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भारतीय मानक ब्यूरो

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भारतीय मानक मसौदा

धात्विक सामग्री — चार्पी वी-नॉच पेंडुलम संघट्ट परीक्षण — यंत्र परीक्षण विधि

(*IS 17416 का पहला पुनरीक्षण*)

Draft Indian Standard

Metallic Materials — Charpy V-Notch Pendulum Impact Test — Instrumented Test Method

(*First Revision of IS 1429*)

ICS 77.040.10

Mechanical Testing of Metals Sectional Committee, MTD 03	Last date of comment: 12/11/2023

NATIONAL FOREWORD

This draft standard (First Revision) is identical to ISO 14556 : 2023 'Metallic materials — Charpy V-notch pendulum impact test — Instrumented test method' issued by the International Organization for Standardization (ISO), and subject to its finalization, is to be adopted by the Bureau of Indian Standards on the recommendation of the Mechanical Testing of Metals Sectional Committee and approval of the Metallurgical Engineering Division Council.

This standard was originally published in 2020. The first revision of this standard has been undertaken to align with the latest version ISO 17416 : 2023 to harmonize it with the latest developments that have taken place at international level.

This edition cancels and replaces the previous edition (ISO 14556 : 2015), which has been technically revised.

The main changes are as follows:

1) in Clause 1, a sentence was added to state that results shall not be directly used in design calculations;
2) in Clause 4, the symbol *K*p (potential energy of the pendulum hammer) was added; the symbol *KV* (absorbed energy) was changed to K_V;
3) in 6.1 and D.2.1, the application of the "dynamic force adjustment" was added;
4) in 6.2.3, a generic statement about the stiffness of the support block was removed;
5) in 6.2.5, the possibility of directly determining characteristic values from printed graphs was removed;
6) in Clauses 7 and 8, statements referring to Annex D when testing miniature test pieces were added;
7) in 9.2, the characteristic values of force that can be evaluated from curves of Type A and B were changed;
8) in 9.3, it is now specified that F_m is determined after general yield;

9) in Figure 2, force-displacement curves in columns 3 (actual recording) were replaced with better-quality ones;
10) in Clause 10, a requirement to report the type of test piece (standard, subsize, or miniature) was added;
11) in Annex A, it was clarified that those shown are examples of instrumented strikers;
12) in Annex D, alternative miniature test pieces were removed;
13) in D.2.1, the deviation range between W_t and K_V was changed from ±0.5 J to ±10 % of K_V;
14) in D.3.1, dimensions for the standard miniature test piece were added; test temperature requirements were removed; the test report section was removed;
15) in the Bibliography, a new reference, [8], was added.

The text of ISO standard has been approved as suitable for publication as in Indian Standard without deviations. Certain terminologies and conventions are, however, not identical with those used in Indian Standard. Attention is especially drawn to the following:

a) Wherever the words `International Standard' appear referring to this standard, it should be read as `Indian Standard'

b) Comma (,) has been used as a decimal marker while in Indian Standards the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exists. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the edition indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 148-1 : 2016 Metallic materials — Charpy pendulum impact test — Part 1: Test method	IS 1757 (Part 1) : 2020 / ISO 148-1 : 2016 Metallic Materials — Charpy Pendulum Impact Test Part 1 Test Method (*Fourth Revision*)	Identical
ISO 148-2 : 2016 Metallic materials — Charpy pendulum impact test — Part 2: Verification of testing machines	IS 1757 (Part 2) : 2020 / ISO 148-2 : 2016 Metallic Materials - Charpy Pendulum Impact Test Part 2 Verification of Testing Machines (*Fourth Revision*)	Identical

In reporting the result of a test or analysis made in accordance with this standard, is to be rounded off, it shall be done in accordance with IS 2 : 2022 'Rules for rounding off numerical-values (*second revision*)'.

The scope of the standard is as follows:

SCOPE

This document specifies a method of instrumented Charpy V-notch pendulum impact testing on metallic materials and the requirements concerning the measurement and recording equipment.

With respect to the Charpy pendulum impact test described in ISO 148-1, this test provides further information on the fracture behaviour of the product under impact testing conditions.

The results of instrumented Charpy test analyses are not directly transferable to structures or components and shall not be directly used in design calculations or safety assessments.

NOTE General information about instrumented impact testing can be found in References [1] to [5].

The complete document/text of ISO 14556 : 2023 'Metallic materials — Charpy V-notch pendulum impact test — Instrumented test method' may be made available, on request to:

संजीव मैनी **/ Sanjiv Maini**
वरिष्ठ निदेशक, वैज्ञानिक 'एफ' एवं प्रमुख **/ Senior Director, Scientist 'F' & Head**
धातुकर्म अभियांत्रिकी विभाग **/ Metallurgical Engg. Department**
भारतीय मानक ब्यूरो **/ Bureau of Indian Standards,**
मानक भवन, नई दिल्ली **/ Manak Bhavan, 9, B.S.Z. Marg,**
New Delhi-110002
E-mail: mtd@bis.gov.in, mtd24@bis.gov.in
Tel: + 91 11 23231085