BS EN ISO 3928:2016

BSI Standards Publication

Sintered metal materials, excluding hardmetals — Fatigue test pieces (ISO 3928:1999)

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Full document details: BS EN ISO 3928:2016

National foreword

This British Standard is the UK implementation of EN ISO 3928:2016. It is identical to ISO 3928:1999. It supersedes BS EN ISO 3928:2006 which is withdrawn.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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EUROPEAN STANDARD

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EUROPÄISCHE NORM

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English Version

Sintered metal materials, excluding hardmetals - Fatigue test pieces (ISO 3928:1999)

Matériaux métalliques frittés, à l'exclusion des métaux-durs - Éprouvettes pour essais de fatigue (ISO 3928:1999)

Sintermetallwerkstoffe, ausgenommen Hartmetalle - Probekörper für die Ermüdungsprüfung (ISO 3928:1999)

This European Standard was approved by CEN on 29 June 2016.

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European foreword

The text of ISO 3928:1999 has been prepared by Technical Committee ISO/TC 119 "Powder metallurgy" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 3928:2016.

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of an identical text or by endorsement, at the latest by January 2017, and conflicting national standards shall be withdrawn at the latest by January 2017.

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This document supersedes EN ISO 3928:2006.

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Endorsement notice

The text of ISO 3928:1999 has been approved by CEN as EN ISO 3928:2016 without any modification.

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Sintered metal materials, excluding hardmetals — Fatigue test pieces

1 Scope

This International Standard specifies:

— the die cavity dimensions used for making fatigue test pieces by pressing and sintering, together with certain dimensions of the test piece obtained from such a die;

— the dimensions of the test pieces machined from sintered and powder forged materials.

This International Standard is applicable to all sintered metals and alloys, excluding hardmetals.

2 Pressed and sintered test pieces for fatigue test by reverse bend and axial testing

2.1 General

The pressed and sintered piece may also be subjected to further treatment, such as sizing, polishing or heat treatment. If such treatments are applied, they shall be stated in the test report. In a metallographically examined cross section of a test piece, in the gauge region, the piece shall show no micro-lamination greater than 0,25 mm in length. Corners shall be broken in the gauge area.

2.2 Test piece specification: unnotched

Figure 1 a) shows a drawing of the unnotched test piece. The flatness and parallelism of 0,1 mm are mandatory. The other dimensions are advisory. Burrs shall be avoided.

2.3 Test piece specification: notched

Figure 2 a) shows a drawing of the notched test piece. The flatness and parallelism of 0,1 mm are mandatory. The other dimensions are advisory. Burrs shall be avoided. The tooling radius 5,5 mm of the die is subject to wear, then the corresponding radius dimension of the test piece shall be reported.

3 Die specifications

3.1 General

The die should preferably be of hardmetal and its surface finish shall be such as to allow compression of test pieces under normal conditions. The die may include a small exit taper to facilitate ejection and avoid cracks or microlaminations in the test pieces. Die cavity may be tapered 0,01 per side to aid ejection. Die bore may be enlarged by 0,5 % for tooling to be used for repressing.

The die should be well supported with shrink rings (of internal diameter 120mm$^{+0,01}_{0}$), so as to minimize lateral expansion during compacting. Such support decreases the possibility of cracking of the specimen at ejection. To reduce the incidence of cracks in the specimen, it is recommended to use top punch hold down during ejection.

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