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DIN EN ISO 6508-2:2006-03

Metallic materials – Rockwell hardness test – Part 2: Verification and calibration of testing machines and indenters (ISO 6508-2:2015); English version EN ISO 6508-2:2015, English translation of DIN EN ISO 6508-2:2015-06

Metallische Werkstoffe –
Härteprüfung nach Rockwell –
Teil 2: Überprüfung und Kalibrierung der Prüfmaschinen und Eindringkörper
(ISO 6508-2:2015);
Englische Fassung EN ISO 6508-2:2015,
Englische Übersetzung von DIN EN ISO 6508-2:2015-06

Matériaux métalliques –
Essai de dureté Rockwell –
Partie 2: Vérification et étalonnage des machines d'essai et des pénétrateurs
(ISO 6508-2:2015);
Version anglaise EN ISO 6508-2:2015,
Traduction anglaise de DIN EN ISO 6508-2:2015-06

Document comprises 33 pages

Translation by DIN-Sprachendienst.
In case of doubt, the German-language original shall be considered authoritative.

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A comma is used as the decimal marker.

National foreword

This document (EN ISO 6508-2:2015) has been prepared by Technical Committee ISO/TC 164 “Mechanical testing of metals”, Subcommittee SC 3 “Hardness testing” (Secretariat: DIN, Germany) in collaboration with Technical Committee ECISS/TC 101 “Test methods for steel (other than chemical analysis)” (Secretariat: AFNOR, France) in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

The responsible German body involved in its preparation was the *DIN-Normenausschuss Materialprüfung* (DIN Standards Committee Materials Testing), Working Committee NA 062-01-41 AA *Härteprüfung für Metalle*.

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

— *Part 1: Test methods*

— *Part 2: Verification and calibration of testing machines and indenters*

— *Part 3: Calibration of reference blocks*

The DIN Standards corresponding to the International Standards referred to in this document are as follows:

ISO 376	DIN EN ISO 376
ISO 6507-1	DIN EN ISO 6507-1
ISO 6508-1	DIN EN ISO 6508-1
ISO 6508-3	DIN EN ISO 6508-3
ISO/IEC 17011	DIN EN ISO/IEC 17011
ISO/IEC 17025	DIN EN ISO/IEC 17025

Amendments

This standard differs from DIN EN ISO 6508-2:2006-03 as follows:

a) several values are given as a mean with a (in some cases asymmetrical) tolerance rather than a range;

b) maximum permissible ranges for individual measurements of test force and preliminary test force have been defined in addition to the already specified tolerances;

c) Subclause 4.5 “Calibration and verification of the machine hysteresis” has been added;

d) Clause 6 “Calibration and verification of Rockwell hardness indenters” has been added;

e) Annex B “Uncertainty of measurement of the calibration results of the hardness testing machine” has been thoroughly revised;

f) the standard has been editorially revised.

Previous editions

DIN 51224: 1957-09, 1976-10, 1985-01
DIN 51304: 1983-09
DIN EN 10109-2: 1995-01
DIN EN 10109-2 Supplement 1: 1995-01
DIN EN ISO 6508-2 Supplement 1: 1999-10
DIN EN ISO 6508-2:1999-10, 2006-03

National Annex NA
(informative)

Recommendations for the verification and design of testing machines and indenters

NA.1 Design of testing machine and indenter

Figure NA.1 shows dimensions for the throat depth and vertical capacity of the testing machine, and Figure NA.2 shows a recommended indenter design, both of which were included in DIN 51225-1:1995-01 but which are no longer included here.

Working Committee NA 062-01-41 AA *Härteprüfung für Metalle* recommends these dimensions and design features to ensure fitting of the force-proving instrument needed for direct verification of the test force.

NA.2 Verification of indenter

The overall conformity of the indenter should be verified by an accredited calibration laboratory and the relevant test mark applied to the holder.

At the installation site of the testing machine, a check should be made as to whether there is proof of conformity of the indenter geometry. In addition, a visual check using a magnifying glass having at least a 10x magnification is to be made to see if the indenter surface has any defects or deposits.

