



**SLOVENSKI STANDARD
SIST EN ISO 6508-1:2024**

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Kovinski materiali - Preskus trdote po Rockwellu - 1. del: Preskusna metoda (ISO 6508-1:2023)

Metallic materials - Rockwell hardness test - Part 1: Test method (ISO 6508-1:2023)

Metallische Werkstoffe - Härteprüfung nach Rockwell - Teil 1: Prüfverfahren (ISO 6508-1:2023)

Matériaux métalliques - Essai de dureté Rockwell - Partie 1: Méthode d'essai (ISO 6508-1:2023)

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Metallic materials - Rockwell hardness test - Part 1: Test method (ISO 6508-1:2023)

Matériaux métalliques - Essai de dureté Rockwell -
Partie 1: Méthode d'essai (ISO 6508-1:2023)

Metallische Werkstoffe - Härteprüfung nach Rockwell -
Teil 1: Prüfverfahren (ISO 6508-1:2023)

This European Standard was approved by CEN on 13 November 2023.

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European foreword

This document (EN ISO 6508-1:2023) has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals" in collaboration with Technical Committee CEN/TC 459/SC 1 "Test methods for steel (other than chemical analysis)" 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of an identical text or by endorsement, at the latest by June 2024, and conflicting national standards shall be withdrawn at the latest by June 2024.

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.

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INTERNATIONAL
STANDARD

ISO
6508-1

Fifth edition
2023-12

**Metallic materials — Rockwell
hardness test —**

**Part 1:
Test method**

*Matériaux métalliques — Essai de dureté Rockwell —
Partie 1: Méthode d'essai*

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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 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 164, *Mechanical testing of metals*, Subcommittee SC 3, *Hardness testing*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 459, *ECISS - European Committee for Iron and Steel Standardization*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fifth edition cancels and replaces the fourth edition (ISO 6508-1:2016), which has been technically revised.

The main changes are as follows:

- removal of note related to the use of tungsten and steel ball indenters ([Clause 1](#));
- removal of the year from the Normative References specified and various places throughout the body of the standard ([Clause 2](#));
- addition of [Clause 3](#), Terms and definitions;
- added additional information for the use of single-piece spherically tipped indenters ([6.3](#) NOTE 1);
- added the table reference and table title ([7.4](#));
- modified the uncertainty of the results section to only provide a single reference for the determination of uncertainty ([Clause 9](#));
- modified [Annex G](#) to remove the “procedure without bias (M2)” method for determining uncertainty.

A list of all parts in the ISO 6508 series can be found on the ISO website.

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.

Metallic materials — Rockwell hardness test —

Part 1: Test method

1 Scope

This document specifies the method for Rockwell regular and Rockwell superficial hardness tests for scales A, B, C, D, E, F, G, H, K, 15N, 30N, 45N, 15T, 30T, and 45T for metallic materials and is applicable to stationary and portable hardness testing machines.

For specific materials and/or products, other specific International Standards apply (e.g. ISO 3738-1 and ISO 4498).

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 6508-2, *Metallic materials — Rockwell hardness test — Part 2: Verification and calibration of testing machines and indenters*

ISO 6508-3, *Metallic materials — Rockwell hardness test — Part 3: Calibration of reference blocks*

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: -1-2024

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

4 Symbols, abbreviated terms and designations

According to [Table 1](#), [Table 2](#), [Table 3](#), and [Figure 1](#).

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Table 1 — Rockwell regular scales

Rockwell regular hardness scale	Hardness symbol Unit	Type of indenter	Preliminary force F_0	Total force F	Scaling constant S	Full range constant N	Applicable range of application (Rockwell regular hardness scales)
A	HRA	Diamond cone	98,07 N	588,4 N	0,002 mm	100	20 HRA to 95 HRA
B	HRBW	Ball 1,587 5 mm	98,07 N	980,7 N	0,002 mm	130	10 HRBW to 100 HRBW
C	HRC	Diamond cone	98,07 N	1,471 kN	0,002 mm	100	20 HRC ^a to 70 HRC
D	HRD	Diamond cone	98,07 N	980,7 N	0,002 mm	100	40 HRD to 77 HRD
E	HREW	Ball 3,175 mm	98,07 N	980,7 N	0,002 mm	130	70 HREW to 100 HREW
F	HRFW	Ball 1,587 5 mm	98,07 N	588,4 N	0,002 mm	130	60 HRFW to 100 HRFW
G	HRGW	Ball 1,587 5 mm	98,07 N	1,471 kN	0,002 mm	130	30 HRGW to 94 HRGW
H	HRHW	Ball 3,175 mm	98,07 N	588,4 N	0,002 mm	130	80 HRHW to 100 HRHW
K	HRKW	Ball 3,175 mm	98,07 N	1,471 kN	0,002 mm	130	40 HRKW to 100 HRKW

^a The applicable range of application can be extended to 10 HRC if the surfaces of the diamond cone and spherical tip are polished for a penetration depth of at least 0,4 mm.

Table 2 — Rockwell superficial scales

Rockwell superficial hardness scale	Hardness symbol Unit	Type of indenter	Preliminary force F_0	Total force F	Scaling constant S	Full range constant N	Applicable range of application (Rockwell superficial hardness scales)
15N	HR15N	Diamond cone	29,42 N	147,1 N	0,001 mm	100	70 HR15N to 94 HR15N
30N	HR30N	Diamond cone	29,42 N	294,2 N	0,001 mm	100	42 HR30N to 86 HR30N
45N	HR45N	Diamond cone	29,42 N	441,3 N	0,001 mm	100	20 HR45N to 77 HR45N
15T	HR15TW	Ball 1,587 5 mm	29,42 N	147,1 N	0,001 mm	100	67 HR15TW to 93 HR15TW
30T	HR30TW	Ball 1,587 5 mm	29,42 N	294,2 N	0,001 mm	100	29 HR30TW to 82 HR30TW
45T	HR45TW	Ball 1,587 5 mm	29,42 N	441,3 N	0,001 mm	100	10 HR45TW to 72 HR45TW

Scales using indenter balls with diameter 6,350 mm and 12,70 mm may also be used, if specified in the product specification or by special agreement. See ASTM E18 [5] for additional scales using these ball sizes.

NOTE 1 For certain materials, it is possible that the applicable range of application is narrower than those indicated.