



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 17394.2-2022

**Metallic materials - Leeb hardness test - Part 2: Verification and
calibration of hardness testers**

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Table of Contents

Foreword...	3
Introduction...	5
1 Scope...	6
2 Normative References...	6
3 Terms and Definitions...	6
4 General Requirements...	6
5 Direct Inspection...	7
5.1 General Rules...	7
5.2 Technical Parameters...	7
5.3 Inspection of Mass and Geometric Dimensions of Impact Body...	9
5.4 Inspection of Geometric Dimensions and Hardness of Ball Head...	9
5.5 Inspection of Geometric Dimensions of Support Ring...	9
5.6 Inspection of Impact Velocity...	10
5.7 Indirect Inspection of Hardness Tester...	10
6 Indirect Inspection...	10
6.1 General Rules...	10
6.2 Method...	11
6.3 Coefficient of Variation (V)...	11
6.4 Relative Error of Indication...	12
6.5 Uncertainty of Measurement...	13
7 Inspection Cycle...	13
8 Inspection Report and / or Calibration Certificate...	14

Foreword

This document was drafted in accordance with the rules provided in GB/T 1.1-2020
Directives

for Standardization - Part 1: Rules for the Structure and Drafting of Standardizing
Documents.

This document is Part 2 of GB/T 17394 Metallic Materials - Leeb Hardness Test. GB/T
17394

has issued the following parts:

---Part 1: Test Method;

---Part 2: Verification and Calibration of Hardness Testers;

---Part 3: Calibration of Reference Test Blocks;

---Part 4: Tables of Hardness Values Conversation.

This document serves as a replacement of GB/T 17394.2-2012 Metallic Materials - Leeb Hardness Test - Part 2: Verification and Calibration of Hardness Testers. In comparison with GB/T 17394.2-2012, the main technical changes are as follows:

---The DC-type impact device is deleted (see Chapter 1 of Version 2012);

---The inspection items are modified (see Chapter 4; Chapter 3 of Version 2012);

---The inspection of impact velocity and support ring is added (see 5.1.3);

---The relevant requirements for direct inspection are modified (see Chapter 5; Chapter 4 of Version 2012);

---The relevant requirements for indirect inspection are added (see 6.1.2 ~ 6.1.4);

---The hardness range of the reference Leeb hardness test blocks is modified (see Table 2; Table 4 of Version 2012);

---The inspection cycle is modified (see Chapter 7; Chapter 6 of Version 2012);

---The type of impact device for hardness testers is deleted (see Appendix A of Version 2012);

---The direct inspection of the single-coil hardness tester is added (see Appendix B).

This document modifies and adopts ISO 16859-2:2015 Metallic Materials - Leeb Hardness Test

- Part 2: Verification and Calibration of the Testing Devices.

There are technical differences between this document and ISO 16859-2:2015, and the clauses

involved in these differences have been marked by a single vertical line (?) in the outer margin

of the document. The specific technical differences and the causes for these differences are as

follows:

Metallic Materials - Leeb Hardness Test - Part 2:

Verification and Calibration of Hardness Testers

1 Scope

This document specifies the methods for the direct inspection and indirect inspection of the Leeb hardness testers (hereinafter referred to as hardness testers) in accordance with GB/T

17394.1.

The direct inspection is suitable for checking whether the performance parameters of the hardness testers are within the specified range. The indirect inspection is to use the hardness

value of the reference Leeb hardness test blocks calibrated in accordance with GB/T 17394.3

to check the overall performance of the hardness testers in the direction of gravity. Indirect inspection can be independently applied to regular routine checks of in-use hardness testers.

This document is applicable to hardness testers equipped with D, S, E, D + 15, DL, C and G-

type impact devices.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only

versions with a specified date are applicable to this document. In terms of references without a

specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 4340.1 Metallic Materials - Vickers Hardness Test - Part 1: Test Method (GB/T 4340.1-2009, ISO 6507-1:2005, MOD)

GB/T 17394.1 Metallic Materials - Leeb Hardness Test - Part 1: Test Method

GB/T 17394.3-2022 Metallic Materials - Leeb Hardness Test - Part 3: Calibration of Reference

Test Blocks (ISO 16859-3:2015, MOD)

3 Terms and Definitions

This document does not have terms or definitions that need to be defined.

4 General Requirements

Before inspecting the hardness testers, they shall be checked to ensure that the hardness testers

are correctly installed and operated in accordance with the manufacturer's instructions.

5.3.2 The impact body shall consist of a ball head and a bracket. If the impact signal is read

through the electromagnetic induction coil, then, the impact body shall contain a permanent magnet.

5.3.3 For D, D + 15, S, E and C-type impact devices, the tip of the ball head shall protrude from

the grip by at least 0.3 mm. For G-type impact device, the tip of the ball head shall protrude from the grip by at least 0.6 mm. For DL-type impact device, the diameter of the gripped round

steel bar is (2.5 ± 0.1) mm, the length is (55.15 ± 0.1) mm and the tip of the ball head shall protrude from the grip by at least 2 mm.

5.4.1 In order to inspect the geometric dimensions and hardness of the ball head, randomly take

a sample from a batch of balls to test its diameter and hardness. This batch of balls shall be provided with a certificate of conformity or evidence of the required hardness. Balls subjected

to the hardness test shall be discarded.

5.4.2 The diameter of the ball head shall be determined by measuring different positions on the

ball to obtain the arithmetic mean of not less than three diameter values. The difference between