



**SLOVENSKI STANDARD**  
**SIST EN ISO 14126:2000**  
**01-december-2000**

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Fibre-reinforced plastic composites - Determination of compressive properties in the in-plane direction (ISO 14126:1999)

Faserverstärkte Kunststoffe - Bestimmung der Druckeigenschaften in der Laminatenebene (ISO 14126:1999)

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Composites plastiques renforcés de fibres - Détermination des caractéristiques en compression dans le plan (ISO 14126:1999)

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**Ta slovenski standard je istoveten z: EN ISO 14126:1999**

**ICS:**

83.120      Ube a] a] [ |ã ^!ã      Reinforced plastics

**SIST EN ISO 14126:2000**      **en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN ISO 14126

September 1999

ICS

English version

Fibre-reinforced plastic composites - Determination of  
compressive properties in the in-plane direction (ISO  
14126:1999)

Composites plastiques renforcés de fibres - Détermination  
des caractéristiques en compression dans le plan (ISO  
14126:1999)

Faserverstärkte Kunststoffe - Bestimmung der  
Druckeigenschaften in der Laminebene (ISO 14126:1999)

This European Standard was approved by CEN on 8 August 1999.

CEN 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 Central Secretariat or to any CEN 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 CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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EN ISO 14126:1999

## Foreword

The text of the International Standard ISO 14126:1999 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 IBN.

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 March 2000, and conflicting national standards shall be withdrawn at the latest by March 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## Endorsement notice

The text of the International Standard ISO 14126:1999 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

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**Annex ZA (normative)**  
**Normative references to international publications**  
**with their relevant European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 291	1997	Plastics - Standard atmospheres for conditioning and testing	EN ISO 291	1997
ISO 527-1	1993	Plastics - Determination of tensile properties - Part 1: General principles	EN ISO 527-1	1996
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

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INTERNATIONAL  
STANDARD

ISO  
14126

First edition  
1999-09-01

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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 14126:1999(E)

## ISO 14126:1999(E)

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 14126 was prepared by ISO/TC 61, *Plastics*, Subcommittee SC 13, *Composites and reinforcement fibres*.

This first edition cancels and replaces ISO 8515:1991, which dealt only with glass-fibre-reinforced plastic composites.

Annex A forms a normative part of this International Standard. Annexes B to D are for information only.

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## Introduction

This standard is based on ISO 8515, with the scope extended to include all fibre-reinforced plastic composites, such as more recent composites based on carbon and aramid fibres, but retains the test conditions relevant for glass-fibre-reinforced systems. Other source documents consulted include ASTM D 3410 (buckling criteria, larger specimen width and longer gauge length), ASTM D 695 (modified version in SACMA SRM1), prEN 2850, CRAG 400, DIN 65380 and JIS K 7076 (see bibliography).

Several different types of jig, different materials and different specimen sizes are covered by these source documents. The table below presents examples, the specimen sizes being given as overall length  $\times$  gauge length  $\times$  width  $\times$  thickness, in millimetres.

ISO 8515 (GRP)	Celanese type $110 \times 13 \times 6,4 \times 2$	End block $120 \times 20 \times 10 \times (3 \text{ to } 10)$	
prEN 2850 (CFRP)	Celanese type $110 \times 10 \times 10 \times 2$	ASTM D 695 $80 \times 5 \times 12,5 \times 2$	Revision includes a machined specimen with co-cured tabs.
JIS K 7076 (CFRP)	ASTM D 695 $78 \times 8 \times 12,5 \times 2$	Celanese $134 \times 8 \times 6,5 \times 2$	ITTRI $108 \times 8 \times (6 \text{ to } 12,5) \times (1 \text{ to } 2)$
ASTM D 3410 (all fibres) (equations/tables give	Celanese $140 \times 12 \times 6 \times \text{variable}$	ITTRI $140 \times (25 \text{ to } 12) \times (12 \text{ or } 25) \times \text{variable}$	
DIN 65380 (all fibres)	Celanese $112 \times 8 \times 6,35 \times 2$	ITTRI $112 \times 8 \times 6,35 \times 2$	
CRAG 400 (all fibres)	Celanese $110 \times 10 \times 10 \times 2$		
SACMA SRM1 (all fibres)	ASTM D 695 (modified) $80,8 \times 12,7 \times 4,8 \times [1 \text{ (unidir.) or } 3 \text{ (fabric)}]$		

These test methods use aspect ratios (height/thickness and height/width) for the gauge area covering a range of values, which appears undesirable in a test known to be susceptible to buckling failures. Also, new support jigs are still being developed. This International Standard harmonizes and rationalizes the current situation by:

- concentrating on the quality of the test by limiting the maximum bending-buckling strain allowable at failure (i.e. 10 % as recommended by ASTM — see also 5 % level in prEN 2850), so that it is possible to justify an axial-load analysis;
- allowing any design of jig to be used that meets this above requirement, using two methods of loading (i.e. shear and end loaded);
- standardizing on two specimen designs, one principally for unidirectional material and one for other materials (the chosen specimen can be used with either loading method);
- adding an informative note as annex D, which was proposed by ASTM for harmonization purposes, and is taken from ASTM D 3410 (in a modified form).

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