

JIS

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS Z 2242 : 2018

(JISF)

**Method for Charpy pendulum
impact test of metallic materials**

ICS 77.040.10

Reference number : **JIS Z 2242 : 2018 (E)**

Z 2242 : 2018

Date of Establishment: 1952-03-08

Date of Revision: 2018-08-20

Date of Public Notice in Official Gazette: 2018-08-20

Investigated by: Japanese Industrial Standards Committee
Standards Board for ISO area
Technical Committee on Metal and Inorganic
Materials

JIS Z 2242:2018, First English edition published in 2019-02

Translated and published by: Japanese Standards Association
Mita MT Building, 3-13-12, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 2019

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

HT/AT

PROTECTED BY COPYRIGHT

Contents

	Page
Introduction	1
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	4
5 Principles of the test	5
6 Test pieces	6
6.1 General	6
6.2 Notch geometry	6
6.3 Tolerance of the test pieces	6
6.4 Preparation of test pieces	8
6.5 Marking of the test pieces	8
7 Test equipment	8
7.1 General	8
7.2 Installation and verification	9
7.3 Striker	9
8 Test procedure	9
8.1 General	9
8.2 Friction measurement	9
8.3 Test temperature	10
8.4 Test piece transfer	11
8.5 Exceeding machine capacity	11
8.6 Incomplete fracture	12
8.7 Test piece jamming	12
8.8 Post-fracture inspection	12
9 Test report	12
9.1 Mandatory information	12
9.2 Optional information	13
Annex A (informative) Self-centring tongs	14
Annex B (normative) Determination of lateral expansion	15
Annex C (normative) Determination of fracture appearance	19
Annex D (normative) Determination of transition curve, fracture transition temperature and energy transition temperature	23

Annex E (informative) Measurement uncertainty of an absorbed energy value, <i>K</i>	26
Annex JA (informative) Comparison table between JIS and corresponding International Standard	35

Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by The Japan Iron and Steel Federation (JISF) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS Z 2242**:2005 is replaced with this Standard.

This **JIS** document is protected by the Copyright Law.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

Method for Charpy pendulum impact test of metallic materials

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 148-1:2016**, Edition 3; though some changes have been made for the purpose of facilitating smooth citation of this Standard by material standards.

The vertical lines on both sides and dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JA.

1 Scope

This Standard specifies the Charpy (V-notch and U-notch) pendulum impact test method for determining the energy absorbed in an impact test of metallic materials. This Standard does not cover instrumented impact testing, which is specified in **JIS B 7755**.

Annexes B and C are based on **ASTM E23** and are used with the permission of ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, USA.

NOTE The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 148-1:2016 *Metallic materials—Charpy pendulum impact test—Part 1: Test method* (MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS B 7722 *Metallic materials—Charpy pendulum impact test—Verification of testing machines*

NOTE Corresponding International Standard: ISO 148-2 *Metallic materials—Charpy pendulum impact test—Part 2: Verification of testing machines* (IDT)

JIS G 0202 *Glossary of terms used in iron and steel (Testing)*

JIS Z 8401 *Guide to the rounding of numbers*