



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

GB/T 9450-2025

Replacing GB/T 9450-2005

**Steel — Determination of Case Hardening Depth After
Carburizing or Carbonitriding**

钢件渗碳淬火硬化层深度的测定和校核

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Foreword

This Document was drafted as per the rules specified in GB/T 1.1-2020 Directives for Standardization – Part 1: Rules for the Structure and Drafting of Standardizing Documents.

This Document replaced GB/T 9450-2005 Steels - Determination and Verification of the Depth of Carburized and Hardened Cases. Compared with GB/T 9450-2005, the major technical changes of this Document are as follows besides the structural adjustments and editorial modifications:

- a) Change the scope (see Clause 1 of this Edition; Clause 1 of the 2005 Edition);
- b) Change the provisions of the determination items (see Clause 4 of this Edition; Clause 4 of the 2005 Edition);
- change the determination principle (see Clause 5 of this Edition; 5.1 and 5.2 of the 2005 Edition);
- d) Add provisions of test equipment (see Clause 6 of this Edition);
- e) Change the provisions of specimens (see Clause 7 of this Edition; 5.3.1 and f) Change the test methods (see Clause 8 of this Edition; 5.3.3 of the 2005 edition);
- g) Change the provisions of result evaluation (see Clause 9 of this Edition; 5.4 of h) Change the content of the test report (see Clause 10 of this Edition; Clause 7 of i) Delete the clause of "verification" (see Clause 6 of the 2005 Edition).
- j) Add The interpolation method for case hardening depth (see Appendix A of this Edition).

Please note some contents of this Document may involve patents. The issuing agency of this Document shall not assume the responsibility to identify these patents.

This Document was proposed by and under the jurisdiction of National Technical Committee on Heat Treatment of Standardization Administration of China (SAC/TC 75).

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This Document was first-time published in 1988; first-time revised in 2005; and it is secondtime revised hereby.

1 Scope

This Document specifies the principles, test equipment, specimens, determination methods, result evaluation, and test report of the case hardening depth for steel.

This Document applies to workpieces that have been carburized or carbonitrided and then quenched, tempered and heat treated.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document.

3 Terms and Definitions

3.1 Case hardening depth; CHD

The vertical distance from the workpiece surface to the location with boundary hardness of 550 HV Vickers hardness (or equivalent Knoop hardness).

quenching. If measured after quenching and tempering, this shall be noted in the report.

4 Symbols and Abbreviated Terms

The symbols and abbreviated terms given in Table 1 apply to this Document.

5 Principle

The hardened layer depth is determined based on the hardness gradient along a cross section perpendicular to the workpiece surface.