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

中华人民共和国国家标准

GB/T 229—2007

Replace GB/T 229—1994

**Metallic materials – Charpy pendulum impact test
method**

金属材料 夏比摆锤冲击试验方法

**(ISO 148-1: 2006, Metallic material—Charpy pendulum impact test—Part 1:
Test method, MOD)**

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Foreword

This standard modification adopts International Standard ISO 148-1:2006 *Metallic Materials - Charpy Pendulum Impact Test - Part 1: Test Methods* (English version). This standard does the following modifications on international standards:

—In normative reference documents, add GB / T 2975 Steel and Steel Products Mechanical Performance Test Sampling Point and Sample Preparation, GB / T 8170 Rules for Rounding Off of Numerical Values and JJG 145 Charpy Impact Test Machine Verification Regulations and deleted the ISO 286-1 standard;

—Add U-notch specimens with the depth of 2 mm in 6.2 and add U-notched specimens with the width of 7.5 mm and 5 mm in Table 2;

—Add JJG 145 standard in 7.2;

—Add “it should check zero returning difference or no-load power consumption when empty punching of pendulum bob before test” in 8.1. Before test, it should check the span of anvil block, the anvil block span should be guaranteed within $40^{+0.2}$ mm.”

—Add “when using the cooling sample of gas medium, the test specimen should be with sufficient distance from the test specimen to the internal surface of cryogenic device and between the samples, the test specimen should be kept for 20 min at least at specified temperature in 8.2.2.”

—Add the capacity limit of the testing machine in 8.4;

—Add “the test specimen is not disconnected completely because the blow energy of testing machine is inadequate, the energy absorption can not be determined and the test report should note to conduct testing machine for test with $\times J$ ” in 8.5.

—Add test results in 8.8;

—Deleted the drawing B.3 in Annex B;

—Add Annex E.

This standard replaces GB / T 229-1994 *Metal Charpy Notched Impact Test Methods*.

This revision of standard does larger changes and additions on the following technical content:

—Reference standards

—Sample type

—Centring clamp;

—Lateral expansion value;

—Fracture morphology;

—The impact absorption energy - temperature curve and transition temperature;

—Rounding off of numerical values for performance measurement results;

—Impact test under high and low environmental.

Annex A, B, C, D and E of this Standard is informative annex.

This Standard is proposed by China Iron and Steel Association.

This Standard is under the jurisdiction of National Technical Committee on Iron and Steel of Standardization Administration of China

Chief draft units of this Standard: Shougang Company Limited, Central Iron and Steel Research Institute, Shidai Shijin Group Corporation, Dalian Xiwang Equipment Co., Ltd, Shenzhen Sans Material Test Instrument Co., Ltd, Beijing NCS Analytical Instruments Co. Ltd, China Metallurgical Information & Standardization Institute, Shanghai Material Institute and Wuchang

Shipyard.

Chief drafters of this Standard: Zhu Linmao, Gao Yifei, Liu Weiping, Liu Juan, Yin Jianjun, An Jianping, Zhang Zhuang, Wang Ping, Dong Li, Wang Bin and Yang Xiaomin.

History editions replaced by this Standard as following:

— GB/T 229-1984, GB/T 229-1994.

Metallic materials – Charpy pendulum impact test method

1 Scope

This Standard specifies the Charpy pendulum impact (V-notch and U-notch) test method for determining the energy absorbed in an impact test of metallic materials.

This Standard does not apply to instrumented impact testing, which is specified in GB/T 19748-2005 *Steel—Charpy V-notch pendulum impact test—Instrumented test method*.

2 Normative References

The articles contained in the following documents have become this standard when they are quoted herein. For the dated documents so quoted, all the modifications (excluding corrections) or revisions made thereafter shall not be applicable to this Standard. For the undated documents so quoted, the latest editions shall be applicable to this Standard.

GB/T 3808 Verification of pendulum-type impact testing machines (GB/T 3808-2002, ISO 148-2: 1998, MOD)

GB/T 2975 Steel and steel products--Location and preparation of test pieces for mechanical testing (GB/T 2975-1998, eqv ISO 377: 1997)

GB/T 8170 Rules for rounding off of numerical values

JJG 145 Verification Regulation of Pendulum Impact Testing Machines

3 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Energy

3.1.1

actual initial potential energy (potential energy)

K_p

Value measured directly to test machine.

3.1.2

absorbed energy

K

Energy required to break a test piece with a pendulum impact testing machine, after correction for friction

NOTE The letter V or U is used to indicate the notch geometry, the number 2 or 8 is used as a subscript to indicate striker radius, for example KV_2 .

3.2 Test piece

With the test piece placed in the test position on the supports of the machine, the following

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