BSI Standards Publication

Metallic powders — Determination of green strength by transverse rupture of rectangular compacts

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National foreword

This British Standard is the UK implementation of EN ISO 3995:2023. It is identical to ISO 3995:2023. It supersedes BS EN 23995:1993, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee W/-, Consumer Products and Services Sector Policy and Strategy Committee.

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

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EUROPEAN STANDARD **EN ISO 3995**

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English Version

Metallic powders - Determination of green strength by transverse rupture of rectangular compacts (ISO 3995:2023)

Poudres métalliques - Détermination de la résistance à la rupture transversale de comprimés rectangulaires à cru (ISO 3995:2023)

Metallpulver - Bestimmung der Presskörperfestigkeit von Probekörpern mit rechteckigem Querschnitt unter Biegebeanspruchung (ISO 3995:2023)

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN ISO 3995:2023) has been prepared by Technical Committee ISO/TC 119 "Powder metallurgy" in collaboration with CCMC.

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of an identical text or by endorsement, at the latest by December 2023, and conflicting national standards shall be withdrawn at the latest by December 2023.

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.

This document supersedes EN 23995:1993.

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Endorsement notice

The text of ISO 3995:2023 has been approved by CEN as EN ISO 3995:2023 without any modification.

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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 document 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 of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 119, *Powder metallurgy*, Subcommittee SC 2, *Sampling and testing methods for powders (including powders for hardmetals),* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/SS M11, *Powder metallurgy,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 3995:1985), which has been technically revised.

The main changes are as follows:

— allowing automated compacting sequence in 7.4;

— adding second compacting pressure option and tighter tolerance in 7.5;

— mandatory reporting of lubrication technique and lubrication details in Clause 9;

— replacing stearic acid by synthetic wax;

— removing the use of solvent.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Metallic powders — Determination of green strength by transverse rupture of rectangular compacts

1 Scope

This document specifies a method for the determination of green strength by measuring the transverse rupture strength of compacts of rectangular cross-section.

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 terminology databases for use in standardization at the following addresses:

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

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

4 Principle

Subjection of a compact pressed from metallic powder to a uniformly increasing transverse force under controlled conditions until fracture occurs. Determination of the transverse rupture strength, or green strength as used herein, as the stress, calculated from the flexure formula, required to break the compact as a simple beam supported near the ends and applying the force midway between the fixed centre of supports.

The green strength is determined on compacts either having a particular density or after compaction at a specific compacting pressure.

5 Apparatus

5.1 Die, preferably of cemented carbide or alternatively of tool steel, and two punches for producing rectangular test pieces with dimensions according to Clause 6.

All mating parts shall be fitted and lapped. An example of a design for tooling is shown in Figure 1.