Irish Standard
I.S. EN ISO 17140:2016

Fine ceramics (advanced ceramics, advanced technical ceramics) - Mechanical properties of ceramic composites at room temperature - Determination of fatigue properties at constant amplitude (ISO 17140:2014)

I.S. EN ISO 17140:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN ISO 17140:2016 is the adopted Irish version of the European Document EN ISO 17140:2016, Fine ceramics (advanced ceramics, advanced technical ceramics) - Mechanical properties of ceramic composites at room temperature - Determination of fatigue properties at constant amplitude (ISO 17140:2014)

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 17140

April 2016

ICS 81.060.30

Supersedes EN 15156:2006

English Version

Fine ceramics (advanced ceramics, advanced technical ceramics) - Mechanical properties of ceramic composites at room temperature - Determination of fatigue properties at constant amplitude (ISO 17140:2014)

Céramiques techniques - Propriétés mécaniques des céramiques composites à température ambiante - Détermination des propriétés de fatigue à amplitude constante (ISO 17140:2014)

Hochleistungskeramik - Mechanische Eigenschaften von keramischen Verbundwerkstoffen bei Raumtemperatur - Bestimmung der Ermüdungseigenschaften bei konstanter Amplitude (ISO 17140:2014)

This European Standard was approved by CEN on 25 March 2016.

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

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European foreword

The text of ISO 17140:2014 has been prepared by Technical Committee ISO/TC 206 “Fine ceramics” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 17140:2016 by Technical Committee CEN/TC 184 “Advanced technical ceramics” the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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

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Endorsement notice

The text of ISO 17140:2014 has been approved by CEN as EN ISO 17140:2016 without any modification.

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I.S. EN ISO 17140:2016

INTERNATIONAL STANDARD

ISO 17140

First edition
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Fine ceramics (advanced ceramics, advanced technical ceramics) — Mechanical properties of ceramic composites at room temperature — Determination of fatigue properties at constant amplitude

Céramiques techniques — Propriétés mécaniques des composites céramiques à température ambiante — Détermination des propriétés de fatigue à amplitude constante

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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 documents 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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 206, *Fine ceramics*.

Fine ceramics (advanced ceramics, advanced technical ceramics) — Mechanical properties of ceramic composites at room temperature — Determination of fatigue properties at constant amplitude

1 Scope

This International Standard specifies the conditions for the determination of properties at constant-amplitude of load or strain in uniaxial tension/tension or in uniaxial tension/compression cyclic fatigue of ceramic matrix composite materials (CMCs) with fibre reinforcement at room temperature.

This International Standard applies to all ceramic matrix composites with fibre reinforcement, unidirectional (1D), bi-directional (2D), and tri-directional (xD, where $2 < x \leq 3$).

2 Normative references

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.

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

ISO 7500-1, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Verification and calibration of the force-measuring system*

ISO 9513, *Metallic materials — Calibration of extensometer systems used in uniaxial testing*

ISO 14544, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Mechanical properties of ceramic composites at high temperature — Determination of compression properties*

ISO 14574, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Mechanical properties of ceramic composites at high temperature — Determination of tensile properties*

ISO 15733, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Mechanical properties of ceramic composites at ambient temperature in air atmospheric pressure — Determination of tensile properties*

CEN/TR 13233, *Advanced technical ceramics — Notations and symbols*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CEN/TR 13233[1)] and the following apply.

3.1 General

3.1.1
calibrated length
l
part of the test specimen which has uniform and minimum cross-section area

1) Intended to be substituted by a future International Standard.