

**Metallic materials - Brinell hardness test - Part 1: Test method (ISO 6506-1:2014)**

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English Version

**Metallic materials - Brinell hardness test - Part 1: Test method  
(ISO 6506-1:2014)**Matériaux métalliques - Essai de dureté Brinell - Partie 1:  
Méthode d'essai (ISO 6506-1:2014)Metallische Werkstoffe - Härteprüfung nach Brinell - Teil 1:  
Prüfverfahren (ISO 6506-1:2014)

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## Foreword

This document (EN ISO 6506-1:2014) has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals" in collaboration with Technical Committee ECISS/TC 101 "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of an identical text or by endorsement, at the latest by March 2015, and conflicting national standards shall be withdrawn at the latest by March 2015.

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### Endorsement notice

The text of ISO 6506-1:2014 has been approved by CEN as EN ISO 6506-1:2014 without any modification.

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# Metallic materials — Brinell hardness test —

## Part 1: Test method

### 1 Scope

This part of ISO 6506 specifies the method for the Brinell hardness test for metallic materials. It is applicable to both fixed location and portable hardness testing machines.

For some specific materials and/or products, particular International Standards exist (e.g. ISO 4498) and make reference to this International Standard.

### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO 6506-2:2014, *Metallic materials — Brinell hardness test — Part 2: Verification and calibration of testing machines*

ISO 6506-3:2014, *Metallic materials — Brinell hardness test — Part 3: Calibration of reference blocks*

ISO 6506-4, *Metallic materials — Brinell hardness test — Part 4: Table of hardness values*

### 3 Principle

An indenter (tungsten carbide composite ball with diameter,  $D$ ) is forced into the surface of a test piece and, after removal of the force,  $F$ , the diameter of the indentation,  $d$ , left in the surface is measured.

The Brinell hardness is proportional to the quotient obtained by dividing the test force by the curved surface area of the indentation. The indentation is assumed to take the shape of the unloaded ball indenter, and its surface area is calculated from the mean indentation diameter and the ball diameter, using the formula given in [Table 1](#).

### 4 Symbols and abbreviated terms

4.1 See [Figure 1](#) and [Table 1](#).