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Standards

Irish Standard  
I.S. EN ISO 148-3:2008

# Metallic materials - Charpy pendulum impact test - Part 3: Preparation and characterization of Charpy V-notch test pieces for indirect verification of pendulum impact machines (ISO 148-3:2008)

## I.S. EN ISO 148-3:2008

*Incorporating amendments/corrigenda issued since publication:*

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Údarás um Chaighdeáin Náisiúnta na hÉireann		

English Version

**Metallic materials - Charpy pendulum impact test - Part 3:  
Preparation and characterization of Charpy V-notch test pieces  
for indirect verification of pendulum impact machines (ISO 148-  
3:2008)**

Matériaux métalliques - Essai de flexion par choc sur  
éprouvette Charpy - Partie 3: Préparation et caractérisation  
des éprouvettes Charpy à entaille en V pour la vérification  
indirecte des machines d'essai mouton-pendule (ISO 148-  
3:2008)

Metallische Werkstoffe - Kerbschlagbiegeversuch nach  
Charpy - Teil 3: Vorbereitung und Charakterisierung von  
Charpy-V-Referenzproben für die indirekte Prüfung der  
Prüfmaschinen (Pendelschlagwerke) (ISO 148-3:2008)

This European Standard was approved by CEN on 19 November 2008.

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## **Foreword**

This document (EN ISO 148-3:2008) has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals" in collaboration with Technical Committee ECISS/TC 1 "Steel - Mechanical testing" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2009, and conflicting national standards shall be withdrawn at the latest by June 2009.

This document, together with EN ISO 148-2:2008, supersedes EN 10045-2:1992.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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### **Endorsement notice**

The text of ISO 148-3:2008 has been approved by CEN as a EN ISO 148-3:2008 without any modification.



I.S. EN ISO 148-3:2009

# INTERNATIONAL STANDARD

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## **Metallic materials — Charpy pendulum impact test —**

### **Part 3:**

Preparation and characterization of Charpy V  
reference test pieces for verification of test  
machines

*Matériaux métalliques — Essai de flexion par choc sur éprouvette Charpy —*

*Partie 3: Préparation et caractérisation des éprouvettes de référence  
Charpy V pour la vérification des machines d'essai (mouton-pendule)*



Reference number  
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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 148-3 was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 4, *Toughness testing*.

ISO 148 consists of the following parts, under the general title *Metallic materials — Charpy pendulum impact test*:

- *Part 1: Test method*
- *Part 2: Verification of test machines*
- *Part 3: Preparation and characterization of Charpy V reference test pieces for verification of test machines*

Annex A of this part of ISO 148 is for information only.

## Introduction

The suitability of a pendulum impact testing machine for acceptance testing of metallic materials usually has been based on a calibration of its scale and verification of compliance with specified dimensions, such as the shape and spacing of the anvils supporting the specimen. The scale calibration is commonly verified by measuring the mass of the pendulum and its elevation at various scale readings. This procedure for evaluation of machines had the distinct advantage of requiring only measurements of quantities which can be traced to national standards. The objective nature of these traceable measurements minimized the necessity for arbitration regarding the suitability of the machines for material acceptance tests.

However, sometimes two machines that had been evaluated by the direct-verification procedures described above, and which met all dimensional requirements, were found to give significantly different impact values when testing test pieces of the same material. This difference was commercially important when values obtained using one machine met the material specification, while the values obtained using the other machine did not.

To avoid such disagreements, some purchasers of materials added the requirement that all impact machines used for acceptance testing of material sold to them must be indirectly verified by testing reference test pieces supplied by them. A machine was considered acceptable only if the values obtained using the machine agreed, within specified limits, with the value furnished with the reference test pieces. Successful experience in the use of reference test pieces led to the requirement in ISO 148-2 that indirect verification must be performed using reference test pieces in addition to direct verification. Many national standards and codes also require indirect verification using reference test pieces: for example, EN 10045-2:1992, *Metallic materials — Charpy impact test — Part 2: Verification of the testing machine (pendulum impact)*, and ASTM E 23:1994b, *Test methods for notched bar impact testing of metallic materials*, require the use of notched test pieces. The purpose of this part of ISO 148 is to specify the requirements, preparation and methods of qualifying these reference test pieces by means of a reference machine. The indirect verification of the reference machine is carried out with reference test pieces which have been certified by a third party. As information, annex A shows this approach schematically.

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