G](#) have been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## ISO 14126:2023(E)

### Introduction

This document, originally published in 1999, was based on ISO 8515<sup>[1]</sup> with the scope extended from glass-fibre reinforcement to include all fibre-reinforced plastic composites, such as composites based on carbon and aramid fibres. Other source documents consulted included ASTM D 3410<sup>[2]</sup>, SACMA SRM1<sup>[3]</sup>, prEN 2850<sup>[4]</sup>, CRAG 400<sup>[5]</sup>, DIN 65380<sup>[6]</sup> and JIS K7076<sup>[7]</sup>. Several different types of anti-buckling fixtures/loading jigs, different materials and different specimen sizes are covered by these source documents, although all are parallel-sided coupons. New or modified geometry support jigs are still being developed, for example in JIS K7018<sup>[8]</sup>.

This document harmonizes and rationalizes the current situation by:

- a) concentrating on the quality of the test by limiting the maximum bending strain allowable (i.e. 10 % between 10 % and 90 % of the maximum load, as recommended by ASTM), so that an axial-load case can be assumed;
- b) standardizing on two related specimen designs, one principally for aerospace type unidirectional pre-impregnated materials (i.e. Type A) and one for other materials/formats (i.e. Types B1/B2). The chosen specimen design can be used with different loading fixtures;
- c) defining acceptable failure criteria (e.g. avoiding within grip failures);
- d) including an equation for determining the specimen minimum thickness to avoid Euler buckling proposed by ASTM for harmonization purposes (taken from ASTM D 3410<sup>[2]</sup> in a modified form);
- e) allowing any design of support/loading fixture to be used that meets the above bending requirements, using different principles of loading (i.e. essentially shear and combined loading);
- f) ensuring that the test specimen and loading/support fixture are well aligned (see [Annex A](#));
- g) concentrating on the quality of specimen preparation (see [Annex B](#));
- h) including guidance on the use of digital image correlation (DIC) for strain and bending measurements (see [Annex G](#));

NOTE 1 Compression properties measured in the through-thickness direction (direction 3 in [Figure 1](#)) are covered by ISO 20975-1<sup>[9]</sup>.

NOTE 2 Compression properties of rigid plastics having only unaligned short (<7,5 mm) fibres or no fibre content [rather than long (>7,5 mm) discontinuous or continuous fibres] is covered by ISO 604<sup>[10]</sup>.