



**SLOVENSKI STANDARD**  
**SIST EN ISO 4490:2004**

**01-september-2004**

---

Previdljiva metoda za določanje  
časovnega preseka (ISO 4490:2001)

Metallic powders - Determination of flow time by means of a calibrated funnel (Hall flowmeter) (ISO 4490:2001)

Metallpulver - Ermittlung der Fließdauer mit Hilfe eines kalibrierten Trichters (Hall flowmeter) (ISO 4490:2001) **(standards.iteh.ai)**

Poudres métalliques - Détermination du temps d'écoulement au moyen d'un entonnoir calibré (appareil de Hall) (ISO 4490:2001)

**Ta slovenski standard je istoveten z: EN ISO 4490:2001**

---

**ICS:**

77.160

Metalurgija prahov

Powder metallurgy

**SIST EN ISO 4490:2004**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 4490:2004](#)

<https://standards.iteh.ai/catalog/standards/sist/647d6aba-a180-4684-84e8-af0c90d0308d/sist-en-iso-4490-2004>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 4490**

December 2001

ICS 77.160

English version

## Metallic powders - Determination of flow time by means of a calibrated funnel (Hall flowmeter) (ISO 4490:2001)

Poudres métalliques - Détermination du temps d'écoulement au moyen d'un entonnoir calibré (appareil de Hall) (ISO 4490:2001)

Metallpulver - Ermittlung der Fließdauer mit Hilfe eines kalibrierten Trichters (Hall flowmeter) (ISO 4490:2001)

This European Standard was approved by CEN on 15 December 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

SIST EN ISO 4490:2004

<https://standards.iteh.ai/catalog/standards/sist/647d6aba-a180-4684-84e8-af0c90d0308d/sist-en-iso-4490-2004>



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

EN ISO 4490:2001 (E)

<b>CORRECTED 2002-02-06</b>
-----------------------------

## Foreword

This document (ISO 4490:2001) has been prepared by Technical Committee ISO/TC 119 "Powder metallurgy", the secretariat of which is held by CMC.

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 June 2002, and conflicting national standards shall be withdrawn at the latest by June 2002.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

### Endorsement notice

[SIST EN ISO 4490:2004](http://standards.iteh.ai/en/standards/SIST-EN-ISO-4490-2004)

The text of the International Standard ISO 4490:2001 has been approved by CEN as a European Standard without any modifications.

# INTERNATIONAL STANDARD

**ISO  
4490**

Second edition  
2001-12-15

---

---

## **Metallic powders — Determination of flow time by means of a calibrated funnel (Hall flowmeter)**

*Poudres métalliques — Détermination du temps d'écoulement au moyen  
d'un entonnoir calibré (appareil de Hall)*

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 4490:2004](#)

<https://standards.iteh.ai/catalog/standards/sist/647d6aba-a180-4684-84e8-af0c90d0308d/sist-en-iso-4490-2004>



Reference number  
ISO 4490:2001(E)

© ISO 2001

## ISO 4490:2001(E)

**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 4490:2004](#)

<https://standards.iteh.ai/catalog/standards/sist/647d6aba-a180-4684-84e8-af0c90d0308d/sist-en-iso-4490-2004>

© ISO 2001

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.ch](mailto:copyright@iso.ch)  
Web [www.iso.ch](http://www.iso.ch)

Printed in Switzerland

## 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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 4490 was prepared by Technical Committee ISO/TC 119, *Powder metallurgy*, Subcommittee SC 2, *Sampling and testing methods for powders (including powders for hardmetals)*.

This second edition cancels and replaces the first edition (ISO 4490:1978), which has been technically revised.

ITEH STANDARD PREVIEW  
(standards.iteh.ai)

[SIST EN ISO 4490:2004](https://standards.iteh.ai/catalog/standards/sist/647d6aba-a180-4684-84e8-af0c90d0308d/sist-en-iso-4490-2004)

<https://standards.iteh.ai/catalog/standards/sist/647d6aba-a180-4684-84e8-af0c90d0308d/sist-en-iso-4490-2004>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN ISO 4490:2004

<https://standards.iteh.ai/catalog/standards/sist/647d6aba-a180-4684-84e8-af0c90d0308d/sist-en-iso-4490-2004>



# Metallic powders — Determination of flow time by means of a calibrated funnel (Hall flowmeter)

## 1 Scope

This International Standard specifies a method for determining the flow time of metallic powders, including powders for hardmetals, by means of a calibrated funnel (Hall flowmeter).

The method is applicable only to powders which flow freely through the specified test orifice.

## 2 Principle

Measurement of the time required for 50 g of a metallic powder to flow through the orifice of a calibrated funnel of standardized dimensions.

## 3 Apparatus

**3.1 Calibrated funnel**, having the dimensions shown in Figure 1 (see clause 4).

The funnel shall be made of a non-magnetic, corrosion-resistant metallic material having sufficient wall thickness and hardness to withstand distortion and excessive wear.<sup>1)</sup>

**3.2 Stand and horizontal vibration-free base**, to support the funnel rigidly, e.g. as indicated in Figure 2.<sup>1)</sup>

**3.3 Balance**, of sufficient capacity, capable of weighing the test portion to an accuracy of  $\pm 0,05$  g.

**3.4 Stopwatch**, capable of measuring elapsed time to an accuracy of  $\pm 0,1$  s.

**3.5 Chinese emery grit**, a reference powder used for calibration of the funnel.<sup>1)</sup>

1) Apparatus complying with 3.1 and 3.2, and standard Chinese emery grit can be purchased from AcuPowder International, LLC, 901 Lehigh Avenue, Union, NJ 07083, USA. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by ISO of the company named above. Equivalent products may be used if they can be shown to lead to the same results.