

Metallic powders - Determination of apparent density -
Part 1: Funnel method (ISO 3923-1:2018)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 3923-1:2018 sisaldab Euroopa standardi EN ISO 3923-1:2018 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 3923-1:2018 consists of the English text of the European standard EN ISO 3923-1:2018.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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English Version

**Metallic powders - Determination of apparent density -
Part 1: Funnel method (ISO 3923-1:2018)**

Poudres métalliques - Détermination de la masse
volumique apparente - Partie 1: Méthode de
l'entonnoir (ISO 3923-1:2018)

Metallpulver - Ermittlung der Füllichte - Teil 1:
Trichterverfahren (ISO 3923-1:2018)

This European Standard was approved by CEN on 3 May 2018.

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European foreword

This document (EN ISO 3923-1:2018) 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of an identical text or by endorsement, at the latest by January 2019, and conflicting national standards shall be withdrawn at the latest by January 2019.

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 ISO 3923-1:2010.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 3923-1:2018 has been approved by CEN as EN ISO 3923-1:2018 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 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 2, *Sampling and testing methods for powders (including powders for hard metals)*.

This fourth edition, which cancels and replaces the third edition (ISO 3923-1:2008), has been updated with the funnel used in the Gustavsson method. Also, the figures showing the funnels have been removed and instead references are made to the relevant test method standards.

A list of all the parts in the ISO 3923 series can be found on the ISO website.

Metallic powders — Determination of apparent density —

Part 1: Funnel method

1 Scope

This document specifies the funnel method for the determination of the apparent density of metallic powders under standardized conditions.

The method is intended for metallic powders that flow freely through a 2,5 mm diameter orifice. It can, however, be used for powders that flow with difficulty through a 2,5 mm diameter orifice but flow through a 5 mm diameter orifice.

Methods for the determination of the apparent density of powders that will not flow through a 5 mm diameter orifice are specified in ISO 3923-2[1].

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 4490, *Metallic powders — Determination of flow rate by means of a calibrated funnel (Hall flowmeter)*

ISO 13517, *Metallic powders — Determination of flowrate by means of a calibrated funnel (Gustavsson flowmeter)*

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

Measurement of the mass of a certain quantity of powder, which in a loose condition exactly fills a cup of known volume.

The loose condition is obtained by using, when filling the cup, a funnel placed at a determined distance above the cup.

The ratio between the mass and the volume represents the apparent density.

5 Symbols and designations

The symbols and designations used in this document are defined in [Table 1](#).