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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 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 3, *Sampling and testing methods for sintered metal materials (excluding 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 sixth edition cancels and replaces the fifth edition (ISO 2740:2009), which has been technically revised.

The main changes are as follows:

- [Figure 3](#), specifically the die in it, has been updated;
- [Figure 4](#) (former Figure 3), table below, Type A1: Value R_1 has been corrected to 12,5 mm;
- [Figure 4](#) (former Figure 3), table below, Type A2: Value R_1 has been corrected to 11,5 mm;
- references to the revised ISO 6892-1 has been updated;
- in [5.2](#), measurement unit given to optional die exit taper and 4th paragraph has been inserted;
- a new test piece geometry has been added as [Figure 3](#).

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.

Sintered metal materials, excluding hardmetals — Tensile test pieces

1 Scope

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

This document specifies:

- the die cavity dimensions used for making tensile test pieces by pressing and sintering, and by metal injection moulding (MIM) and sintering;
- the dimensions of tensile test pieces machined from sintered and powder forged materials.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature*

ISO 7500-1, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system*

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 Method of testing

4.1 Test pieces shall be tested in accordance with ISO 6892-1, and the tensile test machine shall be calibrated to Class 1, in accordance with ISO 7500-1.

4.2 Data are to be reported for three or more test pieces.

5 Manufacture of test pieces

5.1 Pressed and sintered test pieces

The tensile test pieces shall have thicknesses from 5 mm to 6,5 mm. A thickness tolerance of 1,5 mm accommodates varying apparent densities in metal powders.

During testing, the thinner pieces have less grip slippage and are more likely to break near the centre of the gauge length.