AS 1816.4:2026
ISO 6506-4:2014

Metallic materials — Brinell hardness test

Part 4: Table of hardness values (ISO 6506-4:2014, IDT)



AS 1816.4:2026

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Australian Pipelines and Gas Association
Bureau of Steel Manufacturers of Australia
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National Association of Testing Authorities Australia
University of Technology Sydney
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How to read this Standard

This page explains the meaning of the language and structure of this Standard.

Refer to Standards Australia's Standardisation Guide 006 for more details about drafting rules.

Australian and Australian/New Zealand Standards are voluntary unless they are referenced in legislation or called up in contracts.

Requirements

To conform to a Standard, all requirements in the Standard need to be met.

A requirement is any statement in the Standard which uses the word "shall".

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The following words are commonly used in Standards, but statements using them do not have to be followed to conform to the Standard:

(a) "should" means that something is recommended.

(b) "may" means that something is permitted.

(c) "can" means that something is possible.

Structure of Standards

A Standard always has the following parts:

(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

(2) An informative appendix provides additional information or guidance. They usually do not contain requirements. If an informative appendix does contain requirements, the Standard will explain when those requirements apply.

(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

Preface

This Standard was prepared by the Standards Australia Committee MT-006, Mechanical Testing Of Metals to supersede AS 1816.4-2007, *Metallic materials—Brinell hardness test, Method 4: Table of hardness values.*

The objective of this document is to give a table of the Brinell hardness values for use in tests on flat surfaces.

This document is identical to, and has been reproduced from, ISO 6506-4:2014, *Metallic materials — Brinell hardness test — Part 4: Table of hardness values.*

As this document has been reproduced from an international document, the following apply:

(a) In the source text "this part of ISO 6506-4" is to be read as "this document".

(b) A comma is to be read as a full point when referring to a decimal marker.

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The terms "normative" and "informative" are used in Standards to define the application of the appendices or annexes to which they apply. A "normative" appendix or annex is an integral part of a Standard, whereas an "informative" appendix or annex is only for information and guidance.

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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 documents 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).

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

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 3, *Hardness testing*.

This second edition cancels and replaces the first edition (ISO 6506-4:2005), which has been technically revised.

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*

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Metallic materials — Brinell hardness test

Part 4: Table of hardness values (ISO 6506-4:2014, IDT)

1 Scope

This part of ISO 6506 gives a table of the Brinell hardness values for use in tests on flat surfaces.

2 Determination of the Brinell hardness for testing on flat surfaces

See Tables 1 and 2. Where the measured indentation diameter value is not given in the table, a linear interpolation between the two adjacent values and between the two corresponding hardness values should be carried out. Each hardness value is quoted to three significant figures, but is calculated from the nominal force-diameter index rather than from the specified force value, in order to avoid variations in the hardness values calculated at a specific force-diameter index. In some cases, this calculation method leads to an error of one digit in the least significant figure.

Table 1

Ball indenter D mm	**Force-diameter index** $0{,}102 \times F/D^2$					
	30	15	10	5	2,5	1
	Test force F					
10	29,42 kN	14,71 kN	9,807 kN	4,903 kN	2,452 kN	980,7 N
5	7,355 kN	––	2,452 kN	1,226 kN	612,9 N	245,2 N
2,5	1,839 kN	––	612,9 N	306,5 N	153,2 N	61,29 N
1	294,2 N	––	98,07 N	49,03 N	24,52 N	9,807 N

Table 2

Ball indenter D mm				**Force-diameter index** $0{,}102 \times F/D^2$					
10	5	2,5	1	30	15	10	5	2,5	1
Mean diameter of the indentation d mm				**Brinell hardness** HBW					
2,40	1,200	0,600 0	0,240	653	327	218	109	54,5	21,8
2,41	1,205	0,602 5	0,241	648	324	216	108	54,0	21,6
2,42	1,210	0,605 0	0,242	643	321	214	107	53,5	21,4
2,43	1,215	0,607 5	0,243	637	319	212	106	53,1	21,2
2,44	1,220	0,610 0	0,244	632	316	211	105	52,7	21,1
2,45	1,225	0,612 5	0,245	627	313	209	104	52,2	20,9
2,46	1,230	0,615 0	0,246	621	311	207	104	51,8	20,7
2,47	1,235	0,617 5	0,247	616	308	205	103	51,4	20,5
2,48	1,240	0,620 0	0,248	611	306	204	102	50,9	20,4
2,49	1,245	0,622 5	0,249	606	303	202	101	50,5	20,2
2,50	1,250	0,625 0	0,250	601	301	200	100	50,1	20,0
2,51	1,255	0,627 5	0,251	597	298	199	99,4	49,7	19,9

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