AS 1330—2004
Reconfirmed 2017

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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.
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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

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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.

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The following are represented on Technical Committee MT-009:

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NOTES

Australian Standard™

Metallic materials—Drop weight tear test for ferritic steels

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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.

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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.