AS 1330—2004
Reconfirmed 2017

AS 1330—2004

Australian Standard™

Metallic materials—Drop weight tear test for ferritic steels

STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee MT-006, Mechanical Testing of Metals. It was approved on behalf of the Council of Standards Australia on 15 October 2004.
This Standard was published on 1 November 2004.

The following are represented on Committee MT-006:

Australian Railway Association
Bureau of Steel Manufacturers of Australia
CSIRO National Measurements Laboratory
CSIRO Telecommunications and Industrial Physics
Institute of Materials Engineering Australia Limited
National Association of Testing Authorities Australia

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about Standards can be found by visiting the Standards Web Shop at www.standards.com.au and looking up the relevant Standard in the on-line catalogue.

Alternatively, the printed Catalogue provides information current at 1 January each year, and the monthly magazine, *The Global Standard*, has a full listing of revisions and amendments published each month.

Australian Standards™ and other products and services developed by Standards Australia are published and distributed under contract by SAI Global, which operates the Standards Web Shop.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to the Chief Executive, Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001.

This Standard was issued in draft form for comment as DR 04353.

STANDARDS AUSTRALIA

RECONFIRMATION
OF
AS 1330—2004
Metallic materials—Drop weight tear test for ferritic steels

RECONFIRMATION NOTICE

Technical Committee MT-009 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 20 March 2017.

The following are represented on Technical Committee MT-009:

Australasian Institute of Surface Finishing
Australian Chamber of Commerce and Industry
Australian Industry Group
Australian Steel Institute
Bureau of Steel Manufacturers of Australia
Galvanizers Association of Australia
Galvanizing Association of New Zealand
New Zealand Metal Roofing Manufacturers

NOTES

Australian Standard™

Metallic materials—Drop weight tear test for ferritic steels

Originated as AS 1330—1974
Second edition 2004.

Published by Standards Australia International Ltd GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 6342 1

PREFACE

This Standard was prepared by Standards Australia Committee MT-006, Mechanical Testing of Metals to supersede AS 1330—1974, *Method for the dropweight tear test of ferritic steels.*

The objective of this revision is to expand the range of pipe sizes and to revise the test procedure used in this test method.

During the preparation of this Standard, cognizance was taken of the following Standards:

ASTM
E436 Standard test method for drop-weight tear tests of ferritic steels

EN
10274 Metal materials—Drop weight tear test

API
5L3 Recommended practice for conducting drop-weight tear tests on line pipe

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

CONTENTS

Page

1 SCOPE 4
2 DEFINITIONS 4
3 SYMBOLS AND ABBREVIATIONS 5
4 APPARATUS 5
5 TEST PIECE 7
6 TEST PROCEDURE 9
7 TEST EVALUATION 10
8 REPORT 12
9 PRECISION 12

APPENDICES
A ALTERNATIVE PROCEDURE FOR TESTING THICK MATERIALS 13
B METHODS FOR CALCULATING THE PERCENTAGE SHEAR AREA FOR FERRITIC MATERALS 14

STANDARDS AUSTRALIA

Australian Standard
Metallic materials—Drop weight tear test for ferritic steels

1 SCOPE

This Standard specifies the method for conducting a drop weight tear test for carbon steel, low alloy steel, and similar materials up to 19 mm thickness. In particular it is intended for line-pipe, or plate intended for line-pipe, 300 mm diameter or greater, and excludes the testing of weld metal. The test is identified as DWTT.

NOTE: Difficulty may be experienced in applying this test to material below 5 mm thickness.

This test may be used to determine the appearance of propagating fractures in plain carbon or low alloy pipe steels (yield stress less than 800 MPa) over the temperature range where the fracture mode changes from brittle (cleavage or flat) to ductile (shear or oblique).

NOTE: The test should be used for the following purposes:

(a) For research and development, to study the effect of metallurgical variables such as composition or heat treatment, or of fabricating operations on the mode of fracture propagation.

(b) For evaluation of materials for service, to indicate the suitability of materials for service applications by indicating fracture propagation behaviour at the service temperature(s).

(c) For information or specification purposes, to provide a manufacturing quality control technique when suitable correlations have been established with service behaviour.

2 DEFINITIONS

For the purpose of this Standard the definitions below apply.

2.1 Anvil

That part of the testing machine used to support the test piece during impact.

2.2 Cleavage area

The area of the fractured surface of the test piece that has broken in a brittle manner and is normally identified by a shiny crystalline appearance.

2.3 Ferritic steel

Steel in which the ferritic state is stable at all service temperatures.

2.4 Fracture appearance transition temperature (FATT)

The temperature required to cause a specified percentage of the fracture to occur by shear. For example, this would be expressed as follows for 40% specified percentage of shear fracture at –20°C:

FATT (40) = –20°C

2.5 Hammer

The part of the test machine which impacts the test piece.

2.6 Sample

A portion of material or a group of items selected from a batch or group by a sampling procedure.

