

**Advanced technical ceramics - Ceramic
composites - Determination of elastic properties by
resonant beam method up to 2 000 °C**

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 15335:2007 sisaldab Euroopa standardi EN 15335:2007 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 21.06.2007 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

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This Estonian standard EVS-EN 15335:2007 consists of the English text of the European standard EN 15335:2007.

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Võtmesõnad:

Standardite reprodutseerimis- ja levitamisoigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
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English Version

Advanced technical ceramics - Ceramic composites -
Determination of elastic properties by resonant beam method up
to 2 000 °C

Céramiques techniques avancées - Céramiques
composites - Détermination des propriétés élastiques par
une méthode de résonance sur poutres, jusqu'à 2 000 °C

Hochleistungskeramik - Keramische Verbundwerkstoffe -
Bestimmung der elastischen Eigenschaften bei
Verwendung des Resonanz-Verfahrens bis 2 000 °C

This European Standard was approved by CEN on 26 April 2007.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This document (EN 15335:2007) has been prepared by Technical Committee CEN/TC 184 "Advanced technical ceramics", the secretariat of which is held by BSI.

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 November 2007, and conflicting national standards shall be withdrawn at the latest by November 2007.

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

1 Scope

This European Standard specifies the resonant beam method for the determination of the dynamic elastic moduli of fibre reinforced ceramic matrix composites from 20 °C up to 2 000 °C in vacuum or inert atmosphere. The Young's moduli and the shear moduli for different orientations with respect to the main axes of symmetry of the composite can be obtained.

This document applies to ceramic matrix composites with fibre reinforcement: short fibres, unidirectional (1D), bidirectional (2D), and tridirectional (xD, with $2 < x \leq 3$) which have at least orthotropic symmetry.

NOTE 1 Dynamic means that the elastic moduli are determined non-quasistatically, i.e. under adiabatic conditions, as with the ultrasonic method set out in ENV 14186. The elastic moduli determined by this method may not be compared with moduli obtained in an isothermal condition by stressing statically or quasistatically as with EN 658-1, EN 658-2, EN 1892, EN 1893, EN 12290 and EN 12291.

NOTE 2 The ceramic matrix composites with fibre reinforcement, listed above, are denoted as "composites" in the course of the document.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 60584-1, *Thermocouples — Part 1: Reference tables (IEC 60584-1:1995)*

EN 60584-2, *Thermocouples — Part 2: Tolerances (IEC 60584- 2:1982 + A1:1989)*

EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2005)*

ISO 3599, *Vernier callipers reading to 0,1 and 0,05 mm*

ISO 3611, *Micrometer callipers for external measurement*