

Metallic materials — Rockwell hardness test —

Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T)

The European Standard EN ISO 6508-1:2005 has the status of a
British Standard

ICS 77.040.10

National foreword

This British Standard is the official English language version of EN ISO 6508-1:2005. It is identical with ISO 6508-1:2005. It supersedes BS EN ISO 6508-1:1999 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee ISE/NFE/4, Mechanical testing of metals, to Subcommittee ISE/NFE/4/5, Indentation hardness testing, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN ISO title page, the EN ISO foreword page, the ISO title page, pages ii to v, a blank page, pages 1 to 24, an inside back cover and a back cover.

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English Version

**Metallic materials - Rockwell hardness test - Part 1: Test method
(scales A, B, C, D, E, F, G, H, K, N, T) (ISO 6508-1:2005)**

Matériaux métalliques - Essai de dureté Rockwell - Partie 1:
Méthode d'essai (échelles A, B, C, D, E, F, G, H, K, N, T)
(ISO 6508-1:2005)

Metallische Werkstoffe - Härteprüfung nach Rockwell - Teil
1: Prüfverfahren (Skalen A, B, C, D, E, F, G, H, K, N, T)
(ISO 6508-1:2005)

This European Standard was approved by CEN on 14 December 2005.

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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 Central Secretariat has the same status as the official versions.

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Foreword

This document (EN ISO 6508-1:2005) has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals" in collaboration with Technical Committee ECISS/TC 1 "Steel - Mechanical testing", the secretariat of which is held by AFNOR.

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 2006, and conflicting national standards shall be withdrawn at the latest by June 2006.

This document supersedes EN ISO 6508-1:1999.

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

Endorsement notice

The text of ISO 6508-1:2005 has been approved by CEN as EN ISO 6508-1:2005 without any modifications.

INTERNATIONAL STANDARD

**ISO
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Metallic materials — Rockwell hardness test —

Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T)

Matériaux métalliques — Essai de dureté Rockwell —

Partie 1: Méthode d'essai (échelles A, B, C, D, E, F, G, H, K, N, T)



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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 6508-1 was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 3, *Hardness testing*.

This second edition cancels and replaces the first edition (ISO 6508-1:1999), which has been technically revised.

ISO 6508 consists of the following parts, under the general title *Metallic materials — Rockwell hardness test*:

- *Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T)*
- *Part 2: Verification and calibration of testing machines (scales A, B, C, D, E, F, G, H, K, N, T)*
- *Part 3: Calibration of reference blocks (scales A, B, C, D, E, F, G, H, K, N, T)*

Introduction

The periodic checking of the testing machine described in informative Annex E is good metrological practice. It is intended to make the annex normative in the next revision of this part of ISO 6508.

Metallic materials — Rockwell hardness test —

Part 1:

Test method (scales A, B, C, D, E, F, G, H, K, N, T)

1 Scope

This part of ISO 6508 specifies the method for Rockwell and Rockwell superficial hardness tests (scales and field of application according to Table 1) for metallic materials.

Attention is drawn to the fact that, in this part of ISO 6508, the use of hardmetal for ball indenters is considered to be the standard type of Rockwell indenter ball. Steel indenter balls may be continued to be used if specified in a product specification, or by special agreement.

NOTE 1 Attention is drawn to the fact that results obtained with hardmetal balls can be significantly different than when using a steel ball. For specific materials and/or products, other specific International Standards apply (for instance ISO 3738-1 and ISO 4498-1).

NOTE 2 For certain materials, the fields of application may be narrower than those indicated.

2 Normative references

The following referenced documents are indispensable for the application 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 6508-2:2005, *Metallic materials — Rockwell hardness test — Part 2: Verification and calibration of testing machines (scales A, B, C, D, E, F, G, H, K, N, T)*

3 Principle

Forcing an indenter of specified size, shape and material into the surface of a test piece in two steps under specified conditions (see Clause 7). Measuring the permanent depth h of indentation under preliminary test force after removal of additional test force.

From the values of h and that of the two constants N and S (see Table 2), the Rockwell hardness is calculated according to the formula:

$$\text{Rockwell hardness} = N - \frac{h}{S} \quad (1)$$

4 Symbols, abbreviated terms and designations

4.1 See Tables 1 and 2 and Figure 1.