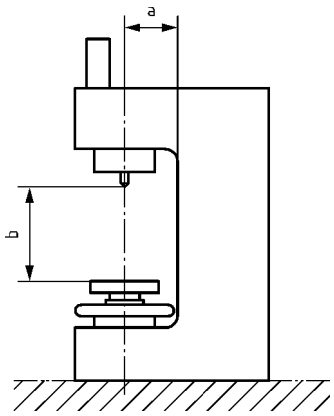
Since, with use, there are changes to the indenter which cannot be identified by means of a magnifying glass, but which have a considerable effect on measurement results, the indenter should be changed at least every two years.

NA.3 Intervals between verifications

Since 1959 the national standard DIN 51220 has specified that definitive tests may only be carried out using a testing machine that has been verified and calibrated according to the relevant standards. Verification was to be performed before the machine was commissioned, after each re-installation, conversion or retrofitting, and at least once a year; both indirect and direct verification were to be carried out. Experience had shown that this is necessary because indirect verification is carried out on reference blocks to determine the machine error, while with direct verification, it can be established whether or not the various errors cancel each other out, and particularly whether there is friction in the force application system of the machine.

According to Clause 7 of this European Standard, direct verification does not need to be carried out each year if the requirements of Table 10 are met.

However, on the basis of the long-term experience of testing houses in Germany, NA 062-01-41 AA *Härteprüfung für Metalle* recommends that direct verification continues to be carried out yearly, to ensure the correctness of test results, thus maintaining the accustomed comparability of results obtained with different machines using the same method and under the same conditions.

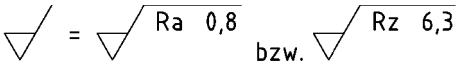


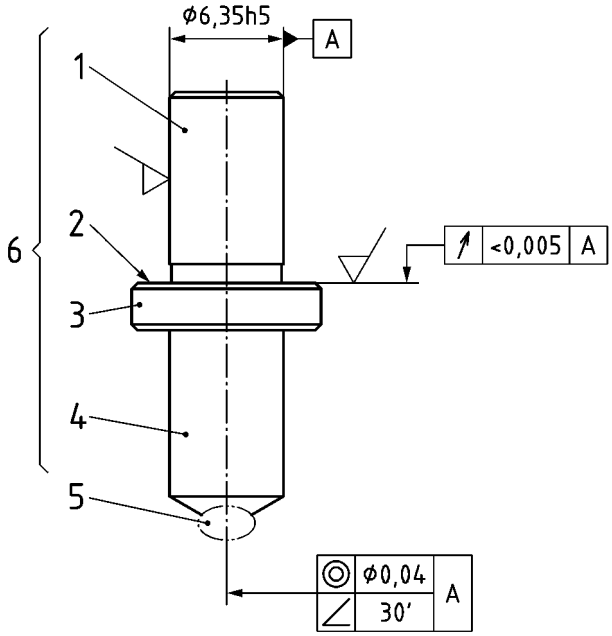
Key

a Throat depth, ≥ 120 mm

b Vertical capacity, ≥ 200 mm

Figure NA.1 — Throat depth and vertical capacity





Key

1 Shaft

2 Shoulder face

3 Shoulder

4 Shank

5 Indenter

6 Holder

Figure NA.2 — Recommended design of indenter and holder

National Annex NA
(informative)

Bibliography

DIN 51220, *Materials testing machines — Generals for requirements and for verification and calibration of materials testing machines*

DIN EN ISO 376, *Metallic materials — Calibration of extensometer systems used in uniaxial testing*

DIN EN ISO 3738-1, *Hard metals — Rockwell hardness test (scale A) — Part 1: Test methods*

DIN EN ISO 4498, *Sintered metal materials, excluding hardmetals — Determination of apparent hardness and microhardness*

DIN EN ISO 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test methods*

DIN EN ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test methods*

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

DIN EN ISO/IEC 17011, *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies*

DIN EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*