DIN EN ISO 6506-2

ICS 19.060; 77.040.10

Supersedes
DIN EN ISO 6506-2:2015-02

Metallic materials – Brinell hardness test – Part 2: Verification and calibration of testing machines (ISO 6506-2:2017); English version EN ISO 6506-2:2018, English translation of DIN EN ISO 6506-2:2019-03

Metallische Werkstoffe –
Härteprüfung nach Brinell –
Teil 2: Überprüfung und Kalibrierung der Prüfmaschinen (ISO 6506-2:2017);
Englische Fassung EN ISO 6506-2:2018,
Englische Übersetzung von DIN EN ISO 6506-2:2019-03

Matériaux métalliques –
Essai de dureté Brinell –
Partie 2: Vérification et étalonnage des machines d'essai (ISO 6506-2:2017);
Version anglaise EN ISO 6506-2:2018,
Traduction anglaise de DIN EN ISO 6506-2:2019-03

Document comprises 26 pages

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original shall be considered authoritative.

A comma is used as the decimal marker.

National foreword

This document (EN ISO 6506-2:2018) has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals", Subcommittee SC 3 "Hardness testing" in collaboration with Technical Committee CEN/TC 459 "ECISS - European Committee for Iron and Steel Standardization", Subcommittee SC 1 "Test methods for steel (other than chemical analysis)" (Secretariat: AFNOR, France).

The responsible German body involved in its preparation was *DIN-Normenausschuss Materialprüfung* (DIN Standards Committee Materials Testing), Working Committee NA 062-01-41 AA "Hardness testing for metals".

DIN EN ISO 6506 consists of the following parts, under the general title *Metallic materials — Brinell hardness test*:

— *Part 1: Test method*

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

— *Part 3: Calibration of reference blocks*

— *Part 4: Table of hardness values*

The DIN documents corresponding to the international documents referred to in this document are as follows:

ISO 376	DIN EN ISO 376
ISO 6506-1:2014	DIN EN ISO 6506-1:2015-02
ISO 6506-3	DIN EN ISO 6506-3
ISO 6507-1	DIN EN ISO 6507-1

Amendments

This standard differs from DIN EN ISO 6506-2:2015-02 as follows:

a) Table 3 has been supplemented regarding permissible repeatability and error of the testing machine for other force-diameter indices;

b) the standard has been editorially revised.

Previous editions

DIN 51225: 1957-09
DIN 51225-1: 1976-10, 1985-01
DIN 51225-2: 1985-10
DIN 51305: 1983-09
DIN EN 10003-2: 1995-01
DIN EN 10003-2 Supplement 1: 1995-01
DIN EN ISO 6502-2: 1999-10, 2006-03, 2015-02
DIN EN ISO 6502-2 Supplement 1: 1999-10

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 "Hardness testing for metals" 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.

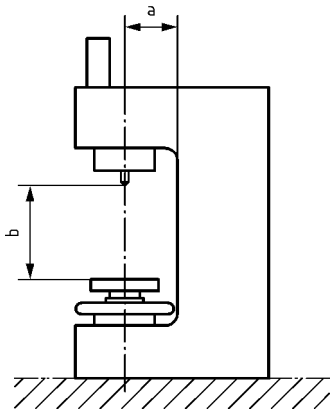
In addition, the condition of the indenter can be controlled by making indentations on a reference block of low hardness, starting with the lowest test force and then making indentations at each test force, checking the indentations for irregularities by means of optical measurement.

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 6 of this European Standard, direct verification does not need to be carried out each year if the requirements of Table 3 are met.

However, on the basis of the long-term experience of testing houses in Germany, NA 062-01-41 AA "Hardness testing for metals" recommends that direct verification continue 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.



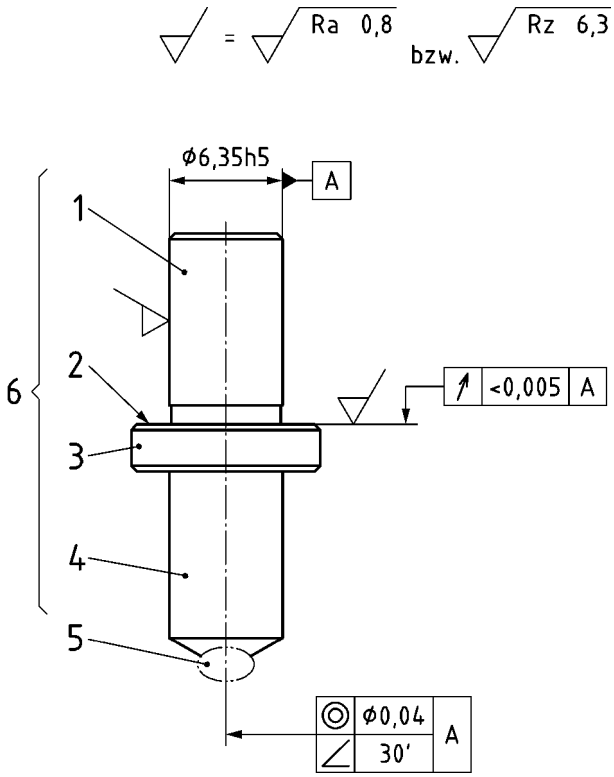
Key

a Throat depth ≥ 120 mm

b Vertical capacity ≥ 200 mm

Figure NA.1 — Throat depth and vertical capacity

Dimensions in millimetres



Key

1 Shaft
2 Shoulder face
3 Shoulder
4 Shank
5 Indenter (schematic)
6 Holder

Figure NA.2 — Recommended design of indenter and holder