BS EN ISO 4506:2018

BSI Standards Publication

Hardmetals - Compression test (ISO 4506:2018)

bsi.

National foreword

This British Standard is the UK implementation of EN ISO 4506:2018. It is identical to ISO 4506:2018. It supersedes BS EN 24506:1993, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ISE/65, Sintered metal components.

A list of organizations represented on this committee can be obtained on request to its secretary.

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This European Standard was approved by CEN on 5 April 2018.

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European foreword

This document (EN ISO 4506:2018) has been prepared by Technical Committee ISO/TC 119 “Powder metallurgy”.

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of an identical text or by endorsement, at the latest by October 2018, and conflicting national standards shall be withdrawn at the latest by October 2018.

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.

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Endorsement notice

The text of ISO 4506:2018 has been approved by CEN as EN ISO 4506:2018 without any modification.

Contents

Page

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 voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 119, *Powder metallurgy*, Subcommittee SC 4, *Sampling and testing methods for hardmetals*.

This second edition cancels and replaces the first edition (ISO 4506:1979), which has been technically revised with the following main changes:

— Clause 2 and Clause 3 added;

— Clause 4: “hardmetal” changed to “cemented carbide or pcd (polycrystalline diamond) coated cemented carbide bearing blocks at room temperature”;

— Clause 5: Table 1 revised;

— Clause 6: “hardmetal” changed to “cemented carbide”, hardness changed to “1 800 HV”;

— 8.2.2.2: NOTE changed to body text and “or using a laser extensometer” added to end of first sentence;

— Clause 9: “at least five determinations” changed to “at least eight determinations”;

— Clause 10, Figure 1: “pcd” added;

— Clause 10, Figure 2: diameter “16 ± 0,3” changed to “12 ± 0,3”.

INTERNATIONAL STANDARD **ISO 4506:2018**

Hardmetals - Compression test (ISO 4506:2018)

1 Scope

This document specifies a method of determining the ultimate strength and proof stress of cemented carbide under uniaxial compressive loads.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Principle

Axial loading of a test piece, placed between two cemented carbide or pcd (polycrystalline diamond) coated cemented carbide bearing blocks at room temperature, until the intended deformation occurs or until the test piece fractures.

5 Symbols and designations

Table 1 shows symbols and designations.

Table 1 — Symbols and designations

Symbol	Designation	Unit
S_o	Minimum original cross-sectional area	mm^2
F_c $F_{c\,0,2}$	(With index) Load at proof stress, for example: Load at 0,2 % proof stress	 N
F_{cu}	Ultimate load, i.e. load at instant of fracture	N
R	Stress	N/mm^2
ε_c	Strain	%
E	Young's modulus	N/mm^2
R_c $\sigma_{0,2}$	(With index) Proof stress, for example: 0,2 % proof stress	 N/mm^2
UCS	Ultimate compressive strength	N/mm^2

6 Apparatus

The test machine shall be designed and constructed so that loads can be applied at a uniform rate and so that, within the measuring range in question, the maximum loading error will be ±1 %.