



**National Standard of
the People's Republic Of China**

GB/T 225-2006 / ISO 642:1999

Replacing GB/T 225-1988

**Steel - Hardenability test by end quenching (Jominy
test)**

钢 淬透性的末端淬火试验方法 (Jominy 试验)

(ISO 642:1999, IDT)

Issued on: November 1, 2006

Implemented on: February 1, 2007

**Issued by: General Administration of Quality Supervision, Inspection
and Quarantine;**

Standardization Administration Committee.

Table of Contents

FOREWORD.....	2
1 SCOPE	4
2 NORMATIVE REFERENCES.....	4
3 PRINCIPLE	5
4 SYMBOLS AND DESIGNATIONS	5
5 FORM OF TEST PIECES AND THEIR PREPARATION	5
6 APPARATUS.....	8
7 HEATING AND QUENCHING OF TEST PIECE	10
8 PREPARATION FOR, AND MEASUREMENT OF, HARDNESS AFTER QUENCHING.....	11
9 EXPRESSION OF RESULTS.....	13
10 TEST REPORT	14
ANNEX A	16

Foreword

This Standard identically uses ISO 642:1999 *Steel - Hardenability test by end quenching (Jominy test)*.

For easy use, this Standard made the following editorial modifications to ISO 642:1999:

- a) modified “this International Standard” to “this Standard”;
- b) used “.” to replace “,” that was used as decimal point in ISO 642:1999;
- c) used corresponding national standards to replace the references in ISO 642:1999;
- d) deleted “Foreword” and “Bibliography” of ISO 642:1999;
- e) redrew Figure 1.

This Standard replaces GB/T 225-1988 *Steel - hardenability test by end quenching (Jominy test)*.

Compared with GB/T 225-1988, the main modifications in this Standard are as follows:

- a) the standard name was modified from “Steel - hardenability test by end quenching (Jominy test)” to “Steel - Hardenability test by end quenching (Jominy test)”;
- b) added “Foreword”;
- c) the insulation time of test piece under heating temperature from (30 ± 5) min to (30^{+5}_0) min (see Clause 4);
- d) the cooling water temperature was modified from $10^{\circ}\text{C} \sim 30^{\circ}\text{C}$ to $(20 \pm 5)^{\circ}\text{C}$ (see Clause 4);
- e) the height of the water jet when no test piece is placed was modified from (65 ± 5) mm to (65 ± 10) mm (see Clause 4);
- f) the test piece blank size of machining sampling was modified from 30 mm to $(25^{+0.5}_0)$ mm; the distance between test piece blank's axis to product surface was modified from (20 ± 5) mm to (20^{+5}_0) mm (5.1.2 b of Edition 1988, 5.1 of this Edition);

- g) the sampling method was modified FROM sampling method according to test material size TO forging and machining; deleted 5.1.5 and 5.1.6 of GB/T 225-1988; added sampling provisions on continuous casting products (see 5.1 of this Edition);
- h) the insulation time at normalizing temperature was modified from 30 min ~ 60 min to (30^{+5}) min (5.2.3 of Edition 1988, 5.3 of this Edition);
- i) deleted specific requirements for the roughness of the circumferential and end faces of the test piece in Figure 2 (see Figure 2);
- j) deleted the provisions on indentation point stagger arrangement; added the provisions on indentation point position accuracy ± 0.10 mm (8.3.1 b of Edition 1988, 8.4.1.2 of this Edition);
- k) self-tempering testing acid was modified to one type (8.1.3 of Edition 1988, 8.2 of this Edition);
- l) Annex A of GB/T 225-1988 was adjusted to Annex B; added informative Annex A, Annex C.

Annex A, Annex B and Annex C of this Standard are informative.

This Standard was proposed by China Iron and Steel Industry Association.

This Standard shall be under the jurisdiction of National Technical Committee on Steel of Standardization Administration of China.

Main drafting organizations of this Standard: Baoshan Iron and Steel Co., Ltd. Special Steel Branch, Metallurgical Industry Information Standards Institute, Beijing Shougang Special Steel Co., Ltd., Iron and Steel Research Institute.

Main drafters of this Standard: Li Xiaodong, Luan Yan, Yu Xinxia, Wang Guimin, Sun Shiqiu.

Versions of standard substituted by this Standard are:

- GB/T 225-1963, GB/T 225-1988.

Steel - Hardenability test by end quenching (Jominy test)

1 Scope

This Standard specifies a method for determining the hardenability of steel by end quenching (Jominy test) by using a test piece 25 mm in diameter and 100 mm long.

NOTE By agreement and for a defined field of application, the test described in this Standard may be replaced by the calculation of the Jominy curve in accordance with an accepted mathematical model (see annex C): In case of dispute, the test shall be carried out.

2 Normative references

The following standards contain the provisions which, through reference in this Standard, constitute the provisions of this Standard. For dated references, subsequent amendments (excluding corrections) or revisions do not apply to this Standard. However, the parties who enter into agreement based on this Standard are encouraged to investigate whether the latest versions of these documents are applicable. For undated reference documents, the latest versions apply to this Standard.

GB/T 230.1, *Metallic Rockwell hardness test - Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T)* [GB/T 230.1-2004, ISO 6508-1:1999, Metallic materials - Rockwell hardness test - Part 1: Test method (scales A, B, C, D, E, F, G, K, N, T), MOD]

GB/T 230.2, *Metallic Rockwell hardness test - Part 2: Verification and calibration of hardness testers (scales A, B, C, D, E, F, G, H, K, N, T)* [GB/T 230.2-2002, ISO 6508-2:1999, Metallic materials - Rockwell hardness test - Part 2: Verification and calibration of testing machines (scales A, B, C, D, E, F, G, K, N, T), MOD]

GB/T 230.3, *Metallic materials - Rockwell hardness test - Part 3: Calibration of reference blocks (scales A, B, C, D, E, F, G, H, K, N, T)* [GB/T 230.3-2002, ISO 6508-3:1999, Metallic materials - Rockwell hardness test - Part 3: Calibration of reference blocks (scales A, B, C, D, E, F, G, K, N, T), MOD]