INTERNATIONAL STANDARD

ISO 18558

First edition
2015-05-15

Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for determining elastic modulus and bending strength of ceramic tube and rings

Céramiques techniques — Méthode d'essai pour la détermination du module élastique et de la résistance en flexion des tubes et anneaux en céramique

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Reference number
ISO 18558:2015(E)

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Published in Switzerland

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Foreword

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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*.

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Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for determining elastic modulus and bending strength of ceramic tube and rings

1 Scope

This International Standard specifies the testing method for determining the elastic modulus and bending strength of ceramic tubes or rings at ambient temperature by the compression tests on split ring pieces. Methods for test piece preparation, test modes and load rates, data collection, and reporting procedures are addressed.

This International Standard applies primary to the ceramic materials including monolithic fine ceramic, glass, whisker- or particulate reinforced ceramic composites, but not available for fibre reinforced ceramic composites. This test method may be used for material research, quality control, and characterization and design data generation purpose.

2 Normative references

The following referenced documents, in whole or in part, are normatively in this document and are indispensable to 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 7500-1, *Metallic materials — Verification of static uniaxial testing machines — part 1: Tension/compression testing machines — Verification and calibration of the force-measuring system*

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3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
elastic modulus
ratio of stress to strain, also known as Young's modulus

3.2
bending strength
maximum tensile stress at fracture of a split ring under compression

3.3
split ring
test piece which has the shape of a split ring, prepared by cutting a gap from a ring piece

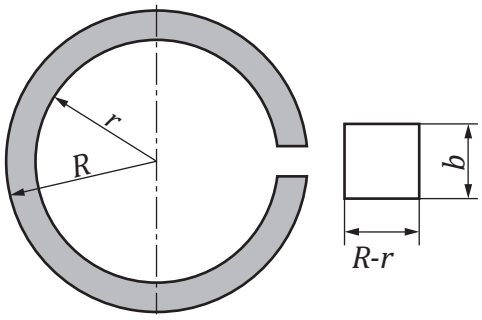

Figure 1 — Schematic diagram of a split ring piece

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