SVENSK STANDARD
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Metalliska pulver – Bestämning av fylldensitet och flytförmåga vid förhöjda temperaturer – Del 1: Bestämning av fylldensitet vid förhöjda temperaturer (ISO 18549-1:2009, IDT)

Metallic powders – Determination of apparent density and flow rate at elevated temperatures – Part 1: Determination of apparent density at elevated temperatures (ISO 18549-1:2009, IDT)

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Den internationella standarden ISO 18549-1:2009 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av ISO 18549-1:2009.

The International Standard ISO 18549-1:2009 has the status of a Swedish Standard. This document contains the official English version of ISO 18549-1:2009.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00.
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Information about the content of the standard is available from the Swedish Standards Institute (SIS), tel +46 8 555 520 00.
Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 18549-1 was prepared by Technical Committee ISO/TC 119, *Powder metallurgy*, Subcommittee SC 2, *Sampling and testing methods for powders (including powders for hardmetals)*.

ISO 18549 consists of the following parts, under the general title *Metallic powders — Determination of apparent density and flow rate at elevated temperatures*:

— *Part 1: Determination of apparent density at elevated temperatures*

— *Part 2: Determination of flow rate at elevated temperatures*

Metallic powders — Determination of apparent density and flow rate at elevated temperatures —

Part 1: Determination of apparent density at elevated temperatures

1 Scope

This part of ISO 18549 describes a method for the determination of apparent density at elevated temperatures for powder mixes, based on iron or steel powders and intended for warm compaction. The method is, to a large extent, based on the apparent density method (funnel method) standardized in ISO 3923-1, but either of the two funnels that are mentioned can be selected after agreement between the parties involved.

2 Apparatus

2.1 Thermally insulated enclosure, where the actual measurement shall take place.

2.2 Funnel with an orifice diameter of 2,5 mm or, alternatively, a **funnel with an orifice diameter of 5 mm**, see Figure 1 or 2, respectively.

2.3 Cylindrical cup, with a capacity of 25 ± 0,03 cm^3 and an internal diameter of 28 ± 0,5 mm. A cup with the same capacity and with an internal diameter of 30 ± 1 mm is also acceptable. However, 28 ± 0,5 mm is the first option when new equipment is manufactured.

The cup and funnel should be made of non-magnetic, corrosion-resistant, metallic material having sufficient wall thickness and hardness to avoid distortion and excessive wear. The inner surfaces of the funnel and cup should be polished.

2.4 Stand and horizontal vibration-free base to support the cup and funnel; the stand holding the orifice of the funnel 25 mm above the top surface of the cup and coaxially with it, see Figure 3.

2.5 Devices for heating the funnel, e.g. an electrical band heater, **and the cylindrical cup**, e.g. a cartridge heater, to the selected and agreed temperature for the powder mix within the range 60 °C to 180 °C, with a maximum allowed variation of ± 2,5 °C.

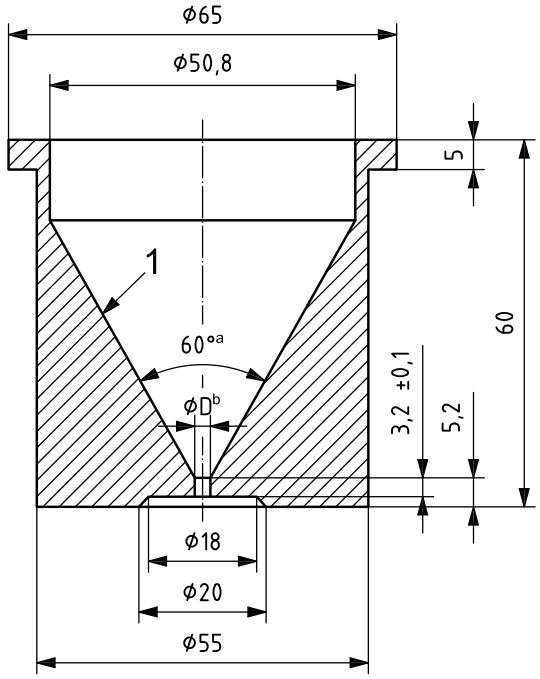
2.6 Laboratory furnace, for heating the powder sample to the selected and agreed temperature within the range 60 °C to 180 °C.

2.7 Thermocouples, sufficient to adjust and control the temperatures of the powder mix and the equipment within ± 2,5 °C of the selected temperature.

2.8 Balance, with a capacity of at least 200 g, capable of weighing the test sample to an accuracy of ± 0,01 g.

NOTE An example of the insulated enclosure containing the funnel, stand and cup is shown in Figure 4.

Dimensions in millimetres



Key

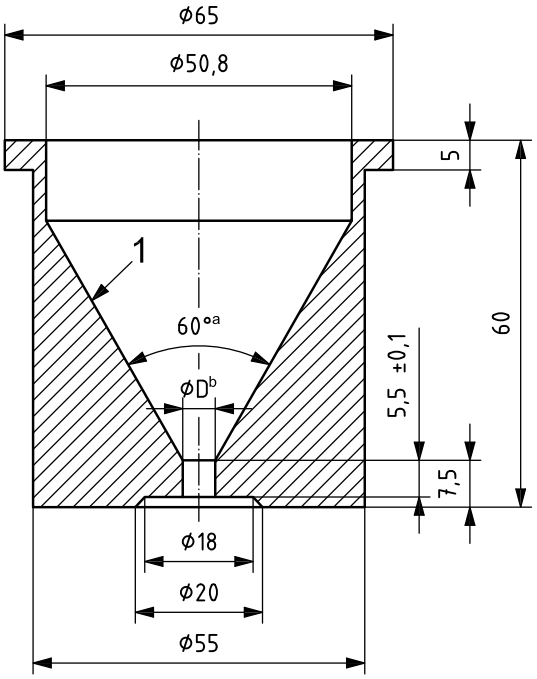
1 polished to $Ra \leqslant 0{,}4$ µm

a this value is mandatory

b $D = 2{,}5^{+0{,}2}_{0}$

Figure 1 — Funnel with orifice diameter of 2,5 mm

Dimensions in millimetres



Key

1 polished to $Ra \leqslant 0{,}4$ µm

a this value is mandatory

b $D = 5^{+0{,}2}_{0}$

Figure 2 — Funnel with orifice diameter of 5 mm